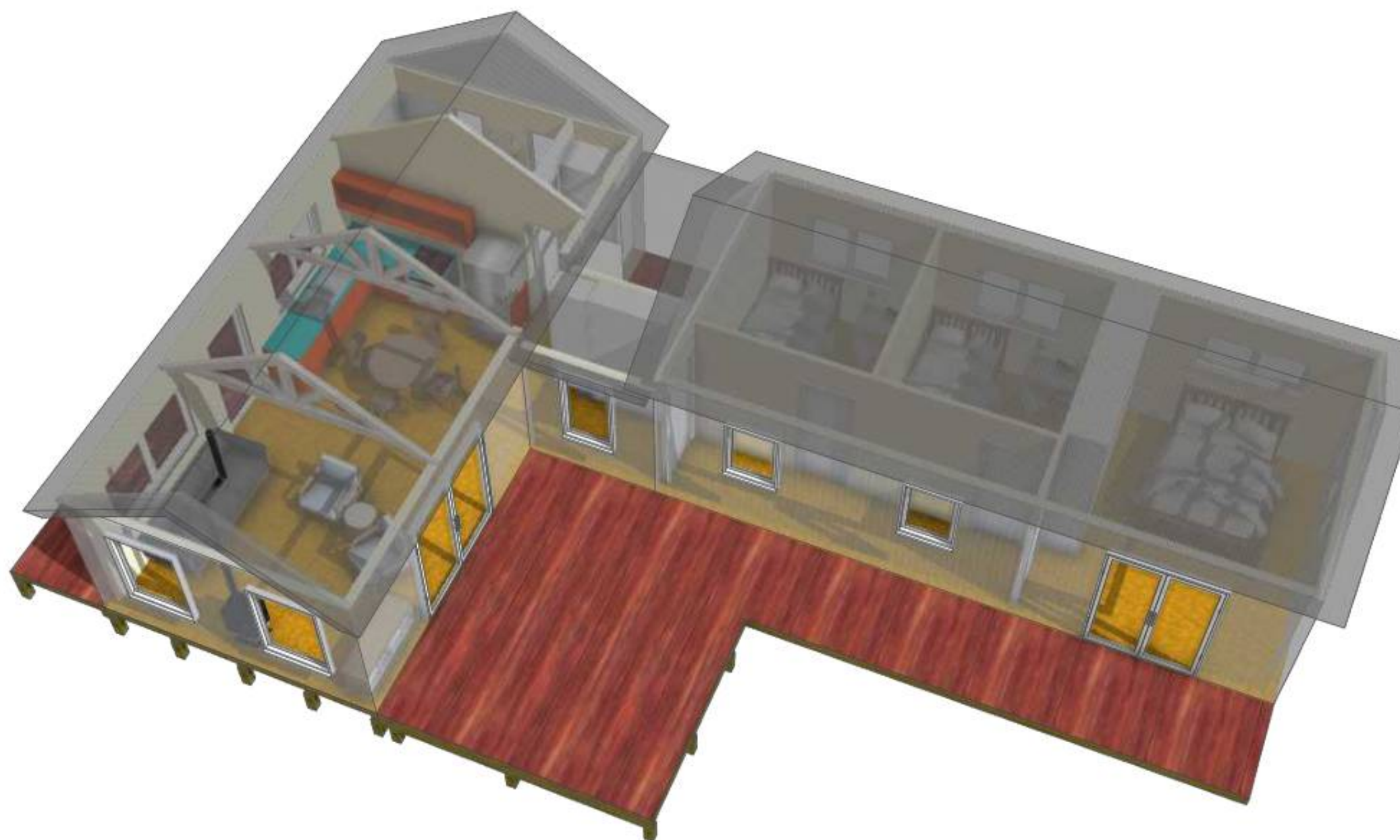




Sheet Number	Sheet Name
Sheet 01	Start
Sheet 02	General Notes
Sheet 03	Location and neighbours
Sheet 04	location detail
Sheet 05	location cad, waste water
Sheet 06	SitePlan Waste/storm water
Sheet 07	Heights and Contour lines
Sheet 08	Floorplan CAD
Sheet 09	Elevations CAD building height
Sheet 10	GIB bracing GRID
Sheet 11	Foundation
Sheet 12	Top view CAD
Sheet 13	Sections CAD
Sheet 14	Roof insulation and ventilation-Living Area
Sheet 15	roof bracing
Sheet 16	Roof ventilation parts
Sheet 17	Bedroom ceiling insulation
Sheet 18	Window install , wall details
Sheet 19	Plumbing Plan
Sheet 20	little roof insulation and ventilation
Sheet 21	Electric Plan
Sheet 22	windows direct fix
Sheet 23	pipe penetration
Sheet 24	risk matrix, H1/AS calc.
Sheet 25	wall insulation and cladding
Sheet 26	window schedule
Sheet 27	subfloor framing details
Sheet 28	compliance summary table
Sheet 29	gib bracing details
Sheet 30	pile foundation
Sheet 31	cladding and roof fixing
Sheet 32	flue flashing details roof
Sheet 33	roof and wall flashings general
Sheet 34	Ridge flashing with vent



DesignWorx



LBP.:106952

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ate Created: February 4, 2025
ate modified: September 15, 2025

General Notes

Design to NZS3604:2011

Wet wall linings

10 mm Aqualine LININGS fixed in accordance with the manufactures recommendations to new bathroom.

Finish with Bathroom paint after stopping .

Wall Framing and interior lining

Up to 2.4 m high internal 90 x 45 H1.2 at 600 crs

Up to 2.4 m high external 90 x 45 H1.2 at 400 crs

Dwangs at 800 max crs , SG8 H1.2 treated framing (16-18% MC)

Lining 10 mm Standard plasterboard for walls ,

13 mm standard Gib for ceilings

10 mm Aqua Gib to bathroom/Laundry walls

13 mm Aqua Gib to Bathroom/Laundry walls

fixed in accordance with manufactures recommendations

Insulation (climate Zone 3)

Minimum Wall insulation R2.0

Roof insulation R6.6 for new builds (R3.3 for existing)

Windows R0.46 or higher

Slab on ground R0.46 or higher

Other floors R2.5 new builds (R1.3 for existing)

Insulation must be installed in accordance with NZS 4246:2016

Kitchen surfaces

All kitchen surfaces shall comply with E3/VM1
Surfaces shall be impervious and easy to clean.

They shall be resistant for fungal growth

All joints or gaps shall be sealed with silicone

GENERAL NOTES

DIMENSIONS NOTED ON THESE DRAWINGS ARE FROM STRUCTURAL SURFACES UNLESS OTHERWISE INDICATED. ALL DIMENSIONS ARE GIVEN IN MILLIMETERS.

The Contractor is responsible for the correct setting out of the building on site. Boundary pegs are to be located, and setting out points are to be verified on site against information provided prior. All levels/dimensions are to be confirmed onsite before commencing any work and any discrepancies are to be brought to the attention of the designer.

Where available, Engineering drawings are to be read in conjunction with this documentation, any discrepancies to be reported to The Designer

"All construction activities shall comply with NZBC Clause F5 – Construction and Demolition Hazards. The site will be fenced and secured during works, excavations and fall hazards protected, and scaffolding erected to WorkSafe NZ requirements. Appropriate signage, barriers, and access controls will be provided to protect the public and workers."

General Rules for bathrooms, Laundry and other wet rooms

Use Wash and wear or other suitable bathroom paint (Resene Space coat)

All timber shall be solid or ply for skirting, architraves or units

Don't use MdF

In New Zealand, extractor fans in kitchens and bathrooms must meet certain requirements to comply with the Healthy Homes Standards. These requirements include:

Size: Fans and ducting must be at least a certain diameter or have a certain exhaust capacity
Direction: Fans must vent air outside, not back into the room

Maintenance: Fans and ducting should be regularly serviced and tested

Kitchens

Fans installed after July 1, 2019 must have a minimum diameter of 150 mm or an exhaust capacity of at least 50 liters per second
Fans must vent outside, not back into the kitchen

Bathrooms

Fans installed after July 1, 2019 must have a minimum diameter of 120 mm or an exhaust capacity of at least 25 liters per second
Fans must vent outside, not back into the bathroom

FOUL WATER/SANITARY PLUMBING

SANITARY DRAINAGE SYSTEM TO NEW ZEALAND
BUILDING CODE CLAUSE G13/AS1 (FOUL WATER)

FIXTURE DISCHARGE PIPE SIZES AND GRADIENT		
SANITARY FIXTURE OR APPLIANCE	DISCHARGE PIPE (mm)	MINIMUM GRADIENT
Basin/Vanity	40ø	1:40
Shower	40ø	1:40
Water Closet Pan	100ø	1:40
Bath	40ø	1:40
Sink	40ø	1:40

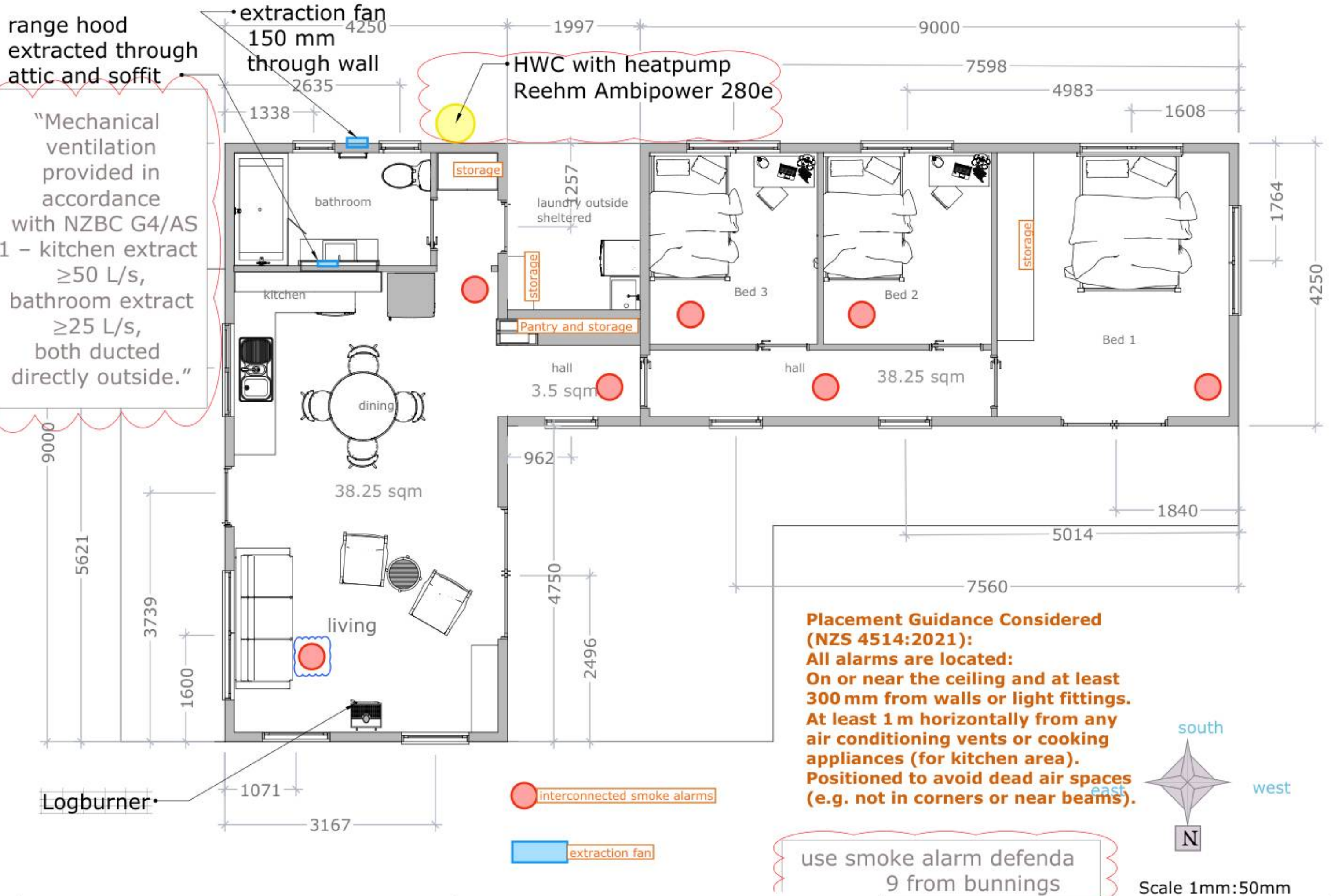
Table 1: Required treatment levels for different end uses of radiata pine and Douglas fir in timber-framed buildings.			
Timber to be used for	Minimum required treatment	Timber to be used for	Minimum required treatment
External timber use			
deck jack-studs supported clear of ground	H3.2	deck piles in ground	H5
exposed subfloor framing	H3.2	piles	H5
veranda posts supported clear of ground	H3.2	poles	H5
		veranda posts in ground	H5
Clear of ground			
exterior plywood unpainted or used as bracing	H3 CCA	balcony barrier exposed	H3.2
exterior plywood painted	H3 LOSP	roof framing weather exposed	H3.2
cladding or exterior trims painted	H3.1	wall framing weather exposed	H3.2
cladding or exterior trims unpainted, clear finished or stained	H3.2	shingles/shakes	H3.2
deck joists/bearers	H3.2	fence rails and palings	H3.2
decking	H3.2	fence posts	H4
Framing timbers ^{1,2}			
external wall framing direct-fix cladding	H1.2	roof framing – low slope/skillion	H1.2
external wall framing E2/AS1 cavity cladding	H1.2	roof framing – roof space including trusses and ceiling battens	H1.2
balcony wall framing enclosed	H1.2	roof sarking timber	H1.2
parapet framing	H1.2	cavity battens	H3.1
interior wall framing including double top plates	H1.2	roof sarking plywood membrane roof	H3 CCA
enclosed subfloor framing	H1.2	enclosed cantilevered floor joists	H3.2
Interior timbers			
plywood	untreated	joinery (interior)	untreated
furniture	untreated	flooring	H1.2
finishing timbers	untreated	window reveals to aluminium windows	H3.1
Note: 1. Douglas fir may be used untreated on low-risk design buildings as defined in Amendment 7 to B2/AS1. 2. H1.2 boron-treated Douglas fir may be used in all framing applications where H1.2 boron-treated radiata pine is permitted.			

(Adapted from NZS 3602:2003 Timber and wood-based products for use in buildings with the permission of Standards New Zealand.)

Specific for this build:

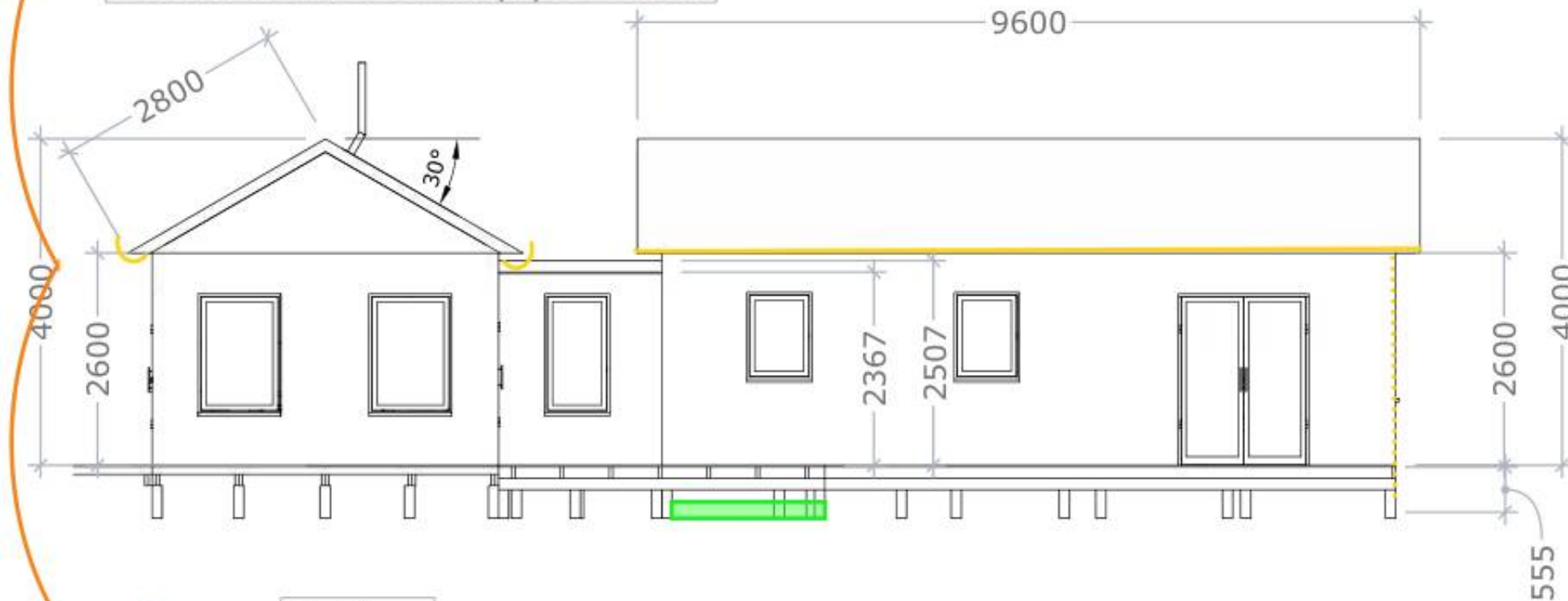
Metro Tiny Rad Leg fireplace
819866 RINNAI HOT WATER HEAT PUMP
RHPN361A275E20
Windows : Aluplast uPVC joinery,
with BRANZ approval
(Appraisal No. 1005 August 2019)
Cladding direct fix) and roof :
- CGI Corrugate .40 COLORSTEEL®
MaxamTM
Contour Quarter Round Gutter .55
COLORSTEEL®
MaxamTM
80mm Round Downpipes





Contour Quarter Round Gutter .55 COLORSTEEL®
Maxam™

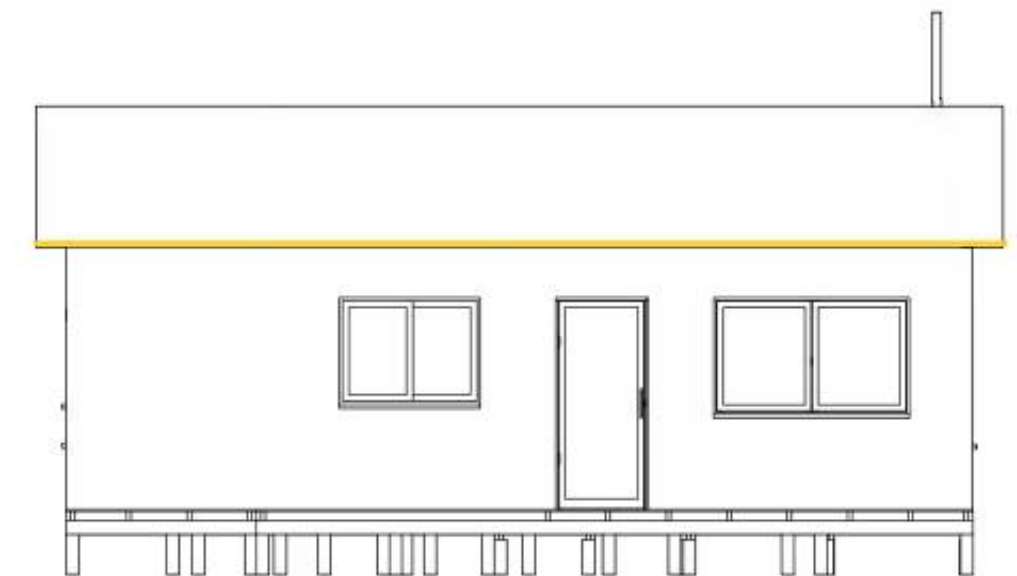
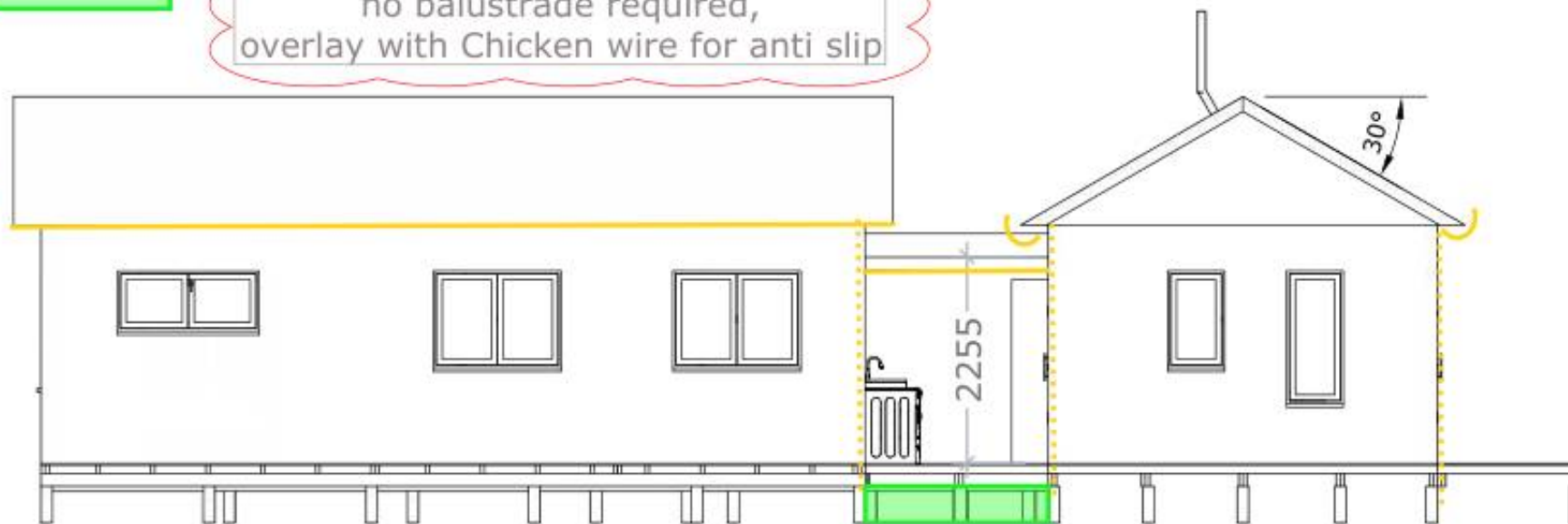
9600



Downpipe

Building height from Ground level 4.65 m
FFL to ground 560 mm

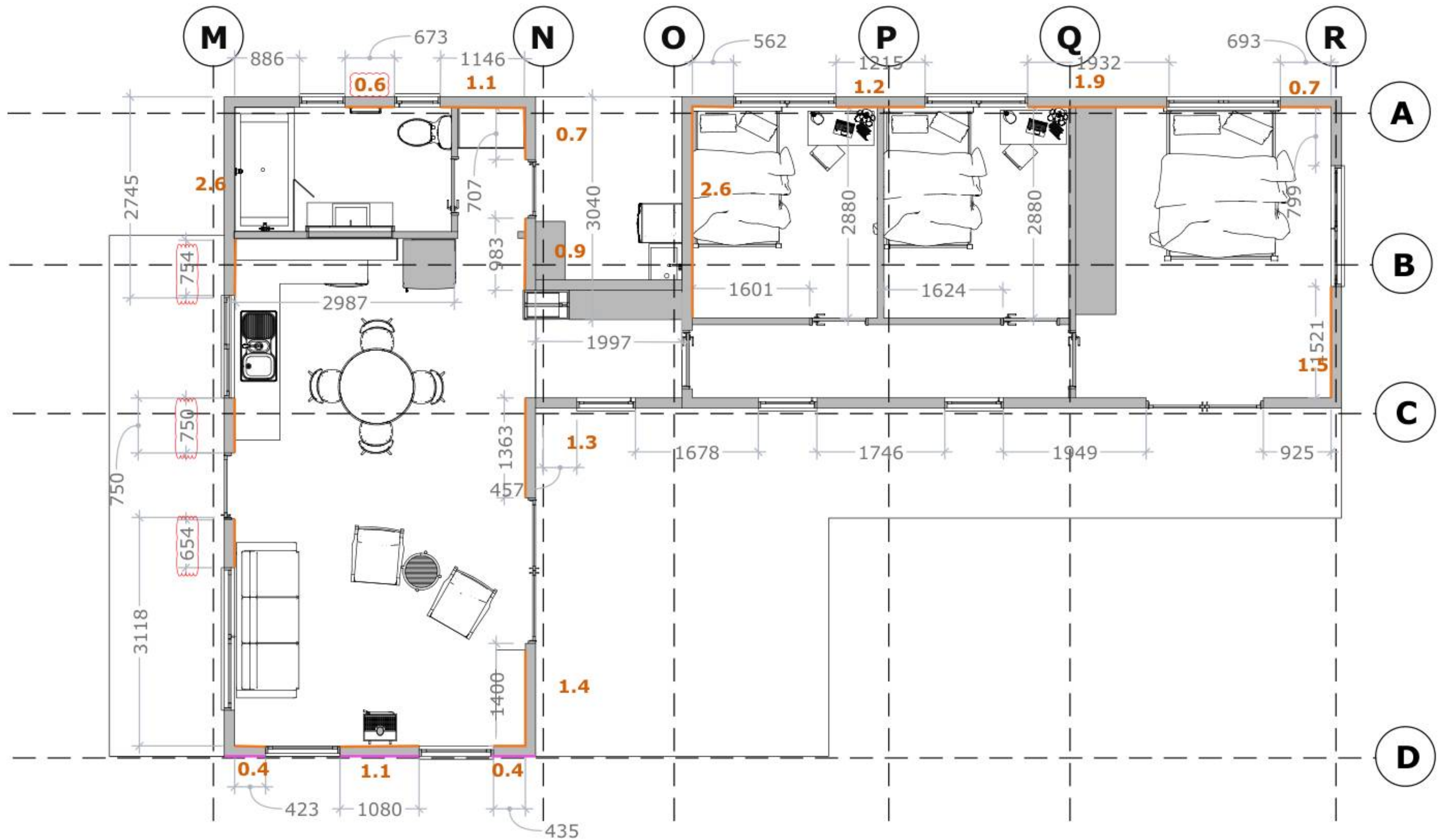
2 Step 280 tread, 180 mm raiser,
no balustrade required,
overlay with Chicken wire for anti slip



Left

Scale 1 mm:75 mm

GIB EzyBrace calculation in Specifications



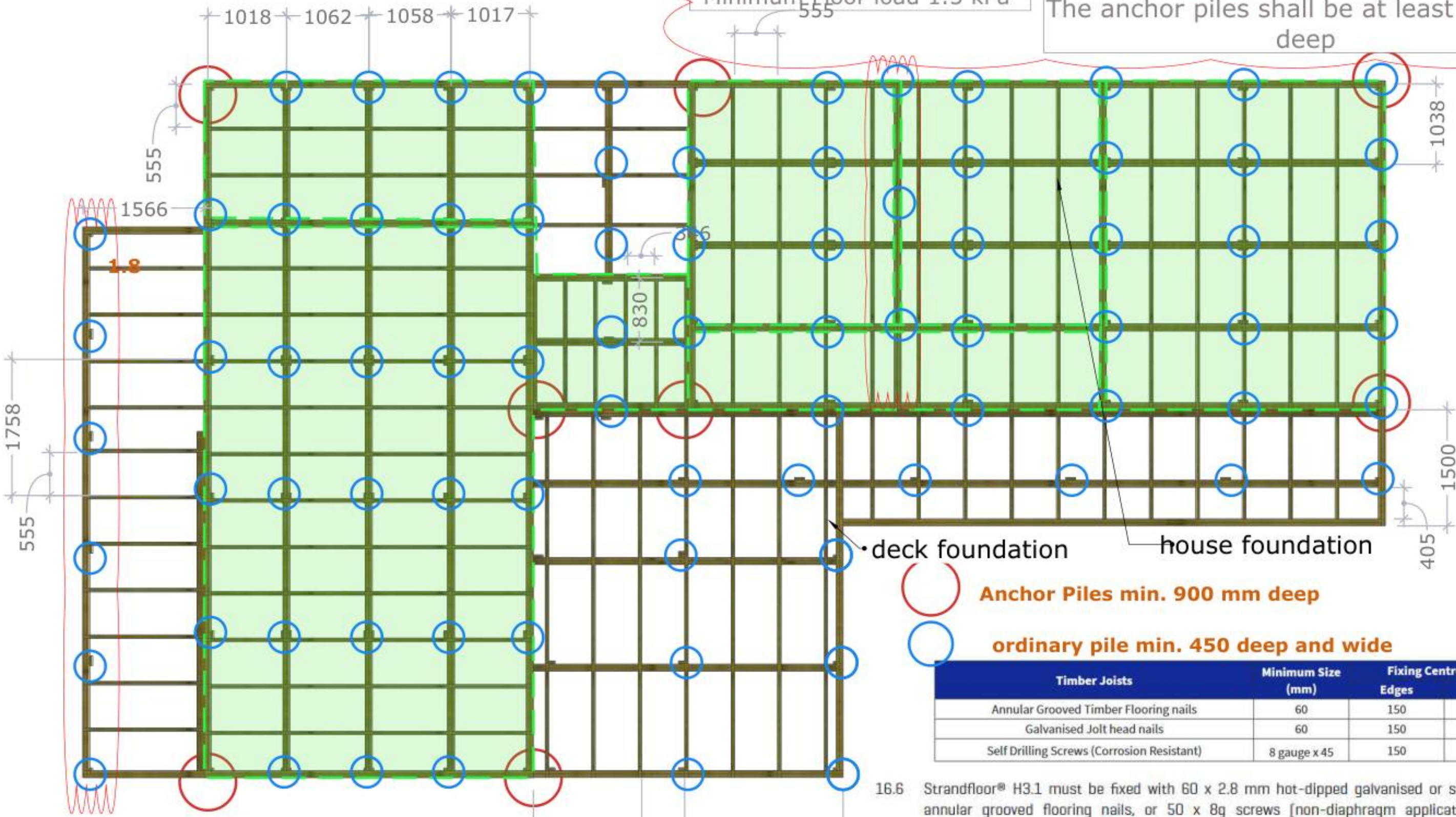
Bracing GIB BL1-H
X.xx Length of bracing element

7 mm structural ply to one side

All bearers 140 x 90 H3.2
All deck joists 140 x 45 H3.2
All house joists 90 x 45 H3.2

All Piles 125 x 125 mm H5
Concrete for piles min. 25 MpH
Minimum Floor load 1.5 kPa

The holes for the piles shall go through the organic matter to solid ground (clay or stone)
The anchor piles shall be at least 900 mm deep



deck foundation house foundation

Anchor Piles min. 900 mm deep

ordinary pile min. 450 deep and wide

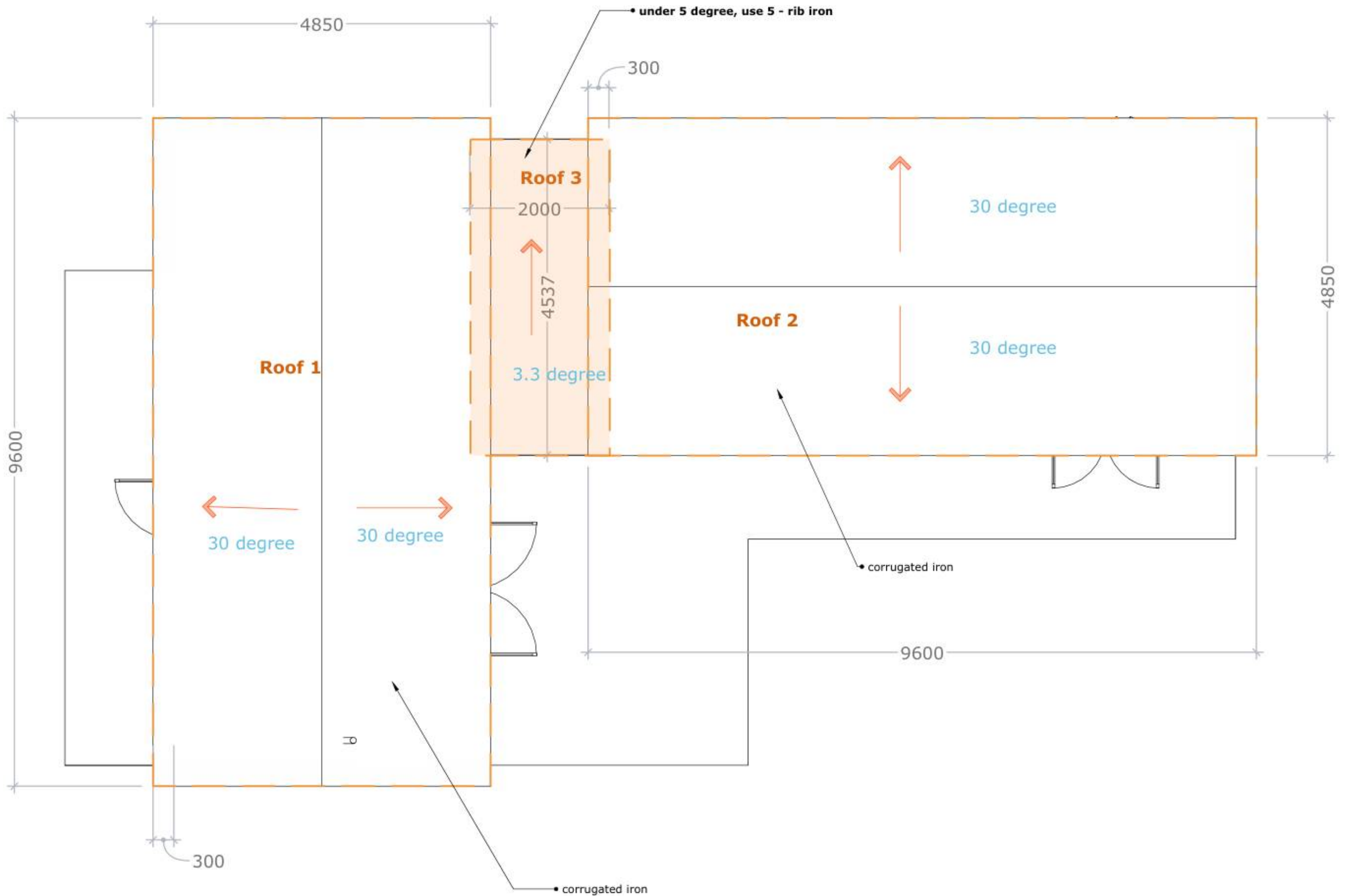
Timber Joists	Minimum Size (mm)	Fixing Centres (mm)	
		Edges	Centres
Annular Grooved Timber Flooring nails	60	150	300
Galvanised Jolt head nails	60	150	300
Self Drilling Screws (Corrosion Resistant)	8 gauge x 45	150	300

16.6 Strandfloor® H3.1 must be fixed with 60 x 2.8 mm hot-dipped galvanised or stainless steel, annular grooved flooring nails, or 50 x 8g screws (non-diaphragm applications only) at 150 mm centres around the perimeter of the sheets, and at 300 mm centres at intermediate supports. Nails may be power or hand driven but must be parallel with, and no closer than 10 mm to the edge of the sheet.

The maximum joist spacing for Strandfloor® Square Edge diaphragm floors is 600 mm. The diaphragm is as specified by NZS 3604, Section 7.3.
The maximum joist spacing for Strandfloor® Tongue & Groove diaphragm floors is 450 mm. Refer to the Technical Literature for design and installation information.

Adhesives	
Sika - Nail Bond Premium	Continuous beads to the top of each joist and between the sheets at the ends and edges of 5 mm. Continuous bead on top of the tongue of 2 mm *Important to follow manufacturers install guide for all adhesives.
Holdfast - Gorilla Grip	
Bostik - Alpha Grip	
Selleys - Liquid Nails	

Scale 1mm:50mm



Scale 1mm:50mm

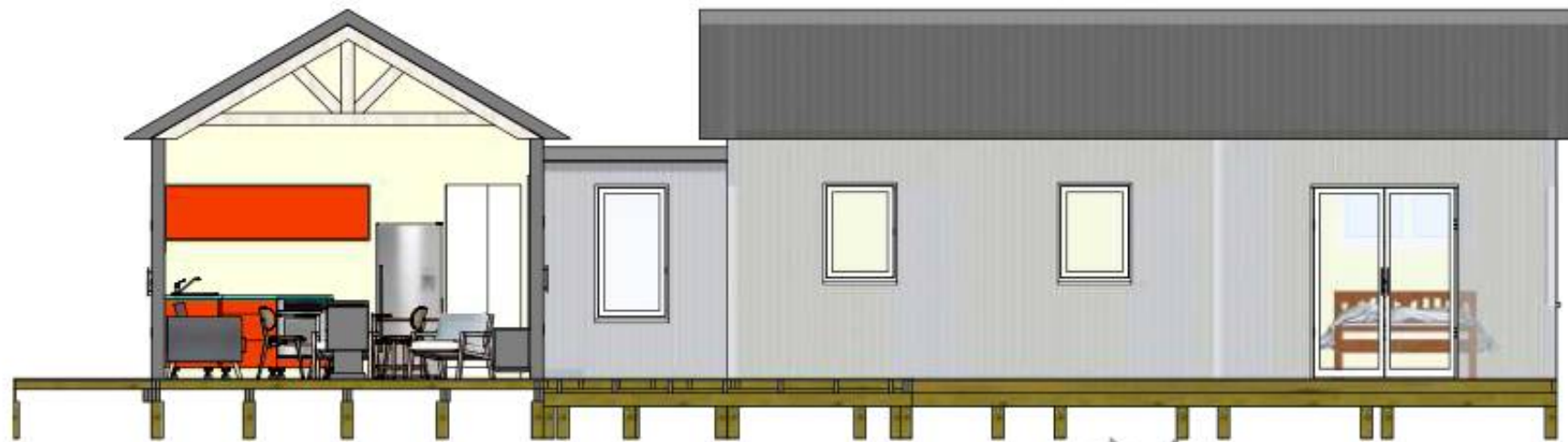


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Date Created: February 4, 2025
Date modified: September 15, 2025

Top view CAD

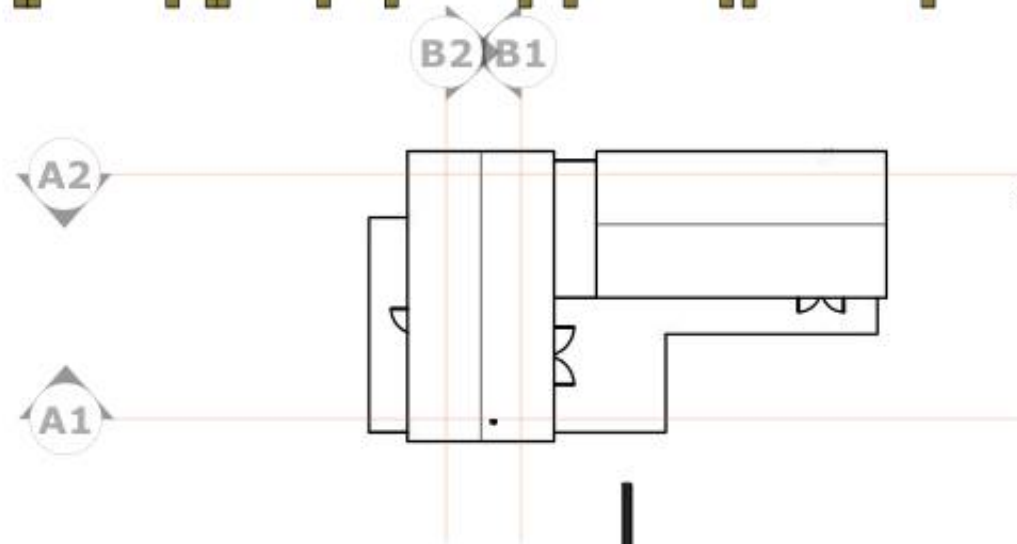
12/34



Section A1



Section B1



Section A2



Section B2

Scale 1 mm:75 mm

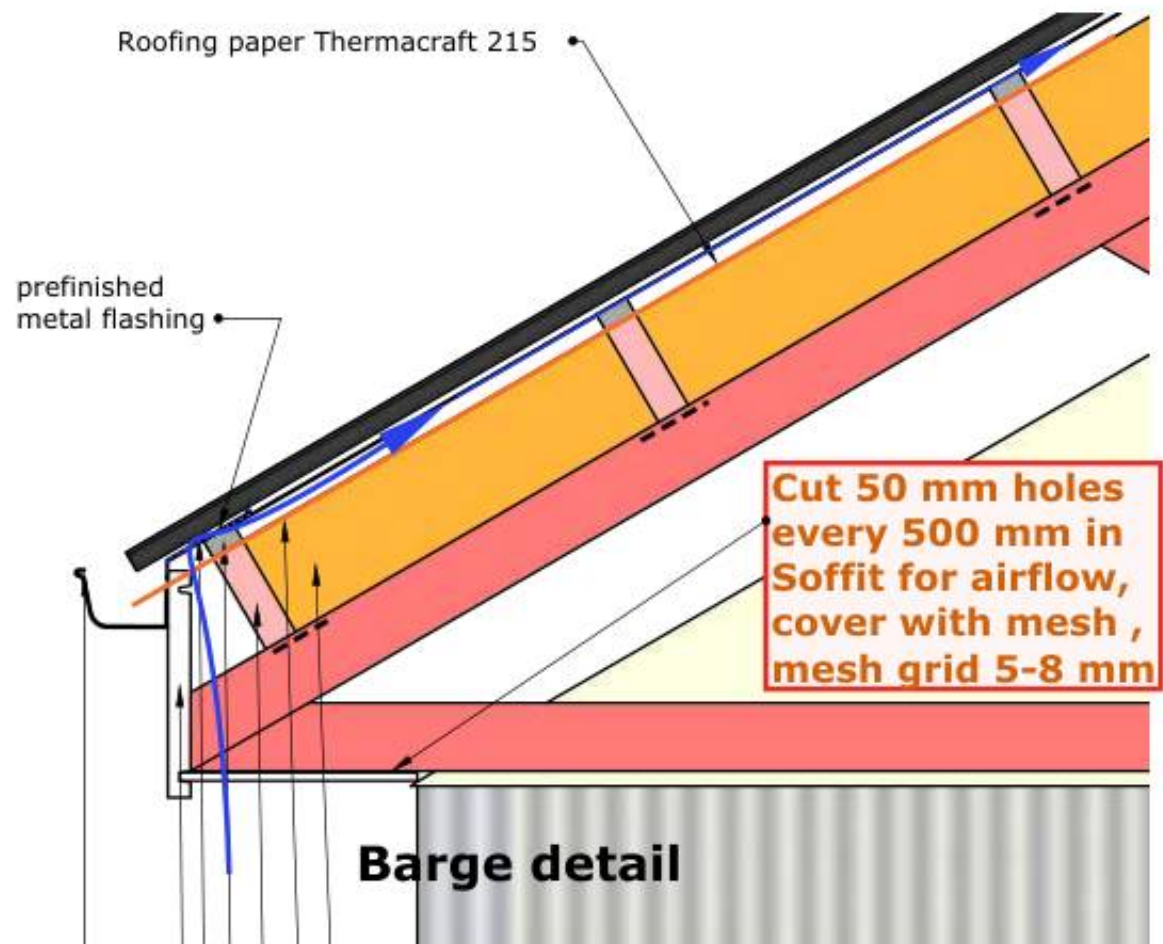


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Date modified: September 15, 2025

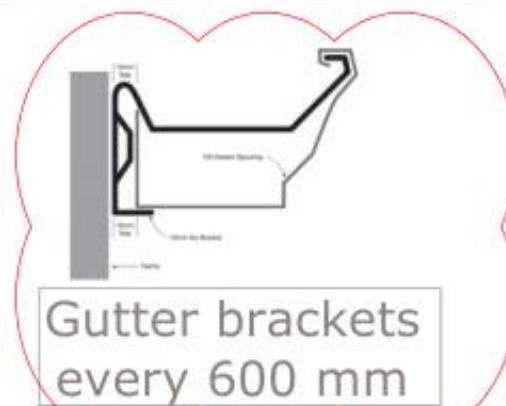
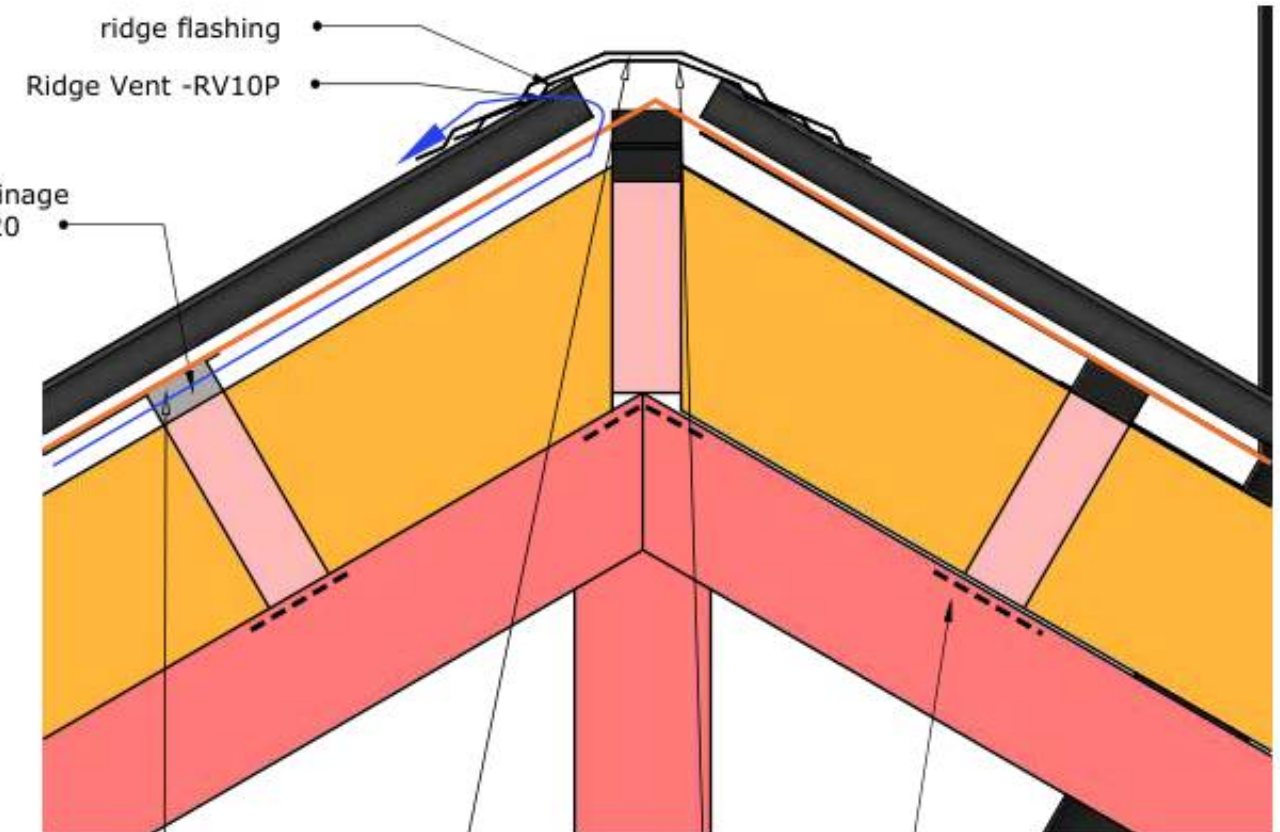
Sections CAD

13/34



airflow

Roof 1



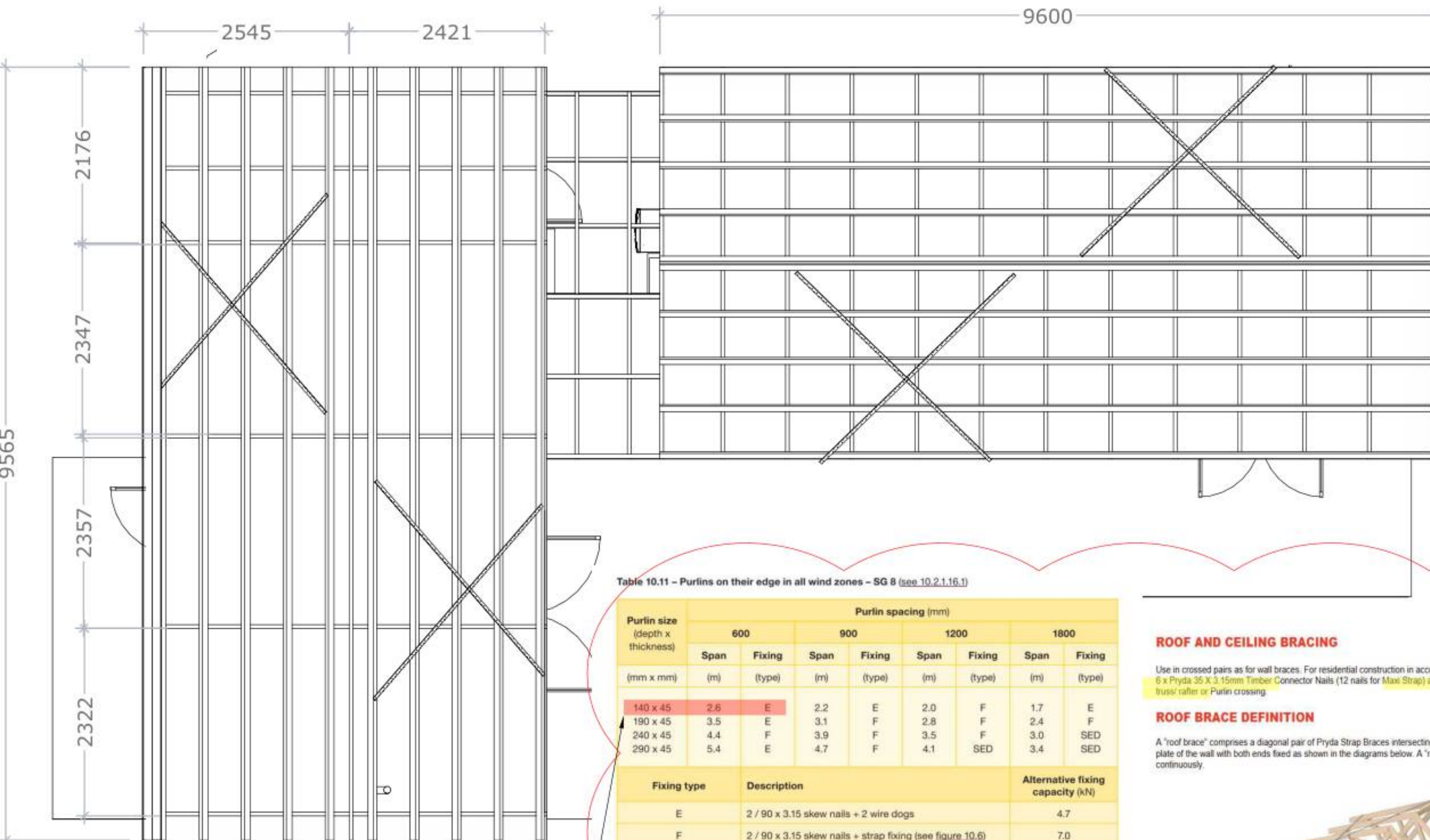


Table 10.11 – Purlins on their edge in all wind zones – SG 8 (see 10.2.1.16.1)

Purlin size (depth x thickness) (mm x mm)	Purlin spacing (mm)							
	600		900		1200		1800	
	Span (m)	Fixing (type)	Span (m)	Fixing (type)	Span (m)	Fixing (type)	Span (m)	Fixing (type)
140 x 45	2.6	E	2.2	E	2.0	F	1.7	E
190 x 45	3.5	E	3.1	F	2.8	F	2.4	F
240 x 45	4.4	F	3.9	F	3.5	F	3.0	SED
290 x 45	5.4	E	4.7	F	4.1	SED	3.4	SED
Fixing type		Description						Alternative fixing capacity (kN)
E		2 / 90 x 3.15 skew nails + 2 wire dogs						4.7
F		2 / 90 x 3.15 skew nails + strap fixing (see figure 10.6)						7.0

NOTE – All fixing types are determined as required for the higher uplift loads at the periphery of the roof (based on local pressure factors in AS/NZS 1170.2).

ROOF AND CEILING BRACING

Use in crossed pairs as for wall braces. For residential construction in accordance with NZS3604:2011, secure braces with 6 x Pryda 35 X 3.15mm Timber Connector Nails (12 nails for Maxi Strap) at each end, and 2 nails (after tensioning braces) at truss/rafter or Purlin crossing.

ROOF BRACE DEFINITION

A 'roof brace' comprises a diagonal pair of Pryda Strap Braces intersecting at 45°, connecting the ridge of the roof to the top plate of the wall with both ends fixed as shown in the diagrams below. A 'roof brace' can also be a valley or hip connected continuously.



Light Weight Roofs

Require ONE 'roof brace' in each plane of the roof area per 50m² of plan roof area which also includes any overhangs.

Use LVL8 Framing 140 x 45
fixing type F
instead .

RV10

Ridge Vent

The VENT Ridge Vent is designed to release warm air from the roof void using the natural convection of rising warm air or by means of negative pressure created by wind blowing over the roof.

The RV10 has an adhesive and flexible aluminium flashing which is designed to form to roofing profiles and prevent water ingress on any pitch roof.

Recommended Application:

- RV10P for cladding profiles with a through depth < 34mm
- RV10OT for cladding profiles with a through depth 34mm – 38mm

- Allows warm moist air to escape the roof cavity
- Forms part of a passive ventilation system
- Works year round with no moving parts or energy consumption.



VB20

Ventilation & Drainage Batten

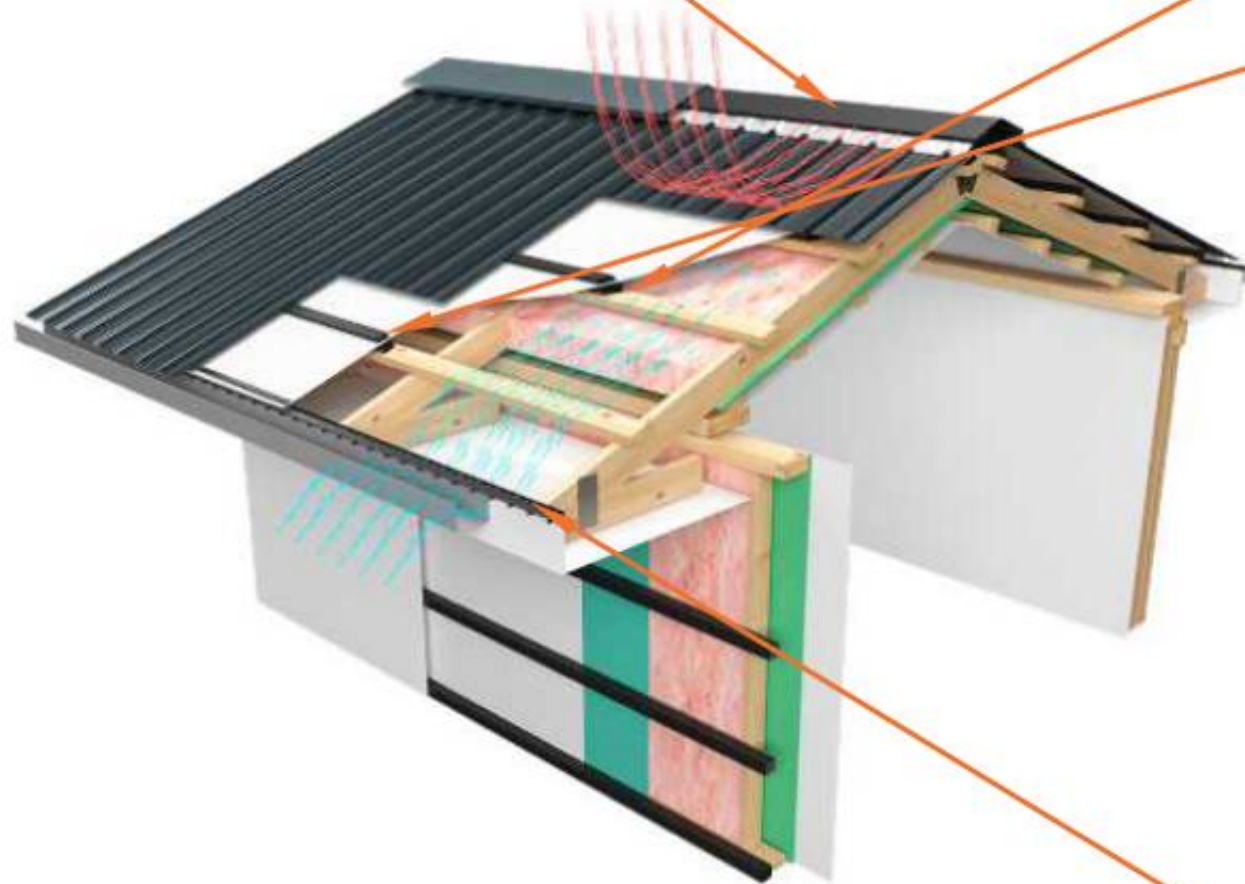
The VENT Roof cavity batten – VB20 is a 20mm Polypropylene Ventilation and Drainage Batten designed to facilitate 16000mm² p/m of passive airflow and cavity between the roofing underlay and roof Purlins.

The VENT VB20 reduces the risk of moisture build up and condensation in tight roof cavities.



Pitched Skillion Roof

For a Pitched Skillion Roof, according to BS5250 (British Standards Management of moisture in buildings), a calculated airflow of 25,000mm² per linear metre at the eaves and a minimum of 5mm² per linear meter at the high point (barge) is required to manage moisture in the roof cavity. This is achieved by creating a calculated, unimpeded airflow system that will allow outside air into the roof cavity, above the insulation throughout the roof cavity, complying with H1 and NZS4246:2016 and existing through the ridge cap of the roof at the high point (ridge), by means of negative pressure created by the applied ridge vent and the natural convection of the warm internal air. This manages moisture created/generated by means of construction moisture and occupancy behaviour. To ensure there are no blockage points through the roof cavity a 20mm vented batten is applied on top of purlins. To manage and reduce the risk of dew point transference from roofing iron to underside of underlay caused by variance of temperature, creating separation and ventilation between the iron and underlay is recommended.



Roof 1

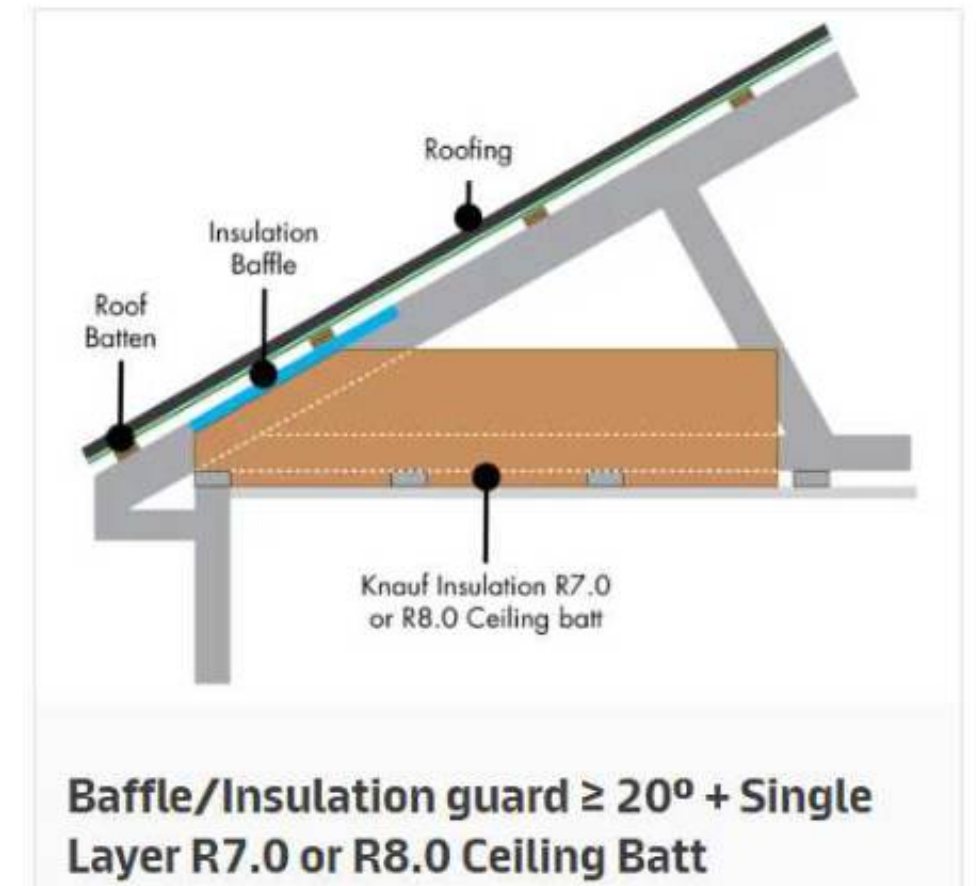
G502

Roll Panel Vent

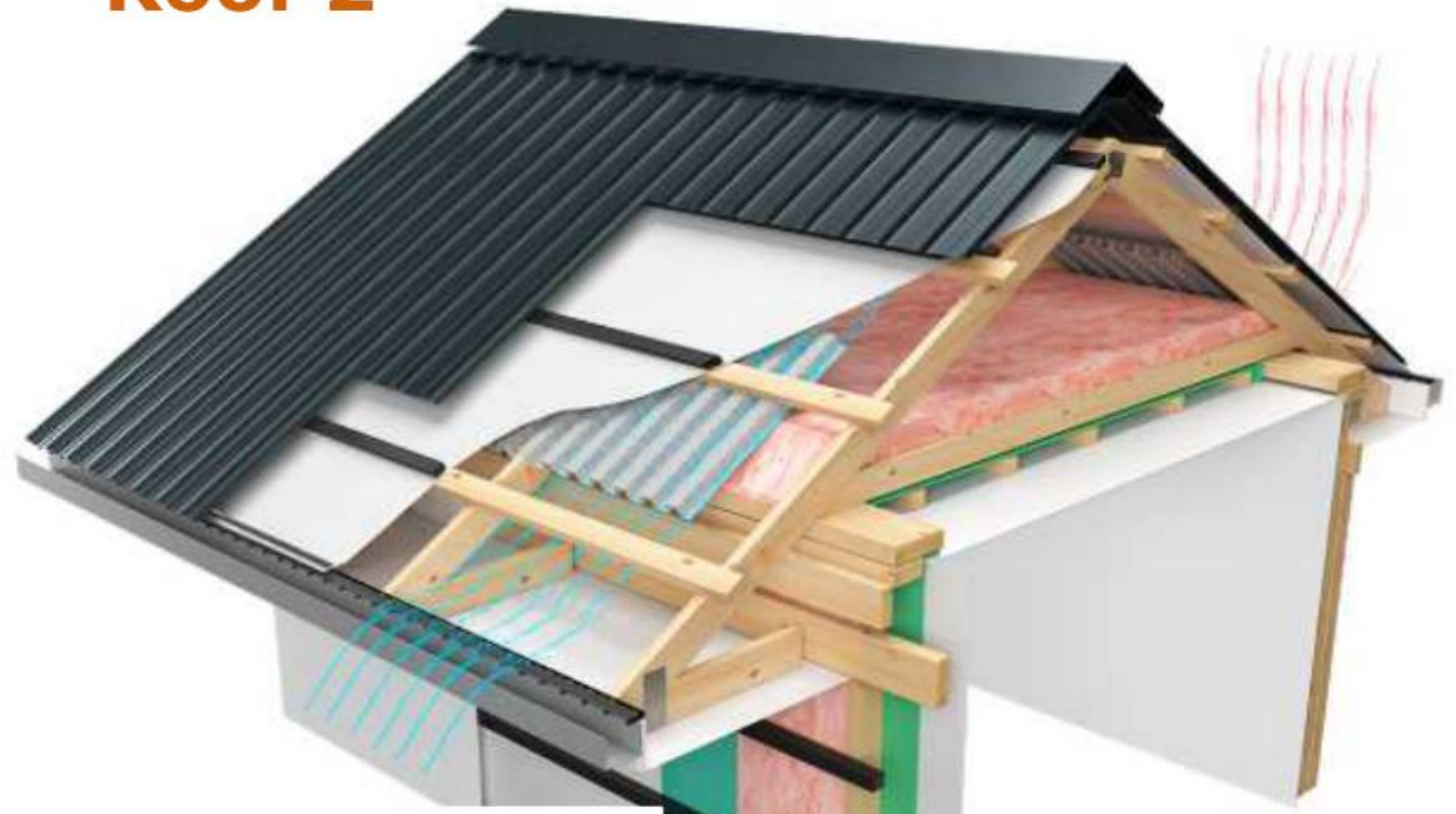
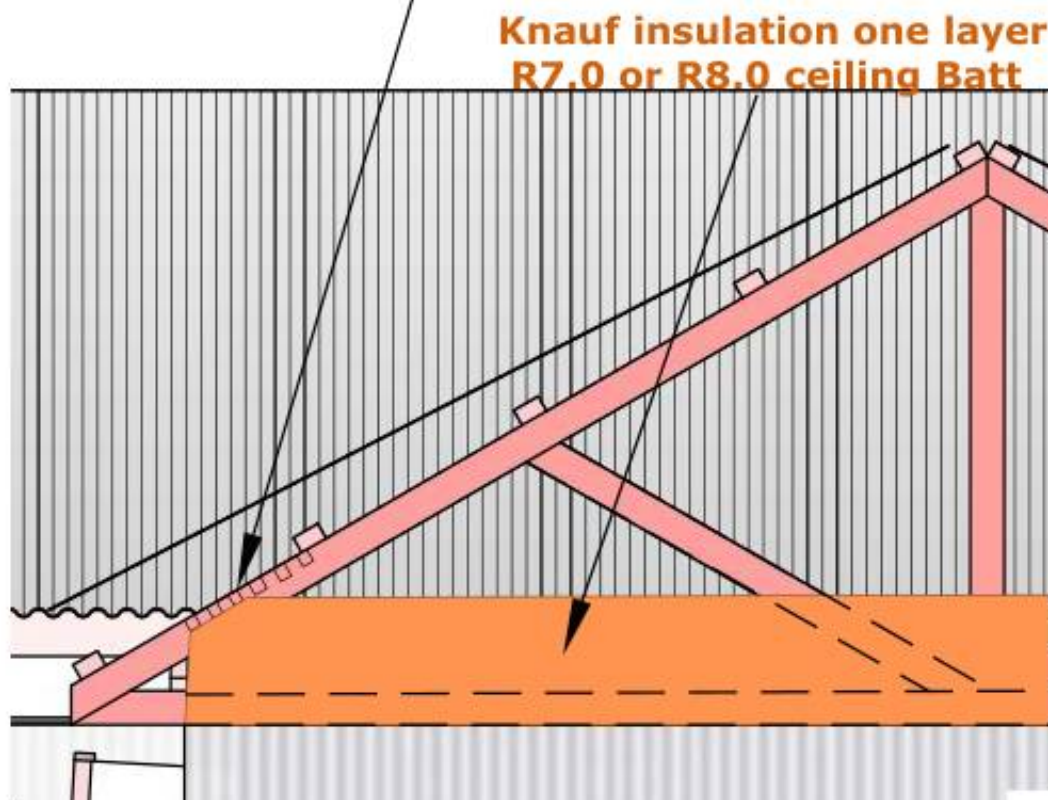
The **VENT Roll Panel Vent** is designed to maintain a continuous 25mm air gap between the underside of the roofing membrane or sarking board and loft insulation at the eaves, providing a consistent flow of air into the roof space.

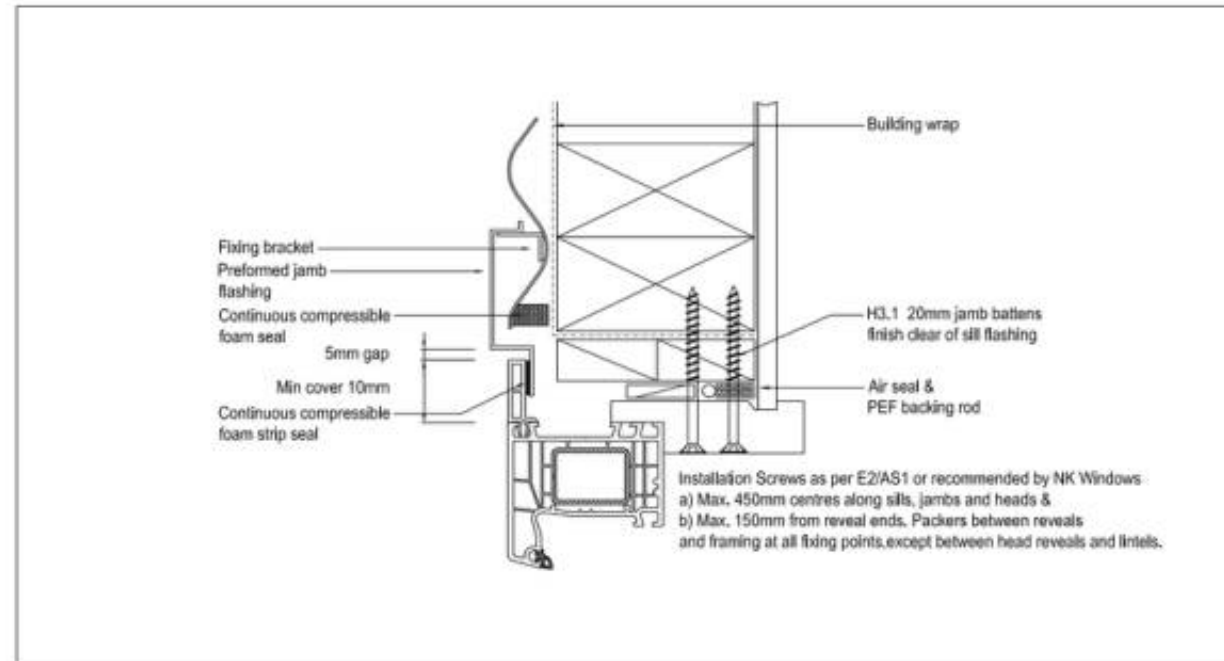
- Ideal for trussed roofs of any degree pitch
- Facilitates insulation installations in accordance with H1 guidelines.
- Protects insulation from internal moisture
- Suitable for new builds or renovations/re-roofs

[ENQUIRE NOW](#)



Roof 2

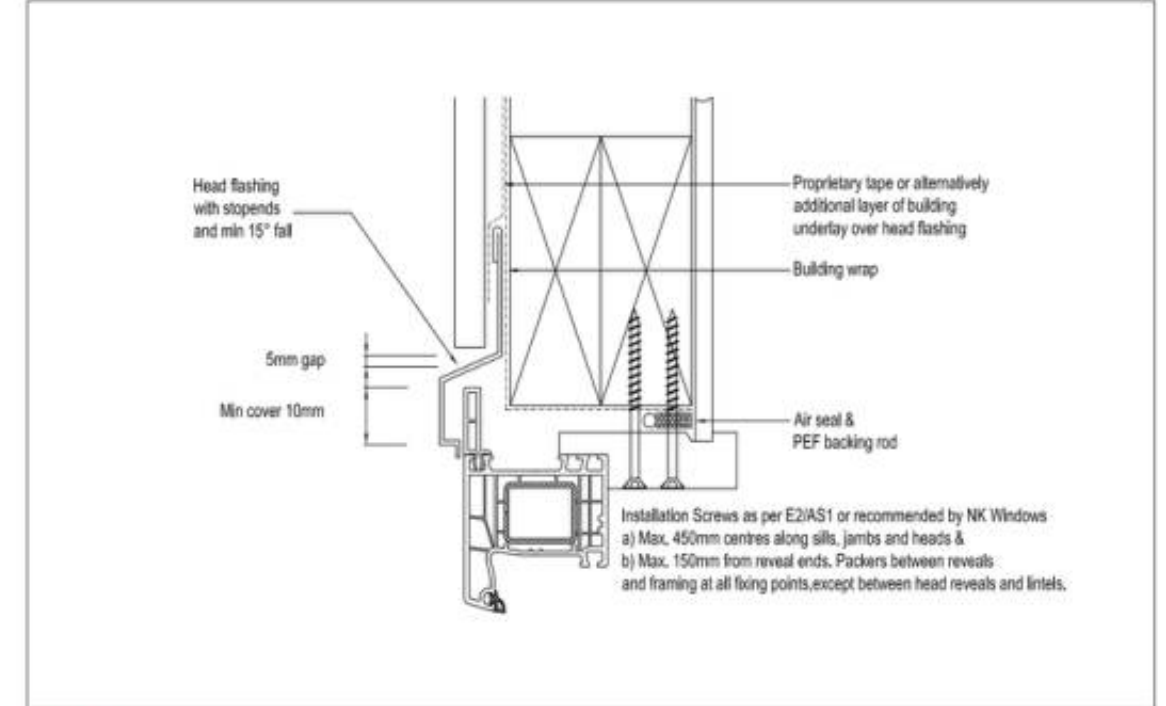




Vertical Profiled Metal Direct Fix Jamb

System: Aluplast Ideal 4000
Cladding: Vertical Profiled Metal DF
Version: 0308181
Scale: 1:2

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Vertical Profiled Metal Direct Fix Head

System: Aluplast Ideal 4000
Cladding: Vertical Profiled Metal DF
Version: 0308181
Scale: 1:2

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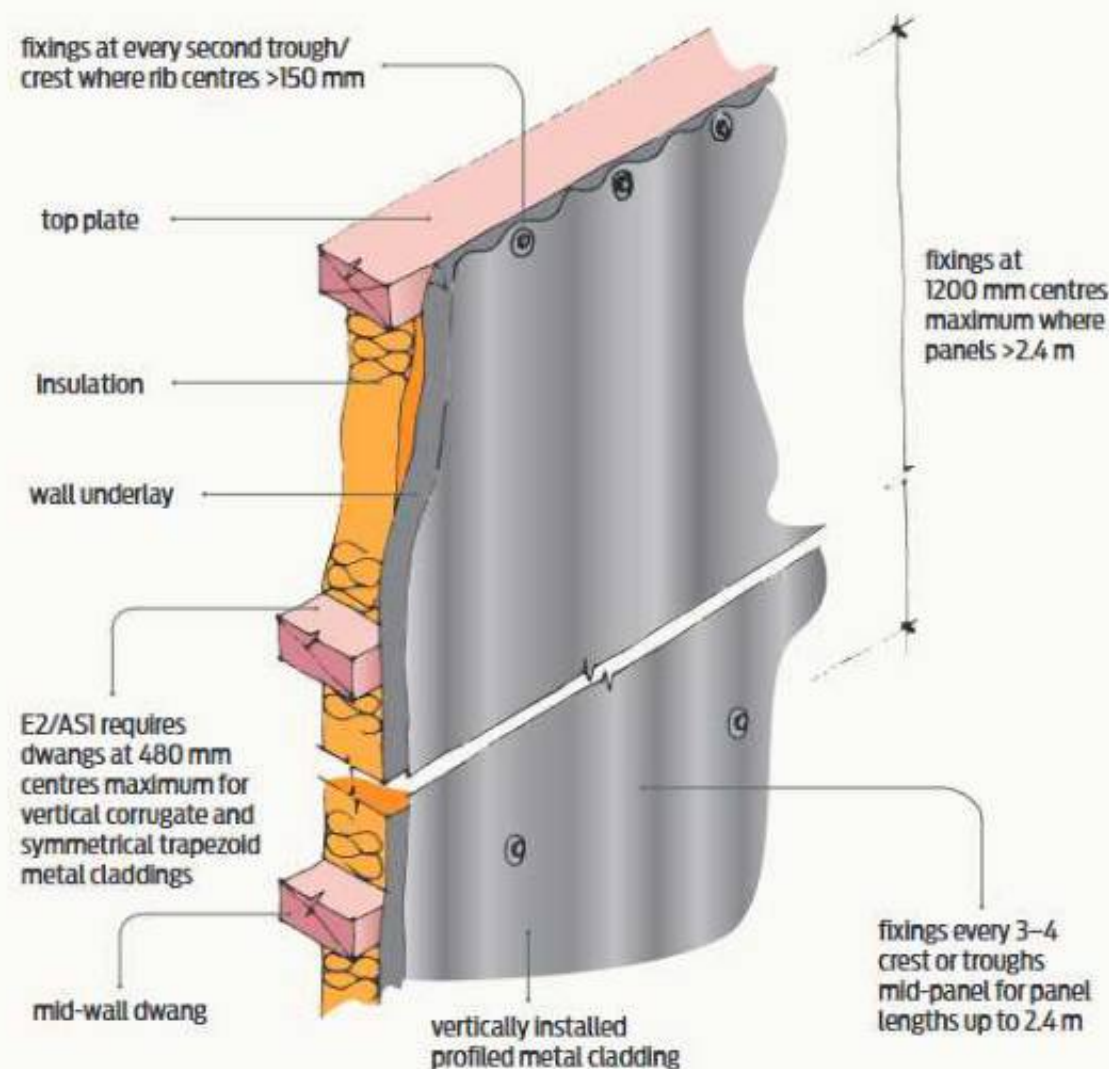
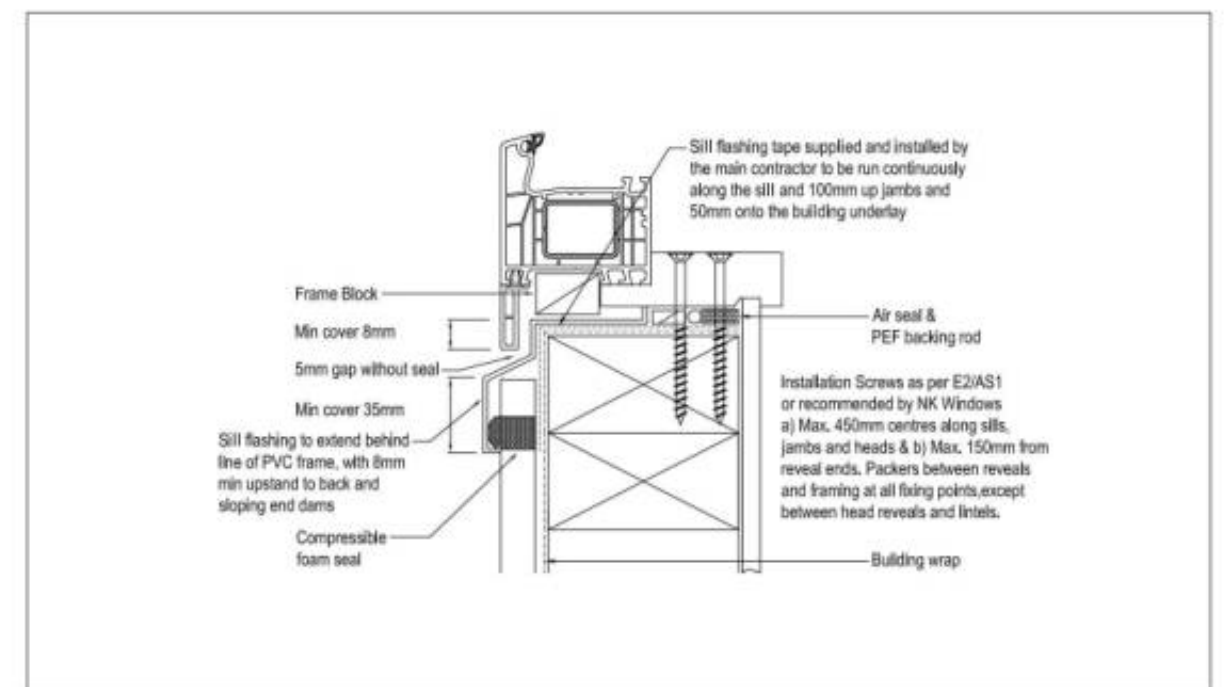


Figure 2 Fixings for vertically installed profiled metal cladding.

E2/AS1 Compliance:

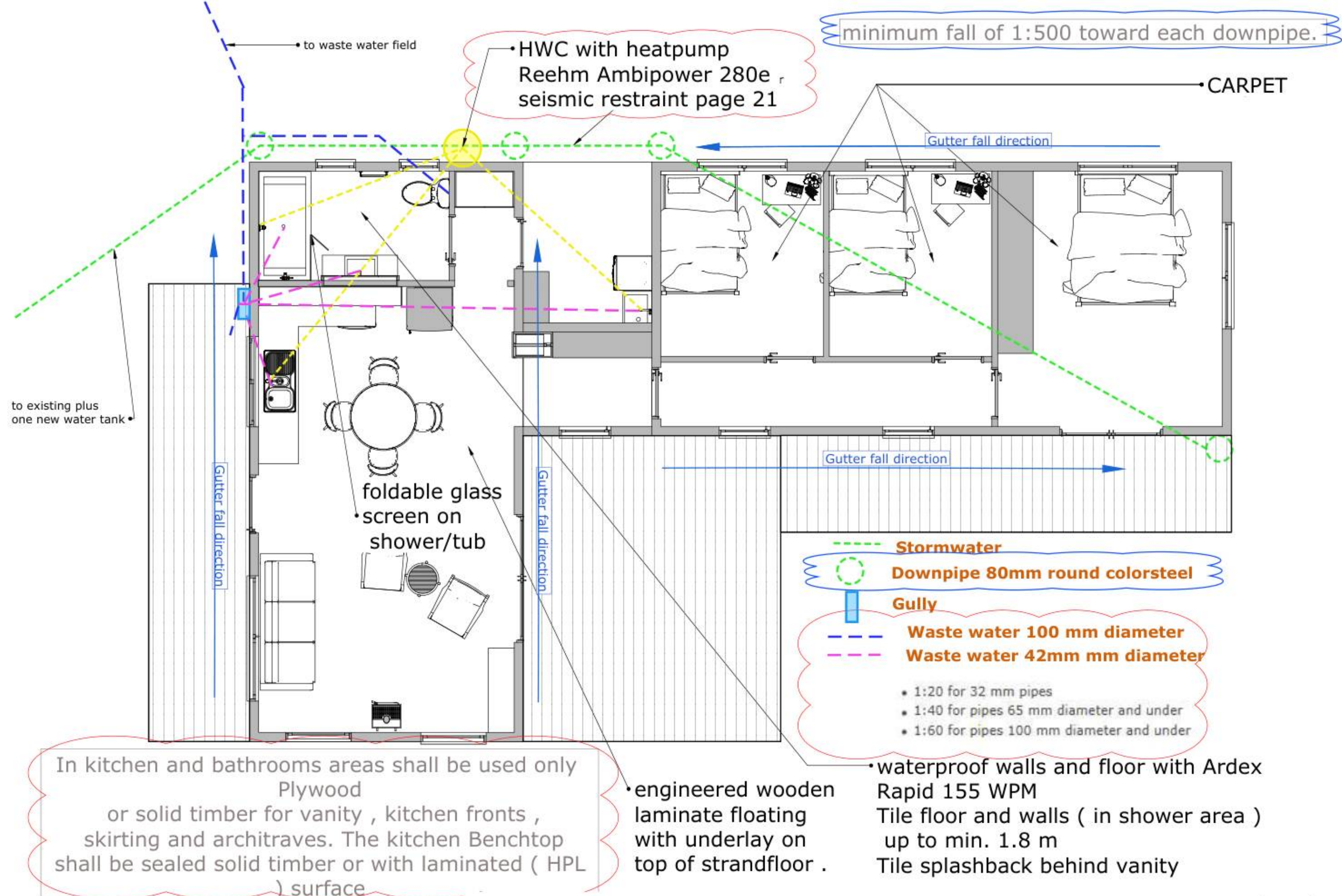
Corrugated iron profiles that meet the characteristics specified in E2/AS1 can be used for wall cladding when direct-fixed vertically (up to and including Risk Score 20).

minimum crest height of corrugated shall be 16.5 mm



Vertical Profiled Metal Direct Fix Sill

System: Aluplast Ideal 4000
Cladding: Vertical Profiled Metal DF
Version: 0308181
Scale: 1:2



140 x 45 H1.3

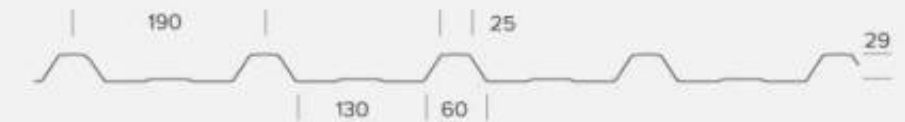
vent strip

140 mm rigid insulation

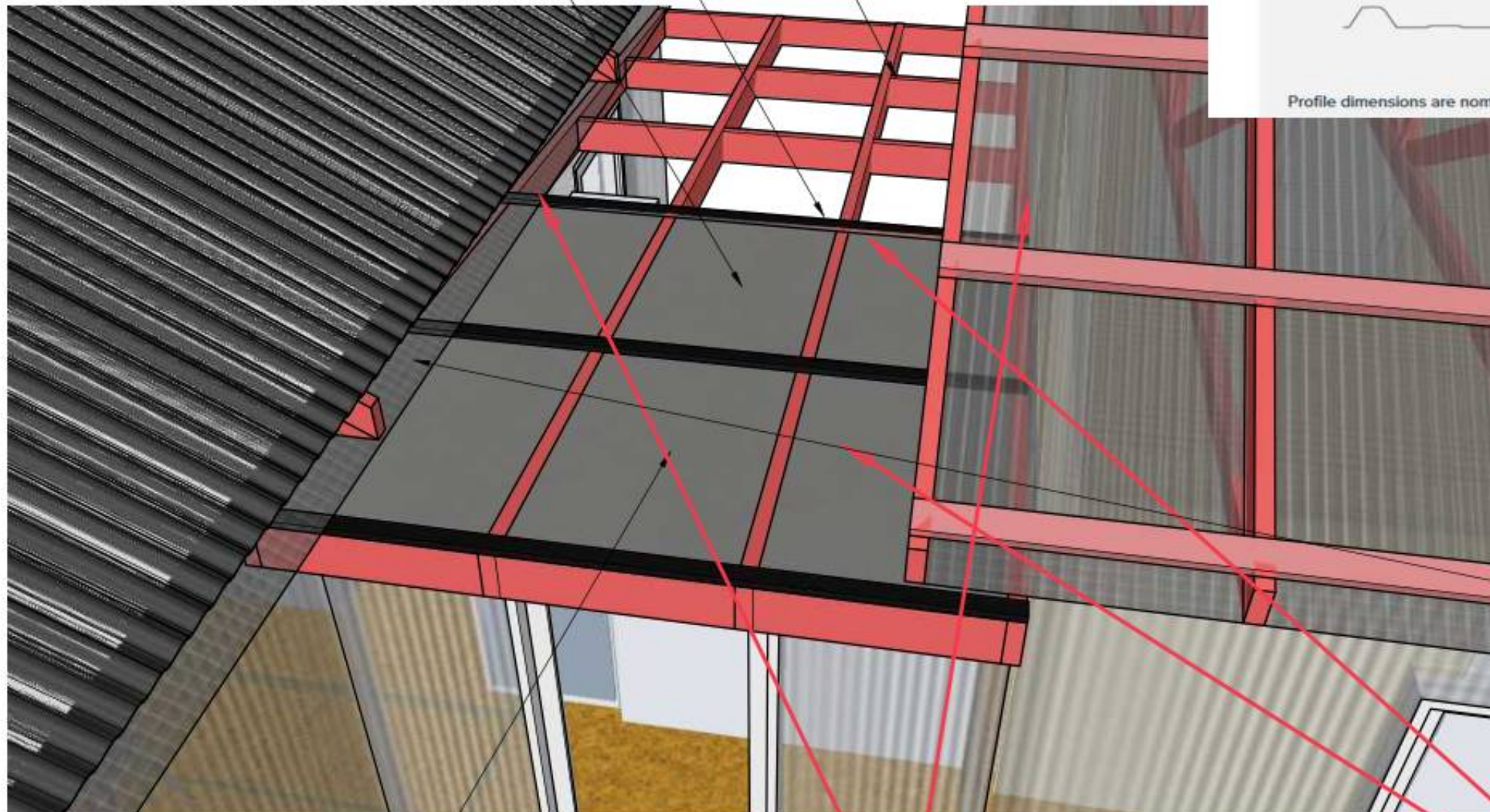


use 5 - rib iron, as the slope is under 5degree

CROSS SECTIONAL LINE DRAWING



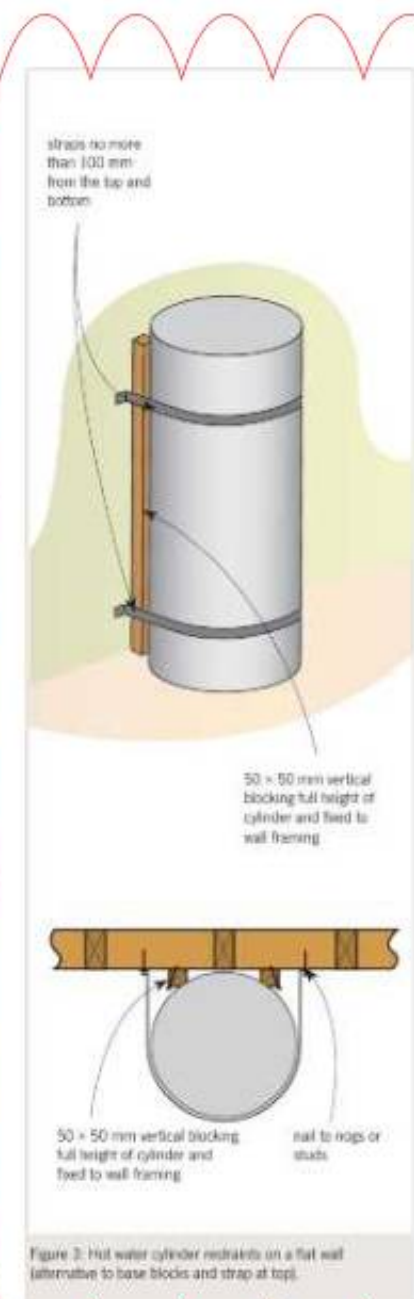
Profile dimensions are nominal and may vary with changes depending on material

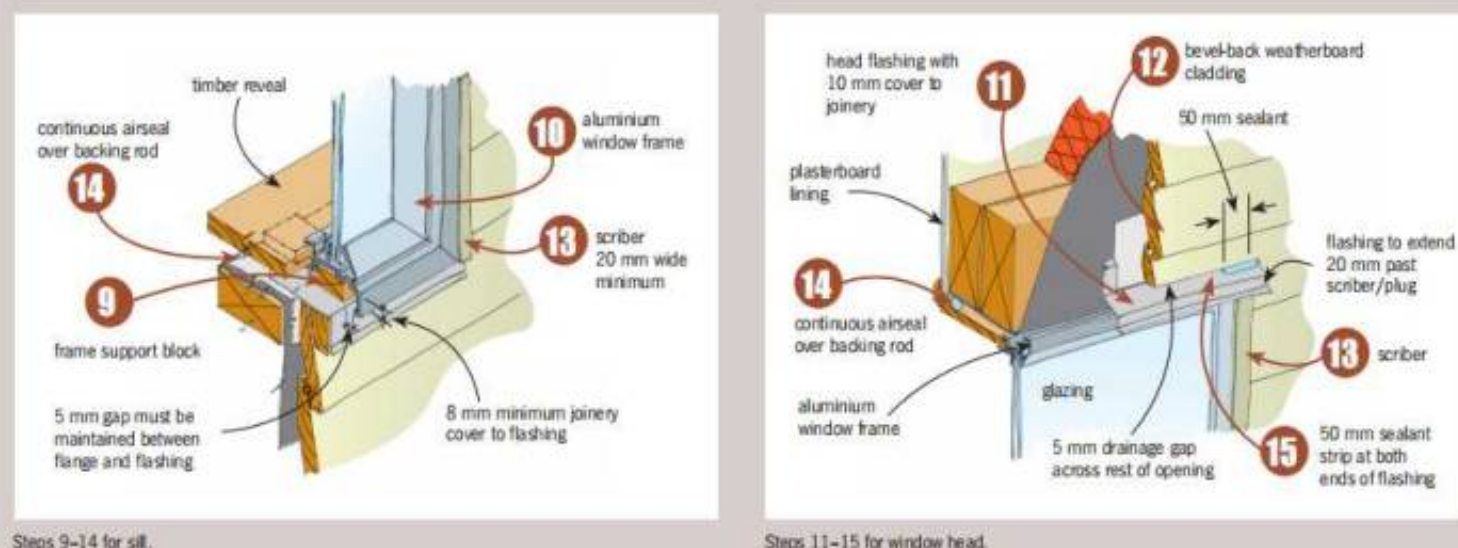
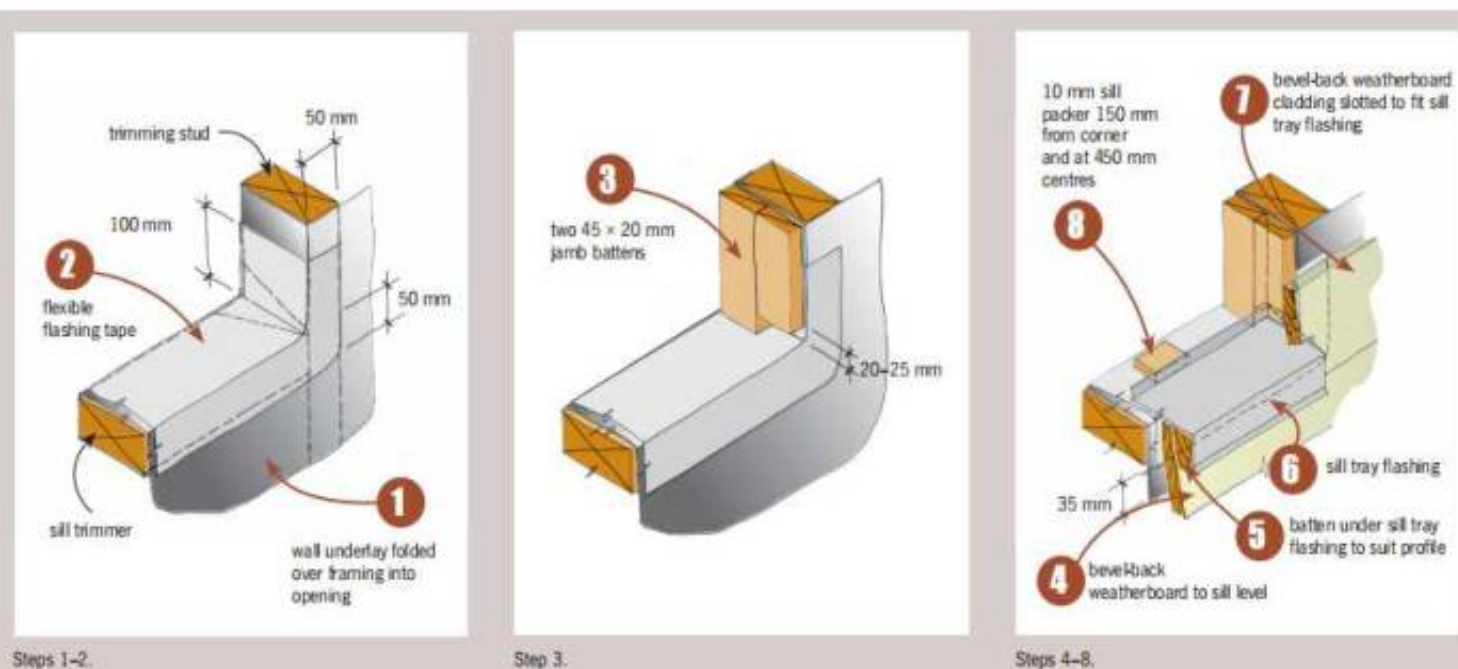


upper roof
corrugated cladding
flashing
little roof
building wrap
wall
apron flashing roof wall junction

tape insulation from underneath, mento 1000 roofing paper on top of insultion

Fix roof framing with CBC 80 to front and back top plate , nail to every stud of framework in both house halves.





SEQUENCE TO INSTALL A WINDOW WITH DIRECT-FIX CLADDING

Step 1 – Install wall underlay across the full window opening. Make diagonal cuts, then fold the underlay round the opening and secure.

Step 2 – Install flexible flashing tape in the corners and across sill trimmer:

- 100 mm along the head and down the jamb at the top corners and turned out 50 mm over the face of the wall
- across the full length of the sill trimmer and 100 mm up jambs at bottom corners and turned out 50 mm over the face of the wall.

Step 3 – Install jamb battens to both trimming studs.

Step 4 – Fix cladding up to sill level.

Step 5 – Fix horizontal trim batten (which will be under the sill tray flashing).

Step 6 – Fit the sill tray flashing. Provide a 35 mm minimum cover over the cladding.

Step 7 – Fix the cladding up to the top of the opening. Cut slots in the cladding as required round the sill tray flashing.

Step 8 – Install sill packers behind the sill flashing to support timber window reveal.

Step 9 – Install the window frame support blocks (supplied with window by manufacturer).

Step 10 – Install the window providing the requisite minimum flange cover, i.e. 8 mm at the sill, 10 mm at the jambs. Ensure that a

minimum 5 mm gap between the window flange and sill tray flashing is maintained.

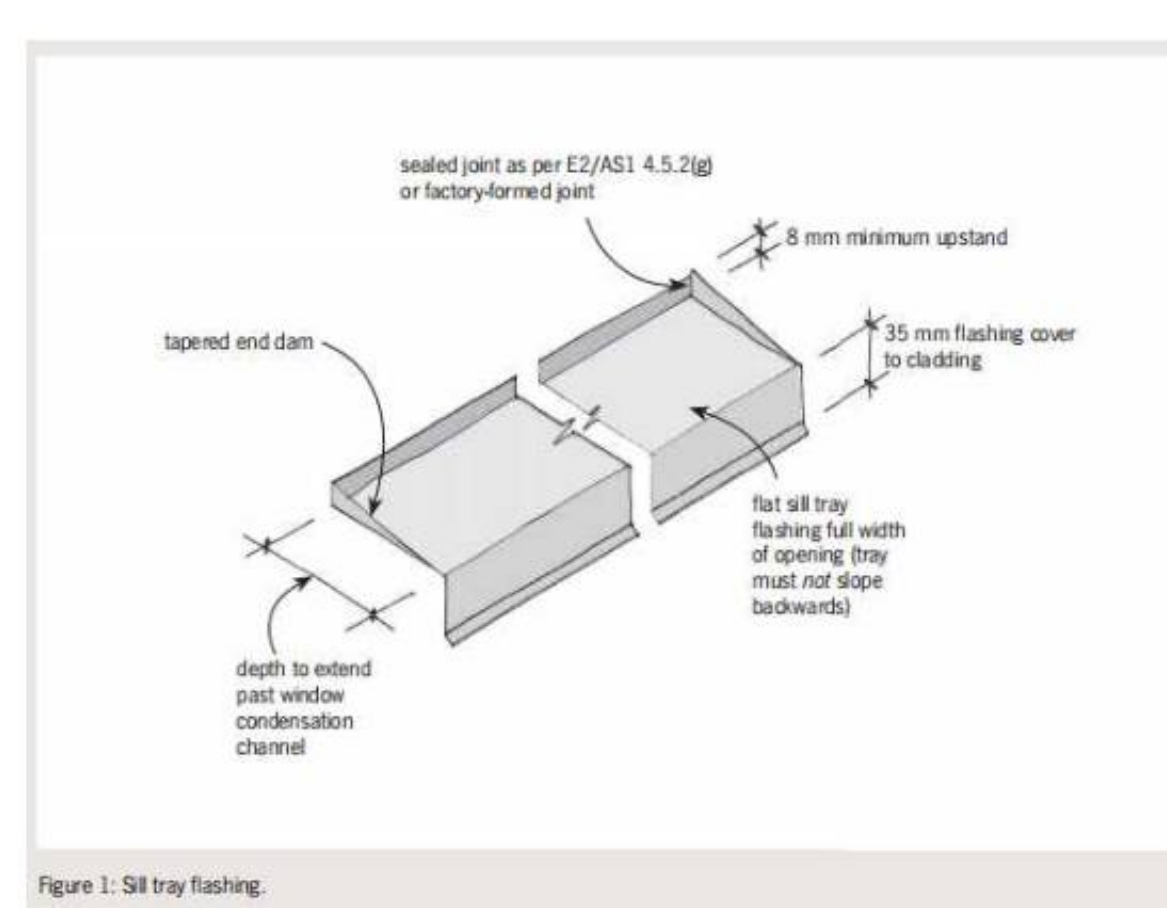
Step 11 – Fit head flashing and cover either with additional wall underlay extended up under next lap or flashing tape for the flashing full length.

Step 12 – Fix the remaining cladding.

Step 13 – Install scribes or plugs to suit weatherboard profile. Scribes need to be 20 mm wide minimum to cover sill flashing.

Step 14 – Install airseal over PEF backing rod around perimeter of the trim opening.

Step 15 – Install a 50 mm bead of sealant between the cladding and head flashing at each end of the window. ■



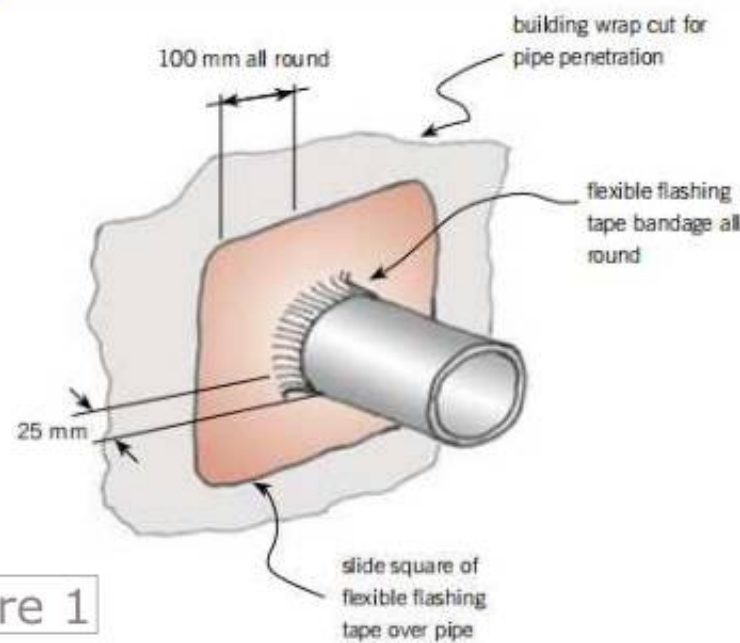


figure 1

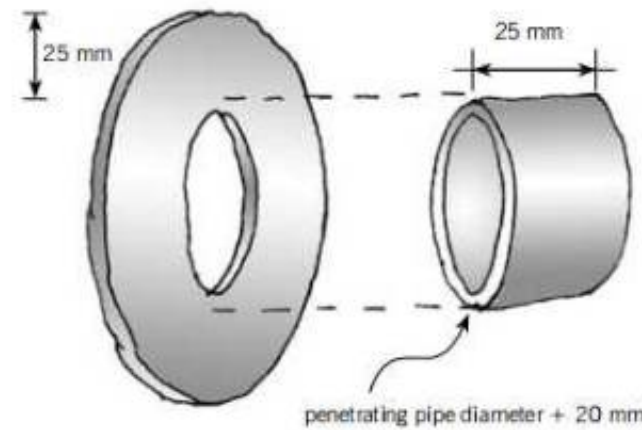


figure 2

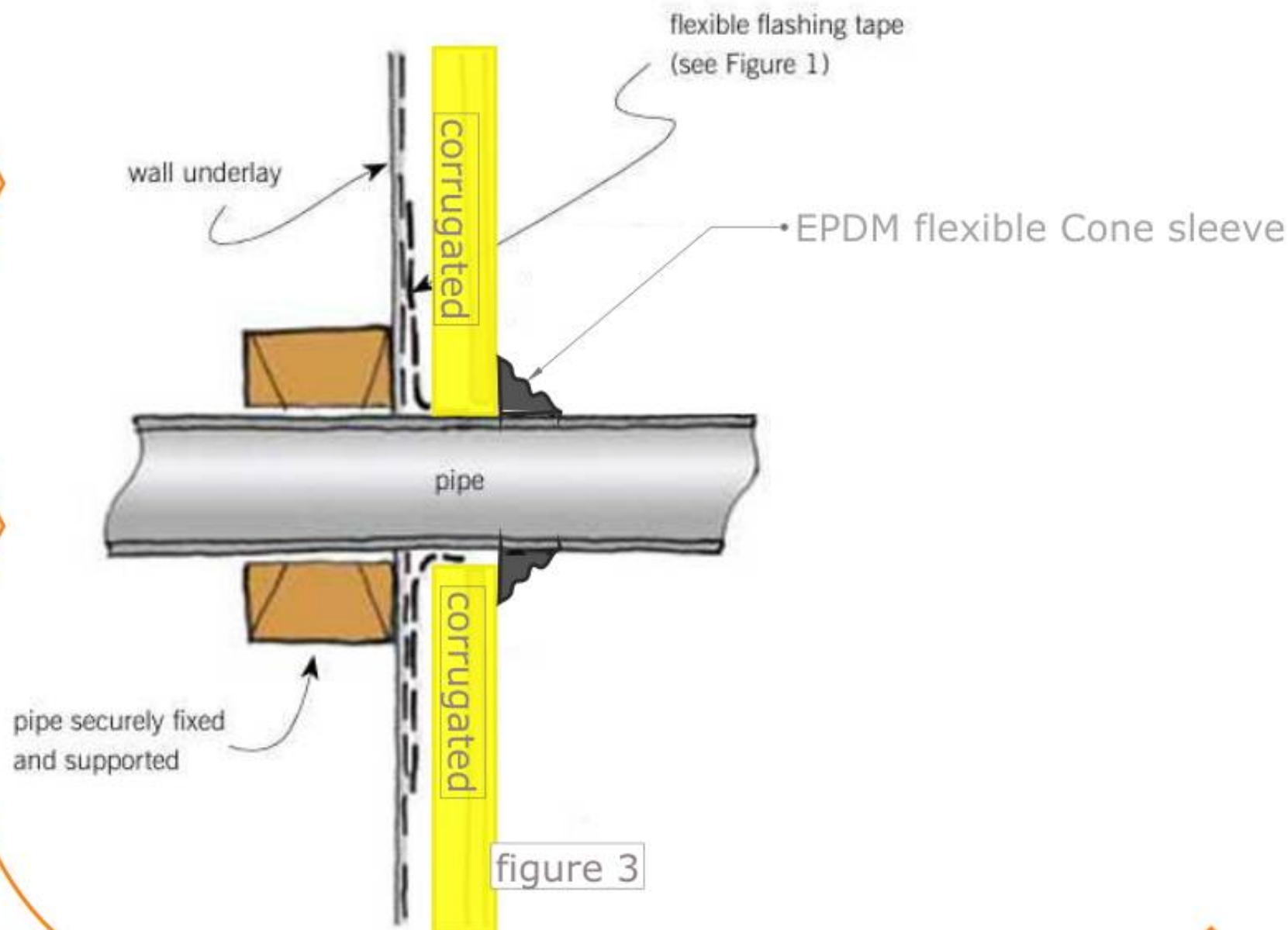


figure 3

Key Requirements for Pipe Penetrations:
Sealing System: Use proprietary flashing collars or boots specifically designed for pipe penetrations. These must be compatible with the cladding type and installed per manufacturer's instructions.

Underlay Treatment: The building wrap (underlay) must be carefully cut and sealed around the pipe. Use flexible flashing tape (e.g., bituminous or proprietary brands) to seal underlay edges to the pipe.

Cladding Flashing: Pipe must be flashed to the cladding system using either a flange system or flexible sealant and cover plate, ensuring drainage away from the penetration.

Slope and Orientation: Horizontal pipe penetrations should have a downward slope to the exterior to avoid water ingress.

Clearance: Maintain clearances to combustibles or structural elements as needed for fire safety or structural integrity.

Reference Standards:
 E2/AS1 Clause 9.1.9: Details on penetrations through wall claddings.

E2/AS1 Figure 68–72: Illustrative flashing details for pipe penetrations.

NZS 3604:2011 Clause 11.1.1(b): Refers to E2/AS1 for envelope cladding compliance.

General wall layout corrugated iron direct fix

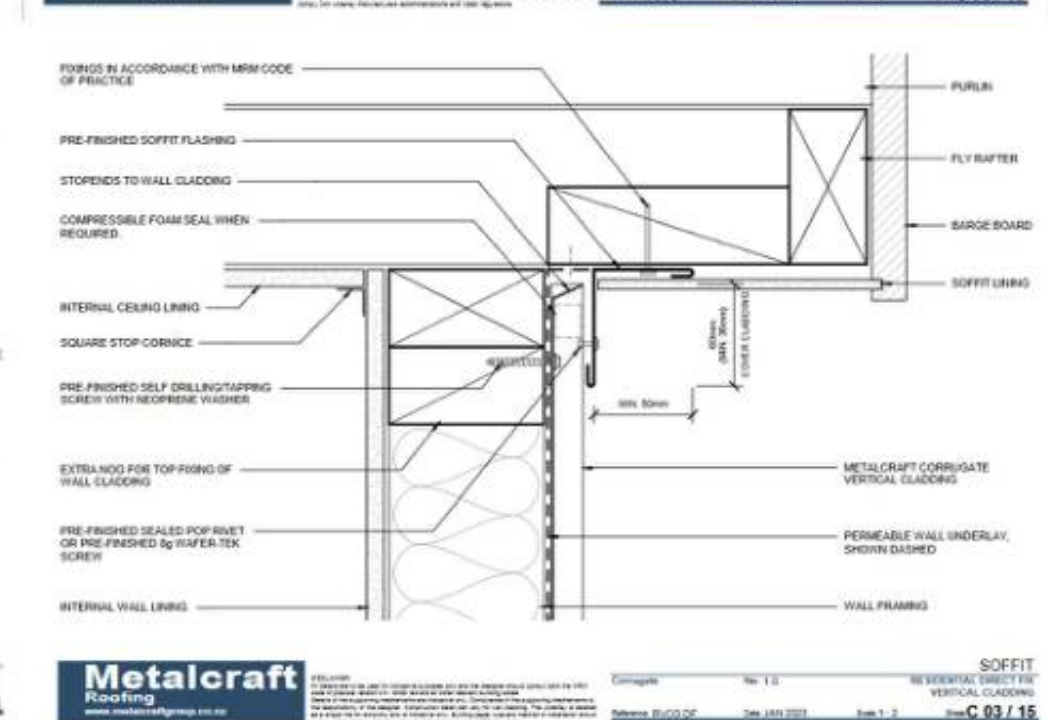
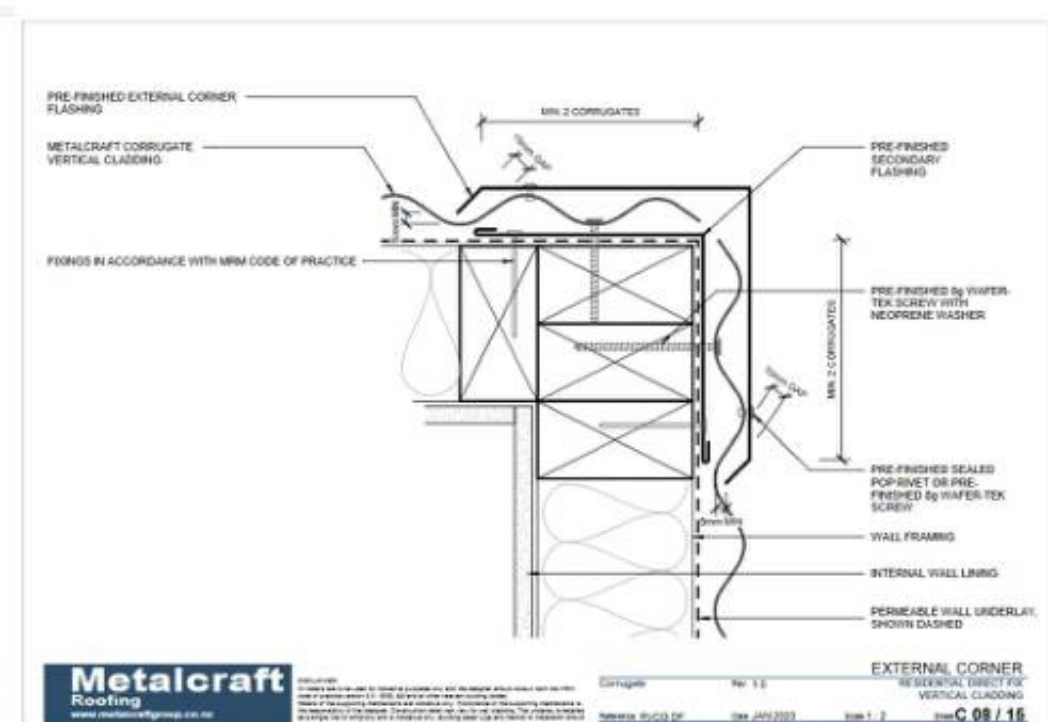
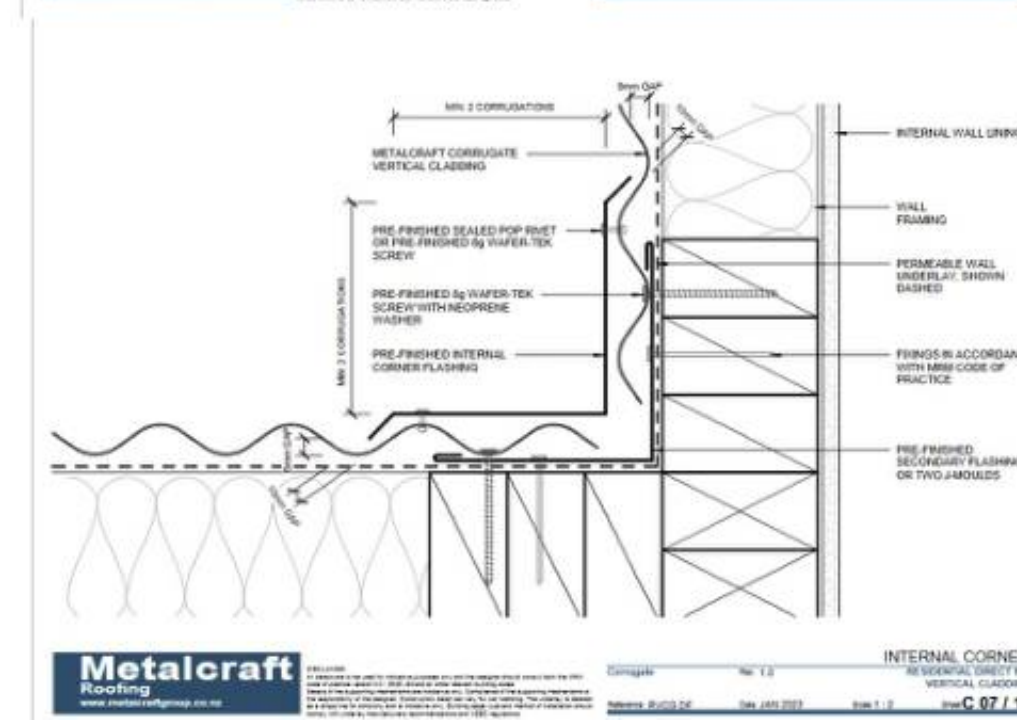
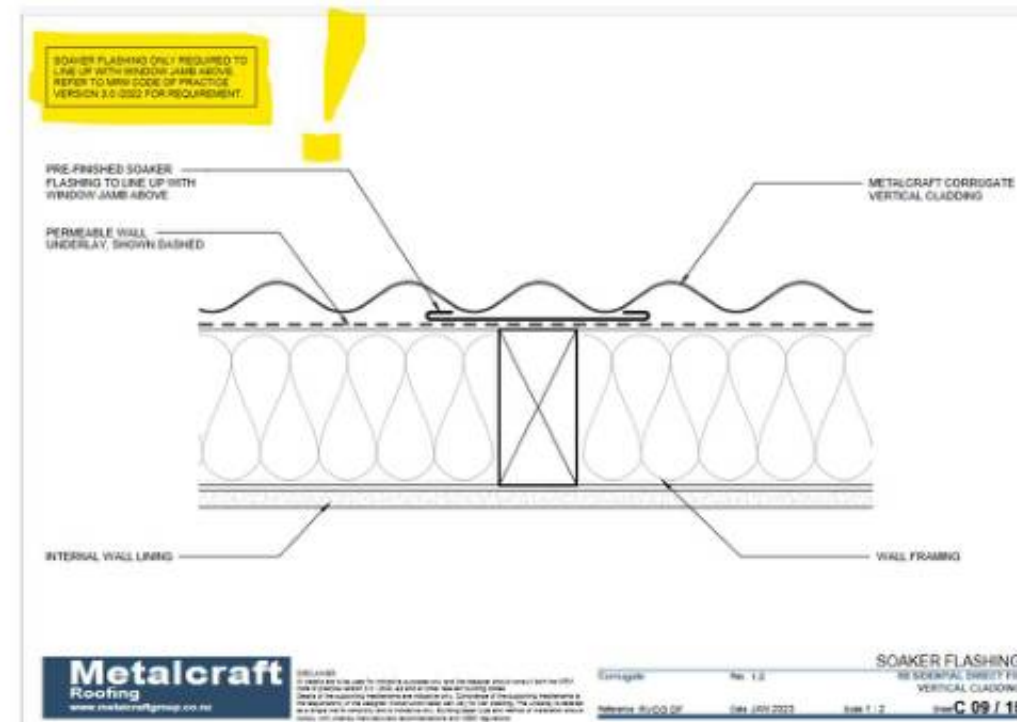
corrugated metal cladding

Building paper
Thermacraft plus
2740 wide

Stud 140 x 45 H1.2
Nogs 800 center

Knauf wall insulation
R=4.1 , thickness
140 mm
(580 x 1160 mm)

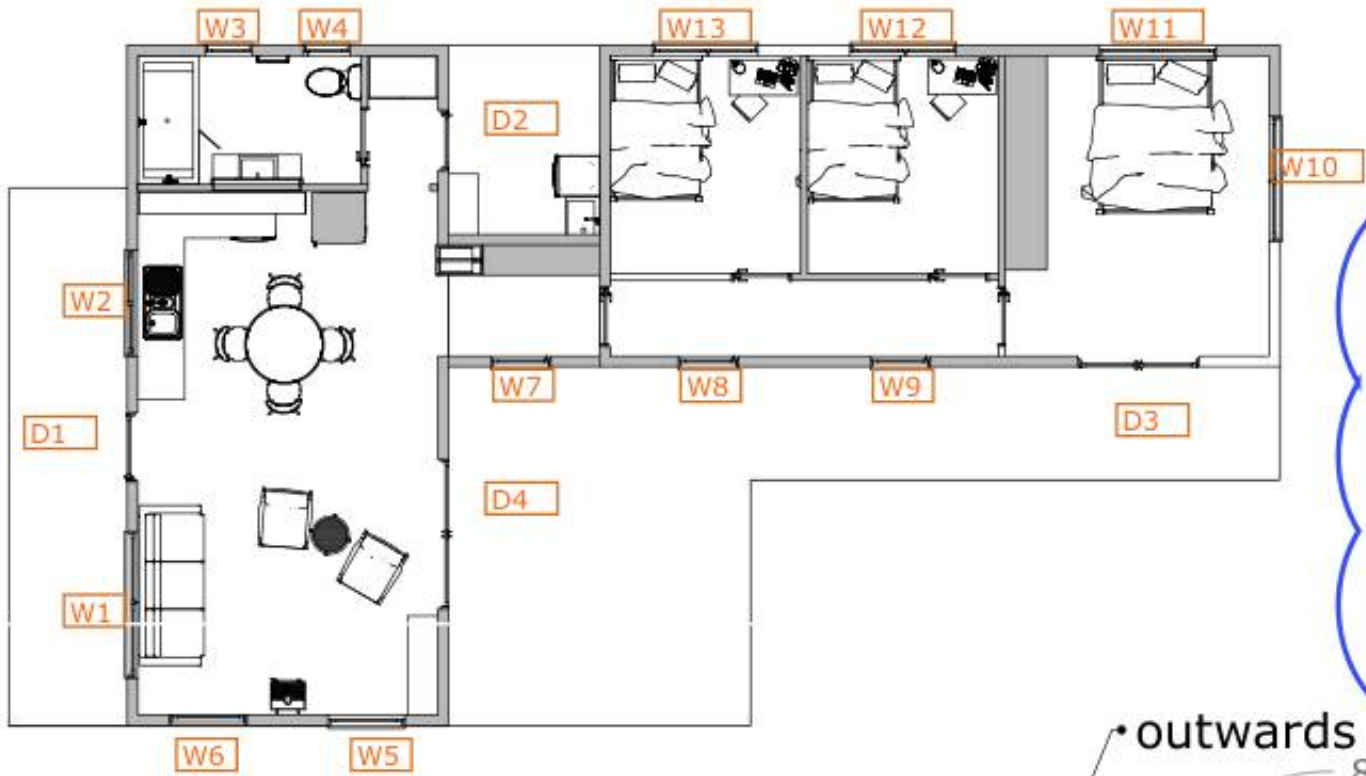
Gib 13 mm



flashing details wall

Aluplast uPVC joinery, with BRANZ approval (Appraisal No. 1005 August 2019)

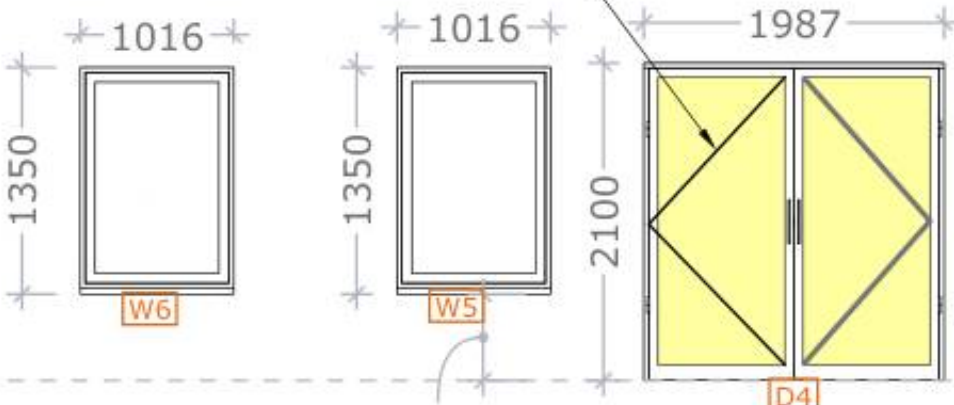
- Joinery Colour: WHITE
- Multi-point locking hardware, with galvanized steel reinforcement and double EPDM rubber seals
- 24mm double glazing with warm edge spacer
- Safety and obscure glass where specified
- Glass thermal performance upgrades (EnergySaver)



Safety glass

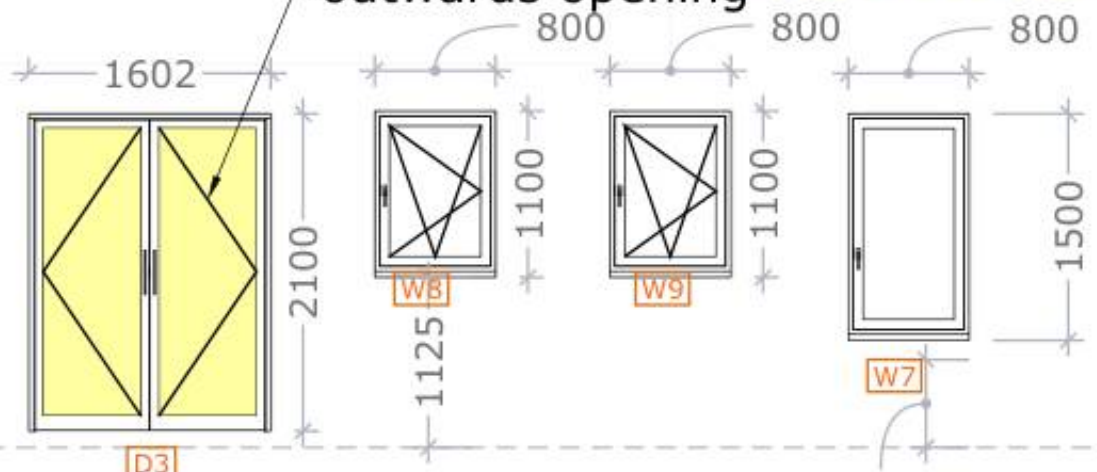
"All safety glazing marked in the schedule complies with NZS 4223:Part 3, Clause 5, and is tested to NZS 2208 for Grade A safety glass. Locations requiring safety glass are identified per Clause F2/AS1 and installed accordingly."

outwards opening



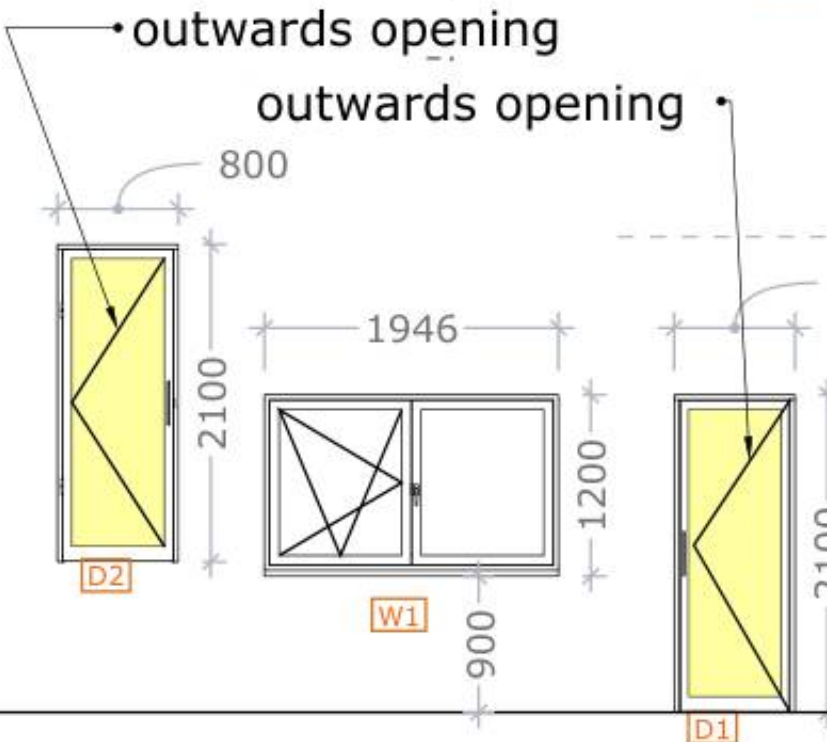
price tilting or fixed

outwards opening

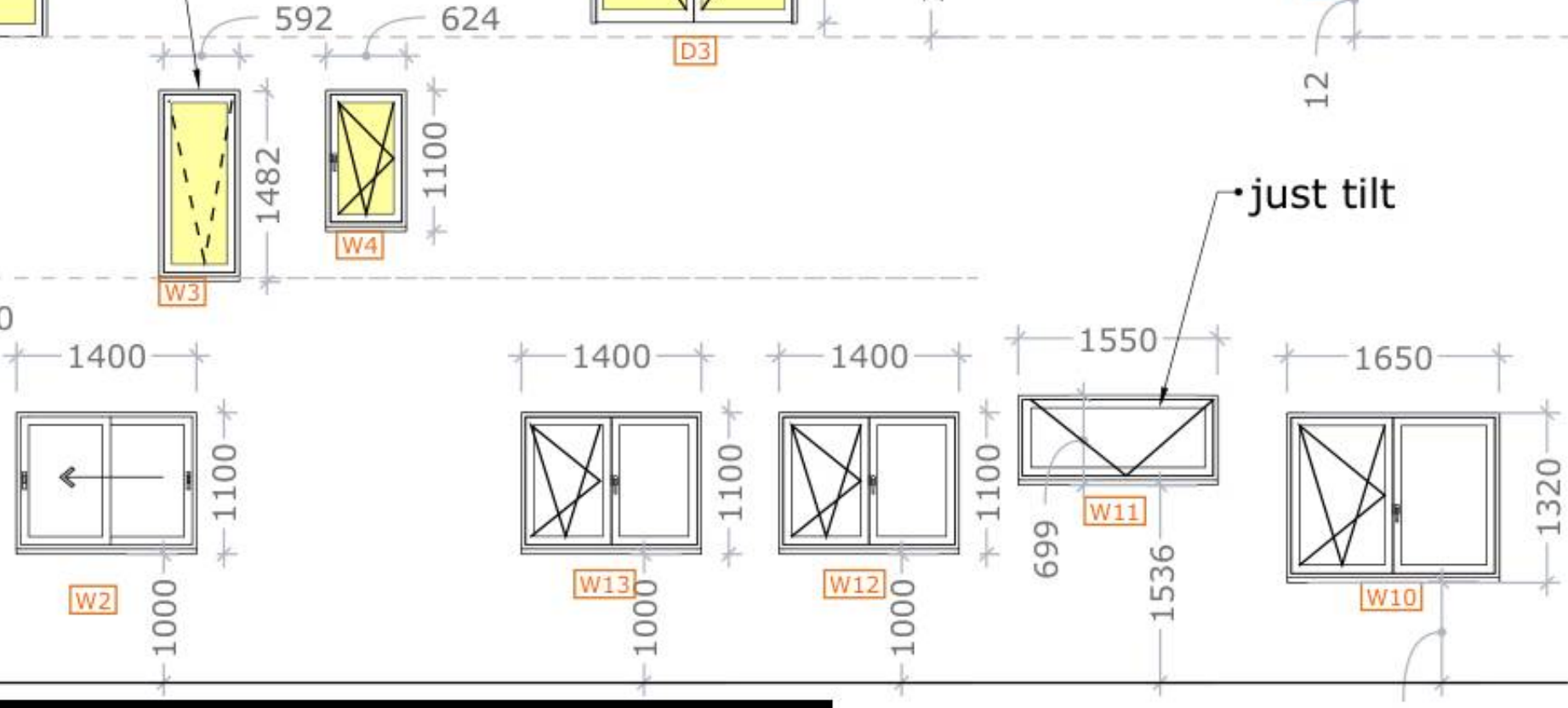


outwards opening

outwards opening



just tilt



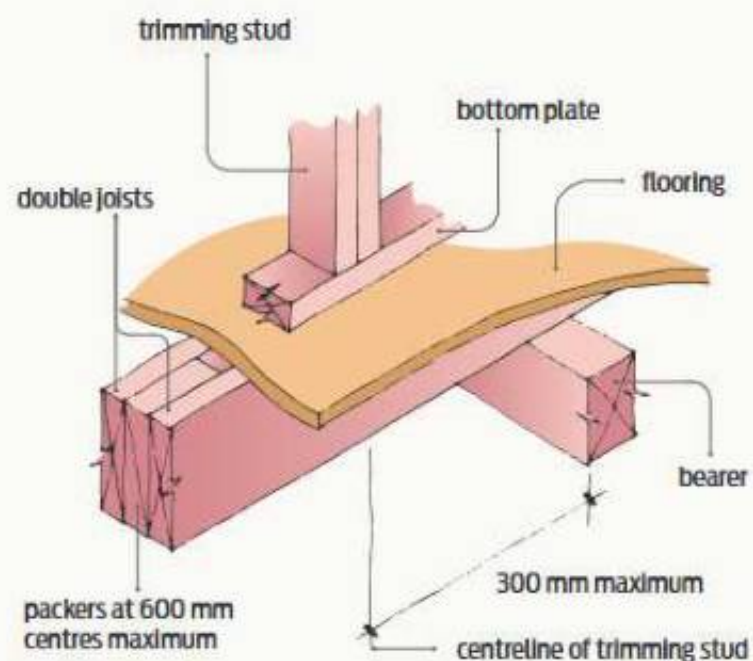


Figure 4 Trimming stud on double joists.

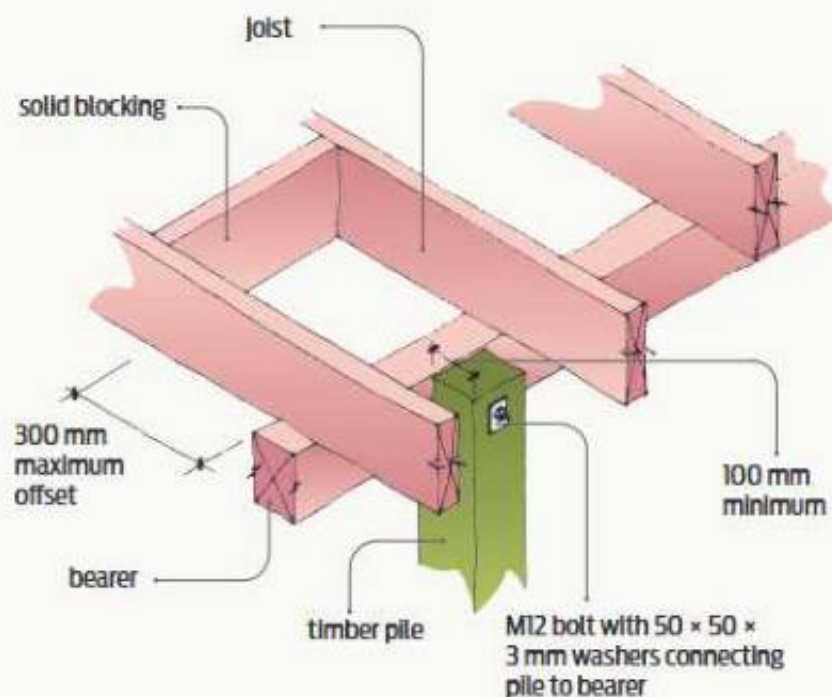


Figure 2 Lateral support offset from brace line (redrawn from NZS 3604:2011 Figure 6.10).

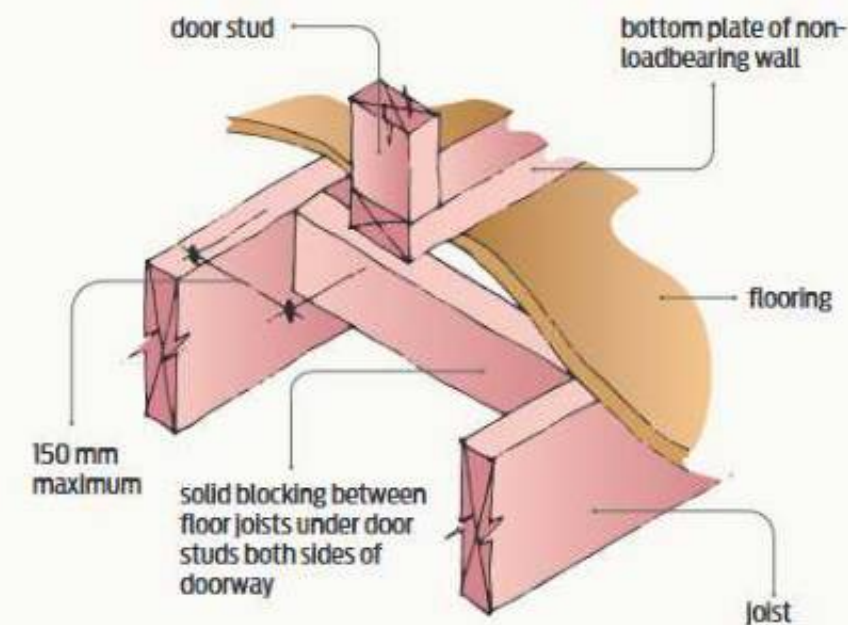


Figure 5 Support below doorway under loadbearing wall.

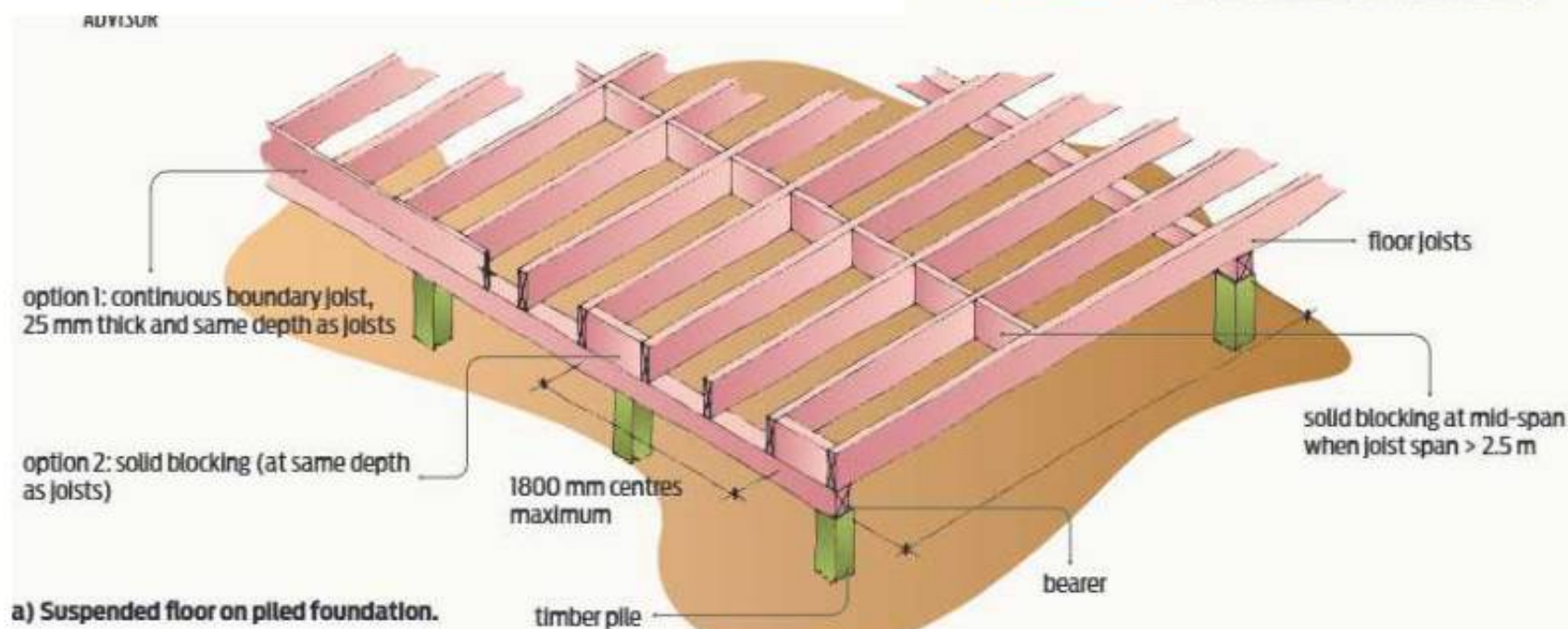
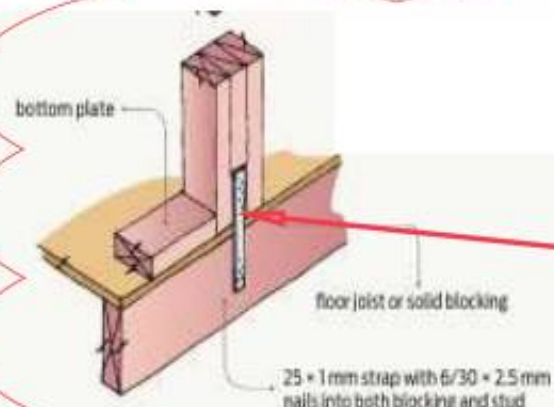


Figure 3 Packers between doubled joists under loadbearing walls.

Bottom Plate Fixing
General 3/gun nails at 600 mm centres maximum into floor joists, strapping at all trim studs and bracing studs

"Bottom plates over suspended timber floor to be fixed using 3.15 mm dia. x 75 mm nails into each joist or continuous timber support at 600 mm max centres, as per NZS 3604:2011 Clause 7.5.12. Additional bracing fixings per Table 8.18 where required."



Compliance Summary Table –

Building Code Clause Clause Title Compliance Path / Location in Plans

B1 Structure NZS 3604:2011 used throughout. Bracing layout Sheet 08. Foundation Sheet 09.

B2 Durability Timber treatment (H1.2/H3.2) noted. Claddings and fixings on Sheets 03, 16.

C1–C6 Protection from Fire Not applicable (detached minor dwelling <10 m to boundary).

D1 Access Routes Not specifically applicable (single residential dwelling).

E1 Surface Water Stormwater plan Sheet 23. Driveway drainage Sheet 04.

E2 External Moisture Cladding & flashing details Sheets 16, 20. Risk matrix Sheet 21.

E3 Internal Moisture Wet area linings Sheet 03. Extraction fans shown.

F2 Hazardous Building Materials Interior linings/materials Sheet 03. No MDF used.

F4 Safety from Falling Deck/porch to meet F4 – requires barriers if >1m fall.

G4 Ventilation Mechanical ventilation for bathroom/kitchen Sheet 03.

G5 Interior Environment Insulation and ventilation meet comfort levels.

G9 Electricity Electrical layout Sheet 22.

G10 Piped Services Plumbing layout Sheet 23.

G12 Water Supplies Water tanks shown Sheets 05, 23.

G13 Foul Water Septic tank and field Sheets 05, 23.

H1 Energy Efficiency Insulation for Zone 3 Sheet 03. H1 calculations Sheet 21.

GENERAL NOTES & ASSUMPTIONS

- Project Information
- All work shall comply with the New Zealand Building Code (NZBC), including but not limited to Clauses B1–B2, E1–E2, F4, G4, H1.
 - All dimensions are in millimetres unless otherwise noted.
 - Do not scale drawings. Use written dimensions only.
 - Contractor to verify all dimensions and levels on site prior to commencement of work or fabrication.
 - Discrepancies between drawings or with site conditions shall be reported to the designer prior to proceeding.

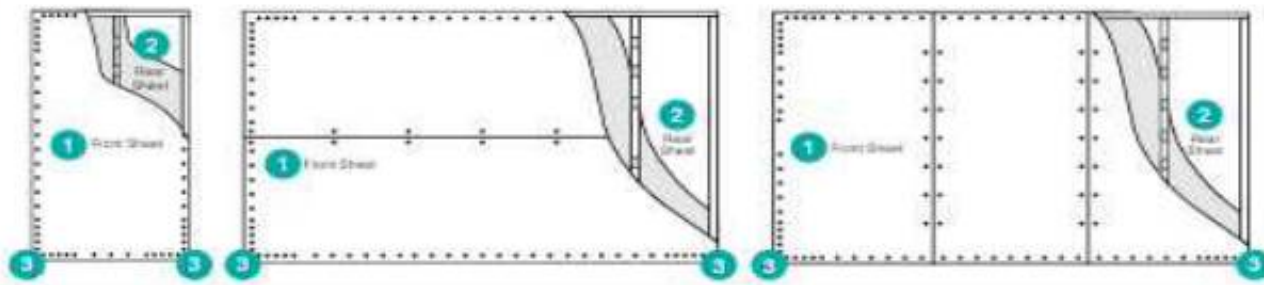
- Construction
- All construction to be carried out in accordance with NZS 3604 (or specific alternative structural design if applicable).
 - All proprietary products must be installed strictly in accordance with current manufacturer's specifications.
 - All fixings, brackets, and fasteners must be stainless steel or other approved corrosion-resistant material in coastal or high-risk zones.
 - All timber used shall be treated as per NZS 3602 requirements for durability based on exposure conditions.

- Consent & Inspections
- Building Consent must be obtained prior to commencing construction.
 - All applicable inspections must be booked and approved by the Building Consent Authority (BCA).
 - Any variations or changes made during construction must be approved by the designer and the BCA.

- Services & Coordination
- Contractor is responsible for coordinating all subtrades and ensuring no conflicts occur between structural, plumbing, HVAC, and electrical systems.
 - Final location of plumbing, electrical points, and appliances to be confirmed on site with owner and contractor.

- Assumptions
- These plans are prepared based on client-supplied information and standard construction practices.
 - It is assumed the site is free of contamination, hazardous materials, and archaeological significance unless otherwise identified.
 - The designer is not responsible for means, methods, sequences, techniques, or procedures of construction, nor for safety precautions and programs.

5.1.1 Installation Summary



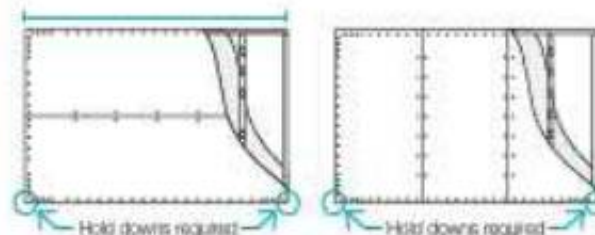
Sheet Installation

	Front Sheet 1		Rear Sheet 2		Panel Hold-Down Fixings 3	Fastener Spacing
	Lining	Fasteners	Lining	Fasteners		
GS2-NOM	Any 10mm or 13mm GIB® plasterboard	Minimum 32mm x 6g GIB® Grabber® high thread screws	Any 10mm or 13mm GIB® plasterboard	Minimum 32mm x 6g GIB® Grabber® high thread screws	Not Required	Corner fastening pattern as illustrated on p. 65. All four corners of GS2-NOM bracing element must be fastened at 50mm and 250mm from the edge of the sheet at 300mm centres
GS1-N	Any 10mm or 13mm GIB® plasterboard	Minimum 32mm x 6g GIB® Grabber® high thread screws	Not Required	Not Required	Not Required	GIB® Plasterboard Corner fastening pattern as illustrated on p. 65 Fasteners at 150mm to bracing element perimeter and: at 300mm centres to intermediate sheet joints for vertical fixing, or at stud/sheet junction for horizontally fixed elements, and GIBFix® adhesive daubs at 300mm are to intermediate framing Structural Plywood Fasteners at 150mm around the perimeter of every sheet and at 300mm centres to intermediate studs. Place fasteners no closer than 7mm from sheet edges. Plasterboard corner fastener pattern does not apply to plywood
GS2-N	Any 10mm or 13mm GIB® plasterboard	Minimum 32mm x 6g GIB® Grabber® high thread screws	Any 10mm or 13mm GIB® plasterboard	32mm x 6g GIB® Grabber® high thread screws	Not Required	
GSP-H			Minimum 7mm structural plywood manufactured to AS/NZS 2269	50mm x 2.8mm flat head galvanised or stainless steel nails	Yes	
BL1-H	10mm or 13mm GIB Braceline®	Minimum 32mm x 6g GIB® Grabber® high thread screws	Not required	Not required		
BLG-H			Any 10mm or 13mm GIB® plasterboard	32mm x 6g GIB® Grabber® high thread screws		
BLP-H			Minimum 7mm structural plywood manufactured to AS/NZS 2269	50mm x 2.8mm flat head galvanised or stainless steel nails		

BLP-H

- 10mm or 13mm GIB Braceline® to one side of the wall only
- 7mm structural plywood to the other side
- Corner fastening pattern applies (see p. 65)
- 32 x 6g GIB® Grabber® screws or GIB® Grabber® Dual Thread screws at 150mm to perimeter (plasterboard side). 50 x 2.8mm FH nails at 150mm to plywood perimeter. Corner fastening pattern not applicable (plywood side)
- Panel hold downs required
- Centre of the sheet may be fixed with adhesive or fastenings at 300mm
- Joints and fastener heads must be stopped
- GIB® tape must be used in joints
- Sheets may be fixed horizontally or vertically

Bracing Element - Plasterboard side shown



Horizontal Fixing

Vertical Fixing

Single Across

To Add Elements, right click when on the Element above which you want to insert the Element.

To Add Lines, right click when on the Line above which you want to insert the Line.

										Wind	Earthquake
										Demand	
										617	1359
										Resistance	
										1623	1450
										263%	107%
A		1	1.9		2.6	BL1-H	GIB®	210	182	612 OK	544 OK
		2	0.7		2.6	BL1-H	GIB®	67	66		
		3	1.2		2.6	BL1-H	GIB®	133	115		
		4	1.1		2.6	BL1-H	GIB®	122	105		
		5	0.8		2.6	BL1-H	GIB®	80	75		
B		1	1.6		2.6	GS1-N	GIB®	102	89	466 OK	407 OK
		2	1.6		2.6	GS1-N	GIB®	102	89		
		3	2.9		2.6	GS2-N	GIB®	262	230		
C		1	0.9		2.6	GS1-N	GIB®	52	49	384 OK	337 OK
		2	1.9		2.6	GS1-N	GIB®	121	105		
		3	1.7		2.6	GS1-N	GIB®	108	94		
		4	1.6		2.6	GS1-N	GIB®	102	89		
D		1	1.1		4.0	BLP-H	GIB®	79	79	181 OK	161 Check
		2	0.4		2.8	BLP-H	GIB®	41	41		
		3	0.4		2.8	BLP-H	GIB®	41	41		

GIB EzyBrace® Bracing Software



Single Along

To Add Elements, right click when on the Element above which you want to insert the Element.

To Add Lines, right click when on the Line above which you want to insert the Line.

										Wind	Earthquake
										Demand	
										476	1359
										Resistance	
										2037	1792
										428%	132%
M		1	2.6		2.6	BL1-H	GIB®	288	250	527 OK	462 OK
		1	0.75		2.6	GS1-N	GIB®	42	41		
		3	3.1		2.6	GS1-N	GIB®	197	172		
N		1	0.9		2.6	BL1-H	GIB®	94	85	460 OK	410 OK
		1	1.3		2.6	BL1-H	GIB®	144	125		
		1	0.70		2.6	BL1-H	GIB®	67	66		
		4	1.4		2.6	BL1-H	GIB®	155	134		
O		1	3		2.6	BL1-H	GIB®	332	288	332 OK	288 OK
P		1	2.8		2.6	GS2-N	GIB®	253	222	253 OK	222 OK
Q		1	2.8		2.6	GS2-N	GIB®	253	222	253 OK	222 OK
R		1	0.8		2.6	GS1-N	GIB®	45	44	211 OK	188 OK
		2	1.5		2.6	BL1-H	GIB®	166	144		



DesignWorx

Date Created: February 4, 2025

Date modified: September 15, 2025

gib bracing details

29/34

4.0 PILE FOUNDATIONS

4.1 TIMBER PILES GENERALLY

4.1.1 Timber piles are round or square sections of treated timber that are either:

- set on a concrete footing in a hole dug in the ground (ordinary piles)
- fully encased in concrete (braced or anchor piles)
- mechanically driven into the ground.

4.1.2 Timber piles must comply with NZS 3605:2001 *Timber piles and poles for use in building* and may be:

- 140 mm minimum diameter natural round timber
- 125 x 125 mm square sawn timber.

4.1.3 Anchor piles must be marked as required in NZS 3605 with an 'A'.

4.1.4 Timber piles must be treated against decay to hazard class H5 of NZS 3640:2003 *Chemical preservation of round and sawn timber*. If a timber pile is cut, the surface of the cut must be retreated with preservative. No cuts in the treated piles must occur closer than 300 mm to the finished ground level. This can be reduced to 150 mm if a damp-proof course (DPC) is placed between the pile and framing timbers. A cut end must not be placed in the ground, and exposed cut ends must be site treated with a timber preservative.

4.1.5 All preservative-treated piles must be branded to the requirements of NZS 3640.

4.1.6 No notching or boring of piles within 150 mm of the ground is permitted by NZS 3604.

4.1.7 Timber piles may support a bearer or a jack stud.

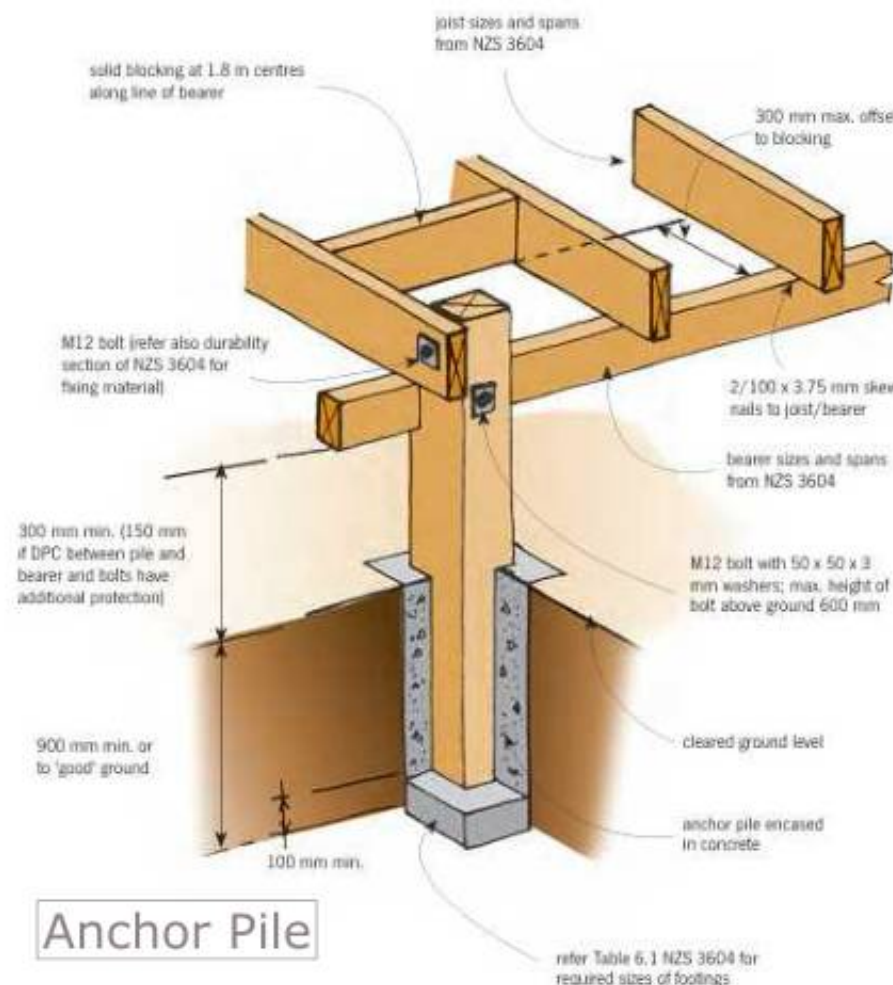
6.0 FIXINGS AND DURABILITY

6.0.1 NZS 3604 Table 4.1 specifies the requirements for metal connections within pile foundation systems.

6.0.2 Stainless steel is required for

- all connections to ACQ and CuAz treated timber
- all structural fixings in exposure zone D
- connections to treated piles within 600 mm of the ground in a sheltered or exposed situation
- connections to treated piles that are more than 600 mm from the ground in an exposed situation where the subfloor ventilation is more than 7000 mm² per m² of floor area.

6.0.3 Hot-dip galvanising can be used for connections to treated piles that are more than 600 mm from the ground in a sheltered situation where the subfloor ventilation is less than 7000 mm² per m² of floor area.



Note:
1. Bearers must not be joined at an anchor pile.
2. Proprietary connectors to give a 12 kN rated connection may be used in lieu of the M12 bolts for pile/bearer and joist/pile intersections.

4.8.1 Anchor piles are short piles with deep footings designed to resist horizontal forces along and across the building – each pile contributes 160 wind bracing units and 120 earthquake bracing units to the total requirement.

4.8.2 Anchor piles must be a minimum of 900 mm deep in the ground and surrounded with concrete (Figure 7) for the full depth including the 100 mm depth of concrete under the base of the pile. Concrete around the pile must be a minimum of 400 mm

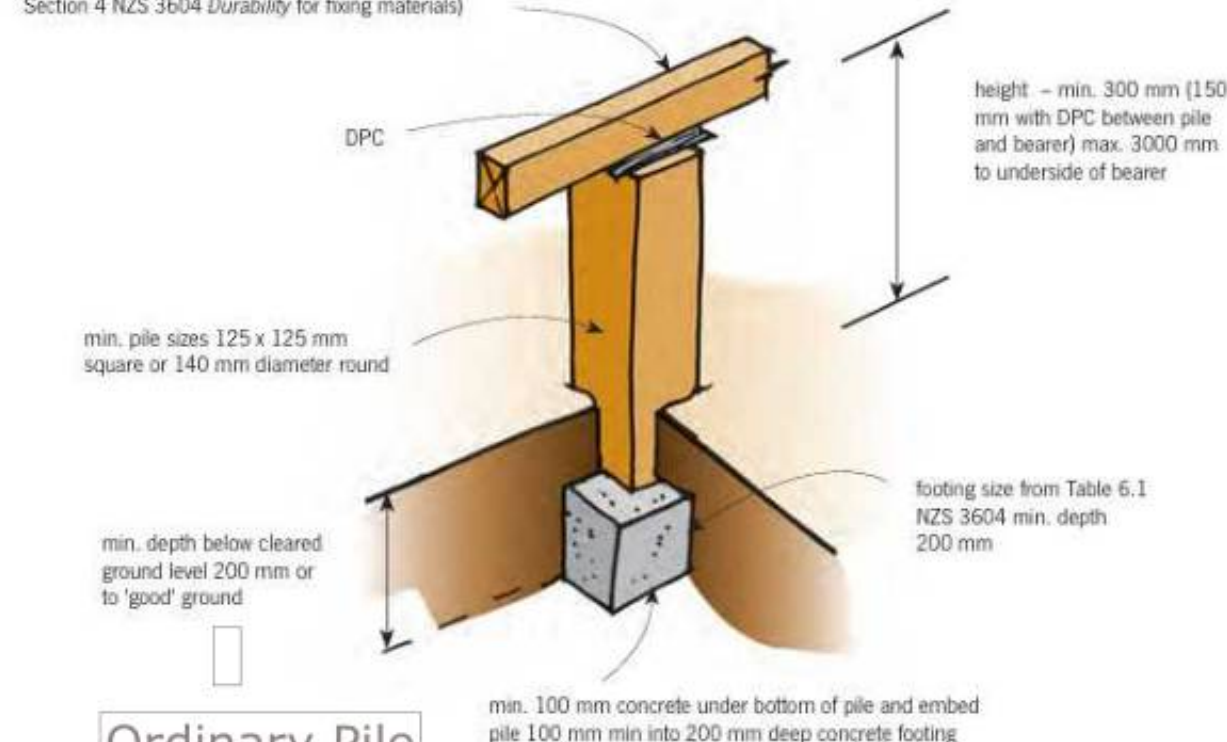
diameter or 350 x 350 mm if square. Anchor piles are fixed to the bearer and floor joists with the upper fixing at a maximum of 600 mm above cleared ground to the fixing.

4.8.3 Required connections adjacent to the anchor piles are:

- pile to bearer – an M12 bolt with 50 x 50 x 3 mm square washer (or 55 mm diameter x 3 washer) or a 12 kN proprietary connector
- joist to pile (where adjacent) – an M12 bolt with 50 x 50 x 3 mm square washer (or 55 mm diameter x 3 washer)
- joist to bearer – 6 kN proprietary connector to two joists adjacent to the pile.

4.8.4 The basic requirements and configuration of anchor piles are shown in Figure 7.

fix bearer to pile with 2/100 x 3.75 mm flat head nails plus 2/4.9 mm wire dogs or 4/100 x 3.75 mm nails (refer to Section 4 NZS 3604 *Durability* for fixing materials)



Ordinary Pile

TABLE 1: SUMMARY OF PILE TYPES AND KEY INSTALLATION REQUIREMENTS

Pile type	Load resistance	Bracing units	Minimum depth in the ground	Concrete footing ¹	Height above ground
Ordinary timber (Figure 3)	Vertical only	None provided	200 mm	200 mm deep with 100 mm pile embedment	Min. 150 mm ² Max. 3000 mm
Ordinary concrete (Figure 4)	Vertical only	None provided	200 mm	100 mm deep	Min. 150 mm ² Max. 1500 mm
Driven timber ordinary (Figure 5)	Vertical only	None provided	900 mm in gravel 1200 mm in other soil until driving resistance is reached (maximum pile length of 3600 mm applies)	Not required	Min. 150 mm ² Max. 2700 mm
Driven timber cantilever (Figure 5)	Vertical and horizontal	Wind 70 Earthquake 30	900 mm in gravel, 1200 mm in other soil or until driving resistance is reached	Not required	Min. 150 mm ² Max. 1200 mm
Braced (Figure 6)	Vertical and horizontal	Wind 160 Earthquake 120	450 mm or as for driven piles	450 mm or driven pile	Min. 600 mm Max. 3000 mm timber, 2700 mm for driven timber or 1500 mm for concrete
Anchor (Figure 7)	Vertical and horizontal	Wind 160 Earthquake 120	900 mm	900 mm	Min. 150 mm ² Max. 600 mm to highest fixing

- the calculation of subfloor bracing and location of bracing lines.

3.0.3 Other design parameters that need to be considered for pile foundations include:

- the design floor loads – section 14 of NZS 3604 gives the requirements for 3 kPa floor loads
- required clearances from the top of a bank or slope (NZS 3604 section 3)
- the need to provide subfloor support to loadbearing walls above (NZS 3604 Figure 6.1)

Fixing rows when installed vertically

Fixing requirements differ for vertically installed profiled metal:

- Have a row of fixings along the line of the top and the bottom of the cladding panel. Depending on the eaves construction, a row of dwangs may be required at the eaves soffit line to fix into.
- For panel lengths:
 - up to 2.4 m, one intermediate row of fixings
 - over 2.4 m, intermediate rows of fixings at 1200 mm maximum centres (see Figure 2).
- Dwangs at 480 mm maximum centres for corrugate and symmetrical trapezoid profiles (from E2/AS1 clause 9.1.8.5).

Trough versus crest fixing

E2/AS1 permits trough or crest fixing for both horizontal and vertical installations while:

- the *New Zealand Metal Roofing and Wall Cladding Code of Practice* recommends trough or pan fastening for all wall cladding fastenings
- BRANZ considers trough fixing preferable for horizontal installations and crest fixing for vertical installations to lower weathertightness risk at fixings.

The choice is then with the designer. Factors to consider include:

- the industry standard is trough fixing
- trough fixing reduces the visual impact of the fixings
- trough fasteners will generally withstand twice the serviceability load of a crest fastener as the cladding does not buckle around the fastener head to the same degree
- crest fixing can flatten or distort the profile if the fixing is overdriven
- correctly compressing the sealing washer during fixing is easier with trough fixing as the metal is hard against the framing/batten and less likely to flex
- locating a fixing on the crest for a vertical installation positions the fixing out of the primary water drainage path
- trough fixing will likely be required where the panel is subject to specific structural design and being used to provide lateral stability to the wall.

Installation must-dos

When installing sheets, ensure:

- the framing is straight and true
- the sheet is firmly against the framing

Ridge flashing fixed every second crest

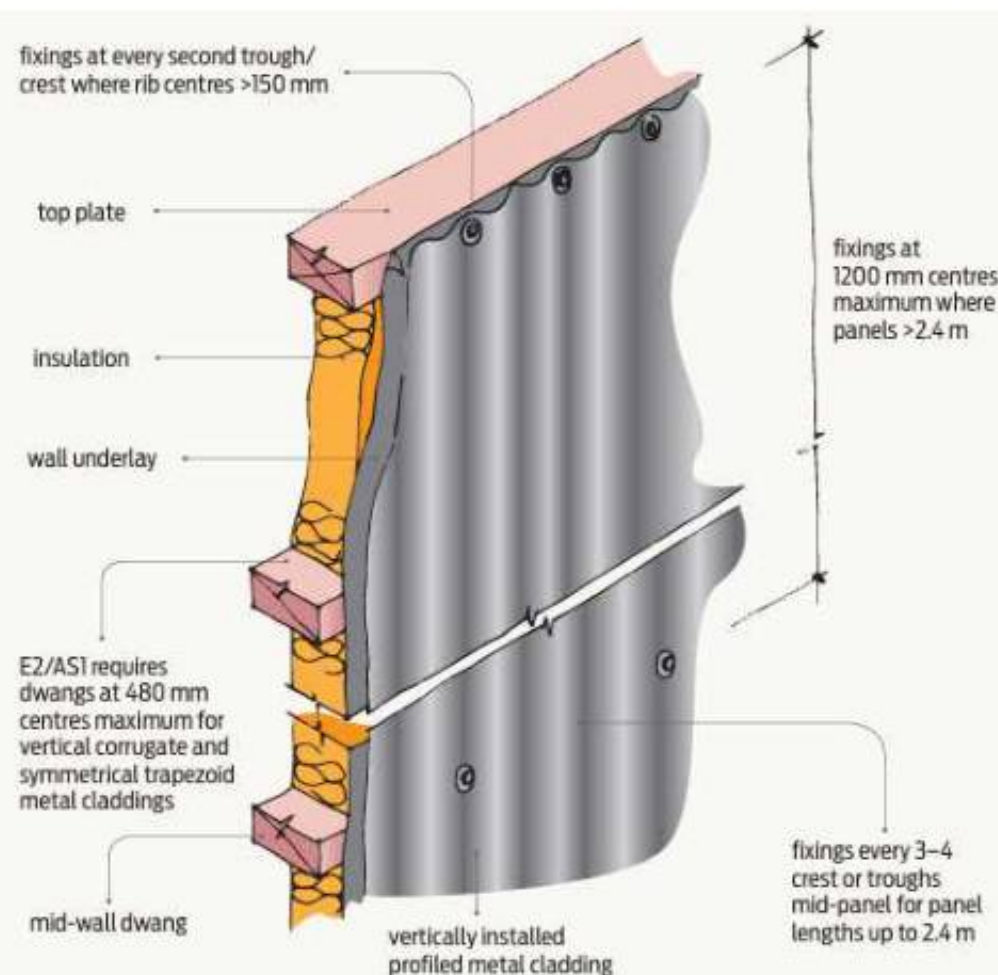


Figure 2 Fixings for vertically installed profiled metal cladding.

- fixing lines are straight, particularly for the more visible crest fixings
- profiles are vertical/horizontal
- ground clearances are maintained
- an allowance for thermal movement is incorporated into the detailing – a minimum of 5 mm is required by E2/AS1 for horizontal installations of profiled metal
- sheets are not cut with an abrasion disc
- flexible wall underlay is restrained as shown in E2/AS1
- fixings are driven straight into the framing
- fixings have a minimum timber framing penetration of 30 mm
- fasteners have a durability matching that of the cladding
- sheets are not marked with a carbon lead pencil.

NUMBER OF FASTENERS PER SHEET PER PURLIN

For Roof and Wall Cladding (Fully Lined Buildings).

SUPPORTED AT 1,200MM MAXIMUM CENTRES

Profile	Wind Zone (to NZS 3604)				Ends
	Low	Medium	High	Very High	
Custom Orb .40mm	2	2.5	3	4	5
Plumbdek, Trimform .40mm"	2	2	2.5	4	4
Trimline .40mm"	2	2	3	4	5
Trimklad .40mm"	3	3	3	3	4

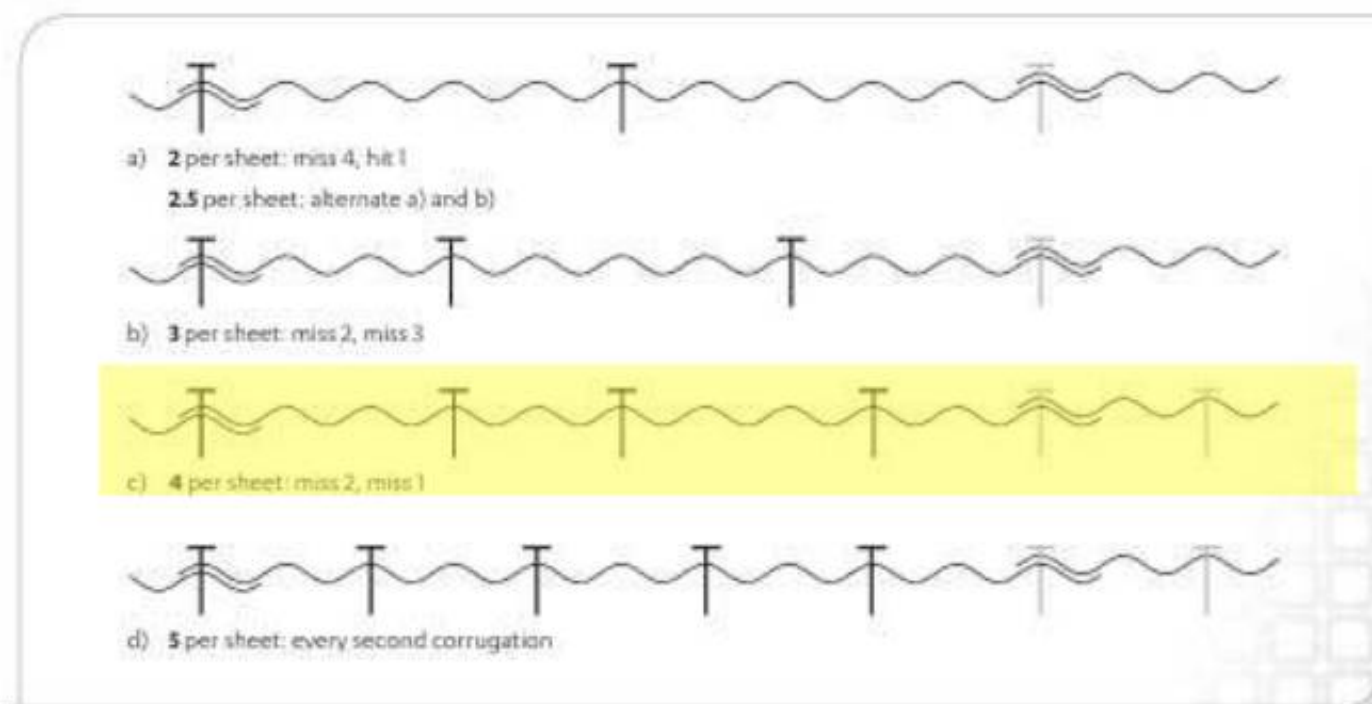
SUPPORTED AT 900MM MAXIMUM CENTRES

Profile	Wind Zone (to NZS 3604)				Ends
	Low	Medium	High	Very High	
Custom Orb .40mm	2	2	3	4	5
Plumbdek, Trimform .40mm	2	2	2	3	4
Trimline .40mm	2	2	2	3	5
Trimklad .40mm	3	3	3	3	4

Notes

- Trimklad figures are for pan fastened, other figures for worst case pan or rib fastened.
- Treat penultimate purlin as Very High wind condition in all zones.
- Three fasteners per sheet minimum adjacent to eaves.

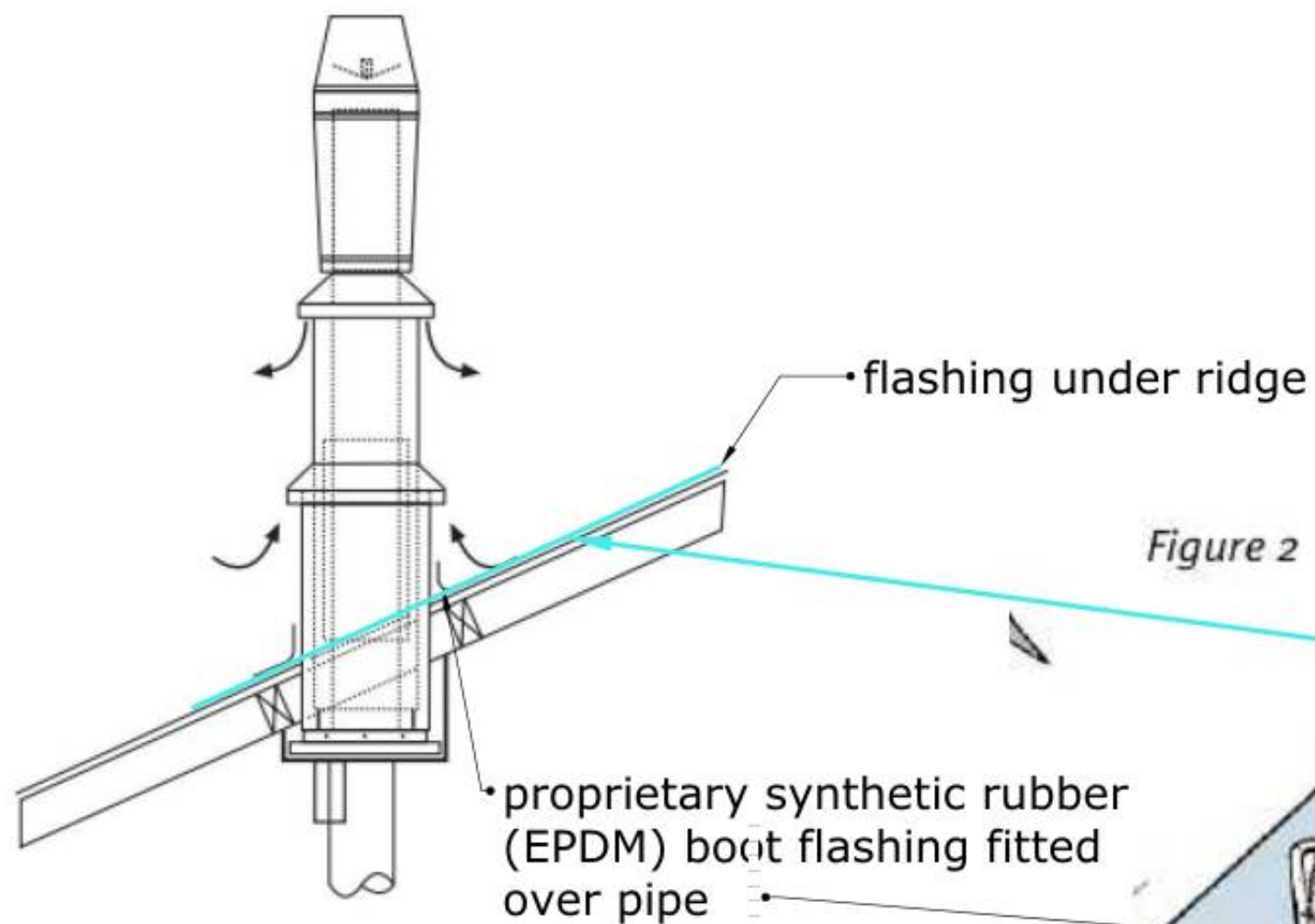
CUSTOM ORB



Property boot pipe flashing

Property boot pipe flashings must not be positioned in such a way that a dam is formed across a water channel. It is preferred that Property boot pipe flashings are positioned on the 'bias' rather than square across the sheet. If the pipe and Property boot pipe flashing dam up the pan or restrict more than 50% of the water flow around the pipe and flashing, an additional cover over flashing to the ridge and sealing of the Property boot pipe flashing to this flashing should be considered. Excess silicone sealant should be avoided, as it will add to the risk of water ponding.

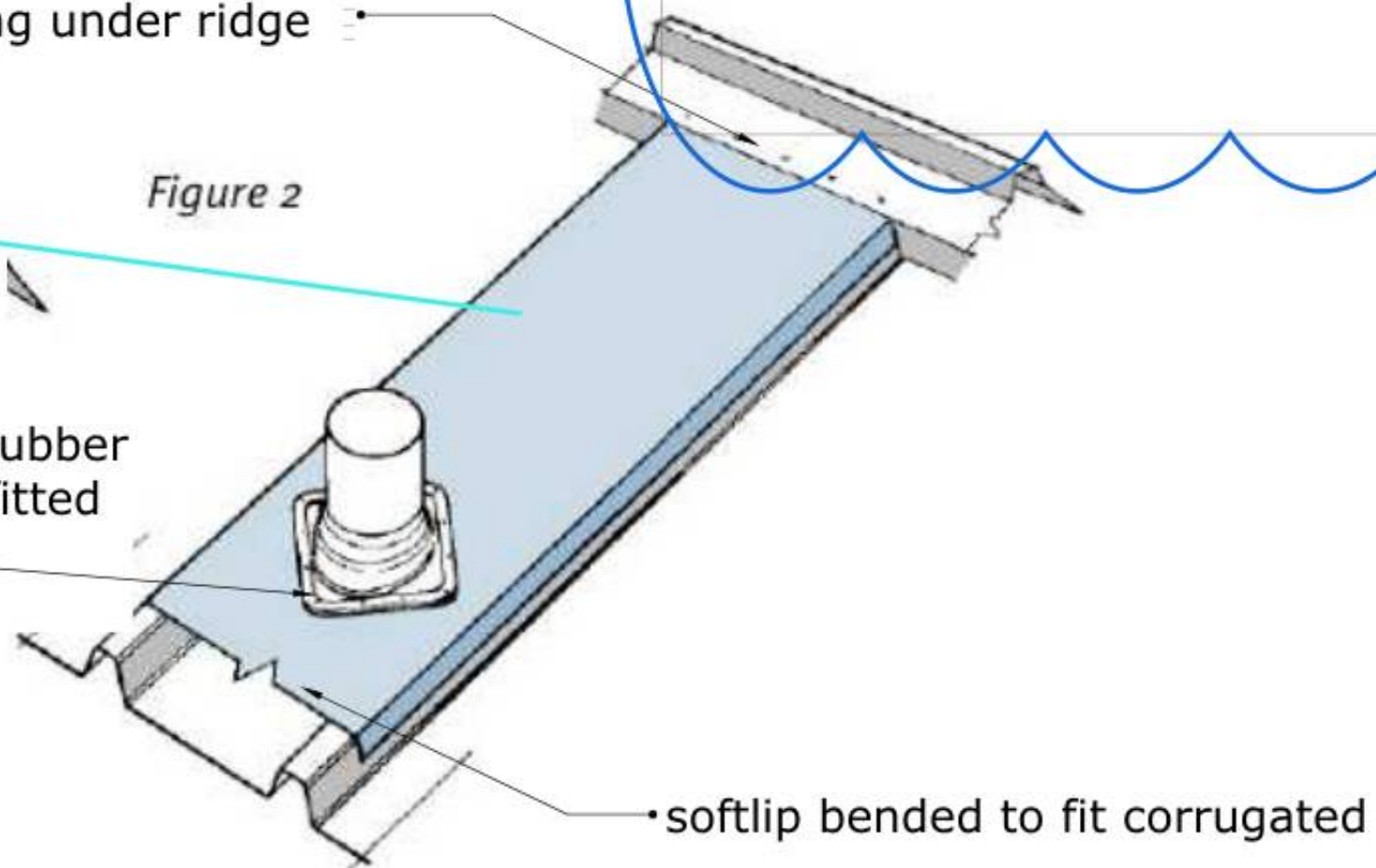
Penetration holes with their major dimension or diameter greater than 150mm must have support framing placed around the perimeter of the penetration holes.



Sloping ceiling

Requires the ECO flue kit and ECO option kit for air to be drawn into the flue system from outside the home.

Figure 2



To brace and anchor a Metro Tiny Rad Leg fireplace, use the seismic restraint holes on the rear edge of the fire's mount plate to secure it to the floor via the floor protector, using fixings like screws or raw plug masonry bolts that go through the floor protector and into the floor below. These fixings must securely anchor the fire but should not be over-tightened.

Steps for Bracing and Anchoring

1. Position the Fire:

After removing packaging, place the Metro fire onto the floor protector, ensuring all minimum wall clearances and floor protector projections are met or exceeded.

2. Locate Restraint Holes:

Identify the two seismic restraint holes on the rear edge of the fire's mounting plate.

3. Secure to the Floor:

Use appropriate fixings (e.g., screws or masonry bolts) to pass through these restraint holes, through the floor protector, and into the floor below.

4. Ensure Secure Anchoring:

The fixings are crucial to anchor the fire securely to the floor but should not be over-tightened to avoid damaging the floor or stripping the fixings.

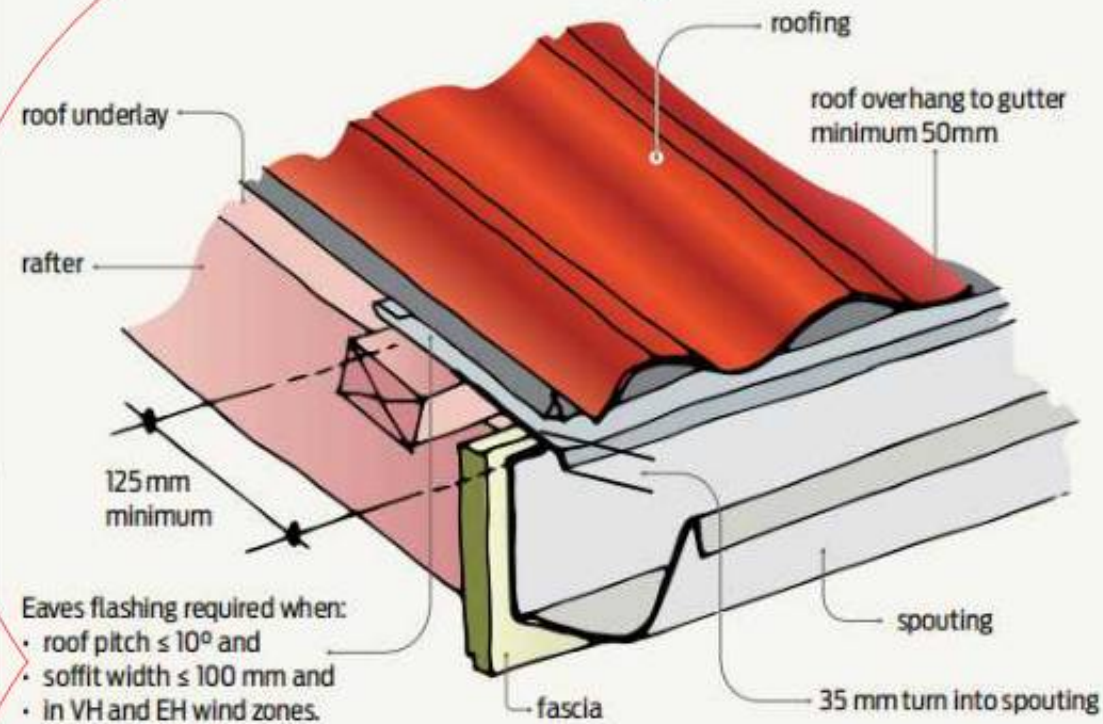


Figure 16 Eaves flashing.

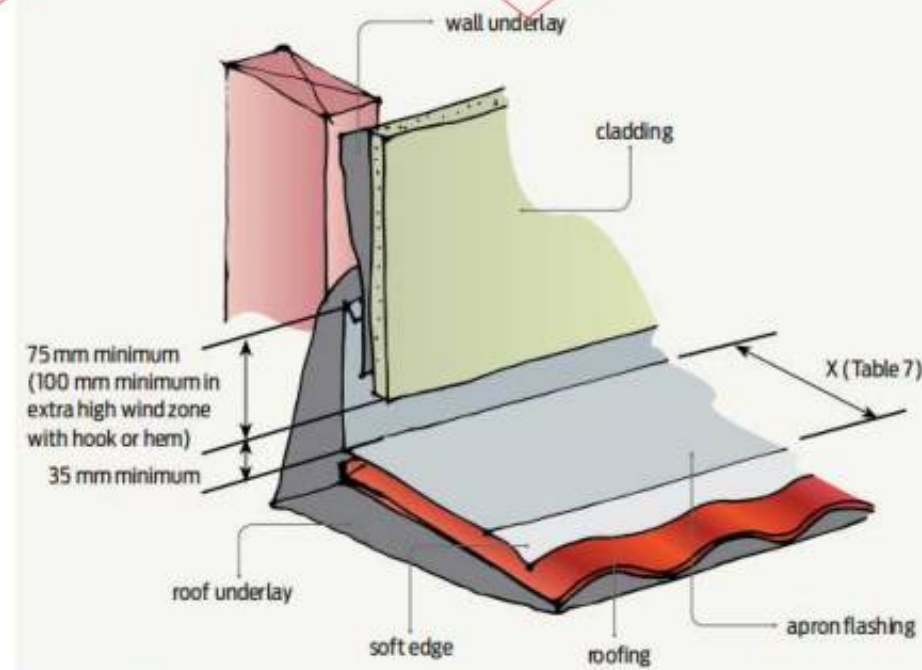


Figure 2 Transverse apron flashing.

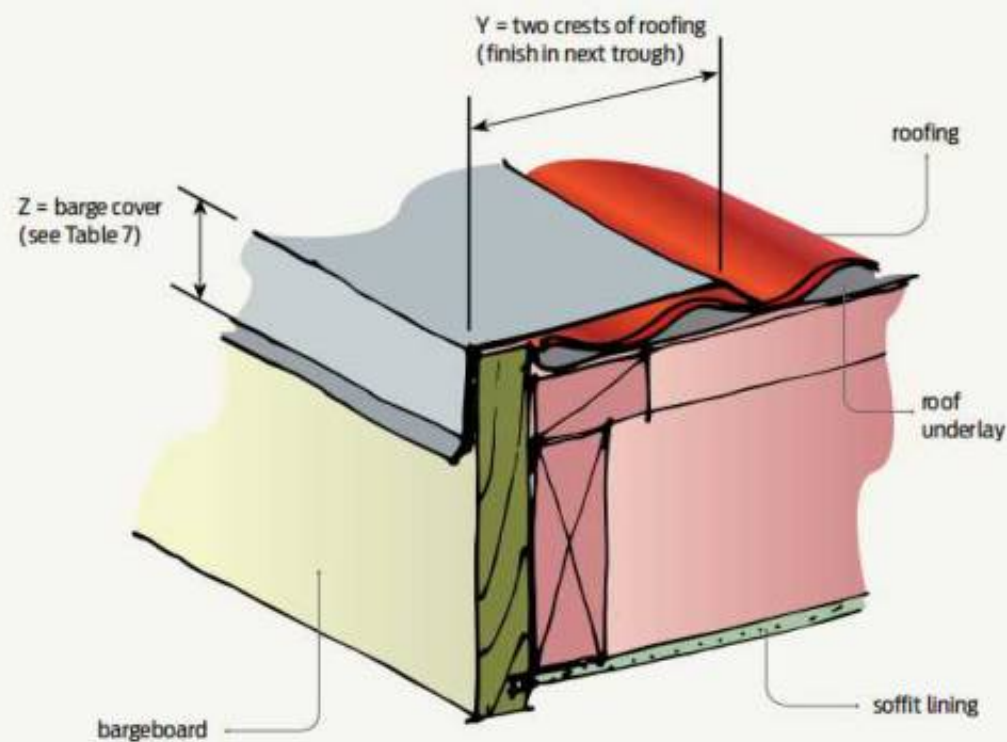
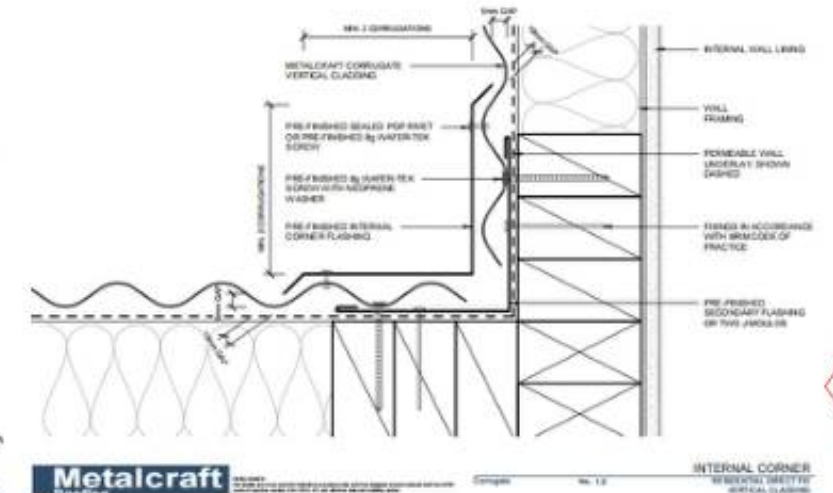
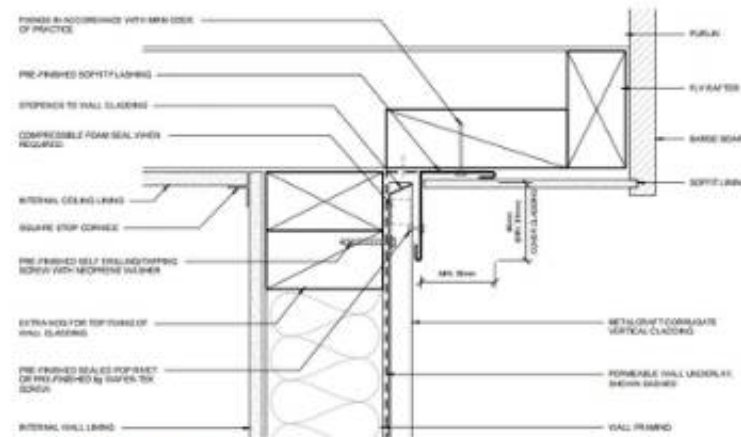
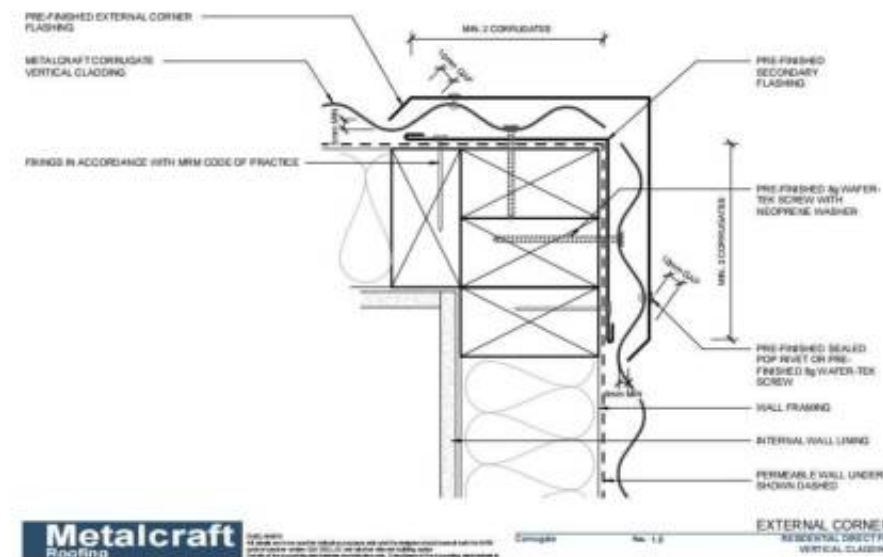
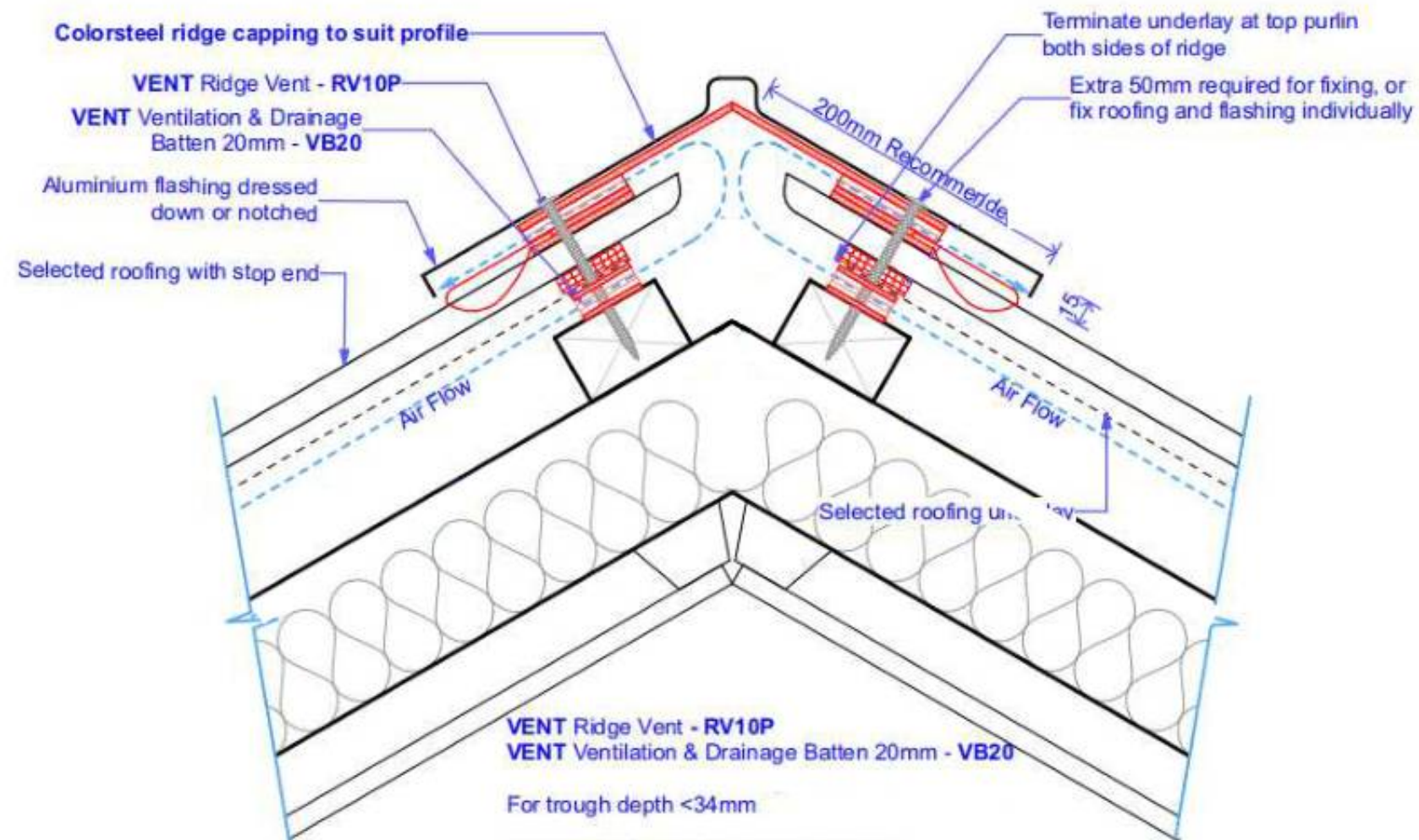
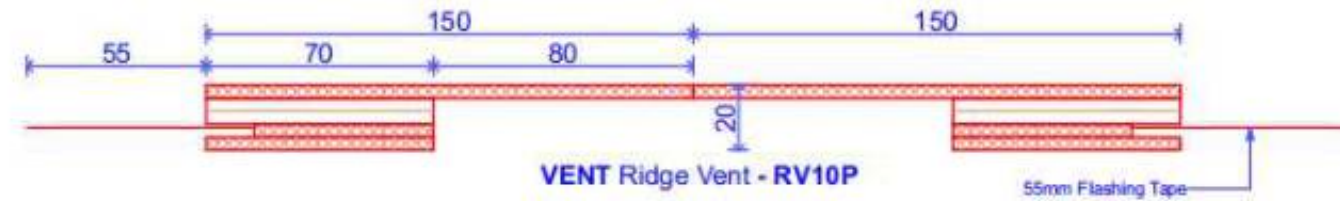


Figure 3 Barge flashing.





PROFILED STEEL ROOF CLADDING
 Ventilated Ridge Detail - Skillion Roof

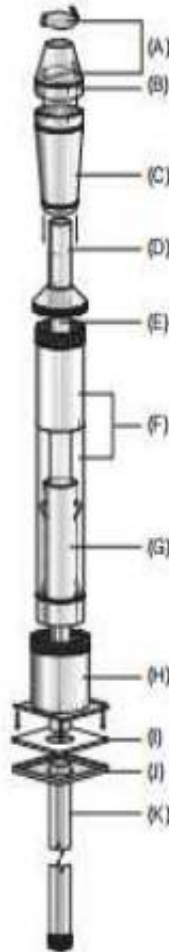
Main contractor to ensure correct placement of purlins for fixing of Ridge Vent

The Ridge cap is to be supplied by the roof cladding supplier.
 200mm ridge cap recommended to hide the soft edge flashing (if required)

Wood burner to be installed by approved installer . Ps1 required

ECO Flue Kit components

(A)	Stainless steel weather butterfly
(B)	Stainless steel ECO Cowl top
(C)	420x240mm diameter stainless steel ECO Cowl housing
(D)	480mm long stainless steel flue pipe extension with flashing cone
(E)	1200x150mm diameter stainless steel flue pipe
(F)	1200x250mm diameter galvanised outer casing with 750mm long slip liner
(G)	800x200mm diameter galvanised inner casing
(H)	Galvanised mounting plate with brackets and 300x300mm diameter casing attached
(I)	Insulation gasket
(J)	Clip-on ceiling plate (black)
(K)	1200x150mm diameter stainless steel flue pipe (metallic black) (x2)
+	1 x bag of assembly bolts

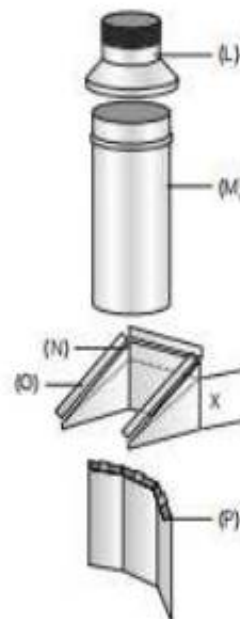


ECO Option Kit

The ECO Option Kit is designed to be 'added to' the ECO Flue Kit for installations that do not have a vented ceiling cavity and require the flue systems cooling air to be drawn in from above the roofline (outside the home).

ECO Option Kit components

(L)	External intake flashing cone
(M)	1x 750x300mm diameter outer liner extension
(N)	Drop box infill panel
(O)	Drop box edge covers
(P)	Ceiling plate mounted heat shield



Tiny Rad - Leg

Designed for heating smaller homes and open areas, the Tiny Rad Leg model features a surprisingly large volume firebox for a compact sized wood fire. Cook your favourite soup or boil the kettle on the dedicated radiant cooktop. This fire punches well above its weight with a peak heat output of 11kW. A small versatile fire that does it all and will provide you many years of warmth.

Clear air space over model	
Heat output	11kW peak heat output
Heating area	Heat up to 100m² / 2-3 bedroom home
Finish	Metallic black high temperature paint
Webbback	Optional Side webbback
MSZ	260700 (DRY) / 260701 (WET)
Emission	63gms (DRY) / 8.6gms (WET)
Efficiency	60% (DRY) / 60% (WET)
SKU	200-0136

Minimum installation clearance with a Plaster or fire rated stud (mm)

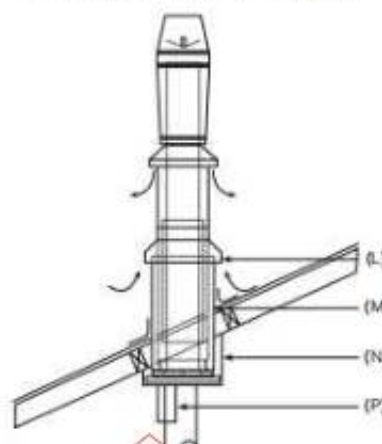
	A	B	C	D	E	F	G	H	I	J	K	L	M
250	500	500	340	160	230	210	300	80	80	100	100	100	300

Model: Width: 515mm, Depth: 450mm, Height: 615mm, 215mm, 415mm

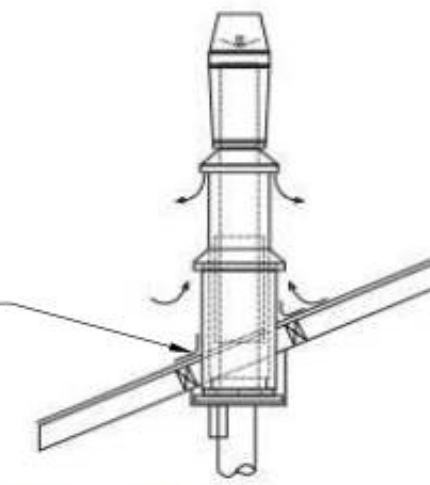
Specifications were correct at the time of printing but may alter and these details should be used only as a guide. For details, please consult your local MetroFires stockist. Peak heat outputs (kW) are based on the ISO9914 test method using dry pine with heating under taken by independent International Accredited New Zealand (IANZ) testing facilities.

metrofires
metrofires.co.nz

ECO Flue Kit and ECO Option Kit assembled



proprietary flue sleeve, edges shaped to match roof profile



Sloping ceiling

Requires the ECO flue kit and ECO option kit for air to be drawn into the flue system from outside the home.

MINIMUM HEIGHTS FOR ALL METRO FLUE SYSTEMS

(In compliance with AS/NZS 2918)

The Metro ECO Flue Systems comply with AS/NZS 2918 and its 4.6 metre height requirement (4.6 metre minimum from the top of the floor protector to the top of the flue pipe). However as external structures and the proximity of other buildings will differ for every installation, some situations will require additional flue height to comply with the standard.

Please refer to Diagrams 3 and 4 below. (All measurements in mm)

Note: AS/NZS 2918 Section 4, details flue system installation requirements in full.

Diagram 3

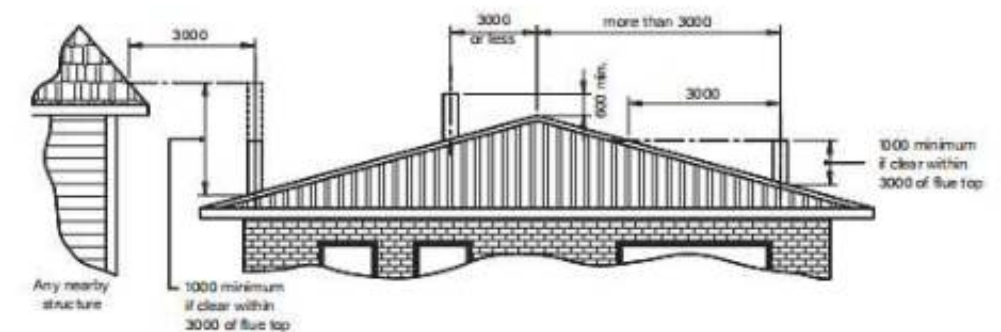


Diagram 4

