The Links

Project Specification

110 & 124 WANAKA-LUGGATE HIGHWAY , RD 2 , WANAKA 9382, New Zealand
110 Luggate LTD
Project Ref: 2532
Date: 02 October 2026

BUILDING CONSENT



PROJECT SPECIFICATION Works, materials and workmanship for construction in accordance with the accompanying drawings.

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1220 PROJECT

1 GENERAL

This general section describes the project including:

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

1.1 READ ALL SECTIONS TOGETHER

Read all general sections together with all other sections.

1.2 DESCRIPTION OF THE WORK

Construction of Stand alone or duplex two storey townhouses. Refer to Site Plan.

1.3 RESTRICTED BUILDING WORK

This project includes Restricted Building Work.

Design Construction Safety

1.4 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

1.5 PRINCIPAL'S KNOWN SITE HAZARDS

Site hazards known to the principal are:

No known site hazards.

1.6 PRINCIPAL'S SITE HEALTH AND SAFETY PLAN

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

Site

1.7 SITE

The site consists of: 110 & 124 Luggate Wanaka Highway
As shown on drawing: Site Plan

1.8 LEGAL DESCRIPTION

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

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: B

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)

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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 is: 3

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.



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1278SR SCHEDULE OF SLIP RESISTANCE TESTING

1 GENERAL

This section relates to the testing of surfaces for slip resistance. It includes:

- test methods and minimum test values required for slip resistance testing.
- general reporting requirements.

This section includes schedules identifying work sections with:

- slip resistant surfaces exempt from testing and slip resistant surfaces that have been tested and comply with NZBC D1/AS1 requirements for testing.
- surfaces that require slip resistance testing.

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

- 1232S1 EXPLANATION OF SCHEDULE SECTIONS
- Work sections identified in the schedule(s)

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

BPN	British Pendulum Number
COF	Coefficient of friction
SDV	Slope design value
SRV	Slip resistance value

Documents

1.3 DOCUMENTS

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

NZBC D1/AS1	Access routes
AS 4586	Slip resistance classification of new pedestrian surface materials

Slip resistance - surfaces not requiring testing

1.4 SLIP RESISTANCE - SURFACES EXEMPT FROM TESTING

There are no work section requirements.

1.5 SLIP RESISTANCE - PREVIOUSLY TESTED SURFACE

There are no work section requirements.

Slip resistance - surfaces requiring testing

1.6 SLIP RESISTANCE - SURFACES REQUIRING TESTING

There are no work section requirements.

1.7 TEST METHODS & MINIMUM TEST VALUES

Refer to tables below for test methods and minimum test values required for the stated test condition.

Test condition:	Minimum test value required:	Test method:
Level access wet	39 SRV	Wet pendulum test method of AS 4586, Appendix A using the Slider 96 rubber.
Sloping access wet	Refer to sloping access wet table below, select BPN value for stated slope.	Wet pendulum test method of AS 4586, Appendix A
Stairs wet - with slip resistant nosings	39 SRV	Wet pendulum test method of AS 4586, Appendix A using the Slider 96 rubber.

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Stairs wet - without slip resistant nosings	50 BPN	Wet pendulum test method of AS 4586, Appendix A
Wet areas primarily used barefoot	“B” Classification	Obtain classification from the ramp method of AS 4586, Appendix C
Level access dry	0.4 COF	Obtain slip resistance value from the dry floor friction test method of AS 4586, Appendix B
Sloping access dry	Refer to sloping access dry table below, select COF value for stated slope.	Obtain slip resistance value from the dry floor friction test method of AS 4586, Appendix B
Stairs dry - with slip resistant nosings	0.4 COF	Obtain slip resistance value from the dry floor friction test method of AS 4586, Appendix B
Stairs dry - without slip resistant nosings	0.525 COF	Obtain slip resistance value from the dry floor friction test method of AS 4586, Appendix B

Sloping access wet - minimum test values required for a given slope

Minimum test value required (SDV)	Maximum gradient	Maximum slope in degrees
42 BPN	1 in 39	1.5°
43 BPN	1 in 29	2.0°
44 BPN	1 in 23	2.5°
45 BPN	1 in 20	3.0°
45 BPN	1 in 17	3.5°
46 BPN	1 in 15	4.0°
47 BPN	1 in 13	4.5°
48 BPN	1 in 12	5.0°
49 BPN	1 in 11	5.5°
50 BPN	1 in 10	6.0°

Sloping access dry - minimum test values required for a given slope

Minimum test value required (COF)	Maximum gradient	Maximum slope in degrees
0.433	1 in 39	1.5°
0.444	1 in 29	2.0°
0.455	1 in 23	2.5°
0.466	1 in 20	3.0°
0.477	1 in 17	3.5°
0.488	1 in 15	4.0°
0.499	1 in 13	4.5°
0.504	1 in 12	4.76°
0.521	1 in 11	5.5°
0.525	1 in 10	5.7°
0.543	1 in 9	6.5°
0.557	1 in 8	7.125°

1.8 GENERAL REPORTING REQUIREMENTS

Provide slip resistance test results to the contract administrator, including a statement that the tested surface meets or exceeds the nominated minimum test value. Refer to individual work sections for additional requirements. If no time is nominated for the submission of test results in the work section, then provide test results prior to practical completion.

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If testing identifies a failure to meet performance requirements, notify the contract administrator and manufacturer/supplier. Consult with the manufacturer/supplier to identify the cause, then correct the failure and repeat the test.

Slip resistance - additional items

1.9 SLIP RESISTANCE - ADDITIONAL ITEMS

Refer to separate documentation for slip resistance requirements not contained within this specification.

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3102 CONCRETE WORK - STANDARD

1 GENERAL

This section relates to formwork, reinforcement, concrete mixes and the placing of concrete.

1.1 RELATED WORK

Refer to 4161 for UNDERLAYS, FOILS AND DPC

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

DPM	Damp proof membrane
MPa	Megapascal
CCANZ	Concrete NZ (Legacy Documents)

The following definitions apply specifically to this section:

ACRS	Australasian Certification Authority for Reinforcing and Structural Steels - An independent certification scheme for reinforcing steel and structural steel. Certifies compliance with Australia/New Zealand Standards. Web site - www.steelcertification.com
CNZ PAS:	Concrete New Zealand Plant Audit Scheme - an independent audit scheme for the production of concrete which certifies compliance with NZS 3104 Specification of Concrete Production. Web site: http://rmcplantaudit.org.nz

Documents

1.3 DOCUMENTS

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

NZBC B1/AS1	Structural provisions for buildings
NZBC E2/AS3	External moisture provisions for concrete and concrete masonry buildings
AS 1366.3	Rigid cellular plastics for thermal insulation - Rigid cellular polystyrene - Moulded (RC/PS - M)
AS 1478	Chemical admixtures for concrete, mortar and grout - Admixtures for concrete.
AS/NZS 2269.0	Plywood - Structural - Specifications
AS/NZS 3000	Electrical installations
NZS 3101.1	Concrete structures standard
NZS 3104	Specification for concrete production
NZS 3109	Concrete construction
NZS 3114	Specification for concrete surface finishes
NZS 3121	Water and aggregate for concrete
NZS 3122	Specification for Portland and blended cements (General and special purpose)
NZS 3125	Specification for Portland-limestone filler cement
NZS 3604	Timber-framed buildings
NZS 3631	New Zealand timber grading rules
NZS 4229	Concrete masonry buildings not requiring specific engineering design
AS/NZS 4671	Steel reinforcing materials
AS/NZS 4672.1	Steel prestressing materials - General requirements
Concrete NZ TR3	Alkali silica reaction

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Requirements

1.4 QUALIFICATIONS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications

1.5 RECORDS

Retain the following records and make available to the contract administrator upon request:

- Mixing records
- Concrete delivery docket
- Reinforcing steel batch certificate
- Time, date, location and weather condition of each pour.

Performance

1.6 CONCRETE PRODUCTION COMPLIANCE

Concrete production and testing to comply with NZS 3104. Concrete to be supplied from a concrete batching plant holding a current quality Certificate of Audit provided by CNZ PAS Concrete NZ Plant Audit Scheme or an Auditing Engineer with credentials nominated in NZS 3104.

1.7 STEEL REINFORCING COMPLIANCE

Steel reinforcing and steel prestressing materials for concrete to AS/NZS 4671 or AS/NZS 4672.1, respectively. Steel reinforcing to be manufactured in New Zealand, or by an overseas manufacturer holding a current valid NZ S Mark or ACRS certificate for that type of steel.

If requested, the supplier to provide certification upon delivery that reinforcing steel complies with the grades specified on the drawings.

Steel that fails to meet these requirements is not to be used (or ordered) without the contract administrators written approval, further proof and/or testing may be required.

Quality control and assurance

1.8 INSPECTIONS

Reviewer:	Stage:	Hold/Notification Point:
Construction Reviewer:	All stages	Work may not proceed until the work in question has been inspected.

1.9 QUALITY ASSURANCE

Carry out the whole of this work to the requirements of NZS 3109.

Quality assurance procedures to include all aspects of concrete construction including;

- Formwork construction
- Reinforcing steel placing
- Cast in items
- Concrete supply
- Concrete placing and compaction
- Concrete finishes
- Construction tolerances

2 PRODUCTS

Materials

2.1 CEMENT

General purpose Portland cement (Type GP) and general purpose blended cement (Type GB) to NZS 3122.

2.2 CEMENT, FILLER

Portland limestone filler cement to NZS 3125.



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2.3 SAND

To NZS 3121 and NZS 3104 clause 2.5.4. The provisions of Concrete NZ TR3 apply when the sand is potentially reactive.

2.4 COARSE AGGREGATE, NORMAL CONCRETE

To NZS 3121, except as modified by NZS 3104: clause 2.5.3, Coarse aggregate. The provisions of Concrete NZ TR3 apply when the aggregate is potentially reactive.

2.5 WATER

To NZS 3121.

2.6 ADMIXTURES, SITE OR PLANT

To AS 1478.

For concrete defined as Normal Concrete(N) to NZS 3104, admixtures may be added at the Plant Engineers discretion as required by concrete producers mix design, subject to the following requirements:

- The quantity of admixture used and the method of mixing to be in accordance with manufacturers recommendations.
- Admixtures containing calcium chloride will not be permitted.
- Concrete must comply with the entrained air requirements of NZS 3101 when the surface is subject to freeze-thaw cycles.
- Additional admixtures may be added to concrete at the Contractor's request to control the set, in response to weather or environmental factors, subject to approval by Engineer.
- Admixtures containing calcium chloride will not be permitted where steel reinforcing is present.

Concrete

2.7 NORMAL CONCRETE

Normal concrete 17.5, 20, 25 MPA up to 50 MPa grade, maximum aggregate size 37.5mm, ready-mixed to NZS 3104 section 2 Provisions for Ready-Mixed Concrete. Refer to SELECTIONS.

Reinforcement

2.8 GRADE 300E STEEL

To AS/NZS 4671. Round bars are shown by symbol "R" and deformed bars by symbol "D", followed by the diameter in millimetres.

2.9 GRADE 500E STEEL

To AS/NZS 4671. Round bars shown by symbol "HR" and deformed bars by symbol "HD" followed by diameter in millimetres.

2.10 WELDED WIRE FABRIC

Hard drawn steel wire spot welded with correct gauge to AS/NZS 4671 Class E, smooth or deformed and to the spacings and dimensions either specified or shown on the drawings.

2.11 MESH FOR SLABS TO NZS 3604 OR NZS 4229

For concrete slab-on-ground designed to NZS 3604 or NZS 4229, mesh to be in accordance to NZBC B1/AS1, welded reinforcing mesh to AS/NZS 4671, Class E, minimum - Grade 500E, 2.27kg/m2 (1.14kg/m2 in each direction).

2.12 TYING WIRE

Mild drawn steel wire not less than 1.2mm diameter.

2.13 SPACERS AND CHAIRS

Precast concrete or purpose made moulded PVC to approval. Where concrete spacer blocks are used in exposed concrete work use blocks similar to surrounding concrete.

Formwork

2.14 PROPRIETARY STEEL

An approved proprietary steel formwork and shutter system.

2.15 STRUCTURAL PLYWOOD

To AS/NZS 2269.0 for shutter face with plywood grade as necessary to obtain the concrete finish specified.

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2.16 TIMBER FALSEWORK

No. 2 framing radiata pine or as required to construct the required formwork.

2.17 RELEASE AGENT

A release agent that will not stain or adhere to the concrete, contaminate reinforcing steel or construction joints, or have a detrimental effect on any finished surface or applied finishes.

Damp proof membrane

2.18 DAMP-PROOF MEMBRANE

0.25mm minimum polyethylene to NZS 3604, 7.5.4, **Damp-proof membrane**.

Accessories

2.19 CEMENT GROUTS

Cement mixed with the minimum quantity of water to obtain a suitable consistency. Grout cement to NZS 3122. Use grout within 30 minutes of preparation.

2.20 CELLULAR POLYSTYRENE INSULATION

Proprietary polystyrene foam board to AS 1366.3. Refer to SELECTIONS.

3 EXECUTION

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.

Installation/application

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Unless stated otherwise on the drawings permissible deviations from established lines, grades, dimensions and cambers to remain within the tolerances laid down in NZS 3109: table 5.1, Tolerances for precast components and table 5.2,Tolerances for in situ construction.

3.5 TOLERANCES OF CONCRETE SURFACE FINISHES

Unless stated otherwise on the drawings, permissible abrupt, offset and gradual deviations for the specified surface finish to remain within the tolerances laid down in NZS 3114: table 3, Tolerances for abrupt deviations or offsets and gradual deviations.

Fix formwork

3.6 LOADINGS

Design and construct formwork and falsework in accordance with in accordance with NZS 3109 Section 5 and sound engineering principles to withstand the worst combination of:

- dead loads of formwork, reinforcement, concrete and precast elements such as floor planks
- construction loads including dynamic effects of placing, compacting and construction traffic
- wind and snow loads

3.7 PROVIDE ALL FORMWORK

Provide formwork and falsework to NZS 3109 Section 5 and to achieve the required off-the-form surface finishes to NZS 3114. Fabricate in a manner permitting its easy removal without damage to the concrete.

Provide a 20mm x 20mm chamfer to all corners unless detailed otherwise. Protect corners from damage during and after stripping.

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Keep absorbent formwork wet before concrete is placed. Clean formwork by waterblasting.

3.8 FALSEWORK

Carry strutting down to a construction sufficiently strong and stable to afford the required support without permissible stress or deflections being exceeded. Prop through to other floors if the construction load on a particular suspended floor exceeds the design load.

3.9 EXPOSED CONCRETE

Formwork linings and surface finishes as nominated for both fair face and concealed or exposed surfaces. Unless detailed, obtain written confirmation of the type and pattern of all joints.

3.10 JOINTS IN FORMS

Construct joints to prevent loss of grout between joints in form linings, as well as between forms and completed work. Column forms to have full height linings so that no horizontal joints occur on exposed faces.

3.11 CAMBERS

Cambers shown on the drawings or specified, relate to the concrete immediately before formwork is struck.

3.12 STRIKING FORMWORK

Ensure the safe removal of all or any part of the formwork. Remove without shock, vibration or damage to the concrete and in such a manner as to take the imposed stresses gradually to NZS 3109.5.4. Stripping times to NZS 3109 table 5.3.

Install damp proofing

3.13 INSTALL DAMP-PROOF MEMBRANE

Install to NZS 3604.7.5.6 Polyethylene (polythene) sheet damp proof membranes. Bring granular hardfill to a suitable surface to receive the DPM using maximum 25mm sand blinding.

Lay the DPM on prepared basecourse with 150mm laps between sheets. Seal laps and penetrations with 50mm wide pressure sensitive plastic tape.
Refer to drawings for perimeter details.

Install insulation

3.14 INSTALL UNDERSLAB POLYSTYRENE INSULATION

Install polystyrene insulation system to manufacturer's requirements.

Install reinforcing / cast-in items

3.15 INSTALL REINFORCEMENT TO NZS 3604 OR NZS 4229

Install reinforcing in accordance to NZS 3604 or NZS 4229 as modified by NZBC B1/AS1 for foundations, foundation walls and slab-on-grade.

3.16 CUT AND BEND

Cut and bend bars using proper bending tools to avoid notching and to the requirements of NZS 3101.1, 8 and NZS 3109: 3.3 Hooks and bends. Minimum radii of reinforcement bends to NZS 3101.1, 8 and NZS 3109: table 3.1, Minimum radii of reinforcement bends. Do not rebend grade 500E bars. Where rebending is necessary for grade 300E bars, use a purpose built tool, proper preparation and preheating.

3.17 ADJUSTMENTS

Use a purpose built tool for on site bending and to deal with minor adjustments to steel reinforcement.

3.18 TOLERANCES

Tolerances for reinforcement bending, bar spacing & position and concrete cover to NZS 3109, 3.9, Tolerances for reinforcement, unless tighter tolerances specified.

3.19 SECURE REINFORCEMENT

Secure reinforcement adequately with tying wire and place, support and secure against displacement when concreting. Bend tying wire back well clear of the formwork. Spacing as dimensioned, or if not shown, to the clear distance minimums in NZS 3109, 3.6, Spacing of reinforcement.

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3.20 LAPPED SPLICES

Length of laps where not dimensioned on the drawings in accordance with the SELECTIONS. Provide laps only where indicated on the drawings. Tie all lapping bars to each other. Plain bars lapped splices must be hooked

Wire mesh laps to NZS 3101.1, lap one mesh square plus 50mm minimum (do not count bar extension beyond the outermost wire).

3.21 MESH LAPS FOR SLABS TO NZS 3604 OR NZS 4229

For slabs on ground the welded reinforcing mesh to be lapped such that the outermost wires overlap by the greater of:

- the spacing of the cross wires plus 50mm
- 150mm or
- manufacturer's requirements

Do not count bar extensions beyond the outermost cross wire

3.22 REINFORCING BAR LAPS TO NZS 3604

For foundation walls horizontal reinforcing bars to be lapped with a lap length of not less than 500mm. Corners and intersection laps shall be determined by NZS 3604 figure 6.15a

3.23 REINFORCING BAR LAPS TO NZS 4229

For footings reinforcing bars to be lapped with a lap length of not less than 40 times the diameter of the bar. Corners and intersection laps shall be determined by NZS 4229 figure 6.8.

3.24 REINFORCEMENT COVER TO NZS 3101.1

Minimum cover to all reinforcing bars, stirrups, ties and spirals, as shown on drawings. Where cover is not shown on drawings provide minimum cover to NZS 3101.1, table 3.6, Minimum required cover for a specified intended life of 50 years. Sub-soil cover to NZS 3101.1, to suit soil and groundwater conditions. Fix chairs for top reinforcement in slabs at 1.0 metre centres or to ensure adequate support. Cover tolerances to NZS 3109, 3.9, Tolerances for reinforcement.

3.25 REINFORCEMENT COVER TO NZS 3604 OR NZS 4229

For in-situ concrete, foundations and interior slabs on ground, to NZS 3604 or NZS 4229, the reinforcement and welded mesh cover to be:

Location, cover to	NZS 3604	NZS 4229
Footing, to earth	75mm	75mm
Footing, to DPM	75mm	50mm
Foundation, to edge	75mm	75mm
Slab, to slab top	30mm	30mm
Slab, to slab edge	50mm to 75mm	50mm to 75mm

3.26 CASTING IN

Build in all grounds, bolts and fixings for wall plates and bracing elements, holding down bolts, pipes, sleeves and fixings as required by all trades and as shown on the drawings, prior to pouring the concrete.

Do not use grounds exceeding 100mm in length. Location and form of conduits to be approved in writing by the Contract Administrator. Minimum cover 40mm. Do not encase aluminium items in concrete. Do not paint steel embedded items more than 25mm into the concrete encasement. Cut back form ties to specified cover and fill the cavities with mortar.

Form all pockets, chases and flashing grooves as required by all trades and as shown on the drawings.

Wrap all pipes embedded in concrete with tape to break the bond and to accommodate expansion. Do not embed pipes for conveying liquids exceeding a temperature of 50°C in concrete.

3.27 EQUIPOTENTIAL BONDING REINFORCING

Co-ordinate with electrician to provide for equipotential bonding of reinforcing as required by AS/NZS 3000, 5.6 Equipotential Bonding, before concrete placement.

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Place concrete

3.28 CONSTRUCTION JOINTS

Locate and construct as shown on the drawings or in accordance with NZS 3109, 5.6, Type B.

3.29 PRE-PLACEMENT INSPECTION

Do not place concrete until all excavations, boxing and reinforcing have been inspected and passed by the Building Consent Authority.

3.30 UNFAVOURABLE CONDITIONS

Do not place concrete in high winds or other unfavourable conditions in accordance with NZS 3109: 7.2 Unfavourable conditions

3.31 PROTECT CONCRETE WORK

Protect formwork, reinforcement, "build in" items and fresh concrete from damage, as the pour is placed, making good any damage if it occurs.

3.32 PREPARATORY WORK

Ensure at the time of placing, that surfaces to receive the concrete are clean, free of debris and with no free water present. Ensure reinforcement, cast-in items and hardened concrete against which fresh concrete is laid are free from any release agent or other deleterious surface deposit.

3.33 TRANSPORT CONCRETE

Transport concrete from agitator to final placement as quickly as possible using means that avoid segregation.

3.34 PUMPING CONCRETE

Set up and supervise pump operation, placing and compaction of the mix to NZS 3109, 7.4, Handling and placing and NZS 3109, 7.6, Compaction Advise the ready-mix supplier of the type of pump and the slump required, in addition to the concrete grade, strength and quantity.

3.35 PLACE CONCRETE

Place concrete to NZS 3109: clause 7.4, Handling and placing. Place in layers not more than 500mm deep, compacted and vibrated. Do not place fresh concrete against the preceding layer after more than 45 minutes, or such lesser time as required by the circumstances, to NZS 3109: clause 7.4, Handling and placing.

3.36 COMPACT CONCRETE

To NZS 3109: clause 7.6, Compaction. Compact by vibration of the concrete to expel entrapped air and until settlement of the concrete is visibly evident over all areas of the surface. Maintain vibration until settlement ceases and coarse aggregate at the surface is embedded. Do not continue vibration beyond reaching this condition.

Note: compaction by vibration is not required when using Self Compacting Concrete (SCC).

3.37 VIBRATORS

Use sufficient immersion vibrators, with one spare for emergency, to ensure that vibration is achieved throughout the entire volume of each layer of concrete, and until complete compaction is reached, to NZS 3109: clause 7.6, Compaction.

Floor slabs to NZS 3604 or NZS 4229

3.38 FLOOR SLABS TO NZS 3604

Generally for slabs on ground to NZS 3604 as modified by NZBC B1/AS1 and NZBC E2/AS3. Construct to NZS 3604, 4.5 Concrete and concrete masonry and NZS 3604, 7.5, Concrete slab-on-ground floors in timber buildings as modified by NZBC B1/AS1, 2.3 Timber. Lay to true and straight surfaces, screeded, floated and steel (manual or power) trowelled finish.

Allow for free joints maximum 24m centres to NZBC B1/AS1, paragraph 2.3.7.6 **NZS 3604** New clause.

3.39 FLOOR SLABS TO NZS 4229

Generally for slabs on ground to NZS 4229 as modified by NZBC B1/AS1 and NZBC E2/AS3. Construct to NZS 4229, 6, Footings and NZS 4229, 7, Foundation walls and concrete slab-on-ground as modified by NZBC B1/AS1, 2.1 Masonry. Lay to true and straight surfaces, screeded, floated and steel (manual or power) trowelled finish.



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Allow for free joints maximum 18m centres to NZS 4229, 7.8.5.3 Free joints.

Finishing

3.40 SCREED THE SURFACE

Screed the concrete surface by straight edge or vibrating screed immediately after compaction and to tolerances in NZS 3109: table 5.2, Tolerances for in situ construction.

3.41 SURFACE FINISHES

To NZS 3114, Part 1 Off-the-form surface finishes, Part 2 Exposed aggregate surface and Part 3 Floors, exterior pavements, and inverts, for slabs and pavements. Refer SELECTIONS.

3.42 SAW CUTS TO NZS 3604 OR NZS 4229

Provide saw cuts in accordance to NZS 3604 clause 7.5.8.6 Shrinkage Control Joints and NZS 4229 clause 7.8.5 Shrinkage Control Joints. Cut slabs where indicated on the drawings as required to control shrinkage cracking. Form by saw cutting the slab (blade width approximately 5 mm) to a quarter of the depth of the slab (saw cutting shall take place no later than 24 hours after initial set for average ambient temperatures above 20 ºC, and 48 hours for average ambient temperatures below 20 ºC).

3.43 SAW CUTS

Cut slabs where indicated and as required to control shrinkage cracking. Carry out cutting as soon as possible, without causing tear-out of aggregate and before shrinkage cracking has occurred, generally within 24 hours of pouring.

3.44 CLEAN OUT SAWCUTS

Clean out saw cuts. Fill with cement grout where the floor will be covered with carpet or vinyl.

Curing

3.45 CURING PERIOD

Cure all concrete for a minimum of 7 days. Keep time between placing of concrete and the start of curing to an absolute minimum. Ensure curing is continuous.

3.46 CURING METHOD

Notify the curing method to be used for this work. Select from the following methods;

- Ponding
- Sprinkling
- Wet coverings - Do not use at times of freezing weather
- Plastic sheet
- Curing compound

3.47 KEEP ABSORBENT FORMWORK MOIST

Keep formwork left in place continuously moist by sprinkling with water over the curing period. Continue sprinkling the exposed surface if the formwork is removed before the end of the curing period.

3.48 SECURE COVERINGS

When covering with sheet materials, ensure that edges are well secured throughout the specified curing period, to prevent draughts passing over the surfaces of the concrete.

Defects

3.49 DEFECTS

Reject concrete with structural defects. Immediately after stripping formwork, identify all defects and obtain direction. Do not carry out any repair work until directed and then only in accordance with the direction. Repair defects by cutting out, making good and replacing, or otherwise as directed.

3.50 SURFACE DEFECTS

Make good surface defects immediately after forms are stripped. Make good hollows or bony areas with 1:2 mortar or plaster, finished to the same tolerances as the parent concrete. Fill any tie rod holes with 1:2 mortar.

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Completion

3.51 COMPLETION MATTERS

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

4 SELECTIONS

4.1 FORMWORK

Location:	Floor
Type:	TBC
Finish:	Smooth

4.2 DAMP-PROOF MEMBRANE

Location:	Under Concrete Floor Slab
Brand/type:	See section 4161 UNDERLAY, FOILS & DPC
Thickness:	Minimum 0.25mm thick

4.3 CELLULAR POLYSTYRENE INSULATION

Location:	Perimetre of Concrete Floor slab
Brand:	TBC
Type/grade:	EPS engineered for under concrete slabs. eg EXPOL SLABX200
Thickness:	50mm
R-value:	Refer to H1 Calculations

4.4 NORMAL CONCRETE (N)

Location:	Concrete Floor Slab
28 day strength:	17.5 MPa min. Refer to Engineer Specification.
Aggregate size:	Maximum coarse aggregate size of 37.5mm

4.5 SURFACE FINISHES

Location:	**Surface finish to NZS 3114:**
Concrete Floor Slab	U2

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3821 TIMBER FRAMING

1 GENERAL

This section relates to the supply and erection of timber framing, as a framed structure, or as part of a partitioning system.

1.1 RELATED WORK

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

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

FSC®	Forest Stewardship Council®
COC	Chain of Custody
PEFC	Programme for the Endorsement of Forest Certification

The following definitions apply specifically to this section:

SG Structural grade	to NZS 3604, 1.3 Definitions

Documents

1.3 DOCUMENTS

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

NZBC B2/AS1	Durability provisions for building elements
NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
AS/NZS 2904	Damp-proof courses and flashings
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 3631	New Zealand timber grading rules
NZS 3640	Chemical preservation of round and sawn timber
WorkSafe	Guidelines for the provision of facilities and general safety in the construction industry.
BRANZ BU 673	Cavity battens

***A copy of** NZS 3604 **Timber-framed building, must be held on site.**

1.4 DIMENSIONS

All timber sizes except for roof battens are actual minimum dried sizes.

Requirements

1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

2 PRODUCTS

Materials

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.

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2.2 APPEARANCE TIMBERS

Graded to NZS 3631, treated where required by NZBC B2/AS1, NZS 3602, table 1, and treatment to NZS 3640.

2.3 STRAPPING

Treated to NZBC B2/AS1, NZS 3602, table 1 and to NZS 3640, clause 6.3.1.

Species:	Radiata pine
Grade:	SG6
Size:	70mm x 45mm, 45mm x 45mm or 45mm x 19mm

2.4 EXTERIOR CAVITY WALL BATTENS - TIMBER - NON-STRUCTURAL

To NZBC E2/AS1. H3.1 Radiata pine battens, 20mm thick, 45mm minimum width, and height to match timber framing studs. To NZS 3602, table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.

2.5 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

Components

2.6 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.

2.7 SCREWS

Wood screws to the requirements of NZS 3604, 2.4 Fastenings and Fabrication, and section 4, Durability, and of the type, number and form required for each screw application to NZS 3604, sections 6 - 10.

2.8 BOLTS AND COACH SCREWS

Bolts and coach screws complete with washers, to the requirements of NZS 3604, clause 2.4.5 Bolts and Coach Screws, and section 4, Durability, and of the type, number and form required for each particular junction to NZS 3604, sections 6 - 10.

2.9 THREADED RODS

Use stainless steel threaded rods of the required length, with washers and nuts at both ends, when stainless steel bolts of the required length are not available.

2.10 TIMBER CONNECTORS AND FIXINGS

Supply for each particular joint the connectors and fixings as noted on the drawings. Comply with the requirements of the manufacturer, NZS 3604, section 4, Durability, and of the number and form required for each particular junction to NZS 3604, sections 6-10.

2.11 BRACING STRAPS

Nail-on type to the requirements of NZS 3604, section 4, Durability, and of the number and form required for each particular application to NZS 3604, sections 6-10.

2.12 POWDER ACTUATED FASTENERS

To type, size and charge required by the powder actuated tool manufacturer for each particular member and the substrate.

2.13 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).

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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.

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

Moisture content:	
At erection	24% EMC maximum
At enclosure	20% EMC maximum
At lining	16% EMC maximum

3.4 PROTECT TIMBER

Protect all timber against damage and from inclement weather. Ensure that any variation in moisture content is kept to a minimum, before and after erection and before enclosure.

Installation/application

3.5 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Timber framing tolerances shall be in accordance with NZS 3604 Table 2.1 Timber framing tolerances.

3.6 SEPARATION

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

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

3.7 EXECUTION

Execution to comply with 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).

3.8 SET-OUT

Set-out framing generally in accordance with the requirements of NZS 3604, to carry superimposed loads, and as required to support sheet linings and claddings. When necessary provide framing to suit required cladding/lining control joints and sheet joints.

3.9 SET TIMBERS

Set timbers true to required lines and levels with mitres, butt joints, laps and housings cut accurately to provide full and even contact over the whole of the bearing surface.

3.10 TIMBER CUTTING

Select and cut spanning members to minimise allowable defects and avoiding knots and short grain on edges in the middle third, and shakes, splits and checks at mid-span and close to ends.

3.11 STRAIGHTENING STUDS

Cutting for straightening to comply with NZS 3604, 8.5.3, Straightening studs.

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3.12 TIMBER PLATES AND FURRING

Fix to steelwork with bolts and washers or approved proprietary fastenings at 1 metre maximum spacing and not less than 2 fixings to each member, or to engineering specific design.

3.13 HOLES AND NOTCHES

Limit holes and notches, checks and half-housing for the structure to those allowable in NZS 3604. Neatly form holes and notches for services without lessening the structural integrity of the member.

3.14 EXPOSED TIMBER CONNECTORS AND FIXINGS

Do not use steel timber connectors and fixings on any structural framing exposed to view unless detailed on the drawings.

3.15 POWDER-ACTUATED FASTENING TOOLS

Comply with the requirements of WorkSafe and the Health and Safety at Work Act 2015. Powder-actuated fastening tool operators to have the appropriate current Certificate and/or Licence and tools to have the appropriate certificate of fitness if necessary.

3.16 ADDITIONAL FRAMING

Position and fix all necessary members for the fixing of all services, fittings, fixtures, edges of linings or claddings, and to provide lateral support to load carrying framing.

3.17 FORM NAILED JOINTS

Fully drive nails in all structural joints with the number and location for each particular joint, to the requirements of the nailing schedules of NZS 3604. Where splitting could occur, pre-drill to 80% of nail diameter.

3.18 FORM BOLTED JOINTS

Drill for and set bolts to ensure full bearing and development of the joint strength, with tension to just set the washers into timber or to engineering specific design.

3.19 FIT CONNECTORS AND FIXINGS

Fit connectors and fixings to obtain full bearing over all contact surfaces and full development of the required loading capacity for that particular joint and in accordance with the manufacturer's requirements or to engineering specific design.

3.20 FIT CAVITY BATTENS

Fit and fix 20mm cavity battens over wall underlay or rigid air barrier. Temporary fix battens before being permanently fixed into the framing with the cladding fixings, to the requirements of the manufacturer or to NZBC E2/AS1 and BRANZ BU 673. Make allowances for cladding control joints where required. Fit and fix related flashings. Fit and fix cavity closers to base of walls, open horizontal (or raking) junctions and over openings (windows, meters etc). Use cavity spacers set to 5° fall where fixing is required between cavity battens.

3.21 FIT BRACING

Fit and fix subfloor, wall and roof bracing elements to the requirements of the manufacturer or to NZS 3604, to develop the full number of bracing units required.

3.22 DPC TO LOSP TREATED TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3.23 DPC TO TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section

Completion

3.24 COMPLETION MATTERS

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



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4 SELECTIONS

4.1 FLOOR FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Mid floor joists:	Radiata pine	SG8	H1.2
Boundary joists:	Radiata pine	SG8	H1.2

4.2 EXTERIOR WALL FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Exterior walls:	Radiata pine	SG8	H1.2
Parapets:	Radiata pine	SG8	H1.2
Enclosed decks and balconies:	Radiata pine	SG8	H1.2
Cantilevered joists enclosed decks and balconies:	Radiata pine	SG8	H3.2
Nogs	Radiata pine	SG8	H1.2
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
Trusses:	Radiata pine	SG8	H1.2
Purlins:	Radiata pine	SG8	H1.2
Valley boards:	Radiata pine	Merch	H1.2
Sarking:	Radiata pine	Merch	H1.2
Skillion roof framing:	Radiata pine	SG8	H1.2
Enclosed flat roof framing:	Radiata pine	SG8	H1.2

4.4 INTERIOR WALL 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 CEILING FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Ceiling joists:	Radiata pine	SG8	H1.2
Timber ceiling battens:	Radiata pine	SG8	H1.2
Proprietary ceiling battens:	Manufacturer - Gib Rondo	Type 310	Galv steel

4.6 CAVITY BATTENS

Cavity battens	Species	Grade	Treatment
Timber - Structural	Radiata pine	Merch	H3.2
Timber - Non Structural	Radiata pine	Merch	H3.1
Proprietary - non structural:	Manufacturer TBC	Type TBC	TBC
Cavity closer:	Manufacturer TBC	Type -Plastic	Plastic

4.7 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

4.8 NAILS

Location	Type	Material	Finish
House Framing	All	Steel	Galvanized

4.9 SCREWS

Location	Type	Material	Finish
House Framing	All	Steel	Galvanized

4.10 BOLTS AND COACH SCREWS

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Location	Type	Material	Finish
House Framing	All	Steel	Galvanized

4.11 NAIL PLATES

Location	Type	Material	Finish
Trusses	As required	Steel	Galvanized

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4161 UNDERLAYS, FOIL AND DPC

1 GENERAL

This section relates to the application of:

- DPC/DPM
- wall underlays includes Kraft based and synthetic wall underlays
- roofing underlays includes kraft based and synthetic roof underlays
- foils
- vapour barriers
- 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.
W2	Wall underlay Kraft/bituminous based Heavy grade
W3	Wall underlay Synthetic based non-absorbent
W4	Wall underlay Synthetic based absorbent
R1	Roof underlay Kraft/bituminous based Heavy grade
R2	Roof underlay Kraft/bituminous based Self-supporting
R3	Roof underlay Synthetic based Heavy grade
R4	Roof underlay Synthetic based Self-supporting

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 E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
NZS/AS 1530.2	Methods for fire tests on building materials, components and structures - Test for flammability of materials
NZS 2295	Pliable, permeable building underlays
AS/NZS 2904	Damp-proof courses and flashings
NZS 3604	Timber-framed buildings
AS/NZS 4200.1	Pliable building membranes and underlays
AS/NZS 4347.0	Damp-proof courses and flashings - Methods of test - General introduction, list of methods and test specimen requirements
AS/NZS 4389	Roof safety mesh
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

Requirements

1.3 INSTALLATION SKILL LEVELS

Installers to be familiar with the manufacturer's technical literature and the NZMRM CoP NZ Metal Roof and Wall Cladding Code of Practice.

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2 PRODUCTS

Materials

DPC

2.1 POLYETHYLENE DPC

Polyethylene film to AS/NZS 2904 and to the appropriate test methods set out in AS/NZS 4347.0. Thickness 500 microns minimum, manufactured for use as a damp-proof course and concealed flashings to doors and windows.

DPM

2.2 DAMP PROOF MEMBRANE - CONCRETE FLOOR

Polyethylene sheet with minimum thickness of 0.25mm to NZS 3604, 7.5.6, **Polyethelene (polythene) sheet damp-proof membranes**.

Rigid Air Barriers

2.3 RIGID AIR BARRIERS

For rigid air barriers refer to the appropriate section.

Roofing Underlay

2.4 SYNTHETIC NON-WOVEN SELF SUPPORTING ROOFING UNDERLAY (R4)

A non-woven self supporting roofing 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 roofing underlay for sloped roofs; with flammability index tested to NZS/AS 1530.2, AS/NZS 2295.

Accessories

2.5 WINDOW DOOR SEALING SYSTEM

Proprietary window and door flashing tape and accessories to NZBC E2/AS1, 4.2.12 Flexible flashing tape, and 9.1.4 Wall underlays to wall openings.

2.6 STUD STRAPS

19mm wide polyethylene straps, for cavity construction with framing centres greater than 450mm.

2.7 WIRE NETTING

75mm galvanized hexagonal wire netting to AS/NZS 4534.

2.8 SAFETY MESH

Galvanized or PVC coated safety mesh AS/NZS 4389.

2.9 GUTTER AND UNDER FLASHINGS

Bituminous breather type underlay cut to width by manufacturer for use under valley, apron flashing and internal gutters. Soffit liner cut to width from bituminous breather type underlay.

2.10 ADHESIVE TAPE

Adhesive tapes to compliment the underlay. Pressure sensitive tapes for joining foil insulation and vapour barriers.

3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

To NZBC E2/AS1, Table C.2.1.1 Properties of roof underlays and wall underlays, and manufacturers technical literature.

Note: Care should be taken not to expose the underlay to continuous wet and windy conditions.



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3.2 STORAGE

Store wall and roofing underlays and accessory materials, under conditions that ensure no deterioration or damage. Store rolls in an upright position on a smooth floor and protected from sunlight, UV radiation and moisture.

3.3 INSPECTION

Before starting work, check that the framing will allow work of the required standard. Carry out remedial work identified before laying underlay.

Application - DPC

3.4 POLYETHYLENE DPC TO TIMBER

Lay polyethylene DPC under treated and untreated timber, including LOSP treated timber, of all timber framed walls on concrete and concrete masonry, in a single layer with 50mm overlaps at joints to provide a waterproof barrier.

3.5 BITUMINOUS DPC TO TIMBER

Lay bituminous DPC under timber of all timber framed walls on concrete, in a single layer with 50mm overlaps at joints to provide a waterproof barrier.

NOTE: Do not use bituminous DPC under LOSP treated timber.

3.6 DPC TO MASONRY AND BRICK VENEER

Lay DPC along base of cavity and fix top edge to studs with galvanized clouts. Turn DPC out over concrete rebate under bottom course of veneer.

3.7 DPC BETWEEN DISSIMILAR MATERIALS

Lay DPC between dissimilar materials where required.

Application - DPM

3.8 DPM TO CONCRETE FLOOR

Lay DPM under concrete floor substrate over sand binding, in a single layer with 150mm overlaps at joints to provide a waterproof barrier.

3.9 INSTALL STUD STRAPS

Over underlay, install 19mm wide polyethylene straps horizontally at 300mm centres, draw taut and fix to studs with stainless steel staples.

Application - Roofing Underlay

3.10 INSTALL WIRE NETTING

Lay 75mm galvanized wire netting at right angles across the purlins and drawn taut before fixing. Tie edges of netting together with galvanized wire clips.

3.11 INSTALL SAFETY MESH

Lay and fix safety mesh to AS/NZS 4389.

3.12 ROOF UNDERLAY

Lay vertically over purlins on wire netting with a 150mm side lap. Fix securely to purlins with galvanized fixing clips. Lay underlay to avoid excessive dishing between purlins. When used vertically limit individual runs to 10 metres for bituminous based roofing underlays, 7 metres for fire retardant underlays and 20 metres for synthetic roofing underlays. Do not lay vertically on roof pitches under 10°.

Lay horizontally across the rafter/trusses starting at the gutter line with succeeding sheets in true alignment and lapping 150mm. Scribe around and fit neatly to all penetrations. Avoid prolong exposure by installing the roof immediately. UV exposure to manufacturers requirements, maximum 7 days.

3.13 GUTTER AND UNDER FLASHINGS

Lay bituminous breather type underlay cut to width by manufacturer for use as an underlay to valley, apron flashings, internal gutters and soffit liner. Lap under flashings with adjoining underlays. Fix soffit liner from top plate down 150mm past ribbon plate.



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Completion

3.14 CLEAN UP

Clean up as the work proceeds.

3.15 LEAVE

Leave work to the standard required by following procedures.

3.16 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 DPC

or Location:	Under Bottom Plates
Brand / type:	TBC/ polyethylene DPC or bituminous DPC. (But bituminous DPC is not to be used under LOSP treated timber).

4.2 DPM - CONCRETE FLOOR

Location:	Under Concrete Floor Slab
Brand / type:	TBC / polyethylene DPM
Thickness:	Minimum 0.25mm thick
Jointing tape:	TBC

4.3 ROOFING UNDERLAY

Location:	Under Profile Metal Roofing
Brand / type:	TBC / Synthetic non-woven self supporting roofing underlay (R4)
Jointing tape:	To match Brand

Accessories

4.4 WINDOW/DOOR SEALING SYSTEM

Brand / type:	TBC / proprietary self adhering window and door flashing tape compatible with R.A.B.

4.5 AIR SEAL BACKING ROD

Location:	Window & Exterior Door Sill, Head and Jamb
Brand / type:	Sika / PEF Rod

4.6 SAFETY MESH

Location:	Under Roofing Underlay
Brand / type:	Thermakraft / Ausmesh
Finish:	Galvanized



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4161MP MASONS UNDERLAYS & DPC

1 GENERAL

This section relates to the application of Masons NZ Limited products. It includes:

- DPC
- Roof underlays
- Wall underlays
- Installation 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:

COP	NZ Metal Roof and Wall Cladding Code of Practice
DPC	Damp-proof course
EPDM	Ethylene propylene diene monomer
FAB	Flexible Air Barrier
GSM	Grams per Square Metre
LOSP	Light Organic Solvent Preservative
LRV	Light reflectance value
MRM	NZ Metal Roofing Manufacturers Association Inc.
NASH	National Association of Steel Framed Housing Inc.
PEF	Polyethylene foam
PET	Polyethylene Terephthalate
VHP	Very High Permeability

The following definitions apply specifically to this section:

Wall underlay	As defined in NZBC E2/AS1 and in NZBC E2/AS4 - NASH Building Envelope Solutions - A building paper, synthetic material or rigid sheathing used as part of the wall cladding system to assist the control of moisture by ensuring moisture which occasionally penetrates the wall cladding is directed back to the exterior of the building.
Roof underlay	As defined in NZS 2295 - An absorbent permeable building underlay, used as part of the building's water management system in the roof cladding system, that absorbs or collects condensation or water that may penetrate the roof cladding.

Documents

1.2 DOCUMENTS

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

NZBC B2/AS1	Durability provisions for building elements
NZBC C/AS2	Protection from fire for buildings other than risk group SH
NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
NZBC E2/AS4	External moisture - Light steel framing weathertight solution for buildings up to 3 storeys or of 10m or less in height with a floor area not exceeding 300m²
NZS/AS 1530.2	Methods of 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 4201.4	Pliable building membranes and underlays - Methods of test - Resistance to water penetration
AS/NZS 4389	Roof safety mesh
AAMA 711-13	Voluntary Specification for Self-Adhering Flashing Used for Installation of Exterior Wall Fenestration Products

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MRM CoP	NZ Metal roof and wall cladding code of practice
NASH Building Envelope Solutions	2019 Light Steel Framed Buildings
NASH Standard Part 2	May 2019 Light Steel Framed Buildings
CodeMark™ CMNZ70072 ver 4	Masons Barricade FR
CodeMark™ CMNZ70075 ver 4	Masons Flashing Tapes
CodeMark™ CMNZ70098ver 4	Masons Roof Underlays - VHP® Value, VHP® Strong, VHP® Ultra, VHP® Maxi
CodeMark™ CMNZ70116 ver 2	Masons UNI® and UNI® PLUS Flexible Air Barriers
CodeMark™ CMNZ70117 ver 1	Masons UNI® PRO Flexible Air Barrier
CodeMark™ CMNZ70142 ver 1	Masons Barricade WD Self-Adhesive Weather-Resistive Barrier
CodeMark™ CMNZ70172 ver 0	White-faced Foil Composite Underlay

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Masons Dry Fix™ Damp-Proof Course
- Product brochure and specification

Masons Roof Underlays - VHP® Maxi, VHP® Ultra, VHP® Strong, VHP® Value:
- Product brochure
- Installation instructions V4.0 May 2025
- Material data safety sheet

Masons White-Faced Foil:
- Design and Installation Guide V1.2 October 2024
- Material Safety Data Sheet

Masons Barricade™ FR Fire Retardant Building Wrap:
- Product brochure
- Design and Installation Guide V2.0 May 2025
- Material safety data sheet
- Specification Guide V2.0 March 2024

Masons Barricade WD Self-Adhesive Weather Resistive Barrier:
- Product brochure
- Installation guide V1.0 August 2022 and Visual Installation Guide
- Technical data sheet V1.1 June 2022

Masons UNI® PLUS Flexible Air Barrier:
- Specification Guide V1.0 January 2022
- Design and installation guide V2.2 May 2026
- Material Safety data sheet
- Alternative Solution documents: Product Assurance Supplier Statement (PASS™ No. 19192) and Standards Comparison Report

Masons UNI® PRO Flexible Air Barrier:
- Specification Guide V1.0 January 2022
- Design and installation guide V2.0 May 2025
- Material safety data sheet
- Technical data sheet V1.0 January 2022

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Masons Insul-Baffle,
- Design and Installation Guide V1.1 February 2025
- Data sheet V1.1 February 2025

Masons 40 Below™ Flashing Tapes:
- Specification guide V3.0 March 2024
- Installation instructions
- Material safety data sheet

Masons Hydro™ Window Flashing Tape & Corner Guards:
- Specification guide V2.0 March 2024
- Installation instructions

Masons PEF Backer Rod:
- Specification guide V2.0 March 2024

Masons Penetration Seals:
- Product brochure
- Durability appraisal

Masons WrapStrap™ House Wrap Strapping:
- Product brochure
- Specification guide

Masons Insulation Strap
- Product brochure

Manufacturer/supplier contact details

Company:	Masons NZ Limited
Web:	www.mpb.co.nz
Email:	specify@mpb.co.nz
Telephone:	0800 522 533

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years	For Masons UNI® PLUS Flexible Air Barrier

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of purchase or dispatch from Masons NZ Ltd whichever is earlier.
- Provide the completed On-Site check sheets, where applicable.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 QUALIFICATIONS - GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

Compliance Information

1.7 COMPLIANCE - CODEMARK CERTIFICATE CMNZ70072

Masons Barricade FR meets the requirements of the NZBC when used within the conditions and limitations of its CodeMark Certificate of Conformity CMNZ70072.

1.8 COMPLIANCE - CODEMARK CERTIFICATE CMNZ70075

Masons Flashing Tapes meet the requirements of the NZBC when used within the conditions and limitations of their CodeMark Certificate of Conformity CMNZ70075.

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1.9 COMPLIANCE - CODEMARK CERTIFICATE CMNZ70098

Masons Roof Underlays - VHP® Value, VHP® Strong, VHP® Ultra, VHP® Maxi meets the requirements of the NZBC when used within the conditions and limitations of its CodeMark Certificate of Conformity CMNZ70098.

1.10 COMPLIANCE - CODEMARK CERTIFICATE CMNZ70116

Masons UNI® PLUS Flexible Air Barriers meet the requirements of the NZBC when used within the conditions and limitations of their CodeMark Certificate of Conformity CMNZ70116.

1.11 COMPLIANCE - CODEMARK CERTIFICATE CMNZ70117

Masons UNI® PRO Flexible Air Barrier meets the requirements of the NZBC when used within the conditions and limitations of its CodeMark Certificate of Conformity CMNZ70117.

1.12 COMPLIANCE - CODEMARK CERTIFICATE CMNZ70142

Masons Barricade WD Self-Adhesive Weather-Resistive Barrier meets the requirements of the NZBC when used within the conditions and limitations of its CodeMark Certificate of Conformity CMNZ70142.

1.13 COMPLIANCE - CODEMARK CERTIFICATE CMNZ70172

White-faced Foil Composite Underlay meets the requirements of the NZBC when used within the conditions and limitations of its CodeMark Certificate of Conformity CMNZ70172.

2 PRODUCTS

Masons Wall Underlays

2.1 MASONS UNI® PLUS FLEXIBLE AIR BARRIER

Absorbent, water-resistant, synthetic wall underlay, comprising two outer layers of nonwoven polypropylene with a middle layer of a functional-technical film. CodeMark certified. The outer face is blue and marked “UNI® PLUS Flexible Air Barrier” the underside is white.

Masons Flexible Air Barriers - Fastening Systems

2.2 MASONS UNI® FASTENERS FOR TIMBER FRAME

25mm minimum galvanized or stainless steel ring shank nail fasteners with 32mm diameter plastic domed washer for use with a hammer, or with 25mm diameter plastic washer collated for use with the UNI (stinger) nailgun.

Masons Flashing Tapes & Corner Guards

2.3 MASONS 40 BELOW™ PLATINUM FLASHING

Self-adhesive flexible polyacrylic flashing tape with silver foil facing. Tape thickness 0.2mm, available in roll width 60mm - 230mm. 180days UV resistance. CodeMark certified, nail and screw sealability to AAMA 711-13.

2.4 MASONS 40 BELOW™ FLEX FLASHING TAPE

Self-adhesive flexible acrylic flashing tape with white facing. Tape thickness 0.2mm, available in roll width 75mm - 230mm. 270days UV resistance. CodeMark certified, single layer nail and screw sealability to AAMA 711-13.

2.5 MASONS HYDRO™ CORNER GUARDS

Flexible plastic mouldings for protection of wall underlay where dressed into openings in framing. Provides edge reinforcement of sills, for fixing flashing tape.

Masons Sealing & Underlay Accessories

2.6 MASONS PENETRATION SEALS

Flexible, conical moulded EPDM nozzle, on adhesive carrier base of flexible woven synthetic waterproof flashing. Available in 1mm - 75mm or 80mm - 170mm sizes. Trim to suit diameter of pipe penetration

2.7 MASONS INSULATION STRAP

Blue, 25mm wide polypropylene woven and coated straps

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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 GENERAL REQUIREMENTS

Design, application and installation of Masons NZ products to NZBC E2/AS1, NZBC E2/AS4, CodeMark™ certification, Masons NZ Limited technical literature and MRM Code of Practice.

3.4 INSPECT SUBSTRATE

Before starting work, ensure that the substrate will allow work of the required standard. Carry out remedial work identified prior to installation.

Application - Masons Wall Underlays

3.5 MASONS FLEXIBLE AIR BARRIERS - TIMBER FRAME

Fix horizontally as per Masons installation instructions, and NZBC E2/AS1, 9.1.6 Wall underlay, to outside face of framing (printed side facing out) in true alignment, with horizontal and vertical joins overlapping 150mm. Ensure underlay is taut and extends from upper side of top plate to a minimum of 50mm below the bottom plate or bearer. Fix using UNI® fasteners and optionally with timber cavity battens according to Masons installation and fixing guides. Keep clean and undamaged until closed in.

3.6 WALL OPENINGS

Run the underlay over opening and leave covered until windows and doors are ready to be installed. Form openings in the membrane, fold into the opening and fix to the framing. Cut off excess.

Follow Masons specified installation method, using flashing tape (Masons 40 Below™ Platinum / Flex) and Masons corner guard mouldings to provide a weathertight seal.
For UNI® PRO installations, or optionally for other UNI® applications, install Masons Dry Fix DPC up the jamb and under the head flashing.

3.7 EXPOSURE LIMIT AND TEMPORARY WEATHER PROTECTION

Install exterior cladding over Masons wall underlays as soon as practicable.

- Masons UNI® PLUS Flexible Air Barriers may be exposed to the weather & ultra-violet light for up to 90 days.
- Masons UNI® PRO Flexible Air Barrier may be exposed to the weather & ultra-violet light for up to 150 days

During this time, Masons wall underlays may be used as a temporary weather protection sheathing. Ensure all joins are sealed using Masons 40 Below Flashing tapes for UNI® PLUS or Masons 40 Below™ Platinum Flashing tape for UNI® PRO, and all penetrations sealed with Masons Penetration Seals. Roof cladding, soffit linings, windows and doors must be installed.

3.8 WEATHER CONDITIONS

When fixing the underlay in windy conditions, extra care must be taken due to the large sail area created by wide rolls.

3.9 REPAIR DAMAGE

Repair any damaged areas of the underlay, such as tears, holes or gaps around service penetrations. Repair damaged areas by covering with new material lapping the damaged area by at least 150mm and taping, or by taping small tears using appropriate Masons Seam and Repair Tape.

Application - Masons Flashing Tapes & Corner Guards

3.10 MASONS 40 BELOW™ FLASHING TAPES & CORNER GUARDS

Install Masons 40 Below™ Flashing Tape and if required, Corner Guards to NZBC E2/AS1, 9.1.4 Wall underlays to wall openings, for timber framing, or to NZBC E2/AS4, 9.1.5 for light steel framing and in accordance with Masons instructions.

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3.11 FIXING OVER LOSP TIMBER

When applying Mason flashing tapes over LOSP treated timber, ensure the solvent has been allowed to flash off for a minimum of one week prior to the installation.

Application - Masons Sealing & Underlay Accessories

3.12 MASONS PENETRATION SEALS

Install, in accordance with Masons installation instructions, select appropriately sized Masons Penetration Seals, and trim to suit pipe or wires penetrating wall underlay.

3.13 MASONS INSULATION STRAP

Over wall underlay, install 25mm wide polypropylene straps horizontally at 300mm centres, draw taut and fix to studs with staples, screws or nails to prevent insulation bulging into cavity.

Completion

3.14 COMPLETION MATTERS

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

4 SELECTIONS

For further details on selections go to www.mpb.co.nz.
Substitutions are not permitted to the following.

Masons Wall Underlays

4.1 MASONS UNI® PLUS FLEXIBLE AIR BARRIER

Location:	Refer to architetural drawings
Brand/Type:	Masons UNI® PLUS flexible air barrier
Roll Size:	to be confirmed by contractor
Order Code:	T.B.C.

Masons Flexible Air Barriers - Fastening Systems

4.2 MASONS UNI® NAIL FASTENERS - TIMBER FRAME

Location:	~
Frame type:	Timber
Brand/Type:	Masons UNI® Nail Fasteners
Fixing Type:	UNI Cap nails - loose, Galvanized steel or UNI Cap nails - collated, Galvanized steel
Order code:	UNIFASTGN or UNINAILPACK

Masons Flashing Tapes & Corner Guards

4.3 MASONS 40 BELOW™ PLATINUM FLASHING TAPE

Location:	~
Thickness:	0.2mm
Roll size: (W x L)	T.B.C.
Facer type:	Aluminium foil
Order code:	T.B.C.

4.4 MASONS 40 BELOW™ FLEX FLASHING TAPE

Location:	~
Thickness:	0.2mm
Roll size: (W x L)	T.B.C.
Facer type:	Compound flexible, white
Order code:	T.B.C.

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Masons Sealing & Underlay Accessories

4.5 MASONS PENETRATION SEALS

Location:	Refer to architectural plans
Brand/Type:	Masons Penetration Seals
Size/range:	1-75mm + 85-170mm
Order code:	PSEAL75 + PSEAL170



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

1 GENERAL

This section relates to the supply and installation of Kingspan's Thermakraft product range including 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:

DPC	Damp proof course
DPM	Damp proof membrane
EPDM	Ethylene propylene diene monomer

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 E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
AS 1530.2	Methods for fire tests on building materials, components and structures - Test for flammability of materials
AS/NZS 2904	Damp-proof courses and flashings
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design
AS/NZS 4347	Damp-proof courses and flashings - Methods of test
AS/NZS 4389	Roof safety mesh
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
CodeMark CMNZ10002 ver5	Watergate Plus Wall Underlay
CodeMark CMNZ30028 verK	Thermakraft Covertek 407 Roof and Wall Underlay
CodeMark CMNZ30030 verJ	Thermakraft Covertek 405 Roof and Wall Underlay
CodeMark CMNZ30069 verI	Thermakraft Covertek 403 Roof and Wall Underlay

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Thermakraft's Product Data Sheets
Thermakraft's Installation Guides
BRANZ Appraisal 329 (2022) - Supercourse 500 Damp-Proof Course and Concealed Flashing - Amendment 29 August 2023
BRANZ Appraisal 651 (2024) - Thermakraft Covertek 407 Roof and Wall Underlay - Amended 13 July 2026
BRANZ Appraisal 695 (2023) - Watergate Plus Wall Underlay - Amended 01 July 2025
BRANZ Appraisal 743(2025) - Thermakraft Covertek 405 Roof and Wall Underlay
BRANZ Appraisal 878 (2025) - Thermakraft Aluband Window Flashing Tape
BRANZ Appraisal 912 (2021) - Thermakraft 220 Synthetic Wall Underlay - Amended 01 July 2025
BRANZ Appraisal 917(2025) - Thermakraft Covertek 403 Roof and Wall Underlay
BRANZ Appraisal 942 (2022) - OneSeal Multi-fit Pipe and Cable Penetration Seals - Amended 28 July 2026
BRANZ Appraisal 943 (2021) - Thermakraft Covertek 401 Roof and Wall Underlay - Amended 01 July 2025

BRANZ Appraisal 1000 (2023) - Thermakraft Thermabar 397 Light Diffusing Reflective Underlay - Amended 01 July 2025
BRANZ Appraisal 1029 (2023) - Thermakraft Ausnet Hexagonal Wire Mesh
BRANZ Appraisal 1104 (2020) - Thermathene Orange Concrete Underlay - Amendment 06 September 2024
BRANZ Appraisal 1122 (2026) - Thermaflash Flashing Tape
BRANZ Appraisal 1229 (2023) - Thermakraft Covertek 215 Roof Underlay - Amended 19 June 2025
BRANZ Appraisal 1277 (2025) - Thermakraft RainArmor Self Adhesive Roof Underlay and Wall Underlay

Manufacturer/supplier contact details

Company:	Kingspan Insulation NZ Ltd
Web:	www.thermakraft.co.nz
Email:	technical@kingspaninsulation.co.nz
Telephone:	0800 806 595

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years	For Kingspan Thermakraft product range.

- Provide this warranty on the manufacturer/supplier standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

Compliance information - CodeMark certified

1.7 CODEMARK CERTIFICATE - THERMAKRAFT COVERTEK 405

Thermakraft Covertek 405 roof and wall underlay meets the requirements of the NZBC when used within the conditions and limitations of its CodeMark Certificate of Conformity CMNZ30030.

Compliance information - BRANZ appraised

1.8 BRANZ APPRAISED - THERMAKRAFT COVERTEK 405

Thermakraft Covertek 405 roof and wall underlay has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 743

1.9 BRANZ APPRAISED - THERMAKRAFT AUSNET

Thermakraft Ausnet wire netting has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 1029

2 PRODUCTS

Synthetic underlays - fire retardant

2.1 THERMAKRAFT COVERTEK 405

CodeMark certified and BRANZ appraised self-supporting synthetic roof and wall underlay, white with yellow logo print, composed of a water resistant vapour permeable film laminated to two layers of non-woven, spun bonded polyolefin sheet. Fire retardant, tested to AS 1530.2 and assigned a Flammability Index of ≤5. Available in 1250mm and 2550mm width. Refer to SELECTIONS.

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Components - secure strapping/netting

2.2 THERMAKRAFT THERMASTRAP

19mm wide, rigid embossed polypropylene strap, colour blue. Refer to SELECTIONS.

2.3 THERMAKRAFT STUD STRAP

25mm wide, flexible woven and coated polythene strap, colour black. Refer to SELECTIONS.

2.4 THERMAKRAFT AUSNET

BRANZ appraised 1mmØ x 2000mm wide galvanized steel hexagonal wire netting to AS/NZS 4534. Available in 50mm and 75mm mesh size. Refer to SELECTIONS.

2.5 THERMAKRAFT AUSMESH

2mmØ galvanized steel safety mesh to AS/NZS 4389, 150mm x 300mm mesh size. Available in 1800mm and 2400mm width.

Fixings

2.6 FIXINGS - TO TIMBER

Little grippers, staples, clouts or screws to suit application. Refer to SELECTIONS.

2.7 FIXINGS - TO STEEL

Construction grade double sided tape, adhesive or galvanized flat head screws to suit application. Refer to SELECTIONS.

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.

Installation/application - generally

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Installation - secure netting/strapping

3.5 INSTALL SECURE STRAPPING

Place straps on underlay, draw taut and fix to framing to the Installation Guide.

3.6 INSTALL WIRE NETTING

Install wire netting to the Installation Guide in the same direction as the underlay. Where required to facilitate water drainage install netting with a sag, otherwise draw taut. Tie edges of netting together with galvanized wire clips and fix in place.

3.7 INSTALL SAFETY MESH

Install safety mesh to the Installation Guide and AS/NZS 4389.



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Installation - roof underlay

3.8 INSTALL ROOF UNDERLAY - HORIZONTAL

Install underlay to the Installation Guide horizontally and in true alignment over exterior face of roof framing. Place first sheet overlapping guttering (max. 20mm) or if eaves flashing is used terminate on the upper side of the flashing, draw sheet taut and fix at maximum 300mm centres to roof framing members. Install additional sheets in row repeating the process for the first sheet with sheet end laps to be of at least 150mm. Install sheets up to and over the ridge repeating the installation process for the first row and overlapping higher over lower sheets by at least 150mm.

3.9 INSTALL ROOF UNDERLAY - VERTICAL

Install underlay to the Installation Guide vertically and in true alignment over exterior face of roof framing. Place first sheet up the slope to the ridge overlapping guttering (max. 20mm) or if eaves flashing is used terminate on the upper side of the flashing, draw sheet taut and fix at maximum 300mm centres to roof framing members. Install additional sheets repeating the process for the first sheet lapping joints by at least 150mm.

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.

Synthetic underlays - fire retardant

4.1 ROOF & WALL UNDERLAY - THERMAKRAFT COVERTEK 405

Location:	Refer to drawings
Manufacturer:	Thermakraft
Brand:	Covertek 405
Type:	Synthetic roof and wall underlay
Width:	T.B.C.
Fixings:	As required for Zone B
Maximum UV exposure:	Walls - 60 days
	Roofs - 7 days

Components for securing underlays

4.2 SECURE STRAPPING - THERMAKRAFT THERMASTRAP

Location:	Low pitch roofs 10>
Manufacturer:	Thermakraft
Brand:	Thermastrap
Type:	Secure strapping
Width:	19mm
Fixings:	To timber: min. 8mm staples

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4171GR GIB WEATHERLINE RIGID AIR BARRIER

1 GENERAL

This section relates to the supply and fixing of GIB Weatherline® Rigid Air Barrier to residential and commercial buildings.
It incudes;

- GIB Weatherline® Rigid Air Barrier Structural batten, screw and tape; and screw and tape systems
- GIB Weatherline® Rigid Air Barrier bracing systems
- GIB Weatherline® Rigid Air Barrier fire rated systems

1.1 RELATED WORK

Refer to 5171G GIB® PLASTERBOARD FIRE & SOUND LININGS

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

AWCINZ	Association of Wall and Ceiling Industries New Zealand

Documents

1.3 DOCUMENTS

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

NZBC B1/AS1	Structural provisions for buildings
NZBC B2/AS1	Durability provisions for building elements
NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
AS/NZS 2589	Gypsum linings - Application and finishing
NZS 3603	Timber structures standard
NZS 3604	Timber-framed buildings
BS EN 13501-1	Fire classification of construction products and building elements - Classification using test data from reaction to fire tests
BRANZ Technical Paper P21	BRANZ Technical Paper P21: A wall bracing test and evaluation procedure (2010)

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents which refer to work in this section:

GIB® Site Guide (April 2024)
GIB® Noise Control Systems (September 2017)
GIB® Fire Rated Systems (September 2024)
GIB Ezybrace® Systems (August 2016)
GIB Ezybrace® Bracing Design Software
GIB Ezybrace® Bracing Supplement Document (December 2016)
GIB Ezybrace® for Light Steel Frame Systems (March 2017)
GIB Weatherline® Rigid Air Barrier Systems Design and Construction Manual (March 2021)
GIB Weatherline® Rigid Air Barrier Systems Supplement (November 2021)
BRANZ Appraisal 1048 (2025)- GIB Weatherline® Rigid Air Barrier Systems

Manufacturer/supplier contact details

Company:	Winstone Wallboards
Web:	www.gib.co.nz
Telephone:	0800 100 442

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Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years	For GIB® products and/or systems for a minimum of 10 years from the date of purchase

- Provide this warranty on the manufacturer/supplier standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.7 NO SUBSTITUTIONS

Substitutions are not permitted to any specified GIB® systems, GIB® system components, associated GIB® products or GIB® accessories.

Compliance information

1.8 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

- Applicators approval certificate from the manufacturer / importer / distributor
- Manufacturer's / supplier's warranty
- Installer's / applicator's 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 - Wind (design by contractor)

1.9 DESIGN PARAMETERS WIND - DESIGN BY CONTRACTOR

Design the installation to the manufacturer's requirements and as appropriate for the project wind design stated in the general section 1220 PROJECT.

Performance - Fire

1.10 EXTERNAL FIRE SPREAD - NON-COMBUSTIBLE MATERIAL

GIB Weatherline® classifieds as A1 in accordance with BS EN 13501-1.

Performance - General

1.11 BRACING SYSTEM

The GIB Weatherline® Rigid Air Barrier bracing system provides bracing resistance for walls for light timber framed buildings under wind and earthquake loading to NZBC B1 Structure, and to NZS 3603 Timber Structures Standard. Refer to table for summary of P21 Ratings for 2.4m or 2.7m high wall elements.

Provide braced wall systems using the GIB Weatherline® Rigid Air Barrier bracing system to meet the requirements of NZS 3604 when tested to BRANZ Technical Paper P21. Refer to drawings for location and type.

Structural Bracing Systems:
Bracing unit ratings for elements that incorporate GIB Weatherline®

Spec	Minimum length	Lining requirements	Other requirements	BU/m	
				W	EQ

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GSW-N	0.4m	Internal lining: Any 10mm or 13mm GIB® plasterboard Exterior sheathing: 10mm or 13mm GIB Weatherline®	None	85	75
GSW-N	1.2m	Internal lining: Any 10mm or 13mm GIB® plasterboard Exterior sheathing: 10mm or 13mm GIB Weatherline®	None	95	85
GSW-H	0.4m	Internal lining: Any 10mm or 13mm GIB® plasterboard Exterior sheathing: 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	90	85
GSW-H	1.2m	Internal lining: Any 10mm or 13mm GIB® plasterboard Exterior sheathing: 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	130 timber floors	110
W-H	0.4m	Internal lining: None Exterior sheathing: 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	105	100
W-H	1.2m	Internal lining: None Exterior sheathing: 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	125 timber floors	105
BLW-H	0.4m	Internal lining: 10mm or 13mm GIB® Braceline® GIB Noiseline® Exterior sheathing: 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	105	115
BLW-H	1.2m	Internal lining: 10mm or 13mm GIB® Braceline® GIB Noiseline® Exterior sheathing: 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	150 timber floors	145 timber floors

1.12 BRACING REQUIREMENTS

Braced wall systems to NZS 3604 when tested to BRANZ Technical Paper P21, using:

- GIB Ezybrace® Systems and/or GIB Ezybrace® Bracing Software

Refer to drawings for location and type.

1.13 FIRE RATED SYSTEM

Provide GIB Weatherline® Rigid Air Barrier fire rated system. Refer to SELECTIONS for system/FRR.

Fire Rated Systems:

One-way FRR - Timber or steel frame

Specification	LB/NLB	Insulation	FRR	Lining requirements
GWUW 30	LB	optional	30/30/30	2 x 10mm GIB Weatherline® one side
GWUW 60	LB	optional	60/60/60	2 x 13mm GIB Weatherline® one side

Two-way FRR - Timber frame

Specification	LB/NLB	Insulation	FRR	Lining requirements
GWTLE 30	LB	optional	30/30/30	Internal: 10mm GIB Fyreline® Exterior: 10mm GIB Weatherline®
GWTLE 60a	LB	optional	60/60/60	Internal: 13mm GIB Fyreline® Exterior: 13mm GIB Weatherline®
GWTLE 60b	LB	optional	60/60/60	Internal: 10mm GIB Fyreline® Exterior: 2/10mm GIB Weatherline®
GWTLP 30	LB	optional	30/30/30	10mm GIB Weatherline® both sides
GWTLP 60	LB	optional	60/60/60	13mm GIB Weatherline® both sides
GWTE120	NLB	optional	-/120/120	Internal: 2 x 13mm GIB Fyreline® Exterior: 2 x 13mm GIB Weatherline®

Two-way FRR - Steel frame

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Specification	LB/NLB	Insulation	FRR	Lining requirements
GWSE 60	NLB	optional	-/60/60	Internal: 13mm GIB Fyreline® Exterior: 13mm GIB Weatherline®
GWSP 60	NLB	optional	-/60/60	13mm GIB Weatherline® both sides
GWSE120	NLB	optional	-/120/120	Internal: 2 x 13mm GIB Fyreline® Exterior: 2 x 13mm GIB Weatherline®

Two-way FRR - Steel frame external wall with thermal break

Specification	LB/NLB	Insulation	FRR	Lining requirements
GWSET 60	NLB	optional	-/60/60	Internal: 13mm GIB Fyreline® Exterior: 13mm GIB Weatherline®

Fire-rated protection of Columns and Beams

Specification	FRR	Strapping Type	Lining Requirements; steel, timber & concrete columns & beams
GWCBT15	15/-/-	Timber cradle	1 x 13mm GIB Weatherline®
GWCBT30	30/-/-	Timber cradle	2 x 10mm GIB Weatherline®
GWCBT60	60/-/-	Timber cradle	2 x 13mm GIB Weatherline®
GWCBS15	15/-/-	Steel clip & channel	1 x 13mm GIB Weatherline®
GWCBS30	30/-/-	Steel clip & channel	2 x 10mm GIB Weatherline®
GWCBS60	60/-/-	Steel clip & channel	2 x 13mm GIB Weatherline®

2 PRODUCTS

Materials

2.1 GIB WEATHERLINE® RIGID AIR BARRIER

Exterior grade, glass-fibre fleece wrapped modified gypsum core sheet.
Meets NZBC requirements for Rigid Air Barriers as an Alternative Solution Proprietary System as per NZBC E2/AS1, 9.1.3 Barriers to airflow, paragraphs 9.1.6.2 - 9.1.6.4, and Table C.2.1.1: Properties of roof underlays and wall underlays.

Complies with NZBC B2/AS1 Durability.
Sizes;

Standard lengths:	2750mm and 3000mm (2450 available but in 10mm thickness only)
Width:	1200mm
Thicknesses:	10mm and 13mm
Colour:	Purple

Components

2.2 SCREWS

GIB® Grabber® 41mm x 6g Ceramic Coated High Thread Screws.

GIB® Grabber® 63mm x 8g Ceramic Coated High Thread Screws.
GIB® Grabber® 32mm x 8g Ceramic Coated Drill Point Screws.
GIB® Grabber® 47mm x 8g Ceramic Coated Drill Point Screws.
Refer to GIB® requirements for appropriate details.

2.3 GIB WEATHERLINE® FLASHING TAPE

Flashing tape available in 30mm, 60mm, 100mm, 150mm and 200mm widths x 30m roll length.

2.4 GIB WEATHERLINE® SILL TAPE

Sill tapes available in 150mm and 200mm widths x 20m roll length.

2.5 STRUCTURAL CAVITY BATTENS

45mm x 18mm H3.1 Merchant Grade Pinus Radiata cavity battens.

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2.6 BRACING HOLD-DOWN CONNECTORS

GIB HandiBrac® hold-down brackets manufactured by Mitek™ NZ complete with mechanical fastener with a minimum 15kN uplift capacity for concrete floors and 150 x 12mm dia galvanized coach screw for timber floors.

2.7 FIRE/ACOUSTIC SEALANT

GIB Fire Soundseal® ultra low VOC, multi use fire and acoustic sealant that resists passage of smoke and fire.

2.8 GAP FILLER

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

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 - TIMBER FRAMING

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

Framing substrates shall be in accordance to AS/NZS 2589 and Weatherline® Rigid Air Barrier Systems requirements. Refer to GIB® Site Guide.

Timber framing moisture content is in accordance with requirements of AS/NZS 2589. Refer to NZBC E2/AS1 and GIB® Site Guide.

Timber framing:	18% maximum for fixing plasterboard to timber (8-12% recommended for fixing plasterboard to timber framing if air conditioning and/or central heating are to be installed.)

Installation

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.5 SCREW, TAPE AND STRUCTURAL BATTEN INSTALLATION

Fix GIB Weatherline® Rigid Air Barrier System in accordance with GIB Weatherline® Rigid Air Barrier Systems Specification and Installation Manual, Section 2.

3.6 BOARD ORIENTATION

Minimise joints by careful sheet layout using the largest sheet sizes possible. Sheets may be installed vertically or horizontally, however horizontal fixing is not acceptable when Structural Bracing or Fire Rated Systems are specified. Refer to GIB Weatherline® Rigid Air Barrier Systems Specification and Installation Manual.

3.7 INSTALL FLASHING AND SILL TAPE

Install flashing and sill tape in accordance with GIB Weatherline® Rigid Air Barrier Systems Specification and Installation Manual.

3.8 LINING WALLS AND CEILINGS GENERALLY

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

3.9 FORM BRACING SYSTEMS

Form bracing systems in accordance with GIB Weatherline® Rigid Air Barrier Systems Design and Construction Manual and GIB Ezybrace® Systems.

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3.10 BRACING SYSTEM HOLD DOWN

Use GIB HandiBrac® hold-down connections at each end of bracing element. Refer to the installation instructions supplied with connectors for correct bolt types to be used for either concrete or timber floors. Within the length the bracing element, bottom plates are fixed to the requirements of NZS 3604.

3.11 FORM FIRE RATED SYSTEMS

Form fire rated systems in accordance with GIB Weatherline® Rigid Air Barrier Systems Design & Construction Manual and GIB Weatherline® Rigid Air Barrier Systems Supplement.

Finishing

3.12 FINISHING GENERALLY

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

4 SELECTIONS

GIB Weatherline® Rigid Air Barrier

4.1 STRUCTURAL BATTEN, SCREW & TAPE NZS 3604 - GIB WEATHERLINE® RIGID AIR BARRIER

Location:	Exterior Walls
Product:	Weatherline® Rigid Air Barrier
Sheet length:	Standard sizes
Sheet width:	1200mm
Thickness:	10mm
Battens:	45mm x 18mm H3.1 timber

4.2 GIB WEATHERLINE® RIGID AIR BARRIER - 2-WAY FIRE RATED SYSTEM TIMBER FRAME

Specification Number	LB/NLB	Insulation	FRR	Lining Requirements
GWTLE 30	LB	optional	30/30/30	Internal lining: 1 x 10mm GIB Fyreline®. Exterior Sheathing: 1 x 10mm GIB Weatherline®

Components

4.3 GIB WEATHERLINE® FLASHING TAPE

Brand/type:	GIB Weatherline® flashing tape
Width:	Standard

4.4 GIB WEATHERLINE® SILL TAPE

Brand/type:	GIB Weatherline® sill tape
Width:	150mm or 200mm

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4221 TIMBER BOARD CLADDING

1 GENERAL

This section relates to the supply and fixing of timber cladding:

- Horizontal Shiplap with battens
- Vertical Rusticated

1.1 RELATED WORK

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

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

FSC	Forest Stewardship Council
PEFC	Programme for the Endorsement of Forest Certification

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 provisions for timber-framed buildings up to 10 m in height
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 3617	Profiles of weatherboards, fascia boards and flooring
NZS 3631	New Zealand timber grading rules

Performance

1.4 FIXINGS, WIND

Design and use the fixings appropriate for the wind zone (R) and topographical classification (T) of this site and building height; as required by NZS 3604.

1.5 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed cladding system, including all penetrations.

2 PRODUCTS

Materials

2.1 UNDERLAYS

Refer to 4161 UNDERLAYS, FOIL AND DPC section

2.2 EXTERIOR CAVITY WALL BATTENS

Radiata pine battens, minimum 20mm thickness, width and height to match timber framing studs. To NZS 3602, table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.

2.3 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

Perforated uPVC, aluminium or stainless steel trays with upstands. Upstand one side 10mm and the other 75mm. Length and width to suit cavity.

2.4 COVER BOARDS, BOXED CORNERS AND SCRIBERS

To profiles as detailed, with species and grading to NZS 3602, NZS 3631, but with all knots excluded. To NZS 3602, table 2, reference 2A.3, Requirements for wood-based building components to achieve a 15-year durability performance.

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Components

2.5 NAILS, GALVANIZED

60mm x 2.8mm and 75mm x 3.15mm galvanized steel.

2.6 FLASHINGS

Material, grade and colour as detailed and scheduled and to NZBC E2/AS1, Table C.1.1.1B: Compatibility of materials in contact, and Table C.1.1.1C: Compatibility of materials subject to run-off. Ensure that materials used for flashings are compatible with the window frame materials and fixings and cladding materials and fixings.

2.7 SOAKERS, ALUMINIUM/ZINC COATED STEEL

Machine folded aluminium/zinc coated steel sheet to profile of weatherboard and mitred corner joints.

2.8 SOAKERS, COPPER

Machine folded half-hard copper sheet to profile of weatherboard and mitred corner joints.

Finishes

2.9 SEMI-TRANSPARENT STAIN

Water borne acrylic stain, solvent borne semi-transparent oil stain, or solvent-borne semi-transparent oil-alkyd stain to suit the timber.

3 EXECUTION

Conditions

3.1 GENERALLY

Execution to NZBC E2/AS1.

3.2 STORAGE

Take delivery of timber, dry, unmarked and undamaged. Store on site, laid flat and true under cover.

3.3 SUBSTRATE

Before starting fixing ensure that the substrate conforms with NZS 3604, section 2, table 2.1, **Timber framing tolerances** and the requirements of NZS 3604, section 6, **Foundation and subfloor framing** and NZBC E2/AS1, governing support for timber board cladding.

3.4 MOISTURE CONTENT

Immediately before starting fixing, test the moisture content of the boards. Use an electrical moisture meter to test 5% of boards, but not less than 10 boards in the centre of the length. Do not start fixing until 90% of the values obtained are within the range in NZS 3602 table 4, Allowable moisture content (%) at time of installation or in the case of framing timber at time of enclosure.

Application - preparation

3.5 FIX UNDERLAYS

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3.6 INSTALL DRAINED CAVITY

20mm minimum thickness drained cavity to NZBC E2/AS1: 9.0 Wall claddings, where required. Fix vertical cavity battens to wall framing studs. The battens are fixed by the cladding fixings which will penetrate the wall framing studs over the wall underlay. Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc). Do not use horizontal cavity battens. Use cavity spacers where fixing is required between cavity battens.

3.7 PENETRATIONS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:

- wall underlay/building wrap to openings finished and dressed off ready for the installation of window and door frames and other penetrations
- claddings neatly finished off to all sides of openings
- installation of flashings (those required to be installed prior to installation of penetrating elements).

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3.8 SET-OUT

Using laser or mechanical devices set-out the overlap boards to ensure dimension to exposed face in line of weather is constant and that boards remain horizontal/vertical. Use a string line to set out all nailing that will be visible in the finished work. Align all nailing accurately in straight lines.

Application - fixing

3.9 FIXING, CLEAR FINISH

Coat all cut ends before fixing. Drill all fixings located within 25mm of board ends. Finish fixings flush.

3.10 FIXING VERTICAL SHIPLAP WEATHERBOARDS

Adjust horizontal set-out to ensure there is a minimum 2mm expansion gap at the overlap between successive boards. Boards to be continuous lengths over a storey height. Nail tongue to every fixing point (nogs at maximum 480mm centres). Nail other side of board just clear of lap. Line nails horizontally across the boards.

Provide cover boards to external corners in accordance to NZBC E2/AS1, Figure 9.4.5.5: External corners for vertical weatherboards. Back flash internal corners in accordance to NZBC E2/AS1, Figure 9.4.4.5: Internal corners for horizontal or vertical weatherboards, either scribe and notch internal corner or use 'W' internal corner flashing.

3.11 INSTALL FLASHINGS

Install flashings, covers and soakers as detailed on the drawings and to NZBC E2/AS1

3.12 COMPLETE

Ensure the work is complete with all flashings, finishings and trim properly installed so the cladding system is completely weathertight.

Completion

3.13 REPLACE

Replace all damaged or marked elements.

3.14 LEAVE

Leave work to the standard required for following procedures.

3.15 REMOVE

Remove all debris, unused materials and elements from the site.



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4 SELECTIONS

4.1 BUILDING WRAPS/UNDERLAYS

Refer to 4161 UNDERLAYS, FOIL AND DPC section

4.2 CAVITY CLOSER/VERMIN-PROOFING

Brand/type:	Dynex / 20mm soft tip
Material:	PVC

4.3 WEATHERBOARDS

Location:	Exterior Wall Cladding
Species:	Cedar
Profile:	Rusticated
Dimensions:	Refer Detail Drawings
Surface finish:	Stain

4.4 COVER BOARDS, BOXED CORNERS AND SCRIBERS

Species:	Cedar
Dimensions:	Refer Details Drawings
Surface finish:	Stain

4.5 NAILS

Cladding:	Cedar
Type:	Bronze Crown head annular grooved shank nail with Stainless steel clinch nail

4.6 FLASHINGS

Location:	Interior & Exterior Corners
Material:	Aluminium
BMT:	See Drawing Details
Finish:	None

4.7 COVERS AND TRIMS

Location:	See Drawing Details

4.8 SOAKERS

Location:	See Drawing Details

4.9 SEMI-TRANSPARENT STAIN

Brand/type:	See Exterior Colour Schedule
Colour:	See Exterior Colour Schedule



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4239 SOFFIT CLADDING

1 GENERAL

This section relates to the supply and fixing of cladding to the underside of exterior soffits, verges and eaves and includes:

- Fibre cement sheet
- Jointers
- Trim

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 provisions for timber-framed buildings up to 10 m in height
AS/NZS 1604.1	Preservative-treated wood-based products - Part 1: Products and treatment
AS/NZS 2269.0	Plywood - structural - Specifications
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
NZS 3617	Profiles of weatherboards, fascia boards and flooring
NZS 4251.1	Solid plastering: Cement plasters for walls, ceilings and soffits

Requirements

1.2 QUALIFICATIONS

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

1.3 HEALTH AND SAFETY

Comply with all manufacturer/supplier and WorkSafe New Zealand requirements for health and safety.

1.4 NO SUBSTITUTIONS

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

2 PRODUCTS

Fibre cement soffit cladding

2.1 FIBRE CEMENT SOFFIT CLADDING

Fibre cement soffit cladding, manufactured from treated cellulose fibre, Portland cement, sand and water, cured by high pressure autoclaving and manufactured to AS/NZS 2908.2. Refer to SELECTIONS.

2.2 NAILS - GALVANIZED

Hot-dip galvanized nails for fibre cement sheet as required by manufacturer / supplier documents. Refer to SELECTIONS.

2.3 NAILS - STAINLESS STEEL

316 Stainless steel nails for fibre cement sheet as required by manufacturer / supplier documents. Refer to SELECTIONS.

2.4 SCREWS - STAINLESS STEEL

Stainless steel screws for fibre cement sheet as required by manufacturer / supplier documents. Refer to SELECTIONS.

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Fibre cement soffit cladding - Components

2.5 SOFFIT JOINTERS

Extruded uPVC jointer.

2.6 CAPPING MOULDS

Extruded uPVC capping mould.

2.7 SCOTIA MOULDS

Extruded uPVC scotia mould.

Fibre cement - Accessories

2.8 FLASHING TAPES

Single sided medium density closed cell PVC foam tape, with pressure sensitive acrylic adhesive on one side of tape. Tape thickness and width to manufacturer technical literature.

2.9 SEALANT

Facade sealant or similar. Refer to the sheet manufacturer technical literature for selection and use requirements.

2.10 SEALER

For jointed systems, seal all sheet edges prior to fixing.

Timber profiles

2.11 TIMBER TRIM

18 x 18 mm timber trim with 6 mm minimum chamfer to internal corner. Species and grading to the requirements of NZS 3602 , table 2, Requirements for wood-based building components to achieve a 15-year durability performance, treated H3.1 unless durable heartwood. Select appearance grades to NZS 3631 requirements, but with all knots excluded.

Flashing

2.12 SOFFIT CLADDING/WALL CLADDING JUNCTION FLASHING

Flashing as detailed with minimum 50 mm return behind soffit cladding and 35 mm cover to wall cladding, complete with hook and kick-out. Refer to SELECTIONS for flashing material.

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 HANDLING

Avoid distortion and contact with potentially damaging surfaces. Do not drag sheets across each other, or across other materials. Protect edges, corner and surface finish from damage. Reject all product with damaged faces or edges

3.3 SUBSTRATE

Do not commence work until the substrate is of the standard required for the specified finish; 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 soffits are fixed.

3.4 SEAL FIBRE CEMENT SHEET EDGES

Seal site cut sheet edges prior to installation. Seal sheet edges around penetrations.

3.5 PENETRATIONS

Form small holes to accommodate penetrations through the soffit as per the method detailed in the sheet manufacturer's technical literature.

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Install fibre cement sheets

3.6 SHEET LAYOUT

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

3.7 INSTALL SOFFIT CLADDING - JOINTERS AND CAPPING MOULDS

Cut sheets dry using score and snap method, hand guillotine or fibre cement shears. If these methods are not feasible, use an alternative manufacturer approved method. Ensure all edges and joints are fully supported. Insert uPVC jointers and capping moulds to manufacturer's requirements. Fix sheets complete with jointers and capping moulds. Refer to manufacturer's installation manual and SELECTIONS.

3.8 INSTALL SOFFIT CLADDING - EXPRESSED JOINTS

Cut sheets dry using score and snap method or hand guillotine. Ensure all edges and joints are fully supported. Install inseal sealing strip to framing at expressed joint locations. Fix sheets complete with required gap to form expressed joint detail. Refer to manufacturer's installation manual and SELECTIONS.

3.9 FIBRE CEMENT CLADDING FASTENER - SIZE AND LAYOUT

Fix sheets to framing using fixings and fixing methods as nominated in SELECTIONS. Fix to manufacturer's requirements.

3.10 SEALANTS - FIBRE CEMENT

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

3.11 PAINTING - FIBRE CEMENT

Refer to painting section/s for protective coating system.

Install timber profiles

3.12 EXECUTION

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).

3.13 TIMBER TRIM

Using full lengths, scribe internal joints and mitre external and running joints. Fully support all joints and fix securely and true to line and face, fully nailed. For paint finish prime joint edges before fixing, otherwise seal them without runs onto any exposed face.

3.14 NAILING, PAINT FINISH

Punch nails and patch prime external trim being painted, before stopping as specified under painting preparation.

3.15 NAILING, CLEAR FINISH

Punch nails flush with the face of external trim being stained or clear finished.

Completion

3.16 COMPLETION MATTERS

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

4 SELECTIONS

Fibre cement soffit cladding

4.1 FIBRE CEMENT SOFFIT CLADDING

Location:	Soffits
Brand/ID:	TBC
Thickness:	6mm
Edge detail:	Square
Fixings/finish:	Galvanized / recessed & stopped.
Joints:	butt joint. stopped. paint.

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Accessories

4.2 SOFFIT CLADDING/WALL CLADDING JUNCTION FLASHING

Material:	Steel
Profile:	L
Finish:	Powdercoat
Colour:	To match soffit. See Exterior Finishes Schedules.

Finishes - materials supplied unfinished

4.3 MATERIALS SUPPLIED UNFINISHED FOR ON SITE FINISHING

Soffit:	Refer to appropriate painting section/s for finishes
Trim:	Refer to appropriate painting section/s for finishes
Cover batten:	Refer to appropriate painting section/s for finishes



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4311 PROFILED METAL ROOFING

1 GENERAL

This section relates to the supply and fixing of proprietary overlap rigid sheet metal profiled roofing complete with accessories.

1.1 RELATED WORK

Refer to 7411 RAINWATER SPOUTING SYSTEMS for rainwater disposal

1.2 ABBREVIATIONS

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

The following abbreviations apply specifically to this section:

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc
MS	Modified silyl

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 provisions for timber-framed buildings up to 10 m in height
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
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

Requirements

1.4 QUALIFICATIONS

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

Performance

1.5 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.

1.6 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed roofing system, including penetrations through the roof and junctions with walls and parapets.

1.7 FIXINGS, WIND

Design and use the fixings appropriate for the design loads of this site; refer to general section 1220 PROJECT for details of wind zone. Allow for specific loadings at corners and the periphery of the roof, where localised pressure factors apply.

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Performance - Wind (design by contractor)

1.8 DESIGN PARAMETERS - NON SPECIFIC DESIGN

Design the installation to the wind zone parameters of NZS 3604, table 5.4.

Refer to general section 1220 PROJECT for details.

2 PRODUCTS

Materials

2.1 WIRE NETTING AND SAFETY MESH

Refer to 4161 UNDERLAYS, FOIL AND DPC.

2.2 UNDERLAY AND REFLECTIVE FOIL

Refer to 4161 UNDERLAYS, FOIL AND DPC.

2.3 INSULATION

Refer to appropriate insulation section.

2.4 STAINLESS STEEL

Stainless steel sheet manufactured to ASTM A240 and ASTM A480. Welding to AS/NZS 1554.6.

2.5 HOT-DIPPED ALUMINIUM/ZINC/MAGNESIUM COATED STEEL, UNPAINTED

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

2.6 PRE-FINISHED HOT-DIPPED ALUMINIUM/ZINC/MAGNESIUM COATED STEEL

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

2.7 ALUMINIUM

Aluminium alloy series 5000 temper H16 or H18 to suit application. Aluminium alloy series 5000 temper H34 for welded flashings.

Components

2.8 FLASHINGS GENERALLY

To NZBC E2/AS1, 4.0 Flashings.

Formable grade 0.55mm BMT for galvanized, aluminium/zinc-coated and pre-painted steel, and 0.9mm 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.

2.9 FLASHINGS TO VERGE, RIDGE AND HIP

Supplied by the roofing manufacturer to match or to suit the roofing in the same material as the roof.

2.10 BOOT FLASHINGS

Generally to NZBC E2/AS1, 8.4.12 Roof penetrations

EPDM proprietary pipe flashing laid on 45º 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.

2.11 ALUMINIUM FLASHINGS - WELDED

Aluminium alloy series 5000 temper H34 minimum thickness 1.6mm BMT to AS/NZS 1734. Aluminium welding to AS/NZS 1665.

2.12 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.

Fixings

2.13 FASTENERS GENERALLY

Minimum Class 4 and durability not less than the roofing material being fixed. Screw fasteners to be head stamped identifying the manufacturer and class.



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2.14 FIXING SCREWS

To AS 3566. Screws appropriate to the roofing material and the supporting structure, as required by the roofing manufacturer and with a minimum Class 4 durability and not less than the material being fixed. Screws into timber to penetrate by minimum 30mm.

2.15 RIVETS

Sealed aluminium, minimum diameter 4mm, for use with zinc coated, zinc/aluminium coated or aluminium roofing.

Accessories

2.16 SEALANT

Neutral Curing silicone or MS polymer sealant as required by the roofing manufacturerand used as directed.

2.17 CLOSURE STRIPS

Compressible, closed cell profiled foam strips to fit the sheet profile.

2.18 LAP SEALING TAPE

Closed cell self adhesive nitrile tape.

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 adversely affect 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

Take delivery of and accept packs of roofing undamaged on delivery. Reject all damaged material. Store on a level firm base 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 movement between sheets.

3.4 HANDLING

Avoid distortion and contact with damaging substances, including cement. Do not drag sheets across each other and other materials. Protect edges and surface finishes from damage. Use soft, flat soled shoes when fixing and for all other work on the roof.

3.5 SEPARATION

Place isolators between dissimilar metals, also separate roofing from treated timber and cement based materials. Do not use unpainted lead sheet or copper in contact with or allow water run-off onto galvanized or Zincalume® materials.

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.



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3.9 SET-OUT

Carefully set out with consideration of the position of side laps to take account of the 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 MOVEMENT JOINTS

Fixing and jointing to conform with the roofing manufacturer's requirements for thermal movement.

Over timber framing, transverse flashings (those running long continuous framing members) to have expansion joints at maximum 12 centres.

3.12 FIXING GENERALLY

Install and fix in accordance with the NZMRM CoP requirements, and to roofing manufacturer's recommendations. Paint colour matched fixings and accessories before installation.

3.13 MARKING AND CUTTING

Cut only by shearing tools. Do not use black lead pencils for marking aluminium/zinc coated products.

3.14 FIX SHEETS

Fix sheets in place using the fastening system required by the roofing manufacturerfor 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 purpose made tools.

3.16 FLASHINGS

Flash roof to parapets, walls and penetrations to detail. Where no detail is provided flash to NZMRM CoP recommendations and the roofing manufacturer's requirements. Cut accurately and fix using sealant and rivets to detail and to the roofing manufacturer's requirements to form a weatherproof cover. For highly 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 the roofing manufacturer. 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 to manufacturer's requirements, with other penetrations flashed as detailed and to provide a weathertight installation. Ensure that flashings are set to avoid any ponding of water.

3.19 INSTALL RIDGING

Install ridging by fastening to the purlins through the leading edge of the roofing to manufacturer's requirements.

Completion

3.20 REPLACE

Replace damaged or marked elements.

3.21 LEAVE

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.

3.22 REMOVE

Remove trade rubbish and unused materials from the roof and surrounds daily during the work. Sweep down at the end of each day, and clean out spoutings, gutters and rainwater pipes on completion of the roof. Remove debris, unused materials and elements from the site.



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4 SELECTIONS

Roofing

4.1 PRE-FINISHED HOT-DIPPED ALUMINIUM/ZINC/MAGNESIUM COATED STEEL

Brand:	TBC
Profile:	Corrugate
BMT:	0.55mm
Coating:	Colorcote or Colorsteel
Colour:	See Exterior Finishes Schedule

Accessories

4.2 FLASHING

/ Material/thickness:	Alum/Zinc coated steel/ 0.75mm

4.3 FLASHINGS - WELDED

Location:	Refer Detail Drawings
Roofing brand/profile:	TBC
Material:	Aluminium
Thickness:	1.6mm
Coating system:	To match roofing
Coating colour:	To match roofing

4.4 CLOSURE STRIP

Brand:	TBC

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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 provisions for timber-framed buildings up to 10 m in height
NZBC F4/AS1	Safety from falling
NZBC H1/AS1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/AS2	Energy efficiency for buildings greater than 300m²
NZBC H1/VM1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/VM2	Energy efficiency for buildings greater than 300m²
AS/NZS 1170.2:2011	Structural design actions - Wind actions
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
BS EN 673	Glass in building - Determination of thermal transmittance (U-value) - Calculation method
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

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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
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
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)

Requirements

1.4 QUALIFICATIONS

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

1.5 COMPLIANCE

Windows and doors to be manufactured and installed to NZBC E2/AS1.

1.6 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

1.7 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.

1.8 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.

1.9 THERMAL PERFORMANCE - WINDOWS & GLAZED DOORS, HOUSING ONLY

Thermal performance of windows & doors to NZBC H1/AS1. The construction R-Value of windows & doors determined by Appendix D, Table D1.1.1: Construction R-values (R window) of selected generic windows and doors. Refer to SELECTIONS for construction R-values.

1.10 THERMAL PERFORMANCE - WINDOWS & DOORS

Thermal performance of windows & doors to NZBC H1/AS1 or NZBC H1/AS2 & NZBC H1/VM1 or NZBC H1/VM2. The construction R-value of windows & doors determined in accordance with NZBC H1/VM1 or NZBC H1/VM2, Appendix D, D1 Vertical windows and doors:

- Thermal transmittance of window & doors in accordance with ISO 10077-1.
- Thermal transmittance of framing in accordance with ISO 10077-2.
- Thermal transmittance of glazing using BS EN 673.

Refer to SELECTIONS for construction R-values.

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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/NZS 1580.108.1 for certifying thickness and method (a) where any dispute arises as to the thickness provided.

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

2 PRODUCTS

Materials

2.1 WINDOWS

Refer to SELECTIONS for type and finish.

2.2 DOORS

Refer to SELECTIONS for type and finish.

2.3 ALUMINIUM EXTRUSIONS

Alloy designation to comply with AS/NZS 1866. Branded and extruded for anodising or powder coating.

2.4 ALUMINIUM SHEET AND STRIP

Complying with AS/NZS 1734 of suitable thickness. Rolled for anodising or powder coating.

Alloy designation: 5251 - H16 or 5005 - H16

2.5 STAINLESS STEEL SHEET AND STRIP

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

2.6 GLASS

Refer to the glazing section for glass types and installation.

2.7 REVEALS - TIMBER PAINTED

Timber reveals for paint finish with all sides primed grooved for wall linings or flush finished for architraves.

2.8 FLASHINGS GENERALLY

To NZBC E2/AS1, 9.1.9 Windows and doors. Material, grade and colour of head flashings to match the window frames. Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials.

Components - for cavity systems

2.9 STANDARD CAVITY CLOSER

A perforated device constructed from either aluminium or PVC to close the cavity above the window or door unit, between the cladding and head flashing, to provide ventilation in accordance with NZBC E2/AS1 to the spaces above the window or door.

2.10 SUPPORT BAR

WGANZ extruded aluminium support bar with built in drainage and ventilation to NZBC E2/AS1, to provide continuous support to the window unit. Size to suit cladding type.



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Components

2.11 GLAZING GASKETS

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

2.12 HARDWARE AND FURNITURE

Hinges, stays, catches, fasteners, latches, locks and furniture as offered by the window and door manufacturer. Refer to SELECTIONS for type and finish. Key alike all lockable window hardware able to be keyed alike.

2.13 SAFETY STAYS

Stainless steel non releasable restrictors to limit window opening to NZBC F4/AS1, Section 2.0, **Opening windows**.

Sealants

2.14 STRUCTURAL SEALANT

Silicone chemically curing sealant specifically formulated and tested or approved equivalent with not less than a ± 40% movement factor complying with US Federal Specification TT-S-001543A.

2.15 WEATHERING / INSTALLATION SEALANT

Building sealant used in accordance with manufacturer's instructions for weather sealing aluminium frames to the cladding, complying with US Federal Specification TT-S-001543A, or a one-part polyurethane moisture curing, elastic joint sealant of medium modulus (± 25% movement) to US Federal Specification TT-S-00230C.

2.16 FOAM TAPE

Foam tape to NZBC E2/AS1, paragraph 9.1.9.9.

Finishes

2.17 POWDER COATED ALUMINIUM - EXTRA-DURABLE POLYESTER

Polyester powder organic coating in accordance with WGANZ PQAS, AS 3715, and AAMA 2603

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.

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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, paragraph 9.1.9.10. 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, 9.1.4 Wall underlays to wall openings.
- Full height 20mm jamb battens to NZBC E2/AS1, Figure 9.1.9.4: General window and door opening for direct fixed (direct fix only)
- claddings neatly finished off to all sides of openings
- installation of flashings (those which are required to be installed prior to frames).

3.16 INSTALLATION

Fix to comply with the reviewed shop drawings and installation details including flashings and bedding compounds, pointing sealants and weathering sealants.

3.17 INSTALLATION CAVITY CONSTRUCTION

Install to WGANZ Window Installation Guide details and drawings including WGANZ sill support bars.

For thresholds with support bars fixed through membranes, pre-fill support bar screw holes with silicone sealant to NZBC E2/AS1, Figure 8.5.6.1D: Junctions with walls for membrane.

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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, 9.1.5 Air seals. Form an air-tight seal by means of a proprietary expanding foam or sealants used with backing rods, applied between the window / door reveal and structural framing to a depth of 10 - 20mm, to provide a continuous air tight seal to the perimeter of the window or door.

3.20 FIX HARDWARE

Fix all sash and door hardware and furniture as scheduled.

Application - jointing and sealing

3.21 SEAL FRAMES ON SITE

Seal frames to each other and to adjoining structure and finishes, all as required by the window manufacturer and to make the installation weathertight. In very high and extra high or greater wind zones, seal between the window head and the head flashing. Do not seal the junction between the sill member and the cladding or sill flashing which must remain open.

3.22 PREPARE JOINTS

Ensure joints are dry. Remove loose material, dust and grease. Prepare joints in accordance with the sealant manufacturer's requirements, using required solvents and primers where necessary. Mask adjoining surfaces which would be difficult to clean if smeared with sealant.

3.23 BACK UP

When using back-up materials do not reduce depth of joint for sealant to less than the minimum required by the manufacturer of the sealant. Insert polyethylene rod or tape back-up behind joints being pointed with sealant.

3.24 SEALANT FINISH

Tool sealant to form a smooth fillet with a profile and dimensions required by the sealant manufacturer. Remove excess sealant from adjoining surfaces, using the cleaning materials nominated by the sealant manufacturer and leave clean.

Completion - cleaning

3.25 REMOVE TRADE DEBRIS

Remove trade debris by appropriate means on a floor by floor basis as each floor is completed and again before any work is covered up by others. Arrange for general removal.

3.26 TRADE CLEAN

Trade clean window frames, operable windows and doors, glass and other related surfaces inside and out at the time of installation to remove marks, dust and dirt, to enable a visual inspection of all surfaces.

Completion

3.27 PROTECTIVE COVERINGS

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

3.28 SAFETY

Indicate the presence of transparent glasses for the remainder of the contract period, with whiting, tape or signs compatible with the glass type. Indicators other than whiting must not be applied to the glass surface. Masking tape must not be used for this purpose.

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3.29 IN SITU TOUCH-UP TO POWDER COATED ALUMINIUM

In situ touch-up of polyester or fluoropolymer coated aluminium is only permitted only to minor surface scratching. Otherwise replace all damaged material.

3.30 REMOVE

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

3.31 REPLACE

Replace damaged, cracked or marked elements.

4 SELECTIONS

Performance

4.1 THERMAL PERFORMANCE - VERTICAL WINDOWS & DOORS

Window /Door Number:	Construction R-value:
Refer to Exterior Joinery Schedule	0.5

Performance - Wind (design by contractor)

4.2 WIND - NON SPECIFIC DESIGN

Building wind zone: High (refer to NZS 3604, table 5.4)

Window and door system

4.3 ALUMINIUM WINDOWS

Manufacturer: TBC
Type / location: Refer to Exterior Joinery Schedule

4.4 ALUMINIUM DOORS

Manufacturer: TBC
Type / location: Refer to Exterior Joinery Schedule

4.5 TIMBER REVEALS

Timber species: Pinus Radiata
Grade / Treatment: Clear / H3.1
Thickness: 18mm
Reveals: Flush finish for 30x12mm architrave with bevel
Finish: Paint

4.6 FLASHINGS

Material/type:
Pattern: Formed to suit details provided

4.7 WEATHERING SEALANT

Brand/type: MS sealant
Colour: To match joinery

Finishes - Powder Coating

4.8 POWDER COATED ALUMINIUM - EXTRA-DURABLE POLYESTER

Type: Polyester organic powder coating. Extra-durable powder coating (AAMA 2603)
System integrity: Minimum 10-years film integrity; 10-years colour integrity
Thickness: Average of 90 microns with a minimum of 50 microns
Colour: Refer Exterior finishes schedule
Finish: Satin

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4555 GARAGE DOORS

1 GENERAL

This section relates to the manufacture, supply and installation of garage door systems including required opening/operating systems.

Documents

1.1 DOCUMENTS REFERRED TO

Documents referred to in this section are:

AS/NZS 1170	Structural design actions
AS/NZS 1170.2: 2011	Structural design actions - Wind actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
NZS 3604	Timber-framed buildings
AS/NZS 4505	Garage doors and other large access doors

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.

Requirements

1.2 INFORMATION FOR OPERATION AND MAINTENANCE

Provide operating instructions for the garage doors and associated opening equipment. Provide a list of all components requiring regular maintenance.

Performance

1.3 DESIGN PARAMETERS WIND

Design the installation to the manufacturers requirements and as appropriate for the project wind design stated in the general section 1220 PROJECT.

1.4 LOADS - NON - SPECIFIC DESIGN - DOORS UP TO 3.0M HIGH

Garage doors complete with hinges, roller assemblies and fasteners to comply with wind performance requirements to NZS 3604.

1.5 RESPONSIBILITY FOR PERFORMANCE

Accept responsibility for the structural and weathertight performance of the completed garage door installation.

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2 PRODUCTS

2.1 GARAGE DOOR

Manufacture to AS/NZS 4505 complete with a compliance label.

2.2 MOTORISED DOOR OPENER

3 EXECUTION

3.1 PREPARATION FOR INSTALLATION

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

3.2 MANUFACTURER'S REQUIREMENT FOR INSTALLATION

Install door, track and operating equipment complete with all specified and necessary accessories and hardware to the manufacturer's requirements.

3.3 START UP

Carry out start up procedures and verify proper performance of the doors.

3.4 ADJUSTMENT

Lubricate bearings and sliding parts and adjust doors to operate easily, free of warp, twist or distortion with a weathertight fit round the entire perimeter.

3.5 DEMONSTRATION

Carry out start up procedures and verify proper performance of the door. Demonstrate the operation of the door to the principal/principal's representative. Set security features to principal's requirements. Reset security features at practical completion of the contract works.

Completion

3.6 ENSURE

Ensure all elements are free of marks or blemishes, with all moving parts working fully and freely.

3.7 REPLACE

Replace damaged, cracked or marked elements.

3.8 LEAVE

Leave work to the standard required by following procedures.

3.9 REMOVE

Remove all debris, unused materials and elements from the site.

4 SELECTIONS

4.1 GARAGE DOOR - SECTIONAL OVERHEAD DOOR

Location:	Garage
Brand:	TBC
Type:	Sectional
Face panels:	Pre-painted steel

4.2 GARAGE DOOR CONTROLLERS

Brand:	TBC
Model number:	TBC
Number of remotes:	2
Location of internal control buttons:	Refer Electrical Plans
Number of internal control buttons:	1

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4711 THERMAL INSULATION

1 GENERAL

This section relates to materials installed, laid, hung or fitted as thermal insulation to the building fabric.

1.1 RELATED WORK

Refer to 4721 ACOUSTIC INSULATION for acoustic insulation.

Refer to 4161 UNDERLAYS, FOIL AND DPC for wall underlays, roofing underlays, foils and films. Refer to roofing sections for roofing underlays.

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

BIB	Building Insulation Blanket (term used by some manufacturers)
EPS	Expanded polystyrene sheets

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 provisions for timber-framed buildings up to 10 m in height
NZBC H1/AS1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/AS2	Energy efficiency for buildings greater than 300m²
NZBC H1/VM1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/VM2	Energy efficiency for buildings greater than 300m²
AS/NZS 3000	Electrical installations (Known as the Australian/New Zealand Wiring Rules)
NZS 4246	Energy efficiency - Installing bulk thermal insulation in residential buildings
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
AS/NZS 4859.1	Thermal insulation materials for buildings - General criteria and technical provisions
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance.

Health and Safety at Work Act 2015

Requirements

1.4 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

2 PRODUCTS

Materials

2.1 GLASS FIBRE THERMAL INSULATING PADS

Glass fibres bonded with a thermosetting resin to form a rectangular insulating pad.

Components

2.2 NAILS

Galvanized steel clouts, 25mm gauge.



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2.3 STAPLES

Stainless steel gauge and length to suit application and to manufacturer's requirements.

2.4 WIRE NETTING

Refer to 4161 UNDERLAYS, FOIL AND DPC for wire netting used to support the insulation.

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, paragraph 9.1.1.5.

2.6 ADHESIVE TAPE

Adhesive tapes to compliment the underlay. Pressure sensitive aluminium foil tapes for joining foil insulation and vapour barriers.

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 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.

3.4 HAZARD & RISK MANAGEMENT

To Health and Safety at Work Act 2015 and take all safety precautions necessary to reduce potential hazards and risks.

3.5 INSPECTION

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

Application

3.6 INSTALL INSULATION - GENERAL

Lay, install, fit and fix insulation without gaps, tucks, folds and over compaction to NZBC H1/AS1 or AS2 and insulation manufacturer's requirements. For all housing and buildings up to 300m², install in accordance to NZS 4246 sections 5 Walls, 6 Ceilings & Roofs, 7 Underfloor - Suspended Framed Floors and 10 Concrete Slab-on-Ground Insulation, for residential light timber or steel framed buildings. Allow insulation to re-loft/relax prior to installation. Do not cover vents. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

3.7 LAY WIRE NETTING - OVER PURLINS

Lay at right angles across the purlins with enough slack to allow insulation to retain its nominal thickness between. Tie edges of netting together with galvanized wire clips.

3.8 LAY WIRE NETTING - UNDER JOISTS / PURLINS

Lay at right angles across the rafters/roof joists (under purlins). Pull tight and fix.

3.9 LAY PLASTIC STRAPPING TAPE

Lay at right angles across the framing at a minimum of 300mm centres, staple tape to each framing member with stainless steel staples.

3.10 ADHESIVE TAPES

Fully seal all laps and all penetrations with adhesive tape.

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3.11 FIT INSULATING PADS

Friction fit insulating pads in place to completely fill the whole of the cavities. Slightly oversize for friction fit to framing and each other. Use smaller pieces for smaller spaces and around penetrations. Leave no gaps between, and maintain full thickness of the insulating segments over the whole of the installation.

Completion

3.12 COMPLETION MATTERS

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

3.13 CHECK WALL AND ROOF UNDERLAYS

Ensure these are dry, clean, undamaged and free of debris before being covered.

4 SELECTIONS

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

4.1 THERMAL INSULATING PADS

Location:	House Walls
Brand:	TBC
Material:	Glass fibre
R Value	R2.8
Thickness:	90mm

4.2 THERMAL INSULATING PADS

Location:	House Skillion Ceilings
Brand:	TBC
Material:	Glass fibre
R Value	R7.4
Thickness:	275mm

4.3 UNDERFLOOR THERMAL INSULATING PADS

Location:	House First Floor Cantilevered Joists
Brand:	TBC
Material:	Glass fibre
R Value	R3.2
Thickness:	110mm

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4711P PINK® BATTS® THERMAL INSULATION

1 GENERAL

This section relates to Comfortech Building Performance Solutions® Pink® Batts® thermal insulation materials for walls, floors, ceilings and roofs.

1.1 RELATED WORK

Refer to 4161 UNDERLAYS, FOIL AND DPC for wire netting, wall underlays and roofing underlays.

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

BIB	Building Insulation Blanket

Documents

1.3 DOCUMENTS

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

NZS/AS 1530.1	Methods for fire tests on building materials, components and structures - Combustibility test for materials
AS/NZS 3000	Electrical installations (Known as the Australian/New Zealand Wiring Rules)
NZS 4246	Energy efficiency - Installing bulk thermal insulation in residential buildings
AS/NZS 4859.1	Thermal insulation materials for buildings - General criteria and technical provisions

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents related to this section are:

Comfortech H1 Overview
Comfortech Pink® Batts® Insulation - Safety Data Sheet
Comfortech Pink® Batts® Ceiling Product & Insulation Guide (June 2025)
Comfortech Pink® Batts® Skillion Roof Insulation Product & Installation Guide (Jan 2025)
Comfortech Pink® Batts® Wall Insulation Product & Installation Guide (Jan 2025)
Comfortech Pink® Batts® SnugFloor® Insulation Product & Installation Guide (Jan 2025)
Comfortech Pink® Batts® BIB Product & Installation Guide (July 2025)
Comfortech Pink® Batts® Superbatts® Installation Instructions
Comfortech Pink® Batts® Insulation Product Warranty
BRANZ Appraisal 238 (2023) - Pink® Batts® Insulation - Amended 23 February 2026
BRANZ Appraisal 632 (2023) - Pink® Batts® SnugFloor® Insulation - Amended 12 August 2024
BRANZ Appraisal 767 (2023) - Pink® Batts® Skillion Roof Insulation - Amended 21 January 2026

Manufacturer/supplier contact details

Company:	Tasman Insulation NZ Ltd
Trading as:	Comfortech Building Performance Solutions®
Web:	www.pinkbatts.co.nz
Telephone:	0800 746 522

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

50 years	For Pink® Batts® insulation products

- Provide this warranty on the manufacturer/ supplier standard form (if not available then use the

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standard form in the general section 1237WA WARRANTY AGREEMENT)
- 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:

1 year	For installation

- Provide this warranty on the installer/applicator standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.7 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.8 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

Compliance information

1.9 COMPLIANCE - BRANZ APPRAISAL 238

Pink® Batts® Insulation has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 238.

1.10 COMPLIANCE - BRANZ APPRAISAL 632

Pink® Batts® SnugFloor® Insulation has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 632.

1.11 COMPLIANCE - BRANZ APPRAISAL 767

Pink® Batts® Skillion Roof Insulation has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 767.

Performance

1.12 FIRE PROPERTIES

Pink® Batts® insulation products are classified as non-combustible when tested to NZS/AS 1530.1 and achieve a Group Number of 1-S.

2 PRODUCTS

Materials

2.1 PINK® BATTS® INSULATION BATTS

Bio-soluble fibrous glass wool slabs manufactured from minimum 80% recycled window glass and bonded with thermosetting resin to AS/NZS 4859.1. Coloured Pink for identification. Available in a range of R-values, sizes and thicknesses. Refer to SELECTIONS.

Components

2.2 WIRE NETTING

Refer to 4161 UNDERLAYS, FOIL AND DPC for wire netting used to support the insulation.

2.3 PLASTIC STRAPPING TAPES

Proprietary plastic strapping tape.

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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.

Installation/application

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.5 INSTALL INSULATION - GENERALLY

Install insulation in a dry protected environment. Lay, fit and fix insulation without gaps, tucks, folds and over compaction to Pink® Batts® installation instruction and to NZS 4246 for all housing and buildings up to 300m². Allow insulation to re-loft/relax prior to installation. Do not cover vents. Lift up electrical wires, lighting transformers/ controllers and lay the insulation underneath. Use insulation offcuts to fill small gaps between framing.

3.6 INSULATION CLEARANCES

Provide insulation clearances to NZS 4246 and for recessed luminaires AS/NZS 3000, 4.5.3.2. Where allowed by these standards provide insulation clearances to product manufacturer's stated clearances. Secure insulation in place so clearances are maintained and use guards/barriers , if required, where insulation is not secured.

3.7 LAY WIRE NETTING - UNDER JOISTS / PURLINS

Lay at right angles across the rafters/ roof joists (under purlins). Pull tight and fix.

3.8 LAY WIRE NETTING - OVER PURLINS

Lay at right angles across the purlins with enough slack to allow insulation to retain its nominal thickness between. Tie edges of netting together with galvanized wire clips.

3.9 LAY PLASTIC STRAPPING TAPE

Lay at right angles across the framing at a minimum of 300mm centres, staple tape to each framing member with stainless steel staples.

3.10 PREPARATION INSULATION

Before installation, gently agitate the insulation by shaking or bouncing to assist recovery to the nominal thickness stated on the product label. Maintain the insulation in a dry state.

3.11 CUTTING INSULATION TO SIZE

Tear insulation by hand or cut with an insulation saw/knife, sharp scissors, or with sharp wide-blade knife. Cut slightly oversized for snug friction fit.

3.12 INSTALL PINK® BATTS® TIMBER WALL INSULATION

Friction fit insulation slabs between framing.

3.13 INSTALL PINK® BATTS® CEILING INSULATION

Friction fit insulation slabs between framing. Maintain a 25mm gap clearance between the insulation slabs and roof underlay. Install to the midpoint of the top plate.

3.14 INSTALL PINK® BATTS® SUPERBATTS® CEILING INSULATION - SINGLE LAYER INSTALLATION

Notch out the underside of the first slab to the same size as the truss cord. Friction fit slabs between truss framing with notch fit over truss bottom chord. Butt up adjacent slab under slight compression. Install to the midpoint of the top plate. Maintain a 25mm gap clearance between the insulation slabs and roof underlay.

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3.15 INSTALL PINK® BATTS® SUPERBATTS® CEILING INSULATION - DOUBLE LAYER INSTALLATION

Lay upper layer slabs over truss bottom chord perpendicular to chord. From underneath, friction fit the lower layer slabs between the truss bottom chords. Install to the midpoint of the top plate. Maintain a 25mm gap clearance between the insulation slabs and roof underlay.

3.16 INSTALL PINK® BATTS® SKILLION ROOF INSULATION

Friction fit insulation slabs between framing. Install to the midpoint of the top plate. Maintain a 25mm gap clearance between the insulation slabs and roof underlay.

3.17 INSTALL PINK® SUPERBATTS® SKILLION ROOF INSULATION - SINGLE LAYER INSTALLATION

Friction fit insulation slabs between framing. Install to the midpoint of the top plate. Maintain a 25mm gap clearance between the insulation slabs and roof underlay.

3.18 INSTALL PINK® SUPERBATTS® SKILLION ROOF INSULATION - DOUBLE LAYER INSTALLATION

Friction fit upper layer of insulation slabs between framing. Install to the midpoint of the top plate. From underneath, friction fit the lower layer slabs between the ceiling battens. Maintain a 25mm gap clearance between the insulation slabs and roof underlay.

3.19 INSTALL PINK® BATTS® SNUGFLOOR® INSULATION

Friction fit insulation slabs between framing. 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. Fold on one side. Do not cover over wiring with insulation. Cut neatly around penetrations. Secure each slab with minimum 2 straps stapled to inside face of joist. Use two staples for each fixing point. Fold must not extend below bottom joist, trim if required.

Completion

3.20 COMPLETION MATTERS

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

4 SELECTIONS

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

Materials

4.1 PINK® BATTS® TIMBER WALL INSULATION

Location:	Refer to drawings
Supplier:	Comfortech Building Performance Solutions®
Brand/Type:	Pink® Batts® ~
Secondary layer:	Pink® Batts® ~
R-value:	Refer to H1 Calcs
Nominal stabilised thickness:	90
Batt size:	T.B.C.

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5111H JAMES HARDIE® FIBRE CEMENT SHEET LININGS

1 GENERAL

This section relates to the supply and installation of **James Hardie®** Villaboard™ Lining and Hardie™ Groove Lining for:

- internal wall linings
- ceiling linings

Documents

1.1 DOCUMENTS

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

BPS	Building Product Specifications
NZBC C/AS2	Protection from fire for buildings other than risk group SH
AS/NZS 2589	Gypsum linings - Application and finishing
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
NZS 3602	Timber and wood-based products for use in buildings

1.2 MANUFACTURER/SUPPLIER DOCUMENTS

James Hardie® documents relating to this part of the work:

Villaboard™ Lining
Hardie™ Groove Lining
Fire and Acoustic Design Manual by James Hardie, May 2025
BRANZ Appraisal 1285 (2025) - James Hardie Fire And Acoustic Wall Systems - Amended 16 June 2026

Manufacturer/supplier contact details

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

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years:	For James Hardie® Groove Lining (refer to James Hardie® product warranty)
15 years:	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 NO SUBSTITUTIONS

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

1.5 SAFE WORKING

To James Hardie® requirements for safe working practices with James Hardie® products, particularly with regards to cutting and drilling.

1.6 COMPLIANCE

Fibre cement sheets to AS/NZS 2908.2.

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2 PRODUCTS

Materials

2.1 PROFILED FIBRE CEMENT SHEET LININGS

James Hardie® Hardie™ Groove Lining treated cellulose fibre in a matrix of cement and sand autoclaved sheet.

Components

2.2 BATTENS, TIMBER

Minimum 45mm wide, 35mm deep timber with depth suitable for length of fasteners used.

2.3 PACKERS

3 - 4mm timber packers.

2.4 NAILS

6mm and 9mm linings:	40mm x 2.8mm galvanized flathead Hardie™ Flex nails
Over Gypsum plasterboard:	50mm x 2.8mm galvanized flathead Hardie™ Flex nails

2.5 SCREWS FOR POWER SCREW GUN DRIVING

Timber framing

6mm and 9mm linings:	Villadrive 6 gauge x 30mm self embedding screws or Hardie™ Drive self embedding stainless steel screws
Steel framing:	Steel 8 gauge x 32mm self embedding screws

2.6 WALL BOARD ADHESIVE

Polyurethane wallboard adhesive. Refer to James Hardie® product installation manual.

Accessories

2.7 CONTROL JOINTS SECTION

45mm x 10mm shaped PVC control joint or Rondo P35 jointer.

2.8 EXTERNAL CORNER SECTIONS

30mm x 30mm x 1.2mm PVC angle.

2.9 POLYETHYLENE TAPE

Self adhesive polyethylene for behind expressed joints and expressed control joints.

2.10 JOINT REINFORCING TAPE

52mm wide perforated paper tape.

2.11 BEDDING COMPOUND

Hardie™ Base Coat compound powder.

2.12 FINISHING COMPOUND

Hardie™ Top Coat premixed.

2.13 SEALANT

Silicone or polyurethane sealant. Refer to the James Hardie® installation manual.

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.



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3.3 MOISTURE CONTENT

Maximum moisture content of timber framing to NZS 3602.

3.4 PROTECT

Protect joinery, fittings and finishes already in place from water staining or damage from lining installation.

3.5 BUILDING

Ensure building is weatherproof before lining work commences.

3.6 STORAGE

Take delivery of products dry and undamaged on pallets, and keep on pallet. Protect edges and corners from damage and covered to keep dry until fixed.

3.7 HANDLING

Avoid distortion and contact with potentially damaging surfaces. Carry sheets vertically. Do not drag sheets across each other, or across other materials. Protect edges, corners and surface finish from damage.

3.8 SUBSTRATE

Do not commence work until the substrate is of the standard required by the relevant manufacturer's technical literature for the specified finish; plumb, level and in true alignment. Maximum moisture content of timber framing to NZS 3602.

Application

3.9 FIXING WITH BUTT JOINTS

Cut sheet using the appropriate method for the specified finish. Prepare and fix square edged sheets in accordance with James Hardie Installation Manual. Include flexible sealant in wet areas.

Joint width: 1 - 2mm

3.10 PROVIDE VERTICAL CONTROL JOINTS

Provide vertical control joints at 7.2 metre centres maximum for general application and 4.2 metres centres maximum for tiled applications. Provide acoustic sealant in walls having an acoustic rating.

3.11 PROVIDE HORIZONTAL CONTROL JOINTS

Provide horizontal control joints at 7.2 metres centres maximum for general application and 4.2 metre centres maximum for tiled applications.

3.12 PROVIDE EXTERNAL CORNER ANGLE

Provide perforated PVC external corner angle or paper faced rigid spine corner mould to external corners.

3.13 INTERNAL CORNERS

When used in tiling applications provide a Lumberlock Stud saver to framed internal corner prior to fixing of Villaboard™ Lining.

Provide perforated PVC corner mould, or paper faced rigid spine corner mould or solid blocking to internal corners.

3.14 FORMING HOLES

Required holes accurately formed and cut to James Hardie® requirements.

3.15 SILICONE JOINTS

Provide polyethylene tape behind joints finished with flexible sealant.

Levels of Finish

Refer to AS/NZS 2589.
Refer to SELECTIONS/drawings for required levels of finish.

3.16 LEVEL 0, 1 and 2 FINISHES

Refer to James Hardie® installation manual.

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3.17 LEVEL 3 FINISH

Application:	For use in areas which are to receive heavy or medium texture (spray or hand applied) finishes or where heavy paper wall coverings are to be applied as the final decoration.
Jointing/setting:	Joints and corner joints will be set with Hardie™ Base Coat reinforced with perforated paper tape and Hardie™ Top Coat.
Finish:	This level of finish must be sufficiently smooth to accept vinyl, tiles or textured coatings without blemishes.

3.18 LEVEL 4 FINISH

Application:	This is generally the accepted level of finish for domestic construction. It is used where light textures or wall coverings and smooth textured finishes and satin/flat/low sheen paints are illuminated by non-critical lighting.
Jointing/setting:	Refer to flush jointing recommendations on page 11 James Hardie® Villaboard™ Lining installation manual.
Finish:	For use where light-texture coatings or wallpaper or other lightweight wall coverings are to be applied. For painted finishes in non-critical lighting areas flat and low-sheen textured paints are to be applied. Gloss and semi-gloss paints are not generally suitable over this level of finish as any minor blemish will show under critical light. The weight, texture and sheen level or wall coverings applied over this level of finish must be carefully evaluated. Joints and fasteners must be adequately concealed if the wallcovering material is lightweight, contains limited pattern, has a gloss finish, or any combination of these features is present. Unbacked vinyl wall coverings are not suitable over this level of finish.

3.19 LEVEL 5 FINISH

Application:	This level of finish is for use where gloss or semi-gloss paints are specified or where critical lighting conditions occur on satin, flat or low sheet paints.
Jointing/setting:	Typically all joints and corner joints will have tape embedded in Hardie™ Base Coat applied over all joints, angles, fastener heads and accessories. A thin skim coat of Hardie™ Top Coat must be applied to the entire surface to be plastered. The surface must be finished smooth and free of tool marks and ridges and special care must be taken with the application of the finishing compound to achieve a smooth, true surface suitable for these critical finishes.
Finish:	This level of finish is for use where gloss, semi-gloss, low-sheen or non-textured paints are specified or where critical lighting conditions occur.

Completion & Commissioning

3.20 COMPLETION MATTERS

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

4 SELECTIONS

Linings

4.1 JAMES HARDIE® HARDIE™ GROOVE LINING

Location:	Laundry, WC, Bathroom Walls and Ceiling
Type:	James Hardie® Hardie™ Groove Lining
Thickness:	7.5mm
Fixing method:	Nail & adhesive

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4.2 JAMES HARDIE® HARDIE™ VILLABOARD

Location:	Behind Shower & Bathroom Tiled Walls only
Type:	James Hardie® Hardie™ Groove Lining
Thickness:	9mm
Fixing method:	Nail & adhesive

4.3 LEVELS OF FINISH

To conform to the following levels of finish:

Location	Finish level
Laundry, WC, Bathroom Walls and Ceiling	4

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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
- curved plasterboard 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	Protection from fire for buildings other than risk group SH
NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2589	Gypsum linings - Application and finishing
NZS 3604	Timber-framed buildings
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)

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents which refer to work in this section:

GIB® Site Guide (April 2024)
GIB® Noise Control Systems (September 2017)
GIB® Fire Rated Systems (September 2024)
GIB® Wet Area Systems (February 2021)
GIB® Curveline Specification and Installation Manual for Curved Walls and Ceilings
GIB Toughline® Aqua (July 2018)
GIB Ezybrace® Systems (August 2016)
GIB Ezybrace® Bracing Design Software
GIB Ezybrace® Bracing Supplement Document (December 2016)
GIB Ezybrace® for Light Steel Frame Systems (March 2017)
GIBFix® Framing System (August 2016)
GIB Rondo® Metal Batten System (September 2024)
GIB-Cove®
GIB RocTape®
GIB® Goldline™ Platinum Tape-on Trims
GIB® UltraFlex high impact corner mould
GIB® Tough Systems (November 2014)
BRANZ Appraisal 289 (2024) GIB® Fire Rated Systems

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BRANZ Appraisal 394 (2025) GIB® Noise Control Systems
BRANZ Appraisal 427 (2021) GIB® Wet Area Systems
BRANZ Appraisal 928 (2021) GIB EzyBrace® Systems

Manufacturer/supplier contact details

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 QUALIFICATIONS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

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 FIRE RATING REQUIREMENTS

Provide the GIB® fire resistant rated garage boundary wall systems. Refer to SELECTIONS for system/FRR.

1.8 SOUND INSULATION REQUIREMENTS

Provide the GIB® Noise Control Systems. Refer to SELECTIONS for system/STC. Include for forming and treating of perimeters of openings and penetrations in the elements to ensure the specified performance. Ensure absence of adjoining flanking paths.

Compliance

1.9 COMPLIANCE - BRANZ APPRAISAL 289

GIB® Fire Rated Systems has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 289.

1.10 COMPLIANCE - BRANZ APPRAISAL 394

GIB® Noise Control Systems has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 394.

1.11 COMPLIANCE - BRANZ APPRAISAL 427

GIB® Wet Area Systems has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 427.

1.12 COMPLIANCE - BRANZ APPRAISAL 928

GIB EzyBrace® Systems has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 928.

Performance

1.13 BRACING REQUIREMENTS

Braced wall systems to NZS 3604 when tested to BRANZ Technical Paper P21, using:

- GIB Ezybrace® Systems and/or GIB Ezybrace® Bracing Design Software
- GIB Ezybrace® Bracing Supplement Document
- GIB Ezybrace® for Steel Frame Housing (NASH) Software (to NASH Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria)

Refer to drawings for location and type.

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1.14 SURFACE FIRE PROPERTIES - UNFINISHED BOARD

All GIB® unfinished plasterboard sheet materials achieve a Group Classification of, Group 1-S to NZBC C/AS2, Table 4.12.1.1: Maximum permitted Group Number for internal surface finishes, following testing in accordance with ISO 5660.1 and ISO 5660.2.

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
GIB Curveline® plasterboard for forming tight curves.

Components

2.2 CEILING BATTENS

GIB® Rondo® metal ceiling battens, batten joiners and perimeter channel.

2.3 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.

2.4 TAPE ON TRIMS AND EDGES

GIB® Goldline™ tape-on trims

GIB® UltraFlex® high impact corner mould
GIB® Levelline® Tape on Trim

2.5 METAL ANGLE TRIMS

GIB® galvanized steel slim angle trims.

2.6 CONTROL JOINTS

GIB® Rondo® P35 control joints.

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

Accessories

2.7 ADHESIVE

Timber frame and/or steel frame:

GIBFix® One ultra low VOC water based wallboard adhesive
GIBFix® All-Bond solvent based wallboard adhesive

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2.8 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

2.9 JOINTING TAPE

GIB® jointing tape.

2.10 FIRE/ACOUSTIC SEALANT

GIB Fire Soundseal® ultra low VOC, mulit use acoustic sealant that resists passage of smoke and fire.

2.11 GAP FILLER

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

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 LEVELS OF PLASTERBOARD FINISH

Provide the selected plasterboard surfaces to the pre decorative levels of finish specified in AS/NZS 2589.

3.4 PRE-INSTALLATION REQUIREMENTS - TIMBER FRAMING

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

Framing substrates shall be in accordance to AS/NZS 2589, GIB® Site Guide and GIB X-Block® Radiation Shielding Systems literature.

Check timber framing moisture content is in accordance with requirements of AS/NZS 2589. Refer to NZBC E2/AS1 and GIB® Site Guide.

Timber framing:	18% maximum for fixing plasterboard to timber (8-12% recommended for fixing plasterboard to timber framing if air conditioning and/or central heating are to be installed)

If GIB EzyBrace® systems are used in conjunction with GIBFix® Framing System, ensure that the positioning of the GIB HandiBrac® panel hold-down brackets are to the manufacturers recommended placements for the GIBFix® Framing System.

3.5 PRE-INSTALLATION REQUIREMENTS - STEEL FRAMING

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

Framing substrates shall be in accordance to AS/NZS 2589, GIB® Site Guide and GIB X-Block® Radiation Shielding Systems requirement. Refer to GIB® Site Guide.

3.6 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.

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"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.

3.7 PROTECTION

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

Application

3.8 INSTALL CEILING BATTENS

Install to GIB® Rondo® Ceiling Batten Systems requirements.

3.9 LINING WALLS AND CEILINGS GENERALLY

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

3.10 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.

3.11 FORM FIRE RATED SYSTEMS

Form to GIB® Fire Rated Systems requirements.

3.12 FORM NOISE CONTROL SYSTEMS

Form to GIB® Noise Control Systems requirements.

3.13 FORM WET AREA SYSTEMS

Form to GIB Aqualine® Wet Area Systems requirements.

3.14 FORM BRACING SYSTEMS

Form bracing systems to:

- GIB Ezybrace® Systems.

3.15 FORM CONTROL JOINTS

Form control joints to GIB® Site Guide requirements.

3.16 INSTALL TAPE-ON TRIMS

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

Finishing

3.17 FINISHING GENERALLY

To GIB® Site Guide and AS/NZS 2589.

Completion & Commissioning

3.18 COMPLETION MATTERS

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

4 SELECTIONS

Plasterboard

4.1 GIB® STANDARD SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Walls	GIB® Standard plasterboard	10mm	4
Walls	GIB® Standard plasterboard	13mm	4

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4.2 GIB® WATER RESISTANT SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Kitchen	GIB Aqualine® plasterboard	10mm	4
Kitchen	GIB Aqualine® plasterboard	13mm	4

4.3 GIB® STANDARD SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Ceilings	GIB® Standard plasterboard	13mm	4

4.4 GIB® WATER RESISTANT SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Kitchen & Laundry	GIB Aqualine® plasterboard	13mm	

4.5 GIB® SOUND RATED SYSTEMS

Refer to GIB® Noise Control Systems

Location	Plasterboard type / Lining requirements	STC / System specification	Finish Level
Types 5,5M,5A & 5AM Intertenancy. GBTLA 30a	2 layers of standard 10mm plasterboard each side	58	4
Refer Acoustic report for other specific unit requirements			

4.6 GIB® FIRE RATED SYSTEMS

Refer to GIB® Residential Garage Boundary Walls.

Location / Type	Plasterboard type / Lining requirements	FRR / System specification	Finish Level
Type 5 & 5A Intertenancy. GBTLA 30a	2 layers of standard 10mm plasterboard each side	30/30/30	4
Garage Fire Boundary Wall. GWTLE 30	1 Layer of 10mm weatherline, one layer of 10mm Fyreline	30/30/30	4

4.7 GIB® BRACING SYSTEMS

Refer to:

- GIB Ezybrace® Systems

For bracing element location refer to drawn documentation.

Accessories

4.8 GIB® RONDO® CEILING BATTENS

Location:	Ceilings
Brand/type:	GIB® Rondo® Ceiling battens
Batten type:	Gib Rondo GR310 DF
Clip type:	Direct fix

4.9 GIBFIX® FRAMING SYSTEM COMPONENTS

Brand/type:	GIBFix® Angles
Fixings:	GIB® Grabber® Dual Head Screws

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5433 PLYWOOD FLOORS

1 GENERAL

This section relates to the use of plywood sheets for floors.

1.1 RELATED SECTIONS

Refer to 3821 for Timber Framing.

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

FSC	Forest Stewardship Council
PEFC	Programme for the Endorsement of Forest Certification

Documents

1.3 DOCUMENTS

Documents referred to in this section are:

BPS	Building Product Specifications
AS/NZS 1604.1	Preservative-treated wood-based products - Part 1: Products and treatment
AS/NZS 2269.0	Plywood - structural - specifications
NZS 3604	Timber-framed buildings

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.

Requirements

1.4 QUALIFICATIONS

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

2 PRODUCTS

Materials

2.1 PLYWOOD

Radiata pine veneer ply to AS/NZS 2269.0, face sanded, grade as scheduled.

H3 CCA treated to AS/NZS 1604.1, when used as a wet area substrate. Confirm compatibility with adhesives being used with the waterproofing membrane. F11 grade to be used for flooring.

Components

2.2 NAILS

Refer to the plywood manufacturer's requirements for size and use.

15mm ply:	50mm x 2.8mm galvanized annular grooved flooring nails
17 - 21mm ply:	60mm x 2.8mm galvanized annular grooved flooring nails
25mm ply:	75mm x 3.15mm galvanized annular grooved flooring nails

Jolt head nails to be used for exposed (clear finished) plywood.

2.3 SCREWS

Counter-sunk screws, stainless steel for treated plywood, minimum Class 3 or stainless steel for untreated plywood. Refer to the plywood manufacturer's requirements for size and use.

15mm ply:	No. 8 x 40mm

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17mm ply:	No. 10 x 40mm
19 - 21mm ply:	No. 10 x 45mm
25mm ply:	No. 10 x 50mm

2.4 ADHESIVE

Polyurethane adhesive to American Plywood Association specification AFG 01.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE AND HANDLING

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.

Moisture content:	18% maximum

3.4 SUBSTRATE

Do not commence work until the framing is plumb and level, in true alignment and to suit the floor manufacturer's requirements.

Ensure framing suits the required laying pattern.

3.5 FLOOR DIAPHRAGMS

Install floor diaphragms in accordance with NZS 3604, 7.3 Structural floor diaphragms and floor manufacturer's requirements.

3.6 EXPANSION JOINTS - LARGER FLOORS

Lay flooring to allow for a large expansion gap for large floor areas to manufacturer's requirements. Locate as shown, under internal walls where possible.

Application

3.7 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.8 SUPPORT AND JOINTS - T&G EDGE SHEETS

Fully support edges and joints on square edges of sheets. T&G edges of sheets are not fully supported unless shown otherwise.

3.9 SUPPORT AND JOINTS - DIAPHRAGMS

Fully support all edges and joints on all sheets, to NZS 3604, fig 7.9 **Floor Diaphragms**.

3.10 FIXING PLYWOOD SHEETS

Fix sheets to the plywood manufacturers requirements and NZS 3604, section 7.2.3, **Wood-based Sheet Flooring**. Lay sheets in a staggered layout, face-grain of sheet at right-angles to support and with sheets in square, true alignment and plane.

3.11 WET AREAS

Ensure plywood is structural grade treated to H3 or H3.2 (CCA treated) to AS/NZS 1604.1. Plywood substrates must have moisture content not more than 18% before installing membrane. With primed/sealed face and edges.

NOTE: Treated plywood must be allowed to breath for a minimum of 7 days before installation of membrane. Fixing must be to manufacturer's specifications.
LOSP treated plywood must not be used.

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Requirements if used for:
Flooring: Stress grade F8, minimum thickness 18mm with framing at minimum 400mm centres both ways, or min 21mm with framing at 600mm centres both ways. Fixing, glue and stainless steel screws.
Floor Overlay: Stress grade 8, minimum thickness 12mm.

3.12 ADHESIVE FIXING

Apply a 10mm adhesive bead to joists.

3.13 FIXINGS

Minimum 10mm, maximum 15mm from the edge, 150mm centres along edges and 300mm centres on intermediate supports.

Completion & Commissioning

3.14 COMPLETION MATTERS

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

4 SELECTIONS

4.1 PLYWOOD - T&G EDGE SHEET FLOORING

Location:	First Floor Floor
Manufacturer:	TBC
Brand/grade:	CD
Stress grade:	F11
Thickness:	19mm
Treatment:	H3
Fixing:	Nail and or Screw , Adhesive

4.2 NAILS

Type/size/material: 60mm x 2.8mm galvanized annular grooved flooring nails

4.3 SCREWS

Type/size/material: No. 10 x 45mm counter sunk screws

4.4 ADHESIVE

Type: As recommended by plywood manufacturer

4.5 CONSTRUCTION METHOD

Method: Platform method - sheet edge to perimeter of building with all top plates on top of sheet.

4.6 DIAPHRAGM CONSTRUCTION METHOD

Method: 1200mm wide sheets with all edges supported, nail or nail plus adhesive fixed, sheet edge to perimeter of building with all wall plates on top of sheet.

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6192H HARDIE™ CERAMIC TILE UNDERLAY

1 GENERAL

This section relates to the supply and installation of James Hardie™ New Zealand Ltd Ceramic Tile Underlay as an internal flooring underlay.

1.1 RELATED WORK

Refer to tiling sections for tiling.

Refer to waterproofing section for waterproofing.

Documents

1.2 DOCUMENTS

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

AS/NZS 2908.2	Cellulose-cement products - Flat sheet

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Hardie™ Flooring Installation Manual (July 2021)
Hardie™ Ceramic Tile Underlay Product Technical Statement
Hardie™ Ceramic Tile Underlay Product Warranty

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

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years	For Hardie™ Ceramic Tile Underlay and components supplied by James Hardie

- Provide this warranty on the manufacturer/supplier standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- Commence the warranty from the date of purchase

Refer to the general section 1237 WARRANTIES for additional requirements.

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years:	For Hardie™ Ceramic Tile Underlay (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.

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Requirements

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

2 PRODUCTS

Materials

2.1 CERAMIC TILE UNDERLAY

6mm thick medium density sheet of treated cellulose fibre, Portland cement, and sand, cured by high pressure autoclave, manufactured to AS/NZS 2908.2. Sheets 1800mm x 1200mm. Pre-marked nailing pattern on sheet face.

2.2 TILES

Refer to tiling section(s) for tiles including screeds, grouts and tile adhesive.

Accessories

2.3 HARDIE UNDERLAY NAILS

25mm x 2.5mm annular threaded galvanized flathead nails.

2.4 UNDERLAY COIL NAILS

25mm x 3.06mm annular threaded galvanized flathead nails.

2.5 UNDERLAY ADHESIVE

Refer to SELECTIONS.

2.6 WATERPROOFING MEMBRANE

Refer to waterproofing section(s) for waterproofing membrane.

2.7 SEALANT

Flexible MS sealant. Refer to SELECTIONS.

3 EXECUTION

Conditions

3.1 PRE-INSTALLATION REQUIREMENTS

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

Timber substrate: 16% maximum moisture content

Installation/application

3.2 SUBSTRATE PREPARATION

Prepare substrates to be flat, with a maximum deviation of 1mm per meter. Sand existing substrates to remove cupping or warping. Clean substrates before fixing underlay.

3.3 APPLY ADHESIVE

Spread adhesive on back of underlay sheet with 3mm notched trowel or in 5mm continuous beads at 50mm centres.

3.4 LAY SHEETS

Lay sheets in staggered (brick) pattern perpendicular to the flooring substrate. Allow a 5mm gap between the wall and sheet edge. Temporarily fix each sheet with two or three nails to avoid movement. Fill gap between underlay and wall with flexible sealant.

3.5 FIX SHEETS

Nail fix sheets from the centre outward following the pre-marked nailing pattern. Finish nail heads flush with sheet surface.

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3.6 MOVEMENT JOINTS

Provide movement joints:

- At maximum 5m centres in both directions
- At changes of wall direction (e.g. L-shaped room)
- At doorways where tiled surface continues through to next room
- At structural control joints in the floor substrate

3.7 INSTALL WATERPROOFING MEMBRANE

Refer to waterproofing section(s) for installation of waterproofing membrane.

3.8 INSTALL TILES

Refer to tiling section(s) for installation of tiles.

Completion & Commissioning

4 SELECTIONS

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

4.1 HARDIE™ CERAMIC TILE UNDERLAY

Location:	First Floor Bathroom & Ensuites
Brand:	James Hardie®
Type:	Ceramic Tile Underlay
Thickness:	6mm

4.2 UNDERLAY ADHESIVE

Location:	First Floor Bathroom & Ensuites
Type/Brand:	No more nails, Max Bond, Liquid nails, Nailbond, Sikaflex 11FC or similar

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6311FF FORTE TIMBER OVERLAY SYSTEM

1 GENERAL

This section relates to the supply, laying and finishing of **Forté** range of timber overlay flooring.
It includes:

- Prefinished Engineered Wood Flooring
- Acoustic underlay
- All associated accessories to complete the installation.

1.1 RELATED WORK

Refer to ~ for ~.

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

FSC®	Forest Stewardship Council®
PEFC	Program for the Endorsement of Forest Certification

Documents

1.3 DOCUMENTS

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

NZBC C/AS2	Protection from fire
NZBC C/VM2	Protection from fire
NZBC D1/AS1	Access routes
NZBC E3/AS1	Internal moisture
NZBC E3/AS2	Internal moisture
AS/NZS 1859.4	Reconstituted wood-based panels - Specifications - Wet-processed fibreboard
AS/NZS 2269.0	Plywood - Structural - Specifications
AS/NZS 4586	Slip resistance classification of new pedestrian surface materials
ISO 4760	Laminate flooring — topical moisture resistance — assembled joint
ISO 9705.1	Reaction to fire tests - Room corner test for wall and ceiling lining products -- Part 1: Test method for a small room configuration

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

Forté Timber Overlay Flooring System Design Guide 4.0
Forté Product Specification Sheets
Forté Timber Overlay Flooring System Installation Guide 3.0
Forté Acoustick-Mat Acoustic Underlay Installation Guidelines
E3 Alternative Solution Document 3.0
Forté Care & Maintenance Guide for Commercial Spaces
Forte Timber Flooring Care and Maintenance Guide Residential 3.0
TAMSA International Consult 733 Critical Radiant Flux reports
ISTS Test Reports: Slip Resistance Classification of New Pedestrian Surface Materials
CodeMark™ Certificate CMNZ70143-1 – Forté Timber Overlay Flooring System

Manufacturer/supplier contact details:

Company:	Innovate Group Limited T/A Forté
Web:	https://forte.co.nz/
Email:	info@forte.co.nz
Telephone:	0508 356 677

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Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

25 years	Residential Structural Warranty on all Engineered Flooring Ranges
10 years	Commercial Structural Warranty on all Engineered Flooring

- Provide this warranty on the Forté standard form. Refer to https://forte.co.nz/ for warranty details and conditions.
- 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:

2 years	For installation (by Forté approved installer)

- Provide this warranty on the installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.7 QUALIFICATIONS – MANUFACTURER / SUPPLIER REQUIREMENTS

Workers to be approved by Innovate Group Limited. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications. Refer to https://forte.co.nz/ for details of Approved Installers.

1.8 NO SUBSTITUTIONS

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

1.9 INFORMATION FOR OPERATION AND MAINTENANCE

Provide maintenance documentation in accordance with Forté Timber Flooring Care and Maintenance Guide Residential 3.0 as necessary for the Principal to maintain the works. Provide documentation no later than the date of practical completion or the date on which the Principal takes occupation of the works. Refer to https://forte.co.nz/ for care & maintenance.

1.10 HEALTH AND SAFETY

Refer to relevant Technical Data Sheets and Material Safety Data Sheets of moisture barrier & adhesives.

1.11 MAINTENANCE SCHEDULE

Ensure a maintenance cleaning schedule is put in place for commercial applications. For residential and commercial care and maintenance recommendations refer to https://forte.co.nz/.

Performance - wet areas

1.12 PROPOSED ALTERNATIVE SOLUTION - FLOOR SURFACE IMPERVIOUS / EASILY CLEANED

Refer to the Forté Alternative Solution Guidance for Timber Flooring (E3 Installations) within the specification Contract Appendix. This proposed Alternative Solution supports the use of Forté Timber Overlay Flooring Systems in limited wet area applications, through in-service history, testing, specific installation methods and design.

The proposed Alternative Solution requires flooring system installation in wet areas to be in accordance with both ATFA (Australian Timber Flooring Association) recommendations and the Forté Timber Overlay Flooring System Installation Guide 3.0, including PVA adhesive to plank joints and caulking silicone gap filler to seal the perimeter and any fixed items within the area.

1.13 TESTING MOISTURE CONTENT

Sample and test the substrate to ensure that moisture content is within the limits specified. Provide a written record.

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Performance - generally

2 PRODUCTS

2.1 FORTÉ ENGINEERED TIMBER COLLECTIONS

Forté Engineered Timber Collections: Artefact, Artiste Grande, Atelier, Custom, Indus, Loft, Moda, Smartfloor, Ultra, Urban and Villa are engineered flooring (real wood) composed of a hardwood veneer wear layer and a cross directional timber backing. Various widths, lengths and thicknesses depending on collection type. Supplied in planks. Installation by direct stick. Matching stair nosings are available. Refer to SELECTIONS.

Accessories

2.2 ADHESIVES

Apply one of the following where a moisture barrier, sound reduction and bonding system are required:

- Selleys Liquid Nails Timberflex
- Mapei Ultrabond Eco S955 1K
- Ardex 480 MS.

2.3 ADHESIVES - JOINT SEALER FOR WET AREA APPLICATIONS

PVA D3 Adhesive used as a waterproof joint sealer to wet area applications.

2.4 SEALANT - FOR WET AREA APPLICATIONS

Timber floor silicone-free, paintable sealant / caulking suitable for wet area applications.

2.5 MOISTURE BARRIERS / WET AREA MEMBRANES

Apply on of the following vapour barrier systems to concrete substrates:

- Selleys Liquid Nails VBS
- Mapei Planiseal MR
- Ardex WPM 300.

2.6 LEVELLING COMPOUNDS - CONCRETE SUBSTRATE

Mapei Ultraplan Eco, low VOC, fast hardening self levelling smoothing compound with appropriate Mapei Primer to suit substrate.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

Store the timber flooring flat, in the original unopened packaging, in the areas it is to be installed in for at least 48 hours prior to installation, to allow the product to acclimatise to the room temperature and minimise the likelihood of any shrinkage or swelling.
Store timber out of direct sunlight, in a shaded and protected dry place (18°C to 25°C), away from walls and radiators.

Place stored packs on battens/ dunnage to minimise moisture absorption from the ground. Do not store the timber flooring outside.

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. Inspect the substrate to ensure it provides a suitable finish in accordance with the requirements of the Forté Timber Overlay Flooring System Installation Guide 3.0. Do not start laying if the substrate will not allow work of the required standard. Carry out such additional preparatory work as required in bringing the substrate to suitable condition.

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Check the sub-floor for evenness, not to exceed 3mm variation over a 3m length. If substrate unevenness still exceeds 3mm variation over a 3m length after surface preparation apply levelling compound.

Check for moisture content by hygrometer. Do not commence laying flooring until readings for the whole area are within acceptable levels as follows:

Timber substrate	8 -12% for air conditioned buildings
	10 -14% for intermittently heated buildings
	2 -16% for unheated buildings
Concrete substrate	70% relative humidity

If concrete substrate is above 70% Relative Humidity, apply selected moisture barrier. If timber substrate is above allowable moisture content, then wait to allow to dry out and re-test.

3.4 CHECK TIMBER

Check that the timber supplied is as specified. Check the moisture content of the timber flooring and subfloor to ensure it is at the required level for the installation environment.

3.5 DO NOT START

Do not start laying before the building is enclosed, doors are hung and lockable, wet work complete, full lighting available and in the case of air-conditioned buildings the air-conditioning operating for 6 weeks.

3.6 STARTING WORK

Starting work means the floor layer accepts the substrate as allowing work of the required standard.

3.7 TECHNIQUE DISCUSSION

Before beginning the installation, confirm the proposed layout of the timber, grain direction, any other visual considerations of the finished work and specified expansion requirements relating to the specified product.

Installation - generally

3.8 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.9 INSTALLATION GENERALLY

Execution and installation must comply with the requirements of the Forté Timber Overlay Flooring System Installation Guide 3.0. Refer to https://forte.co.nz/.

Installation - substrate preparation

3.10 CONCRETE SUBSTRATE

Clear substrate of debris, clean off surface contamination and carry out surface repairs using a proprietary levelling compound. Carefully feather out at perimeters of repaired areas. Grind level, then vacuum to remove dust.

Check the sub-floor for evenness, not to exceed 3mm variation over a 3m length. If substrate unevenness still exceeds 3mm variation over a 3m length after surface preparation apply levelling compound.

3.11 APPLY MOISTURE BARRIER - CONCRETE SUBSTRATE

If concrete substate is above 70% Relative Humidity, apply selected Mapei Mapeproof one component or Selleys Liquid Nails VBS two component moisture barrier with roller to substrate in accordance with manufacturer's requirements.

The relative humidity to be re-checked once the moisture barrier is dry.

3.12 APPLY LEVELLING COMPOUND - CONCRETE SUBSTRATE

If substrate unevenness still exceeds 3mm variation over a 3m length after grinding apply levelling compound.

Apply appropriate Mapei primer to suit substrate. Mix and apply by large metal trowel or rake Mapei Ultraplan Eco self-levelling compound in accordance with manufacturer's requirements for smoothing and removing differences in level between 1 to 10mm to concrete substrates. For large installations Mapei Ultraplan Eco can be applied with an automatic pressure pump.

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Installation - timber overlay flooring

3.13 INSTALL FORTÉ ENGINEERED WOOD PLANKS - DIRECT STICK

Install Forté prefinished engineered wood flooring in accordance with Forté Timber Overlay Flooring System Installation Guide 3.0, using the direct stick (glue down) method. Refer https://forte.co.nz/

Apply Mapei Ultrabond ECO® S955 1K, Ultrabond ECO® 995 or Selleys Timberflex with a notched trowel following manufacturer's instructions. Follow requirements for open time, taking note of substrate porosity, ambient temperature and relative humidity. Remove excess adhesive as the work proceeds using approved techniques. Install the flooring strictly in accordance with Forté stated requirements. Ensure the required expansion gap is left at perimeters and around fixed obstacles.
When underfloor heating is specified install pre-finished engineered wood flooring in accordance with the particular requirements of the Forté Timber Overlay Flooring System Installation Guide 3.0.

3.14 SEALING JOINTS - TO WET AREAS

Apply D3 PVA adhesive during installation to all joints between timber overlay planks, both along the length of plank and between the ends of planks to all wet area applications. For open plan spaces, this should extend 1.5m from each sanitary fixture and sanitary appliance. Refer to Forté Timber Overlay Flooring System Installation Guide 3.0 for details.

Installation - miscellaneous

3.15 EXPANSION GAPS, PERIMETERS

Calculate expansion gaps strictly in accordance with Forte Flooring's requirements, to suit the environment, size of the installation and product type.

3.16 EXPANSION JOINTS

Cover by timber or aluminium trim to allow unrestricted movement of the flooring.

3.17 SEALANT TO PERIMETER - TO WET AREAS

After installation of timber overlay is complete apply water-resistant caulking silicone gap filler in accordance with the manufacturer's requirements and in accordance with Forté Timber Overlay Flooring System Installation Guide 3.0, to seal around the expansion gaps to perimeter and around any fixed items in the floor area. For open plan spaces, this should extend 1.5m from each sanitary fixture and sanitary appliance.

3.18 EDGES

Install skirting after installation of the timber floor covering to cover the required expansion gap.

Completion

3.19 FLOORING SURFACES

Leave flooring surfaces free of adhesive, dirt and debris. Vacuum off, damp mop with a low-foam neutral detergent and allow to dry.

3.20 PROTECT FINISHED SURFACE

Protect the surface using Protectaboard or similar approved until completion of the contract works, or until acceptance/sign-off by Contract Administrator. Refer to Forté Flooring for details.

3.21 COMPLETION MATTERS

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

4 SELECTIONS

For further details on selections go to https://forte.co.nz/.
Substitutions are not permitted to the following, unless stated otherwise.

4.1 FORTE CERTIFIED SUSTAINABLE TIMBER

Product: Forte Engineered Wood Flooring products

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Forté Prefinished Engineered Flooring Plank - Selection T.B.C. onsite

Components

4.2 MOISTURE BARRIER

Location:	For sealing concrete slabs - where RH exceeds 70%
Product:	Mapei Mapeproof 1K Turbo or Selley Liquid Nails VBS
Note:	Use timber floor adhesive over from same manufacturer

4.3 LEVELLING COMPOUND - CONCRETE SUBSTRATE

Location:	For levelling concrete slabs - where unevenness still exceeds 3mm variation over a 3m length after grinding
Primer:	Appropriate Mapei primer to suit substrate
Levelling:	Mapei Ultraplan Eco self-levelling compound

4.4 ADHESIVES

Location:	For application of direct stick timber overlay flooring and if required for acoustic underlay
Product:	Mapei Ultrabond Eco S955 or Ultrabond Eco 995 or Selley Timberflex

4.5 JOINT ADHESIVES - FOR WET AREA APPLICATIONS

Location:	To all joints in timber overlay flooring in wet area applications
Product:	PVA D3 Adhesive
Note:	To all wet area application / for open plan areas, this should extend 1.5m from each sanitary fixture and sanitary appliance.

4.6 SEALANT - FOR WET AREA APPLICATIONS

Location:	To expansion gaps to perimeter and around any fixed items in the floor area to wet area applications
Product:	Bona Gap Master or Aquaseal Flex
Colour:	Colour closest to floor colour
Note:	To all wet area application / for open plan areas, this should extend 1.5m from each sanitary fixture and sanitary appliance.

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6700 PAINTING GENERAL

1 GENERAL

This section relates to the general matters related to painting work

1.1 RELATED WORK

Refer to 6711 PAINTING EXTERIOR for exterior paint systems.

Refer to 6721 PAINTING INTERIOR for interior paint systems.

1.2 ABBREVIATIONS

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

APAS	Australian Paint Approval Scheme
MPNZA	Master Painters New Zealand Association Inc.
VOC	Volatile organic compound

Documents

1.3 DOCUMENTS

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

NZBC C/AS2	Protection from fire for buildings other than risk group SH
AS/NZS 2311	Guide to the painting of buildings
AS/NZS 2312.1	Guide to the protection of structural steel against exterior atmospheric corrosion by the use of protective coatings - Paint Coatings
AS/NZS 5131	Structural steelwork - Fabrication and erection
AS/NZS ISO 9001	Quality management systems - requirements
SNZ TS 3404	Durability requirements for steel structures and components
WorkSafe	Guidelines for the provision of facilities and general safety in the construction industry
WorkSafe	Guidelines for the management of lead-based paint
MPNZA	Health and Safety Programme
Health and Safety at Work Act 2015	

Requirements

1.4 NO SUBSTITUTIONS

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

1.5 QUALIFICATIONS

Painters to be a member of MPNZA and experienced competent workers, familiar with the materials and the techniques specified.

1.6 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety at Work Act 2015 and WorkSafe: Guidelines for the provision of facilities and general safety in the construction industry. If the elimination or isolation of potential hazards is not possible then minimise hazards in this work on site by using the proper equipment and techniques as required in the MPNZA Health and Safety Programme. Supply protective clothing and equipment. Inform employees and others on site of the hazards and put in place procedures for dealing with emergencies.

Refer to WorkSafe: Guidelines for the management of lead-based paint for the required procedures and precautions when:

- treating/removing lead-based paint
- burning off paint
- sanding off paint
- using solvent based paint removers.

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1.7 MATERIAL SAFETY DATA SHEET

Obtain from each paint manufacturer the material safety sheet for each product used. Keep sheets on site and comply with the required safety procedures.

Warranties

1.8 WARRANTY

Warrant this work under normal environmental and use conditions against failure.

2 years: Warranty period

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

Performance

1.9 MANUFACTURER'S INSPECTION

Allow the paint manufacturers to inspect the work in progress and to take samples of their products from site if requested.

1.10 INSPECTION OF WORK

Inspection of the whole of the work at each of the stages scheduled may be made. Agree a programme that will facilitate such inspection, including notification when each part and stage of the work is ready for inspection.

2 PRODUCTS

Materials

2.1 PAINT TYPES

Use the manufacturer's complete system and only the products specified.

2.2 MATERIALS GENERALLY

Use only the Manufacturer's products which are guaranteed for their consistency and performance under AS/NZS ISO 9001 and APAS approval, prepared, mixed and applied as directed in the Manufacturer's specification sheets, specification manuals and product data sheets.

2.3 THINNERS AND ADDITIVES

Only use thinners or additives within the stated limits for the particular situations specified.

Accessories

2.4 FILLERS

For recommendations on; fillers, stopping, paint strippers, cleaning agents, etching solutions, mould inhibitors, rust inhibitors, knotting and other commodities used for the surface preparation, refer to the manufacturer of the specified coating.

3 EXECUTION

Conditions

3.1 EXECUTION

To conform to manufacturer's requirements and those methods, practices and techniques contained in AS/NZS 2311 and WorkSafe: Guidelines for the provision of facilities and general safety in the construction industry.

3.2 CORROSION PROTECTION SUPERVISION FOR STRUCTURAL STEEL

To AS/NZS 5131, 9.9.20, for corrosion protection of structural steel. Provide an Inspection and Test Plan (ITP) to AS/NZS 5131, 13.9.1, prior to commencement.

Corrosion protection painting to be supervised by a competent person.

3.3 PREPARE

Prepare surfaces to the coating manufacturer's requirements.

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3.4 COATED SURFACES

Ensure that substrate surfaces are able to achieve the specified finish.

3.5 PRE-PRIMED SURFACES

Sand down any breakdown or damage of the primer to a sound surface and immediately re-prime.

3.6 BRUSH DOWN

Brush down surfaces immediately before application, to remove dust, dirt and loose material.

3.7 COMPATIBILITY

Check that materials are as required by the paint manufacturers for the particular surface and conditions of exposure, and that they are compatible with each other. Use paint from the same manufacturer for each paint system. If not compatible, obtain instructions before proceeding.

3.8 TREATED SURFACES

Where surfaces have been treated with preservatives or fire retardants, check with the treatment manufacturer that coating materials are compatible with the treatment and do not inhibit its performance. If they are not compatible, obtain instructions before proceeding.

3.9 BACK PAINTING

Co-ordinate with cladding and/or lining installer as to who will do the work and timing.

Exterior
For exterior cladding and trim that require on site finishing, paint the back and exposed bottom edges at the base of the cladding (generally, bottom plate overhang and horizontal flashings) to the manufacturer's requirements, but at least to 150mm up from base. Coating to match front finish, generally apply 2 coats or 1 coat if pre-primed.
Refer to appropriate exterior paint sections SELECTION clauses for claddings to be back painted.

Interior
For lining and trim that require on site finishing and/or back painting (usually wet areas), paint the back and exposed bottom edges at the base of the lining, to the manufacturer's requirements, but at least to 150mm up from base. Coating to match front finish, generally apply 2 coats or 1 coat if pre-primed, or if no front finish seal to manufacturer's requirements.
Refer to appropriate interior paint sections SELECTION clauses for linings to be back painted.

3.10 ANCILLARY SURFACES

The coatings listed in schedules and elsewhere are of necessity simplified. Coat ancillary exposed surfaces to match similar or adjacent materials or areas, except where a fair-faced natural finish is required or items are completely prefinished. In cases of doubt obtain instructions before proceeding.

3.11 HARDWARE

Do not paint hinges or hardware that cannot be removed. If items can be removed, carefully remove hardware, fixtures and fittings before commencing work. Set aside where they cannot be damaged or misplaced and replace on completion.

3.12 PROTECTION

Use dropsheets, coverings and masking necessary to protect adjoining fixtures, fittings and spaces from paint drops, spots, spray and damage.

Preparation - unpainted and pre-primed timber and wood based products

3.13 MOISTURE CONTENT

Ensure moisture content at the time of application is near to the equilibrium moisture content pertaining to the particular locality in which the timber is used, without any excessive moisture content gradient between core and surface.

3.14 PREPARING DRESSED TIMBER

Ensure dressed timber is smooth, free from raised or woolly grain, planing burrs or other machining defects. Slightly round or ease sharp edges to ensure they can be properly coated. Sand timber to bring up to a smooth finish along the direction of the grain. Sand timber back to new condition timber that has been weathered.

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3.15 PREPARING ROUGH SAWN TIMBER

Thoroughly brush along the direction of the grain to remove dust and dirt.

3.16 PREPARING PRE-PRIMED TIMBER

Check pre-prime coat for damage, powdering, weathering or loss of adhesion. Where primer is sound, thoroughly brush along the direction of the grain to remove dust and dirt. If there is doubt, sand back and re-prime.

3.17 TIMBER SPECIES

Check that the preparation and paint system is suitable for the timber species.

3.18 PREPARING DAMAGE AND DEFECTS

Scrape clean loose or soft material holes, depressions, resin or gum pockets, knot holes, surface splits, checks, or any localised decay. Apply primer and/or sealer specified and fill these areas with linseed oil putty or other appropriate filler.

3.19 FIXINGS

Take timber fixings below the painted or clear finished surface. Leave corrosion resistant timber fixings flush with clear finished surfaces.

3.20 CLEANING

Remove grease and oil by wiping down with solvent or water-based degreasing agent. Remove resin by wiping down with solvent or water-based degreasing agent or heating and scraping. Remove sanding dust. Bad staining may be untreatable and require replacement of timber, discuss with paint manufacturer and main contractor.

Preparation - gypsum plaster

3.21 PREPARING GYPSUM PLASTER

Fill and sand small crevices and cracks. Surface moisture content not to exceed 12% at time of coating.

Preparation - unpainted linings

3.22 PREPARING FIBROUS PLASTER

Check for and remove release agents and other contaminants by washing with clean water or solvent and allow to dry. Fill cracks and surface imperfections with patching plaster and lightly sand smooth. Remove dust.

3.23 PREPARING PLASTERBOARD

Check that joints are prepared to a smooth level surface finish. Fill cracks and surface imperfections with the sheet manufacturer's required stopping compound and lightly sand smooth. Remove dust.

Preparation - painted surfaces generally

3.24 SURFACE PREPARATION

Refer to the Manufacturer's specification sheets and product data sheets. Carry out the preparatory work required by them for each of the substrates.

For interior surfaces such as paper faced plasterboard use the Manufacturer's recommended finishing compound as an aid to achieving a Level 5 finish.

3.25 MOULD

Sterilise surface mould by washing or sponging the whole surface with a one part sodium hypochlorite household bleach to three parts clean water solution. Allow bleach to act for 30 minutes and wash off with clean water. Wash cloths and sponges regularly in clean water. Reapplication may be necessary. Treat with anti-mould solution to the treatment manufacturer's requirements.

3.26 GAP FILLING

Fill cracks, holes, indented and damaged surfaces with putty, plaster filler, wood filler, or plastic wood, as appropriate and in accordance with the paint manufacturer's requirements. Allow to dry or set before sanding back level with the surface. Prime coat or seal the timber before using putty. Wet cement or gypsum base plasters before applying filler. Use only Portland cement base types, or water-insoluble organic-based gap fillers in exterior or wet areas.

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Application - before applying final coatings

3.27 OFF-SITE WORK

Carry out off-site preparation and coating under cover, in a suitable environment and with adequate lighting. Store items both before and after coating in a clean, dry area, protected from the weather and mechanical damage, properly stacked and spaced to permit air circulation and to prevent sticking of surfaces.

3.28 PRIMING JOINERY

Before priming preservative treated timber ensure that any cut surfaces have been retreated. Liberally coat end grain, allow to soak in and then recoat. Ensure LOSP. treated joinery has dried sufficiently to lose odour.

3.29 CONCEALED JOINERY SURFACES

Apply off-site coatings to all surfaces including those which will be concealed when incorporated into the building.

3.30 CONCEALED METAL SURFACES

Apply primer to suit the coating system to all metal surfaces which will be concealed when incorporated into the building.

3.31 DOORS

Prime or seal and paint all six faces of doors before hanging.

3.32 BEAD GLAZING

Before glazing apply the first two coats, or the primer and one undercoat, to rebates of stained, varnished or painted joinery and beads.

3.33 PUTTY GLAZING

Follow putty manufacturers recommendations for application, drying, and painting. Ensure that the putty is fully protected by the coating system as soon as it is sufficiently hard.

Application - generally

3.34 PAINTING GENERALLY

Comply with the paint manufacturer's requirements and any additional requirements in this specification.

3.35 MIXING

Thoroughly mix paints. Lift any settled pigment and ensure the paint is homogenous.

3.36 ENVIRONMENT

Paint exterior surfaces only in favourable weather conditions:

- warm dry days without frost or heavy dews
- avoid painting in direct sunlight any surfaces that absorb heat excessively
- as far as possible apply paint in the temperature range 15°C to 25°C
- do not paint if temperatures fall outside the range of 10°C and 35°C unless paints with the necessary temperature tolerance have been specified
- do not apply solvent borne paint if moisture is present on the surface

3.37 SEQUENCE OF OPERATIONS

Painting work to generally follow the following sequences:

- back painting and pre-installation painting, then post-installation exposed-face painting
- complete surface preparation before commencing painting
- apply paint in the specified sequence using the specified paint
- allow full drying time between coats to the paint manufacturer's requirements
- do not expose primers, undercoats and intermediate coats beyond manufacturers stated instructions before applying the next coat
- finish broad areas before painting trim
- ensure batch numbers of tins are matched for whole areas
- internally, paint ceilings before walls and walls before joinery, trim and other items

3.38 PAINT APPLICATIONS

Select brush, roller, or pad and apply paint to the requirements of the paint manufacturer and to obtain a smooth even coating of correct thickness, uniform gloss and colour.

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3.39 DRYING TIME

Before handling or applying the next coat of paint, give each coat the full drying time as required by the paint manufacturer. Ensure that surfaces are dry and that condensation does not occur before the paint reaches surface-dry condition.

3.40 LIGHTLY SAND

Lightly sand primers, sealers, undercoats and intermediate coats to remove dust pick-up, protruding fibres and coarse particles. Remove dust immediately before applying the next coat.

3.41 DEFECTIVE WORK

Correct defective work immediately and re-coat as required, following precisely the paint system specified.

3.42 EACH COAT

Each coat of paint and the completed paint system to have the following qualities and properties:

- uniform finish, colour, texture, sheen and hiding power
- the specified number of coats applied
- no blemishes such as runs, sags, crinkling, fat edges, entrained paint skins, hairs, dust, bare or starved patches, cracks, brush marks, ladder marks and blistering
- proper covering of corners, crannies, thin edges, cracks, end grain and other difficult places of application

Completion

3.43 CLEAN

Clean adjoining surfaces, glass and fittings of any paint contamination. Clean off glass indicators at completion of the building works. Clean glass inside and out to a shining finish.

3.44 CLEAN EQUIPMENT

Use the Manufacturer's environmental wash system for the cleaning of water-based paint and plasters from brushes, rollers, plastering or spray equipment to separate the solids from the water component for safe disposal.

3.45 LEAVE

Leave the whole of this work uniform in gloss and colour, of correct thickness, free from painting defects, clean and unmarked and to the standard required by following procedures.

3.46 REMOVE

Remove dropsheets, coverings and masking to leave surrounding surfaces and areas clean, tidy and undamaged. Remove debris, unused materials and elements from the site.

3.47 REPLACE HARDWARE

Replace hardware without damage to it or the adjoining surface. Leave properly fitted and in working order.

4 SELECTIONS

4.1 SELECTIONS

Refer to 6711 PAINTING EXTERIOR and 6721 PAINTING INTERIOR for selections.

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6711 PAINTING EXTERIOR

1 GENERAL

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

- decorative paint coatings
- protective paint coatings
- sealers
- stains

Related work

1.1 RELATED SECTIONS

Refer to 6700 PAINTING GENERAL for general painting matters.

Refer to 6721 PAINTING INTERIOR for interior 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 BACK PAINTING SCHEDULE

Paint 2 coats (including any pre-prime) to match exposed face coating.

Cladding type	Extent of back painting
Timber weatherboards and battens	See stain manufacturers' instructions

Paint systems

4.2 TIMBER WEATHERBOARD & BATTENS/ - STAIN

Brand:	TBC
Coating type:	Stain
System:	TBC
Preparation:	none
1st coat:	Factory Machine Coat
2nd coat:	On site
3rd coat:	On site

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4.3 FIBRE CEMENT / PAINT

Brand:	TBC
Coating type:	Water based Paint
System:	TBC
Preparation:	Smooth flush stop
1st coat:	Sealer coat
2nd coat:	On site
3rd coat:	On site



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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

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

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 for buildings other than risk group SH
BPS	Building Product Specifications

Warranties

1.3 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.



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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 BACK PAINTING SCHEDULE

Paint 2 coats (including any pre-prime) usually to match exposed face coating. If there is no coating use water resistant clear finish sealer.

Lining type	Extent of back painting
JH Groove Lining	To lining manufacturer's requirements

Paint systems

4.2 PLASTERBOARD

Brand:	TBC
Coating type:	Paint. Low sheen finish.
System:	TBC
Preparation:	smooth stop
1st coat:	suitable sealer coat
2nd coat:	premium interior waterborne paint
3rd coat:	premium interior waterborne paint

4.3 PLASTERBOARD - WET AREA

Brand:	TBC
Coating type:	Paint. Low sheen finish
System:	TBC
Preparation:	smooth stop
1st coat:	suitable sealer coat
2nd coat:	Hard-wearing moisture resistant waterborne enamel
3rd coat:	Hard-wearing moisture resistant waterborne enamel

4.4 FIBRE CEMENT IN BATHROOMS, WC AND LAUNDRIES

Brand:	TBC
Coating type:	Paint. Semi gloss finish
System:	TBC
Preparation:	smooth
1st coat:	suitable sealer coat
2nd coat:	Hard-wearing moisture resistant waterborne enamel
3rd coat:	Hard-wearing moisture resistant waterborne enamel

4.5 TIMBER TRIM / DOORS / FRAMES

Brand:	TBC
Coating type:	Paint. Semi gloss finish.
System:	TBC
Preparation:	Smooth sanded, nail holes filled.
1st coat:	Sealer coat
2nd coat:	Waterborne enamel
3rd coat:	Waterborne enamel

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6743FB ZONE FIREZONE VANGUARD TIMBER FIRE TREATMENT

1 GENERAL

This section relates to the factory application of Zone Architectural Products FireZone™ Vanguard fire retardant systems for timber substrates in interior and exterior applications.

It includes:

- Fire retardant systems providing Group 1-S classification for plywood and solid timber linings.
- Fire retardant system providing a Type A classification for solid western red cedar and thermally modified nordic pine timber claddings

1.1 RELATED WORK

Refer to 4221 TIMBER BOARD CLADDING for external timber cladding.

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

MPNZA	Master Painters New Zealand Association Inc
TMT	Thermally Modified Timber
VOC	Volatile Organic Compounds

Documents

1.3 DOCUMENTS

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

NZBC C/AS1	Protection from fire for buildings with sleeping (residential) and outbuildings (risk group SH)
NZBC C/AS2	Protection from fire for buildings other than risk group SH
NZBC C/VM2	Framework for Fire Safety Design
AS/NZS ISO 9001	Quality Management Systems - Requirements
ASTM D2898	Standard practice for accelerated weathering of fire-retardant-treated wood for fire testing
EN 927	Paints and varnishes - coating materials and coating systems for exterior wood: Performance specification
EN 13501-1	Fire classification of construction products and building elements
EN 16755	Durability of reaction to fire performance. Classes of fire-retardant treated wood products in interior and exterior end use applications
ISO 5660.1	Reaction to Fire Tests: Heat release, smoke production and mass loss rate
BPS	Building Product Specifications
WorkSafe	Guidelines for the provision of facilities and general safety in the construction industry
MPNZA	Health and Safety Programme

Health and Safety at Work Act 2015

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

- FireZone™ Vanguard FP Safety Data Sheet
- FireZone™ Vanguard SP Safety Data Sheet
- FireZone™ Vanguard FP Technical Data Sheet
- FireZone™ Vanguard SP Technical Data Sheet
- BC Materials, Assessment of European classification of the NZBC requirements, dated 03 December 2023
- BC Materials, Letter, Comparison between ASTM 2898-10 and EN 16755, dated 09 November, 2022
- BRANZ Fire Test Reports - various

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Manufacturer/supplier contact details

Company:	Arahuri Ltd
Trading as:	Zone Architectural Products
Web:	www.zone.net.nz
Email:	specification@zone.net.nz
Telephone:	09 623 1699 Auckland
Freephone	0800 508 800

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

T.B.C. years	For the supply and application of FireZone™ fire treatment for timber substrates

- Provide this warranty on the Zone Architectural Products standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- Commence the warranty from the date of application of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS WORKERS - MANUFACTURER / SUPPLIER REQUIREMENTS

Application of FireZone™ Vanguard products by Zone Architectural Products only. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.7 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified FireZone™ products listed in this section.

1.8 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of operation and maintenance information as electronic PDF format documents. Information to include the expected life of the system & maintenance requirements.

Provide this information prior to practical completion.

Compliance information

1.9 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Manufacturer / supplier warranty
- Supply Certificate - from Zone Architectural Products
- Other information required by the BCA in the Building Consent Approval documents.

Performance - FireZone™ Vanguard FP

1.10 EXTERNAL FIRE SPREAD - CLADDING MATERIALS

FireZone™ Vanguard FP when used on minimum 16mm, western red cedar and thermally modified Nordic Pine has been tested to ISO 5660.1 to specific requirements of BPS, paragraph 8.4.1.3 or BPS, paragraph 8.4.1.3, and to requirements of EN 16755 with accelerated weathering in accordance to EN 927 achieving:

Type A classification (peak heat release rate ≤ 100 kW/m², total heat release rate ≤ 25 MJ/m²).

Classification is supported by BC Materials Report dated 03 December 2023.



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Quality control and assurance

1.11 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety at Work Act 2015 and WorkSafe: Guidelines for the provision of facilities and general safety in the construction industry. If the elimination or isolation of potential hazards is not possible then minimise hazards in this work on site by using the proper equipment and techniques as set out in the MPNZA Health and Safety Programme. Supply protective clothing and equipment. Inform employees and others on site of the hazards and put in place procedures for dealing with emergencies.

1.12 QUALITY ASSURANCE RECORD

Zone Architectural Products maintain a quality assurance programme for the factory application of FireZone™ Vanguard FP and FireZone™ Vanguard SP. Zone Architectural Products to provide a project specific Supply Certificate with each batch of timber treated. The Supply Certificate records the following:

- Substrate type including species and profile
- Quantity
- Coating type
- Fire treatment Group Number classification Group 1-S
- Fire treatment Exterior cladding classification Type A
- Moisture content records at time of dispatch - storage and handling guidance must be strictly followed

2 PRODUCTS

Materials - Fire treatment

2.1 FIREZONE™ VANGUARD FP

FireZone™ Vanguard FP is a non toxic, VOC free, factory applied fire retardant system. Suitable for interior and exterior applications.

For plywood and solid timber internal lining substrates providing a Group 1-S classification to NZBC C/AS2, Table 4.12.1.1: Maximum permitted Group Number for internal surface finishes. For Western Red Cedar and Thermally Modified Nordic Pine external claddings providing a Type A Classification to NZBC C/AS1, 5.3 External cladding systems, and NZBC C/AS2, 5.5 External cladding systems.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

Plywood & solid timber substrates requiring FireZone™ treatement to be supplied direct to Zone Architectural Products for factory-only processing. After processing, the finished timber products to be stored on site under cover protected from weather including direct UV light.

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. Finishing of surfaces to the required standard be completed by the timber supplier prior to delivery to Zone Architectural Products.

Ensure moisture content is:
Timber between 10-20%

Application

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

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3.5 PREPARATION

Ensure that substrate surfaces are clean and dry prior to delivery to Zone Architectural Products.

3.6 APPLICATION - FIREZONE™ VANGUARD FP

Carry out factory-only application of FireZone™ Vanguard FP in accordance with manufacturer's requirements.

3.7 APPLICATION - OIL OR PAINT FINISH OVER FIREZONE™ VANGUARD FP - BY OTHERS

For external cladding applications, timber treated with FireZone™ Vanguard FP must be over-coated with a factory applied oil or paint finish to all four sides, to timber suppliers and Zone Architectural Products requirements. All cut edges to be touched up on site with the same oil or paint finish prior to installation. Co-ordinate with timber supplier.

Completion & Commissioning

3.8 COMPLETION MATTERS

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

4 SELECTIONS

For further details on selections go to www.zone.net.nz.
Substitutions are not permitted to the following Zone Architectural Products systems, unless stated otherwise.

FireZone™ Vanguard FP

4.1 FIREZONE™ VANGUARD FP - EXTERNAL CLADDING SOLID TIMBER SUBSTRATE

Location:	External applications. Where a Type A Classification is required. A Type A classification may also be required for timber cavity battens that form part of an external cladding system, use FireZone™ Vanguard FP on Western Red Cedar cavity battens.
System:	FireZone™ Vanguard FP
Classification:	Type A
Substrate:	Solid Timber Cladding. Refer to ~ for details
Species:	Western Red Cedar
Thickness:	minimum 16mm thick
Profile:	Refer to Drawings
Finish:	minimum 16mm thick
Fixings:	Stainless Steel

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6812A ARDEX UNDERTILE WATERPROOFING MEMBRANES

1 GENERAL

This section relates to ARDEX New Zealand Ltd WeldTec Undertile Waterproofing Membrane system.

1.1 RELATED WORK

Refer to ~ for ~

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

uPVC	Unplasticised polyvinyl chloride
WPM	Waterproofing membrane

Documents

1.3 DOCUMENTS

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

NZBC E3/AS2 Internal Wet-area Membrane Systems
Codemark™ CMNZ70189 ver0 - Ardex WPM 715 and WPM 1000

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

ARDEX WeldTec Waterproofing Membrane (September 2025)
ARDEX WPM 750 Technical Data Sheet
ARDEX WPM 1000 Technical Data Sheet
ARDEX UD 150 Technical Data Sheet
ARDEX WPM 750 Undertile WeldTec Sheet Membrane BPIS
ARDEX WPM 1000 External WeldTec Undertile Membrane System BPIS
ARDEX UD 150 BPIS
ARDEX WeldTec Undertile Quality Assurance Checklist
ARDEX Internal Undertile Waterproofing Quality Control Checklist
BRANZ Appraisal 727 (2023) - ARDEX Undertile Sheet Membrane (WPM 750 and WPM 1000)
BRANZ Appraisal 925 (2024) - ARDEX WPM 1000 External Deck Membrane

Manufacturer/supplier contact details

Company:	ARDEX New Zealand Ltd
Web:	www.ardex.co.nz
Email:	info@ardexnz.com
Telephone:	0800 2 ARDEX (27339)

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years:	For ARDEX WPM 750 Weldtec Undertile Membrane system
20 years:	For ARDEX WPM 1000 Weldtec Undertile Membrane system

- Provide this warranty on the manufacturer/supplier standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- 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:

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5 years: For installation

- Provide this warranty on the installer/applicator standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.7 QUALIFICATIONS WORKERS - MANUFACTURER / SUPPLIER REQUIREMENTS

Waterproofing applicators to be trained by ARDEX New Zealand. Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.8 QUALIFICATIONS WORKERS – INDUSTRY QUALIFICATION REQUIREMENTS

Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a certifying plumber under the Plumbers, Gasfitters and Drainlayers Act 2006. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.9 NO SUBSTITUTIONS

Substitutions are not permitted to any specified systems, components and associated products listed in this section.

1.10 QUALITY CONTROL SYSTEM - MANUFACTURER/SUPPLIER REQUIREMENTS

Installer/applicator to maintain quality control system to manufacturer/supplier requirements, including:

- Complete and submit ARDEX WeldTec Undertile Quality Assurance Checklist
- Complete and submit ARDEX Internal Undertile Waterproofing Quality Control Checklist

Make available quality control records if requested by the contract administrator or consenting authority.

Compliance information

1.11 COMPLIANCE - BRANZ APPRAISAL 727

ARDEX WPM 750 and WPM 1000 have been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 727.

2 PRODUCTS

Materials

2.1 ARDEX WPM 750 WELDTEC UNDERTILE MEMBRANE

Fleece-lined, synthetic rubber sheet membrane, 0.75mm thick, 1.4m wide x 20m long rolls.

Components

2.2 ARDEX CA 750 CONTACT ADHESIVE

Water-based contact adhesive.

Accessories

2.3 ARDEX CLAMP WASTE OUTLET

uPVC floor drain waste unit with a removable stainless steel grille. Available in a range of outlet sizes and position. Refer to SELECTIONS.

2.4 ARDEX ST TAPE

Uncured, self-adhesive butyl tape, fleece lined one side.

2.5 ARDEX RELEASE TAPE

25mm wide pressure sensitive tape between two silicone release paper backings

2.6 PREFORMED CORNERS

Fleece-lined synthetic rubber sheet membrane, preformed into 95mm x 95mm x 60mm corner. Internal and external corner profiles available.

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2.7 UNDERTILE PROFILE

Fleece-lined synthetic rubber sheet membrane, preformed into 150mm x 70mm right angle profile. Available length to suit application.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products. Do not store in direct sunlight. Materials must not be removed from the packaging until ready to use.

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.

Timber substrate:	18% maximum moisture content
Concrete substrate:	75% maximum relative humidity, minimum 28 days cured

3.4 WEATHER

Lay membrane in fair weather, with ambient air temperature no less than 10°C and with substrate surface temperatures between 5°C and 35°C .

Installation/application

3.5 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.6 INSTALLATION GENERALLY

Install in accordance with ARDEX installation instructions and in conjunction with the associated ARDEX tiling section(s). Surfaces to be clean, dry, sound and free of dust, oil, grease, curing compounds or release agents.

3.7 APPLY BOND BREAKER TAPE

Reinforce corners, surface joints and penetrations with ARDEX ST tape.

3.8 FIX ARDEX CLAMP WASTE OUTLET

Screw fix drain body over substrate. Dress membrane into flange. Secure clamp ring over membrane and screw fix to drain body terminating membrane between drain body and clamp ring.

3.9 INSTALL PREFORMED PROFILES

Brush ARDEX contact adhesive to underside of preformed corner/angle profile and substrate. Fit profile into place.

3.10 INSTALL MEMBRANE

Lay sheet membrane allowing for 50mm overlap with adjacent sheets and preformed profiles. Working in rows lengthwise, fold back half of the width of the membrane sheet. Brush ARDEX contact adhesive to substrate and underside of membrane, avoiding the 50mm overlap. Unfold the membrane and press onto the substrate. Extend floor membrane minimum 150mm up wall, overlap wall membrane to floor upstand extension. Extend membrane with minimum 50mm upstand to penetrating pipes/conduits.

3.11 HEAT WELD MEMBRANE

Heat weld the 50mm overlapped membranes together. Roll over heated welded seams with a rubber roller to secure seam.

3.12 EXTENT OF MEMBRANE - INTERNAL WET AREAS

Extend membrane vertically and horizontally to the requirements of NZBC E3/AS2.

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Installation - tiles

3.13 INSTALL TILES

Refer to associated ARDEX tiling section(s).

3.14 FLOOD TEST - INTERNAL MEMBRANE

Visually inspect and flood test to NZBC E3/AS2. Make good any lack of water tightness and retest.

Completion & Commissioning

3.15 COMPLETION MATTERS

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

4 SELECTIONS

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

4.1 ARDEX WPM 750 WELDTEC UNDERTILE MEMBRANE - INTERNAL WET AREA

Location:	Refer to drawings
Manufacturer:	ARDEX New Zealand Ltd
Membrane:	ARDEX WPM 750
Adhesive:	ARDEX CA 750
Substrate:	Fibre cement tile underlay sheet
Waste:	ARDEX Clamp waste outlet - size as required

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7123 HOT & COLD WATER SYSTEM

1 GENERAL

This section relates to piped potable water supply systems from the network utility supply authority water main to designated points and appliances, the installation of hot water heating appliances, distributing piped hot water to other appliances, and the installation of valves.

Documents

1.1 DOCUMENTS

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

NZBC G4/AS1	Ventilation of buildings
NZBC G11/AS1	Gas as an energy source
NZBC G12/AS1	Water supplies
NZBC G12/AS3	Water supplies
AS 1432	Copper tubes for plumbing, gas fittings and drainage applications
AS/NZS 1477	PVC pipes and fittings for pressure applications
AS/NZS 2032	Installation of PVC pipe systems
AS/NZS 2033	Installation of polyethylene pipe systems
AS 2345	Dezincification resistance of copper alloys
AS/NZS 2492	Cross Linked Polyethylene (PE-X) pipe for pressure applications
AS/NZS 2537.1	Mechanical jointing fittings for use with cross-linked polyethylene (PE-X) for pressure applications. Plastic piping systems for hot and cold water installations - Cross linked polyethylene (PE-X) General
AS/NZS 2537.2	Mechanical joining fittings for use with crosslinked Polyethylene (PE-X) for pressure applications - Plastics piping systems for hot and cold water installations - Crosslinked Polyethylene (PE-X) - Fittings
AS/NZS 2537.3	Mechanical jointing fittings for use with cross-linked polyethylene (PE-X) for pressure applications. Plastic piping systems for hot and cold water installations - Cross linked polyethylene (PE-X) fitness for purpose of system
AS/NZS 2537.4	Mechanical jointing fittings for use with cross-linked polyethylene (PE-X) for pressure applications. Plastic piping systems for hot and cold water installations - Cross linked polyethylene (PE-X) Guidance for the assessment of conformity
AS/NZS 2642.1	Polybutylene pipe systems - Polybutylene (PB) pipe extrusion compounds
AS/NZS 2642.2	Polybutylene pipe systems - Polybutylene (PB) pipe for hot and cold water applications
AS/NZS 2642.3	Polybutylene pipe fittings - Mechanical jointing fittings for use with polybutylene (PB) pipes for hot and cold water applications
AS/NZS 2845.1	Water supply - Backflow prevention devices - Materials, design and performance requirements
AS 2845.3	Water supply - Backflow prevention devices - Field testing and maintenance
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3500.1	Plumbing and drainage - Water services
AS/NZS 3500.4	Plumbing and drainage - Heated water services
NZS 3501	Specification for copper tubes for water, gas and sanitation
AS 3688	Water supply and gas systems - metallic fittings and end connectors
AS/NZS 3879	Solvent cements and priming fluids for PVC (PVC-U and PVC-M and ABS and ASA pipes and fittings
AS 4032.2	Water supply - Valves for the control of heated water supply temperatures - Tempering valves and end-of-line temperature actuated devices
AS/NZS 4129	Fittings for polyethylene (PE) pipes for pressure applications.

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AS/NZS 4130	Polyethylene (PE) pipes for pressure applications
NZS 4305	Energy efficiency domestic type hot water systems
NZS 4602	Low pressure copper thermal storage electric water heaters
NZS 4606.1	Storage water heaters. General requirements
NZS 4606.2	Storage water heaters. Specific requirements for water heaters with single shells.
NZS 4606.3	Storage water heaters. Specific requirements for water heaters with composite shells.
NZS 4607	Installation of thermal storage electric water heaters: valve vented Systems
NZS 4617	Tempering (3-port mixing) valves
AS 4809	Copper pipe and fittings. Installation and commissioning
AS 5200 part 053	Plumbing and drainage products, Stainless steel pipes and tubes for pressure applications.
AS/NZS 5601.1	Gas installations - general installations
AS/NZS 60335.2.35	Household and similar electrical appliances. Safety - Pat 2.35 Particular requirements for instantaneous water heaters

Gas (Safety and Measurement) Regulations 2010
Plumbers, Gasfitters and Drainlayers Act 2006

NZ Backflow Testing Standard:	NZ Backflow Testing Standard 2019, Field testing of backflow prevention devices and verification of air gaps

Warranties

1.2 WARRANTY

Provide warranty for:

2 years:	For the supply and installation of the plumbing system and fixtures

- Provide the warranty in the standard form in the general section 1237WA WARRANTY AGREEMENT.
- Commence the warranty from the date of practical completion of the contract works.

Requirements

1.3 QUALIFICATIONS

Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a certifying plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

1.4 INFORMATION FOR OPERATION AND MAINTENANCE

Supply maintenance information to requirements set out in the 1239 OPERATION & MAINTENANCE section.

1.5 HOT WATER TEMPERATURES

To NZBC G12/AS1, 6.14

Storage water heaters to store water at not less than 60ºC.

Hot water piping system, with temperature controls where necessary (tempering valve etc), to provide water at the outlet at the following temperatures:

For personal hygiene fixtures (showers, baths, wash hand basins etc) temperatures to be close to but not to exceed:

- 45ºC - for early child hood centres, schools, elderly facilities, hospitals, psychiatric or disabled institutions.
- 50ºC - for personal hygiene fixtures in all other buildings.

For non-personal hygiene fixtures (kitchen sinks and equipment, laundry tubs, cleaners sinks, industrial fixtures etc) temperatures are:

- Unrestricted - direct from water heater, approx. 60°C, must be less than 65°C (for kitchen sinks and equipment, laundry tubs, cleaners sinks etc) - in all buildings.
- Unrestricted - direct from water heater not tempered (for industrial fixtures and specific items etc) - in

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all buildings.

This clause excludes boiling units.

Performance

1.6 TESTING - TO NZBC G12/AS1

Test to NZBC G12/AS1, 7.6, Watertightness, for hot and cold water.

- Test to a pressure of 1500 kpa for period not less than 15 minutes.

Confirm the timing before carrying out any tests. Supply potable water and the apparatus needed. Slowly fill service pipes with water to exclude air. Test and ensure there is no measurable loss of pressure for the minimum period. Slowly fill distribution pipes with water to exclude air. Ensure that with draw-off taps closed the system must remain water-tight.

2 PRODUCTS

Materials

2.1 COPPER PIPE

To NZBC G12/AS1, 2 Materials. Copper pipe to NZS 3501, AS 1432 (type A, B & C) and AS 3688 for fittings

2.2 PVC-U PIPE

To NZBC G12/AS1, 2 Materials. PVC-U pipes and fittings to AS/NZS 1477 and PVC-U solvent cements and primers to AS/NZS 3879. Protect from sunlight. For cold water applications only.

2.3 POLYBUTYLENE PIPE

To NZBC G12/AS1, 2 Materials. Polybutylene tubing to AS/NZS 2642.1, AS/NZS 2642.2 and AS/NZS 2642.3 complete with fittings and accessories brand-matched. Protect from sunlight.

2.4 POLYETHYLENE PIPE

To NZBC G12/AS1, 2 Materials. Polyethylene pipes to AS/NZS 4130 and fittings to AS/NZS 4129. Except for solid black PE, protect from sunlight. For cold water applications only.

2.5 DE-ZINCIFICATION RESISTANT WATER SUPPLY SYSTEM COMPONENTS

All copper alloy components to comply with G12/AS1 clause 2.2.3 and AS 2345.

2.6 WATER METER

To the requirements of the network utility operator.

2.7 VALVES

Pressure reducing or limiting valve, filter, non-return valve, cold water expansion valve, pressure relief or temperature valve, pressure relief valve and isolating valves to NZBC G12/AS1.

2.8 BACKFLOW PREVENTION DEVICES

Provide backflow prevention devices to AS/NZS 2845.1 where it is possible for water or contaminants to backflow into the potable water supply. Refer to NZBC G12/ AS1 3.4 Backflow protection, 3.5 Containment Backflow protection, table 2, Selection of Backflow Protection and table 2A Containment Backflow Protection.

2.9 TEMPERING VALVE

Tempering valve to NZS 4617 or AS 4032.2 to NZBC G12/AS1.

2.10 EXPANSION VESSEL

Expansion vessel to NZBC G12/AS, 6.6.7 Expansion Vessels or AS/NZS 3500.4 5.9 Valves and expansion vessels.

Materials - Hot water heating appliances

2.11 ELECTRIC HOT WATER CYLINDER, MAINS PRESSURE

To NZS 4305, NZS 4606.1, NZS 4606.2 and NZS 4606.3,electric storage cylinder, insulated and complete with required fittings.



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Components

2.12 INSULATION

Pre-formed pipe sections complete with bends and fittings, with fixing tape to the manufacturer's requirements and to NZS 4305 and AS/NZS 3500.4.

2.13 PROTECTIVE TAPE

Plasticised PVC tape system with primer, mastic fixing and outer coating.

3 EXECUTION

3.1 EXECUTION GENERALLY

Generally carry out the whole of this work and tests to NZBC G12/AS1 or AS/NZS 3500.1 and AS/NZS 3500.4 as modified by NZBC G12/AS3.

3.2 HANDLE AND STORE

Handle and store pipes, fittings and accessories to avoid damage. Store on site, under cover on a clean level area, stacked to eliminate movement and away from work in progress.

Store tapware in a shelved, dry and securely locked area. Retain tapware in the manufacturer's original packaging, complete with all fixings and installation instructions. Label each unit separately with its space/fixture number to match.

3.3 CORE HOLES AND SLEEVES

Review location and fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Strip core holes and make good after installation of pipework.

3.4 CONCEAL

Conceal pipework within the fabric of the building unless detailed otherwise. Satin finish chrome plate exposed work, complete with matching ferrule at the surface penetration.

3.5 CORROSION

Separate all metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips.

3.6 THERMAL MOVEMENT

Accommodate movement in pipes resulting from temperature change by the layout of the pipe runs, by expansion joints and by sleeving through penetrations.

3.7 PIPE SIZE

Flow rates to each outlet to be no less than those given in AS/NZS 3500.1 and AS/NZS 3500.4 as modified by NZBC G12/AS3 or NZBC G12/AS1, table 3, Acceptable flow rates to sanitary fixtures. Pipe size as determined in NZBC G12/AS1, table 4, Tempering valve and nominal pipe diameters.

3.8 ELECTROLYTIC ACTION

Avoid electrolytic action by eliminating contact or continuity of water between dissimilar metals.

3.9 EXCAVATE

Excavate for the water main to a firm, even trench base in straight runs. Allow to backfill.

Application - Jointing

3.10 JOINTING COPPER PIPE

Braze pipe, fit alloy compression fittings, crox type joints and seal ring compression joints to NZBC G12/AS1 and AS 4809.

3.11 JOINTING PVC-U PIPE

Solvent welded joints using spigots and sockets, flanged joints and seal ring compression joints to NZBC G12/AS1 and AS/NZS 2032.

3.12 JOINTING POLYBUTYLENE PIPE

Aluminium clamped, seal ring compression or push fit "O" ring seal jointing to pipe system manufacturer's requirements.



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3.13 JOINTING POLYETHYLENE PIPE

Seal ring compression joints and electrofusion to NZBC G12/AS1 and AS/NZS 2033.

Application - Pipework installation

3.14 WATER SUPPLY CONNECTION

Arrange with the network utility operator for a connection to the water main and from there through a water meter and gate valve. Provide back flow prevention to NZBC G12/AS1.

3.15 POTABLE WATER SUPPLY PIPEWORK INSTALLATION

From connection point, run pipes complete with all fittings, support and fixing, joins and install to manufacturers specifications. Size the pipes and branches in straight runs to deliver the acceptable flow rate to AS/NZS 3500.1 and AS/NZS 3500.4 as modified by NZBC G12/AS3 or NZBC G12/AS1, table 3, Acceptable flow rates to sanitary fixtures at each outlet. Allow for the expected concurrent use of adjoining fixtures and size the piping layout to eliminate loss of pressure at any point by simultaneous draw-off. Pipework support spacing to be firmly fixed and buffered to eliminate noise and hammer, with preformed tee-connection take-offs and branches, with machine made 3 diameter bends, complete with necessary valves and fittings. Conceal pipework and pressure test before the wall linings are fixed.

3.16 HOT WATER PIPEWORK

Use a take-off spigot to give separate branches to each fitting, lay out pipes with support spacing to AS/NZS 3500.4 as modified by NZBC G12/AS3 or NZBC G12/AS1, table 9 Water supply pipework support spacing. Fix firmly and buffer to eliminate noise and hammer, with preformed tee-connection take-offs and branches, and preformed 3 diameter bends, complete with all necessary valves and fittings.

Lag all pipes with rigid insulation to the manufacturer's requirements and AS/NZS 3500.4 as modified by NZBC G12/AS3 or NZBC G12/AS1.

3.17 EQUIPOTENTIAL BONDING METALLIC WATER SUPPLY PIPES

Before enclosing, co-ordinate with electrician to provide for equipotential bonding to metallic water pipes and metallic sanitary fixtures as required by NZBC G12/AS1, 9.0 Equipotential bonding and/or AS/NZS 3000, 5.6 Equipotential bonding.

3.18 IN-LINE FILTER

Install an in-line filter immediately adjacent to the main isolating valve at the point of entry to the building, in an accessible position to allow for easy cleaning.

3.19 PENETRATIONS

Provide and fit collars and escutcheon plates to match the pipework at all penetrations through constructions.

Application - Hot water systems

3.20 HOT WATER CYLINDER INSTALLATION GENERALLY

Install hot water cylinders complete to the manufacturer's requirements and to NZBC G12/AS1, 6. 11, Water heater installation or NZS 4606 for Valve-vented systems.

3.21 SEISMIC RESTRAINTS - NON-GAS WATER HEATING APPLIANCES

Non-gas (electric, wet-back, solar etc) water heating appliances (storage water heaters) to be restrained to manufacturer's requirements and NZBC G12/AS1, 6.11, Water Heater Installation or AS/NZS 3500.4, 5.5.4 Seismic restraints.

3.22 INSTALLING HOT WATER PIPE INSULATION

Insulate all hot water pipes to NZS 4305, AS/NZS 3500.4, 8.2 Thermal Insulation, and to the insulation manufacturer's instructions. Cut insulation sections tight between timber framing and tight between the webs of steel studs.

3.23 INSTALL ELECTRIC HOT WATER CYLINDERS AND BOILING CYLINDERS

Install where shown complete with all the necessary fittings to the cylinder manufacturer's requirements and in accordance with NZBC G12/AS1: 6.11 or NZS 4607 for Valve-vented systems.

3.24 INSTALL STORAGE HOT WATER CYLINDER OVERFLOW TRAY

Install drained overflow tray to storage hot water cylinder to NZBC G12/AS1.



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3.25 INSTALL TEMPERING VALVE

Install 1 metre minimum from outlet of hot water cylinder and to manufacturer's instructions. Install copper pipework for 1 metre minimum downstream of tempering valve prior to connection of non-metallic pipework.

3.26 INSTALL EXPANSION VESSEL

Install expansion vessel to NZBC G12/AS, 6.6.7 Expansion Vessels or AS/NZS 3500.4, 5.9 Valves and expansion vessels.

Installation - valves

3.27 INSTALLING BELOW GROUND ISOLATING VALVE

Install all below ground items such as main isolating valves and water meters in preformed concrete pits or approved equivalent.

3.28 INSTALLING APPLIANCE ISOLATING VALVES - CONCEALED

Install isolating valves for appliances in accessible positions. Locate in adjacent cupboards and position to allow for easy connection and operation.

3.29 INSTALLING BACKFLOW PREVENTION DEVICE

Provide and install backflow prevention device as near as practicable to the potential source of contamination, and in an accessible position for maintenance and testing to AS 2845.3 or NZ Backflow Testing Standard.

Completion

3.30 LABEL

Label all pipework with permanent adhesive markers at 3 metre minimum intervals.

3.31 CLEAN IN-LINE FILTER

Clean all in-line filters on completion of works.

3.32 REPLACE

Replace damaged or marked elements.

3.33 LEAVE

Leave work to the standard required by following procedures.

3.34 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

Water main

4.1 POLYETHYLENE WATER MAIN

Size:	25mm outside diameter (i.e. DN 25 in AS/NZS 4130)

Pipework

4.2 COPPER PIPE

Manufacturer:	TBC
Brand:	TBC
Nominal bore:	15mm
Wall thickness:	1.02mm

4.3 PIPEWORK INSULATION

Brand:	TBC
Material:	Either fibreglass, polyurethane, rock fibre.

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Hot water systems

4.4 ELECTRIC HOT WATER CYLINDER, MAINS PRESSURE

Brand:	TBC
Model size:	180 L for 2, 250 L for 3 bedroom houses, 300L for 4 bedroom houses

Valves and accessories

4.5 MAIN ISOLATING VALVE

Location:	In HWC Cupboard
Brand/type:	TBC

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7352 TYPE 1 DOMESTIC SMOKE ALARM SYSTEMS

1 GENERAL

This section relates to the installation and commissioning of Type 1 domestic smoke alarm systems.

It includes:

- Power supply
- Associated components to complete the installation

1.1 RELATED WORK

Refer to 7701 for ELECTRICAL BASIC

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

dB(A)	A-weighted decibel
VAC	Volts alternating current
VDC	Volts direct current

The following definitions apply specifically to this section:

Hush-button	Feature that temporarily silences audible alarm signals triggered by conditions resembling a fire i.e. steam or dust but not generated by sources of fire (nuisance alarm).
Smoke alarm	Integral device containing smoke detector and alarm sounding feature.
Type 1	To NZBC C/AS1 Type 1 is a single smoke alarm or multiple interconnected smoke alarm devices each containing smoke detector and alarm sounding feature.

Documents

1.3 DOCUMENTS

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

NZBC C/AS1	Protection from fire for buildings with sleeping (residential) and outbuildings (risk group SH)
AS/NZS 1125	Conductors in insulated electric cables and flexible cords
AS 1603.17	Automatic fire detection and alarm systems - Warning equipment for people with hearing impairment
AS/NZS 2201.1	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
AS/NZS 3000	Electrical Installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3808	Insulating and sheathing materials for electric cables
NZS 4512	Fire detection and alarm systems in buildings
NZS 4514	Interconnected smoke alarms for houses
AS/NZS 5000.2	Electric cables - Polymeric insulated - For working voltages up to and including 450/750 V
BS 5446.3	Detection and alarm devices for dwellings, specification for fire alarm and carbon monoxide alarm systems for deaf and hard of hearing people

Electricity (Safety) Regulations 2010



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Warranties

Requirements

1.4 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.5 QUALIFICATIONS - ELECTRICAL WORK

Electrical work to be carried out by workers appropriately qualified to Electricity (Safety) Regulations 2010 requirements, and to be inspected, tested and certified by a licensed electrical worker. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.6 TYPE 1 DOMESTIC SMOKE ALARM SYSTEM

Comply with NZBC C/AS1 providing Type 1 domestic smoke alarm system to NZS 4514.

1.7 NO SUBSTITUTION

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.8 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of manufacturer's operation and maintenance information as electronic PDF format documents. Documents to include maintenance, checks, tests and replacement requirements to NZS 4514, Maintenance.

Provide this information prior to practical completion.

2 PRODUCTS

Alarm devices

2.1 MULTI-SENSOR SMOKE ALARM

Multi-sensor smoke alarm to NZS 4514 comprising two or more detection technologies i.e. ionisation and photoelectric smoke sensor or photoelectric smoke and heat sensor. Completed with alarm sounding feature and hush-button. Available wireless with long-life (minimum 10 years), non-removable, sealed battery or hard wired with back-up battery power supply. Refer to SELECTIONS.

Components

2.2 CABLES

Tough plastic sheathed copper wire cable to AS/NZS 5000.2, AS/NZS 3808 and AS/NZS 1125. Minimum 1mm² solid cable for 230VAC mains powered alarm devices and minimum 0.5mm² stranded cable for extra-low voltage (less than 32VAC or 50VDC) powered alarm devices to NZS 4514.

2.3 INTERNAL BATTERY - HARD WIRED ALARMS

To NZS 4514, Power Supplies. Batteries contained within alarm device to be of type nominated by the smoke alarm manufacturer and if inaccessible to be rechargeable.

2.4 SEALED BATTERY - WIRELESS ALARMS

To NZS 4514, Power Supplies. Long-life (minimum 10 years), non-removable, sealed batteries.

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.

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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 COMPATIBILITY

Confirm all interconnected devices are compatible.

Installation - generally

3.5 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.6 LOCATION & SPACING

Location and spacing of smoke alarms to NZS 4514. Install smoke alarms within 10m of each other and a maximum of 5m away from any wall.

3.7 AUDIBLE ALARM

Install smoke alarms so that audible alarm sound pressure level when measured at 1.8m height is between 75dB(A) and 110dB(A) to NZS 4514, Alarm Signals.

3.8 POWER SUPPLY

Connect hard wired alarms to either permanently energised 230VAC mains fed from permanently energised (unswitched) circuit i.e. lighting or to external direct current (DC) power supply maintained from 230VAC mains to NZS 4514, Power Supplies.

Installation - smoke alarm system

3.9 INSTALL CABLES

Install smoke alarm system's hard wiring to AS/NZS 3000, NZS 4514 and manufacturer's instructions.

3.10 INSTALL BATTERIES

Install primary and secondary batteries to NZS 4514 and manufacturer's instructions. Indelibly mark batteries with the date of installation.

3.11 INSTALL ALARMS

Install alarm devices to manufacturer's instructions fitted neatly and without damage to the surrounding finish using brackets and mounts supplied or recommended by the manufacturer.

3.12 INTERCONNECT

Interconnect devices so that when one activates all alarms sound.

Completion & Commissioning

3.13 COMPLETION MATTERS

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

3.14 COMPLETION - TESTS & CERTIFICATION

Refer to 1270 CONSTRUCTION for general test and certification requirements at completion.

Completed smoke alarm system to be inspected, tested and where required for electrical installations certified to NZS 4514, including (but not limited to):

- Correct location of alarm devices
- Correct sound pressure level of audible alarm signals
- Correct installation to manufacturer's installation instructions
- Correct and fault free operation of the smoke alarm system and interconnected devices

4 SELECTIONS

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



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Alarm devices

4.1 MULTI-SENSOR SMOKE ALARM

Location:	Living Room, Hallway, Bedrooms
Brand:	TBC
Type:	Multi-sensor smoke alarm
Sensor:	Photoelectric smoke & heat sensor, or the like
System:	Wireless, or Hard wired
Compliance:	NZS 4514



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7411MA MARLEY RAINWATER DISPOSAL SYSTEMS

1 GENERAL

This section relates to **Marley** rainwater disposal systems.
It includes;

- uPVC spouting and downpipes
- Stratus Design Series® spouting and downpipes
- associated accessories necessary to complete the installation

Documents

1.1 DOCUMENTS

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

NZBC E1/AS1	Surface water
AS/NZS 3500.3	Plumbing and Drainage - Stormwater drainage
AS/NZS 4020	Testing of products for use in contact with drinking water

1.2 MANUFACTURER/SUPPLIER DOCUMENTS

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

Marley Rainwater Sales Brochures
Marley Product Catalogue
Marley - Spouting and Downpipe DIY Installation Guide
Marley Stratus Design Series® Sales brochure
Marley Stratus Design Series® - Design and installation guide

Manufacturer/supplier contact details

Company:	**Marley New Zealand Limited**
Web:	www.marley.co.nz
Email:	info@marley.co.nz
Telephone:	0800 MARLEY (0800 627 539)

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier Guarantee:

15 years:	Against defects in material and manufacture

- Commence the guarantee from the date of purchase
- Refer to Marley NZ Guarantee available at www.marley.co.nz

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.4 QUALIFICATIONS

Installers to be experienced, competent workers familiar with the materials and techniques specified.

1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified Marley systems, components and associated products listed in this section.

Performance

1.6 TEST

Test the completed Marley rainwater disposal system with water to ensure, spouting is laid to correct fall, that both spouting and downpipes are unobstructed and that no ponding occurs in spouting.

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1.7 DESIGN - NZBC E1/AS1

Layout, falls and capacity of spouting to falls and the size and position of downpipes to comply with NZBC E1/AS1.

1.8 DESIGN - AS/NZS 3500.3 & NZBC E1/AS2

Layout, falls and capacity of spouting to falls and the size and position of downpipes to comply with AS/NZS 3500.3 as modified by NZBC E1/AS2.

2 PRODUCTS

Materials

2.1 STRATUS DESIGN SERIES® SPOUTING/DOWNPIPES

Marley Stratus Design Series® spouting and downpipe systems in co-extruded colour outer layer with grey uPVC internal layer.

Products

2.2 MARLEY SPOUTING

Marley spouting system, complete with Marley fittings including jointers, brackets, expansion outlets, end caps and corners supplied by Marley. Refer to SELECTIONS for type.

2.3 MARLEY DOWNPIPES

Marley downpipe system, complete with Marley fittings including bends, clips, joiners and junctions supplied by Marley. Refer to SELECTIONS for type.

Components

2.4 MARLEY MCS SOLVENT WELDING CEMENT

Only Marley MCS® Solvent Welding Cement to be used in conjunction with the spouting and downpipe systems to manufacturer's instructions. Colour match to spouting or downpipes.

2.5 EXPANSION OUTLET/DROPPERS

Marley expansion outlet/droppers, compatible with spouting and downpipe profile.

2.6 SCREW FIXINGS - TIMBER FASCIA

Stainless steel, grade 304 finish, self tapping screws 6g x 20mm pan head or wafer head.

2.7 NAIL FIXINGS - TIMBER FASCIA

Marley galvanised nails (MCNAILS).

2.8 FABRICATION

Special items can be fabricated by Marley to specific dimensions on request including but not limited to angle flats, angle rakes, outlets and adaptors.

3 EXECUTION

Conditions

3.1 HANDLING AND STORAGE

Handle and store Marley downpipes, spouting and accessories to avoid damage. Store on site under cover, on a clean level area, stacked to eliminate movement and away from work in progress. Store out of direct sunlight. Refer to Marley installation guides for further details.

3.2 SUBSTRATE

Check that fascias, barges or cladding are level and true to line and face and will allow work of the required standard without distortion to the product alignment. Do not proceed until they are up to standard.

3.3 THERMAL MOVEMENT

Make adequate provision in the jointing of the spouting for thermal movement in the length of the spouting by using Marley expansion joiners and/or expansion outlets. Refer to Marley expansion technical information.

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3.4 ENVIRONMENTAL

Marley Spouting and Downpipe systems are suitable for most environmental conditions and will never rust, rot or corrode.

3.5 RECYCLING

All Marley manufactured spouting and downpipe systems are 100% recyclable and Marley operates recycling programs with industry suppliers where uPVC pipes can be returned from site for recycling at Marley.

Application

3.6 INSTALL MARLEY SPOUTING

Install to Marley's current published installation instructions available at www.marley.co.nz. Ensure only Marley MCS® Solvent Welding Cement to be used in conjunction with the spouting systems to manufacturer's instructions. From high points fix brackets true-to-line to give a fall of 5mm every 10 metres to outlets. Set spouting brackets at 500mm centres; reduce to 300mm spacing for high wind zones or areas subject to occasional snowfalls. Make adequate provision for thermal movement.

3.7 INSTALL MARLEY DOWNPIPES

Install to Marley's current published installation instructions available at www.marley.co.nz. Ensure that all joints are sealed properly using Marley MCS® Solvent Welding Cement. Assemble downpipes, solvent cement jointed complete, fit to outlets, fix with pipe clips every 1.2 metres, fix pipe clips with 304 stainless steel screws, plumb and discharging into the stormwater gully or pipe inlet to the Marley required practice.

Completion

3.8 REPLACE

Replace damaged or marked elements.

3.9 LEAVE

Leave the whole of this work discharging completely and freely into the stormwater system and free of all debris. Leave work to the standard required by following procedures.

3.10 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

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

Stratus Design Series®

4.1 MARLEY STRATUS DESIGN SERIES® SPOUTING - TYPHOON®

Manufacturer:	Marley
Profile/type:	Marley Typhoon® half-round
Size:	133mm
Cross section:	6100mm²
Bracket type:	Internal
Colour:	See Exterior Colour Schedule

4.2 MARLEY STRATUS DESIGN SERIES® DOWNPIPES

Manufacturer:	Marley
Type:	RP80® downpipe
Profile:	Round profile
Size:	80 mm round
Bracket type:	Pipe Clip - 2 part
Colour	To match gutter

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7421 SANITARY SYSTEMS

1 GENERAL

This section relates to above ground gravity flow sanitary systems;

- for foul water
- from sanitary fixtures to first underground drain connection
- including system wastes, floor wastes, floor waste gullies, traps, vents and valves
- with associated components and accessories to make the system work

1.1 RELATED SECTIONS

Refer to 7150 SANITARY FIXTURES, TAPWARE & ACCESSORIES for sanitary fixtures.

Refer to 7123 HOT AND COLD WATER SYSTEM for potable water systems.
Refer to 7431 DRAINAGE COMMON REQUIREMENTS for underground drains.
Refer to 7142 GREYWATER SYSTEMS for greywater systems.

Documents

1.2 DOCUMENTS

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

NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
NZBC G1/AS1	Personal hygiene
NZBC G13/AS1	Foul water - Sanitary plumbing
NZBC G13/AS3	Foul water - Sanitary plumbing and drainage
AS 1589	Copper and copper alloy waste fittings
AS 2887	Plastic waste fittings
AS/NZS 1260	PVC-U pipes and fittings for drain, waste and vent applications
AS/NZS 2032	Installation of PVC pipe systems
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3500.2	Plumbing and drainage - Sanitary plumbing and drainage
AS/NZS 4401	Plastic piping systems for soil and waste discharge (low and high temperature) inside buildings - polyethylene (PE)
AS/NZS 7671	Plastic piping systems for soil and waste discharge (low and high temperature) inside buildings - Polypropylene (PP)
BS EN 1124 .1	Pipes and fitting of longitudinally welded stainless steel pipes with spigot and socket for waste water systems. Requirements, testing, quality control.
BS EN 1124 .2	Pipes and fitting of longitudinally welded stainless steel pipes with spigot and socket for waste water systems. System S, forms and dimensions.

Plumbers, Gasfitters and Drainlayers Act 2006

Requirements

1.3 QUALIFICATIONS

Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a certifying plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

1.4 OPERATION AND MAINTENANCE MANUALS

Supply maintenance manual information to requirements set out in the 1239 OPERATION & MAINTENANCE section.

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Performance

1.5 TESTING

Confirm timing before carrying out any tests. Supply potable water and apparatus needed. Test to NZBC G13/AS1, 7.1 Test Methods or AS/NZS 3500.2, section 15 Testing of Sanitary Plumbing and Sanitary Drainage Installations, as required. Carry out and record a visual inspection that each joint showed no evidence of leaks.

2 PRODUCTS

Materials

2.1 COPPER PIPES AND TRAPS

To NZS 3501 for pipes and AS1589 for fittings.

Pipes complete with copper-alloy compression fittings and/or crox type joints and seal ring compression joints. Traps complete with screwed access ports. Exposed traps and wastes, complete with matching ferrules at penetration location, satin chrome plated.

2.2 PVC-U WASTE PIPES AND TRAPS

To AS/NZS 1260, complete with fittings and accessories to the pipe manufacturer's requirements, all brand matched.

2.3 PVC-U VENT PIPE

To AS/NZS 1260, complete with fittings and accessories to the pipe manufacturer's requirements and all brand matched.

2.4 EXPOSED PLASTIC PIPES AND TRAPS

Plastic traps and fittings to AS 2887.

Refer to 7150 SANITARY FIXTURES, TAPWARE & ACCESSORIES for locations and types of traps.

2.5 CHROME EXPOSED PIPES AND TRAPS

Chrome plate on copper pipes and associated copper and brass fittings, or chromed plastic.

Refer to 7150 SANITARY FIXTURES, TAPWARE & ACCESSORIES for locations and types of traps.

2.6 FLOOR WASTES

Floor wastes and floor waste gullies to AS/NZS 3500.2, complete with chrome grates to suit flooring.

Components

2.7 PROTECTIVE TAPE

Plasticised PVC tape system with primer, mastic fixing and outer coating.

3 EXECUTION

Conditions

3.1 EXECUTION GENERALLY - AS/NZS 3500.2

Carry out this work to AS/NZS 3500.2, as modified by NZBC G13/AS3, and complete all tests to AS/NZS 3500.2, section 15 Testing of Sanitary Plumbing and Sanitary Drainage Installations.

3.2 ELECTROLYTIC ACTION

Avoid electrolytic action by eliminating actual contact or continuity of water between dissimilar metals.

3.3 EQUIPOTENTIAL BONDING METALLIC WASTE PIPES

Before enclosing, co-ordinate with electrician to provide for equipotential bonding to ensure metallic waste pipes connected to metallic drains and attached metallic sanitary fixtures, using an earth bonding conductor to requirements of AS/NZS 3000, 5.6 Equipotential bonding.

3.4 HANDLE AND STORE

Handle and store pipes, fittings and accessories to avoid damage. Store on site under cover on a clean level area, stacked to eliminate movement and away from work in progress.

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3.5 SETTING OUT

Set out location of all stacks, discharge pipes, fittings and vent pipes and the completeness of their discharge into the drainage system.

3.6 CORE HOLES AND SLEEVES

Fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Sleeve diameter to be 25mm larger than outside diameter of pipe accommodated. Strip core holes and make good after installation of pipework.

3.7 PIPE ACCESS

Fit and fix stacks, wastes and pipes in ducts independent of all other services so they are easily replaceable for their full length. Wrap or tape pipes buried in concrete.

3.8 FITTINGS ACCESS

Fit and fix traps and wastes to enable access for cleaning and for maintaining the total system.

3.9 CONFIRM LOCATIONS

Unless the location and height are clearly delineated on the drawings, confirm installation height and plan locations of sanitary fittings before commencing the piping installation.

3.10 TRAPS AND WASTES

Conceal traps and wastes in the fabric of the building unless detailed otherwise. Fit and fix satin chrome plated exposed pipes, traps and wastes unless detailed otherwise.

Refer to 7150 SANITARY FIXTURES, TAPWARE & ACCESSORIES for locations and types of traps.

3.11 CORROSION

Separate metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips.

Application - jointing

3.12 JOINTING COPPER PIPE - AS/NZS 3500.2

Braze pipe, fit alloy compression fittings, crox type joints and seal ring compression joints to AS/NZS 3500.2, section 2.8 Joints.

3.13 JOINTING PVC-U PIPE

Prime and solvent weld joints using spigots and sockets, flanged joints and seal ring compression joints to AS/NZS 2032.

Application - fixing

3.14 THERMAL MOVEMENT

Accommodate longitudinal movement in pipes resulting from temperature changes. Incorporate expansion joints in copper and PVC-U pipes. Install PVC pipes to AS/NZS 2032. Take particular care to allow for movement at horizontal take-off locations from stacks.

3.15 TRAPS AND FIXTURE DISCHARGE PIPES - AS/NZS 3500.2

Size traps and pipes as required for each fixture or appliance. Establish the developed length of waste pipes. Vent and allow access for cleaning as required. Follow the most direct line with the least number of bends to AS/NZS 3500.2, table 3.3.1, for fixture loading and AS/NZS 3500.2, table 10.2.1, distance between supports.

3.16 DISCHARGE STACKS AND VENTS - AS/NZS 3500.2

Size stacks and vents to AS/NZS 3500.2, table 6.3(A), for fixture discharge pipe sizes and discharge units and AS/NZS 3500.2, table 3.9.3.1, vent pipe sizes. Extend up past the highest branch to form a discharge stack vent terminating to AS/NZS 3500.2, section 6.9 Vents, and finishing at the base with a 45 degree bend. Support system to AS/NZS 3500.2, table 10.2.1, for distances between supports.

3.17 FLASH ROOF PENETRATIONS

Flash or arrange for roofer to flash all penetrations to NZBC E2/AS1.

For profiled metal roofs, fit proprietary EPDM pipe collar flashings to NZBC E2/AS1, 8.4.12 Roof penetrations, and manufacturer's requirements.



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Completion

3.18 REPLACE

Replace damaged or marked elements.

3.19 LEAVE

Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following procedures.

3.20 REMOVE

Remove debris, unused materials and elements from site.

4 SELECTIONS

4.1 SANITARY SYSTEMS - COPPER PIPES AND TRAPS

Location:	HWC Tung dish
Manufacturer/Brand:	TBC

4.2 SANITARY SYSTEMS - PVC-U WASTE PIPES AND TRAPS

Location:	Interior walls, Under conc slab, First floor joists
Manufacturer/Brand:	TBC

4.3 SANITARY SYSTEMS - PVC-U VENT PIPE

Manufacturer:	TBC
Brand:	TBC

4.4 SANITARY SYSTEMS - FLOOR WASTES

Manufacturer:	TBC
Brand/type:	TBC
Grate/finish:	Circular/ chrome



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7431 DRAINAGE COMMON REQUIREMENTS

1 GENERAL

This section relates to common requirements to do with the supply and laying of gravity subsoil, surface water and foul water drains.

1.1 RELATED WORK

Refer to 7441 GROUNDWATER DRAINAGE for subsoil drainage

Refer to 7461 FOUL WATER DRAINAGE for waste/foul water drainage

Documents

1.2 DOCUMENTS

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

NZBC E1/AS1	Surface water
NZBC E1/AS2	Surface water
NZBC G13/AS2	Foul water
AS/NZS 3500.3	Plumbing and drainage - Stormwater drainage
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design
WorkSafe	Good Practice Guidelines - Excavation Safety

Plumbers, Gasfitters and Drainlayers Act 2006
Health and Safety at Work Act 2015
Health and Safety at Work (Hazardous Substances) Regulations 2017

Requirements

1.3 QUALIFICATIONS

Drainlayers to be experienced, competent and familiar with the materials and techniques specified. Carry out all work under the direct supervision of a certifying drainlayer under the Plumbers, Gasfitters and Drainlayers Act 2006.

1.4 INFORMATION FOR OPERATION AND MAINTENANCE

Supply maintenance manual information to requirements set out in the general section 1239 OPERATION & MAINTENANCE.

1.5 AS BUILT DOCUMENTS

Supply as-built drawings to requirements set out in the general section 1238 AS BUILT DOCUMENTATION.

Performance

1.6 SITE MEETING

Meet with the territorial authority drainage inspector to confirm the drainage layout in relation to site conditions. Confirm changes resulting and seek written site instruction before carrying out any work.

1.7 CHECK LOCATION

Check the location of existing on and off-site, private and public services with the network utility operator. Follow their requirements for safety and protection where laying drainage.

1.8 SITE CONDITIONS

Before starting work check on site the drainage layout, dimensions, levels and invert levels and ensure that line, level, falls and cover are correct.

1.9 ADJOINING PROPERTIES

Take precautions to protect adjoining property from damage or risk of damage arising from excavation and drainage work.

1.10 SAFETY

To the Health and Safety at Work Act 2015.

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Carry out excavation and trenching to WorkSafe, Good Practice Guidelines - Excavation Safety. Prevent material rolling into trenches.

1.11 EXPLOSIVES

Do not use explosives except with the written approval of the territorial authority / WorkSafe. Comply with their safety requirements and use construction blasters holding a current, appropriate Approved Handler Certificate and Controlled Substance Licence issued by WorkSafe, to the Health and Safety at Work (Hazardous Substances) Regulations 2017.

1.12 TESTS

Using the method agreed with the territorial authority inspector, test and inspect pipelines before backfilling to ensure required acceptance levels are achieved. Test again after backfilling to confirm acceptance levels and for final acceptance of the works.

Refer to RELATED WORK sections for specific requirements.

1.13 RECORDS

Records to be kept of all tests.

2 PRODUCTS

2.1 PRODUCTS

Refer to the RELATED WORK sections for products.

3 EXECUTION

Application

3.1 EXCAVATION

Open not more than 120 metres of trench at any one time. Excavated trench to a minimum width of pipe diameter plus 300mm. Do not batter or cut the trench wider above the top of the pipe.

For deep excavation, trench width to be sufficient to provide safe access and to accommodate shoring to WorkSafe, Good Practice Guidelines - Excavation Safety. Width of bottom of trench up to 300mm above top of pipe to be pipe diameter plus 300mm.
Maintain free of water and free of all falling material.

3.2 TRENCHING - PARALLEL TO FOUNDATIONS TO NZS 3604 OR NZS 4229

Trenches running parallel, below and close to foundations of buildings to NZS 3604 or NZS 4229 to be separated to:

- NZBC E1/AS1, 3.9.7, Proximity of Trench to Building, for stormwater and subsoil drains.
- AS/NZS 3500.3, 6.2.8, Installation near and under buildings, as modified by NZBC E1/AS2.
- NZBC G13/AS2, 5.6, Proximity of Trench to Building, for foul water drains.

3.3 TEMPORARY BRIDGES

Provide temporary bridges over trenches to prevent heavy construction traffic damaging pipes after backfilling.

3.4 CLEAN

Clean and flush out the whole installation and remove all silt and debris before handing over.

Completion

3.5 REPLACE

Replace damaged or marked elements.

3.6 LEAVE

Leave work to the standard required by following procedures.

3.7 REMOVE

Remove debris, unused materials and elements from the site.



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7461 FOUL WATER DRAINAGE

1 GENERAL

This section relates to below ground, non-pressure foul water pipework complete with all maintenance access and fittings and connected to network utility operator sewers.

1.1 RELATED WORK

Refer to 7431 DRAINAGE COMMON REQUIREMENTS for general matters

Refer to 7421 SANITARY SYSTEMS for above ground pipework

Documents

1.2 DOCUMENTS

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

NZBC G13/AS2	Foul water - Drainage
NZBC G13/AS3	Foul water - Sanitary plumbing and drainage
AS/NZS 1260	PVC-U pipes and fittings for drain, waste and vent applications
AS/NZS 2032	Installation of PVC pipe systems
AS/NZS 2033	Installation of Polyethylene pipe systems
AS/NZS 2566.1	Buried Flexible Pipelines - Structural Design
AS/NZS 2566.2	Buried Flexible Pipelines - Installation
NZS 3104	Specification for concrete production
AS/NZS 3500.2	Plumbing and drainage - Sanitary plumbing and drainage
AS/NZS 4058	Precast concrete pipe (pressure & non pressure)
NZS 4229	Concrete masonry buildings not requiring specific engineering design
AS/NZS 4671	Steel reinforcing materials
AS/NZS 5065	Polyethylene and polypropylene pipes and fittings for drainage and sewerage applications
BS EN 1124 .1	Pipes and fitting of longitudinally welded stainless steel pipes with spigot and socket for waste water systems. Requirements, testing, quality control.
BS EN 1124 .2	Pipes and fitting of longitudinally welded stainless steel pipes with spigot and socket for waste water systems. System S, forms and dimensions.

Performance

1.3 TESTING

Confirm timing before carrying out any tests. Supply potable water and apparatus needed. Test to NZBC G13/AS2,6.1 Testing or AS/NZS 3500.2, section 15 Testing of Sanitary Plumbing and Sanitary Drainage Installations, as required. Carry out and record a visual inspection that each joint showed no evidence of leaks.

2 PRODUCTS

Materials

2.1 PVC-U PIPES AND FITTINGS

Unplasticised PVC pipe and fittings to AS/NZS 1260, buried pipes classified as follows:

Classification	Use
SN4 - SN6	Domestic & light load areas
SN8 - SN10	Commercial & Industrial medium load areas
SN16	Public roads & high load areas

2.2 GULLY TRAPS - NZBC G13/AS2

Gully traps complete with grating to NZBC G13/AS2, 3.3 Gully traps.

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2.3 INSPECTION CHAMBERS - NZBC G13/AS2

Circular precast concrete or plastic to NZBC G13/AS2, 5.7 Access points, complete with cast iron lid and frame. All joints watertight (base/pipes, base/riser, riser/riser, riser/lid, lid throat and throat/frame). Use epoxy mortar joints in concrete chambers. Use ring seals in plastic chambers.

Accessories

2.4 TRENCH BACKFILLING MATERIAL - NZBC G13/AS2

Bedding and backfilling material to NZBC G13/AS2, 2.0 Materials, or methods shown in NZBC G13/AS2, figure 7, Bedding and backfilling.

2.5 TRENCH BACKFILLING MATERIAL - AS/NZS 3500.2

Bedding and backfilling material to AS/NZS 3500.2, 5.4, Bedding of drains, and for concrete, if required, AS/NZS 3500.2, 5.3 Concrete Support.

2.6 CONCRETE

To NZS 3104.

Prescribed mix 17.5 MPa:	For in situ bases, anchors and pipe surrounds.
Prescribed mix 14 MPa:	For bedding only.

3 EXECUTION

Conditions

3.1 EXECUTION GENERALLY - NZBC G13/AS2

Carry out this work to NZBC G13/AS2 and NZBC G1/AS1 and complete all tests to G13/AS2, 6.1 Testing.

Bedding, backfilling and encasement

3.2 TRENCH BACKFILLING GENERALLY - FOUL & SURFACE WATER

Granular bedding and selected fill shall be placed in layers no greater than 100 mm loose thickness and compacted. Base bedding (beneath the pipe) shall be placed and compacted before pipes are laid. Up to 300mm above the pipe, compaction shall be by tamping by hand tool over the entire surface of each layer to produce a compact layer without obvious voids, without disturbing or distorting the drain. Run marker tape along line of the pipe on top of the bedding.

More than 300 mm above the pipe, compaction shall be by at least four passes of a mechanical tamping foot compactor (whacker type) with a minimum weight of 75 kg. For plastic based pipes, ensure care taken to avoid impact loading of the pipe.

3.3 FOUL WATER TRENCH BACKFILLING - NZBC G13/AS2

Carry out foul water trench backfilling to NZBC G13/AS2, 5.3 to 5.5 and fig 7.

UPVC pipe to AS/NZS 2032 and polyethylene pipes to AS/NZS 2033.

3.4 FOUL WATER TRENCH BACKFILLING - AS/NZS 3500.2

Carry out foul water trench backfilling to AS/NZS 3500.2, 5.1, 5.2 and 5.5 as modified by NZBC G13/AS3.

UPVC pipe to AS/NZS 2032 and polyethylene pipes to AS/NZS 2033.

3.5 CONCRETE ENCASEMENT

Concrete encase shallow drains and drains under driveways, on a 100mm deep 17.5 MPa concrete bed reinforced with three 10mm mild steel bars. Surround pipes with a polythene membrane to allow movement and encase in 100mm 17.5 MPa concrete.

Application

3.6 SETTING OUT

Use string line, boning rod or laser equipment methods. Use surveying and levelling equipment to accurately set out design invert levels.



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3.7 LAYING AND JOINTING

Lay in straight lines between changes of line or grade from the lower end of the drain with sockets pointing uphill. Set each pipe true to line and grade and each joint completed before the next pipe is laid. Install PVC-U pipes to AS/NZS 2032 or AS/NZS 2566.1 and AS/NZS 2566.2. Install polyethylene Pipes to AS/NZS 2033. Cap ends of uncompleted runs each day to prevent entry of foreign matter. Test drains and backfill progressively to minimise site disruption. Concrete cap trenches to drains with less than 375mm cover.

3.8 LAYING FOUL WATER DRAINS

Lay the drainage system from soil stacks and gully traps, including access chambers, inspection chambers, bends, junction inspections, and vents (fresh air inlets). Discharge into the network utility operator foul water system to their requirements.

3.9 DIFFERENTIAL SETTLEMENT

Provide flexible jointing, bedding and surrounding of pipes at junctions with manholes, foundation walls and other points where differential settlement may occur.

Application - fittings

3.10 CONSTRUCT GULLY TRAPS - NZBC G13/AS2

Set in a minimum 75mm thick concrete with top surround 25mm above paving and 100mm above other surfaces, to NZBC G13/AS2, 3.3 Gully traps.

3.11 CONSTRUCT INSPECTION CHAMBERS - NZBC G13/AS2

Construct as detailed on a poured concrete footing to NZBC G13/AS2, 5.7 Access points. Provide all necessary haunching to channels.

Application - connections

3.12 CONNECTION TO FOUL WATER - PUBLIC MAINS

Locate, excavate and expose the existing drain, connect new pipework to existing drain to the requirements of the network utility operator.

3.13 CONNECTION TO FOUL WATER - PUBLIC MAINS ACCESS CHAMBER

Locate, excavate and break into the existing chamber, modify as necessary and connect new pipes to the requirements of the network utility operator.

4 SELECTIONS

4.1 GULLY TRAPS

Manufacturer:	TBC
Material:	PVC
Type:	Gully Trap 100mm adjustable

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7701 ELECTRICAL BASIC

1 GENERAL

This section relates to the wiring for domestic and small scale commercial installations, including:

- power
- lighting
- electrical automation
- security system
- complete with componentry
- electrically-powered fittings
- fire rated sealers, liners and accessories

1.1 RELATED WORK

Refer to ~ for ~.

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

AFDD	Arc Fault Detection Device
COC	Certificate of Compliance
ELV	Extra Low Voltage
IP	international (ingress) protection classification
MCB	Miniature circuit breakers
NUO	Network Utility Operator
PCB	printed circuit board
RCCB	Residual Current-operated Circuit Breaker
RCD	Residual Current Device
SIA	security integration architecture
TCF	Telecommunications Carriers' Forum

Documents

1.3 DOCUMENTS

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

NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
NZBC F6/AS1	Visibility in escape routes
NZBC F8/AS1	Signs
NZBC G4/AS1	Ventilation of buildings
NZBC G9/AS1	Electricity
AS/NZS 1125	Conductors in insulated electric cables and flexible cord
AS/NZS 2201.1	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
AS 2293.1:2005	Emergency escape lighting and exit signs for buildings - System design, installation and operation
AS 2293.3:2005	Emergency escape lighting and exit signs for buildings - Emergency escape luminaires and exit signs
AS/NZS 2648.1	Underground marking tape - Non-detectable tape
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3008.1.2	Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical New Zealand installation conditions
AS/NZS 3111	Approval and test specification - Miniature overcurrent circuit-breakers
AS/NZS 3112:2017	Approval and test specification - Plugs and socket-outlets

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AS/NZS 3113	Approval and test specification - Ceiling roses
NZS 3604	Timber framed buildings
NZS 4246	Energy Efficiency - Installing bulking thermal insulation in residential buildings
AS/NZS 5000.2	Electric cables - Polymeric insulated - for working voltages up to and including 450/750v
AS/NZS 60898	Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations - Series
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance.
AS/NZS 61439.3	Low-voltage switchgear and controlgear assemblies - Part 3: Distribution boards intended to be operated by ordinary persons (DBO).
IEC 61008.1	Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) - Part 1: General rules
IEC 61009.1	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) - Part 1: General rules
IEC 61643	Components for low voltage surge protection devices
IEC 62423	Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses
IEC 62606	General requirements for arc fault detection devices

Electricity (Safety) Regulations 2010
NZ Telecommunications Forum (TCF) Premises Wiring Guidelines
Private Security Personnel Investigations Act 2010

Warranties

1.4 WARRANTY

Warrant the complete electrical installation under normal environmental and use conditions against failure of materials and execution.

1 year:	Warranty period

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

Requirements

1.5 COMPLY

Comply with the Electricity (Safety) Regulations 2010, AS/NZS 3000, AS/NZS 3008.1.2, and TCF Premises Wiring Guidelines for listed and prescribed work and with the utility network operator's requirements. Apply for the service connection. Arrange for the required inspections of listed work. Pay all fees.

1.6 QUALIFICATIONS WORKERS – LICENSED UNDER STATUTE

Electrical workers holding a current Practising Licence (with an appropriate Registration class) to carry out prescribed electrical work. An Electrical Worker who holds a Trainee Limited Certificate or a Limited Certificate to be supervised by a licensed electrical worker with an appropriate Registration class.

Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.7 CONFIRM SELECTIONS

Confirm selections of all outlet fittings and hardware with the owner in writing before ordering.

1.8 ELECTRICAL CERTIFICATE OF COMPLIANCE

At the completion of electrical work provide a Certificate of Compliance (CoC) to Electricity (Safety) Regulations 2010, regulation 65-67. Provide a copy to the Contract Administrator and NUO prior to connection and when required to the BCA for Code Compliance.

- Arrange for the NUO to inspect before the meter installation, listed work inspection, polarity check and supply becoming live.
- Arrange for an inspector to inspect high risk electrical work as required by Electricity (Safety) Regulations 2010, regulation 70 High-risk prescribed electrical work to be inspected.

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1.9 ELECTRICAL SAFETY CERTIFICATE

Provide an Electrical Safety Certificate (ESC), as required by the Electricity (Safety) Regulations 2010, Reg 74A, to the Contract Administrator and when required the BCA. To be provided no later than 20 working days after connection and prior to Practical Completion.



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2 PRODUCTS

2.1 MAINS SUPPLY

Tough plastic sheathed neutral screened cable to AS/NZS 5000.2 and AS/NZS 3008.1.2, with a minimum rating of 60 amps per phase. Include pilot cable where required by network utility company.

2.2 CABLES

Tough plastic sheathed copper conductors to AS/NZS 5000.2, stranded above 1.0mm², and to AS/NZS 3008.1.2. Minimum sizes as below. Increase sizes if the method of installation, thermal insulation, cable length or load will reduce the cable rating below that of the MCB rating, or produce an excessive voltage drop.

Lighting circuits:	Domestic: 1.5mm² on 10 amp MCBs
Lighting circuits:	Commercial: 1.5mm² on 16 amp MCBs
Power circuits:	2.5mm² on 16 amp MCBs for domestic and unenclosed or unfilled cavity construction
	2.5mm² on 16 amp MCBs for domestic insulated construction, or filled cavity
	2.5mm² on 20 amp MCBs for unenclosed or unfilled cavity construction
	2.5mm² on 16 amp MCBs for insulated construction, or filled cavity, or lengths over 30 metres
Hot water cylinder circuits:	Single phase: 2.5mm² on 20 amp MCBs
Range/oven/hob circuits:	Single phase: 6mm² high temperature cable on 32 amp MCBs

Heat resistant cable for final connections to all heated appliances, and high temperature cable in ambient conditions that may be above 35°C (roof spaces above insulation etc).

2.3 METER BOX

Proprietary manufactured, zinc plated powder coated metal case, or ABS plastic, with glazed panel door, weatherproof where mounted outdoors, and complete with meter mounting, main switch and fuse.

2.4 DISTRIBUTION BOARD

Flush surface mount boards manufactured to AS/NZS 61439.3, and installed in accordance with AS/NZS 3000, 2.10 Switchboards. Complete with neutral and earth busbars, and insulated comb phase bar. Distribution boards to have 20% spare capacity for future additions and alterations.

2.5 CIRCUIT PROTECTION

General requirements including main switch 63A or 100A to AS/NZS 3000, 2.3.3 Main Switches and additional isolating switches to AS/NZS 3000, 2.3.4 Additional isolating switches.

Residual current protection, maximum sensitivity of 30mA, to AS/NZS 3000, 2.6 Additional Protection by Residual Current Devices, as modified by Electricity (Safety) Regulations 2010. RCD and RCCBs' to meet Type A to IEC 61009.1 / IEC 61008.1 or Type F or Type B RCD to IEC 62423.

Miniature Circuit Breakers (MCB) to AS/NZS 60898 series or AS/NZS 3111, 4.5kA domestic or 6kA for commercial.

2.6 SURGE PROTECTION

Provide surge protection device(s) to AS/NZS 3000, Appendix F Surge Protection Devices. Protection for the home's appliances with IEC 61643 Class ll surge protection devices fitted to the switchboard. For variable electronic equipment fit IEC 61643 Class lll surge protection to switched socket outlets.

2.7 WALL BOXES

Standard grid size or equivalent to be manufactured from plastic or metal, with 2 or more gang size to be metal with steel inserts for accessory securing screws. Screw fixed.

2.8 SWITCH UNITS

Single pole switches to be 10 amp minimum rated, double pole or intermediate to be 16 amp minimum rated. All switches to be 230 volt a.c. polycarbonate flushplate units.
Label all switch units that control electrical equipment or special lighting circuits by proprietary engraved switch mechanisms where applicable.

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Refer to drawings/schedules for number of switches per unit, dimmer units, neon (indicator or toggle) units and 2 way units.
Refer to SELECTIONS.

2.9 SWITCHED SOCKET UNITS

To AS/NZS 3000, 4.4 Socket-Outlets, 10 amp, 230 volt flat 3 pin socket outlets fitted with safety shutters to AS/NZS 3112 clause 3.12 as modified by Electricity (Safety) Regulation, single or multi gang as detailed. Refer to SELECTIONS.

2.10 CEILING ROSES

White plastic mounting base with screwed cover, manufactured to AS/NZS 3113. Terminal type. Suspended fittings to have sheathed round flexible cord to AS/NZS 3008.1.2. Refer to SELECTIONS.

2.11 HOT WATER SYSTEM ISOLATION SWITCH

To AS/NZS 3000, 4.8.2 Water heaters, one way 20 amp switch complete with cable clamp for flexible PVC conduit to element enclosure.

2.12 BATTEN HOLDERS

Standard white plastic bayonet cap, with cap angled where wall mounted. Brass liners.

2.13 DOOR BELL SYSTEM

Complete with transformer for mounting on distribution board. Refer to SELECTIONS.

2.14 LIGHT FITTINGS

To AS/NZS 3000, 4.5 Lighting Equipment and Accessories and if required, complete with lamps and, if required, transformer and control gear for dimming. Refer to SELECTIONS.

2.15 RECESSED LIGHT FITTINGS - RESIDENTIAL

Residential recessed light fittings to AS/NZS 3000, 4.5.2.3.5:

- Existing fittings or retrofit situations, fittings maybe unmarked.
- New fittings can only be labelled - CA 80, CA 90, CA 135, IC, IC-F, & IC-4.

Refer to SELECTIONS.

2.16 SPACE HEATERS

Fixed wired room heaters radiant or convector, and compliant with Electrical (Safety) Regulations 2010, Schedule 4, 1 Household & similar appliances. Flush or surface mount, fitted with safety cut-outs. Refer to SELECTIONS

2.17 EXHAUST FANS

Ceiling, wall or duct mounted exhaust fans for ventilation to NZBC G4/AS1, and compliant with Electrical (Safety) Regulations 2010, Schedule 4, 1 Household & similar appliances. Refer to SELECTIONS.

2.18 HEATED TOWEL RAILS

Fixed wired heated towel warmers, IPX4 splash-proof, compliant with Electrical (Safety) Regulations, Schedule 4, 1 Household & similar appliances. Refer to SELECTIONS.

2.19 EXTERIOR SWITCHES AND SWITCHED SOCKET UNITS

Exterior grade, weather protected, switches and sockets to IP56 minimum. Sockets fitted with safety shutters behind socket pins, and all products able to be padlocked off or on. Refer to SELECTIONS.

2.20 EXTERIOR LIGHT FITTINGS

Using materials with superior UV protection, impact strength, and addition chemical resistance.

Weather protection minimums:

- IP54 for protected areas under eaves or verandahs etc.
- IP55 for exposed areas not subject to pressurised water (hoses).
- IP66 for areas subject to pressurised water or major splashing.
- IP67 for inground lights
- IP68 for submerged pool fittings

Refer to SELECTIONS.

2.21 WALL BOXES AND SWITCH UNITS - FIRE RATED

Proprietary intumescent pad for plastic electrical sockets installed in plasterboard lined fire rated partitions providing an acoustic barrier and fire protection. Refer to SELECTIONS.

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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.

Installation

3.3 MAIN SUPPLY

Lay underground mains to the NUO and AS/NZS 3000, 3.11 Underground Wiring Systems requirements. Excavate trench, ensure minimum depth of cover to AS/NZS 3000 Table 3.6 Under-Ground Wiring Systems - Minimum Depth of Cover, install cable and marker tape complying with AS/NZS 2648.1 and backfill. If required, provide permanent cable marker signs to indicate the point where a cable enters or leaves a structure.

3.4 METER BOX

Fit to meter box manufacturer and Electricity Retailer requirements. Recess into external wall in sheltered area and flash to weatherproof to NZBC E2/AS1, Figure 9.1.8.3B: General meterbox and similar penetrations. Arrange for meter installation and connection.

3.5 DISTRIBUTION BOARD

Fit to AS/NZS 3000, 2.10 Switchboards and board manufacturer requirements. Recess into wall or surface mount and ensure fire containment properties of the enclosure are maintained.

3.6 CIRCUIT BREAKERS

Install MCBs at distribution board to AS/NZS 3000 to protect each final sub circuit.

3.7 EARTHING CONDUCTIVE STRUCTURE & MATERIALS

Earth all at risk structural metalwork and conductive building materials to AS/NZS 3000, 5.4.6, and the Electricity (Safety) Regulations 2010.

If they form part of the building, this includes:

- Structural steel frames or members
- Light steel framing
- Exposed conductive materials, like metal sink/tub or vanity benches etc, with attached electrical units or equipment

3.8 EQUIPOTENTIAL BONDING

Equipotential Bond extraneous conductive parts together and to the electrical installation earthing system to AS/NZS 3000, 5.6, and the Electricity (Safety) Regulations 2010 and the fitting manufacturer requirements.

If they form part of the building, this includes:

- Conductive water piping (including tap etc) and exposed related connected conductive surfaces (like metal sink benches or metal cladding etc). Not required where isolated by non-conductors (plastic pipe etc) from the mass of earth.
- Other conductive piping (not earthed by other means) and exposed related connected conductive surfaces.
- Concrete reinforcing - for floor or wall forming part of a room with a shower or bath, or the shell and surround of a swimming/spa pool
- Built-in Swimming pool and spa pool - exposed conductive parts of electrical equipment, as well as exposed conductive, fixtures, fittings and pool structures within 1.25m of pool edge

3.9 MAIN EARTH

Install main earthing conductor to AS/NZS 3000, 5.5.1 Main Earthing conductor. Provide a plastic toby box to contain and protect the earth electrode. Fix the connecting earth wiring closely and securely against wall surfaces.



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3.10 ARC FAULT DETECTION DEVICE (AFDD)

To AS/NZS 3000 clause 2.9, AFDD on all final sub-circuits not exceeding 20A. Install to AS/NZS 3000, Appendix O, Installation of Arc Fault Detection Devices (AFDD'S)

3.11 SURGE PROTECTION

Install surge protection devices to manufacturer requirements and in accordance with AS/NZS 3000, Appendix F, F1.2.2 Installation.

3.12 RCD - RESIDENTIAL INSTALLATIONS

Install 30mA RCD protection at the switchboard for all final sub circuits to control outlets (except for fixed or stationary cooking equipment), lighting & directly connected handheld electrical equipment, to AS/NZS 3000, 2.6.3.3.1 Residential installations - New Zealand only.

3.13 RCD - DAMP SITUATIONS

Install 30-mA RCD protection as required to AS/NZS 3000, section 6 for damp situations, including in the following higher risk areas:

- Wet areas: bathrooms, laundries, kitchens.
- Near pools and water features.
- Where intended for use with cleaning equipment.

3.14 SET-OUT - OUTLETS & EQUIPMENT

The position of outlets and equipment shown on drawings is indicative of requirements. Confirm documents and site conditions are not in conflict with other services or features. Resolve conflicts and discrepancies before proceeding with work affected. Confirm on site the exact location, disposition and mounting heights of all outlets, fittings, equipment, penetrations, and use of exposed wiring. Fix outlet items level, plumb and in line.

3.15 CABLING

Install wiring systems to AS/NZS 3000, Section 3 Selection and Installation of Wiring Systems. All cabling run concealed fix in position by suitable clips, saddles or clamps. Where possible, run cabling horizontally / vertically in straight line.

Locate holes in timber framing for the passage of cables at the centre line of member ensuring structural strength in maintained to NZS 3604 requirements. In steel studs/ structural steel, ensure aperture is brushed and shaped to minimize abrasion of cable. Cables may be supported by suspended ceiling systems unless not permitted by suspended ceiling manufacturer. Install cable in conduits where required to pass through concrete or underground.

3.16 CABLING CIRCUITS

Install all circuits with the appropriately rated cable and circuit protection. Install with a maximum of 8 light switch units or 4 double or single switched socket units on any circuit. Minimum 2 lighting circuits per floor. Separate circuits for all electric heating appliances. Kitchen sockets to be on at least two different circuits.

3.17 PROTECTION OF CABLING NEAR BUILDING SURFACES

Protect concealed wiring to AS/NZS 3000, 3.9.4 Protection against mechanical damage, where wiring is fixed in position by fastening, or held in position by thermal insulation or passes through an opening in a structural member and they are located within 50mm from the surface of a wall, roof, ceiling or floor.

3.18 WALL BOXES

Mount flush in cavity construction size to fit products selected. Fix vertically mounted wall boxes to studs. Screw fix horizontally mounted switched socket outlet wall boxes to solid blocking or nogs. Fix switch panel wall boxes to solid blocking.

3.19 SWITCHES AND SWITCHED SOCKET UNITS

Fit all switch units and socket units to the manufacturers requirements with heights and mounting directions as indicated in SELECTIONS.

3.20 ISOLATING SWITCHES

Locate isolating switches in positions as confirmed by the owner, when not specifically shown on the drawings.

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3.21 LIGHT FITTINGS

Install light fittings in locations and at heights as confirmed by the Contract Administrator, when not specifically shown on the drawings. Install to the luminaire manufacturer's requirements (including clearances) and to AS/NZS 3000, 4.5 Lighting Equipment & Accessories, in correct orientation for light output, complete with lamps.

Fix through linings to structure or framing, provide additional nogs, trim and packing if required. Ensure transformers/drivers and luminaires are adequately ventilated and clear of any building elements, to AS/NZS 3000.

3.22 EXTRA LOW VOLTAGE LIGHTING

Install extra-low voltage lighting to AS/NZS 3000, 7.5 Extra-Low Voltage Electrical Installations and fitting manufacturer's requirements.

Use electronic, transformers (halogen) or drivers (LED) for ELV lamps, one transformer/driver per lamp. Locate to manufacturer requirements and as close as practicable to the lamp. Ensure transformers/drivers and rear of light fittings are adequately ventilated and appropriately clear of any building elements, to AS/NZS 3000.

3.23 INSULATION CLEARANCES

Refer to relevant INSULATION section.

3.24 ELECTRIC HOT WATER SYSTEM

Install to manufacturer's requirements and to AS/NZS 3000, 4.8.2 Water heaters. Wire as a separate circuit through a wall-mounted, lockable, isolating switch, with the cable from switch to element encased in flexible PVC conduit, clamp fixed at each end. Hot water cylinders, thermostats and 3000 watt element supplied and fitted under the hot and cold water system section.

3.25 SPACE HEATERS

Install to the heater manufacturer requirements, and to AS/NZS 3000, 4.9 Room Heaters. Fit neatly and without damage to surrounding finishes. Ensure control switches and thermostats are fitted to appliance or otherwise connect to a control switch located adjacent to the heater and a remote thermostat. Isolation switch shall be provided adjacent to entrance of room or area the heating system is located or installed in switchboard.

3.26 OUTDOOR/EXTERIOR SERVICES

Provide circuits and connections for exterior installations, including ELV 12/24 Volt path lighting and electronic irrigation systems, in accordance with AS/NZS 3000 and the fixture/fitting manufacturer's recommendations.

Where underground, ensure appropriate protection, such as thickness of sheathing, conduit, depth of cabling, and proximity to other services to AS/NZS 3000, 3.11 Underground Wiring Systems.

Use the appropriate rated fittings for power control and power supply. Weather protected switches and sockets to IP56 minimum. Install to manufacturer specifications using recommended fittings and sealants to maintain the products integrity.

Earth leakage protection to be provided for in areas where there is increased risk to human safety in the form of either RCDs at the distribution board, or socket outlet.

3.27 LABELLING

To AS/NZS 3000, 2.10.5 Equipment identification, include label under each controller, switch and circuit breaker on distribution boards. Include a warning notice if light dimmers are used in the installation. List the rating of each circuit.

3.28 INSTALL WALL BOXES AND SWITCH UNITS - FIRE RATED

Install proprietary fire rated wall boxes and switch units in accordance with manufacturer instructions.

Completion & Commissioning

3.29 COMPLETION MATTERS

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



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4 SELECTIONS

Materials

4.1 DISTRIBUTION / METER BOARD

Location:	see Electrical Plan
Brand / type:	TBC / Recessed, DBF flush

4.2 FIRE & SMOKE ALARM SYSTEM

Refer to appropriate fire and smoke alarm section:

~

4.3 WALL BOXES AND SWITCH UNITS - FIRE RATED

Location:	In Fire rated walls
Manufacturer:	TBC
Brand/type:	TBC

Outlets - fittings

4.4 INTERIOR SWITCHES AND SWITCHED SOCKET UNITS

Item	**Brand / type**
Switch / socket outlets:	TBC
Coverplate colour:	White or Black
Switch module colour:	White or Black

Item	**Brand / type**
Light dimmers:	TBC
Timer switch:	TBC
Push button switch:	TBC
Symbol switch:	TBC
PIR sensor switch:	TBC
Toggle switch:	TBC
Waterproof switches:	TBC

4.5 INTERIOR LIGHT FITTINGS

Item	**Brand / type**
Pivoting Recessed Light fitting	TBC
Door Activated baton fitting:	TBC

4.6 EXTERIOR SWITCHES AND SWITCHED SOCKET UNITS

Item	**Brand / type**
Weatherproof socket outlets:	TBC

4.7 EXTERIOR LIGHT FITTINGS

Fitting	**Brand / type**
Wall lights:	TBC
Recessed lights:	TBC
Security light sensors:	TBC

4.8 MISCELLANEOUS ELECTRICAL ITEMS

Item	**Brand / type**
Door bell system:	TBC
Hot Water Cylinder:	TBC/ 180L capacity for 2 and 3 bedroom units , 250 L for 4 bedroom units.

4.9 SPACE HEATERS

Location:	Living Room Heat Pump
Brand / type:	TBC / Hi-Wall with Exterior outdoor unit

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4.10 HEATED TOWEL RAILS

Location	Brand / type
Bathrooms & Ensuites	TBC/ Ladder or pole type. Refer to Bathroom interior plans/ elevations.

4.11 MIRROR DE-MISTERS

Location	Size	Wattage
Bathrooms & Ensuites	500mm x 550mm	50 watts
Brand:	TBC	

Note: Check that Prefabricated overhead vanity unit De-Mister complies.

4.12 BATHROOM- ENSUITE FANS

Location	Brand / type
Bathroom / ensuite-Extract:	TBC/ 25 L/sec and 10L/sec continuous

4.13 RANGEHOOD

Location	Brand / type
Rangehood-Extract:	TBC/ 50 L/sec and 12L/sec continuous

4.14 WC & LAUNDRY FANS

Location	Brand / type
WC-Extract:	TBC/ 25 L/sec and 10L/sec continuous
Laundry- Extract	TBC/ 40 L/sec. No continuous venting required.

4.15 ELECTRICAL APPLIANCES

Item	Brand / type
Oven:	TBC
Cooker top/hob:	TBC
Waste disposal unit:	TBC
Dishwasher:	TBC

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The Links

Project Specification

110 & 124 WANAKA-LUGGATE HIGHWAY , RD 2 , WANAKA 9382, New Zealand
110 Luggate LTD
Project Ref: 2532
Date: 02 October 2026

BUILDING CONSENT



SUPPORTING MANUFACTURER DOCUMENTATION For information only. Specification and contract documentation takes precedence.
This version includes documents related to:
Performance | Installation | Maintenance | Warranty | Environmental

Spec Version ID: 367832-462991
Document authenticity may be verified at masterspec.co.nz/verify/367832-462991
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SUPPORTING DOCUMENTS

19192_Masons_UNI_Plus_PASS_v2_0_exp_06-2027

Ref 146168. Uploaded 3 Jul 2026

Purpose: Performance

21276 Masons UNI PLUS Design and Install Guide V2 CM

Ref 152319. Uploaded 22 Sep 2026

Purpose: Installation

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PASS™ PRODUCT ASSURANCE SUPPLIER STATEMENT
pass™ no: 19192 | Expires: 06/2027

MASONS
Designed Smart, Built Tough.

MASONS UNI® PLUS FLEXIBLE AIR BARRIER

PURPOSE

Masons UNI® Plus Flexible Air Barrier (UNI® Plus) is supplied for use as:

- a flexible wall underlay
- a roof underlay
- a flexible air barrier
- as temporary weather protection for up to 90 days.

EXPLANATION

UNI® Plus is a heavy duty, multi-layer, tri-laminate pliable, non-woven synthetic underlay. It comprises three polypropylene layers: two outer layers of non-woven polypropylene with a middle layer of a functional-technical film. It meets the requirements of NZS 2295 and AS/NZS 4200.1 for pliable wall and roof underlays. It is available in rolls of 2.74 m x 18.25 m (50 m^2) and 1.5 m x 33.33 m (50 m^2). It has a blue front and a white back.



For further assistance please contact:
0800 522 533
info@mpb.co.nz
mpb.co.nz

SCOPE AND LIMITATIONS OF USE

Scope	Limitations
Location	
In wind zones up to and including Extra High as defined by NZS 3604:2011 or to a wind design pressure (ULS) of 2.1 kPa.	› Where used as a standard flexible wall underlay, UNI® Plus must be installed in conjunction with a rigid air barrier in Extra High wind zones in accordance with E2/AS1.
In all exposure zones as defined in NZS 3604:2011.	› Where microclimatic conditions apply (refer to paragraph 4.2.4), contact Masons for technical advice.
Further than 1 m from a relevant boundary.	
Building	
In conjunction with buildings where the primary structure complies with the NZ Building Code or for an existing structure when the designer and installer are satisfied that the existing building is suitable for the intended building work.	
In conjunction with timber or lightweight steel framing.	› For use with lightweight steel, a thermal break must be installed.
As a flexible wall underlay.	› Installation must be in accordance with E2/AS1, including fixing with staples and use of a wrap strap to restrain the underlay.
As a breathable wall underlay over SIPS.	› UNI® Plus may be suitable for installation over SIPS as a waterproof breathable underlay to assist with the release of interstitial moisture. Suitability must be confirmed by the SIPS supplier prior to installation.
As a flexible roof underlay.	› Installation must be in accordance with E2/AS1 and the current NZ Metal Roof and Wall Cladding Code of Practice.
As a flexible air barrier.	› Installed in conjunction with Hardie™ CLD™ Structural Timber Cavity Battens and Masons Ventilated Battens.
With cladding and joinery that complies with the relevant provisions of the NZ Building Code for the site and location.	› The cladding system may be direct fixed, installed over a nominal 18 mm drained cavity, or installed over masonry veneer that meets the requirements of E2/AS1 or has been specifically designed. › UNI® Plus must be covered within 90 days of installation.

USEFUL INFORMATION

For design, installation and maintenance information, refer to **mpb.co.nz**.

CONDITIONS OF USE

› The installation of the UNI® Plus must be in accordance with all Masons UNI® Plus Flexible Air Barrier Installation Instructions that relate to the selected use.

VERSION: 2.0

Uncontrolled in printed format

PERFORMANCE CLAIMS

If designed, installed and maintained in accordance with all Masons NZ Ltd requirements, UNI® Plus will comply with or contribute to compliance with the following performance claims:

NZ Building Code clauses	BASIS OF COMPLIANCE Compliance statement	 Demonstrated by
B1 STRUCTURE B1.3.1, B1.3.2, B1.3.3 (a, b, e, f, h, j, m, q), B1.3.4	ALTERNATIVE SOLUTION	› Hardie™ CLD™ Structural Cavity Battens to secure UNI Plus complies with E2/AS1 and out of plane wind capacities tested for NZS 3604:2011 wind loads [Proconsult, 18/11/2022; 24/05/2024].
B2 DURABILITY B2.3.1 (a), B2.3.2 (b)	VERIFICATION METHOD B2/VM1	› Meets the requirements of NZS 2295:2006 (A:2017) and Table C.2.1.1 of E2/AS1 [Scion, 01/2022].
C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE C3.7	ALTERNATIVE SOLUTION	› Meets the requirements of NZS 2295:2006; flammability index of 1 when tested to AS 1530.2:1993 [NZWTA, 01/06/2021].
E2 EXTERNAL MOISTURE E2.3.2, E2.3.5, E2.3.7	ACCEPTABLE SOLUTION E2/AS1, ALTERNATIVE SOLUTION	› Meets flexible wall underlay requirements of Table C.2.1.1 of E2/AS1. Tested in accordance with NZS 2295:2006 [Scion, 01/2022]. › Classified as W4/R3/R4 under NZS 2295:2006. Tested for tensile strength: ASTM D882; edge tear resistance: Tappi T470; water penetration resistance: AS/NZS 4201.4:1994; surface water absorbency: AS/NZS 4201.6; pH of extract: AS/NZS 1301.421:1998; air resistance: ISO 5636.5:2013; UV exposure: ASTM G154 [Scion. 01/2022 › Hardie™ CLD™ Structural Cavity Battens to secure UNI Plus complies with E2/AS1 and out of plane wind capacities tested for NZS 3604:2011 wind loads [Proconsult, 18/11/2022; 24/05/2024].
F2 HAZARDOUS BUILDING MATERIALS F2.3.1	ALTERNATIVE SOLUTION	› Use in accordance with supplier's safety instructions [Masons NZ Ltd, 05/2026].

SOURCES OF INFORMATION

› Masons NZ Ltd. [05/2026] *Masons UNI® Plus Flexible Air Barrier Installation Instructions. V2.2.*
› NZWTA. [26/05/2021] *Test No. 1374734.0.* AS 1530.2-1993
› Proconsult. [18/11/2022] *UNI, UNI PLUS or UNI PRO & Masons Barricade Weather Defence System Use of Hardie™ CLD™ Structural Cavity Battens. Reference 13846.*
› Proconsult. [24/05/2024] *UNI PLUS Wall Underlay System with Two Different Types of Ventilated Battens Out-of-Plane Wind Pressure Compliance. Reference 14189.*
› Proconsult. [14/03/2023] *UNI Wall Underlay System with Mid-Span Nog Out-of-Plane Wind Pressure Compliance.*

SCAN OR CLICK THIS QR CODE TO ACCESS OR REQUEST THE RELEVANT SUPPORTING DOCUMENTATION FOR THIS PASS™.

mpb.co.nz

1. Where a standard is referenced it is to be read as amended by the acceptable solution or verification method as applicable. 2. Sources of information also include the Building Act 2004 and its regulations, including the Building Code (Schedule 1 of the Building Regulations 1992), Acceptable Solutions and Verification Methods, and relevant cited standards. 3. The product is not subject to a warning or ban under section 26 of the Building Act. 4. For overseas manufacturer details, where applicable, refer to the company that is the holder of this pass™. 5. The quality and assurance that the supplied products meet the performance claims stated in this pass™ are the responsibility of the company that is the holder of this pass™. 6. The availability of the information about the supplied products required to be disclosed under s14G(3) is the responsibility of the company that is the holder of this pass™.

Masons NZ Ltd confirms that if UNI® Plus Flexible Air Barrier is used in accordance with the requirements of this pass™ the product will comply with the NZ Building Code and other performance claims set out in this pass™ and the company has met all of its obligations under s14G(2) of the Building Act.

Date of first issue:	21/03/2022
Date of current issue:	02/07/2026
NZBN:	9429051703653

Kevin Brunton

Kevin Brunton, Technical Director, TBB confirms that the process used to prepare this pass™ on behalf of Masons NZ Ltd has been undertaken in accordance with MBIE PTS guidelines and in accordance with the TBB pass™ process which is within the scope of TBB's ISO 9001 certification.

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MASONS UNI® PLUS FLEXIBLE AIR BARRIER

DESIGN AND INSTALLATION GUIDE

MASONS
Designed Smart, Built Tough.

V2.0 March 2022 - CM

General and product information

PURPOSE

This design and installation guide relates to Masons UNI® PLUS Flexible Air Barrier.

IMPORTANT DOCUMENTS

This guide should be read in conjunction with the relevant:

- Masons UNI® PLUS Warranty
- Masons UNI® PLUS Installation Video. SEE VIDEO

SKILLS REQUIRED

This guide is suitable for use by a competent designer and person with basic carpentry skills. Where applicable the person specifying, supervising or installing the Masons UNI® PLUS must be able to meet all RBW provisions.

FOR MORE HELP

Technical assistance is available at www.mpb.co.nz.

While all reasonable efforts have been made to ensure the accuracy of information provided, this guide is a guide only. It may be subject to change.

FOR OUR WARRANTY

Refer to www.mpb.co.nz.

PRODUCT DESCRIPTION

UNI® PLUS is a nonwoven, absorbent, water-resistant, 180 GSM, synthetic wall underlay. It comprises three polypropylene layers: two outer layers of nonwoven polypropylene with a middle layer of a functional-technical film. It is supplied coloured blue with a white underside unless an alternative colour is requested.

SCOPE AND LIMITATIONS

For scope of use, limitations, conditions and statement of building code compliance, refer to www.mpb.co.nz.

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Design

STEP 1:

CONFIRM SCOPE

Confirm the proposed use is within the scope and limitations as stated on www.mpb.co.nz.

STEP 2:

CONFIRM RELATED BUILDING WORK

Masons UNI® PLUS is suitable for use with a timber or steel framed structure. For new and existing buildings confirm that the primary structure:

- complies with the NZ Building Code and is designed in accordance with NZS 3604:2011 or NASH Design Standard 2019 Parts 1 and 2; or
- is specifically designed to NZS 3603:1993 or AS/NZS 1170:2002; or
- where existing, is suitable for the intended building work.

Masons UNI® PLUS can be used with a cladding fixed over a cavity or direct fixed. Confirm whether the design includes a cavity system or not and determine the type and orientation of the battens. Ensure cavity battens specified are timber battens. Ensure that the framining meets, as a minimum the requirements in Table 1.

SEE TABLE

STEP 3:

SPECIFY FIXINGS

Specify Masons UNI® fastener fixings in accordance with Table 1. Masons UNI® Fasteners are 25 mm galvanised or stainless steel nails with a plastic washer.

SEE TABLE

STEP 4:

SPECIFY ANCILLARY PRODUCTS

Ensure all required ancillary products are specified in the completed Masons UNI® PLUS specification.

STEP 5:

QUALITY CHECK

Confirm all relevant design requirements are met.

Collate the following documents and include in the building consent application:

- Masons UNI® PLUS Specification,
- Masons UNI® PLUS Warranty and
- this document.

Pre-installation

HEALTH AND SAFETY

Take all necessary steps to ensure your safety and the safety of others:

- ensure adequate ventilation or mechanical dust extraction when cutting or drilling
- take care when fixing the wrap in windy conditions
- wear appropriate safety equipment, clothing and footwear
- use all tools in accordance with relevant instruction manuals
- plan and monitor a safe approach for working at height; select and use the right equipment
- clear the work area of any obstruction before work starts.

For further information refer to:

- WorkSafe. [July 2018] Small Construction Sites, the Absolutely Essential Health and Safety Toolkit.
- WorkSafe. [December 2016] Health and Safety at Work, Quick Reference Guide.

These documents are available at www.worksafe.govt.nz.

HANDLING AND STORAGE

Handling

Care must be taken during loading, unloading, and transporting the materials to prevent pre-installation damage.

Unload the rolls carefully by hand. Do not crush the rolls and ensure they are protected from damage.

Storage

Store the rolls on end under a cover, in a clean and dry area and out of direct sunlight.

TOOLS AND EQUIPMENT REQUIRED

Install Masons UNI® PLUS using standard carpentry tools and equipment. Use tools in accordance with good trade practice and supplier's instructions.

CN100 UNI Cap Nailer Gun



UNI Fasteners



UNI PLUS Seam Tape



40 Below Platinum or Flex Flashing Tape



BrickTies



Penetration Seals



Corner Guards



PEF Rod



Installation

STEP 1:

BUILDING CONSENT DOCUMENTATION

Where applicable, access and view building consent documentation.

STEP 2:

CHECK RELATED BUILDING WORK

For new and existing buildings ensure the primary structure is straight and true and within framing tolerances as described in Table 2.1, section 2 of NZS 3604:2011.

Masons UNI® PLUS can be used where cladding is installed over a cavity system or direct fixed cladding.

STEP 3:

INSTALL WRAP

For assistance in installing UNI® PLUS refer to video.

DIAGRAM 0.1

SEE VIDEO

Fit Wrap

SEE VIDEO

Ensure all necessary equipment and ancillary components are available.

Masons UNI® PLUS must be installed with the printed side out, typically run horizontally on vertical framing. However, it is non directional and may be run in line with raking soffit lines or gables.

Fixing

DIAGRAM 0.9

SEE VIDEO

Masons supply Masons UNI® Fasteners for both timber and lightweight steel framing.

Ensure battens are fixed to Table 1 (as a minimum) or to the building consent.

Where cavity battens are to be installed, fix Masons UNI® PLUS to frames at the plates and nogs/dwangs using the applicable Masons UNI® Fasteners. Do not fix to the studs.

When fixing vertical or horizontal cavity battens ensure batten nails are a minimum of 100 mm away from the UNI® Fastener.

Fasten battens promptly to prevent wind blow out whilst 'UNI® PLUS is tacked up' with reduced numbers of cap nails.

Where bulging has or is likely to occur secure with Masons Wrap Strap.

DIAGRAM 0.1

Fit UNI® PLUS Soffit Strip/Drop

SEE VIDEO

The use of a soffit roll or drop is optional.

If required cut a suitable width from the roll of UNI PLUS and install along the top plate. Ensure that it is taut. Secure in accordance with Table 1.

SEE TABLE

Do not fasten the bottom of the soffit strip as this needs to overlap the next layer of UNI® PLUS.

DIAGRAM 0.1

Fit UNI® PLUS

SEE VIDEO

Where a soffit strip/drop has been installed:

- Hold the soffit strip up to beneath the horizontal installation of the UNI® PLUS. Ensure that the soffit strip layer overlaps the lower layer by 150 mm.
- Fold the soffit layer down. Secure and tape with 40 Below Platinum or Flex.

Where a Soffit strip/drop has not been installed:

- Run UNI® PLUS along the top face, level with the top plate. Ensure that it is taut. Ensure the wrap extends a minimum of 50 mm below the bottom plate or bearer.

Ensure the wrap is taut and does not belly into the cavity or openings. Fix in accordance with the building consent or Table 1.

SEE TABLE

Run the wrap over all openings and leave openings covered until windows and doors are ready to be installed.

DIAGRAM 0.1

Where UNI® Soffit has not been installed:

Run UNI® PLUS along the top face, level with the top plate. Ensure that it is taut. Ensure the wrap extends a minimum of 50 mm below the bottom plate or bearer. Secure in accordance with Table 1.

- Ensure the wrap is level and is pulled taut so that the wrap does not belly into the cavity.
- Run the wrap over all openings and leave openings covered until windows and doors are ready to be installed

DIAGRAM 0.1

Laps

SEE VIDEO

Masons UNI® PLUS must lap a minimum of 150 mm at horizontal joints and over framing wherever possible. Vertical joints must always be over framing and a minimum of 150 mm lap.

Upper wrap sheets must lap over lower wrap sheets to ensure water is shed outside the wrap.

All laps must be taped off with 60 mm Masons UNI® PLUS Seam and Repair Tape or Masons 40 Below Flashing Tape (Flex or Platinum). Ensure adhesion by applying pressure using a plastic scraper.

If UNI® PLUS is to be used as temporary weather protection, ensure all joins have been sealed using Masons UNI® PLUS Seam and Repair Tape, or Masons 40 Below (Flex or Platinum) Flashing Tape. The roof cladding and soffit linings must also have been installed.

DIAGRAM 0.8

Penetrations

SEE VIDEO

Pipe penetrations must be sealed using Masons Penetration seals or similar, ensuring good adhesion by applying pressure with a plastic scraper.

DIAGRAM 0.7

Intersections – Apron Flashings, Interstorey Flashings, Change of pitch

Drape UNI® PLUS over the upstand of apron, change of pitch or inter storey flashings. The UNI® PLUS length should extend beyond the flashing by 100 – 150 mm at each end. Secure with UNI® Fastenings. Tape all laps with UNI® 40 Below (Flex or Platinum) Flashing Tape.

Tears

SEE VIDEO

Regularly check Masons UNI® PLUS for damage, tears, holes and gaps. Any damaged areas must be repaired immediately.

Repair by covering with new wrap lapping the damaged area by at least 150 mm and tape the wrap using Masons UNI® Seam and Repair Tape.

Small tears can be repaired by taping with Masons UNI® Seam and Repair Tape.

STEP 5

PREPARE OPENINGS

Openings

DIAGRAM 0.2

SEE VIDEO

Remove the wrap by cutting the wrap diagonally from each corner of the opening. Fold the flaps of the cut membrane inside the opening. Staples may be used to fix the wrap to the inside of the window frame. Cut excess wrap flush with the internal face of the framing.

Flashing tape must be installed to all openings. Masons 40 Below (Flex or Platinum) Flashing Tape must be used.

All exposed wall framing in the openings must be protected by the Masons UNI® PLUS, and Masons 40 Below Flashing Tape.

To ensure the best possible adhesion make sure the substrate is clean, dry, free from dust or any other contaminants.

Window & Door sills

DIAGRAM 0.3

SEE VIDEO

Place Masons Corner Guard over the Masons UNI® PLUS and into the bottom corners of the window or door sill and staple to the jamb for timber framing or attach with double sided tape for steel framing.

Install Masons 40 Below (Flex or Platinum) Flashing Tape flush with the interior face of the opening along the entire length of the sill and up each jamb to a minimum of 200 mm. Press tape firmly into the corner over the guard first then slit at each corner and fold around onto the frame face. Fold remainder of the tape against the outer face of the frame and press firmly using the plastic scraper.

Window and door heads

DIAGRAM 0.3

SEE VIDEO

Install lintel pieces at top corners of opening, 200 mm along the lintel and 200 mm down the jamb. Slit Masons UNI® PLUS at each corner and fold at least 50 mm onto outer face of building wrap. To create a seal at corner junctions, install butterflies at 45° across the corner of the head/jamb.

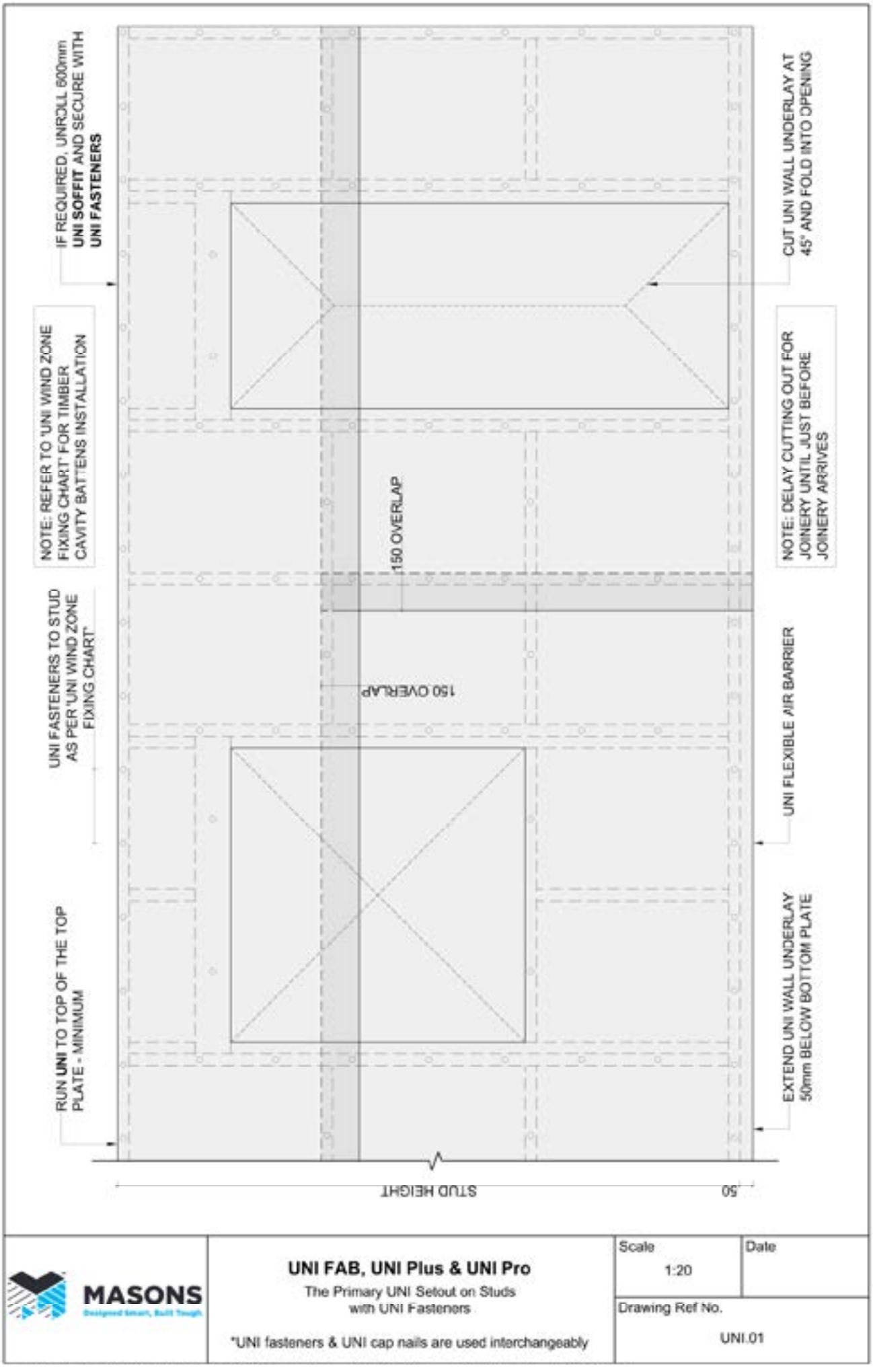
STEP 6: **DIAGRAM 0.2**	**INSTALL JOINERY** **SEE VIDEO** Install window and door joinery with head flashings and air seals.
	Masons recommends Running Masons Dry Fix Plastic DPC up the side of the window jambs and under the head flashing. Where plastic DPC is installed around joinery as secondary water proofing such as for brick veneer work, fasten the DPC to the frame over the wrap using Masons UNI® Fasteners. To seal above the head flashing, Masons recommends installing UNI® PLUS so that it drapes over the head flashing extending the length of the flashing by 100 – 150 mm at each end. Secure with UNI® Fastenings. Tape all laps with UNI® 40 Below (Flex or Platinum) Flashing Tape. This method of sealing is mandatory at wind zones very high and above. For wind zones less than very high, the head flashing may be sealed to the UNI® PLUS using UNI® Seam and Repair Tape or UNI® 40 Below (Flex or Platinum) Flashing Tape.
STEP 7:	**QUALITY CHECK** Ensure that all joins are taped, and all tears have been repaired. Ensure full adhesion around penetrations and openings. Ensure Mason's warranty is inserted into the client document package.

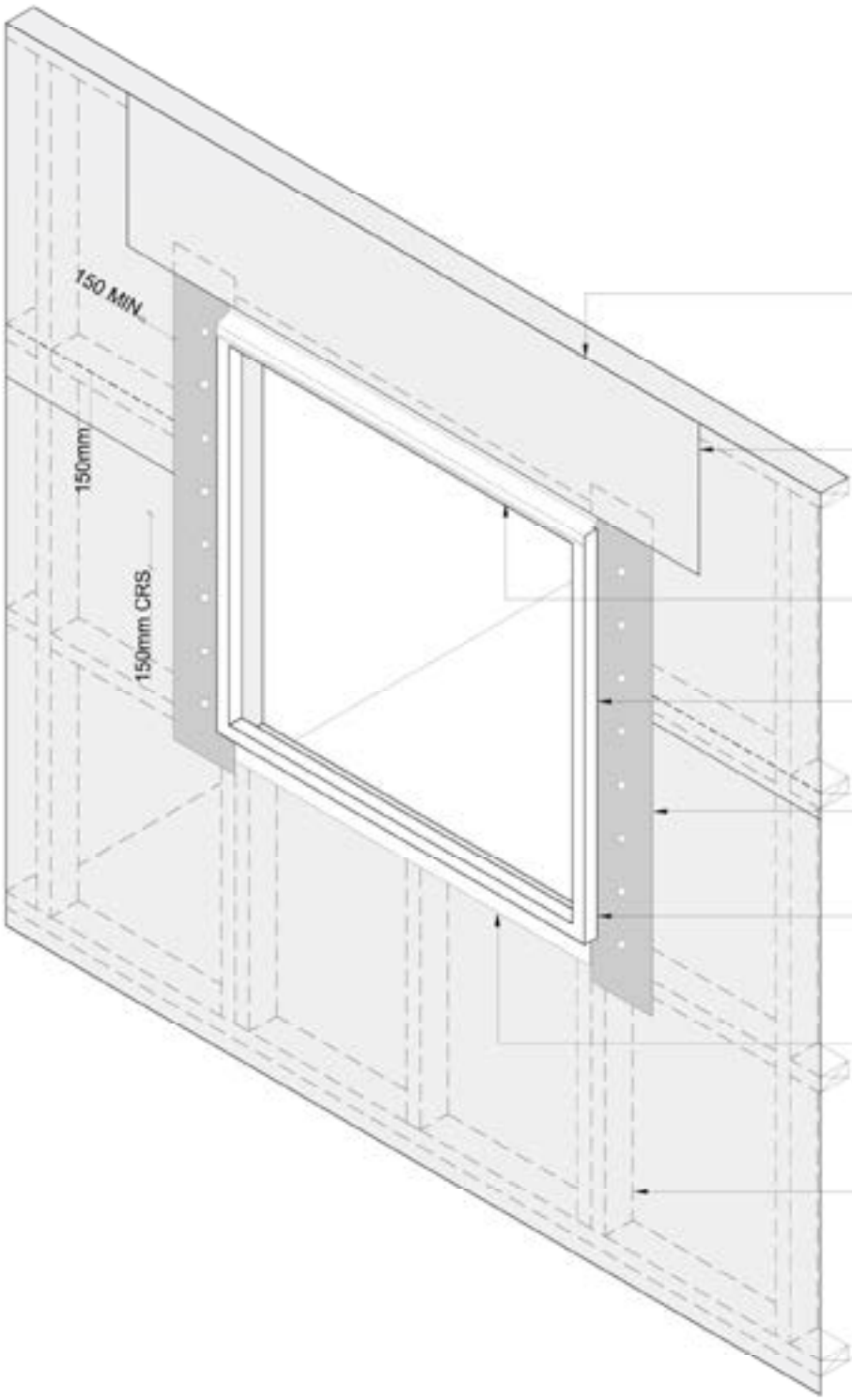
Appendix 1

TABLE 1: FIXING TABLE

Stud centres (mm)	Fixings on studs (mm)	Minimum nogs centre (mm)	Perimeter fixing all around	Wind Zone	Fixing on nogs	Fixings
600	Nail at 450 mm centres	800	Nail at 300 mm centres	Low/ Medium	Nail at centre	25 mm nails with plastic washer
450	Nail at 500 mm centres	800	Nail at 300 mm centres	Low/ Medium	Nail at centre	25 mm nails with plastic washer
400	Nail at 450 mm centres	800	Nail at 300 mm centres	Low/ Medium	Nail at centre	25 mm nails with plastic washer
600	Nail at 300 mm centres	800	Nail at 300 mm centres	High	Nail at centre	25 mm nails with plastic washer
450	Nail at 350 mm centres	800	Nail at 300 mm centres	High	Nail at centre	25 mm nails with plastic washer
400	Nail at 300 mm centres	800	Nail at 300 mm centres	High	Nail at centre	25 mm nails with plastic washer
400	Nail at 250 mm centres	800	Nail at 300 mm centres	Low/ Medium/ High/ Very High	Nail at centre	25 mm nails with plastic washer
300	Nail at 300 mm centres	800	Nail at 300 mm centres	Low/ Medium/ High/ Very High/ Extra High	Nail at centre	25 mm nails with plastic washer
300	Nail at 250 mm centres	800	Nail at 300 mm centres	Low/ Medium/ High/ Very High/ Extra High	Nail at centre	25 mm nails with plastic washer
300, 400, 450, 600	Battens with nails at 400 mm centres	800	Batten with nails at 300 mm centres	Low/ Medium/ High/ Very High/ Extra High	Battens with nails at 400 mm centres (2 nails min)	Batten – 20 x 45 SG8 Nails – 60 2.8 ring shank galvanised

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IF REQUIRED, UNROLL 600mm
UNI SOFFIT AND SECURE WITH
UNI FASTENERS
CUT UNI WALL UNDERLAY AT
45° AND FOLD INTO OPENING
NOTE: REFER TO 'UNI WIND ZONE
FIXING CHART' FOR TIMBER
CAVITY BATTENS INSTALLATION
150 OVERLAP
NOTE: DELAY CUTTING OUT FOR
JOINERY UNTIL JUST BEFORE
JOINERY ARRIVES
UNI FASTENERS TO STUD
AS PER 'UNI WIND ZONE
FIXING CHART'
150 OVERLAP
UNI FLEXIBLE AIR BARRIER
RUN UNI TO TOP OF THE TOP
PLATE - MINIMUM
EXTEND UNI WALL UNDERLAY
50mm BELOW BOTTOM PLATE
STUD HEIGHT
50
MASONS
UNI FAB, UNI Plus & UNI Pro
The Primary UNI Setout on Studs
with UNI Fasteners
*UNI fasteners & UNI cap nails are used interchangeably
Scale
1:20
Date
Drawing Ref No.
UNI.01



2nd LAYER OF **UNI** UP TO LOGICAL BREAK IN THE CLADDING. FIX TO FRAMING WITH **UNI CAP NAILS**

HORIZONTAL AND VERTICAL LAPS MUST BE TAPED OFF WITH **MASONS UNI SEAM TAPE** OR **40 BELOW PLATINUM OR FLEX**

HEAD FLASHING FITTED OVER THE PRIMARY **UNI** LAYER

200mm DRY FIX DPC CURVED AND FIT BEHIND JOINERY FLANGE

FIX **200mm DRY FIX DPC** TO STUDS WITH **UNI CAP NAILS** @ 150mm CRS

200mm DRY FIX DPC CURVED AND FIT BEHIND JOINERY FLANGE

AIR SEALS TO JOINERY WITH PREMIUM EXPANDING URETHANE FOAM SEALANT, OVER COMPRESSED PEF ROD

FRAME

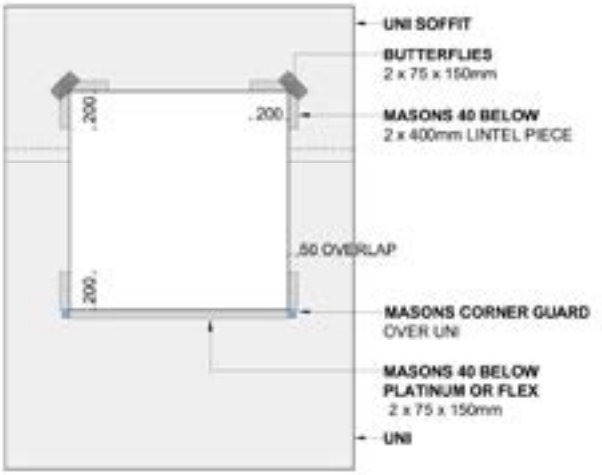
MASONS

UNI FAB, UNI Plus & UNI Pro
Setout on Timber Frame

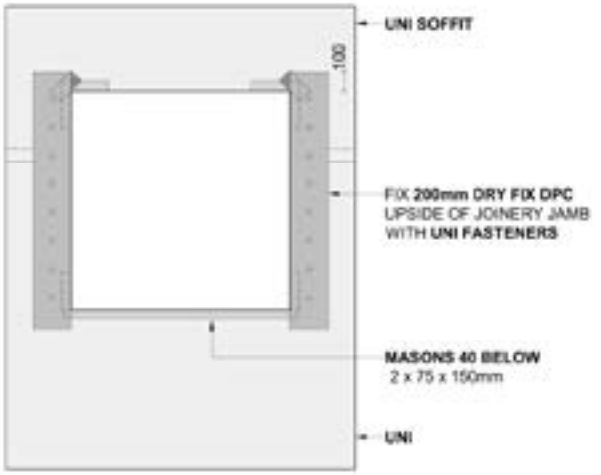
Additional Layer of UNI over Head Flashing

Scale	Date
1:20	

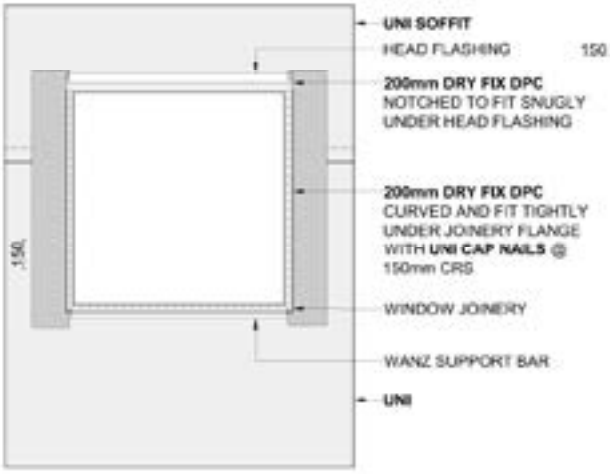
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UNI.02



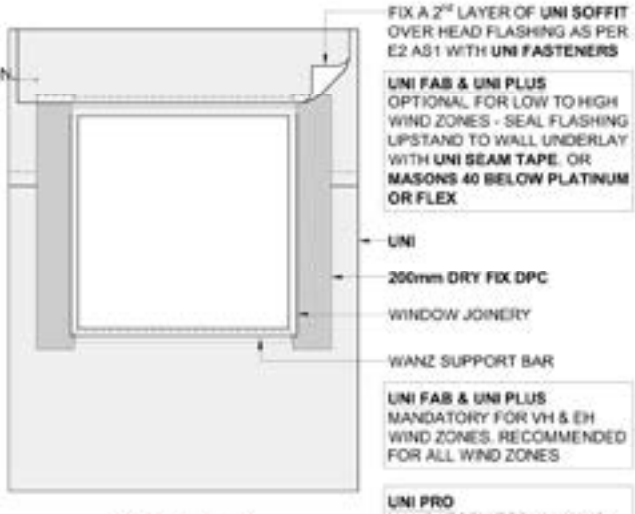
STEP ONE



STEP TWO



STEP THREE



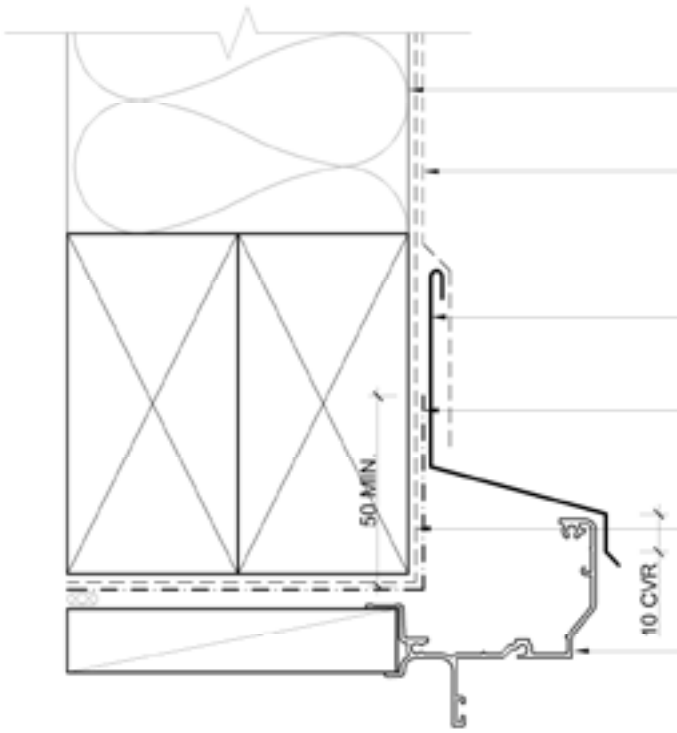
STEP FOUR

MASONS
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Window Installation
UNI FAB, UNI Plus & UNI Pro

Scale	Date
1:40	

Drawing Ref No.
UNI.03



TIMBER FRAMING

SECOND LAYER OF **UNI** FIXED OVER HEAD FLASHING UPSTAND WITH **UNI CAP NAILS**

HEAD FLASHING OVER **UNI** OR **UNI FR**

MASONS 40 BELOW PLATINUM OR FLEX FLASHING TAPE INSTALLED AS PER MANUFACTURERS INSTRUCTIONS

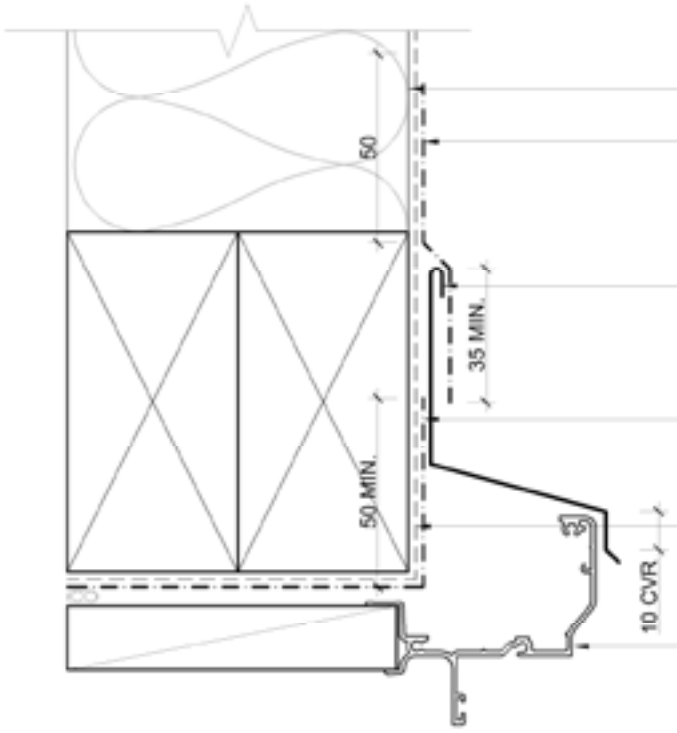
PRIMARY LAYER OF **UNI** DRESSED INTO OPENING

WINDOW JOINERY

ADDITIONAL UNI OVER HEAD FLASHING

UNI FAB & UNI PLUS
MANDATORY FOR VERY HIGH AND EXTRA HIGH WIND ZONE. RECOMMENDED FOR ALL WIND ZONES

UNI PRO
MANDATORY FOR ALL WIND ZONES



TIMBER FRAMING

UNI SEAM TAPE, OR **MASONS 40 BELOW PLATINUM OR FLEX** TO SEAL HEAD FLASHING AS PER E2/AS1 IN UP TO HIGH WIND ZONES

HEAD FLASHING OVER **UNI**

MASONS 40 BELOW FLASHING TAPE INSTALLED AS PER MANUFACTURERS INSTRUCTIONS

PRIMARY LAYER OF **UNI** DRESSED INTO OPENING

WINDOW JOINERY

FLASHING TAPE OVER HEAD FLASHING

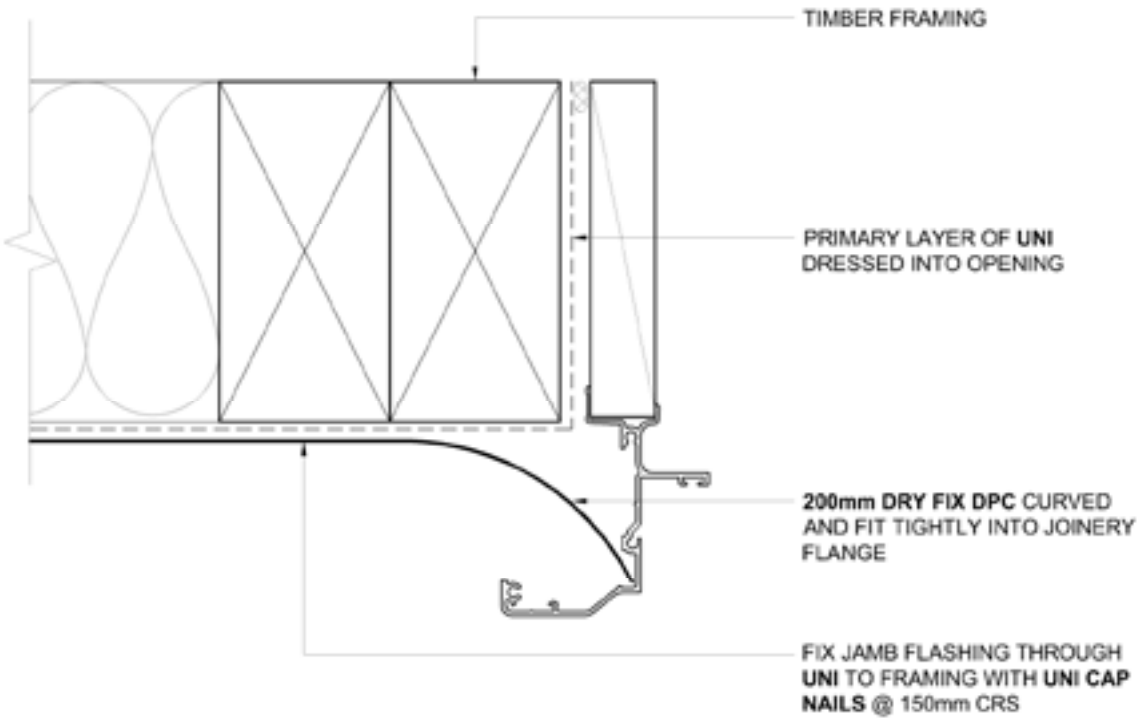
NOTE: DO NOT TAPE HEAD FLASHING ON UNI PRO. USE ADDITIONAL LAYER OF UNI TO ALL WIND ZONES

MASONS
Designed Smart, Built Tough

Window Head
Head Flashing to UNI FAB, UNI Plus & UNI Pro

Scale	Date
1:2	

Drawing Ref No.
UNI.04



MASONS

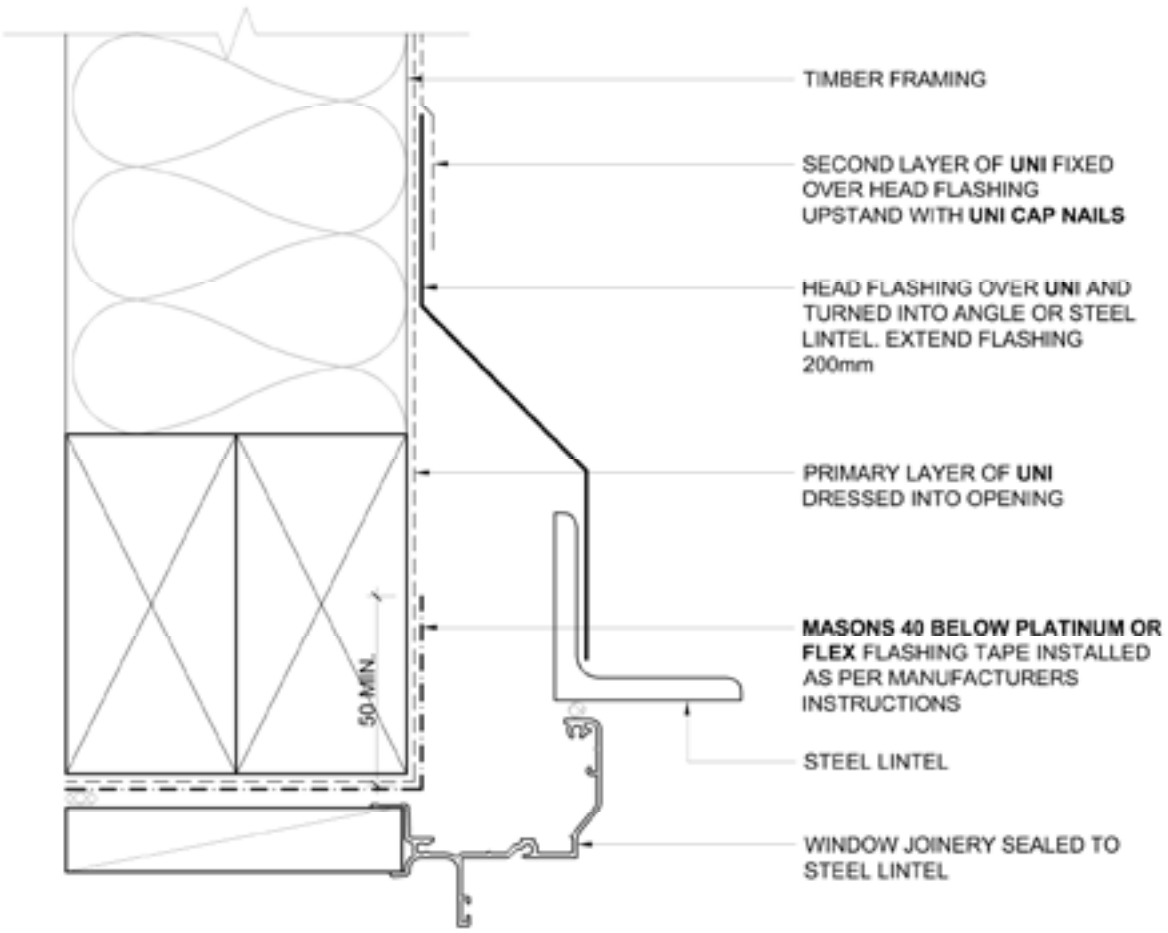
Typical Jamb with 200mm Plastic DPC

UNI FAB, UNI Plus & UNI Pro

Scale	Date
1:2	

Drawing Ref No.

UNI.05



ADDITIONAL UNI OVER HEAD FLASHING - BRICK VENEER

MASONS

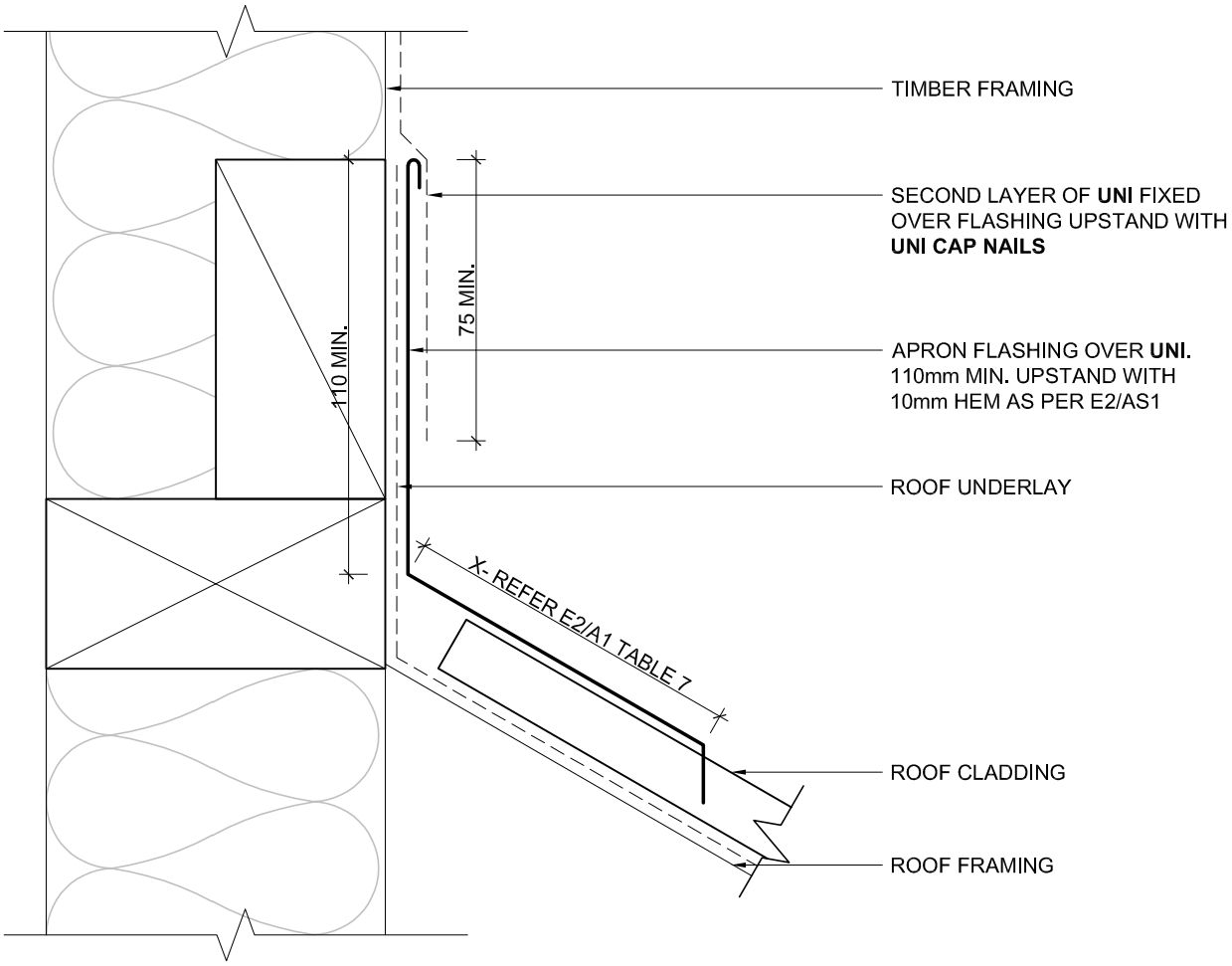
Brick Lintel Veneer Window Head

UNI FAB, UNI Plus & UNI Pro

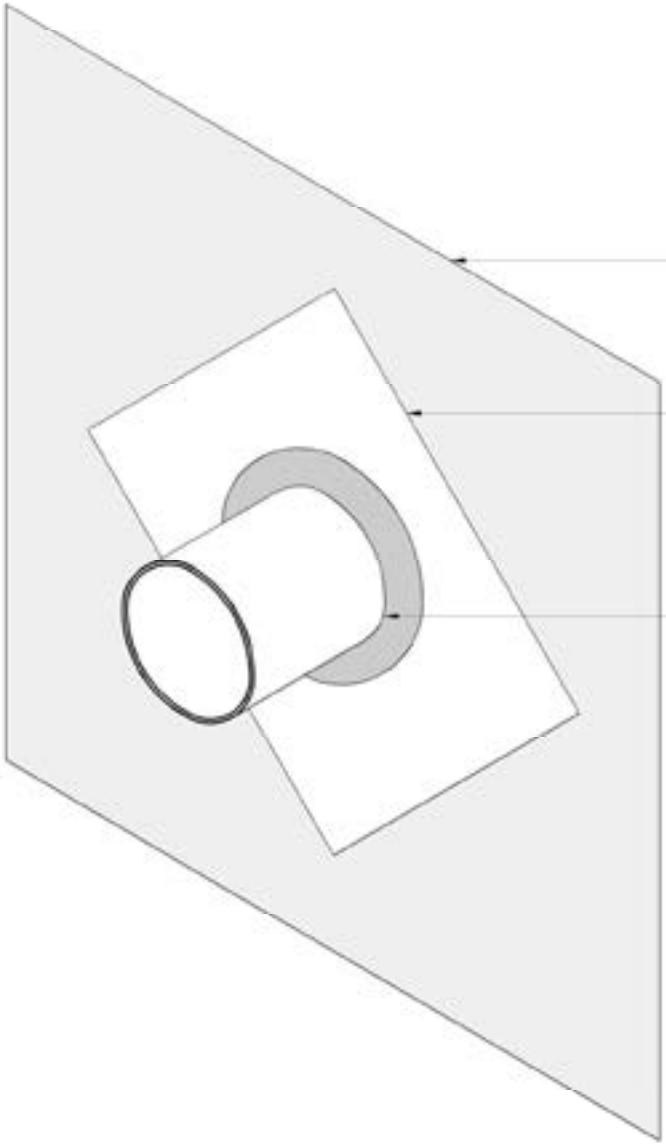
Scale	Date
1:2	

Drawing Ref No.

UNI.06



MASONS	**Apron Flashing Installation** UNI FAB, UNI Plus & UNI Pro	Scale 1:2	Date
		Drawing Ref No. UNI.07	

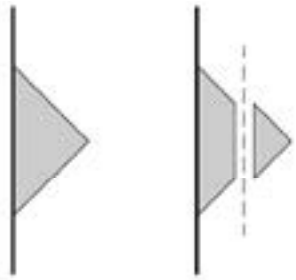


NOTE: MEASURE PIPE OR CONDUIT TO CHOOSE THE CORRECT SIZE MASONS PENETRATION SEAL

UNI FAB

MASONS 1-75mm PENETRATION SEAL OR **80-170mm MASONS PENETRATION SEAL**, ORIENTATED AT 45°, PRESS FIRMLY ONTO **UNI FAB** WITH TAPE SCRAPER

CUT EDPM TO SNUG FIT ON PIPE OR CONDUIT



EDPM NOZZLE CUT TO SUIT PIPE

MASONS

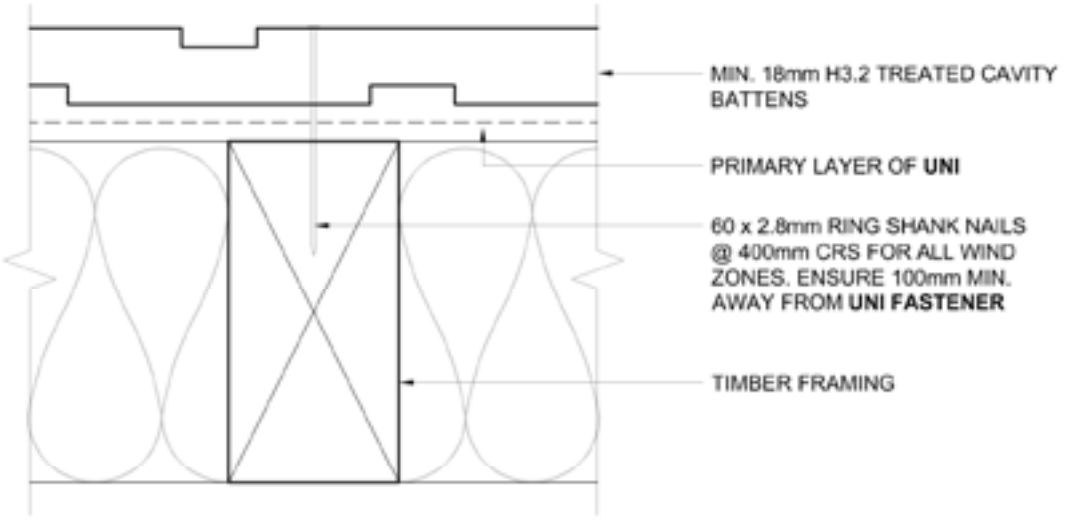
Penetration Seals

UNI FAB, UNI Plus & UNI Pro

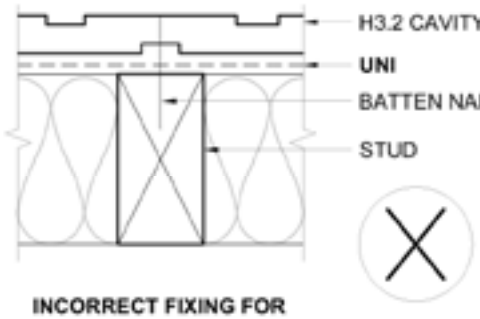
Scale	Date
1:2	

Drawing Ref No.

UNI.08

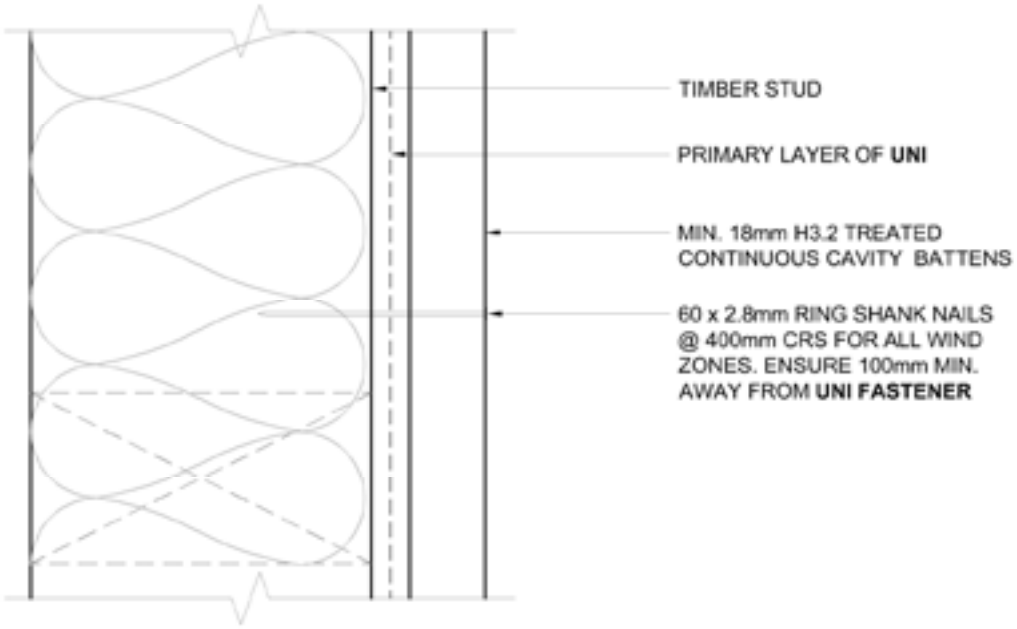


HORIZONTAL CAVITY BATTEN



INCORRECT FIXING FOR VENTILATED BATTENS

NOTE:
- BATTEN FIXINGS REFER TO 'UNI WIND ZONE FIXING CHART"
- USE APPROPRIATE FIXING FOR CORROSION ZONE
- DO NOT FIX AT BATTEN NOTCHES
- MASONS WRAP STRAP IS RECOMMENDED BEFORE INSTALLING BATTENS TO PREVENT BUILDING WRAP FROM BULGING



VERTICAL CAVITY BATTEN

MASONS

CAVITY BATTEN FIXING

UNI FAB, UNI Plus & UNI Pro

Scale	Date
1:2	

Drawing Ref No. UNI.09

21276

4161T Kingspan Thermakraft Underlays, Foils, DPC, DPM, & Tapes

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SUPPORTING DOCUMENTS

BRANZ Appraisal 743 - CoverTek 405 Fire Retardant Roof & Wall Underlay

Ref 118064. Uploaded 1 Jul 2025

Purpose: Performance

Kingspan Thermakraft Covertek 405 113296

Ref 120554. Uploaded 30 Jul 2025

Purpose: Installation, Maintenance, Warranty

© CIL Masterspec Oct 2026

BRANZ Appraised

Appraisal No. 743 (2025)

THERMAKRAFT COVERTEK 405 ROOF AND WALL UNDERLAY



Appraisal No. 743 (2025)

This Appraisal replaces BRANZ Appraisal No. 743 (2019)

BRANZ Appraisals

Technical Assessments of products for building and construction.

Kingspan Thermakraft

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Email: info@kingspaninsulation.co.nz
Web: www.thermakraft.co.nz

BRANZ

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Porirua 5240,
New Zealand
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branz.co.nz

Product

1.1 Thermakraft Covertek 405 Roof and Wall Underlay is a fire-retardant, synthetic building underlay for use under roof and wall claddings.

Scope

Roof Underlay

2.1 Thermakraft Covertek 405 has been appraised for use as a self-supporting roof underlay on lined 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 masonry tile roof cladding; and,
- with metal tile and profiled metal roof cladding; and,
- situated in NZS 3604 and NASH Standard Part 2 Wind Zones up to, and including, Extra High.

Flexible Wall Underlay

2.2 Thermakraft Covertek 405 has also been appraised for use as a flexible wall underlay for lined 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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Specific Design

2.3 Thermakraft Covertek 405 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 405 into their design in accordance with the declared properties and the instructions of Kingspan Insulation NZ Limited.

Building Regulations

New Zealand Building (NZBC)

3.1 **In the opinion of BRANZ, Thermakraft Covertek 405 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 405 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 405 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 405 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 405 Roof and Wall Underlay meets this requirement.

Technical Specification

4.1 Thermakraft Covertek 405 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 to two layers of non-woven spun-bonded polyolefin. Thermakraft Covertek 405 Roof and Wall Underlay is coloured white on the top and bottom faces.

4.2 The product is supplied in rolls 1.25 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 405 logo repeated along the length of the roll. The rolls are wrapped in clear polythene film.

Accessories

4.3 Accessories used with Thermakraft Covertek 405 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-site 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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Technical Literature

6.1 This Appraisal must be read in conjunction with:

- Product Data Sheet, Thermakraft Covertek 405, Issue 8.0, May 2025.
- Installation Guide, Thermakraft Covertek 405, Issue 5.0, May 2025.

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 Thermakraft Covertek 405 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 Underlay Properties	Roof Property Performance Requirement	Wall Property Performance Requirement	Results
Absorbency	≥ 150 g/m^2	≥ 100 g/m^2	Pass > 150 g/m^2
Vapour Resistance	≤ 7 MN s/g	≤ 7 MN s/g	Pass
Water Resistance	≥ 100 mm	≥ 20 mm	Pass ≥ 100 mm
pH of Extract	≥ 6.0 and ≤ 9.0	≥ 6.0 and ≤ 9.0	Pass
Shrinkage	≤ 0.5%	≤ 0.5%	Pass
Mechanical	Edge tear and tensile strength	Edge tear and tensile strength	**Edge tear (Average):** Machine direction = 192 N Cross direction = 93 N **Tensile strength (Average):** Machine direction = 5.9 kN/m Cross direction = 3.4 kN/m
Air Barrier	Not applicable	Air resistance ≥ 0.1 MN s/m^3	Pass. Thermakraft Covertek 405 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 405 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 a wall underlay. During use, Covertek 405 Roof and Wall Underlay must not be exposed to the building interior.

7.4 Thermakraft Covertek 405 Roof and Wall Underlay must not be used under translucent wall or roof claddings.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Timber and Steel Framing

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

Use as a Roof Underlay

7.6 Thermakraft Covertek 405 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.

7.7 Thermakraft Covertek 405 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.

7.8 At roof pitches of 10° or more, Thermakraft Covertek 405 Roof and Wall Underlay may be run horizontally or vertically.

7.9 At roof pitches less than 10° (minimum 3°), Thermakraft Covertek 405 Roof and Wall Underlay may be run horizontally, or vertically if installed over a roof underlay support.

7.10 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 1,200 mm	Yes	Yes
	1,200 mm or less	No	No
Less than 10° (minimum 3°)	Greater than 1,200 mm	Yes	Yes
	1,200 mm or less	No	Yes

Use as a Wall Underlay

7.11 Thermakraft Covertek 405 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.

7.12 Thermakraft Covertek 405 Roof and Wall Underlay is suitable for use as an air barrier in areas 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), but must not be exposed to the building interior.

7.13 In cavity installations where the cavity battens are installed at greater than 450 mm centres, Thermakraft Covertek 405 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 framing or NASH Building Envelope Solutions, Paragraph 9.1.9.5 for steel framing. Wall underlay restraint options include polypropylene strap, 75 mm galvanised mesh or galvanised wire, vertical cavity battens or thermal break sheathing (steel framing only).

Structure

8.1 Thermakraft Covertek 405 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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Durability

9.1 Thermakraft Covertek 405 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 405 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, the cladding remains weather-resistant, and the underlay is covered by an internal lining. In addition, the product must not be exposed to the weather or UV light for a total of more than 7 days when used as a roof underlay. When used as a wall underlay, a total exposure of 60 days applies.

Control of Internal Fire and Smoke Spread

10.1 Thermakraft Covertek 405 Roof and Wall Underlay has an AS 1530 Part 2 flammability index of not greater than 12 and therefore meets the requirements of NZBC Acceptable Solution C/AS2, Paragraph 4.17.8 a), for the requirements of suspended flexible fabric used as an underlay to exterior cladding that is not exposed to view in occupied spaces. Kingspan Insulation NZ Limited requires that Covertek 405 Roof and Wall Underlay is covered by an internal lining in all applications.

Prevention of Fire Occurring

11.1 Separation or protection must be provided to the Thermakraft Covertek 405 Roof and Wall Underlay from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Acceptable Solution C/AS1 and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

12.1 Thermakraft Covertek 405 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 405 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 Requirement

13.1 All design and building work must be carried out in accordance with the Technical Literature and this Appraisal by competent and experienced tradespeople 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 405 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 underlay 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 405 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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Roof Underlay

14.4 Thermakraft Covertek 405 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 405 Roof and Wall Underlay has a 150 mm lap line printed continuously along the top face.

Wall Underlay

14.6 Thermakraft Covertek 405 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 405 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 405 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 405 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 405 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 405 Roof and Wall Underlay was exposed to UV light.

15.2 The flammability index of Thermakraft Covertek 405 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 405 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 405 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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Quality

17.1 The manufacture of Thermakraft Covertek 405 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 Kingspan Insulation NZ 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 Kingspan Insulation NZ Limited.

17.4 Quality of installation is the responsibility of the installer in accordance with the instructions of Kingspan Insulation NZ 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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

BRANZ

In the opinion of BRANZ, Thermakraft Covertek 405 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 Kingspan Insulation NZ 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. Kingspan Insulation NZ 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 quality of work;
   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 Kingspan Insulation NZ 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 Kingspan Insulation NZ Limited or any third party.

For BRANZ

Claire Falck
Chief Executive

Date of Issue:
01 July 2025

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Kingspan Thermakraft Covertek 405

Product Technical Statement: 113296

miproducts

Fire retardant synthetic roof and wall underlay. Self supporting when used as a roof underlay.
View miproducts listing





Level of assurance needed to demonstrate NZ Building Code Compliance

HIGH

Supporting documentation should include technical information by manufacturer and either a BRANZ or independent Appraisal or CodeMark

Kingspan Thermakraft confirms that this minimum level of assurance has been met or exceeded by the following:
CodeMark
CMNZ 30030
BRANZ Appraisal
743

BPIR

The following information has been provided by Kingspan Thermakraft demonstrating how this product complies with the Building Product Information Requirements.

masterspec partner

Technical Statement

Product Class

CLASS 1

Product Description

Covertek 405 is a premium synthetic roof and wall underlay designed as a means of managing condensation, water vapour transfer and water ingress. It is self-supporting, stable and shrink resistant and can be installed in applications where the roof pitch is 3° and above.

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 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).

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), B2.3.1(c)

  Clause B2 DURABILITY: Performance B2.3.1 (a), not less than 50 years, B2.3.1 (b), 15 years and B2.3.2. Covertek 405 Roof and Wall Underlay meets these requirements.

- **Clause C3 Fire affecting areas beyond the fire source:** Performance C3.4(c)

  Clause C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE: Performance C3.4 (c). Covertek 405 Roof and Wall Underlay meets this requirement.

- **Clause E2 External moisture:** Performance E2.3.2

Company Contact Details

Kingspan

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Website:	www.kingspaninsulation.co.nz

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the roof or wall cladding system, Covertek 405 Roof and Wall Underlay will contribute to meeting this requirement.

- **Clause F2 Hazardous building materials:** Performance F2.3.1
  Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Covertek 405 Roof and Wall Underlay meets this requirement and will not present a health hazard to people.

Notes

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/C, 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 test for wall cladding system compatibility with the underlay before installation.

Evidence

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

Roof Application

- Can be used as an 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 of NASH Building Envelope Solutions, Paragraph 1.1 for steel framed buildings.

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 743 (2019) and CodeMark Certificate CMNZ 30030 RevH

Supporting Evidence

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

CodeMark
CMNZ 30030

BRANZ Appraisal
743

Product Criteria

Design requirements

Covertek 405 Data Sheet

Installation requirements

Covertek 405 Install Guide

Maintenance requirements

No regular maintenance required.

Warrantees

Kingspan Thermakraft Warranty Statement

Company Product Information

Quality Assurance

ISO 9001 (Quality Management)

Relationships

Member of New Zealand Green Building Council

New Zealand Made

Kingspan Thermakraft Covertek 405

Product Technical Statement: 113296

miproducts

Building Product Information Requirements

Manufacturer

Legal Trading Name:
Kingspan Insulation New Zealand Ltd

Business Email:
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Company Website:
www.kingspaninsulation.co.nz

Contact Number/s:
0800 806595

Product Identifier

CTK1250025 CTK1250050 CTK2550075

Warnings

This product has no warnings associated with it.

Date last validated: **30 July 2025**

Date last updated: **30 July 2025**

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

4171GR GIB Weatherline Rigid Air Barrier

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SUPPORTING DOCUMENTS

BRANZ Appraisal 1048 (2025) GIB Weatherline® Rigid Air Barrier Systems

Ref 118530. Uploaded 24 Sep 2026

Purpose: Performance

GIB Weatherline® Rigid Air Barrier Systems

Ref 114591. Uploaded 8 Jun 2026

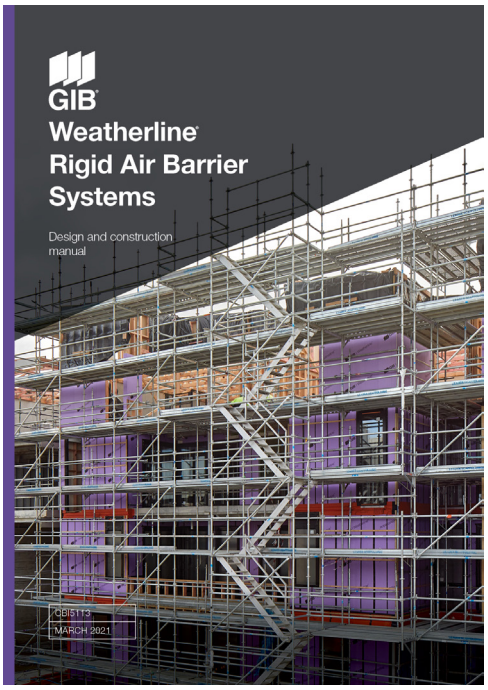
Purpose: Installation, Maintenance

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BRANZ Appraised

Appraisal No. 1048 (2025)

GIB WEATHERLINE® RIGID AIR BARRIER SYSTEMS



Appraisal No. 1048 (2025)

This Appraisal replaces BRANZ Appraisal No. 1048 (2018)

BRANZ Appraisals

Technical Assessments of products for building and construction.

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Product

1.1 GIB Weatherline® is an exterior-grade, glass-fibre, fleece-wrapped, modified gypsum core sheet material for use as a rigid wall underlay and temporary weather-protecting sheathing. The product is also for use in wall bracing and fire-rated systems.

Scope

Buildings Up To 10 m High

2.1 GIB Weatherline® Rigid Air Barrier Systems have been appraised for use as a rigid wall underlay and temporary weather-protecting sheathing on buildings within the following scope:

- constructed with timber framing in accordance with the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; or,
- constructed with steel framing in accordance with the scope limitations of NASH Building Envelope Solutions; and,
- with wall claddings installed over an 18 mm minimum drained cavity; or,
- with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High; or,
- when used in conjunction with wall cladding systems suitable for use with maximum wind pressures for structural and weathertightness design of 2.5 kPa ultimate limit state (ULS).

Buildings Up To 25 m High

2.2 GIB Weatherline® Rigid Air Barrier Systems have also been appraised for use as a rigid wall underlay and temporary weather-protecting sheathing on buildings within the following scope:

- buildings with a building height not exceeding 25 m; and,
- constructed with timber or light-gauge steel framing complying with the NZBC; and,
- with inter-storey deflections designed for up to height/180 of horizontal in-plane movement during seismic service limit state (SLS) events (based on a 3 m inter-storey height); and,
- with wall claddings installed over a 18 mm minimum drained cavity; and,
- for use with maximum wind pressures for structural and weathertightness design of 2.5 kPa ULS for 10 mm thick sheet and up to 4 kPa ULS for 13 mm thick sheet, when used in conjunction with compliant wall cladding systems.

Bracing

2.3 GIB Weatherline® Rigid Air Barrier Systems have also been appraised for use as wall bracing systems for timber-framed buildings within the scope of NZS 3604.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Fire Resistance Rated (FRR) Construction

2.4 GIB Weatherline® Rigid Air Barrier Systems have also been appraised for use as non-loadbearing and loadbearing fire-rated wall systems for timber framing and non-loadbearing steel-framed construction. This Appraisal also covers the use of GIB Weatherline® for fire-rated soffits and fire protection of columns and beams.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, GIB Weatherline® Rigid Air Barrier Systems, 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 B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. GIB Weatherline® Rigid Air Barrier Systems meet the requirements for loads arising from earthquake and wind [i.e. B1.3.3 (f) and (h)]. See Paragraphs 10.1–10.9.

Clause B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years, B2.3.1 (b) 15 years and B2.3.2. GIB Weatherline® Rigid Air Barrier Systems meets these requirements. See Paragraph 11.1.

Clause C3 FIRE AFFECTING AREAS BEYOND THE SOURCE: Performance C3.5 and C3.7. When used as part of an external wall system, GIB Weatherline® Rigid Air Barrier Systems contributes to meeting these requirements. See Paragraphs 12.1-15.7.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the cladding system, GIB Weatherline® Rigid Air Barrier Systems contributes to meeting these requirements. See Paragraphs 16.1-16.3.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. GIB Weatherline® Rigid Air Barrier Systems meet this requirement.

Technical Specification

4.1 The following components are supplied by Winstone Wallboards Ltd:

Exterior

- **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 sheet width of 1,200 mm. Standard sheet lengths are 2,450, 2,750 and 3,000 mm for 10 mm thick sheets and 2,750 and 3,000 mm for 13 mm thick sheets. Custom sheet lengths are also available.
- **GIB® Grabber®** 41 mm x 6 g and 63 mm x 8 g ceramic-coated high-thread drywall screws, and 32 mm x 8 g and 47 mm x 8 g ceramic-coated drill point screws.
- **GIB Weatherline® Flashing Tape** is available in roll widths of 30, 60, 100, 150 and 200 mm, and a roll length of 30 m.
- **GIB Weatherline® Sill Tape** is available in roll widths of 150 and 200 mm, and a roll length of 20 m.
- **GIB Fire Soundseal®** supplied in 375 ml cartridges and 600 ml sausages.

Interior

- **10 and 13 mm thick GIB Fyreline®** is a paper-bound, gypsum-plaster core sheet lining material.
- **10 and 13 mm thick GIB® Standard, GIB Braceline®, GIB Noiseline®, GIB Aqualine®, GIB Ultraline®, GIB Toughline® and GIB Toughline® Aqua**.
- **GIB® Grabber®** 32 and 41 mm x 6 g high-thread drywall screws or 32 mm x 7 g GIB® Grabber® Dual Thread screws or 25 mm x 6g GIB® Grabber® Self Tapping Drywall screws.
- **GIBFix® Angle** 45 x 45 x 0.55 mm galvanised steel angle with a knurled surface. Supplied in lengths of 2.4 and 2.7 m.
- **Jointing tapes, compounds and finishing plasters** in accordance with the GIB® Site Guide.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

- **GIB® Handibrac®** is 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.
- **Concrete floor end-stud hold-down** M12 x 150 mm minimum hot-dip galvanised bolts or proprietary anchor with a minimum characteristic pull-out strength of 15 kN, with a 50 x 50 x 3 mm hot-dip galvanised washer.

4.2 The following components are specified by Winstone Wallboards Ltd and supplied by others:

Cavity battens and fixings

- **Structural timber cavity battens** 45 x 18 mm, clear grade, finger-jointed radiata pine, minimum H3.1 treated timber.
- 75 x 3.15 mm hot-dip galvanised or stainless steel ring shank jolt head nails.
- 75 x 3.06 mm hot-dip galvanised or stainless steel ring shank D-head power-driven nails.

Penetration Seals

- **Pro Clima KAFLEX and ROFLEX Grommets** - refer to BRANZ Appraisal No. 953.

Bond Breaker Tape

- **Bond breaker tape** compatible with GIB Fire Soundseal® when used on inter-storey movement joints.

Handling and Storage

5.1 Handling and storage of all materials supplied by Winstone Wallboards Ltd or the building contractor, whether on-site or off-site, is under the control of the building contractor. GIB Weatherline® sheets must be stacked flat, off the ground and supported on a level platform. They must be kept dry at all times either by storing under cover or providing waterproof covers to the stack. Care must be taken to avoid damage to edges, ends and surfaces. The sheets must always be carried on edge. Other accessories must be stored so they are kept clean, dry and undamaged.

Technical Literature

6.1 This Appraisal must be read in conjunction with:

- GIB Weatherline® Rigid Air Barrier Systems Specification and Installation Manual, March 2021.

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 GIB Weatherline® Rigid Air Barrier Systems are intended for use as a rigid wall underlay fixed over timber and light-gauge steel-framed walls to support the wind pressures, and to act as a secondary barrier to wind-driven rain.

7.2 The suitability of use of GIB Weatherline® Rigid Air Barrier Systems, when used with proprietary wall claddings, must be confirmed with the cladding system proprietor.

GIB Weatherline® Sheet Set Out

7.3 GIB Weatherline® sheets are installed vertically and must only be joined on framing. Horizontal sheet fixing is permitted, but not when bracing or fire-rated systems are specified. At the base of the wall, the sheathing must hang below the bottom plate a minimum of 15 mm, up to a maximum of 40 mm.

Movement Joints

7.4 The designer is responsible for designing movement joints to accommodate thermal and moisture movement in the structure and cladding. This may require movement joints to be incorporated in the GIB Weatherline®. Refer to BRANZ Bulletin Issue 531 Designing for thermal and moisture movement for further information.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Temporary Weather Protection

8.1 Commencing from installation, GIB Weatherline® Rigid Air Barrier Systems must not be exposed to the weather for more than 180 days.

8.2 GIB Weatherline® Rigid Air Barrier Systems may be used as a temporary weather protecting sheathing to allow construction to the building interior (e.g. lining of internal walls) to proceed before the wall cladding is installed. Winstone Wallboards Ltd recommend that the installation of insulation and linings to the external wall is only carried out once the wall cladding installation is complete and the building is weathertight.

8.3 To achieve temporary weathertightness to allow construction to the building interior to continue, all joints, and internal and external corners of GIB Weatherline® Rigid Air Barrier Systems must be sealed with GIB Weatherline® Flashing and Sill Tapes, the roof cladding and soffit linings must be installed, the flexible sill and jamb flashing tape system must be installed around the window and door openings, and the window and door joinery must be installed complete with head flashings and air seals.

8.4 The moisture content of the internal timber framing must not exceed the maximum moisture content specified by the internal lining system supplier at the time of installation of the insulation and internal lining.

Framing

Timber Treatment

9.1 Timber wall framing behind GIB Weatherline® Rigid Air Barrier Systems must be treated as required by NZBC Acceptable Solution B2/AS1.

Timber Framing

9.2 Timber framing must comply with NZS 3604 for buildings or parts of buildings within the scope limitations of NZS 3604. Buildings or parts of buildings outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170. Where specific design is required, the framing must be of at least equivalent stiffness to the framing provisions of NZS 3604. Studs must be at maximum 400 mm or 600 mm centres depending on Wind Zone and sheet fixing option used. Noggings must be fitted flush between the studs at maximum 800 mm centres. *(Note: The timber framing must also be suitable for the selected wall cladding. Refer to the selected cladding system's Technical Literature for specific framing requirements.)*

9.3 Timber wall framing must be a minimum of 45 mm width where GIB Weatherline® sheets are to be joined.

Steel Framing

9.4 Light-gauge steel framing used in FRR walls must meet the requirements of NASH Building Envelope Solutions or be to a specific engineering design (SED).

Structure

Mass

10.1 The mass of GIB Weatherline® is approximately 9 kg/m² for the 10 mm thickness and 11.5 kg/m² for the 13 mm thickness at equilibrium moisture content. This mass must be added to the selected wall cladding system mass when determining the overall wall cladding mass.

Wind Zones/Wind Pressure

10.2 GIB Weatherline® Rigid Air Barrier Systems are suitable for use in all Wind Zones of NZS 3604 up to, and including, Extra High. The systems can also be used in SED buildings with wind pressures of up to 4 kPa. Refer to the Technical Literature for framing, fixing centres and requirements.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Fixings

10.3 GIB Weatherline® sheets can be fixed using two options:

- **Screw and batten fixing** - This fixing option uses screws and vertical structural timber cavity battens. This fixing option is suitable for sheet or horizontal plank-type claddings which are specified for fixing over either structural or non-structural vertical cavity battens. GIB Weatherline® sheets are fixed to studs at maximum 600 mm centres and to the top and bottom of the sheets at maximum 200 mm centres. *[Note: The use of timber cavity battens on buildings over 10 m in height will require that they are part of a wall cladding system meeting the requirements of Paragraph 5.8.4 of NZBC Acceptable Solution C/AS2.]*
- **Screw only** - This option has a more intensive screw fixing pattern. The GIB Weatherline® sheets are fixed to studs and at the top and bottom of the sheets at various centres depending on Wind Zone/Design Wind Pressure and stud spacing. Refer to Table 1 for NZS 3604 buildings and Tables 2 and 3 for SED buildings. This fixing option is also suitable for masonry veneer and vertical plank type claddings which specify horizontal ventilated cavity battens.

10.4 Depending on the performance required for the wall (e.g. bracing, fire resistance), the fixing centres must be closed up to the closest centres specified for all the relevant systems.

Table 1: Screw Only Fixing Centres - NZS 3604 Buildings

NZS 3604 Wind Zone	Stud Centres	
	400 mm	600 mm
Low	300 mm	200 mm
Medium	200 mm	150 mm
High	200 mm	100 mm
Very High	150 mm	SED
Extra High	100 mm	SED

Note: GIB Weatherline® sheets are fixed to studs at the fixing centres noted above and at 200 mm centres at the top and bottom of the sheets.

Table 2: Screw Only Fixing Centres - SED Buildings Using 10 mm GIB Weatherline® Sheets

ULS Design Wind Pressure (kPa)	Stud Centres	
	400 mm	600 mm
0.5	300 mm	300 mm
1.0	250 mm	150 mm
1.5	175 mm	100 mm
2.0	125 mm	SED
2.5	100 mm	SED

Note: GIB Weatherline® sheets are fixed to studs, and at the top and bottom of the sheets, at the fixing centres noted above. Refer to Technical Literature for fixing patterns when using two-layers of 10 mm GIB Weatherline® sheets.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Table 3: Screw Only Fixing Centres - SED Buildings Using 13 mm GIB Weatherline® Sheets

ULS Design Wind Pressure (kPa)	Stud Centres	
	400 mm	600 mm
0.5	300 mm	300 mm
1.0	300 mm	225 mm
1.5	250 mm	150 mm
2.0	200 mm	100 mm
2.5	150 mm	SED
3.0	125 mm	SED
3.5	100 mm	SED
4.0	100 mm	SED

Note: GIB Weatherline® sheets are fixed to studs, and at the top and bottom of the sheets, at the fixing centres noted above.

Cladding and Batten Fixing

10.5 Cladding fixings, including brick tie fixings, must be increased in length by the thickness of the GIB Weatherline® sheet to maintain the minimum timber framing penetration. Similarly, the fixings for cavity battens must be increased in length by the thickness of the GIB Weatherline® sheet. The batten fixings specified in Section 4 of this Appraisal take this required length increase into account.

Bracing

10.6 When used in accordance with this Appraisal and the Technical Literature, the 10 mm and 13 mm GIB Weatherline® Rigid Air Barrier Systems can be used to meet the wall bracing element requirements of NZS 3604, for timber-framed buildings not requiring specific design. The Technical Literature contains details of the construction of the various bracing systems and the bracing unit ratings achieved for each system The bracing units achieved (wind and earthquake) when using GIB Weatherline® Rigid Air Barrier Systems are given in Table 4. The GIB Weatherline® Rigid Air Barrier Systems Technical Literature provides comprehensive construction and panel hold-down details.

10.7 The bracing units are derived from the BRANZ Technical Paper P21 test method based on a wall height of 2.4 m. For any other wall height, the bracing rating can be calculated by multiplying the appropriate value by 2.4 and dividing by the wall height in metres, except that panels less than 1.8 m high must be rated as if they were 1.8 m high.

Penetrations for Services in Bracing Elements

10.8 Holes up to 100 x 100 mm positioned no closer than 200 mm to the edge of a sheet or to another hole, may be allowed for services in GIB Weatherline® Rigid Air Barrier Systems without affecting the bracing rating of the panel. These penetrations are subject to specific fire engineering design where these penetrations occur in FRR walls. The penetration will also need to be flashed to make the penetration weathertight to meet NZBC Performance Clause E2.3.2.

Inter-storey Deflection

10.9 GIB Weatherline® Rigid Air Barrier Systems are able to accommodate inter-storey deflections. When installed in accordance with the detail contained in the Technical Literature, GIB Weatherline® Rigid Air Barrier Systems are capable of withstanding SLS deflections of up to height/180.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Table 4: GIB Weatherline® Bracing Systems

Bracing System	Minimum Bracing Element Length	Lining/Sheathing Requirements	Other Requirements	NZS 3604 Bracing Rating (BU/m)	
				Wind	Earthquake
GSW-N	0.4	Internal: Any 10 or 13 mm GIB® plasterboard External: 10 or 13 mm GIB Weatherline®	None	85	75
	1.2			95	85
GSW-H	0.4	Internal: Any 10 or 13 mm GIB® plasterboard External: 10 or 13 mm GIB Weatherline®	Panel hold-downs	90	85
	1.2			130*	110
W-H	0.4	Internal: None External: 10 or 13 mm GIB Weatherline®		105	100
	1.2			125*	105
BLW-H	0.4	Internal: 10 or 13 mm GIB® Braceline GIB® Noiseline External: 10 or 13 mm GIB Weatherline®		105	115
	1.2			150*	145*

Note: Where lining/sheathings are specified on both faces, each face must be fastened as a bracing element.

** Timber floors – A limit of 120 BU/m applies to NZS 3604 timber floors.*

Durability

11.1 GIB Weatherline® Rigid Air Barrier Systems meet code compliance with NZBC Clause B2.3.1 (a) not less than 50 years, when used for bracing or fire-rated systems where the cladding durability requirement or expected serviceable life is not less than 50 years, e.g. behind masonry veneer, and code compliance with NZBC Clause B2.3.1 (b) 15 years where the cladding durability requirement is 15 years.

Serviceable Life

11.2 Provided it is not exposed to the weather or ultraviolet (UV) light for a total of more than 180 days, and provided the exterior cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather-resistant, GIB Weatherline® Rigid Air Barrier Systems are expected to have a serviceable life of at least 50 years.

11.3 To achieve a 50 year serviceable life in all exposure zones, GIB® Grabber® ceramic coated high thread drywall screws must be protected with either GIB Weatherline® Flashing Tape, GIB Weatherline® Sill Tape or a structural cavity batten.

11.4 Microclimatic conditions, including geothermal hot spots, industrial contamination and corrosive atmospheres, and contamination from agricultural chemicals or fertilisers can convert mildly corrosive atmosphere into aggressive environments for fasteners. The fixing of GIB Weatherline® sheets in areas subject to microclimatic conditions requires specific design in accordance with NZS 3604, Paragraph 4.2.4, and is outside the scope of this Appraisal.

Maintenance

11.5 GIB Weatherline® Rigid Air Barrier Systems will not normally require maintenance. However, if damage occurs to the cladding or lining protecting the GIB Weatherline® Rigid Air Barrier System or to the GIB Weatherline® Rigid Air Barrier System itself, the repairs or replacement must be carried out to ensure the integrity of the rigid wall underlay system.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Prevention of Fire Occurring

12.1 GIB Weatherline® is considered a non-combustible material and need not be separated from heat sources such as fireplaces, heating appliances and chimneys. However, when used in conjunction with, or attached to heat sensitive materials, the heat sensitive materials must be separated from heat sources. Part 7 of NZBC Acceptable Solution C/AS1 and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

Fire Separations

Fire Resistance Ratings

13.1 GIB Weatherline® Rigid Air Barrier Systems can be used for loadbearing and non-loadbearing walls to form FRR separations with an FRR of 30/30/30 or 60/60/60 when constructed in accordance with the Technical Literature.

Control of Internal Fire and Smoke Spread

Structural Stability During Fire

14.1 For buildings within the scope of NZBC Acceptable Solution C/AS2, Paragraph 4.3 provides details on the requirements for primary building elements that structurally support a FRR separation.

Fire Affecting Areas Beyond the Fire Source

Horizontal Fire Spread

15.1 Where the external wall is not protected by a sprinkler system or separated from the relevant boundary as required by NZBC Acceptable Solutions C/AS1 or NZBC Acceptable Solution C/AS2, GIB Weatherline® Rigid Air Barrier Systems will need to be installed as a fire separation with the required FRR.

Vertical Fire Spread - Buildings 10 m in Height or Less

15.2 NZBC Functional Requirement C3.2 identifies that external vertical fire spread to upper floors only needs be considered for buildings with a building height greater than 10 m.

Vertical Fire Spread - Buildings Greater than 10 m in Height

15.3 GIB Weatherline® Rigid Air Barrier Systems can form part of an external wall cladding system designed to meet vertical fire spread requirements. This has not been assessed by BRANZ and is outside the scope of this Appraisal. Specific fire engineering design is required for each building over 10 m in height to ensure the external cladding system will meet the requirements of NZBC Acceptable Solution C/AS2, Section 5.8 or NZBC Verification Method C/VM2, Section 4.6. Refer to Table 5 for information provided to support the specific fire engineering design.

External Cladding Systems

15.4 GIB Weatherline® Rigid Air Barrier Systems achieve a Type A classification, and is therefore suitable for use on external walls in accordance with NZBC Acceptable Solutions C/AS1, Table 5.3.1.1 and NZBC Acceptable Solution C/AS2, Section 5.8.

15.5 The components listed in Table 1 form a part of the GIB Weatherline® Rigid Air Barrier Systems and have been tested or assessed and achieved the following results and classifications.

Table 5: Components of the GIB Weatherline® Rigid Air Barrier Systems

Component	Test Method	Result
GIB Weatherline®	BE EN 13501	A1 (non-combustible)
GIB Weatherline®	ISO 5660.1	Type A

15.6 The specific fire engineering design for the building must include specific detailing at each floor level to meet the requirements for cavity barriers as specified in NZBC Acceptable Solution C/AS2, Paragraph 5.8.5.

15.7 Refer to NZBC Acceptable Solutions C/AS1, NZBC Acceptable Solution C/AS2 and NZBC Verification Method C/VM2 for FRR, control of external fire spread and vertical fire spread requirements for external walls.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

External Moisture

16.1 GIB Weatherline® Rigid Air Barrier Systems must be used behind claddings that meet the performance requirements of NZBC Clause E2.

16.2 GIB Weatherline® Rigid Air Barrier Systems, when installed in accordance with the Technical Literature and this Appraisal, will contribute to the total wall cladding system's compliance with NZBC Clause E2.

16.3 GIB Weatherline® Rigid Air Barrier Systems are suitable for use under wall claddings as an alternative to the rigid wall underlay specified in NZBC Acceptable Solution E2/AS1, Table 23 on timber-framed buildings, except that direct-fixed claddings must not be installed over the GIB Weatherline® Rigid Air Barrier System. Refer to Table 6 for GIB Weatherline® Rigid Air Barrier Systems NZBC Acceptable Solution E2/AS1, Table 23 properties.

Table 6: NZBC Acceptable Solution E2/AS1, Table 23 Properties

NZBC E2/AS1, Table 23 Rigid Wall Underlay Properties	Property Performance Requirement	GIB Weatherline® Rigid Air Barrier Systems Actual Property Performance
Vapour Resistance	≤ 7 MN s/g	≤ 0.8 MN s/g
Water Resistance	≥ 20 mm	Pass

Installation Information

Installation Skill Level Requirements

17.1 All design and building work must be carried out in accordance with the GIB Weatherline® Rigid Air Barrier System's Technical Literature and this Appraisal by competent and experienced tradespeople conversant with rigid air barriers. 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.

System Installation

GIB Weatherline® Rigid Air Barrier System Installation

18.1 GIB Weatherline® Rigid Air Barrier Systems may be cut by scoring and snapping, hand guillotine, hand or power saw. Holes and cut-outs may be formed by drilling a number of holes around the perimeter of the opening required and tapping out the centre with a hammer, or by using a hole saw.

18.2 The sheet fixings must be positioned a minimum of 12 mm from bound sheet edges and 18 mm from cut edges. The fixing must be driven at right angles to the sheet until the head finishes flush with the sheet surface.

18.3 GIB Weatherline® sheets must be dry prior to installation.

18.4 Prior to fixing GIB Weatherline® sheets, a check must be made to ensure all sheet edges will be supported by framing.

18.5 GIB Weatherline® sheets must be fixed to the framing with fixings as specified in Paragraph 4.1 and Tables 1-3. The maximum fixing centres must be as specified in the Technical Literature. Depending on the performance required for the wall (e.g. bracing, fire resistance), the fixing centres must be closed up to the closest centres specified for all the relevant systems.

18.6 Sheets at inter-storey floor levels on multi-storey timber-framed buildings must have a minimum 10 mm gap between the sheet ends to allow for shrinkage of the framing, as detailed in the Technical Literature. Where facade fire spread is a design requirement, the gap between sheets must be filled with a continuous bead of GIB Fire Soundseal® over a bond breaker tape and covered with GIB Weatherline® Flashing Tape. Horizontal sheet joints that are located at positions other than at inter-story floor levels, are installed touch fitted and must be supported over horizontal framing.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

18.7 Holes or gaps around service penetrations must be made weathertight by using GIB Weatherline® Flashing or Sill Tape, or with Pro Clima KAFLEX or ROFLEX Grommets. Any small damaged areas of GIB Weatherline® sheet can be repaired by covering with joint sealing tape following the details in the Technical Literature.

Joint Sealing Tape Installation

18.8 All vertical and horizontal sheet joints, internal and external corners, and exposed screws (except where they will be covered by a vertical cavity batten e.g. intermediate studs) must be covered with GIB Weatherline® Flashing Tape. The GIB Weatherline® Flashing Tape must be installed as soon as practical to avoid sheet wetting. The manufacturer's instructions regarding the application temperatures for the joint sealing tapes must be followed. The GIB Weatherline® sheets must be dry before flashing tape and batten installation. They must also be cleaned of dust and other surface contaminants prior the application of the joint sealing tape to ensure adequate adhesion is achieved.

Window Tape Installation

18.9 GIB Weatherline® Sill Tape must be installed to the sill of window and door openings. The head and jambs of window and door openings must be covered with GIB Weatherline® Flashing Tape. Attention must be paid to ensure all exposed timber wall framing in the opening is protected. This requirement does not apply where Altus Smartfit® window and door joinery is used. Refer to BRANZ Appraisal No. 868.

Batten Installation

18.10 Where required, structural cavity battens must be fixed in accordance with the Technical Literature.

18.11 Vertical cavity battens must be discontinuous over inter-storey sheet joints to allow for movement.

Internal Linings and Insulation

18.12 Internal linings and insulation must be installed in accordance with the relevant manufacturer's instructions.

Cladding Installation

18.13 Claddings must have control joints or be designed to accommodate movement at inter-storey sheet joint location.

Inspections

18.14 The Technical Literature must be referred to during the inspection of GIB Weatherline® Rigid Air Barrier Systems installation.

Health and Safety

19.1 Dust resulting from the sanding of internal linings, jointing or finishing compounds may be a respiratory irritant, therefore the use of suitable respiratory protection is recommended. Where sealants, insulation and other materials are used, the instructions of the manufacturer must be followed.

Basis of Appraisal

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

Tests

20.1 Bracing tests were carried out by Winstone Wallboards Ltd in accordance with BRANZ Technical Paper P21 to determine the performance of GIB Weatherline® Rigid Air Barrier Systems when the building is subjected to lateral wind or earthquake loading. The test facilities of Winstone Wallboards Ltd, their procedures and the test results have been reviewed by BRANZ and found to be satisfactory.

20.2 Testing has been carried out at an external laboratory to determine the face load pressure resistance and temporary weathertightness performance of GIB Weatherline® Rigid Air Barrier Systems. The laboratory facilities, their procedures and the test results have been reviewed by BRANZ and found to be satisfactory.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

20.3 BRANZ has completed testing to evaluate the suitability of fixing brick ties over GIB Weatherline® sheet.

20.4 The resistance of GIB Weatherline® Rigid Air Barrier Systems to water vapour transmission and resistance to water penetration in accordance with NZS 2295 has been completed by BRANZ.

20.5 GIB Weatherline® has been tested in accordance with ISO 5660.1 and achieved a Type A classification. Testing was carried out in accordance with NZBC Acceptable Solution C/AS1, Appendix E, Section E.5.1 and NZBC Acceptable Solution C/AS2, Appendix C, Section C7.1.

20.6 GIB Weatherline® Rigid Air Barrier Systems have been tested to AS 1530.4 in accordance with NZBC Acceptable Solution C/AS1, Appendix E, Paragraph E3.1.1 a) and NZBC Acceptable Solution C/AS2, Appendix C, Paragraph C5.1.1 a) and achieved FRR as detailed in Paragraph 13.1.

Other Investigations

21.1 Structural, fire and durability opinions have been given by BRANZ technical experts.

21.2 Non-combustibility testing to ISO 1182 were completed by CSIRO and were reviewed by BRANZ Fire Engineers. An opinion on the classification of the product in accordance with BS EN 13501 has been provided.

21.3 BRANZ expert opinion on NZBC Clause E2 code compliance for GIB Weatherline® Rigid Air Barrier Systems was based on evaluation of all details within the scope and as stated within this Appraisal. The details contained within the Technical Literature have been reviewed, and an opinion has been given by BRANZ technical experts that the system will meet the performance levels of NZBC Acceptable Solution E2/AS1 for rigid sheathings.

21.4 Site inspections were carried out by BRANZ to assess the practicability of installation.

21.5 The Technical Literature for GIB Weatherline® Rigid Air Barrier Systems has been examined by BRANZ and found to be satisfactory.

Quality

22.1 The manufacture of GIB Weatherline® Rigid Air Barrier Systems has been examined by BRANZ, including methods adopted for quality control. Details regarding the composition of the materials used were obtained by BRANZ and found to be satisfactory.

22.2 The quality of materials, components and accessories supplied by Winstone Wallboards Ltd is the responsibility of Winstone Wallboards Ltd. The quality control system of the Winstone Wallboards Ltd has been assessed and registered as meeting the requirements of ISO 9001.

22.3 Quality of installation on-site of components and accessories supplied by Winstone Wallboards Ltd and the building contractor is the responsibility of the installer.

22.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing systems, flashings, joint seal tapes and flexible sill and jamb tape systems in accordance with the instructions of Winstone Wallboards Ltd.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Sources of Information

- AS 1530.4:2005 Fire-resistance of elements of building construction.
- AS/NZS 1170:2002 Structural design action – General principles.
- AS/NZS 3837:1998 Method of test for heat and smoke release rates for materials and properties using an oxygen consumption calorimeter.
- BRANZ Bulletin Issue 531 Designing for thermal and moisture movement.
- BS EN 13501 Fire classification of construction products and building elements Part 1: 2018 Classification using test data from reaction to fire tests.
- ISO 1182:2010 Reaction to fire tests for products - Non-combustibility test.
- ISO 5660.1:2002 Heat release rate (cone calorimeter method).
- NASH Building Envelope Solutions: 2019 Light steel-framed buildings.
- NZS 2295:2006 Pliable, permeable building underlays.
- 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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

BRANZ

In the opinion of BRANZ, GIB Weatherline® Rigid Air Barrier 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 quality of work;
   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

Claire Falck
Chief Executive

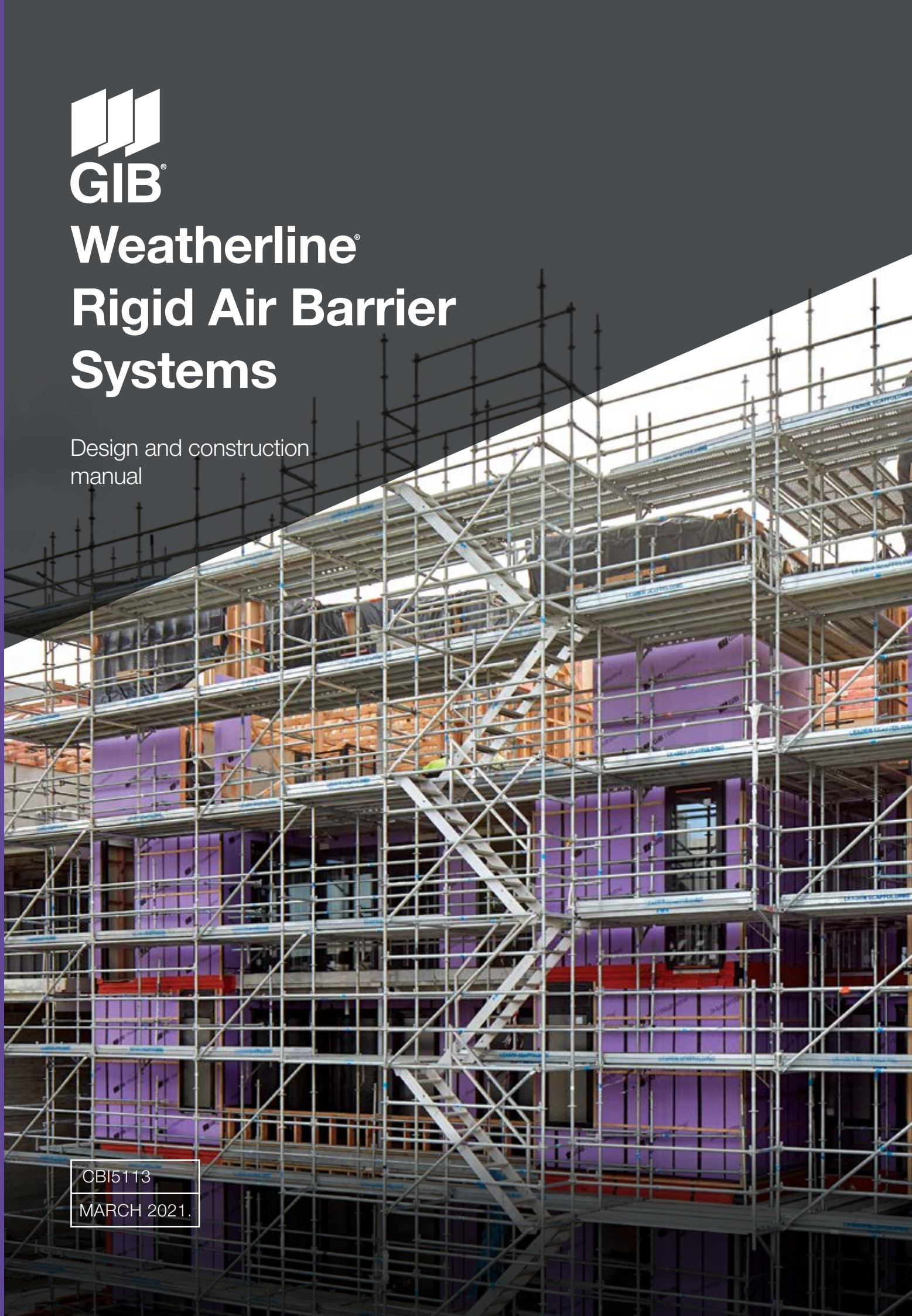
Date of Issue:
14 April 2025

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

GIB®

Weatherline® Rigid Air Barrier Systems

Design and construction manual



CBI5113

MARCH 2021.

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GIB® HELPLINE

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GIB Weatherline® Rigid Air Barrier Systems are intended for use exclusively with drained and vented cavity cladding systems (used in place of a flexible wall underlay). They function as an air barrier and as an effective secondary line of defence against water penetration into the building interior.

This document covers the use of GIB Weatherline® Rigid Air Barrier Systems in buildings designed within the scope of the current version of NZS 3604, and within specific engineering design (SED).

Why use a rigid air barrier

A rigid air barrier is an extremely effective way of managing the air pressure that acts on the exterior of a building – the higher pressure external air has the potential to drive external moisture through the exterior weather envelope (cladding) and into the wall assembly or lower pressure building interior. By installing a rigid air barrier to moderate this pressure, the external driving force is reduced and any potential moisture penetration is mitigated.

In situations where external moisture is driven through the exterior cladding (the main line of defence against moisture), in a correctly designed and built cavity cladding system this moisture should drain down the back face of the cladding and out through the opening at the bottom of the cladding.

In extreme situations where moisture that is driven through the exterior cladding goes beyond the back of the cladding and reaches the face of the rigid air barrier, the barrier acts as a secondary line of defence and in a correctly designed and built system, effectively drains this moisture downwards and out through the opening at the bottom of the cavity cladding system.

GIB Weatherline® Rigid Air Barrier Systems constitute an effective rigid air barrier and a weather resistant secondary line of defence to manage potential external moisture penetration.

Other benefits of the GIB Weatherline® Rigid Air Barrier Systems are covered in this manual.

GIB Weatherline® Rigid Air Barrier Systems

The systems have been developed as both a rigid air barrier and also as temporary weather protection for the exterior of a building (in conjunction with installed roof, soffit linings and exterior joinery) for a period of up to 180 days, prior to the installation of the exterior cladding. They are suitable for use in both residential and commercial buildings.

GIB Weatherline® Rigid Air Barrier Systems provide structural bracing and fire protection performance. They can also assist in the reduction of external environmental noise.

GIB Weatherline® Rigid Air Barrier Systems consist of a 10mm or 13mm sheet with a water and mould resistant fibreglass reinforced gypsum core and a water resistant synthetic glass fibre sheet facing on both sides. Sheets are screw fixed to the outside face of a timber or steel frame with all vertical or horizontal joints, and penetrations covered with a weathertight flashing tape. A range of sheet sizes are available. All of the GIB Weatherline® Rigid Air Barrier Systems are fast and easy to install.

GIB Weatherline® Rigid Air Barrier Systems comply as an Alternative Solution proprietary system within the New Zealand Building Code (NZBC) requirements for rigid wall underlays. These are covered in E2/AS1 (the compliance document for Building Code clause E2 External Moisture) section 9.1.4, 9.1.7.2 and the performance requirements of Table 23 (Properties of roof underlays and wall underlays).

GIB Weatherline® Rigid Air Barrier Systems have been tested for wind speeds up to and including Extra High wind zone as defined in NZS 3604 and for buildings outside the scope of NZS 3604 (specific engineering design).

GIB Weatherline® Rigid Air Barrier Systems must be accurately installed in accordance with Winstone Wallboards Ltd's instructions and in line with good building practices and sound design principles to comply with the Building Act 2004, the NZBC, and any applicable New Zealand Standards.

This document contains information and instructions regarding the properties, handling, installation, usage and maintenance of GIB Weatherline® Rigid Air Barrier Systems.

Winstone Wallboards Ltd accepts no liability if the GIB Weatherline® Rigid Air Barrier Systems are not used in accordance with the instructions contained in this publication.

BRANZ Appraised
Appraisal No.1048 [2019]

GIB Weatherline® Rigid Air Barrier Systems

Specification		LB/ NLB	FRR	Lining requirements	Page
Wind Loading Fixing Options					
Rigid Air Barrier Systems	Structural batten, screw and tape NZS 3604	LB	—	**Interior:** Any GIB® plasterboard **Exterior:** 10mm or 13mm GIB Weatherline®	20
	Screw and tape NZS 3604	LB	—	**Interior:** Any GIB® plasterboard **Exterior:** 10mm or 13mm GIB Weatherline®	22
	Screw and tape SED	LB	—	**Interior:** Any GIB® plasterboard **Exterior:** 10mm or 13mm GIB Weatherline®	24
Structural Bracing Systems					
Structural Bracing Systems	GSW-N	LB	—	**Interior:** 10mm or 13mm GIB® Standard plasterboard **Exterior:** 10mm or 13mm GIB Weatherline®	28
	GSW-H	LB	—	**Interior:** 10mm or 13mm GIB® Standard plasterboard **Exterior:** 10mm or 13mm GIB Weatherline®	30
	W-H	LB	—	**Interior:** None **Exterior:** 10mm or 13mm GIB Weatherline®	32
	BLW-H	LB	—	**Interior:** 10mm or 13mm GIB Braceline® GIB Noiseline® **Exterior:** 10mm or 13mm GIB Weatherline®	34
Fire Rated Timber Frame Systems*					
External Walls	GWTLE 30	LB	30/30/30	**Interior:** 10mm GIB Fyreline® **Exterior:** 10mm GIB Weatherline®	37
	GWTLE 60a	LB	60/60/60	**Interior:** 13mm GIB Fyreline® **Exterior:** 13mm GIB Weatherline®	38
	GWTLE 60b	LB	60/60/60	**Interior:** 13mm GIB Fyreline® **Exterior:** 2 x 10mm GIB Weatherline®	39
Parapet or Wingwalls	GWTLP 30	LB	30/30/30	**Exterior:** 10mm GIB Weatherline® both sides	40
	GWTLP 60	LB	60/60/60	**Exterior:** 13mm GIB Weatherline® both sides	41

*See page 16 for recommendations to limit vertical fire spread in multi-level buildings or refer to proprietary cladding supplier data.

GIB Weatherline® Rigid Air Barrier Systems

Specification		LB/ NLB	FRR	Lining requirements	Page
Fire Rated Steel Frame Systems*					
External Walls	GWSE 60	NLB	-/60/60	**Interior:** 13mm GIB Fyreline® **Exterior:** 13mm GIB Weatherline®	42
Parapet or Wingwalls	GWSP 60	NLB	-/60/60	**Exterior:** 13mm GIB Weatherline® both sides	43
Fire Rated Soffit Systems					
Fire Rated Soffits	GWUC 30	LB	30/30/30	**Exterior:** 1 x 13mm GIB Weatherline®	44
	GWUC 60	LB	60/60/60	**Exterior:** 2 x 13mm GIB Weatherline®	45
Fire Rated Protection of Columns and Beams					
Timber Strapping	GWCBT 15	LB	15/-/-	**Exterior:** 13mm GIB Weatherline®	46
	GWCBT 30	LB	30/-/-	**Exterior:** 2 x 10mm GIB Weatherline®	46
	GWCBT 60	LB	60/-/-	**Exterior:** 2 x 13mm GIB Weatherline®	46
Steel Clip and Channel	GWCBS 15	LB	15/-/-	**Exterior:** 13mm GIB Weatherline®	47
	GWCBS 30	LB	30/-/-	**Exterior:** 2 x 10mm GIB Weatherline®	47
	GWCBS 60	LB	60/-/-	**Exterior:** 2 x 13mm GIB Weatherline®	47
Environmental Noise					
GIB Weatherline® Systems when combined with GIB® internal linings contribute to quieter indoor spaces by effectively reducing the transmission of environmental noise.					49

*See page 16 for recommendations to limit vertical fire spread in multi-level buildings or refer to proprietary cladding supplier data.

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GIB Weatherline® Rigid Air Barrier System benefits

MAIN GIB WEATHERLINE® BENEFITS:

- Moisture protection.
- Early close-in.
- Ease of handling.
- Cost effective.
- NZBC compliant.

GIB WEATHERLINE® PERFORMANCE OPTIONS:

- Wind pressure solutions.
- Bracing systems.
- Fire rated systems.
- Façade solutions.
- Environmental noise.

FIGURE 1: TYPICAL INSTALLATION OF GIB WEATHERLINE® SYSTEM



GIB Weatherline® Rigid Air Barrier System benefits

BENEFITS TO BUILDING AND HOME OWNERS

- **Enhances thermal efficiency** of the building by reducing uncontrolled air movement.
- **Protection against moisture penetration** by providing a water resistant secondary line of defence.
- **Quicker construction times** by allowing work to commence inside before the cladding is installed.
- **Fire protection options** for external walls.
- **Environmental noise control options** to help make a quieter home.

BENEFITS TO BUILDERS

- **Easy handling and fast installation:** simply score, snap and screw fix.
- **Safe to handle:** no harmful dust created when cutting.
- **Early close in** providing temporary weather protection for up to 180 days allowing construction inside to proceed. Unless the building envelope is fully weathertight, insulation and lining of external walls is best carried out once the cladding is installed.
- **NZBC compliant:** made and tested in New Zealand specifically for New Zealand conditions.
- **Cost effective fire rated systems** including 30min and 60min FRR options.
- **Structural bracing elements** with double and single sided options.
- **Dimensionally stable sheets** with moisture and mould resistance.

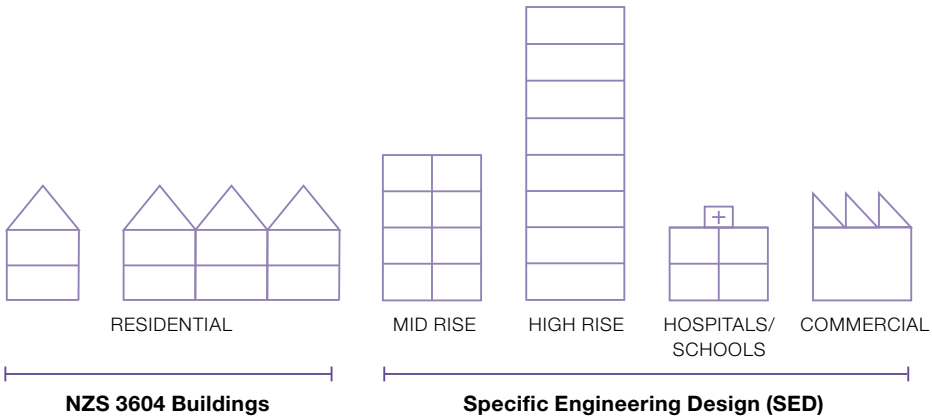
BENEFITS TO DESIGNERS

- **Moisture protection** by providing a second line of defence against water penetration.
- **Enhanced thermal efficiency** of the building by reducing uncontrolled air movement.
- **NZBC Compliant:** thoroughly tested for New Zealand conditions up to and including Extra High wind zones.
- **Cost effective fire rated systems** including 30min and 60min FRR for external, parapet and wing walls. Also 30min and 60min FRR for soffits and structural steel.
- **Structural bracing elements** with double and single sided options easily accessed in the GIB Ezybrace® calculator.
- **Environmental noise control options** using typical claddings.
- **Tested as a cladding substrate** to limit vertical fire spread.

BRANZ APPRAISAL

- **GIB Weatherline® Rigid Air Barrier Systems** have been appraised by (BRANZ), Appraisal No. 1048 (2019).
- **It is of prime importance** to comply with the details of design construction and workmanship as outlined in this manual.

SUITABLE BUILDING TYPES FOR GIB WEATHERLINE® SYSTEMS



GIB Weatherline® Rigid Air Barrier Systems components

GIB WEATHERLINE® SHEET RANGE

Edge Profile*	Thickness (mm)	Sheet width (mm)	Sheet length (mm)	Max. kg/m²
SE/SE	10	1200	2450	9.0
SE/SE	10	1200	2750	9.0
SE/SE	10	1200	3000	9.0
SE/SE	13	1200	2750	11.5
SE/SE	13	1200	3000	11.5



GIB WEATHERLINE® FLASHING TAPE

— Available widths 30mm, 60mm, 100mm, 150mm and 200mm
— 30m roll length



GIB WEATHERLINE® SILL TAPE

— Available widths 150mm and 200mm
— 20m roll length



GIB® GRABBER® SCREW RANGE

Timber framing

41mm x 6g Ceramic Coated High Thread Screw for timber framing

— Available in cartons of 1,000 (collated only).

63mm x 8g Ceramic Coated High Thread Screw for timber framing

— Available in cartons of 500 (loose only).



Steel framing

32mm x 8g Ceramic Coated Drill Point Screw for steel framing

— Available in cartons of 1,000 (collated only).

47mm x 8g Ceramic Coated Drill Point Screw for steel framing

— Available in cartons of 800 (collated only).



Handling and installation

ON-SITE STORAGE

GIB Weatherline® Rigid Air Barrier Systems components must be stored and handled with care to maintain their condition prior to installation.

GIB Weatherline® Rigid Air Barrier Systems components must be covered and protected from the elements when stored on site. The sheets must be protected from any mechanical damage and must be kept dry prior to installation.

GIB Weatherline® Rigid Air Barrier Systems sheets must be fully supported on pallets or consistently along the length and width of the sheets when supported flat on the structure prior to installation.

GIB Weatherline® Rigid Air Barrier Systems sheets must be stacked flat and never on their edges.

Any sheets or part sheets that are damaged on site must not be installed. Ensure that sheets are dry at time of installation.

HANDLING AND CUTTING

Position the sheet with the purple side of the sheet facing up. Mark and cut the sheet as required with a straight edge and utility knife, cutting through the face and the core.

Break the sheet core by snapping the sheet back along the cut line. Turn the sheet over and cut along the back liner to complete the cut.

Cutting out openings

Openings can be marked and cut out either prior to installing GIB Weatherline® sheets or after the sheets are fixed in place. Create a small nail hole in each corner then use a pencil to mark out the edges of the opening. Use the score and snap method or a handsaw to cut along the marked lines. Ensure cut out edges are smoothed off and free of dust to allow a good bond when flashing tapes are applied.

Hole forming

- Hole saw:
  Mark the centre of the hole on the sheet and pre-drill a pilot hole. Cut the hole to the correct diameter with a circular hole saw fitted to a drill.
- Handheld saw or jigsaw:
  Mark the diameter of the hole to be cut on the face of the sheet, pre-drill a pilot hole on the cut line and cut it out with a hand held keyhole saw or a jig-saw.

SHEET LAYOUT

GIB Weatherline® sheets must be installed with the purple branded face outwards. Ensure the sheets are in good condition with no damage prior to installation and are dry and free of sawdust, dirt or any other contaminants.

Sheets must be installed vertically when GIB Weatherline® Rigid Air Barrier Structural Bracing or Fire Rated Systems are specified. Otherwise sheets may be installed vertically or horizontally. Sheets shall be touch fitted. Select sheet lengths to ensure that a 10mm horizontal movement control joint is achievable at any mid or intermediate floor. Fill this joint with a continuous bead of GIB® Fire Soundseal when facade fire spread is a design consideration. All sheet edges (vertical, horizontal and raked) must be fully supported by wall framing.

Bottom edges of the sheets at the ground floor bottom plate junction must overhang by 15mm minimum. Cavity closers, as required, must be installed in conjunction with cavity battens.

Fix soffit framing over the GIB Weatherline® Rigid Air Barrier Systems, once all sheets have been installed and joints have been taped.

FASTENERS

Screw fix GIB Weatherline® sheets to exterior timber wall framing with GIB® Grabber® 41mm x 6g Ceramic Coated High Thread Screws. GIB® Grabber® 63mm x 8g Ceramic Coated High Thread Screws are available for some multiple layer installations.

Screw fix GIB Weatherline® sheets to the exterior steel wall framing with GIB® Grabber® 32mm x 8g Ceramic Coated Drill Point Screws. GIB® Grabber® 47mm x 8g Ceramic Coated Drill Point Screws are available for some multiple layer installations.

GIB® Grabber® Ceramic Coated Screws can be used for all sheet fixings when covered with GIB Weatherline® Rigid Air Barrier Systems Flashing Tape, a self-adhesive Water Resistive Barrier (WRB) or a structural cavity batten for NZS 3604 Exposure Zones B, C and D.

FIXING SHEETS

All GIB Weatherline® sheet edges must be fixed to vertical and horizontal framing. The mid-sheet is fixed to studs placed at a maximum of 600mm centres. Screw centres depend on wind loading requirements as set out in this manual. Screw fixings are also required to wall framing at any raked sheet edges. There is no requirement to screw fix sheets to any nogs or any other horizontal mid-sheet framing.

Edge fixing for screws must be a minimum distance of 12mm from bound sheet edges and 18mm from unbound sheet edges (or cut sheet edges).

Ensure screws are not over driven and that the head of the screw finishes flush with the face of the sheet. Where screws have been over driven (and the face liner has been damaged and the core exposed), install a new screw fixing 25mm away and adjacent to the over driven fixing.

FLASHING AND SILL TAPE INSTALLATION

Once the GIB Weatherline® sheets have been screw fixed in place, GIB Weatherline® Flashing and Sill Tapes are to be installed, as shown within the diagram in this section. It is strongly recommended that horizontal flashing tapes be installed before vertical flashing tapes. Ensure all tape is firmly pressure fitted using a plastic paddle.

Handling and installation instructions are contained inside the centre of each tape roll. It is recommended that you contact your local Building Consent Authority regarding the inspection sequence.

GIB WEATHERLINE® FLASHING AND SILL TAPE RANGE

GIB Weatherline® branded tapes must be used as part of the systems contained within this manual, to ensure the required level of performance.

Timber framing

GIB Weatherline® Flashing and Sill Tape application location and width

- mid-sheet vertical stud fasteners — 30mm flashing tape (not required for structural batten, screw and tape option)
- bottom plate fasteners — 30mm flashing tape
- fasteners beneath soffits or gable end overhangs — 30mm flashing tape
- vertical sheet joints — 60mm flashing tape
- horizontal sheet joints — 100mm flashing tape
- midfloor horizontal sheet joints — 100mm flashing tape
- interior/exterior corners — 100mm flashing tape
- window & door jambs 90mm frame — 150mm flashing tape
- window & door jambs 140mm frame — 200mm flashing tape
- window & door sills 90mm frame — 150mm sill tape
- window & door sills 140mm frame — 200mm sill tape

Steel framing

GIB Weatherline® Flashing and Sill Tape application location and width

- mid-sheet vertical stud fasteners — 30mm flashing tape
- bottom channel fasteners — 30mm flashing tape
- fasteners beneath soffits or gable end overhangs — 30mm flashing tape
- vertical sheet joints — 60mm flashing tape
- horizontal sheet joints — 100mm flashing tape
- midfloor horizontal sheet joints — 100mm flashing tape
- interior/exterior corners — 100mm flashing tape
- window & door jambs 92mm frame — 150mm flashing tape
- window & door jambs 150mm frame — 200mm flashing tape
- window & door sills 92mm frame — 150mm sill tape
- window & door sills 150mm frame — 200mm sill tape

TAPE STORAGE AND HANDLING

GIB Weatherline® Flashing and Sill Tapes should be stored in a dry area, away from heat or direct sunlight, prior to installation.

SHEET PREPARATION AND TAPE INSTALLATION

Ensure that all sheets are free of sawdust, dirt or any other contaminants which may affect tape adhesion and that they are dry prior to applying the flashing tapes.

Split back tapes allow for easier installation at internal corners, external corners and window openings.

Tape laps – it is recommended wherever possible that any lower tape is overlapped by the tape above. The minimum tape lap is 30mm and must be pressure fitted. It is also strongly recommended that wherever possible horizontal flashing tapes be installed before vertical flashing tapes.

Tape locations – ensure tapes are centrally located over fasteners and joints. Follow the locations as shown in the diagrams within this section.

Pressure fitted – all tapes must be firmly pressure fitted along the length using the plastic paddle (as supplied).

Wrinkles/bubbles – all wrinkles or bubbles must be pressed out using the plastic paddle. Any upward facing wrinkles must be pressed tight and flat – install another appropriately sized piece of tape over wrinkles that can't be flattened out effectively.

PENETRATIONS

All exposed framing at external joinery openings and meter boxes (or similar) must be covered with GIB Weatherline® Flashing and Sill Tapes.

Once the GIB Weatherline® Flashing and Sill Tapes have been installed, consideration needs to be given to how the air seals between the window and door joinery and the taped openings will be achieved.

External window and door joinery units must be sealed into their openings to prevent airflow carrying water into the building. This air seal can be formed with self-expanding polyurethane foam or a suitable sealant.

The exposed timber of external openings fitted with Altus Smartfit® window and door joinery do not need to be fitted with an airseal or GIB Weatherline® Flashing and Sill Tapes.

Air seal formed with self-expanding polyurethane foam

Self-expanding polyurethane foams adhere well to GIB Weatherline® Flashing and Sill Tapes. No additional taping of the window and door openings is required before the joinery is installed. To form the air seal, install the polyurethane foam in accordance with the product data sheet. Insert a closed cell polyethelene foam (PEF) backing rod before installing the self-expanding polyurethane foam. This is to ensure that the expanding foam does not bridge to the outside of the wall.

Air seal formed with sealant

Sealants adhere well to GIB Weatherline® Flashing and Sill Tapes. No additional taping of the window and door openings is required before the joinery is installed. Ensure that all GIB Weatherline® Flashing and Sill Tapes are dry and free from sawdust, dirt or other contaminants which may affect the adhesion of the sealant. Once the joinery has been installed the air seal can be formed by installing sealant in accordance with the manufacturer's instructions.

Install a closed cell polyethelene foam (PEF) backing rod before installing the sealant. This is to ensure that the sealant does not bridge to the outside of the wall.

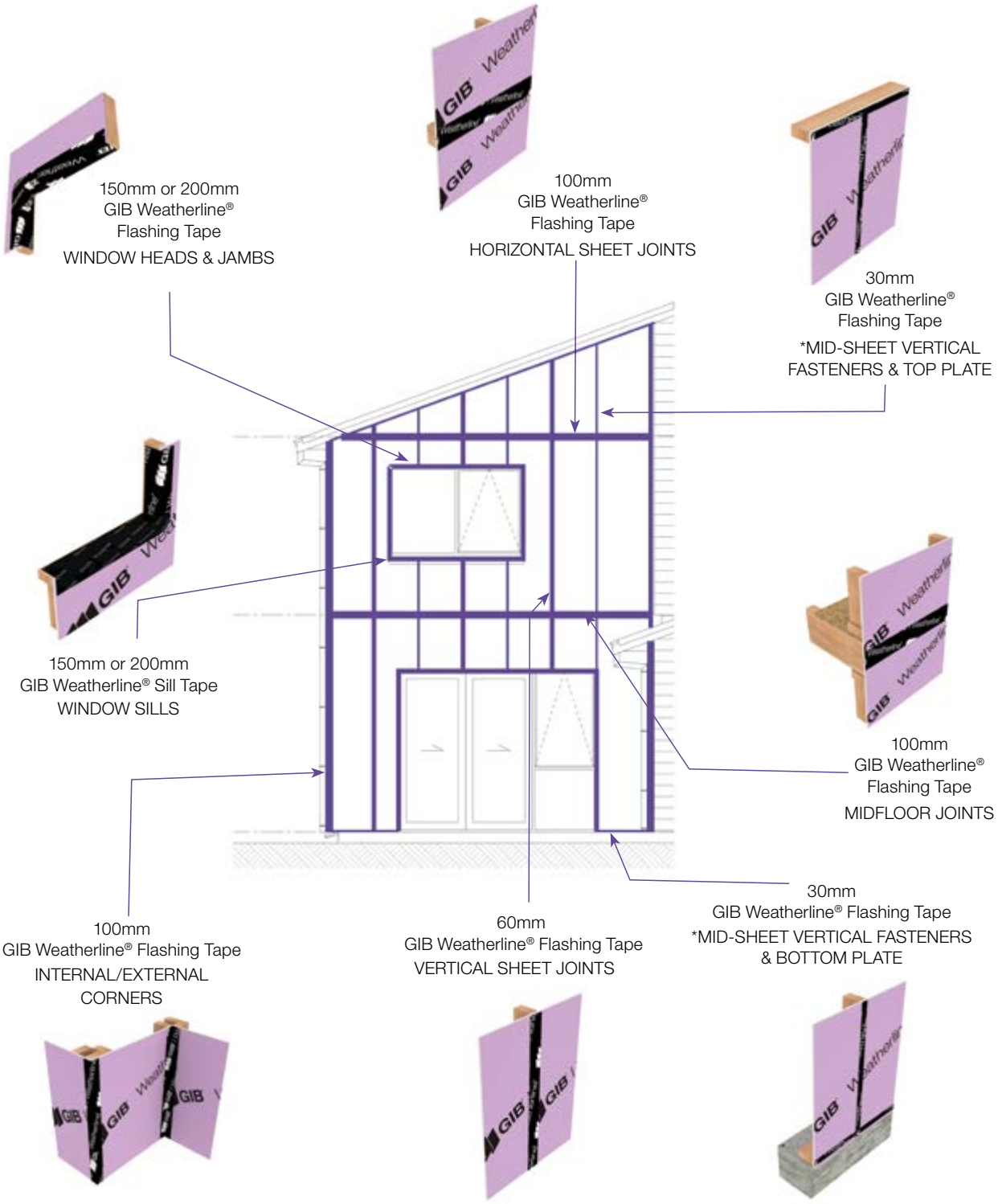
Building service penetrations

Building services penetrating any of the GIB Weatherline® Rigid Air Barrier Systems must be sealed using the Proclima Kaflex or Roflex penetration seal grommets. Ensure all Proclima installation instructions are followed.

HOW TO VIDEOS

For more information, call the GIB® Helpline on 0800 100 442 or go to gib.co.nz. Helpful 'How-to' installation videos are available on the website and the GIB® app.

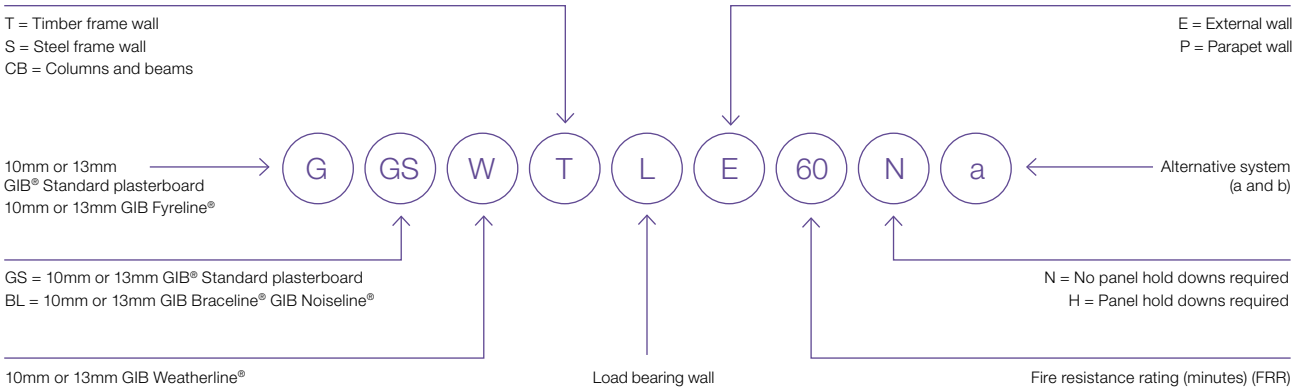
FLASHING AND SILL TAPE LOCATION DIAGRAM



*Note: Flashing tape to mid-sheet vertical fasteners not required when fasteners are covered with a structural cavity batten.

Design considerations

Specification reference example



SCOPE OF USE

GIB Weatherline® Rigid Air Barrier Systems are designed to provide a NZBC compliant rigid air barrier exclusively for drained and vented cavity cladding systems (used in place of a flexible wall underlay), where they function as an air barrier and as an effective secondary line of defence against water penetration into the building interior.

The systems have been designed both as a rigid air barrier and as temporary weather protection, for the exterior of a building (in conjunction with fully installed roof, soffit linings and exterior joinery) for a period up to 180 days, prior to the installation of the exterior cladding. They are designed for use in buildings designed within the scope of NZS 3604, E2/AS1 or elements may be incorporated into specific engineering design.

GIB Weatherline® Rigid Air Barrier Systems also provide structural bracing and fire protection performance and assist in the reduction of external environmental noise.

DESIGN RESPONSIBILITY

Responsibility for the design and detailing of the building incorporating GIB Weatherline® Rigid Air Barrier Systems lies with the building owner and the parties that they engage for design services. The Designer and Specifier for the building must ensure that all products and details in the drawings and specification that relate to the GIB Weatherline® Rigid Air Barrier Systems are relevant to the intended application. They must also ensure that additional information is provided for any aspects of construction that fall outside the scope and specifications of this literature, or that incorporate specific design requirements.

USE ONLY THE CURRENT SPECIFICATION

This manual may be superseded by a new publication. Winstone Wallboards Ltd accepts no liability for reliance upon publications that have been superseded. You should check the current index of publications contained in your GIB® Technical Manual before using this publication. If you are unsure whether this is the current publication, call the GIB® Helpline on 0800 100 442 or go to gib.co.nz

LIABILITY

Winstone Wallboards Ltd accepts no liability if the GIB Weatherline® Rigid Air Barrier Systems are not designed and installed in strict accordance with instructions contained in this manual, or any other technical information associated with the systems.

BEWARE OF SUBSTITUTION

The performance of GIB Weatherline® Rigid Air Barrier Systems requires accurate design detailing and construction practices. All GIB® Systems have been developed specifically for New Zealand conditions and independently tested, assessed or appraised, to ensure the required level of performance. It is important to use GIB® 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.

NZBC CLAUSE B1 – STRUCTURE

The design and material specification for framing used in conjunction with this manual must be in accordance with NZS 3604 and for specific design, with NZS 3603 and AS/NZS 1170.

BRACING

The GIB Weatherline® Rigid Air Barrier Structural Bracing Systems in this manual are suitable to meet wind and earthquake bracing demand when constructed in accordance with NZS 3604.

WIND LOADINGS

GIB Weatherline® Rigid Air Barrier Systems have been tested to Extra High wind zone as defined in NZS 3604. For buildings outside the scope of NZS 3604 refer to tables 3, 4 and 5 for framing requirements, fastener type and fixing centres.

BUILDING MOVEMENT

Design and detailing of the building must take into account movement of the building structure that may affect the installation and performance of GIB Weatherline® Rigid Air Barrier Systems.

Unless specifically designed, a 10mm gap between sheets must be incorporated at the horizontal joints occurring at a building mid or intermediate floor, to facilitate potential movement of the structure.

Cavity battens are discontinuous and cladding systems must include a control joint coinciding with the GIB Weatherline® control joint or be designed to accommodate any movement at these locations.

Where the building is outside the scope of NZS 3604 and may be subject to potential movement under various loads, movement control joints and fixings must be specifically designed by a suitably qualified professional.

NZBC CLAUSES C1–C6 – PROTECTION FROM FIRE

GIB Weatherline® Rigid Air Barrier Systems can be used to provide passive fire protection in accordance with the requirements of NZBC Clauses C1-C6 – Protection from Fire.

C3.5 Limiting vertical fire spread

Combustibility
GIB Weatherline® is a non-combustible material with an A1 classification in accordance with BS EN 13501-1:2018.

Multi-level buildings less than 10m in height
NZBC Acceptable Solution C/AS2 and associated MBIE Guidance Revision 2: 2020 do not contain specific requirements for external walls and cladding systems for multi-level buildings less than 10 metres in height.

Where a rigid air barrier is required or preferred, our recommendation for these applications is specification GWTLE 30 for timber framed external walls unless a higher FRR is required.

Multi-level buildings over 10m in height and less than 25m
NZBC Acceptable Solution C/AS2 and associated MBIE Guidance Revision 2: 2020 impose combustibility limits on cladding materials, including the rigid air barrier. There are no additional requirements for the supporting framing to be protected or to have an FRR.

At Winstone Wallboards we believe that it is appropriate to include framing 'robustness' for these applications. Unless a higher FRR is required, our recommendation is specification GWTLE 60a for timber framed external walls, or GWSE 60 for non-loadbearing steel stud framing, additionally clad with compliant cladding materials.

Multi-level buildings over 25m in height
NZBC Acceptable Solution C/AS2 and associated MBIE Guidance Revision 2: 2020 impose combustibility limits on cladding materials, including the rigid air barrier. In addition, the MBIE Guidance states that timber framing may be used if protected with a robust limited combustibility lining that can be shown to prevent framing char for 30 minutes when exposed to the test conditions of AS 1530.4.

Unless a higher FRR is required, our recommendation is specification GWTLE 60b for timber framed external walls, or GWSE 60 for non-loadbearing steel stud framing, additionally clad with compliant cladding materials.

Alternatively, compliance can be achieved if the complete external wall is subjected to medium or large-scale fire testing. For tested systems with a 13mm GIB Weatherline® substrate see www.gib.co.nz/weatherline

C3.7 Covering the ignitability of external wall cladding materials

GIB Weatherline® has an A1 non-combustible classification and can be used as a substrate on timber or steel framing behind otherwise compliant cladding materials for buildings located less than 1.0m from a relevant boundary in accordance with NZBC C/AS2 and associated MBIE Guidance Revision 2:2020.

NZBC CLAUSE E2 – EXTERNAL MOISTURE

GIB Weatherline® Rigid Air Barrier Systems meet the NZBC requirements for rigid underlays (rigid air barriers) as an Alternative Solution proprietary system as outlined in E2/AS1 section 9.1.4, 9.1.7.2 and the performance requirements of Table 23 'Properties of roof underlays and wall underlays'.

NZBC CLAUSE F2 – HAZARDOUS BUILDING MATERIALS

Under normal conditions of use and serviceable life the products detailed in this manual meet the provisions of the NZBC Clause F2 and do not constitute a health hazard.

There are no harmful components in GIB Weatherline® Rigid Air Barrier Systems and no specific requirements other than normal safe handling practices associated with gypsum plasterboard, which are covered in the current edition of the GIB® Site Guide. Cutting and fixing is easy with no harmful dust created.

There are no special requirements for the disposal of waste.

Ensure safe working practices are always followed when handling and installing GIB Weatherline® Rigid Air Barrier Systems.

For further information, refer to Material Safety Data Sheets available online from gib.co.nz

NZBC CLAUSE B2 – DURABILITY

Under the conditions of use set out in this manual, GIB Weatherline® Rigid Air Barrier Systems comply with NZBC Clause B 2.3.1(a) and will continue to satisfy their performance requirements for no less than 50 years when used as a substrate behind cladding systems with a service life of no less than 50 years.

When the expected service life of the cladding system is less than 50 years, but more than 15 years, the durability of GIB Weatherline® Rigid Air Barrier Systems depends on the cladding being maintained or replaced as appropriate to ensure its ongoing weather-tightness performance.

GIB Weatherline® is a 10mm or 13mm thick sheet with a water and mould resistant fibreglass reinforced gypsum core and a water resistant synthetic glass fibre sheet facing on both sides. Sheets are screw fixed to the outside face of a timber or steel frame with all vertical and horizontal joints, and penetrations covered with a weathertight flashing tape.

TEMPORARY WEATHER EXPOSURE

Weatherline® Rigid Air Barrier Systems are designed to resist typical New Zealand weather conditions for a period of up to 180 days before the cladding system is installed. Water from a roof or suspended floor should be directed away from the GIB Weatherline® until sufficient drainage is installed.

To ensure long term durability of GIB Weatherline® Rigid Air Barrier Systems all openings and penetrations must be properly flashed and sealed.

MOULD RESISTANCE

Both 10mm and 13mm GIB Weatherline® exhibit anti-microbial performance, making these products particularly suited for use in drained and vented cavity cladding systems. In laboratory testing, no mould growth was observed. This reduces the risk of infectious agents growing on the sheet surface should any moisture be present. This mould resistance helps ensure a cleaner, healthier environment.

It should be noted that this standard testing (dry film fungal resistance) was conducted in a laboratory environment against a selected strain of micro-organisms (nine different types including Stachybotrys chartarum). The mixed spore suspension prepared from fungi was spray inoculated onto the dry sample surfaces. When dry, the samples are suspended in a high humidity cabinet for four weeks under specified conditions favourable for fungal growth. The resultant fungal growth on the surface is assessed visually and microscopically at the end of the test duration.

The dry film fungal challenge test results indicate that there was no fungal growth on either the face or back side of the GIB Weatherline® sheets. The variety of potential microbes that products like GIB Weatherline® could be exposed to outside of laboratory conditions is vast and cannot be replicated in the laboratory environment.

WATER RESISTIVE BARRIERS

If an open joint or rain screen cladding system is used the GIB Weatherline® Flashing Tapes must be replaced with a self adhesive Water Resistive Barrier (WRB). It is important to check that the self adhesive WRB is compatible with GIB Weatherline® and the type of cladding system being used.

GIB Weatherline® is widely accepted as a suitable substrate for a self adhesive WRB. Any self adhesive WRB attached to GIB Weatherline® must have a water vapour resistance ≤3.0 MNs/g when tested to ASTM E96-B. Independent testing of commonly available WRBs adhered to 10mm and 13mm GIB Weatherline® show water vapour resistance performance levels that comfortably comply with NZBC E2/AS1 Table 23 (Properties of roof underlays and wall underlays).



Gypsum sheathing has been widely used for many years in harsh overseas climates.

CLADDING

GIB Weatherline® Rigid Air Barrier Systems are compatible with a wide range of drained and vented cavity cladding systems.

Ensure that fixings used to attach the cladding are long enough to provide sufficient embedment into the underlying framing. Using brick veneer as an example, ensure the length of the brick tie screws allow for the additional thickness of the GIB Weatherline®.

SUSTAINABILITY AND ENVIRONMENT

Winstone Wallboards Ltd is committed to protecting the environment. Environmental planning is integrated into all our 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 must all accept.
- We allocate management time and resources to address relevant environmental issues and continuously improve our activities in that area.
- We will achieve our standards through positive action, employee involvement and constant communication with our neighbours, local authorities and customers.

MAINTENANCE AND REPAIR

GIB Weatherline® Rigid Air Barrier Systems will not normally require maintenance. However, if damage occurs to the installed system prior to the installation of the exterior cladding system, this damage must be repaired.

If the exterior cladding system installed over GIB Weatherline® Rigid Air Barrier Systems is damaged, repairs or replacement should be carried out immediately to ensure the GIB Weatherline® Rigid Air Barrier System is completely protected from the elements.

Minor damage to the external surface of a sheet (where the face liner has been damaged and the core exposed) can be repaired with the application of suitably sized sections of 100mm or 60mm GIB Weatherline® Flashing Tape.

More extensive damage will require the replacement of the damaged section with a patch of GIB Weatherline® sheet cut to size and GIB Weatherline® Flashing Tape applied to all horizontal and vertical joints formed by the patch.

Damage to sheets in a bracing or fire system require a minimum of 300mm strip to be replaced and all edges formed over solid framing and sealed with GIB Weatherline® Flashing Tape.

STOPPING AND PAINTING GIB WEATHERLINE®

Sometimes GIB Weatherline® will be installed in dry internal conditions. In other situations, the product will be temporarily exposed to the elements during construction, but then after the building is closed in the GIB Weatherline® will be in a dry internal environment and within view. In these circumstances the design may call for GIB Weatherline® to be decorated like other GIB® plasterboards.

If stopping and painting of GIB Weatherline® is anticipated, make sure section 1.4 of the GIB® Site Guide covering Levels of Finish is read and understood before product is installed. The expectation of a Level 5 finish might not be realistic for GIB Weatherline® that was installed on exposed timber framing and/or following periods of outdoor exposure.

If GIB Weatherline® Flashing Tapes have been required during outdoor exposure it is unlikely that an acceptable quality of paint finish can be achieved. In this case a minimum 10mm GIB® Standard overlay could be considered prior to stopping and painting.

Stopping

Once the building is fully closed in the timber framing moisture content must be 18% or less, and the GIB Weatherline® must be thoroughly clean and dry, prior to starting any stopping or painting.

After a period of exposure and timber drying induced shrinkage, check fasteners for ‘popping’ and re-set just below the surface as required. Replace sheets with visible damage. Ensure sheets are touch fitted.

GIB® Compounds and Trims are suitable for use with GIB Weatherline®. Reinforce joints with either GIB® Paper Tape or GIB RocTape® and use a setting compound, such as GIB Tradeset® 90, for the first and second coats. For the final topcoat use an air-drying compound, such as GIB Trade Finish® Multi.

GIB Weatherline® is manufactured with square edges. This means that plastered sheet joints may need to be feathered out to achieve a suitably flat joint. A plaster width of 600mm may be required for a good level of finish, or skim-coat the entire GIB Weatherline® surface with an air-drying compound such as GIB Trade Finish® Multi.

Painting

GIB Weatherline® can be finished with acrylic or oil-based paints. A minimum of three coats is recommended to fully disguise the GIB Weatherline® sheet markings.

Roller application is the preferred method when painting GIB Weatherline®. When spray painting is used, we recommend back rolling the final coat as described in AS/NZS 2589:2017.

COMPLETION AND EXPOSURE

GIB Weatherline®, including tape installation, must be completed in a timely sequence when the sheet material is dry. Installed sheets must not be left without tape when extreme wet or windy conditions can be reasonably expected.

The cladding system must be installed within 180 days of the GIB Weatherline® installation.

Structural batten, screw and tape fixing – NZS 3604

GIB Weatherline® can resist pressures from wind passing over a building provided the following conditions are met:

- Sheet thickness, sheet fixing centres and framing centres are in accordance with Table 1.
- GIB Weatherline® sheets, including installation of tapes or self-adhesive WRBs, are completed in a timely manner when sheet material is dry. Installed sheet joints and fasteners must not be left unprotected when wet or windy conditions can reasonably be expected.
- After installation GIB Weatherline® must not be left exposed for more than 180 days.

NZS 3604 – STRUCTURAL BATTEN, SCREW AND TAPE

This fixing method is suitable for use with a drained vented cavity cladding system that incorporates a structural cavity batten.

FRAMING

All timber framing sizes and set out must comply with NZS 3604 or be specifically designed to NZS 3603 and AS/NZS 1170. Timber framing preservative treatment must comply with the NZBC and any relevant NZ Standard.

All wall framing studs must be at a maximum of 400mm or 600mm centres (as set out in Table 1) and must be true and plumb. The minimum framing width is 45mm.

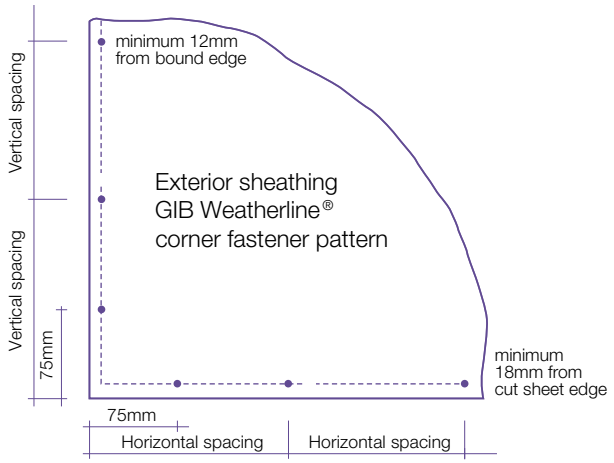
FIXING SHEETS

Refer to the Installation section for fastener details.

All GIB Weatherline® sheet edges must be fixed to vertical and horizontal framing. The mid-sheet must be fixed to studs at either 400mm or 600mm maximum (as set out in Table 1). Screw fixings are also required to wall framing at any raked sheet edges. There is no requirement to screw fix sheets to any nogs or any other horizontal mid-sheet framing.

Edge fixing for screws must be a minimum distance of 12mm from bound sheet edges and 18mm from unbound sheet edges (or cut sheet edges).

Ensure screws are not over driven and that the head of the screw finishes flush with the face of the sheet. Where screws have been over driven (and the face liner has been damaged and the core exposed), install a new screw fixing 25mm away and adjacent to the over driven fixing.



STRUCTURAL CAVITY BATTENS

Timber cavity battens must be minimum H3.1 treated, no smaller than 45 x 18mm. Fixing is with 75 x 3.15mm galvanised jolt head nails or 75 x 3.06mm D Head power-driven galvanised nails, or as required by specific cladding types.

Timber battens are fixed to studs behind at no more than 300mm centres vertically, staggered 12mm either side of the batten centreline.

Alternatively use verified proprietary structural cavity battens.

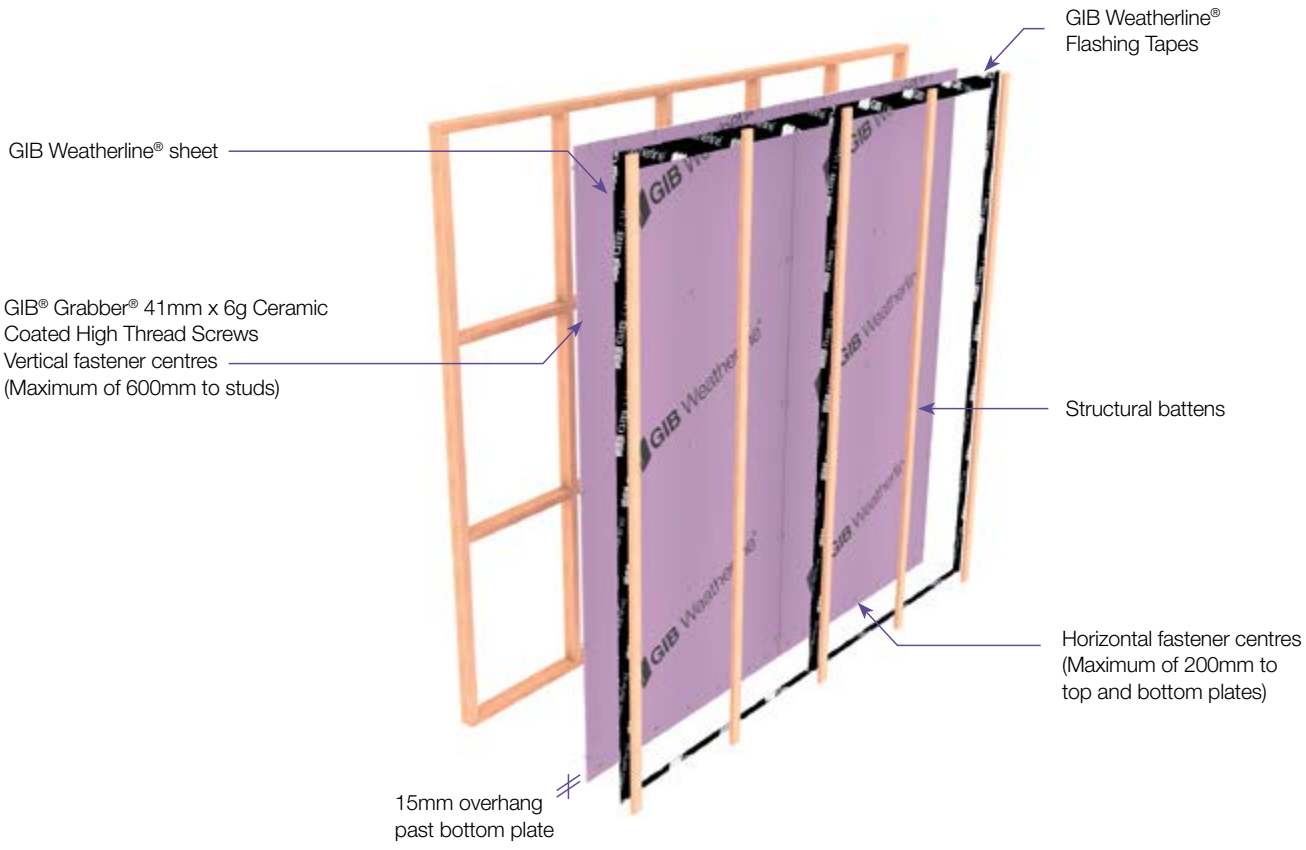
Table 1: NZS 3604 applications

GIB Weatherline® — Structural batten, screw & tape

Wind Zone	Stud Centres	
	400mm	600mm
	VERTICAL SCREW FIXING CENTRES (MAXIMUM)	
L	600mm	600mm
M	600mm	600mm
H	600mm	600mm
VH	600mm	**SED**
EH	600mm	**SED**
SED	**SED**	**SED**
	HORIZONTAL SCREW FIXING CENTRES (TOP AND BOTTOM OF SHEETS)	
ALL	200mm	200mm

SED = Specific Engineering Design

1. All screw fixings to be taped, apart from mid-sheet vertical screw fixings when covered by a structural cavity batten.
2. Screw fixings to commence 75mm in from sheet corners.
3. H3.1 treated timber structural cavity battens to be fixed at 300mm centres.



Screw and tape fixing – NZS 3604

GIB Weatherline® can resist pressures from wind passing over a building provided the following conditions are met:

- Sheet thickness, sheet fixing centres and framing centres are in accordance with Table 2.
- GIB Weatherline® sheets, including installation of tapes or self-adhesive WRBs, are completed in a timely manner when sheet material is dry. Installed sheet joints and fasteners must not be left unprotected when wet or windy conditions can reasonably be expected.
- After installation GIB Weatherline® must not be left exposed for more than 180 days.

NZS 3604 – SCREW AND TAPE

This fixing method must be used with brick veneer, with vertical cladding systems on a drained and vented cavity incorporating horizontal cavity battens, and on any other cladding system on a drained cavity where cavity battens are not structural.

Due to the lack of fixing provided by the structural cavity battens, the 'screw and tape' method incorporates significantly closer screw fixing centres.

FRAMING

All timber framing sizes and set out must comply with NZS 3604 or be specifically designed to NZS 3603 and AS/NZS 1170. Timber framing preservative treatment must comply with the NZBC and any relevant NZ Standard.

All wall framing studs must be at a maximum of 400mm or 600mm centres (as set out in Table 2) and must be true and plumb. The minimum framing width is 45mm.

FIXING SHEETS

Refer to the Installation section for fastener details.

All GIB Weatherline® sheet edges must be fixed to vertical and horizontal framing. The mid-sheet must be fixed to studs at either 400mm or 600mm maximum (as set out in Table 2). Screw fixings are also required to wall framing at any raked sheet edges. There is no requirement to screw fix sheets to any nogs or any other horizontal mid-sheet framing.

Edge fixing for screws must be a minimum distance of 12mm from bound sheet edges and 18mm from unbound sheet edges (or cut sheet edges).

Ensure screws are not over driven and that the head of the screw finishes flush with the face of the sheet. Where screws have been over driven (and the face liner has been damaged and the core exposed), install a new screw fixing 25mm away and adjacent to the over driven fixing.

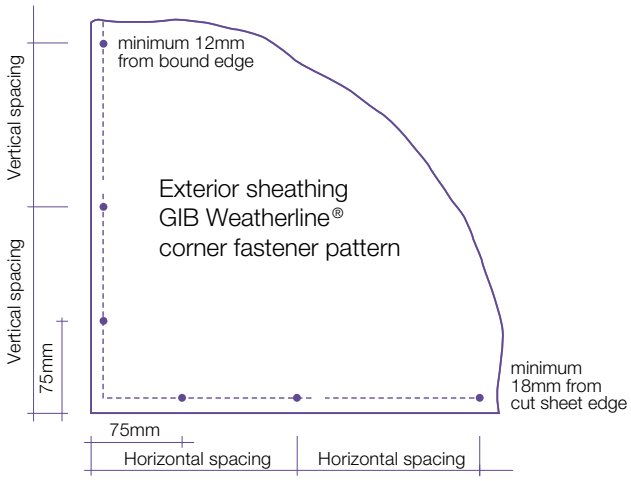


Table 2: NZS 3604 applications

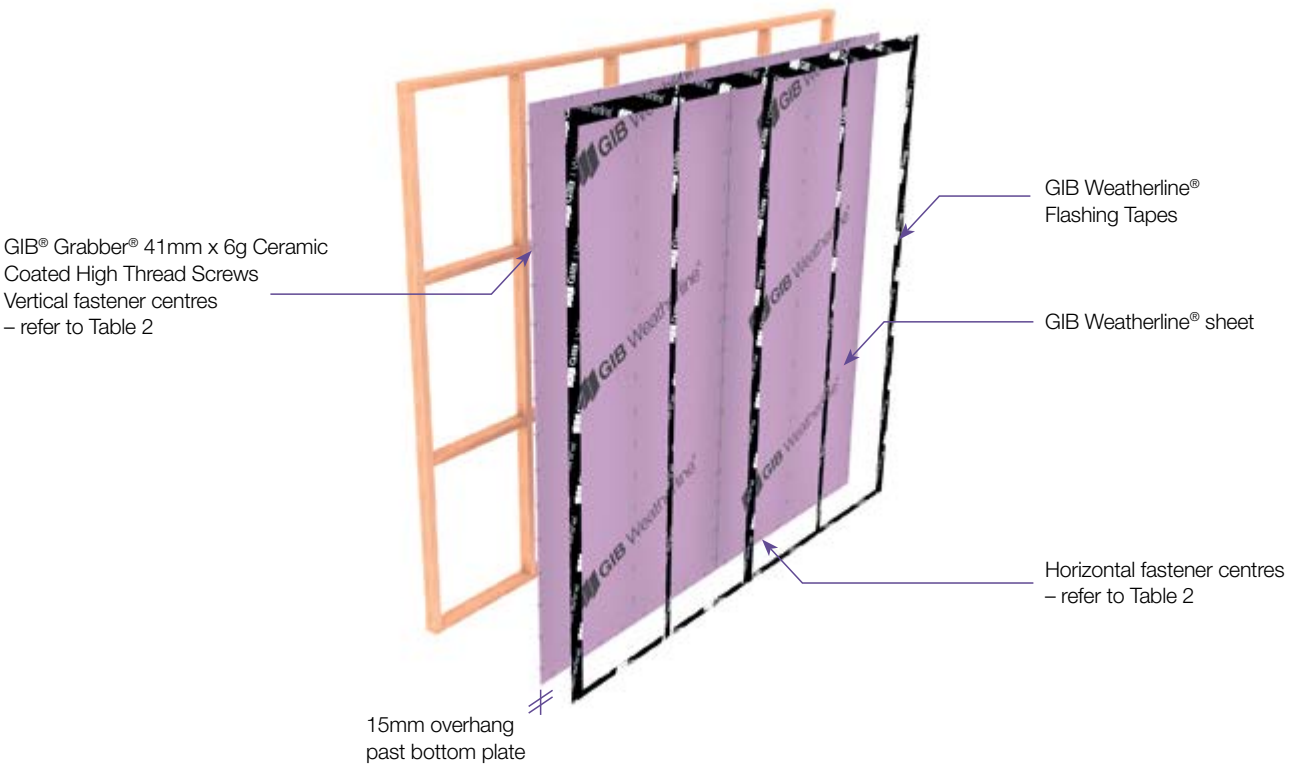
GIB Weatherline® — Screw & tape

Wind Zone	Stud Centres	
	400mm	600mm
	VERTICAL AND HORIZONTAL SCREW FIXING CENTRES (MAXIMUM)	
L	300mm	200mm
M	200mm	150mm
H	200mm	100mm
VH	150mm	**SED**
EH	100mm	**SED**
SED	**SED**	**SED**

SED = Specific Engineering Design

1. All screw fixings to be taped

2. Screw fixings to commence 75mm in from sheet corners



Screw and tape fixing – SED

GIB Weatherline® can resist pressures from wind passing over a building provided the following conditions are met:

- Sheet thickness, sheet fixing centres and framing centres are in accordance with Table 3.
- GIB Weatherline® sheets, including installation of tapes or self-adhesive WRBs, are completed in a timely manner when sheet material is dry. Installed sheet joints and fasteners must not be left unprotected when wet or windy conditions can reasonably be expected.
- After installation GIB Weatherline® must not be left exposed for more than 180 days.

SED APPLICATIONS

Buildings outside the scope of non-specific design standards such as NZS 3604, require Specific Engineering Design (SED). This includes the determination of design site wind speeds and associated positive and negative wind pressures that act on building components such as claddings and substrates. Associated GIB Weatherline® fixing details are presented in the following tables. The fixing details apply to both timber and steel framing.

FRAMING

All timber framing sizes and set out must comply with NZS 3604 or be specifically designed to NZS 3603 and AS/NZS 1170. Timber framing preservative treatment must comply with the NZBC and any relevant Standard. The minimum framing width is 45mm.

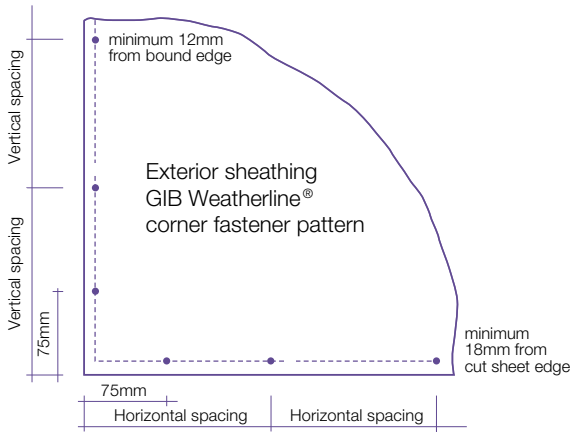
Steel framing in accordance with NASH Standard Part 2 Light Steel Framed Buildings 2019 or by SED. Minimum framing width is 34mm with a minimum BMT of 0.75mm.

Wall framing studs are placed at a maximum of 600mm centres, and must be true and plumb.

FIXING SHEETS

Refer to the Installation section for fastener details.

All GIB Weatherline® sheet edges must be fixed to vertical and horizontal framing. The mid-sheet must be fixed to studs at either 400mm or 600mm maximum (as set out in Tables 3,4 and 5). Screw fixings are also required to wall framing at any raked sheet edges. There is no requirement to screw fix sheets to any nogs or any other horizontal mid-sheet framing.



Edge fixing for screws must be a minimum distance of 12mm from bound sheet edges and 18mm from unbound sheet edges (or cut sheet edges).

Ensure screws are not over driven and that the head of the screw finishes flush with the face of the sheet. Where screws have been over driven (and the face liner has been damaged and the core exposed), install a new screw fixing 25mm away and adjacent to the over driven fixing.

The following tables give screw centres required for various GIB Weatherline® options to safely resist listed 1:100 year return period ULS design wind pressures.

When using timber framing use GIB Weatherline® Ceramic Coated High Thread Screws and when using steel framing use GIB Weatherline® Ceramic Coated Drill Point Screws.

The fixing centres listed in Tables 3, 4 and 5 have been determined in accordance with the prototype testing procedures given in AS/NZS 1170.0 2002.

Table 3: SED applications

10mm GIB Weatherline® – Screw and tape

Design Wind Pressure (Pa)	Stud Centres	
	400mm	600mm
	VERTICAL AND HORIZONTAL SCREW FIXING CENTRES (MAXIMUM)	
500	300mm	300mm
1000	250mm	150mm
1500	175mm	100mm
2000	125mm	SED
2500	100mm	SED
3000	SED	SED
3500	SED	SED
4000	SED	SED

SED = Specific Engineering Design

1. All screw fixings to be protected by GIB Weatherline® Flashing Tape or a Water Resistive Barrier (WRB).
2. Screw fixings to commence 75mm in from sheet corners

Table 4: SED applications

13mm GIB Weatherline®– Screw and tape

Design Wind Pressure (Pa)	Stud Centres	
	400mm	600mm
	VERTICAL AND HORIZONTAL SCREW FIXING CENTRES (MAXIMUM)	
500	300mm	300mm
1000	300mm	225mm
1500	250mm	150mm
2000	200mm	100mm
2500	150mm	SED
3000	125mm	SED
3500	100mm	SED
4000	100mm	SED

SED = Specific Engineering Design

1. All screw fixings to be protected by GIB Weatherline® Flashing Tape or a Water Resistive Barrier (WRB).
2. Screw fixings to commence 75mm in from sheet corners

Table 5: SED applications

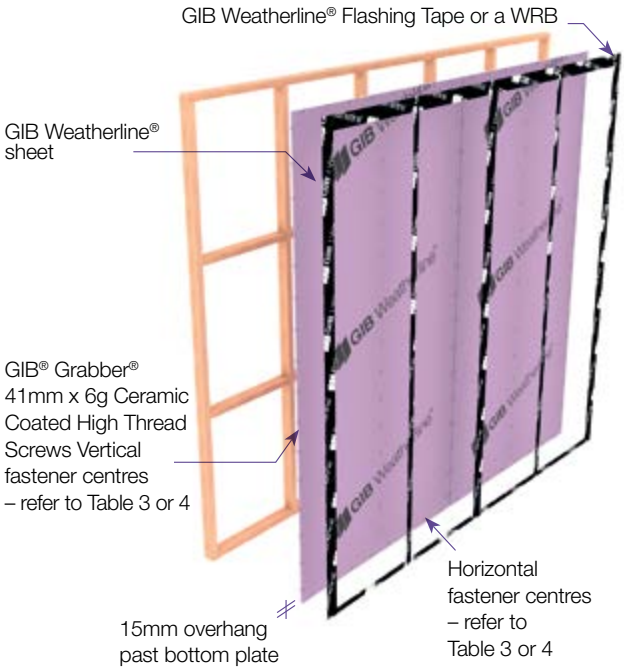
2 layers of 10mm GIB Weatherline® – Screw and tape

Design Wind Pressure (Pa)	Stud Centres	
	400mm	600mm
	INNER LAYER VERTICAL SCREW FIXING CENTRES (MAXIMUM) FOR ALL DESIGN WIND PRESSURES	
	300mm	300mm
	OUTER LAYER VERTICAL AND HORIZONTAL SCREW FIXING CENTRES (MAXIMUM)	
500	300mm	300mm
1000	250mm	150mm
1500	175mm	100mm
2000	125mm	SED
2500	100mm	SED
3000	SED	SED
3500	SED	SED
4000	SED	SED

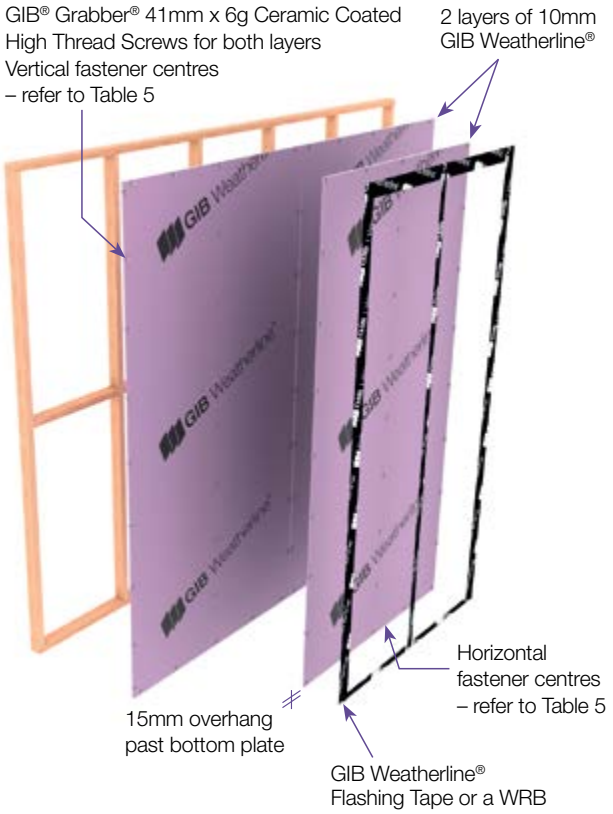
SED = Specific Engineering Design

1. All screw fixings to be protected by GIB Weatherline® Flashing Tape or a Water Resistive Barrier (WRB).
2. Inner layer screw fixings to commence 20mm in from sheet corners.
3. Outer layer screw fixings to commence 75mm in from sheet corners

SINGLE 10MM OR 13MM GIB WEATHERLINE®



TWO LAYERS 10MM GIB WEATHERLINE®



Structural bracing

GIB EZYBRACE® SYSTEMS

GIB EzyBrace® Systems include four bracing elements that incorporate GIB Weatherline® sheets. The bracing resistance is the same for both 10mm and 13mm GIB Weatherline® sheets. For more information relating to GIB EzyBrace® Systems, refer to the GIB EzyBrace® Systems Specification and Installation Manual.

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® GIB Noiseline®
- 'W' for GIB Weatherline®
- 'N' for 'no specific panel hold-down fixings'
- 'H' for 'specific panel hold-down fixings required'

Where specific panel hold-down fixings are specified, refer to the GIB EzyBrace® Systems Specification and Installation Manual. 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 NZS 3604 bottom plate fixings apply.

Full bracing element construction details are provided on the specification sheets in this section.

Table 6: Bracing element selection guide

Specifying GIB EzyBrace® elements that incorporate GIB Weatherline® (minimum wall length 400mm)	
External walls	**Nominate available wall lengths as GSW-N elements** **Use GSW-H, W-H or BLW-H elements if higher ratings required**
Internal walls	**Not applicable**

Table 7: Bracing unit ratings for elements that incorporate GIB Weatherline®

Specification	**Minimum length (m)**	**Lining requirements**	**Other requirements**	**BU/m**	
				W	**EQ**
GSW-N	0.4	**Interior lining:** Any 10mm or 13mm GIB® plasterboard **Exterior sheathing:** 10mm or 13mm GIB Weatherline®	None	85	75
	1.2			95	85
GSW-H	0.4	**Interior lining:** Any 10mm or 13mm GIB® plasterboard **Exterior sheathing:** 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	90	85
	1.2			130*	110
W-H	0.4	**Interior lining:** None **Exterior sheathing:** 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	105	100
	1.2			125*	105
BLW-H	0.4	**Interior lining:** 10mm or 13mm GIB Braceline® GIB Noiseline® **Exterior sheathing:** 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	105	115
	1.2			150*	145*

*Timber floors – a limit of 120 BU/m for NZS 3604 timber floors applies unless specific engineering ensures that uplift forces generated by elements rated higher than 120 BU/m can be resisted by floor framing.

GIB EZYBRACE® CALCULATOR

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

The GIB EzyBrace® calculator includes four bracing elements that incorporate GIB Weatherline® sheets. The calculator can be downloaded free of charge by visiting gib.co.nz/ezybrace and can be on either Microsoft® or Apple® Mac environments.

OPENINGS IN BRACING ELEMENTS

For allowable openings in bracing elements that incorporate GIB Weatherline® sheets, refer to the GIB EzyBrace® Systems Specification and Installation Manual. Larger openings must be placed outside designated bracing elements.

GIB EzyBrace® Systems specification GSW-N

Specification	Minimum length (m)	Lining requirements	
GSW-N	**0.4**	**Interior lining**	10mm or 13mm GIB® Standard plasterboard
		Exterior sheathing	10mm or 13mm GIB Weatherline®

WALL FRAMING

Wall framing to comply with:

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

Framing dimensions and height as determined by NZS 3604 stud and top plate tables for load-bearing and non-load 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
In accordance with the requirements of NZS 3604 for external wall bottom plate fixing.

WALL LINING / SHEATHING

Interior lining
- Any 10mm or 13mm GIB® plasterboard.
- Sheets can be fixed vertically or horizontally.
- Sheets must be fixed to top and bottom plates.
- Sheet joints must be touch fitted.
- Use full length sheets where possible.

Exterior sheathing
- 10mm or 13mm GIB Weatherline® sheets.
- Sheets must be fixed vertically.
- Sheets must be fixed to top and bottom plates.
- Vertical sheet joints must be touch fitted.
- Use full length sheets where possible.

PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives, refer to the GIB EzyBrace® Systems Specification and Installation Manual.

FASTENING THE LINING / SHEATHING

Interior 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 only 32mm x 7g GIB® Grabber® Dual Thread Screws.

Exterior sheathing fasteners
41mm x 6g GIB® Grabber® Ceramic Coated High Thread Screws.

Interior lining fastener centres
For corner fastening pattern refer to diagrams on the following page. 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 edges and 18mm from any sheet end or cut edge.

Exterior sheathing fastener centres
Fix in accordance with the Wind Loading requirements specified in this technical literature. No additional fixings are required.

JOINTING

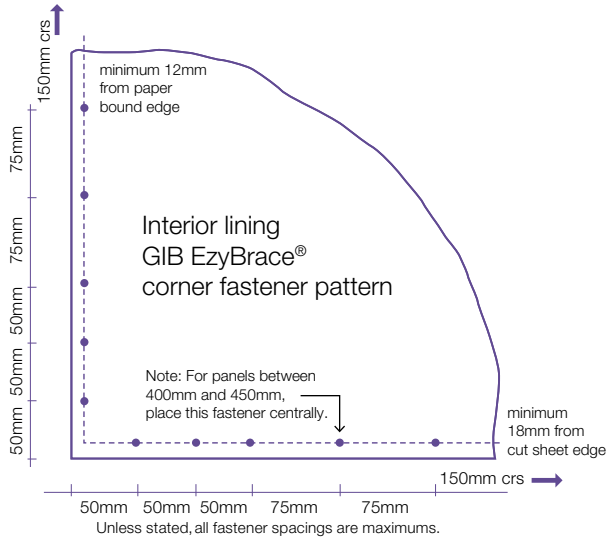
Interior lining jointing
Joint strength is important in delivering bracing system performance. All fastener heads must be stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.

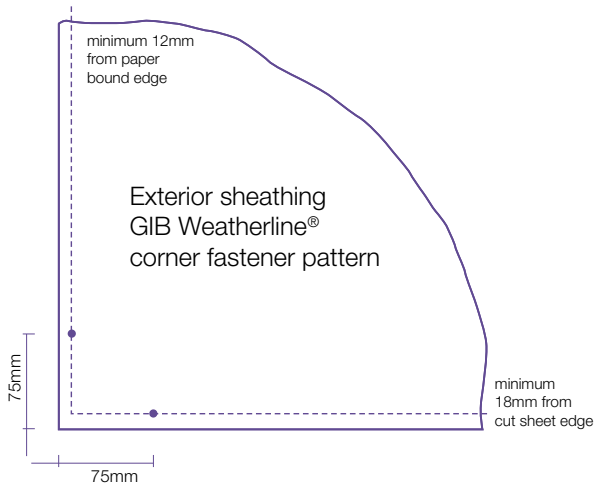
Exterior sheathing jointing
No plaster stopping is required. Unless the entire surface is protected with a self-adhesive WRB, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape. Flashing tape to mid-sheet vertical fasteners is not required when fasteners are covered with a structural cavity batten.

GIB EzyBrace® Systems specification GSW-N

Specification	Minimum length (m)	Lining requirements	
GSW-N	**0.4**	**Interior lining**	10mm or 13mm GIB® Standard plasterboard
		Exterior sheathing	10mm or 13mm GIB Weatherline®

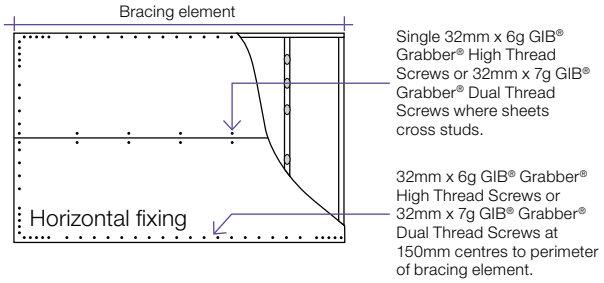
CORNER FASTENING PATTERN

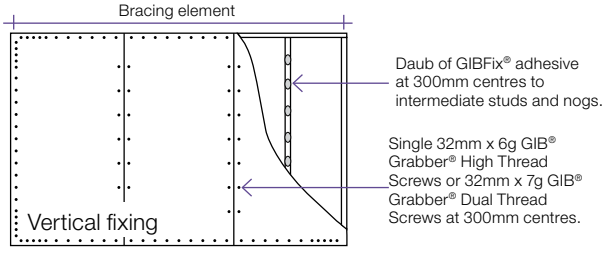




See the wind loading section in this manual for fastening centres.

INTERIOR SHEET LAYOUT





In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components can produce 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 GSW-H

Specification	Minimum length (m)	Lining requirements		Other requirements
GSW-H	**0.4**	**Interior lining**	10mm or 13mm GIB® Standard plasterboard	Hold downs
		Exterior sheathing	10mm or 13mm GIB Weatherline®	

WALL FRAMING

Wall framing to comply with:

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

Framing dimensions and height as determined by NZS 3604 stud and top plate tables for load-bearing and non-load 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 the GIB EzyBrace® Systems Specification and Installation Manual or the 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 the GIB EzyBrace® Systems Specification and Installation Manual or the GIB® Site Guide. Within the length of the bracing element bottom plates are to be fixed in accordance with the requirements of NZS 3604.

WALL LINING / SHEATHING

Interior lining

- Any 10mm or 13mm GIB® plasterboard.
- Sheets can be fixed vertically or horizontally.
- Sheets must be fixed to top and bottom plates.
- Sheet joints must be touch fitted.
- Use full length sheets where possible.

Exterior sheathing

- 10mm or 13mm GIB Weatherline® sheets.
- Sheets must be fixed vertically.
- Sheets must be fixed to top and bottom plates.
- Vertical sheet joints must be touch fitted.
- Use full length sheets where possible.

PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives, refer to the GIB EzyBrace® Systems Specification and Installation Manual.

FASTENING THE LINING / SHEATHING

Interior 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 only 32mm x 7g GIB® Grabber® Dual Thread Screws.

Exterior sheathing fasteners

41mm x 6g GIB® Grabber® Ceramic Coated High Thread Screws.

Interior lining fastener centres

For corner fastening pattern refer to diagrams on the following page. 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 edges and 18mm from any sheet end or cut edge.

Exterior sheathing fastener centres

Fix in accordance with the Wind Loading requirements specified in this technical literature. No additional fixings are required.

JOINTING

Interior lining jointing

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

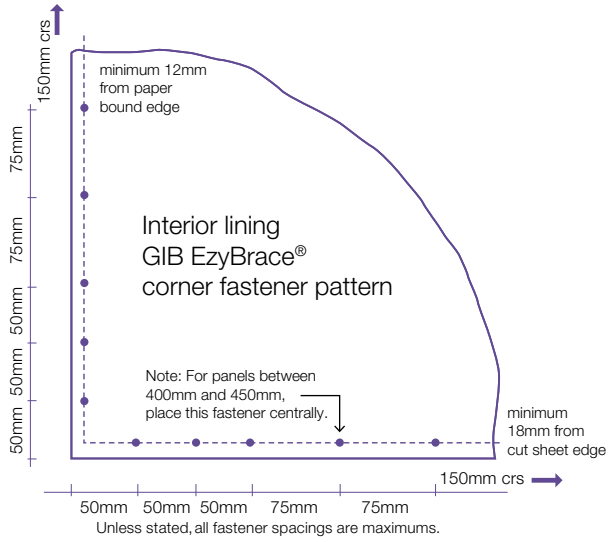
Exterior sheathing jointing

No plaster stopping is required. Unless the entire surface is protected with a self-adhesive WRB, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape. Flashing tape to mid-sheet vertical fasteners is not required when fasteners are covered with a structural cavity batten.

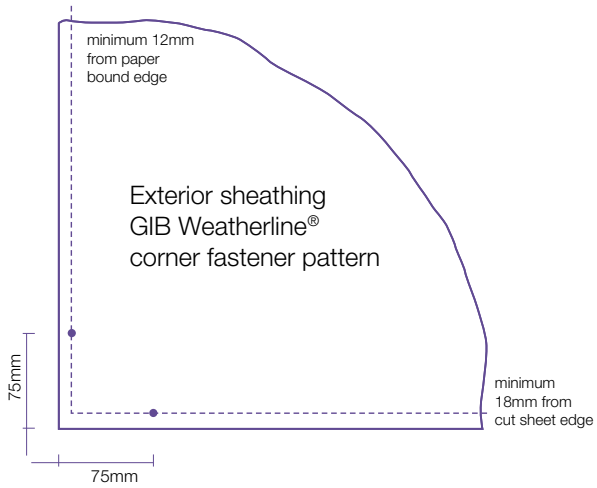
GIB® EzyBrace® Systems specification GSW-H

Specification	Minimum length (m)	Lining requirements		Other requirements
GSW-H	**0.4**	**Interior lining**	10mm or 13mm GIB® Standard plasterboard	Hold downs
		Exterior sheathing	10mm or 13mm GIB Weatherline®	

CORNER FASTENING PATTERN

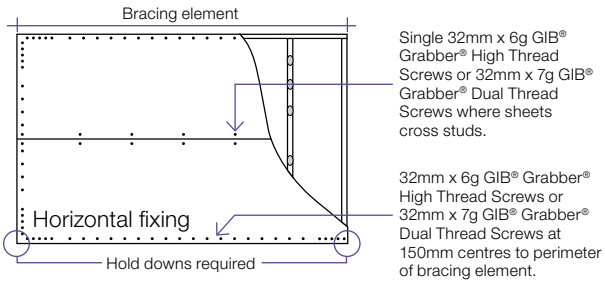


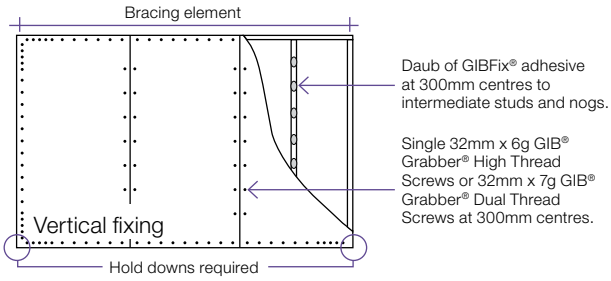
Unless stated, all fastener spacings are maximums.



See the wind loading section in this manual for fastening centres.

INTERIOR SHEET LAYOUT





In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components can produce 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 W-H

Specification	Minimum length (m)	Lining requirements		Other requirements
W-H	**0.4**	**Interior lining**	None	Hold downs
		Exterior sheathing	10mm or 13mm GIB Weatherline®	

WALL FRAMING

Wall framing to comply with:

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

Framing dimensions and height as determined by NZS 3604 stud and top plate tables for load-bearing and non-load 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 the GIB EzyBrace® Systems Specification and Installation Manual or the 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 the GIB EzyBrace® Systems Specification and Installation Manual or the GIB® Site Guide. Within the length of the bracing element bottom plates are to be fixed in accordance with the requirements of NZS 3604.

WALL LINING / SHEATHING

Interior lining

- None.

Exterior sheathing

- 10mm or 13mm GIB Weatherline® sheets.
- Sheets must be fixed vertically.
- Sheets must be fixed to top and bottom plates.
- Vertical sheet joints must be touch fitted.
- Use full length sheets where possible.

FASTENING THE LINING / SHEATHING

Exterior sheathing fasteners

41mm x 6g GIB® Grabber® Ceramic Coated High Thread Screws.

Exterior sheathing fastener centres

For corner fastening pattern refer to diagram on the following page. Intermediate sheet joints fastener centres must be at 150mm centres maximum or less if wind loading specification requires them to be less. Mid-sheet fasteners must be at 300mm centres maximum or less if wind loading specification requires them to be less.

JOINTING

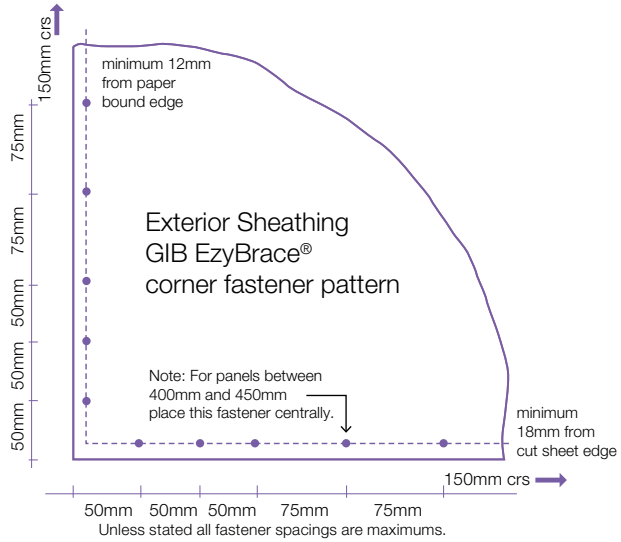
Exterior sheathing jointing

No plaster stopping is required. Unless the entire surface is protected with a self-adhesive WRB, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape. Flashing tape to mid-sheet vertical fasteners is not required when fasteners are covered with a structural cavity batten.

GIB EzyBrace® Systems specification W-H

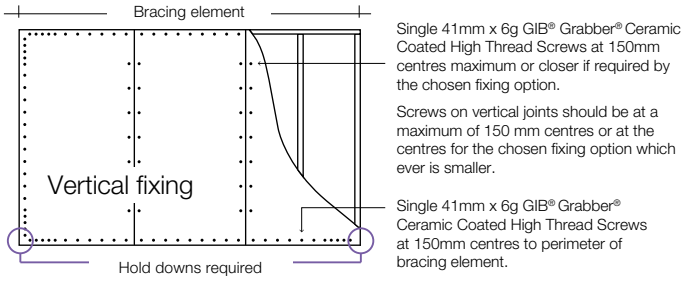
Specification	Minimum length (m)	Lining requirements		Other requirements
W-H	**0.4**	**Interior lining**	None	Hold downs
		Exterior sheathing	10mm or 13mm GIB Weatherline®	

CORNER FASTENING PATTERN



See the wind loading section in this manual for fastening centres.

EXTERNAL SHEET LAYOUT



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components can produce 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 BLW-H

Specification	Minimum length (m)	Lining requirements		Other requirements
BLW-H	**0.4**	**Interior lining**	10mm or 13mm GIB Braceline® GIB Noiseline®	Hold downs
		Exterior sheathing	10mm or 13mm GIB Weatherline®	

WALL FRAMING

Wall framing to comply with:

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

Framing dimensions and height as determined by NZS 3604 stud and top plate tables for load-bearing and non-load 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 the GIB EzyBrace® Systems Specification and Installation Manual or the 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 the GIB EzyBrace® Systems Specification and Installation Manual or the GIB® Site Guide. Within the length of the bracing element bottom plates are to be fixed in accordance with the requirements of NZS 3604.

WALL LINING / SHEATHING

Interior lining

- 10mm or 13mm GIB Braceline® GIB Noiseline®
- Sheets can be fixed vertically or horizontally.
- Sheets must be fixed to top and bottom plates.
- Sheet joints must be touch fitted.
- Use full length sheets where possible.

Exterior sheathing

- 10mm or 13mm GIB Weatherline® sheets.
- Sheets must be fixed vertically.
- Sheets must be fixed to top and bottom plates.
- Vertical sheet joints must be touch fitted.
- Use full length sheets where possible.

PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives, refer to GIB EzyBrace® Systems Specification and Installation Manual.

FASTENING THE LINING / SHEATHING

Interior 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 only 32mm x 7g GIB® Grabber® Dual Thread Screws.

Exterior sheathing fasteners

41mm x 6g GIB® Grabber® Ceramic Coated High Thread Screws.

Interior lining fastener centres

For corner fastening pattern refer to diagrams on the following page. 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 edges and 18mm from any sheet end or cut edge.

Exterior sheathing fastener centres

Fix in accordance with the Wind Loading requirements specified in this technical literature. No additional fixings are required.

JOINTING

Interior lining jointing

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

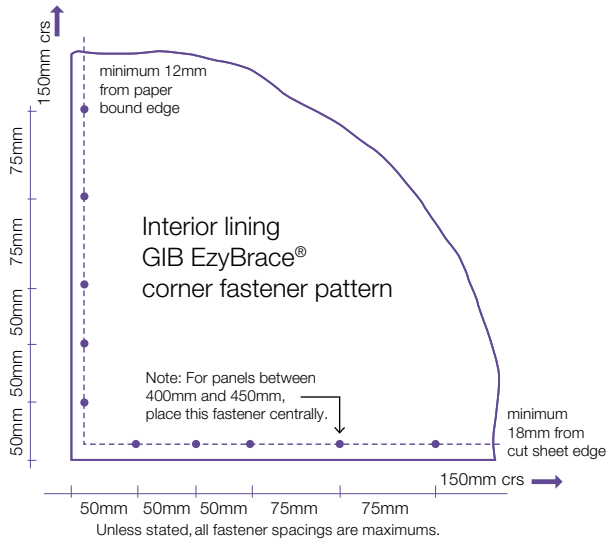
Exterior sheathing jointing

No plaster stopping is required. Unless the entire surface is protected with a self-adhesive WRB, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape. Flashing tape to mid-sheet vertical fasteners is not required when fasteners are covered with a structural cavity batten.

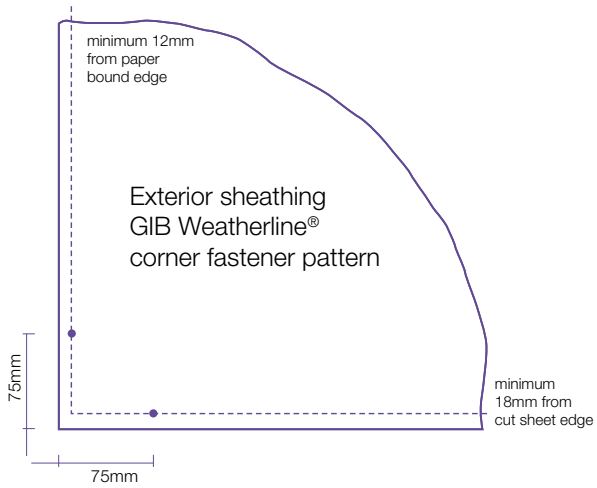
GIB EzyBrace® Systems specification BLW-H

Specification	Minimum length (m)	Lining requirements		Other requirements
BLW-H	**0.4**	**Interior lining**	10mm or 13mm GIB Braceline® GIB Noiseline®	Hold downs
		Exterior sheathing	10mm or 13mm GIB Weatherline®	

CORNER FASTENING PATTERN

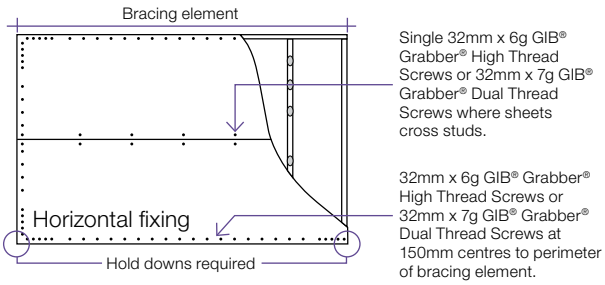


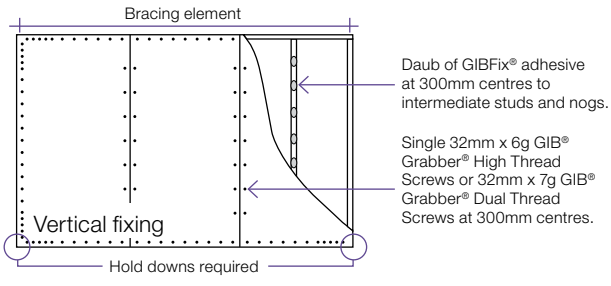
Unless stated, all fastener spacings are maximums.



See the wind loading section in this manual for fastening centres.

INTERIOR SHEET LAYOUT





In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components can produce 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.

FIRE RESISTANCE RATINGS

The GIB Weatherline® Systems in Table 8 achieve the stated Fire Resistance Rating (FRR) when designed and installed in accordance with the relevant specification details.

In order to comply with NZBC Clause E2, the external face of the GIB Weatherline® system will, in all cases, be covered with an exterior cladding system over a drained and vented cavity. The systems in this section do not rely on the cladding system to achieve the stated FRR.

COMBUSTIBILITY

GIB Weatherline® has been tested to EN ISO 1182 and EN ISO 1716, achieves an A1 Classification in accordance with BS EN 13501-1:2018, and can be nominated as a non-combustible product/material.

EXTERNAL WALLS

GIB Weatherline® can be used as a substrate and a substantive component of an otherwise compliant external wall cladding system.

The Design section of this literature outlines compliance with relevant NZBC Clauses and associated documents relating to external wall performance. In summary the recommended specification for various applications are;

GWTLE 30 for buildings less than 10m in height.

GWTLE 60a or GWSE 60 for buildings 10 to 25m in height.

GWTLE 60b or GWSE 60 for buildings over 25m in height.

For further details see page 16.

FULL SCALE FACADE TESTS

Visit gib.co.nz to check for latest updates.

Table 8: Fire rated systems

Type	Specification	LB/NLB	FRR	Lining requirements	Page
Fire Rated Timber Frame Systems					
External Walls	GWTLE 30	LB	30/30/30	**Interior:** 10mm GIB Fyreline® **Exterior:** 10mm GIB Weatherline®	37
	GWTLE 60a	LB	60/60/60	**Interior:** 13mm GIB Fyreline® **Exterior:** 13mm GIB Weatherline®	38
	GWTLE 60b	LB	60/60/60	**Interior:** 13mm GIB Fyreline® **Exterior:** 2 x 10mm GIB Weatherline®	39
Parapet and Wingwalls	GWTLP 30	LB	30/30/30	**Exterior:** 10mm GIB Weatherline® both sides	40
	GWTLP 60	LB	60/60/60	**Exterior:** 13mm GIB Weatherline® both sides	41
Fire Rated Steel Frame Systems					
External Walls	GWSE 60	NLB	-/60/60	**Interior:** 13mm GIB Fyreline® **Exterior:** 13mm GIB Weatherline®	42
Parapet and Wingwalls	GWSP 60	NLB	-/60/60	**Exterior:** 13mm GIB Weatherline® both sides	43
Fire Rated Soffit Systems					
Fire Rated Soffits	GWUC 30	LB	30/30/30	**Exterior:** 1 x 13mm GIB Weatherline®	44
	GWUC 60	LB	60/60/60	**Exterior:** 2 x 13mm GIB Weatherline®	45
Fire Rated Protection of Columns and Beams					
Timber Strapping	GWCBT 15	LB	15/-/-	13mm GIB Weatherline®	46
	GWCBT 30	LB	30/-/-	2 x 10mm GIB Weatherline®	46
	GWCBT 60	LB	60/-/-	2 x 13mm GIB Weatherline®	46
Steel Clip and Channel	GWCBS 15	LB	15/-/-	13mm GIB Weatherline®	47
	GWCBS 30	LB	30/-/-	2 x 10mm GIB Weatherline®	47
	GWCBS 60	LB	60/-/-	2 x 13mm GIB Weatherline®	47

Two-way FRR – timber frame external wall

Specification	Performance	Specifications	
GWTLE 30	**FRR 30/30/30**	**Lining**	1 x 10mm GIB Weatherline® exterior side 1 x 10mm GIB Fyreline® internal side
		LB/NLB	LB

FRAMING

Stud size: 90mm minimum. Framing to comply with:

- NZBC B1 – Structure: AS1 Clause 3 – Timber (NZS 3604) or VM1 Clause 6 – Timber (NZS 3603).
- NZBC B2 – Durability: AS1 Clause 3.2 – Timber (NZS 3602).
- Studs at 600mm centres maximum.
- Nogs at 1350mm centres maximum.

INSULATION

Inclusion of insulation is optional and depends on the building's thermal performance requirements. Mineral wool, glass wool or polyester fibrous insulation materials are acceptable.

WALL LINING / SHEATHING

Exterior side – 1 layer of 10mm GIB Weatherline® sheet fixed vertically. Use full height sheets where possible. All sheet joints and edges must be formed over solid timber framing. Sheet joints are touch fitted. A 10mm gap between sheet edges must be left at floor levels, formed over framing or solid construction materials.

Internal side – 1 layer of 10mm GIB Fyreline® fixed vertically or horizontally. When fixing vertically, full height sheets must be used where possible. All sheet joints must be formed over solid timber framing. Sheet joints are touch fitted.

FASTENING THE LINING / SHEATHING

Exterior side fasteners
41mm x 6g GIB® Grabber® Ceramic Coated High Thread Screws.

Internal side fasteners
41mm x 6g GIB® Grabber® High Thread Drywall Screws.

Maximum fastener centres
Place fasteners at 300mm centres around the sheet perimeter and intermediate studs.

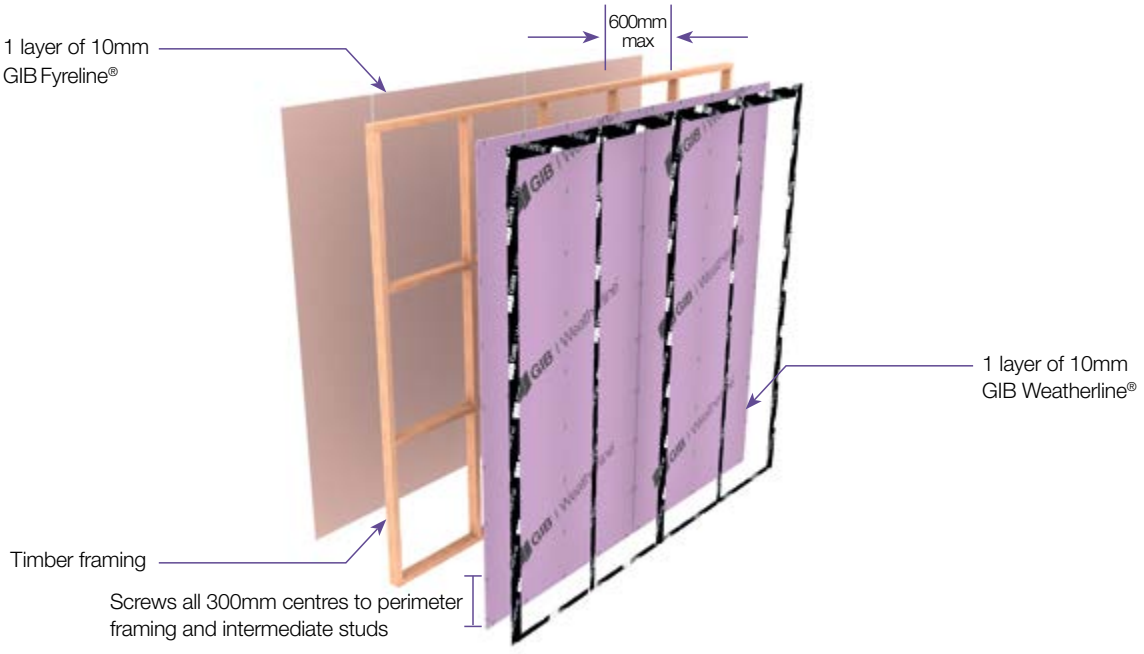
Note that GIB Weatherline® perimeter and intermediate fasteners are commonly at closer centres depending on Wind Loading requirements.

Place fasteners at 12mm from bound sheet edges and 18mm from sheet ends and cut edges.

JOINTING

Exterior side
No plaster stopping required. Unless the entire surface is protected with a self-adhesive WRB, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape. No tape is required over mid-sheet fasteners under a structural cavity batten.

Internal side
All fastener heads must be stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled GIB® Site Guide.



Two-way FRR – timber frame external wall

Specification	Performance	Specifications	
GWTLE 60a	**FRR 60/60/60**	**Lining**	1 x 13mm GIB Weatherline® exterior side 1 x 13mm GIB Fyreline® internal side
		LB/NLB	LB

FRAMING

Stud size: 90mm minimum. Framing to comply with:

- NZBC B1 – Structure: AS1 Clause 3 – Timber (NZS 3604) or VM1 Clause 6 – Timber (NZS 3603).
- NZBC B2 – Durability: AS1 Clause 3.2 – Timber (NZS 3602).
- Studs at 600mm centres maximum.
- Nogs at 1350mm centres maximum.

INSULATION

Inclusion of insulation is optional and depends on the building's thermal performance requirements. Mineral wool, glass wool or polyester fibrous insulation materials are acceptable.

WALL LINING / SHEATHING

Exterior side – 1 layer of 13mm GIB Weatherline® sheet fixed vertically. Use full height sheets where possible. All sheet joints and edges must be formed over solid timber framing. Sheet joints are touch fitted. A 10mm gap between sheet edges must be left at floor levels, formed over framing or solid construction materials.

Internal side – 1 layer of 13mm GIB Fyreline® fixed vertically or horizontally. When fixing vertically, full height sheets must be used where possible. All sheet joints must be formed over solid timber framing. Sheet joints are touch fitted.

FASTENING THE LINING / SHEATHING

Exterior side fasteners
41mm x 6g GIB® Grabber® Ceramic Coated High Thread Screws.

Internal side fasteners
41mm x 6g GIB® Grabber® High Thread Drywall Screws.

Maximum fastener centres
Place fasteners at 300mm centres around the sheet perimeter and intermediate studs.

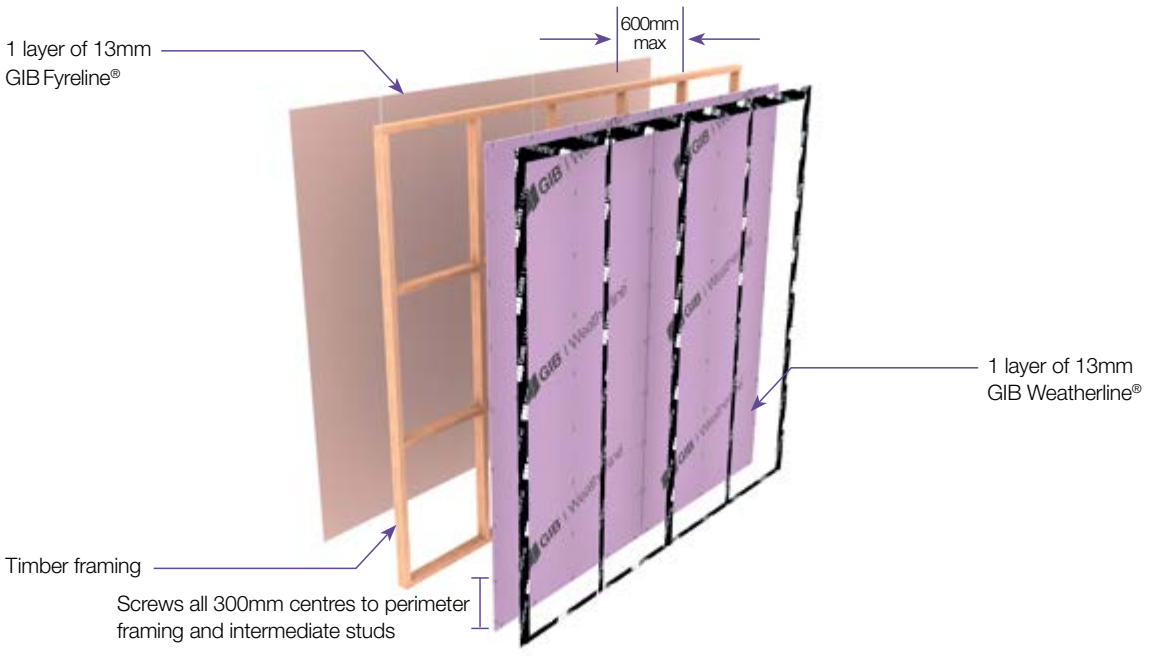
Note that GIB Weatherline® perimeter and intermediate fasteners are commonly at closer centres depending on Wind Loading requirements.

Place fasteners at 12mm from bound sheet edges and 18mm from sheet ends and cut edges.

JOINTING

Exterior side
No plaster stopping required. Unless the entire surface is protected with a self-adhesive WRB, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape. No tape is required over mid-sheet fasteners under a structural cavity batten.

Internal side
All fastener heads must be stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled GIB® Site Guide.



Two-way FRR – timber frame external wall

Specification	Performance	Specifications	
GWTLE 60b	**FRR 60/60/60**	**Lining**	2 x 10mm GIB Weatherline® exterior side 1 x 13mm GIB Fyreline® internal side
		LB/NLB	LB

FRAMING

Stud size: 90mm minimum. Framing to comply with:

- NZBC B1 – Structure: AS1 Clause 3 – Timber (NZS 3604) or VM1 Clause 6 – Timber (NZS 3603).
- NZBC B2 – Durability: AS1 Clause 3.2 – Timber (NZS 3602).
- Studs at 600mm centres maximum.
- Nogs at 1350mm centres maximum.

INSULATION

Inclusion of insulation is optional and depends on the building's thermal performance requirements. Mineral wool, glass wool or polyester fibrous insulation materials are acceptable.

WALL LINING / SHEATHING

Exterior side – 2 layers of 10mm GIB Weatherline® sheet fixed vertically. Use full height sheets where possible. All sheet joints and edges must be formed over solid timber framing and staggered between layers. Sheet joints are touch fitted. A 10mm gap between sheet edges must be left at floor levels, formed over framing or solid construction materials.

Internal side – 1 layer of 13mm GIB Fyreline® fixed vertically or horizontally. When fixing vertically, full height sheets must be used where possible. All sheet joints must be formed over solid timber framing. Sheet joints are touch fitted.

FASTENING THE LINING / SHEATHING

Exterior side fasteners (both layers)
41mm x 6g GIB® Grabber® Ceramic Coated High Thread Screws.

Internal side fasteners
41mm x 6g GIB® Grabber® High Thread Drywall Screws.

Maximum fastener centres
Place fasteners at 300mm centres around the sheet perimeter and intermediate studs.

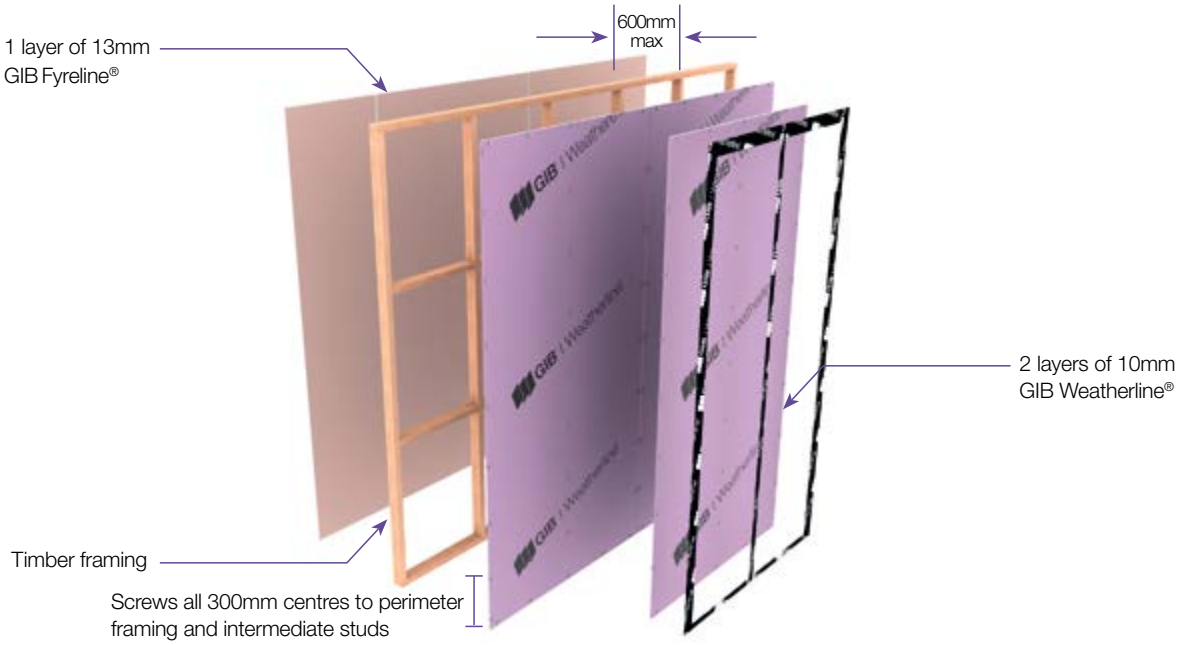
Note that GIB Weatherline® perimeter and intermediate fasteners are commonly at closer centres depending on Wind Loading requirements.

Place fasteners at 12mm from bound sheet edges and 18mm from sheet ends and cut edges.

JOINTING

Exterior side (outer layer)
No plaster stopping required. Unless the entire surface is protected with a self-adhesive WRB, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape. No tape is required over mid-sheet fasteners under a structural cavity batten.

Internal side
All fastener heads must be stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled GIB® Site Guide.



Two-way FRR – timber frame parapet or wingwall

Specification	Performance	Specifications	
GWTLP 30	**FRR 30/30/30**	**Lining**	1 x 10mm GIB Weatherline® both sides
		LB/NLB	LB

FRAMING

Stud size: 90mm minimum. Framing to comply with:

- NZBC B1 – Structure: AS1 Clause 3 – Timber (NZS 3604) or VM1 Clause 6 – Timber (NZS 3603).
- NZBC B2 – Durability: AS1 Clause 3.2 – Timber (NZS 3602).
- Studs at 600mm centres maximum.
- Nogs at 1350mm centres maximum.

INSULATION

Inclusion of insulation is optional and depends on the building's thermal performance requirements. Mineral wool, glass wool or polyester fibrous insulation materials are acceptable.

WALL LINING / SHEATHING

Both sides – 1 layer of 10mm GIB Weatherline® sheet fixed vertically. Use full height sheets where possible. All sheet joints and edges must be formed over solid timber framing. Sheet joints are touch fitted. A 10mm gap between sheet edges must be left at floor levels, formed over framing or solid construction materials.

FASTENING THE LINING / SHEATHING

Fasteners
41mm x 6g GIB® Grabber® Ceramic Coated High Thread Screws.

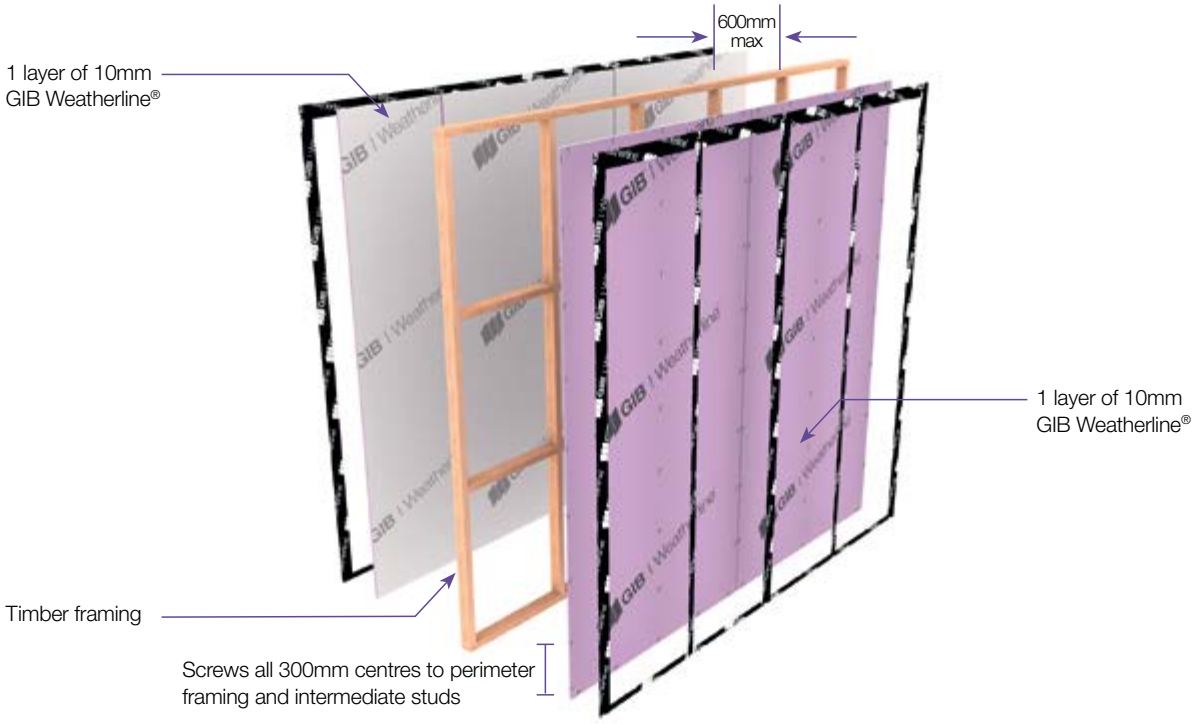
Maximum fastener centres
Place fasteners at 300mm centres around the sheet perimeter and intermediate studs.

Note that GIB Weatherline® perimeter and intermediate fasteners are commonly at closer centres depending on Wind Loading requirements.

Place fasteners at 12mm from bound sheet edges and 18mm from sheet ends and cut edges.

JOINTING

Exterior side
No plaster stopping required. Unless the entire surface is protected with a self-adhesive WRB, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape. No tape is required over mid-sheet fasteners under a structural cavity batten.



Two-way FRR – timber frame parapet or wingwall

Specification	Performance	Specifications	
GWTLP 60	**FRR 60/60/60**	**Lining**	1 x 13mm GIB Weatherline® both sides
		LB/NLB	LB

FRAMING

Stud size: 90mm minimum. Framing to comply with:

- NZBC B1 – Structure: AS1 Clause 3 – Timber (NZS 3604) or VM1 Clause 6 – Timber (NZS 3603).
- NZBC B2 – Durability: AS1 Clause 3.2 – Timber (NZS 3602).
- Studs at 600mm centres maximum.
- Nogs at 1350mm centres maximum.

INSULATION

Inclusion of insulation is optional and depends on the building's thermal performance requirements. Mineral wool, glass wool or polyester fibrous insulation materials are acceptable.

WALL LINING / SHEATHING

Both sides – 1 layer of 13mm GIB Weatherline® sheet fixed vertically. Use full height sheets where possible. All sheet joints and edges must be formed over solid timber framing. Sheet joints are touch fitted. A 10mm gap between sheet edges must be left at floor levels, formed over framing or solid construction materials.

FASTENING THE LINING / SHEATHING

Fasteners
41mm x 6g GIB® Grabber® Ceramic Coated High Thread Screws.

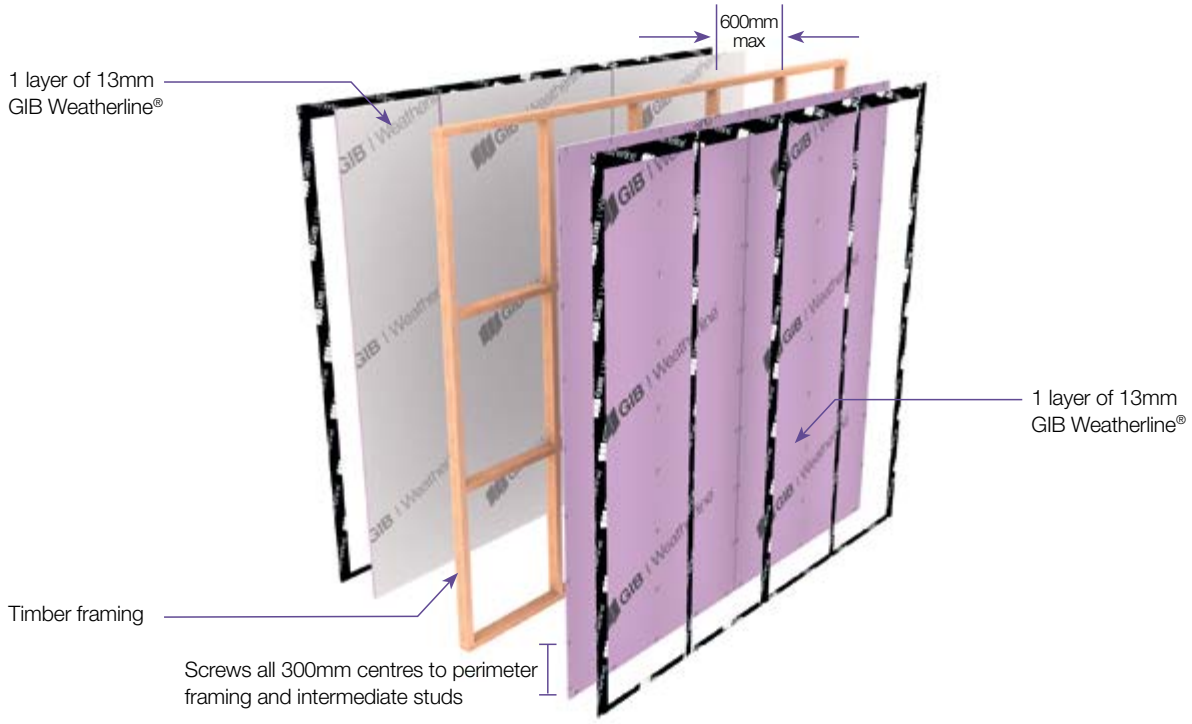
Maximum fastener centres
Place fasteners at 300mm centres around the sheet perimeter and intermediate studs.

Note that GIB Weatherline® perimeter and intermediate fasteners are commonly at closer centres depending on Wind Loading requirements.

Place fasteners at 12mm from bound sheet edges and 18mm from sheet ends and cut edges.

JOINTING

Exterior side
No plaster stopping required. Unless the entire surface is protected with a self adhesive WRB, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape. No tape is required over mid-sheet fasteners under a structural cavity batten.



Two-way FRR – steel frame external wall

Specification	Performance	Specifications	
GWSE 60	**FRR -/60/60**	**Lining**	1 x 13mm GIB Weatherline® exterior side 1 x 13mm GIB Fyreline® internal side
		LB/NLB	NLB

FRAMING AND WALL HEIGHT

Minimum steel stud dimensions to be 92 x 34mm x 0.55 BMT with a 6mm return.

Minimum steel channel dimensions to be 92 x 30mm x 0.50 BMT.

Steel stud and channel must be a minimum BMT of 0.75mm if the wall is to be subjected to wind loads.

Top and bottom channels are fixed to the floor and ceiling in true alignment.

Stud spacing at 600mm centres maximum.

Place studs to allow the nominated expansion gap at the top of the frame.

The studs are held in place by the “grip” of the channels.

Otherwise detailing of steel wall framing to support wind loads and the external cladding is by specific engineering design, allowing for an expansion tolerance equal to 0.5% of wall height.

INSULATION

Inclusion of insulation is optional and depends on the building’s thermal performance requirements. Mineral wool, glass wool or polyester fibrous insulation materials are acceptable.

WALL LINING/SHEATHING

Exterior side - 1 layer of 13mm GIB Weatherline® sheet fixed vertically. Use full height sheets where possible. All sheet joints and edges must be formed over framing. Sheet joints are touch fitted.

Internal side - 1 layer 13mm GIB Fyreline® fixed vertically. Use full height sheets where possible. All sheet joints and edges must be formed over framing. Sheet joints are touch fitted. Linings are installed hard to floor.

FASTENING THE LINING / SHEATHING

Exterior side fasteners
32mm x 8g GIB® Grabber® Ceramic Coated Drill Point Screws.

Internal side fasteners
25mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Maximum fastener centres
Place fasteners at 300mm centres to all studs.

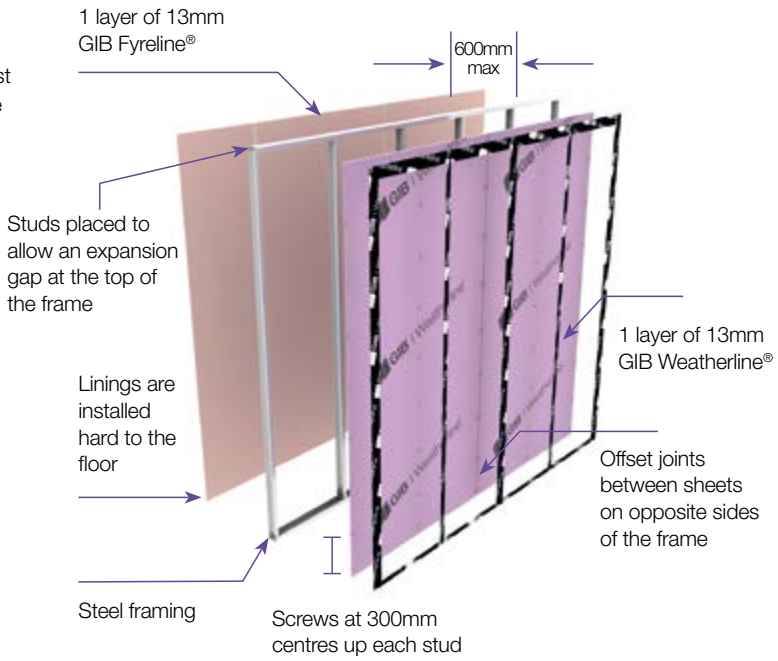
Note that GIB Weatherline® fasteners are commonly at closer centres depending on Wind Loading requirements.

Place fasteners at 12mm from bound sheet edges and 50mm from sheet ends and cut edges.

JOINTING

Exterior side
No plaster stopping required. Unless the entire surface is protected with a self-adhesive WRB, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape. No tape is required over mid-sheet fasteners under a structural cavity batten.

Internal side
All fastener heads must be stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled GIB® Site Guide.



Two-way FRR – steel frame wing wall

Specification	Performance	Specifications	
GWSP 60	**FRR -/60/60**	**Lining**	1 x 13mm GIB Weatherline® both sides
		LB/NLB	NLB

FRAMING AND WALL HEIGHT

Minimum steel stud dimensions to be 92 x 34mm x 0.55 BMT with a 6mm return.

Minimum steel channel dimensions to be 92 x 30mm x 0.50 BMT.

Steel stud and channel must be a minimum BMT of 0.75mm if the wall is to be subjected to wind loads.

Top and bottom channels are fixed to the floor and ceiling in true alignment.

Stud spacing at 600mm centres maximum.

Place studs to allow the nominated expansion gap at the top of the frame.

The studs are held in place by the “grip” of the channels.

Otherwise detailing of steel wall framing to support wind loads and the external cladding is by specific engineering design, allowing for an expansion tolerance equal to 0.5% of wall height.

INSULATION

Inclusion of insulation is optional and depends on the building’s thermal performance requirements. Mineral wool, glass wool or polyester fibrous insulation materials are acceptable.

SHEATHING

Both sides - 1 layer of 13mm GIB Weatherline® sheet fixed vertically. Use full height sheets where possible. All sheet joints and edges must be formed over framing. Sheet joints are touch fitted.

FASTENING THE LINING / SHEATHING

Fasteners
32mm x 8g GIB® Grabber® Ceramic Coated Drill Point Screws.

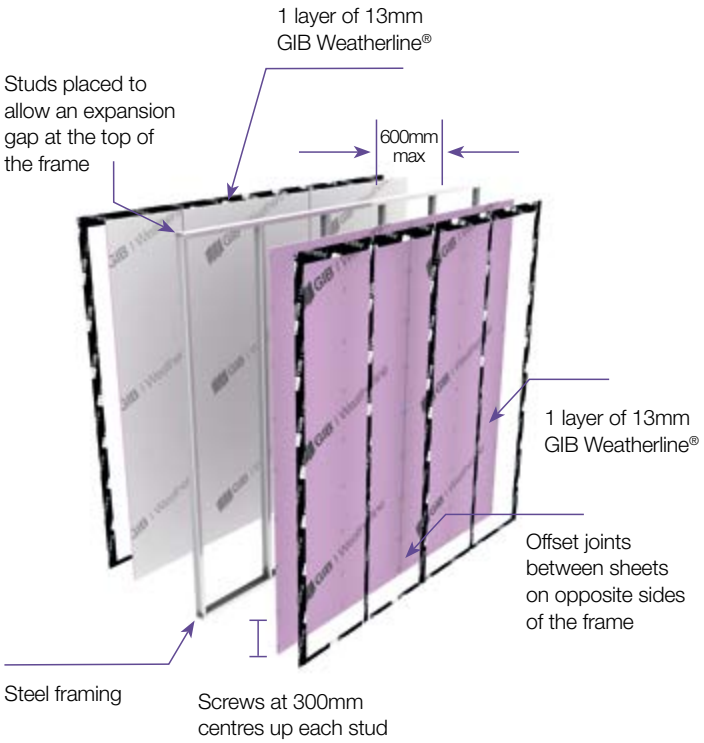
Maximum fastener centres
Place fasteners at 300mm centres to all studs.

Note that GIB Weatherline® fasteners are commonly at closer centres depending on Wind Loading requirements.

Place fasteners at 12mm from bound sheet edges and 18mm from sheet ends and cut edges.

JOINTING

No plaster stopping required. Unless the entire surface is protected with a self-adhesive WRB, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape. No tape is required over mid-sheet fasteners under a structural cavity batten.



Fire rated soffit systems

Specification	Performance	Specifications	
GWUC 30	**FRR 30/30/30**	**Lining**	1 layer 13mm GIB Weatherline®
		LB/NLB	Load bearing

FRAMING

- Timber or steel roof or floor/ceiling framing designed to meet structural criteria for strength and serviceability under dead and live loads.
- Separation distance between the soffit linings and any flooring or roofing material shall be 90mm minimum.
- Linings shall be supported by framing members with a minimum width of 35mm spaced at 600mm centres maximum.
- Solid nogs shall be provided at 1200mm centres maximum and to the perimeter of the fire rated soffit.
- If timber-framed construction applies, the nogs shall be 70mm x 35mm minimum.

FLOORING / INSULATION

The FRR is achieved with a minimum 90mm separation distance between the soffit lining and sheet flooring, or with fibrous insulation installed above the soffit lining.

If sheet flooring is used it must be a minimum of nominal 20mm strand board or particle board, minimum 19mm fibre cement, or minimum 17mm structural plywood fixed to the framing in accordance with the manufacturer's specifications.

If fibrous insulation is used it must be minimum R1.8 75mm glass wool, polyester or natural wool product installed in accordance with the manufacturer's specifications.

SOFFIT LINING

- 1 layer of 13mm GIB Weatherline® shall be fixed at right angles to the underside of the framing members.
- All sheet joints must occur over solid framing.
- Sheets shall be touch fitted.
- When used externally, GIB Weatherline® must be covered with a cladding material over a nominal 20mm ventilated cavity.

FASTENING THE LINING / SHEATHING

Fasteners

Timber Frame	Steel Frame
41mm x 6g GIB® Grabber® Ceramic Coated High Thread Screws	32mm x 8g GIB® Grabber® Ceramic Coated Drill Point Screws

Fastener centres

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends. This distance may be reduced to 12mm from sheet ends at butt joints on furring channels.

Place fasteners at 200mm centres around sheet perimeters, along each intermediate framing member and where sheet end butt joints occur.

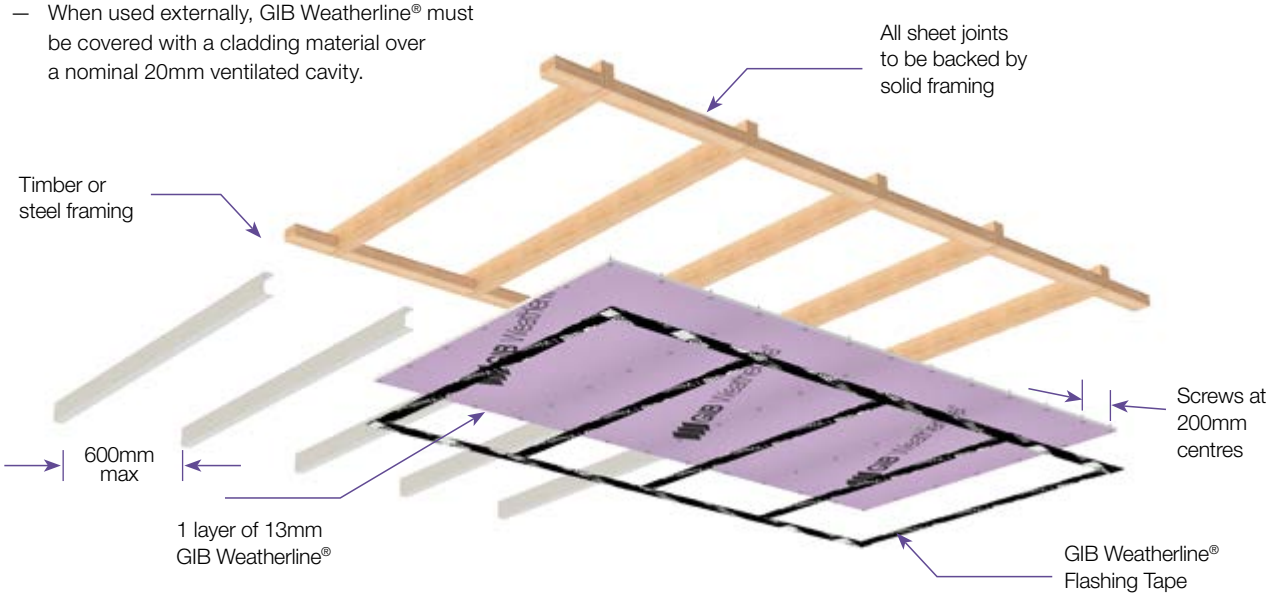
These fastener centres represent the maximum permitted to achieve the stated FRR. Closer centres may be required to satisfy wind loading requirements.

SOFFIT / WALL JUNCTIONS

The internal angle between the soffit lining and wall cladding or rigid air barrier must be touch fitted. Any gaps shall be filled to the full thickness of the soffit lining with GIB Fire Soundseal®.

JOINTING

No plaster stopping required. Unless the entire surface is protected with a self adhesive Water Resistive Barrier, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape.



Fire rated soffit systems

Specification	Performance	Specifications	
GWUC 60	**FRR 60/60/60**	**Lining**	2 layers 13mm GIB Weatherline®
		LB/NLB	Load bearing

FRAMING

- Timber or steel roof or floor/ceiling framing designed to meet structural criteria for strength and serviceability under dead and live loads.
- Separation distance between the soffit linings and any flooring or roofing material shall be 90mm minimum.
- Linings shall be supported by framing members with a minimum width of 35mm spaced at 600mm centres maximum.
- In respect of the FRR for this particular system, nogs are required only at the perimeter of the fire rated soffit.
- If timber-framed construction applies, the nogs shall be 70mm x 35mm minimum.

FLOORING / INSULATION

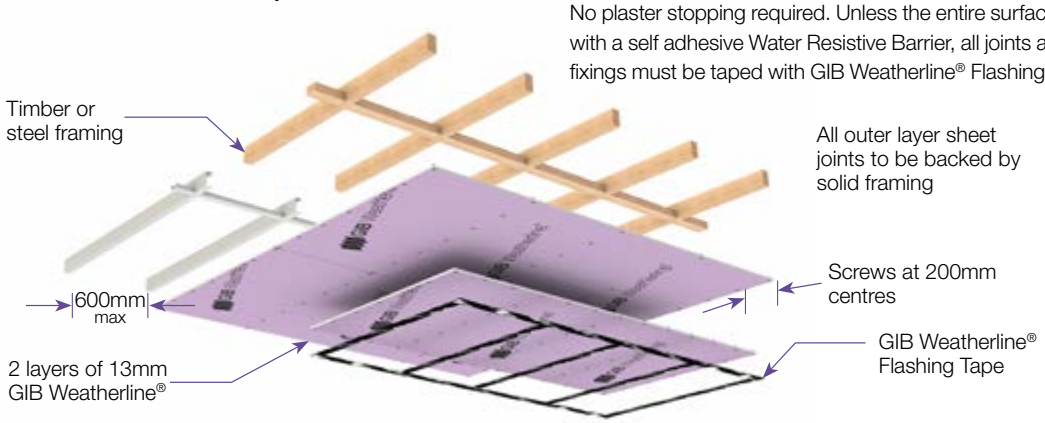
The FRR is achieved with a minimum 90mm separation distance between the soffit lining and sheet flooring, or with fibrous insulation installed above the soffit lining.

If sheet flooring is used it must be a minimum of nominal 20mm strand board or particle board, minimum 19mm fibre cement, or minimum 17mm structural plywood fixed to the framing in accordance with the manufacturer's specifications.

If fibrous insulation is used it must be minimum R1.8 75mm glass wool, polyester or natural wool product installed in accordance with the manufacturer's specifications.

SOFFIT LINING

- 2 layers of 13mm GIB Weatherline® shall be fixed at right angles to the underside of the framing members.
- The joints of the outer layer are offset 600mm from the those in the inner layer.
- All inner layer sheet end butt joints must occur over solid framing.
- All outer layer longitudinal and sheet end butt joints must occur over framing.
- When used externally, GIB Weatherline® must be covered with a cladding material installed over a nominal 20mm ventilated cavity.



FASTENING THE LINING / SHEATHING

Fasteners

Layer	Timber Frame	Steel Frame
Inner layer	41mm x 6g GIB® Grabber® Ceramic Coated High Thread Screws	32mm x 8g GIB® Grabber® Ceramic Coated Drill Point Screws
Outer layer	63mm x 8g GIB® Grabber® Ceramic Coated High Thread Screws	47mm x 8g GIB® Grabber® Ceramic Coated Drill Point Screws

Fastener centres inner layer

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends. This distance may be reduced to 12mm from sheet ends at butt joints on furring channels.

Place fasteners at 200mm centres around ceiling perimeter, along each intermediate framing member and where sheet end butt joints occur.

Fastener centres outer layer

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends. This distance may be reduced to 12mm from sheet ends at butt joints on furring channels.

Place fasteners at 200mm centres around sheet perimeters, along each intermediate framing member and where sheet end butt joints occur.

These fastener centres represent the maximum permitted to achieve the stated FRR. Closer centres may be required to satisfy wind loading requirements.

SOFFIT / WALL JUNCTIONS

The internal angle between the soffit lining and wall cladding or rigid air barrier must be touch fitted. Any gaps shall be filled to the full thickness of the soffit lining with GIB Fire Soundseal®.

JOINTING

Inner layer

No plaster stopping or taping required.

Outer layer

No plaster stopping required. Unless the entire surface is protected with a self adhesive Water Resistive Barrier, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape.

Fire rated protection of columns and beams – timber strapping

SCOPE OF USE

The options offered in this section provide quick reference solutions for the fire protection of structural steel, timber and concrete columns and beams. The illustrations below show steel members.

For engineered solutions, tailored to meet specific column and beam types, sizes and loading conditions, specific fire engineering is required.

Specification number	FRR (structural adequacy rating*)	Lining requirement steel, timber and concrete columns and beams
GWCBT 15	**15/-/-**	1 x 13mm GIB Weatherline®
GWCBT 30	**30/-/-**	2 x 10mm GIB Weatherline®
GWCBT 60	**60/-/-**	2 x 13mm GIB Weatherline®

** The FRR comprises values for structural adequacy/integrity/insulation. For loadbearing structural steel members (primary elements), the structural adequacy rating is usually the only requirement and prevents failure under vertical gravity loads during a fire.*

STRAPPING

Strap columns or beams with a timber cradle with a minimum nominal thickness of 35mm ensuring that the linings are supported by framing members spaced at 600mm centres maximum.

No air gap is required as long as support is provided to the protective linings at no more than 600mm centres each side of the structural member.

The protective linings can be direct fixed to timber columns and beams.

LINING

Install the linings in accordance with the required FRR as specified on this page. First and second layer joints must be formed over framing. In double-layer systems, the joints between the first and second layer must be offset by 300mm minimum.

Provide temporary weather protection or drainage paths to prevent water accumulation within the lined enclosure. Failure to prevent water accumulation may result in damage to the linings or other elements within the construction.

FASTENING THE LINING

Fasteners

41mm x 6g or 63mm x 8g GIB® Grabber® Ceramic Coated High Thread Screws.

The fastener length must ensure a 20mm minimum penetration into the timber framing.

Fastener centres

Inner layer: 300mm centres maximum to framing spaced at 600mm centres maximum.

Single and Outer layers: 300mm centres maximum to frame spaced at 600mm centres maximum. Fastener centres may need to be reduced to comply with design wind pressure Tables 4 or 5.

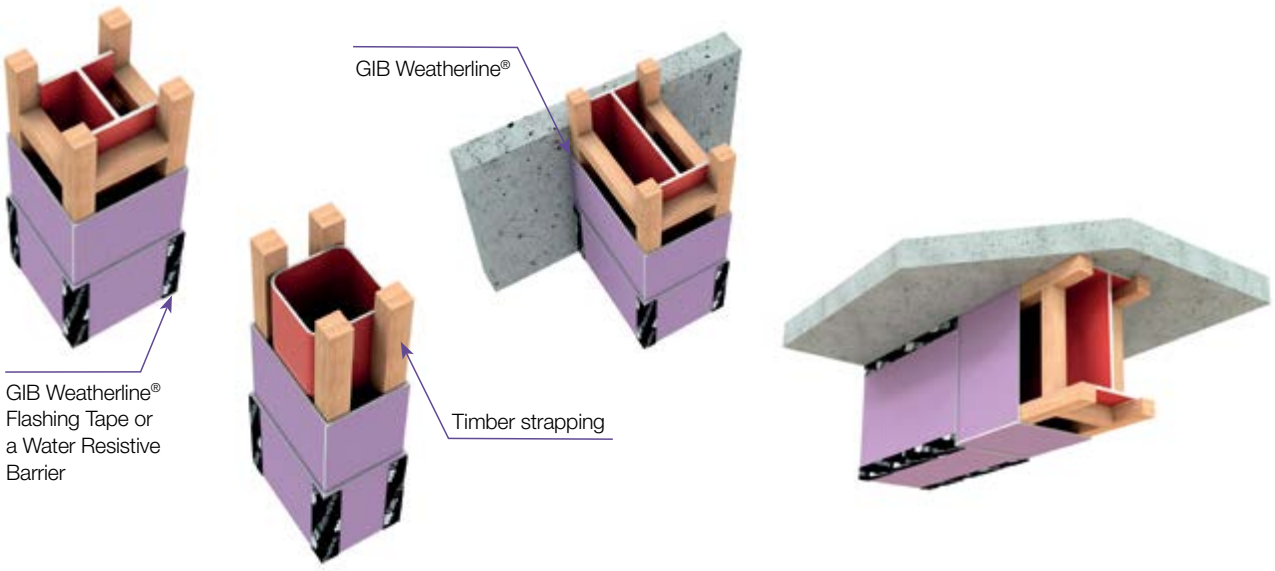
JOINTING

Inner layer

Untaped.

Outer layer

No plaster stopping required. Unless the entire surface is protected with a self-adhesive WRB, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape.



Fire rated protection of columns and beams – steel clip and channel

SCOPE OF USE

The options offered in this section provide quick reference solutions for the fire protection of structural steel, timber and concrete columns and beams. The illustrations below show steel members.

For engineered solutions, tailored to meet specific column and beam types, sizes and loading conditions, specific fire engineering is required.

Specification number	FRR (structural adequacy rating*)	Lining requirement steel columns and beams
GWCBS 15	**15/-/-**	1 x 13mm GIB Weatherline®
GWCBS 30	**30/-/-**	2 x 10mm GIB Weatherline®
GWCBS 60	**60/-/-**	2 x 13mm GIB Weatherline®

** The FRR comprises values for structural adequacy/integrity/insulation. For loadbearing structural steel members (primary elements), the structural adequacy rating is usually the only requirement and prevents failure under vertical gravity loads during a fire.*

CLIP AND CHANNEL

Attach Rondo® Clip (part no. BMCL) to columns or beams at 600mm centres maximum. Insert Rondo® 140 Perimeter Channel (part no. 140) into clips. Ensure that the linings are supported by framing members at 600mm centres maximum.

For beams exposed on three sides, Rondo® Perimeter Angle (part no. NZ18) is to be secured to provide fixing for the linings.

The Rondo® angle must be fixed to the underside of the floor at 600mm centres maximum. The Rondo® angles are to be fixed at a maximum of 100mm in from each end.

LINING

Install the linings in accordance with the required FRR as specified on this page. First and second layer joints must be formed over framing. In double-layer systems, the joints between the first and second layer must be offset by 300mm minimum.

Provide temporary weather protection or drainage paths to prevent water accumulation within the lined enclosure. Failure to prevent water accumulation may result in damage to the linings or other elements within the construction.

FASTENING THE LINING

Fasteners

Use 32mm x 8g or 47mm x 8g GIB® Grabber®Ceramic Coated Drill Point Screws.

The fastener length must ensure a 12mm minimum penetration into the steel framing.

Fastener centres

Inner layer: 300mm centres maximum to framing spaced at 600mm centres maximum.

Single and Outer layers: 300mm centres maximum to frame spaced at 600mm centres maximum. Fastener centres may need to be reduced to comply with design wind pressure Tables 4 or 5.

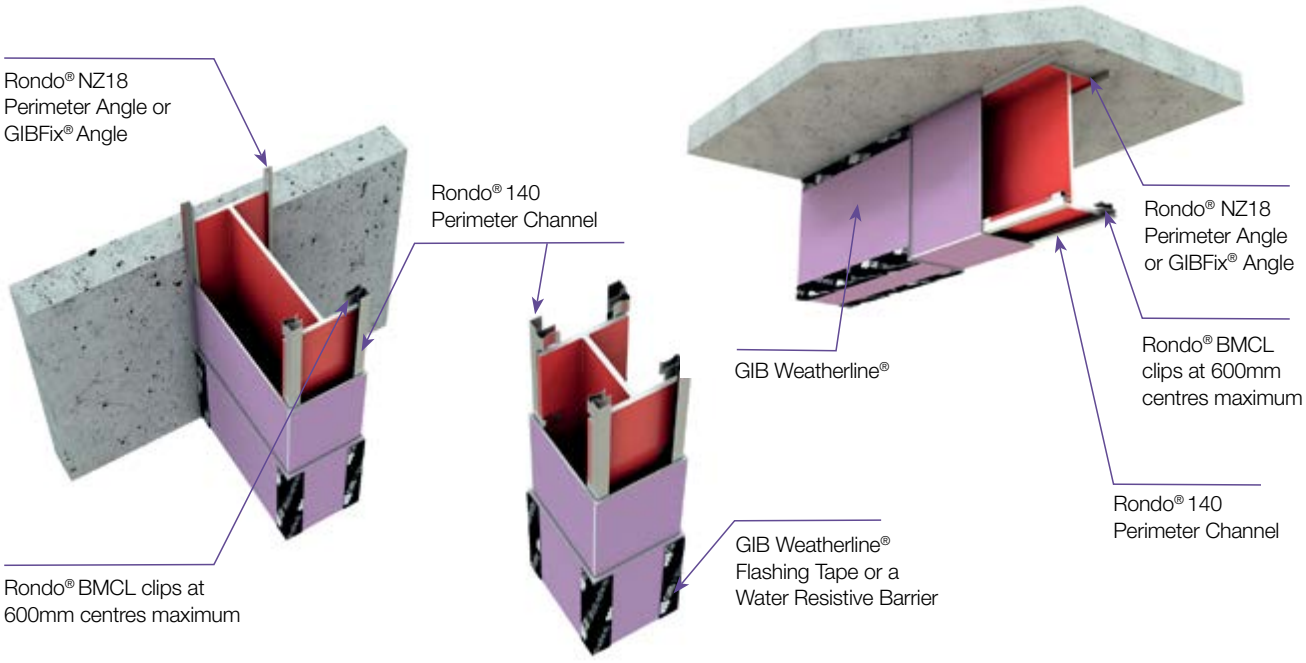
JOINTING

Inner layer

Untaped.

Outer layer

No plaster stopping required. Unless the entire surface is protected with a self-adhesive WRB, all joints and screw fixings must be taped with GIB Weatherline® Flashing Tape.



Environmental noise

Combined with our range of internal linings, GIB Weatherline® Rigid Air Barrier Systems contribute to quieter indoor spaces by reducing the transmission of environmental noise effectively.

The design information in this section is general in nature and only applicable to locations with normal levels of environmental noise. Specific acoustic design advice should be sought for locations with more extreme levels of environmental noise. These locations include the inner city in close proximity to bars and clubs, or next to roads, railway lines or industrial installations.

The ability of building materials to resist the transmission of sound is dependent on their density, thickness and stiffness. Generally speaking, materials that are light and stiff are poor sound insulators because they allow sound at certain frequencies to transmit efficiently. Heavyweight external cladding materials are more effective sound insulators than lightweight external cladding materials.

The ability of an external wall to reduce the transmission of environmental noise is often controlled by the number and size of the window openings in the wall. The smaller the window the better as it is often the weakest path for the transmission of noise. Laminated glazing using a PMMA interlayer provides about a 3dB improvement over float glass of a similar thickness.

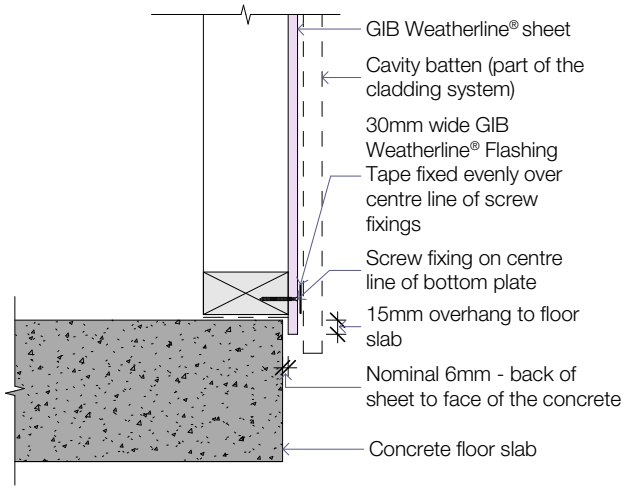
Table 10: External walls incorporating GIB Weatherline® Rigid Air Barrier Systems

System Type		Components		Acoustic performance of wall only (STC)		Acoustic performance* of wall with allowance for window and roof flanking losses (D2m,nT,w) 10 & 13 mm
		Internal lining	External cladding	10mm GIB Weatherline®	13mm GIB Weatherline®	
Standard	1	1 x 10mm GIB® Standard plasterboard	Timber weatherboard	43	44	29 dB
			Fibre cement weatherboard	49	49	30 dB
			Brick veneer	58	58	31 dB
			Profiled metal	42	43	28 dB
	2	1 x 13mm GIB Fyreline®	Timber weatherboard	44	45	30 dB
			Fibre cement weatherboard	50	50	31 dB
			Brick veneer	56	56	31 dB
			Profiled metal	46	46	29 dB
Superior	3	2 x 10mm GIB Braceline® GIB Noiseline®	Timber weatherboard	47	48	31 dB
			Fibre cement weatherboard	53	53	31 dB
			Brick veneer	60	60	31 dB
			Profiled metal	50	50	31 dB
	4	2 x 13mm GIB Braceline® GIB Noiseline®	Timber weatherboard	48	49	31 dB
			Fibre cement weatherboard	53	53	31 dB
			Brick veneer	59	59	31 dB
			Profiled metal	53	53	31 dB

* Assumes 20% window openings, 13mm plasterboard ceiling lining with insulated ceiling void and a pitched concrete tile roof with no openings.

BOTTOM PLATE OVERHANG LIGHTWEIGHT CLADDING

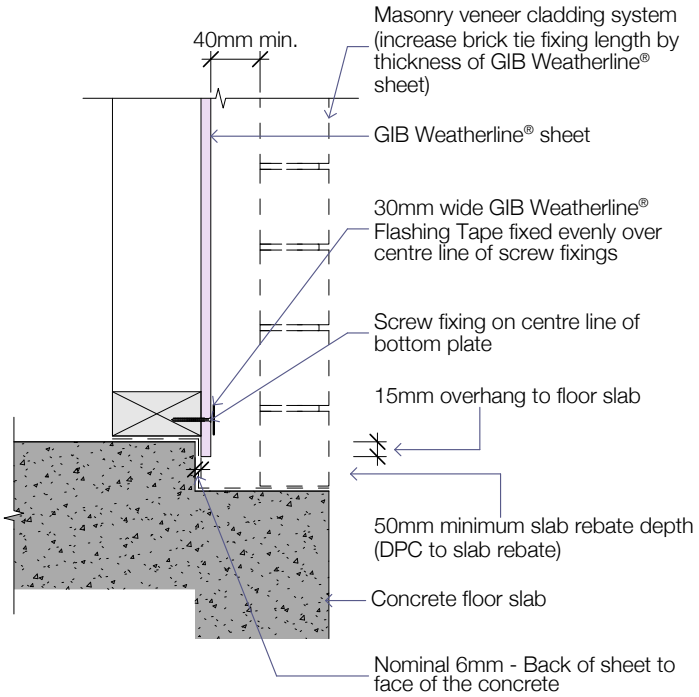
Ensure that sheet set out allows for the bottom edge of the sheet to overhang the ground floor bottom plate to floor junction by 15mm minimum. Install cavity closers as required, as part of the cladding system.



GWL001

BOTTOM PLATE OVERHANG BRICK VENEER CLADDING

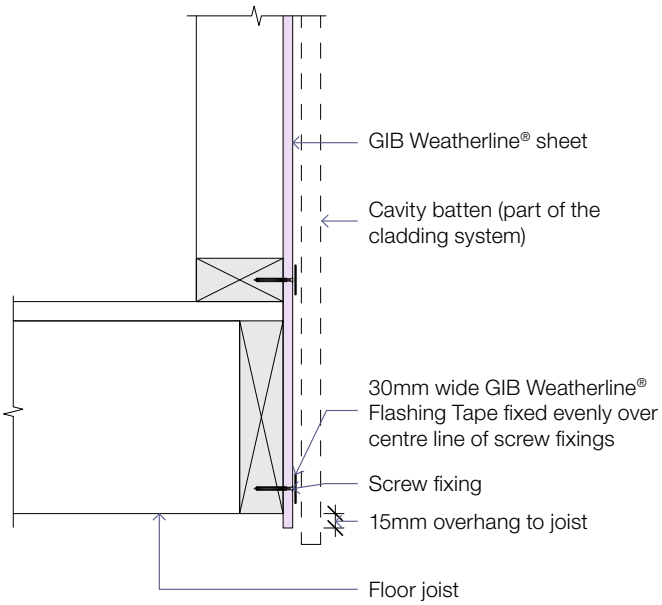
Ensure the sheet set out allows for the bottom edge of the sheet to overhang the ground floor bottom plate to floor junction by 15mm minimum.



GWL002

BOTTOM PLATE OVERHANG TIMBER SUB-FLOOR

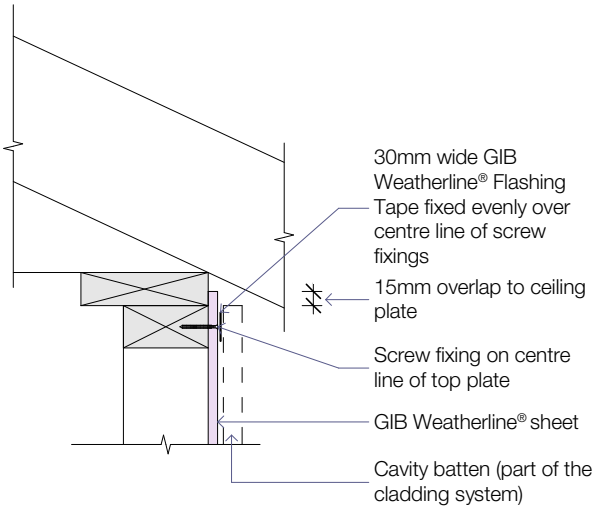
Ensure the sheet set out allows for the bottom edge of the sheet to overhang the bottom of the boundary joist by 15mm minimum.



GWL035

TOP PLATE OVERHANG

Where applicable, ensure that sheet set out allows for the top edge of the sheet to overhang the top plate to ceiling plate junction by 15mm minimum.



GWL003

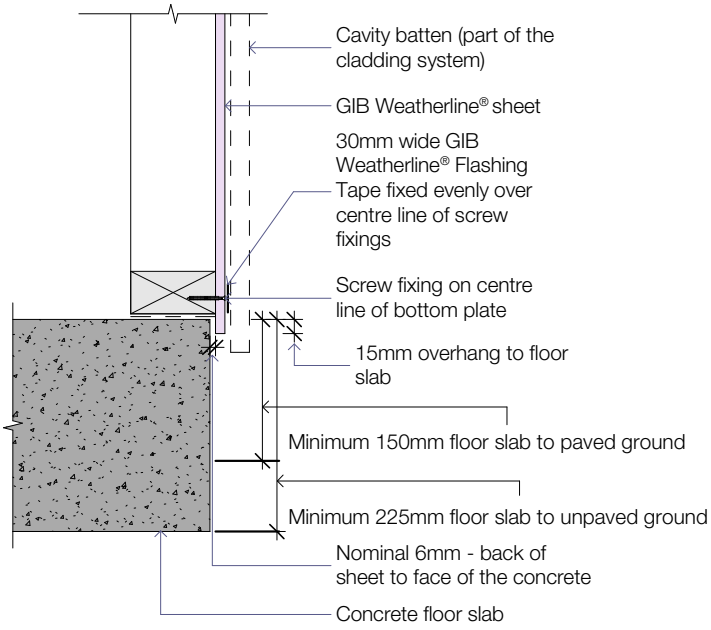
CLADDING GROUND CLEARANCE

Minimum ground clearances must be maintained for the cladding system being installed. Install cavity closers as required, as part of the cladding system.

Cladding ground clearances must comply with E2/AS1 Clause 9.1.3, Table 18 and Figure 65 together with the cladding clearances for timber floors in NZS 3604.

The ground adjacent to the cladding must slope away from the cladding.

GIB Weatherline® Rigid Air Barrier Systems sheets must not be installed where they will remain in contact with non-draining water, damp ground, or soil.

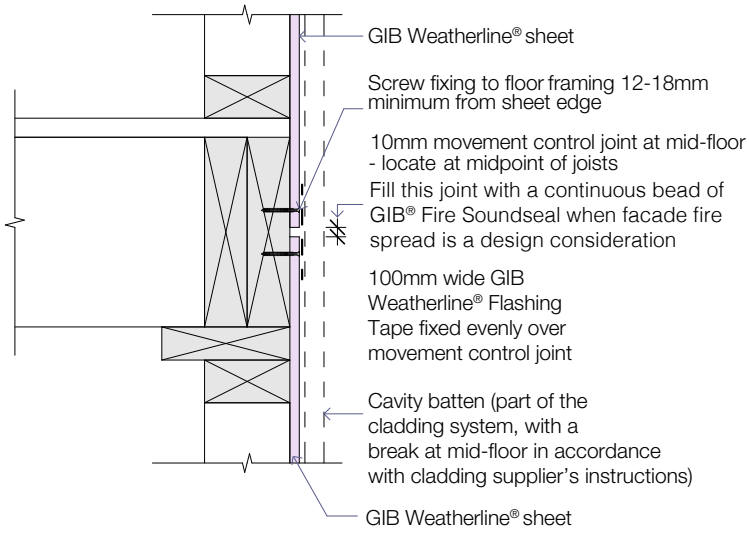


GWL004

HORIZONTAL SHEET JOINT AT MID FLOOR

For buildings of two or more storeys, a horizontal sheet junction is required at the building's mid or intermediate floors, to allow for any potential floor structure movement. The sheets can be screw fixed to the mid-floor framing.

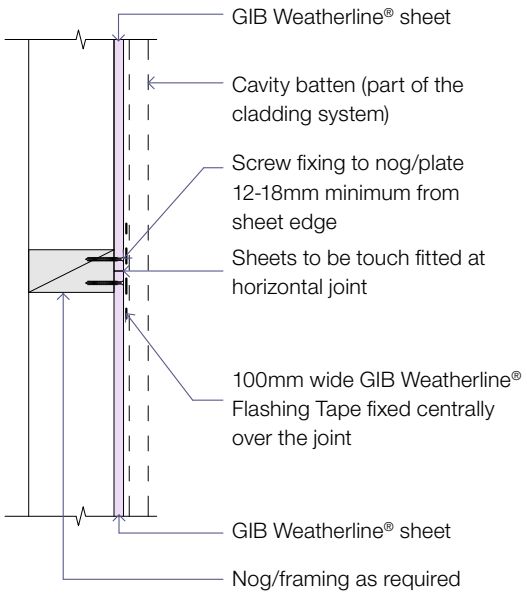
Ensure the sheets are positioned to allow a 10mm gap between the upper and lower sheet edges, at mid-floor horizontal junctions. It is recommended to form a break in the cavity batten at mid-floor.



GWL005

HORIZONTAL SHEET JOINT

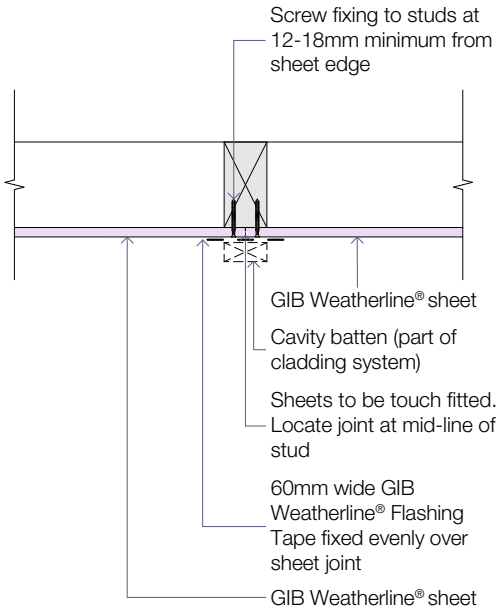
For buildings with stud heights requiring more than one sheet length (i.e. where horizontal joints are located other than mid or intermediate floor locations), provide framing to support the horizontal joint.



GWL006a

VERTICAL SHEET JOINT

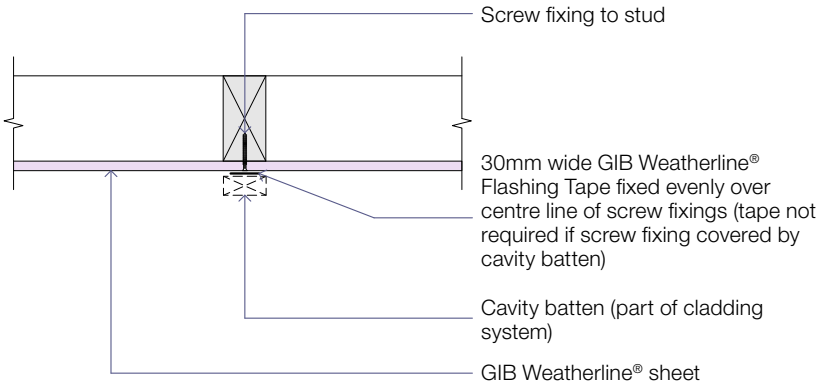
Set out should allow for vertical sheet edges to be touch fitted at vertical joints, on the centre line of the wall framing.



GWL007

VERTICAL MID-SHEET FIXING

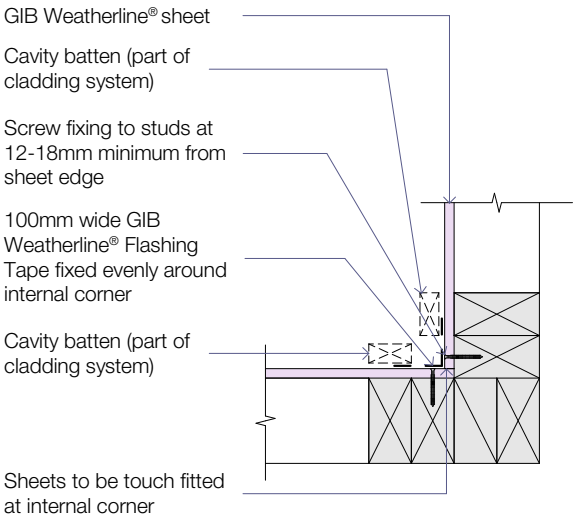
Vertical mid-sheet fixings to be covered by GIB Weatherline® Rigid Air Barrier Systems flashing tape.



GWL026

INTERNAL CORNER

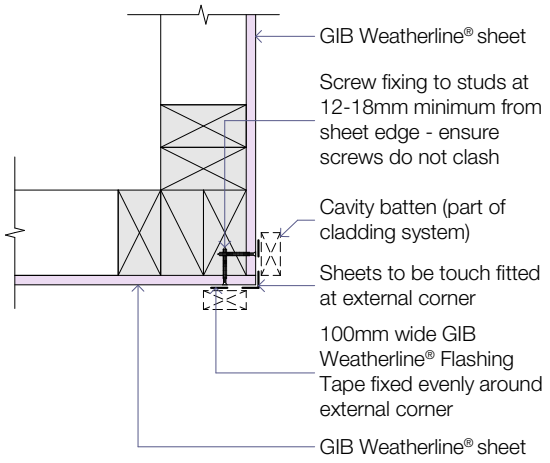
At internal corners install the sheets so that they are touch fitted to each other (or to the face of the wall framing), into the corner.



GWL008

EXTERNAL CORNER

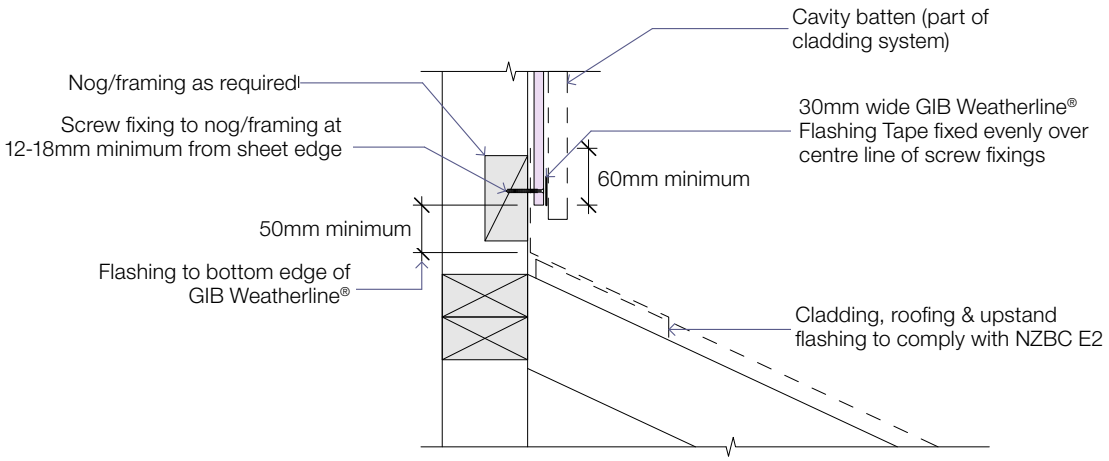
At external corners install the first sheet vertically overlapping the corner framing by the thickness of the sheet. Touch fit the adjacent sheet vertically to the back face of the previously installed overlapping sheet.



GWL009

SKIRT ROOF JUNCTION

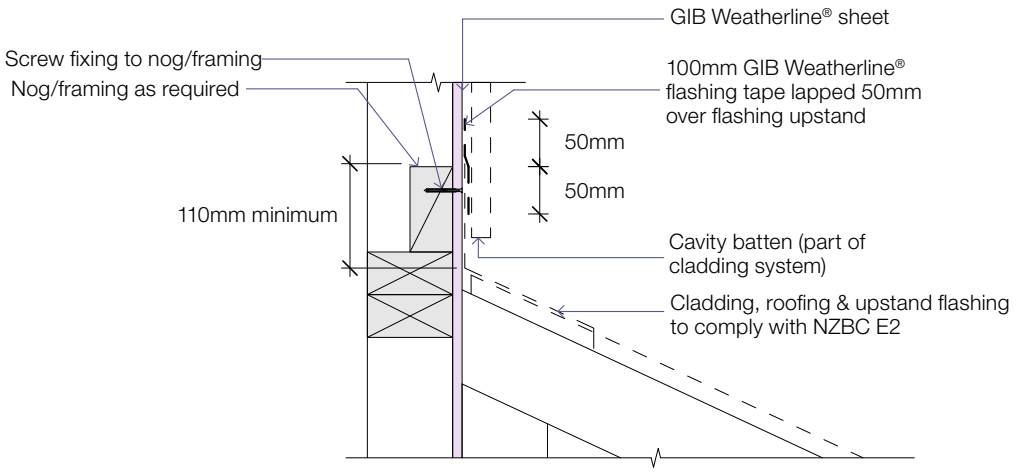
For GIB Weatherline® Rigid Air Barrier Systems terminating at a roof flashing upstand, install cavity closers as required, as part of the cladding system.



GWL024

SKIRT ROOF JUNCTION

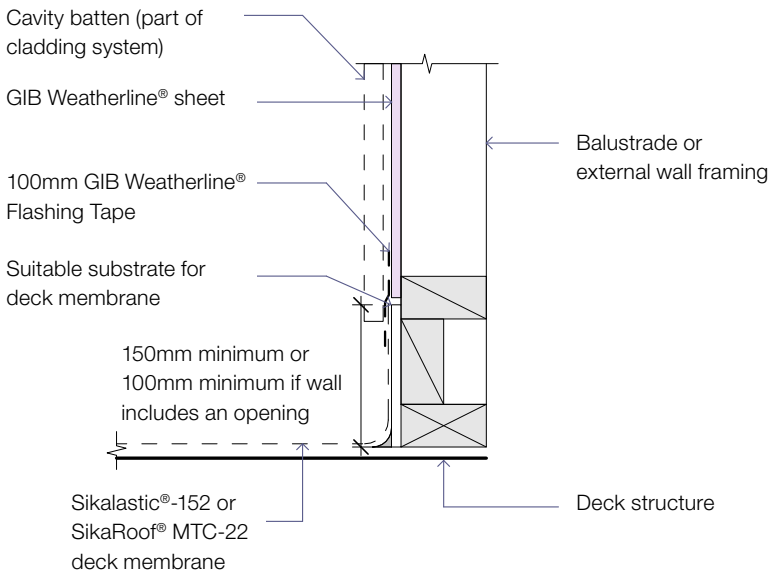
For GIB Weatherline® Rigid Air Barrier Systems continuing past roof flashing upstand, install cavity closers as required, as part of the cladding system.



GWL022

ENCLOSED DECK JUNCTION

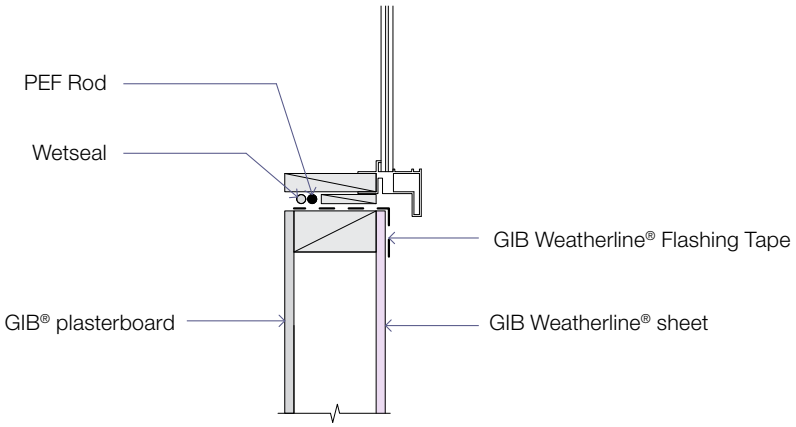
For buildings with enclosed decks use 100mm GIB Weatherline® Flashing Tape to seal the gap where the Sikalastic®-152 or SikaRoof® MTC-22 deck membrane meets the GIB Weatherline® sheet. If an alternative deck membrane product is used it is the responsibility of the designer to ensure that any gap between the deck membrane and the GIB Weatherline® sheet is sealed.



GWL034

AIR SEAL FORMED WITH SEALANT

Sealants adhere well to GIB Weatherline® Flashing and Sill Tapes. Insert a closed cell polyethelene foam (PEF) backing rod before installing the sealant. This is to ensure the correct location of the sealant.



GWL036

Table 11: GIB Weatherline® technical data

Product	Type	Description	Performance values	Units
10mm GIB Weatherline®	General	Density	860	kg/m^3
	Mechanical properties	Average bending stress in longitudinal direction according to ASTM C473 - 12	5.95	MPa
		Characteristic bending stress in longitudinal direction according to ASTM C473 - 12	4.94	MPa
		Average bending stress in transverse direction according to ASTM C473 - 12	3.36	MPa
		Characteristic bending stress in transverse direction according to ASTM C473 - 12	2.24	MPa
		Average modulus of elasticity according to ASTM C473 - 12	3198	MPa
	Shear strength	Average maximum load for GIB® Grabber® Ceramic Coated Screw	660	N
		Characteristic load for GIB® Grabber® Ceramic Coated Screw	394	N
	Fire	Bare product surface finish properties according to ISO 5660 Reaction to Fire Tests. NZBC Acceptable Solutions C/AS2-C/AS6 paragraphs 5.8.1a) and 5.8.1b).	Satisfied	
		Reaction to fire classification according to EN 13501-1:2018	A1	
	Moisture resistance	2 hour water absorption (full immersion) according to AS/NZS 2588	<3	%
		Surface water absorption (2 hours Cobb test) according to AS/NZS 2588	<100	g/m^2
		Water vapour resistance according to ASTM E96	<0.8	MNs/g
	Dimensional stability	Thermal coefficient of linear expansion in longitudinal and transverse directions (21°C – 60°C)	1.3 x 10^{-5}	m/m/°C
		Hygrometric coefficient of linear expansion in longitudinal and transverse directions at 22°C (54%RH – 85%RH)	1.1 x 10^{-5}	m/m/%RH
	Thermal	Thermal resistance	0.04	m^{2}K/W
	Humidified sag	Mid-span sag according to AS/NZS 2588	<5	mm
	Mould resistance	Resistance to mould growth	0/0	No mould growth
13mm GIB Weatherline®	General	Density	860	kg/m^3
	Mechanical properties	Average bending stress in longitudinal direction according to ASTM C473 - 12	4.77	MPa
		Characteristic bending stress in longitudinal direction according to ASTM C473 - 12	4.09	MPa
		Average bending stress in transverse direction according to ASTM C473 - 12	2.37	MPa
		Characteristic bending stress in transverse direction according to ASTM C473 - 12	1.50	MPa
		Average modulus of elasticity according to ASTM C473 - 12	2755	MPa
	Shear strength	Average maximum load for GIB® Grabber® Ceramic Coated Screw	750	N
		Characteristic load for GIB® Grabber® Ceramic Coated Screw	555	N
	Fire	Bare product surface finish properties according to ISO 5660 Reaction to Fire Tests. NZBC Acceptable Solutions C/AS2-C/AS6 paragraphs 5.8.1a) and 5.8.1b).	Satisfied	
		Reaction to fire classification according to EN 13501-1:2018	A1	
	Moisture resistance	2 hour water absorption (full immersion) according to AS/NZS 2588	<3	%
		Surface water absorption (2 hours Cobb test) according to AS/NZS 2588	<100	g/m^2
		Water vapour resistance according to ASTM E96	<1.0	MNs/g
	Dimensional stability	Thermal coefficient of linear expansion in longitudinal and transverse directions (21°C – 60°C)	1.3 x 10^{-5}	m/m/°C
		Hygrometric coefficient of linear expansion in longitudinal and transverse directions at 22°C (54%RH – 85%RH)	1.1 x 10^{-5}	m/m/%RH
	Thermal	Thermal resistance	0.05	m^{2}K/W
	Humidified sag	Mid-span sag according to AS/NZS 2588	<4	mm
	Mould resistance	Resistance to mould growth	0/0	No mould growth

Acoustic
Concerned with sound or the sense of hearing, including how sound behaves within a room, between rooms or between rooms and the outside environment.

Air barrier
A layer fitted to the external envelope that is designed to prevent the uncontrolled flow of air into and out of the interior of a building.

BMT
Bare Metal Thickness.

Cavity cladding system
The exterior weather resistant surface of a building wall that incorporates a drained and vented cavity.

D2m,nT,w
Metric used to express the difference between the outdoor noise level at 2 metres from a façade and the indoor noise level, by considering the transmission loss through all sound transmission paths (e.g. glazing, roof, eaves, etc). It is a single number value which expresses the performance of the whole façade. In theory, subtracting the D2m,nT,w of a façade from any given noise level at 2 metres from that façade will give you the internal noise level. “D” stands for noise level difference; “2m” means the external level this metric is applied to is at 2 metres from the façade; “nT” means the internal space is normalised to a reference reverberation time of 0.5 seconds; ‘”w” means the D2m,nT,w spectrum is weighted against a reference curve to give a single value.

dB
An abbreviation for decibel. A decibel is the unit of measure for sound pressure level. A decibel is a tenth of a Bel.

Environmental noise
Sound from the outside environment that is unwanted by the listener.

External wall
Any vertical exterior face of a building consisting of primary and/or secondary elements intended to provide protection against the outdoor environment.

Flexible wall underlay
A building paper or synthetic material used as part of a wall cladding system to assist the control of moisture by ensuring moisture which occasionally penetrates the wall cladding is directed back to the exterior of the building.

FRR
Fire Resistance Rating.

LB
Load bearing. Indicates the building element being referred to can resist a structural load.

NLB
Non-load bearing. Indicates the building element being referred to cannot resist a structural load.

NZBC
New Zealand Building Code.

Parapet wall
A wall that extends above the level of the roof cladding.

PMMA
Polymethyl Methacrylate. Used as an interlayer in laminated glass panels.

Primary drainage plane
The outside weather resistant surface of roof or cavity wall cladding and the back of such cladding.

Rigid air barrier
A layer of rigid sheathing fitted to the external side of the exterior wall framing, which is designed to prevent the flow of air into and out of the interior of a building. When used in conjunction with a drained cavity it can also provide a tertiary drainage plane behind the wall cladding.

Roof underlay
A building paper, synthetic material or rigid sheathing used on the underside of a roof cladding system to assist the control of moisture by ensuring moisture which occasionally penetrates the roof cladding is directed back to the exterior of the building.

Secondary drainage plane
An additional surface, that sits behind the drained and vented cavity cladding, capable of resisting external moisture penetration.

SED
Specific Engineering Design.

Skirt roof
A roof between storeys of a building.

Sound
A travelling vibration through an elastic medium that may be detected by a hearing system.

STC
Sound Transmission Class.

Structural cavity batten
A vertical packing member used to create a drained cavity as part of a cladding system and that also provides sufficient strength to act as a substrate for the wall cladding to be fixed to.

Temporary weathertight exterior
An external building surface able to be exposed to the elements for up to 180 days.

Wall cladding
The weather resistant exterior surface of a building.

Wall underlay
A building paper, synthetic material or rigid sheathing used as part of a wall cladding system to assist the control of moisture by ensuring moisture which occasionally penetrates the wall cladding is directed back to the exterior of the building.

WRB
Water Resistive Barrier. A self adhesive flexible wall underlay that allows water vapour to pass but is impervious to liquid water.

Weathertight
A state where water is prevented from entering and accumulating behind cladding in amounts that can cause undue dampness or damage to the building elements.

Wind zone
Categorisation of wind force experienced on a particular site as determined in NZS 3604, Section 5.

Wing wall
A wall that projects beyond the plane of the external wall.

Notes

GIB Weatherline® Rigid Air Barrier Systems, May 2022

LIMITATIONS

Winstone Wallboards Ltd accepts no liability if the GIB Weatherline® Rigid Air Barrier Systems and junction details are not installed in strict accordance with instructions contained within this publication.

USE ONLY THE CURRENT SPECIFICATION

This publication may be superseded by a new publication. Winstone Wallboards accepts no liability for reliance upon publications that have been superseded. You should check the GIB® website to ensure you are using the current publication. If you are unsure whether this is the current publication, simply call the GIB® Helpline on 0800 100 442.

SUBSTITUTION

GIB Weatherline® Rigid Air Barrier Systems have been specifically designed and tested to achieve the stated performance levels. To maintain the GIB® Product and System Warranty, all system components detailed in this publication must be used when specifying and installing GIB Weatherline® Rigid Air Barrier Systems.

TRADEMARKS

The names GIB®, GIB Fyreline®, GIB Ultraline®, GIB Toughline®, GIB Braceline® GIB Noiseline®, GIB Aqualine®, GIB Weatherline®, GIB Tradeset®, GIB Plus 4®, GIB-Cove®, GIB X-Block®, GIB Lite Blue®, GIBFix®, GIB® Quiet Stud®, GIB Rail®, GIB Barrierline®, GIB Fire Soundseal®, GIB Clip®, the colour mauve for GIB Toughline®, the colour blue for GIB Braceline® GIB Noiseline®, the colour pink for GIB Fyreline®, the colour green for GIB Aqualine®, the colour purple for GIB Weatherline® and the shield device are registered trademarks of Fletcher Building Holdings Limited.

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GIB®

FOR MORE INFORMATION VISIT

gib.co.nz

OR CALL THE GIB® HELPLINE

0800 100 442

MAY 2022

4711P Pink® Batts® Thermal Insulation

Tasman Insulation New Zealand Ltd TA Comfortech Performance Building Solutions™
+64 09 5792139
customer@pinkbatts.co.nz
www.pinkbatts.co.nz

SUPPORTING DOCUMENTS

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

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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
LOW
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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masterspec partner

Company Contact Details

pink batts Always.

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

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

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

Pink® Batts® Insulation Wall

Product Technical Statement: 101155

miproducts
THE NATIONAL PRODUCT DATABASE

Light weight insulation - flexible glass wool for walls.
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Level of assurance needed to demonstrate NZ Building Code Compliance
LOW
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:
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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 comustible - 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

Company Contact Details

pink batts Always.

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) Spread of Flame Index (Range 0-10) Heat Evolved Index (Range 0-10) Smoke Developed Index (Range 0-10)	 = 0 = 0 = 0 = 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:

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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 BATTS (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**

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

5111H James Hardie® Fibre Cement Sheet Linings

James Hardie
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info@jameshardie.co.nz
www.jameshardie.co.nz

SUPPORTING DOCUMENTS

Hardie Groove Lining Product Technical Statement April 2025

Ref 112483. Uploaded 8 Apr 2025

Purpose: Performance

Villaboard Lining Product Technical Statement April 2025

Ref 112475. Uploaded 8 Apr 2025

Purpose: Performance

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Hardie™ Groove Lining

JamesHardie™

jameshardie.co.nz

Product Technical Statement

Product Description:

Hardie™ Groove Lining is available in 7.5mm thickness and is used for dry/semi wet area internal wall lining, ceiling lining or soffit applications.

Scope of Use:

Hardie™ Groove Lining is suitable for use as an internal wall lining, ceiling lining or external soffits in residential or light commercial buildings. It is fixed to the framing and is finished with paint.

Hardie™ Groove Lining is also suitable for use in a bracing application.

Limitations:

Hardie™ Groove Lining must not be used in external wall applications.

Compliance with the NZBC:

The following clauses of the NZBC are applicable to Hardie™ Groove Lining and it meets these requirements as explained below.

Structure - B1: Hardie™ Groove Lining installed as per its installation manual meets the requirements of Clause B1.3.1, B1.3.2 and B1.3.4.

Hardie™ Groove Lining is tested as per BRANZ P21 test and is suitable for use in bracing applications.

Durability - B2: Hardie™ Groove Lining are manufactured in accordance with the AS/NZS 2908.2 and meets the durability performance requirements of Clause B2.3.1(d) and B2.3.2.

External Moisture - E2: Hardie™ Groove Lining when used in external soffit applications meets the requirements of Clause E2/AS1.

Internal Moisture – E3: Hardie™ Groove Lining installed as per its installation manual meets the requirements of Clause E3.

Fire Performance - C: Hardie™ Groove Lining has been tested and is suitable for use where non-combustible material are required and is classified as Group 1-S material.

Hazardous Building Materials - F2: Hardie™ Groove Lining complies with the requirements of Clause F2.3.1 and will not present a health hazard when handled as per its technical specifications.

Installation:

Hardie™ Groove Lining must be installed in accordance with the Hardie™ Groove Lining Installation Manual for internal linings and the Eaves & Soffits Installation Manual by James Hardie for eaves and soffits. The specifications are available online at **www.jameshardie.co.nz** or Ask James Hardie™ at 0800 808 868 for further information.

Warranty:

Hardie™ Groove Lining has a product warranty of 15 years when installed and maintained as per the current installation manual.

Hardie™ Groove Lining is not subject to a warning or ban under section 26 of the Building Act.

Hardie™ Groove Lining is manufactured in Australia.

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Villaboard™ Lining

JamesHardie™

jameshardie.co.nz

Product Technical Statement

Product Description:

Villaboard™ Lining is available in 6mm and 9mm thicknesses and is used for dry or wet area internal wall lining, ceiling lining or soffit application.

Scope of Use:

Villaboard™ Lining is suitable for use as an internal wall lining, ceiling lining or external soffits in residential or light commercial buildings. It is fixed to the framing and is ready to have finishes applied e.g., paint, wallpaper or tiles etc.

Villaboard™ Lining is also suitable for use in fire rated wall systems and bracing applications.

Limitations:

Villaboard™ Lining must not be used in external wall applications.

Compliance with the NZBC:

The following clauses of the NZBC are applicable to Villaboard™ Lining and it meets these requirements as explained below.

Structure - B1: Villaboard™ Lining installed as per its installation manual meets the requirements of Clause B1.3.1, B1.3.2 and B1.3.4.

Villaboard™ Lining is tested as per BRANZ P21 test and is suitable for use in bracing applications

Durability - B2: Villaboard™ Lining are manufactured in accordance with the AS/NZS 2908.2 and meets the durability performance requirements of Clause B2.3.1(d) and B2.3.2.

External Moisture - E2: Villaboard™ Lining when used in external soffit applications meets the requirements of Clause E2/AS1.

Internal Moisture – E3: Villaboard™ Lining installed as per its installation manual with surface finishes as per E3/AS1 complies with Clause E3.

Fire Performance - C: Villaboard™ Lining have been tested and is suitable for use where non-combustible material are required and is classified as group S-1. Villaboard™ Lining is also suitable for use in soffit applications close to boundaries where non-combustible materials are required.

Hazardous Building Materials - F2: Villaboard™ Lining complies with the requirements of Clause F2.3.1 and will not present a health hazard when handled as per its technical specifications.

Installation:

Villaboard™ Lining must be installed in accordance with Villaboard™ Lining Installation Manual for internal linings and the Eaves & Soffits Installation Manual by James Hardie for eaves and soffits. The specifications are available online at **www.jameshardie.co.nz** or Ask James Hardie™ at 0800 808 868 for further information.

Warranty:

Villaboard™ Lining has a product warranty of 15 years when installed and maintained as per the current installation manual.

Villaboard™ Lining is not subject to a warning or ban under section 26 of the Building Act.

Villaboard™ Lining is manufactured in Australia.

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5113G GIB Plasterboard Linings

Winstone Wallboards Ltd
+64 09 6330100
info@gib.co.nz
www.gib.co.nz

SUPPORTING DOCUMENTS

BRANZ Appraisal 289 (2024) GIB® Fire Rated Systems

Ref 100447. Uploaded 26 Jun 2026

Purpose: Performance, Installation, Maintenance

BRANZ Appraisal 394 (2017) GIB Noise Control® Systems

Ref 11559. Uploaded 24 Sep 2026

Purpose: Performance

BRANZ Appraisal 427 (2021) GIB® Wet Area Systems

Ref 20082. Uploaded 24 Sep 2026

Purpose: Performance

BRANZ Appraisal 928 (2021) - GIB® EzyBrace Systems

Ref 113179. Uploaded 24 Sep 2026

Purpose: Performance

GIB EzyBrace® Systems

Ref 11539. Uploaded 24 Sep 2026

Purpose: Installation, Maintenance

GIB Standard Plasterboard 101955

Ref 10140. Uploaded 26 Jun 2020

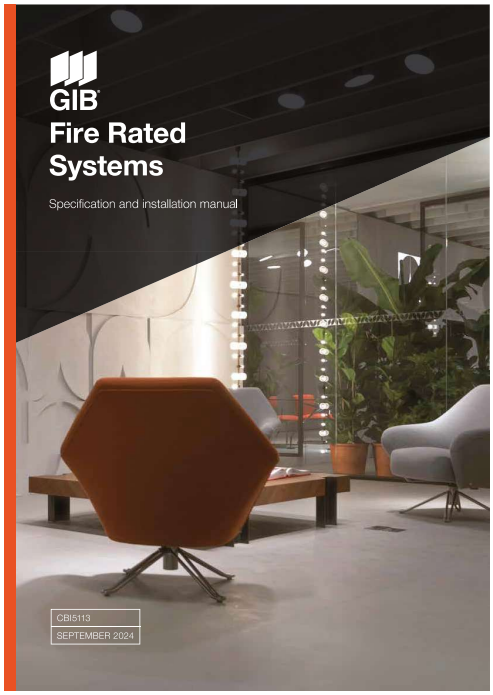
Purpose: Installation

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BRANZ Appraised

Appraisal No. 289 (2024)

GIB® FIRE RATED SYSTEMS



Appraisal No. 289 (2024)

This Appraisal replaces BRANZ Appraisal No. 289 (2018)

BRANZ Appraisals

Technical Assessments of products for building and construction.

Winstone Wallboards Ltd
PO Box 12 256
Penrose
Auckland 1642
Tel: 09 633 0100
Helpline Tel: 0800 100 442
Web: www.gib.co.nz
Email: info@gib.co.nz

BRANZ
1222 Moonshine Rd,
RD1, Porirua 5381
Private Bag 50 908
Porirua 5240,
New Zealand
Tel: 04 237 1170
branz.co.nz

Product

1.1 GIB® Fire Rated Systems are a range of fire rated constructions based on the use of GIB® plasterboards. The range consists of timber and steel-framed wall, floor/ceiling and ceiling systems, as well as solutions for steel beams, steel columns, mass timber, risers, shafts, ducts and service penetrations.

Scope

2.1 GIB® Fire Rated Systems have been appraised for use as fire rated load bearing and non-load bearing framed construction elements in buildings.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, GIB® Fire Rated 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® Fire Rated Systems meet the requirements for loads arising from self-weight and impact [i.e. B1.3.3 (a) and (j)]. See Paragraphs 10.1–10.5.

Clause B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years, B2.3.1 (b) 15 years and B2.3.1 (c) 5 years. GIB® Fire Rated Systems meet these requirements. See Paragraphs 11.1–11.3.

Clause C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE: Performance C3.4 (a). Un-finished GIB® plasterboards meet the requirements for wall and ceiling linings. See Paragraph 13.1. For Fire Resistance Ratings (FRRs) refer to Paragraph 13.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. GIB® Fire Rated Systems meet this requirement.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Technical Specification

General

4.1 GIB® Fire Rated Systems are primarily based on two types of GIB® plasterboard, GIB® Standard plasterboard and GIB Fyreline®. Other GIB® plasterboards may be substituted as follows:

4.2 10 or 13 mm GIB Braceline®, GIB Noiseline®, GIB Aqualine® and GIB Ultraline® and 13 mm GIB® Standard and GIB Toughline® may be substituted for 10 mm GIB Fyreline®.

4.3 Similarly, 13 mm GIB Braceline®, GIB Noiseline®, GIB Aqualine®, GIB Toughline® and GIB Toughline® Aqua may be substituted for 13 mm GIB Fyreline®.

GIB® Plasterboards

GIB Fyreline®

- **GIB Fyreline®** is a paper-bound, gypsum-plaster core sheet lining material. Glass fibre and other additives are added to the core during manufacture. The sheets have a taper on the two long sheet edges. GIB Fyreline® is available in thicknesses of 10 mm, 13 mm, 16 mm and 19 mm with a sheet width of 1,200 mm. Sheet thicknesses of 10 mm and 13 mm are available in standard lengths between 2,400 mm and 3,600 mm and sheet thicknesses of 16 mm and 19 mm are available in standard lengths between 2,400 mm and 3,000 mm. GIB Fyreline® face paper is pink in colour.

GIB® Standard Plasterboard

- **GIB® Standard** plasterboard is a paper-bound, 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. GIB® Standard plasterboard face paper is a light buff colour.

Fastenings

- GIB® Grabber® High Thread Drywall screws for fixing to timber:
  - 6 g x 25, 32 and 41 mm and 7 g x 51 and 57 mm
- GIB® Grabber® Self Tapping Drywall Screws for fixing to light gauge steel:
  - 6 g x 25, 32 and 41 mm; 7 g x 51 mm and 8 g x 63 and 76 mm
- GIB® Grabber® Laminator Screws for laminating plasterboard to plasterboard:
  - 38 mm x 10 g
- GIB® Grabber® Drill Point Fine Thread Screws for fixing to heavy gauge steel:
  - 32 mm x 8 g

Rondo® Suspended Ceiling Systems and other Steel Components

- Rondo Donn® ScrewFix® Suspension System
- Rondo Xpress® Drywall Grid Ceiling System
- Rondo® KEY-LOCK™ steel frame suspension system
- GIB® Rondo® Ceiling Batten System
- GIB® Clip
- Rondo® CH-Studs
- Rondo® J-Track

Accessories and Compounds

- A combination of GIB® Tape, GIB-Cove®, Trims and compounds are used. The requirements are specified in the GIB® Fire Rated Systems Technical Literature and details of the products and installation are found in the GIB® Site Guide Technical Literature.

Fire and Acoustic Sealant

- GIB Fire Soundseal® is supplied in 375 ml cartridges and 600 ml sausages.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Boundary Wall Bottom Plate Connections

- The single storey light timber-framed boundary fire wall detail contained in the Technical Literature relies on GIB HandiBrac® brackets to provide structural stability.
- 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 5 Type 17 screws 14 g x 35 mm.
- Proprietary concrete anchors with a minimum characteristic uplift capacity of 8 kN. *(Note: For corrosion protection requirements refer to NZS 3604:2011 Section 4.)*

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 This Appraisal must be read in conjunction with:

- GIB® Fire Rated Systems - Specification and Installation Manual, September 2024.
- GIB Fire Soundseal® User Guide, May 2019.

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 The GIB® Fire Rated Systems Technical Literature contains solutions for the passive fire protection of loadbearing and non-load bearing, timber or steel-framed elements, wall, floor/ceiling and ceiling systems, riser, shaft and ducts, columns and beams and service penetrations.

7.2 GIB® Fire Rated Systems are used where a Fire Resistance Rating (FRR) is required and as part of the total GIB® lining system or specific fire partitioning design.

7.3 GIB® plasterboards must not be exposed to temperatures of 52°C or greater for prolonged periods. Refer to appliance and fitting manufacturers for installation details.

Control Joints

8.1 Where control joints are required, the joints must be specifically designed to maintain the integrity of the fire rated system.

GIB® Fire Rated Systems

9.1 The GIB® Fire Rated Systems Technical Literature describes a range of design options for the construction of loadbearing and non-loadbearing fire resistant construction elements. All FRRs are given in minutes for structural adequacy, integrity and insulation up to a maximum of 240 minutes. The following systems are addressed:

Fire Rated Wall Systems

- Two Way FRR – Timber Frame Walls
- Two Way FRR – Steel Frame Walls
- One Way FRR – Timber or Steel Frame
- Simultaneous Two Sided Fire Exposure - Timber Frame

Fire Rated Floor/Ceiling Systems

- Timber or Steel Joists
- Composite Joists*
- Suspended Grid*

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Fire Rated Ceiling Systems

- Universal Ceiling Systems

Fire Rated Risers, Shafts and Ducts

- Risers, Shafts and Ducts

Fire Rated Protection of Columns and Beams

- Timber Strapping
- Steel Clip and Channel

Junction Details for Fire and Smoke Separations

- Control Joints
- Wall-to-Wall Junctions
- Wall-to-Floor/Ceiling Junctions
- Suspended Ceiling-to-Wall Junctions
- Drywall-to-masonry/concrete junctions
- Deflection Head Details
- Floor System Details*
- Steel Stud Nogging and Roof Details

Penetrations in GIB® Fire Rated Systems

- Penetration Details including the use of GIB Fire Soundseal®
- Proprietary Penetration Seals and Sealants**

Other

- Fire Rated Boxes or Bulkheads
- Mass Timber Encapsulation Systems*
- Stability of Fire Rated Elements

Notes:

** Proprietary floor and floor joist systems, suspended ceiling systems, metal supports, mass timber and flooring have not been assessed for other than fire and acoustic properties and are otherwise outside the scope of this Appraisal.*

*** Proprietary penetration seals and sealants have not been assessed and are outside the scope of this Appraisal.*

Structure

Framing

10.1 Supporting framing must comprise one of the following, subject to the minimum sizes, dwang centres and all other frame requirements of the GIB® Fire Rated Systems Technical Literature:

10.2 Timber framing must be designed and constructed in accordance with NZS 3604, or to a specific design using NZS 3603 and AS/NZS 1170.

10.3 Steel framing must be designed to withstand loads in accordance with AS/NZS 1170.

Impact Resistance

10.4 GIB® plasterboards provide adequate resistance to soft body impact, based upon experience of use in domestic and light commercial applications.

Boundary Walls

10.5 The Technical Literature provides details for a single storey light timber-framed boundary fire wall, which can resist a possible force of 0.5 kPa in any direction, as specified by NZBC Verification Method B1/VM1, Clause 2.2.4 (iii).

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Durability

11.1 The ability of the systems to maintain their FRR for at least 50 years is dependent on their regular maintenance and remaining dry in service.

11.2 Framing and cladding systems must have a durability which meets the performance requirements of NZBC B2. The effectiveness of GIB Fire Soundseal® is expected to exceed the 15 year durability requirement of NZBC B2/AS1 Table 1, provided the installation instructions are followed. Other proprietary fire rated sealants have not been assessed and are outside the scope of this Appraisal.

11.3 Lining systems must be protected from internal and external moisture in accordance with NZBC E2 and E3. In particular, Boundary Walls must be installed with a drained cavity cladding system complying with NZBC Acceptable Solution E2/AS1 to achieve a 15 year durable life.

Maintenance

11.4 Any cracks or damage which may occur as a result of events such as exposure to excessive moisture or flooding, local outbreak of fire, wind or earthquake, timber shrinkage, or excessive impact, must be repaired immediately. Repair will include the replacement of any damaged sheets, materials or components.

11.5 Fire rated sealants must be regularly inspected, at least annually, and maintained in accordance with the instructions of the sealant manufacturer. Sealant joints must be repaired or replaced as necessary.

Prevention of Fire Occurring

12.1 Separation or protection must be provided to the GIB® Fire Rated Systems from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of 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

Internal Surface Finishes

13.1 GIB® plasterboards, without applied paint or wallpaper finishes, achieve a Material Group Number of 1-S. GIB® plasterboards can be used as internal surface linings where permitted by NZBC Performance Clause C3.4 (a).

Fire Resistance Ratings (FRRs)

13.2 GIB® Fire Rated Systems can be used to provide FRRs as determined by NZBC Acceptable Solutions C/AS1, C/AS2 and NZBC Verification Method C/VM2.

Structural Stability during Fire

14.1 In order to satisfy the requirements of NZBC C6 Structural Stability, designers must ensure that fire rated elements are supported by building elements having at least the same FRR as the fire rated element they are supporting.

External Moisture

15.1 Lining systems must be protected from external moisture in accordance with NZBC E2.

15.2 The Boundary Wall detail provided in the Technical Literature requires installation of a drained cavity wall cladding system in accordance with the requirements in NZBC Acceptable Solution E2/AS1. The GIB® plasterboard must be kept dry during the installation of the cladding system and in service. *(Note: The drained cavity wall cladding system has not been assessed and is outside the scope of this Appraisal.)*

Internal Moisture

16.1 GIB® plasterboards are intended for use in dry internal situations and must not be used where they are likely to be exposed to liquid water or be installed where extended exposures to humidity above 90% RH can reasonably be expected.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Airborne and Impact Sound

17.1 The GIB® Fire Rated Systems Technical Literature gives noise attenuation properties for the fire rated systems. Refer to GIB Noise Control® Systems for further information.

Installation Information

Installation Skill Level Requirement

18.1 All design and building work must be carried out in accordance with the GIB® Fire Rated Systems Technical Literature and this Appraisal. All building work must be undertaken by competent and experienced tradespeople conversant with the GIB® Fire Rated Systems.

General

19.1 GIB® Fire Rated Systems must be installed in accordance with the specifications contained in the Technical Literature. For inspection, reference must be made to the Technical Literature.

Cutting Sheets

19.2 GIB® plasterboard sheets are cut by scoring the paper face with a sharp, short-bladed trimming knife. The plasterboard is then snapped away from the cut face before cutting the back paper. Cut-outs for switch boxes and other penetrations should be made using a keyhole saw. Note that penetrations in fire separations require careful planning and detailing.

Wall Framing

19.3 Construction details for the framing, in particular type, dimensions and spacings, must be strictly in accordance with the specifications outlined in GIB® Fire Rated Systems and the specific design documentation for the building project.

19.4 All framing must be plumb, level and in true alignment.

19.5 The GIB® Site Guide specifies timber framing with a moisture content less than 18% at the time interior linings are installed. The use of kiln-dried timber is recommended.

Fixing

19.6 The GIB® Fire Rated Systems Technical Literature includes options for the orientation of linings (e.g. horizontal or vertical fixing). The installer must ensure that the specifications for these options are strictly adhered to. All joints must be made over framing.

19.7 The length and spacing of GIB® Grabber® screws for the fixing of GIB® plasterboard linings to framing must be strictly in accordance with the specifications. Care must be taken to ensure that fastener heads only indent the paper liner surface and do not damage the paper itself.

Jointings and Finishing

19.8 All joints in single or outer layers of multiple layer linings must be tape-reinforced. A minimum of two layers of bedding compound are required to achieve the stated fire resistance rating (FRR). Inner sheet joints of multiple layer linings do not require stopping.

Health and Safety

20.1 Dust resulting from the sanding of boards, jointing or finishing compounds may be a respiratory irritant, therefore the use of suitable respiratory protection is recommended. Where sealants, insulation and other materials are used, the instructions of the manufacturer must be followed.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Basis of Appraisal

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

Tests

21.1 The following tests have been carried out by BRANZ:

- Testing to determine the FRR of a range of wall and floor/ceiling systems and penetrations in accordance with AS 1530.4 by various accredited fire test laboratories. The results have been reviewed by BRANZ fire experts.
- Cone calorimeter tests to ISO 5660.

Other Investigations

22.1 The GIB® Fire Rated Systems Technical Literature has been examined by BRANZ and found to be satisfactory.

22.2 Site inspections were carried out by BRANZ to assess the practicability of the installation of the systems, and to view completed installations.

22.3 Opinions on the fire resistance of variations to systems tested in accordance with AS 1530.4 were given by BRANZ experts.

22.4 An assessment was made of the durability of the systems by BRANZ technical experts and found to be satisfactory.

22.5 Winstone Wallboards Limited 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, hard and soft body impact tests.

Quality

23.1 Winstone Wallboards Limited's manufacturing process and details of the quality composition of the materials have been examined by BRANZ and found to be satisfactory.

23.2 The quality management systems of Winstone Wallboards Limited have been assessed and registered with TELARC as meeting the requirements of ISO 9001.

23.3 Winstone Wallboards Limited is responsible for the quality of the product supplied.

23.4 The quality of the application and finish on-site is the responsibility of the installation and stopping contractors.

23.5 Designers are responsible for the design of buildings.

23.6 Building owners are responsible for the maintenance in accordance with the instructions of Winstone Wallboards Limited.

Sources of Information

- AS 1530.4:2005 Methods for fire tests on building materials, components and structure. Part 4: Fire-resistance test of elements of construction.
- AS/NZS 1170:2002 Structural design actions.
- ISO 5660 Reaction-to-fire tests – heat release, smoke production and mass lose rate – Part 1: Heat release rate (cone calorimeter method) and Part 2: Smoke production rate (dynamic measurement).
- 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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

BRANZ

In the opinion of BRANZ, GIB® Fire Rated 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 quality of work;
   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

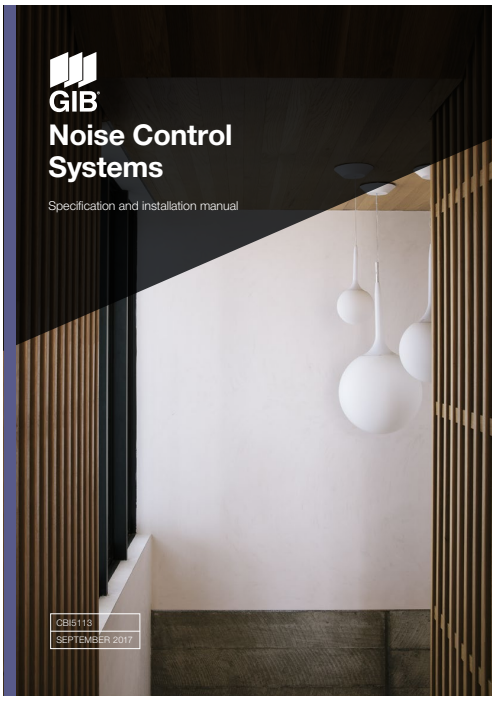
Claire Falck
Chief Executive

Date of Issue:
19 September 2024

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

BRANZ Appraised
Appraisal No. 394 [2017]

GIB® NOISE CONTROL SYSTEMS 2017



Appraisal No. 394 (2017)

This Appraisal replaces BRANZ Appraisal No. 394 (2006)

BRANZ Appraisals

Technical Assessments of products for building and construction.

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Product

1.1 GIB® Noise Control Systems are a range of sound-insulating intertenancy and sub-intertenancy building element constructions, based on the use of GIB® plasterboards.

1.2 The range consists of timber and steel framed wall and floor/ceiling systems.

Scope

2.1 GIB® Noise Control Systems have been appraised for use as Sound Transmission Class (STC) rated wall and floor/ceiling systems, and Impact Insulation Class (IIC) rated floor/ceiling systems in buildings.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, GIB® Noise Control 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® Noise Control 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 (a) not less than 50 years, B2.3.1 (b) 15 years and B2.3.1 (c) 5 years. GIB® Noise Control Systems meet these requirements. See Paragraphs 9.1 - 9.3.

Clause C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE: Performance C3.4 (a) and C3.6. GIB® Noise Control Systems with specified fire resistance ratings can be used to meet these requirements by providing passive fire and smoke protection. See Paragraphs 12.1 and 12.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. GIB® Noise Control Systems meet this requirement and will not present a health hazard to people.

Clause G6 AIRBORNE AND IMPACT SOUND: Performance G6.3.1 and G6.3.2. GIB® Noise Control Systems - Intertenancy meet these requirements. See Paragraph 15.1.

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Technical Specification

4.1 The GIB® plasterboards and accessories used in GIB® Noise Control Systems, which are supplied or specified by Winstone Wallboards Ltd, are as follows:

GIB® Plasterboards

- **GIB Braceline®/GIB Noiseline®** is a high-density, fiberglass-reinforced, paper-bound gypsum-plaster core sheet lining material with a light blue face paper. GIB Braceline®/GIB Noiseline® is available in 10 and 13 mm sheet thicknesses. The 10 mm thickness product is made in sheet widths of 1200 and 1350 mm. Both of these sheet widths are available with two different long edge profiles – taper on both edges and taper edge/square edge. Available sheet lengths for the 10 mm thickness product include 2400, 2700, 3000, 3600 and 4800 mm. The nominal weight of the 10 mm thickness product is 9.0 kg/m². The 13 mm thickness product is made 1200 mm wide with tapered long edge profiles on both edges. Available sheet lengths for the 13 mm thickness product include 2400, 2700, 3000 and 3600 mm. The nominal weight of the 13 mm thickness product is 12.0 kg/m².
- **GIB® Standard** is a paper-bound, gypsum-plaster core sheet lining material. GIB® Standard plasterboard is available in 10 and 13 mm thicknesses and sheet widths of 1200 and 1350 mm (GIB® Wideline). The sheets have a recess on the two long edges. The 10 mm thick sheets are also available with a square edge. Sheets are available in various lengths from 2400 to 6000 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 Fyreline®** is a paper-bound, gypsum-plaster core sheet lining material. Glass fibre and other additives are added to the core during manufacture. The sheets have a recess on the two long sheet edges. GIB Fyreline® is available in thicknesses of 10, 13, 16 and 19 mm with a sheet width of 1200 mm. Sheet thicknesses of 10 and 13 mm are available in standard lengths between 2400 and 3600 mm, and sheet thicknesses of 16 and 19 mm are available in standard lengths between 2400 and 3000 mm. The nominal sheet weight is 7 kg/m² for 10 mm thick sheets, 10.5 kg/m² for 13 mm thick sheets, 14.5 kg/m² for 16 mm thick sheets, and 16.5 kg/m² for 19 mm thick sheets. GIB Fyreline® face paper is pink in colour.
- **GIB Barrierline®** is a paper-bound, gypsum-plaster core sheet lining material. GIB Barrierline® is 25 mm thick and has a sheet width of 600 mm. The sheets have a formed square edge on the two long edges. Sheets are available in a length of 3000 mm. The nominal sheet weight is 20.0 kg/m². GIB Barrierline® face paper is light blue in colour.

Note: The product name is printed on the front face and edge of GIB plasterboards, along with the date and time of manufacture.

Plasterboard Fixings and Adhesives

- **GIB® Grabber® High Thread screws** - 25, 32 and 41 mm x 6g, and 51 and 57 mm x 7g for fixing to timber.
- **GIB® Grabber® Self Tapping screws** - 25, 32, and 41 mm x 6g, 51 mm x 7g, and 63 and 76 mm x 8g for fixing to light gauge steel.
- **GIBFix® One Adhesive** – Acrylic-based adhesive for bonding plasterboard to timber framing.
- **GIBFix® All-Bond Adhesive** – Solvent-based adhesive for bonding plasterboard to timber framing.

Acoustic Sealant

- **GIB Soundseal®** - a flexible water-based acoustic sealant.

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Accessories

- **GIB® Rondo® 310 Metal Ceiling Batten** - 75 x 35 mm galvanised mild-steel ceiling batten.
- **GIB Quiet Clip®** - galvanised steel clip with rubber grommets, for mounting GIB® Rondo™ 310 Metal Ceiling Battens
- **GIB Rail®** - 70 x 13 mm folded, galvanised mild-steel resilient rail.
- **GIB® Rondo® STWC (ST-001 Clip)** – acoustic resilient mounting clip for steel wall and ceiling battens.
- **GIB® Rondo® Metal Ceiling Batten and Clip System** - ceiling supporting systems which comprise steel battens, clips and perimeter tracks.
- **USG Boral ScrewFix™ Suspension System** - a suspended ceiling grid comprising wire hangers, strong-back channels, and furring channels.
- **GIB® Rondo® Quiet Stud®** - folded, galvanised mild-steel studs.
- **GIB® Quiet Tie®** - provides a structural connection between double-stud walls.

GIB® Intertenancy Barrier Systems for Terrace Homes Components

- Refer to BRANZ Appraisal No. 940 (2016) for full details of components for the GIB® Intertenancy Barrier Systems for Terrace Homes.

Jointing Compounds and Tape

- As specified in the GIB® Site Guide Technical Literature.

4.2 System components and accessories for GIB® Noise Control Systems, which are supplied by the building contractor are:

Sound Control Infill

- **Pink® Batts® R1.2** – 50 mm thick glasswool insulation.
- **Pink® Batts® Building Insulation Blanket (BIB) R1.8** – 75 mm thick glasswool insulation
- **Pink® Batts® R2.2** – 90 mm thick glasswool insulation
- **Pink® Batts® Silencer®** - 100 mm thick glasswool insulation.

Flooring

- Minimum 20 mm thick wood-based flooring complying with the NZBC.
- Minimum 17 mm thick plywood flooring complying with AS/NZS 2269.
- **James Hardie Secura Interior Flooring System** - comprising 19 mm thick Secura Interior Flooring, Batten and Cradle isolation mounts and structural steel battens.
- **Laminex Strandfloor® Tongue and Groove Flooring** - 20 mm thick strand board with a groove on one long edge and a white polypropylene tongue on the other.

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® Noise Control 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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Design Information

General

7.1 GIB® Noise Control Systems include systems that meet the provisions of NZBC Clause G6 Airborne and Impact Sound for the transfer of airborne and structure-borne sound through wall and floor/ceiling elements between occupancies. Also included are systems that do not require compliance with NZBC Clause G6, such as between rooms and spaces of the same occupancy. These are described within the Technical Literature as 'sub-intertenancy' systems. The Technical Literature also contains construction and junction details.

[Note: Proprietary floor joist, flooring, suspended ceiling systems, ceiling systems and wall stud systems have not been assessed for anything other than sound and fire properties and are otherwise outside the scope of this Appraisal.]

GIB® Noise Control Systems Intertenancy STC55 and Higher

7.2 NZBC compliant systems are provided in the following categories:

- Barrier walls (timber or steel framing), with a central barrier of GIB Barrierline® or 13 mm GIB Fyreline® (steel framing only)
- Double Timber Frame
- Timber Frame with GIB Rail®
- Timber Frame with Acoustic Resilient Mounts
- Double Steel Frame
- Staggered Stud Steel Frame
- Steel Frame with GIB Rail®
- Steel Frame with Acoustic Resilient Mounts
- GIB® Rondo® Quiet Stud® Steel Frame
- Intertenancy Floor/Ceiling.

GIB® Noise Control Systems Intertenancy Lower than STC55

7.3 Discretionary systems are provided in the following categories:

- GIB® Rondo® Quiet Stud® Steel Frame
- Single frame wall (timber and steel framing)
- Floor/ceiling systems.

Fire Resistance Ratings

7.4 A number of GIB® Noise Control Systems also have Fire Resistance Ratings (FRRs). Refer to the Technical Literature for details of the available fire resistance rated systems.

Sound Infill Insulation

7.5 Pink® Batts® insulation must be used where specified in GIB® Noise Control Systems to achieve the Sound Transmission Class (STC) and Impact Insulation Class (IIC) classifications stated in the Technical Literature.

Floors

7.6 GIB® Noise Control Floor/Ceiling Systems specify the use of 20 mm thick wood-based flooring or 17 mm structural plywood, fixed in accordance with the flooring manufacturer's instructions. Winstone Wallboards Ltd also offer a floor/ceiling system based on the use of James Hardie Secura Interior Flooring and another floor/ceiling system based on the use of Laminex Strandfloor® Tongue and Groove Interior Flooring.

7.7 The correct floor finish must be selected to achieve the required IIC. The Technical Literature provides a number of IIC performances for alternative floor finishes. A nylon carpet on 11 mm underlay must be used where specified in the manual to achieve the relevant published IIC performance. Where carpet and underlay is used to contribute to meeting the requirements of NZBC Clause G6, the carpet and underlay must be installed prior to the receipt of the Code Compliance Certificate. The floor finishes used in GIB® Noise Control Systems have not been assessed for other properties and are outside the scope of this Appraisal.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Maximum Temperature Exposure

7.8 GIB® plasterboards must not be exposed to temperatures of 52°C or greater for prolonged periods. Refer to appliance and fitting manufacturers for installation details.

Control Joints

7.9 Where control joints are required, the joints must be specifically designed to maintain the integrity of the sound control system and fire resistance rated system. These joints have not been assessed by BRANZ and are outside the scope of this Appraisal.

Structure

Framing

8.1 Timber framing must be designed and constructed in accordance with NZS 3604, or to a specific engineering design using NZS 3603 and AS/NZS 1170, with studs and floor joists at maximum 600 mm centres. The structural design for each specific structure is the responsibility of the building designer.

8.2 Steel framing must be to a specific engineering design meeting the requirements of the NZBC and must comply with the minimum dimensions specified in the Technical Literature.

Impact Resistance

8.3 GIB® plasterboards provide adequate resistance to soft body impact, based upon experience of use in domestic and light commercial applications.

Durability

Serviceable Life

9.1 GIB® Noise Control 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.

9.2 GIB Soundseal® sealant is expected to remain effective for at least 15 years provided the installation instructions are followed.

9.3 Timber framing treatment must comply with NZBC Acceptable Solution B2/AS1.

Maintenance

10.1 Lining systems must be protected from internal and external moisture in accordance with NZBC Clauses E2 and E3.

10.2 Holes resulting from damage to the lining, up to 100 x 100 mm square, must be repaired. 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.

10.3 Normal maintenance includes the reinstatement of damaged or deteriorated sealants, repair or renewal of carpet and rubber underlays and the maintenance of the paper face on the walls and ceiling linings.

Prevention of Fire Occurring

11.1 Separation or protection must be provided to GIB® Noise Control Systems from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Fire Affecting Areas Beyond the Fire Source

Internal Surface Finishes

12.1 For internal surface finish properties of GIB® plasterboards, refer to BRANZ Appraisal No. 289 [2012] GIB® Fire Rated Systems.

Fire Resistance Ratings (FRRs)

12.2 GIB® Noise Control Systems can be used to provide FRRs as determined by NZBC Acceptable Solutions C/AS1 – C/AS7 and NZBC Verification Method C/VM2. Refer to the Technical Literature for details of the available fire resistance rated systems.

Structural Stability During Fire

13.1 In order to satisfy the requirements of NZBC Clause C6 Structural Stability, designers must ensure that fire rated elements are supported by building elements having at least the same FRR as the fire rated element they are supporting.

Internal Moisture

14.1 GIB® Noise Control Systems 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.

Airborne and Impact Sound

15.1 The inter-tenancy provisions of NZBC Clause G6 for wall and floor/ceiling elements will be achieved when a GIB® Noise Control System with a minimum STC rating of 55 and a minimum IIC rating of 55 [for floor/ceilings] is used in accordance with the Technical Literature and this Appraisal.

Installation Information

Installation Skill Level Requirement

16.1 Installation of GIB® Noise Control Systems must be completed by, or under the supervision of, a Licenced Building Practitioner with the relevant Licence Class, in accordance with the Technical Literature and this Appraisal.

General

17.1 GIB® Noise Control Systems must be installed in accordance with the specifications contained in the GIB® Noise Control Systems Technical Literature and the GIB® Site Guide.

Wall Framing

17.2 Winstone Wallboard Ltd specifies timber framing with a moisture content of less than 18% at the time interior linings are installed. The use of kiln-dried timber is recommended.

17.3 Resilient rails must be fixed horizontally to studs at 600 mm centres maximum.

17.4 Furring channels, connected to ST-001 clips [acoustic resilient mounts], must be fixed horizontally to studs at 600 mm centres maximum.

17.5 The wall frames in double-framed systems must be acoustically isolated from each other. However, where frames must be connected for fire and structural performance, GIB® Quiet Ties® may be used. GIB® Quiet Ties® are connected by nail fixing at the floor plate and at the roof level, and are spaced at maximum 1800 mm centres or in accordance with a specific engineering design.

Cutting Sheets

17.6 GIB® plasterboards are cut by scoring the paper face with a sharp, short-bladed trimming knife. The plasterboard must then be snapped away from the cut face and the back paper cut. Cut-outs for switch boxes and other penetrations should be made using a keyhole saw.

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Fixing Sheets

17.7 The fixing method specified for each system in the GIB® Noise Control Systems Technical Literature must be used. Sheet fixings must be no closer than 12 mm to sheet edges. Where linings are fixed to resilient rails, fixings must not touch or penetrate the stud. Sheet joints must be staggered between layers.

Suspended Ceilings

17.8 GIB® Noise Control Systems floor/suspended ceiling systems use galvanized mild-steel suspension systems. The ceiling must be designed and installed in accordance with the suspended ceiling manufacturer's technical information. Suspended ceiling systems have not been assessed and are outside the scope of this Appraisal.

Insulation (Sound Control Infill)

17.9 Insulation must be installed in accordance with the insulation manufacturer's instructions. The insulation must be a neat friction fit between framing members with no edge gaps. Insulation must not be compressed, folded or tucked. In ceiling voids, loose laid insulation must be installed with all edges neatly butted.

Sealant

17.10 With the exception of the systems that incorporate double timber frame walls with GIB Barrierline® central barrier, GIB Soundseal® must be applied to the perimeter of the framing in single lining systems, or when two or more linings are used it must be applied to the perimeter of the inner lining. Linings must be bedded onto the sealant to provide an airtight seal. A positive, no gaps bond must be made to the contact surfaces.

Building Services

17.11 With the exception of the central barrier wall systems, flush boxes tested and approved as suitable for fire-rated and/or sound-rated applications must be used to ensure that the fire/sound-rated performance requirements are not compromised. Alternatively, the sound control performance will not be compromised if flush boxes are fitted to each side of the wall and separated by a minimum distance of 450 mm.

17.12 Plumbing pipe-work installed with bends with generous radii and smooth bores and tapered joints will reduce the generation of plumbing noise by turbulence. The transfer of plumbing noise may be reduced by isolating elements with the use of resilient pipe clips and pipe wraps. Plumbing systems designed to prevent excessive pressure, water hammer, splashing, thermal movement of pipes, aeration or appliance noise will complement GIB® Noise Control Systems by reducing the noise generated by plumbing.

Jointing and Finishing

17.13 Jointing and finishing must be carried out in accordance with the GIB® Site Guide.

Inspection

18.1 The Technical Literature and this Appraisal must be referred to during the inspection of GIB® Noise Control Systems installation.

Health and Safety

19.1 Dust resulting from the sanding of boards, jointing or finishing compounds may be a respiratory irritant, therefore the use of a suitable face mask is recommended. Where sealants, insulation, flooring and other materials are used, the instructions of the manufacturer must be followed.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Basis of Appraisal

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

Tests

20.1 Airborne sound and impact reduction indices tests were conducted by the University of Auckland Acoustics Testing Service and reviewed by Marshall Day Acoustics Limited. Variations to the tested systems have been assessed using computer based modelling methods by Marshall Day Acoustics Limited.

20.2 Testing to determine the FRR has been completed in accordance with AS 1530.4 by various accredited fire test laboratories. The results have been reviewed by BRANZ fire experts.

Other Investigations

21.1 The GIB® Noise Control Systems Technical Literature has been reviewed by Marshall Day Acoustics Limited and an opinion given on the sound insulation performance of the systems.

21.2 Opinions on the fire resistance ratings of variations to tested systems in accordance with AS 1530.4 were given by BRANZ fire experts.

21.3 The GIB® Noise Control Systems and GIB® Site Guide Technical Literature have been examined by BRANZ and found to be satisfactory.

21.4 Site visits were carried out by BRANZ to assess the practicability of the installation of the systems, and to view completed installations.

21.5 An assessment was made of the durability of the systems by BRANZ technical experts and found to be satisfactory.

21.6 The properties of Winstone Wallboards Limited 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, hard and soft body impact tests.

Quality

22.1 Winstone Wallboards Limited'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 Limited have been assessed and registered by TELARC as meeting the requirements of ISO 9001.

22.3 Winstone Wallboards Limited 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 and stopping contractors.

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22.6 Building owners are responsible for maintenance in accordance with the instructions of Winstone Wallboards Limited.

Sources of Information

- AS 1530: 2005 Part 4 Fire resistance tests on elements of construction.
- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 1860.1:2002 Particleboard flooring – Specifications
- AS/NZS 2269:2012 Plywood – Structural Part 0: Specifications
- AS/NZS 2588: 1998 Gypsum Plasterboard.
- 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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

BRANZ

In the opinion of BRANZ, GIB® Noise Control Systems 2017 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

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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;
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5. BRANZ provides no certification, guarantee, indemnity or warranty, to Winstone Wallboards Ltd or any third party.

For BRANZ

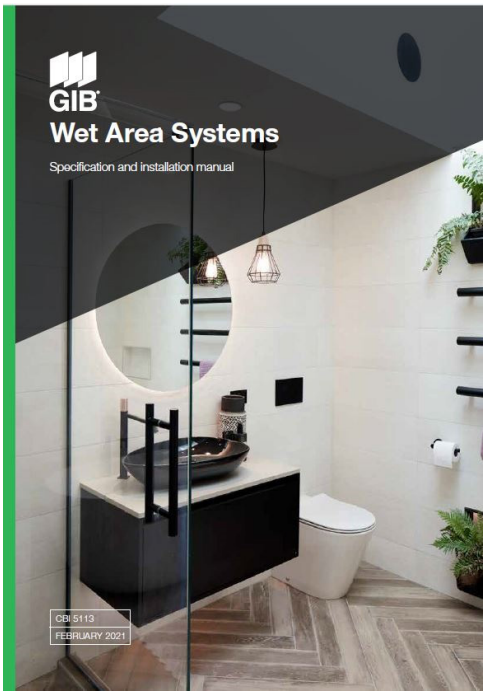
Chelydra Percy
Chief Executive

Date of Issue:
06 October 2017

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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/m^2.
- 13 mm GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® - up to 40 kg/m^2.

[Note: Most ceramic and porcelain wall tiles weigh less than 20 kg/m^2. 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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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 ≤ 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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

BRANZ

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

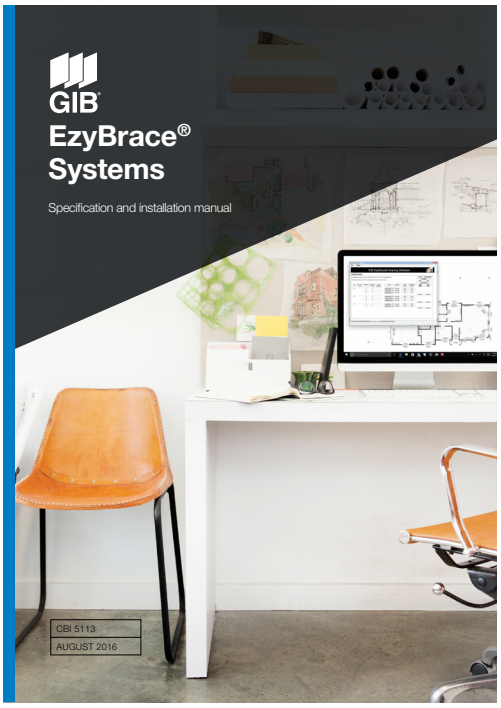
Chelydra Percy
Chief Executive

Date of Issue:
15 February 2021

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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 Fyreline®, GIB Toughline® and GIB Ultraline®.

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.)*

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

- **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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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® plasterboard	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	✓	✓	✓	✓	✓ *Note 1*	✓ *Notes 1 and 3*		
GIB Braceline®	X	X	N/A	✓ *Note 2*	✓	X	✓ *Notes 1, 2 and 3*		

- ***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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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 Fyreline®, 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 Fyreline® 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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

BRANZ

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

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

GIB® EzyBrace® Systems

Specification and installation manual



CBI 5113
AUGUST 2016



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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 fasteners[1]
- Encourages more even bracing distribution throughout the building.

[1] Actual savings dependent on building and bracing design

UPDATE TO OPENINGS IN BRACING ELEMENTS AND CEILING DIAPHRAGMS

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

NEW — GIBFIX® FRAMING SYSTEM

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

BRANZ Appraised
Appraisal No.928 [2016]

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GIB EzyBrace® Systems — August 2016

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

USE ONLY THE CURRENT SPECIFICATION

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

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

PATENTS

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

Beware of substitution

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

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

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

	Acceptable alternative GIB® plasterboards								
Specified GIB® plasterboard	GIB® Standard	GIB Ultraline®	GIB Braceline/ Noiseline®	GIB Aqualine®	GIB Toughline®	GIB Fyreline®			
						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.

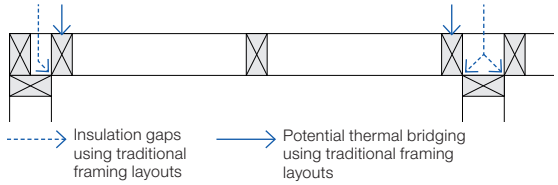
The GIBFix® Framing System offers better thermal efficiencies and minimises potential joint imperfections resulting from interior linings being fixed to multiple timber framing members.

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.

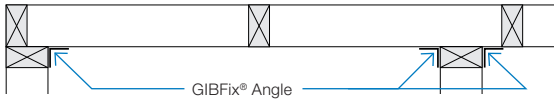
Bracing ratings apply whether fixing is directly into timber or into the metal components, provided correct construction details, fastener types and centres are applied.

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[1].
- 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.

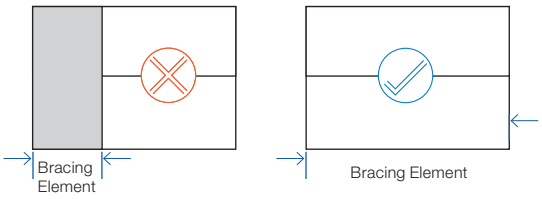
It is of prime importance to comply with the details of design, construction and workmanship in this document.

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:

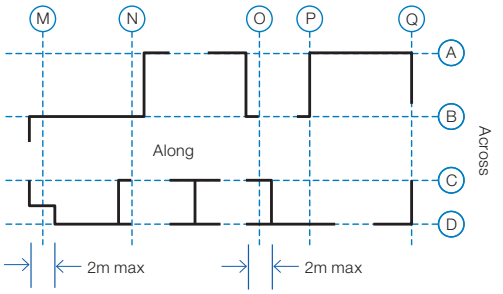
- 6 metres for standard construction with any GIB® plasterboard ceiling, or
- 7.5 metres where dragon ties in accordance with NZS3604:2011 have been installed, or
- 12 metres with a GIB® plasterboard ceiling diaphragm.

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.

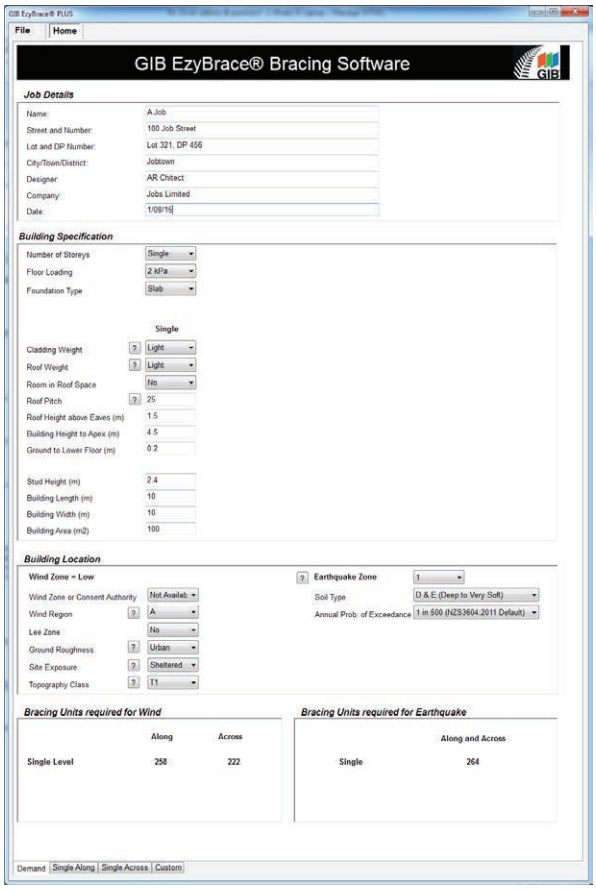
Bracing resistance sheets ('tabs') are added depending on the building specification entered. For example, subfloor bracing resistance tabs only show when a 'subfloor' foundation type has been selected.

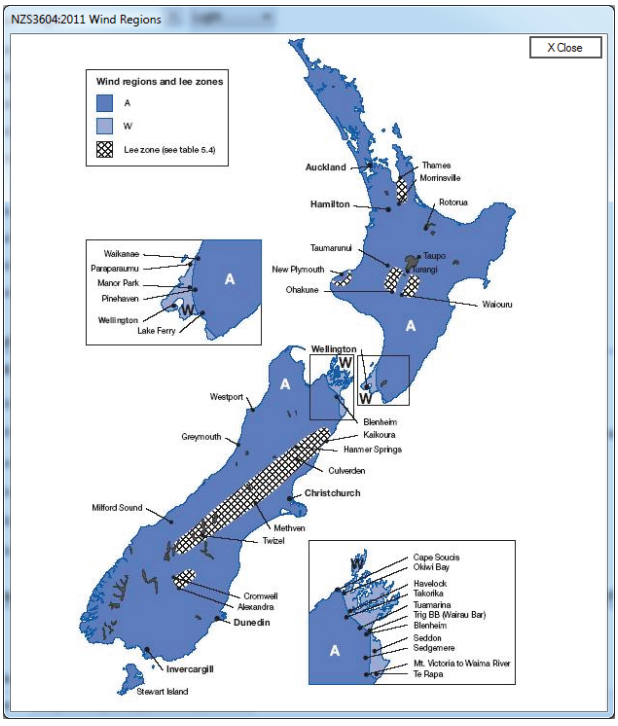
The Demand sheet gives the designer the option to select a longer earthquake return period which represents a higher earthquake design force. The default for buildings constructed in accordance with NZS3604:2011 is an earthquake that has a 10% chance of being exceeded within the assumed 50 year 'design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

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

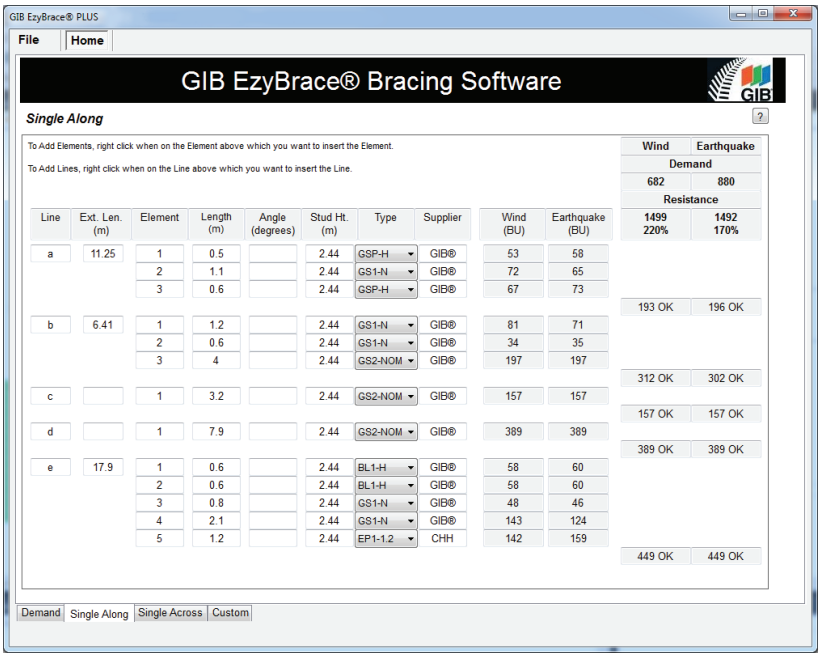
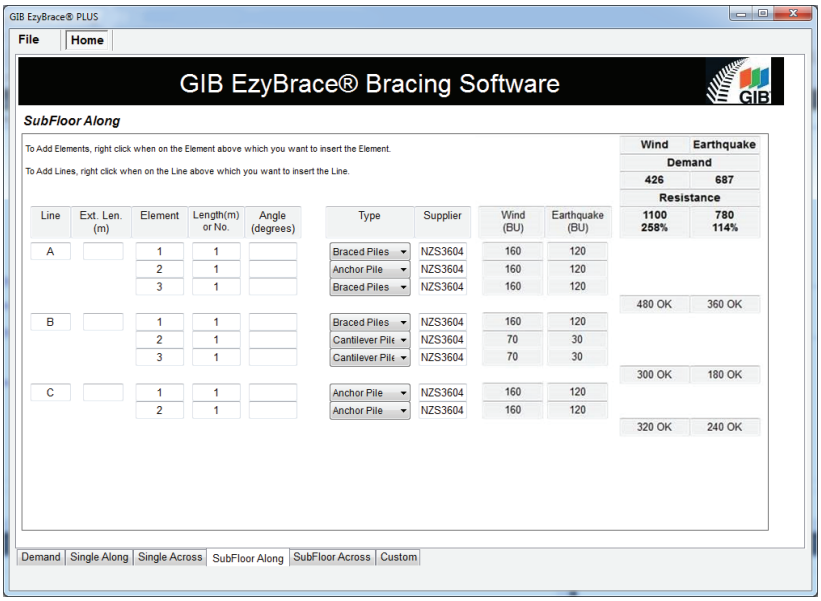


FIGURE 7: GIB EZYBRACE® 2016 — SUBFLOOR BRACING RESISTANCE CALCULATION SHEET

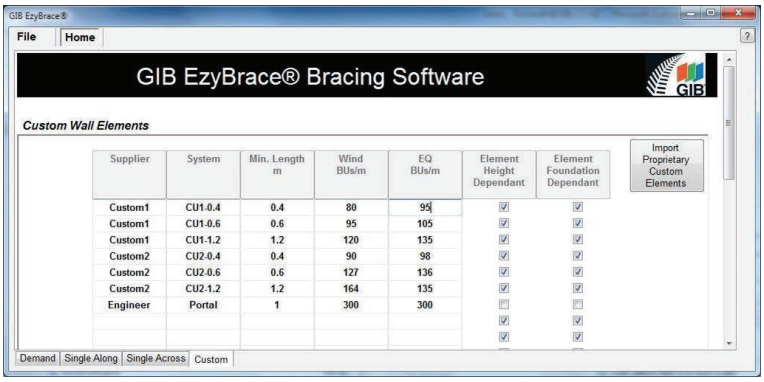


Download GIB EzyBrace® 2016 design software from gib.co.nz/ezybrace

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



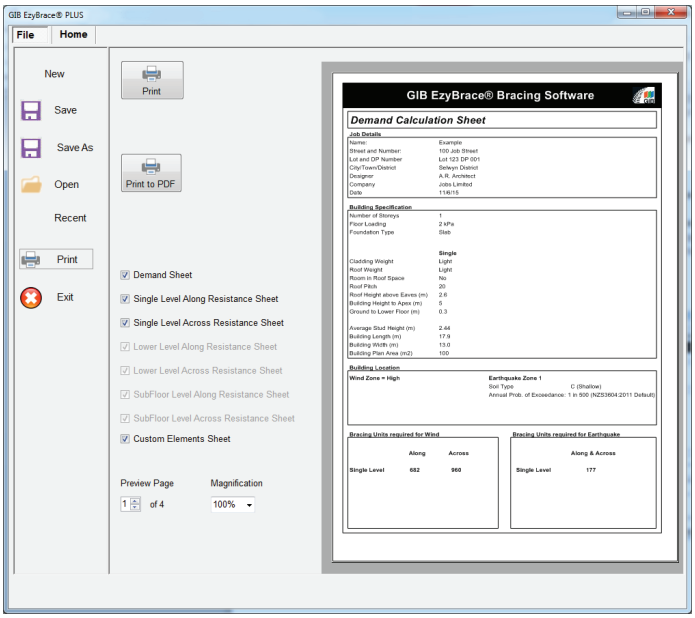
Note: Values and systems shown in Custom Elements Sheets are for illustrative purposes only.

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

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

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

FIGURE 9: GIB EZYBRACE® 2016 — PRINT SCREEN VIEW



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

GIB® plasterboard linings

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

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

LIMITATIONS

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

GIB EzyBrace® Systems in water-splash areas

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

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

Renovation

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

Openings in bracing elements

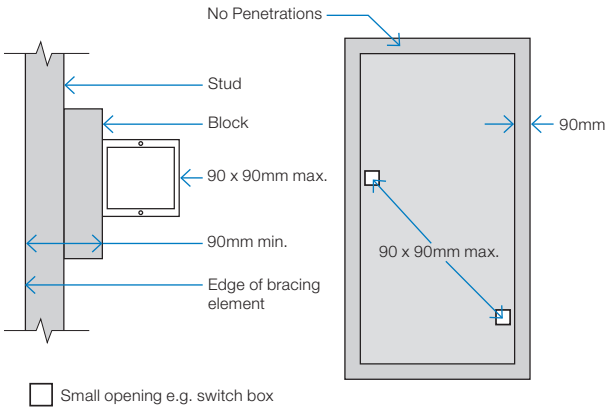
SMALL OPENINGS

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

LARGE OPENINGS

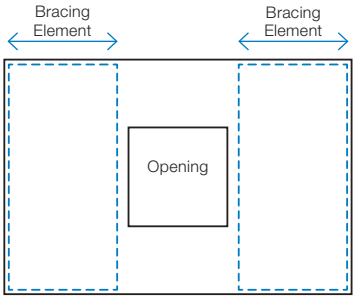
Openings above 90 x 90mm such as switch boards, recessed cabinets and TV's etc. should be placed outside of the bracing element or locate bracing on the other side of the wall framing.

FIGURE 10: SMALL OPENINGS IN BRACING ELEMENTS



GEB001

FIGURE 11: LARGE OPENINGS AND BRACING ELEMENTS



Timber framing

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

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

GIBFix® Framing System (alternative layout)

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

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

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

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

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

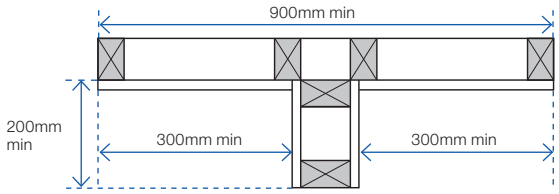
Guidelines for intersection walls

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

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

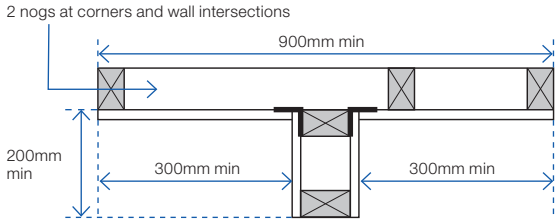
When fixing part sheets of GIB® plasterboard to the side of a T-junction, a minimum width of 300mm applies for bracing elements. See figures 12 and 13.

FIGURE 12: WALL INTERSECTION (TRADITIONAL WALL FRAMING)



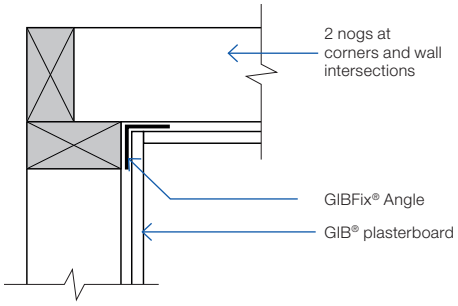
GEB002

FIGURE 13: WALL INTERSECTION (GIBFIX® FRAMING SYSTEM)



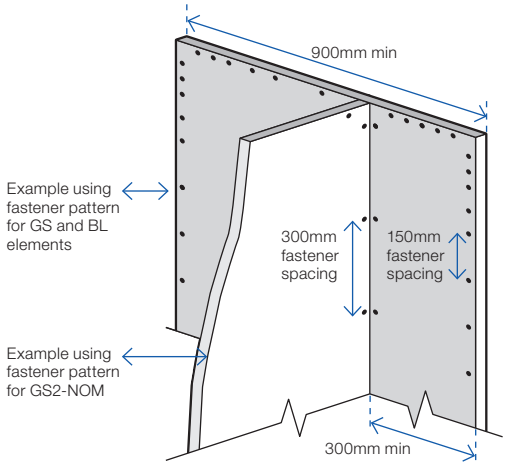
GEB003

FIGURE 14: CORNER INTERSECTION (GIBFIX® FRAMING SYSTEM)



GFS001

FIGURE 15: WALL INTERSECTION FASTENER PLACEMENT



Junction

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

Top plate connections

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

Parapets and gable end walls

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

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

or

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

Bottom plate fixing

TIMBER FLOOR

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

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

CONCRETE FLOOR — EXTERNAL WALL BRACING ELEMENTS

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

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

CONCRETE FLOOR — INTERNAL WALL BRACING ELEMENTS

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

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

FIGURE 16: PARAPETS AND GABLE ENDS WITH RIBBON PLATE

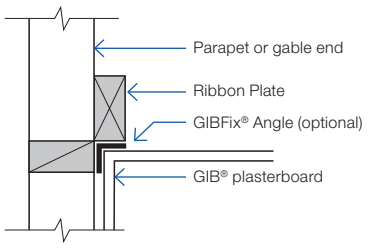
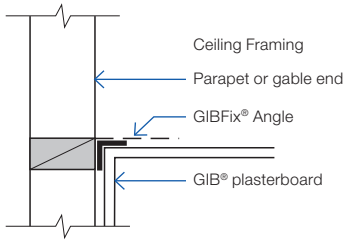


FIGURE 17: PARAPETS AND GABLE ENDS WITH GIBFIX® ANGLE



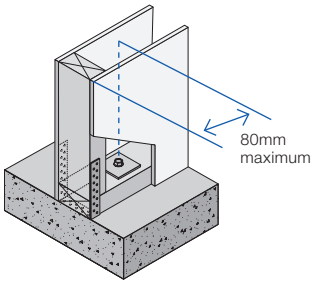
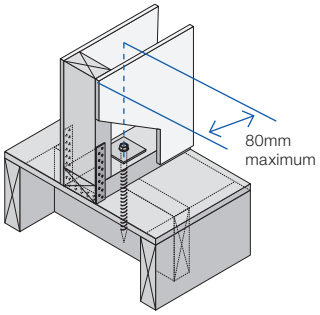
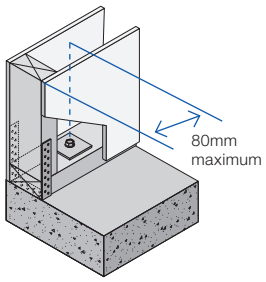
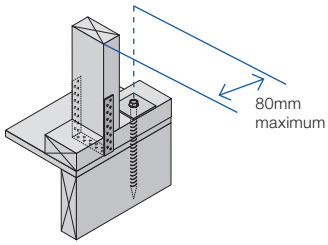
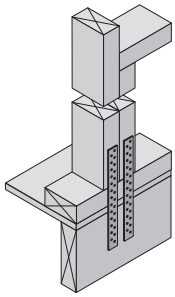
GFS003

BOTTOM PLATE FIXINGS FOR GIB® BRACING ELEMENTS

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

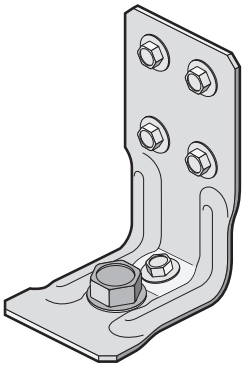
Bracing strap installation

Care needs to be taken with the installation of the bracing strap. It should be checked in to be flush with the face of the stud providing a flat substrate for the plasterboard and positioned in such a way that the corner fastenings of the bracing element are not affected by it. Keeping the strap to the edge of the end stud as shown will allow the corner fastenings to be installed without having to penetrate the bracing strap.

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

Hold-down fastener requirements	
Concrete floor	Timber floor
A mechanical fastening with a minimum characteristic uplift capacity of 15kN fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element.	12 x 150mm galvanised coach screw fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element

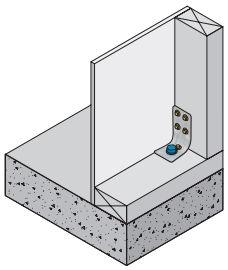
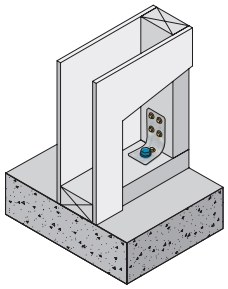
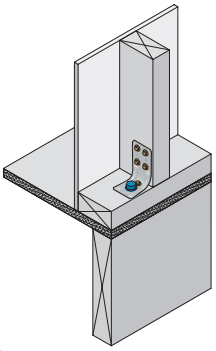
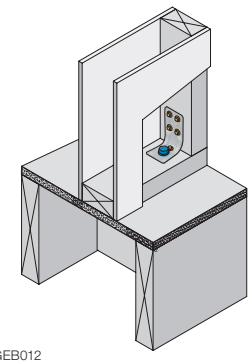
GIB HandiBrac® installation



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

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

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

Concrete floor		**Timber floor**	
External walls	Internal walls	External walls	Internal walls
 GEB009	 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.

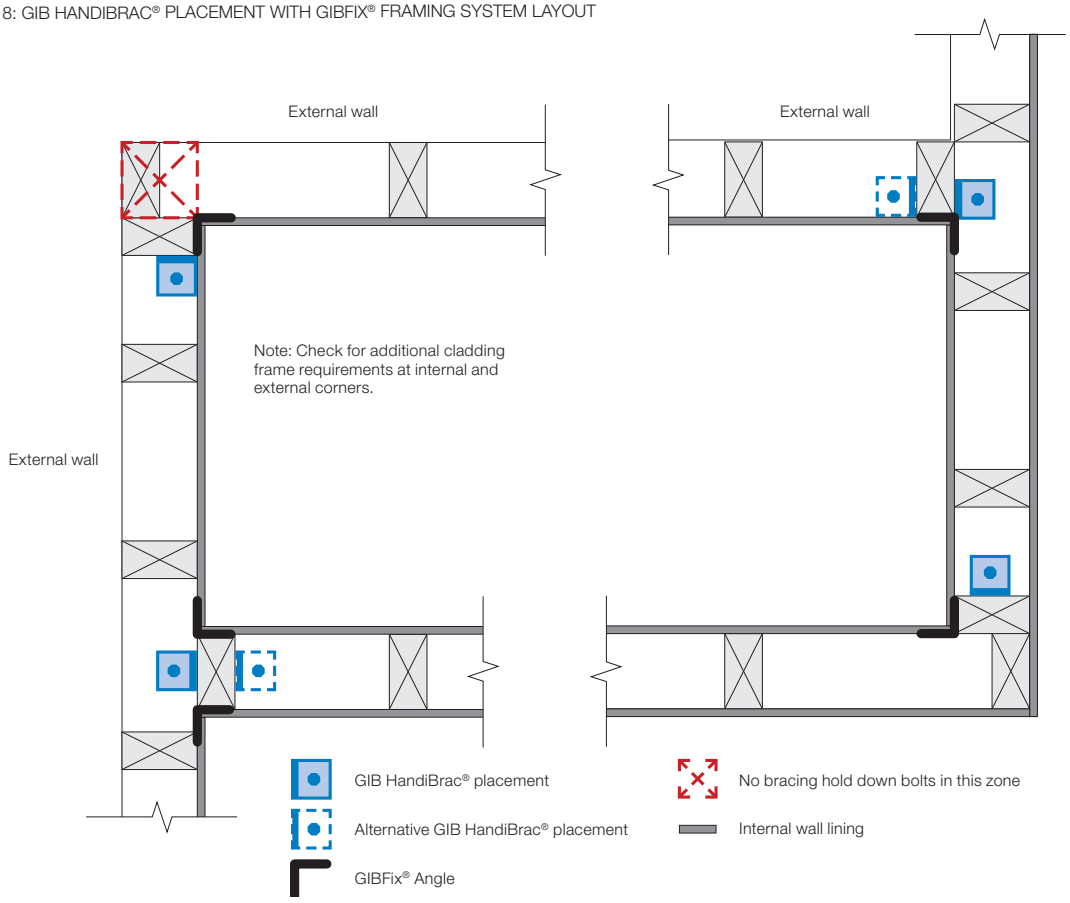
The GIB HandiBrac® is fixed to the stud which has the GIBFix® Angle.

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

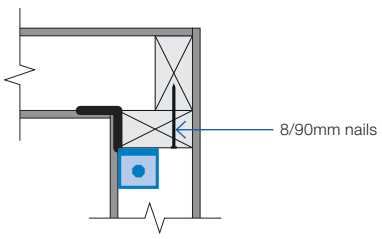
For timber floors bolt fixing in to solid joist or block is required, as shown on p 15.

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

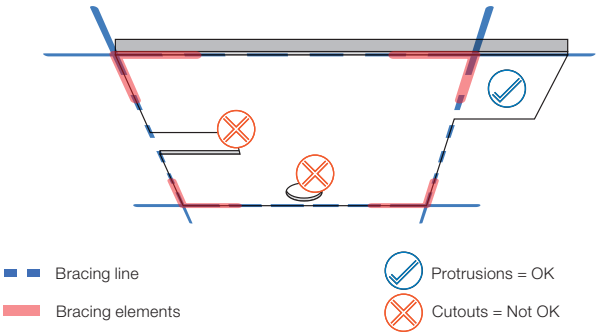


FIGURE 21: DIAPHRAGM BRACING LINING SPACINGS

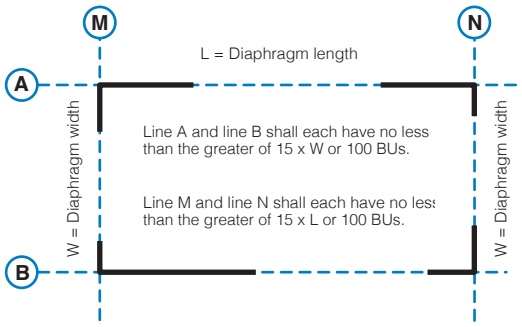
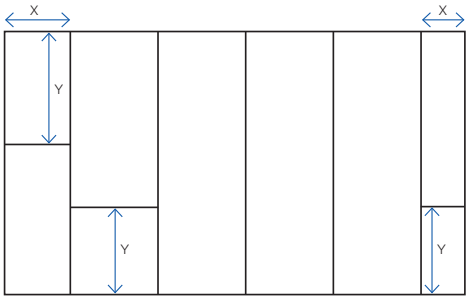


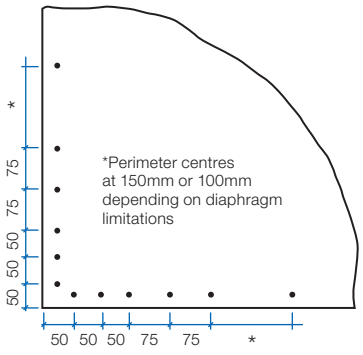
FIGURE 22: GIB® CEILING DIAPHRAGM SHEET WIDTHS AND LENGTHS



X = 900mm min or 600–900mm min provided all adjacent joints are back-blocked.

Y = 1800mm min sheet lengths at ends of ceiling diaphragms.

FIGURE 23: GIB EZYBRACE® FASTENER PATTERN



Unless stated all fastener spacings are maximums.

GEB015

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.

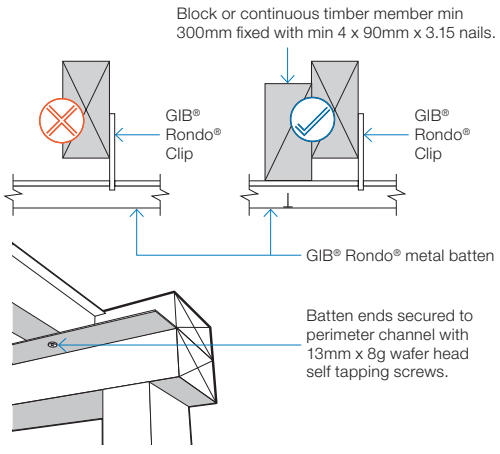
GIB® Rondo® metal battens must be fixed directly to the roof framing. If a clip system has been used, a timber block (min 300mm) or a continuous timber member can be fixed alongside the bottom chord to permit a direct connection to the batten, see figure 26.

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.

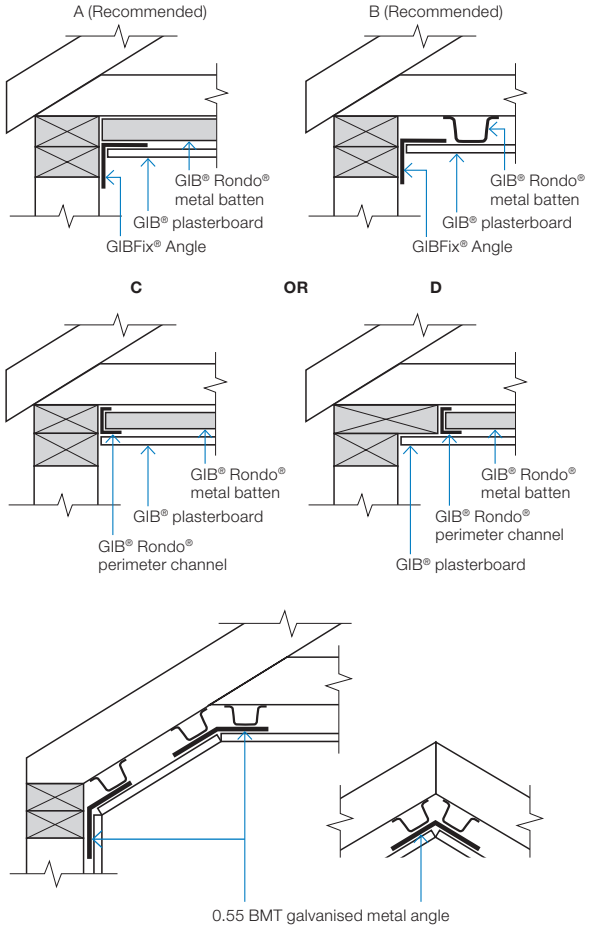
Coved ceiling diaphragms can be achieved by using nominally 32 x 32 x 0.55mm proprietary galvanised metal angles ("back-flashing") at the changes in direction. These angles shall be:
— Fastened at 300mm on each edge to metal battens using 32mm x 8g GIB® Grabber® Wafer Head Self Tapping screws or 32mm 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



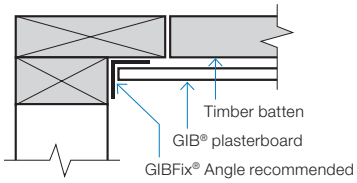
GEB016

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 withing 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

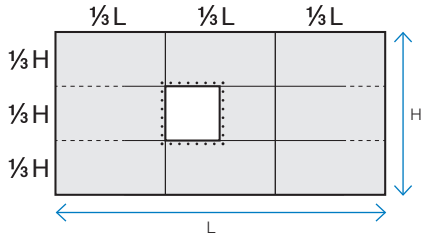
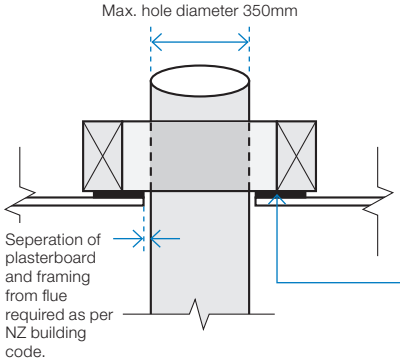
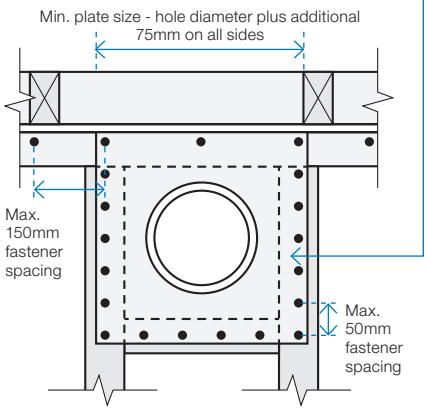


FIGURE 25: FIREPLACE FLUES AND RANGE HOOD OPENINGS

Section view



Plan view



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.

Plasterboard ceiling not shown in plan view

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

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

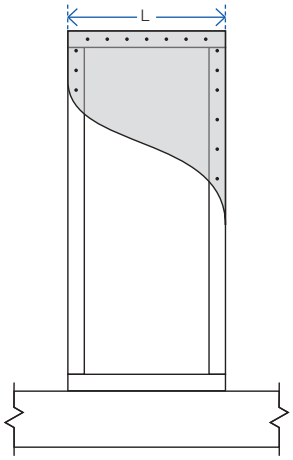
'N' type GIB EzyBrace® elements are identified by GIB® specification numbers GS1-N, GS2-N and GS2-NOM

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

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

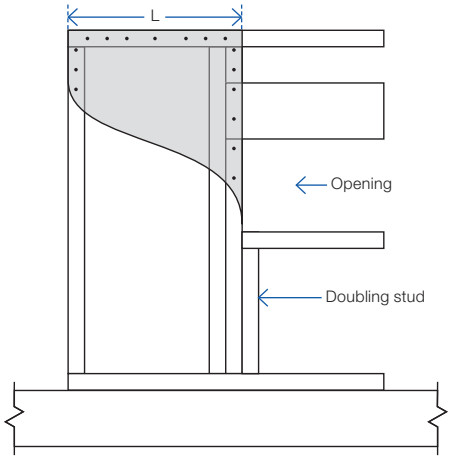
Fastener spacings and diagram scales shown in Figures 29–32 are indicative only. Refer to p.23–30 for construction details.

FIGURE 29: GS BRACING ELEMENTS (OPTION A)



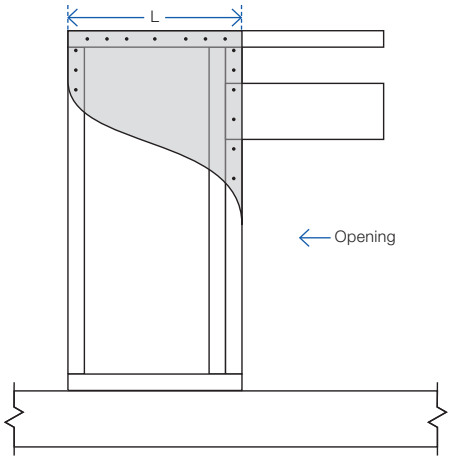
GS1-N, GS2-N elements
'L' indicates the length of the bracing element

FIGURE 30: GS BRACING ELEMENTS (OPTION B)



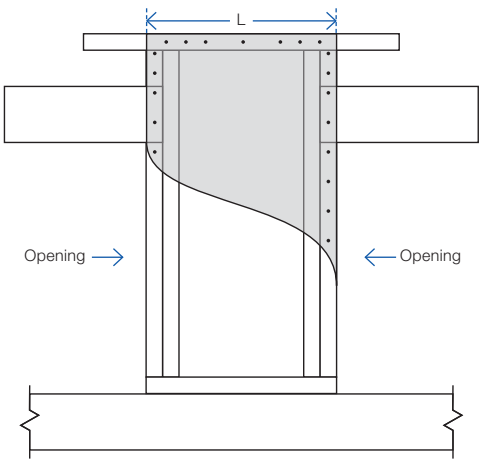
GS1-N, GS2-N elements
'L' indicates the length of the bracing element

FIGURE 31: GS BRACING ELEMENTS (OPTION C)



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

FIGURE 32: GS BRACING ELEMENTS (OPTION D)



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

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

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

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

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

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

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

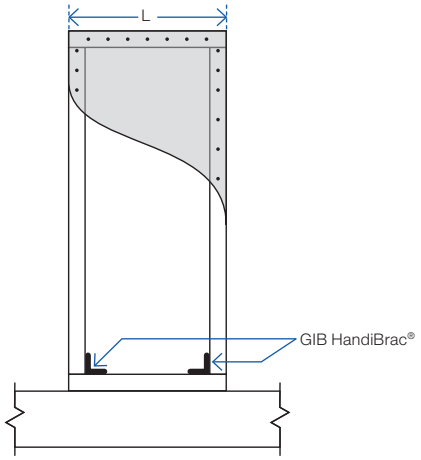
Spike doubling stud to trimming stud using a minimum of 2/90mm gun nails at 600mm centres. Lintel straps (where required for wind uplift) should be checked in and be located away from the bracing element fasteners.

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

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

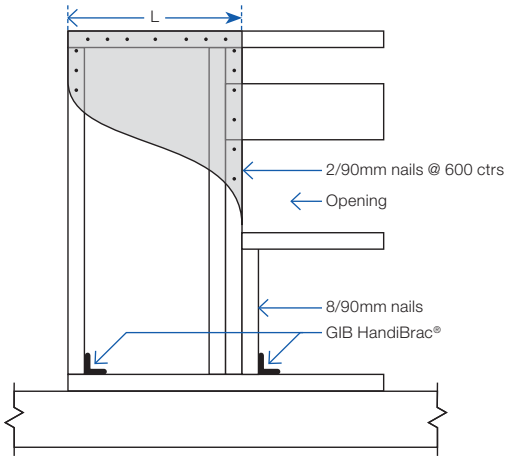
Fastener spacings and diagram scales shown in figures 33–36 are indicative only. Refer to p.23–30 for construction details.

FIGURE 33: BL BRACING ELEMENTS (OPTION A)



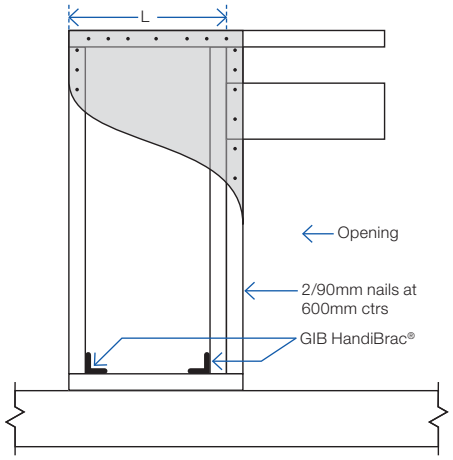
'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 34: BL BRACING ELEMENTS (OPTION B)



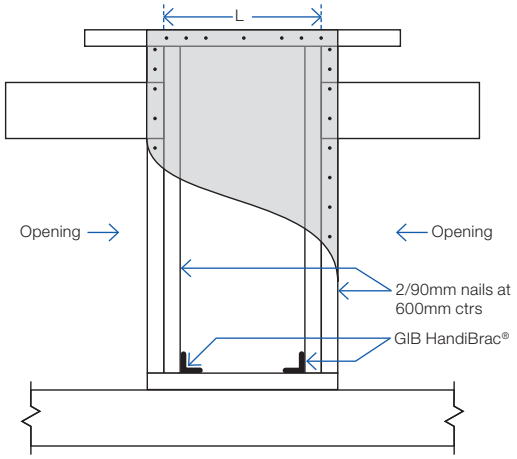
'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 35: BL BRACING ELEMENTS (OPTION C)



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

FIGURE 36: BL BRACING ELEMENTS (OPTION D)



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

GIB EzyBrace® Systems specification GS1-N

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

WALL FRAMING

Wall framing to comply with;

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

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

BOTTOM PLATE FIXING

Timber floor

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

Concrete floor

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

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

WALL LINING

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

PERMITTED ALTERNATIVES

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

FASTENING THE LINING

Fasteners

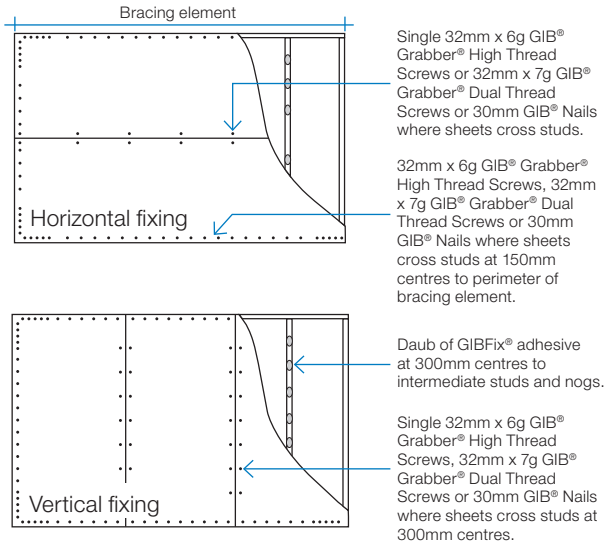
32mm x 6g GIB® Grabber® High Thread Screws, 32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

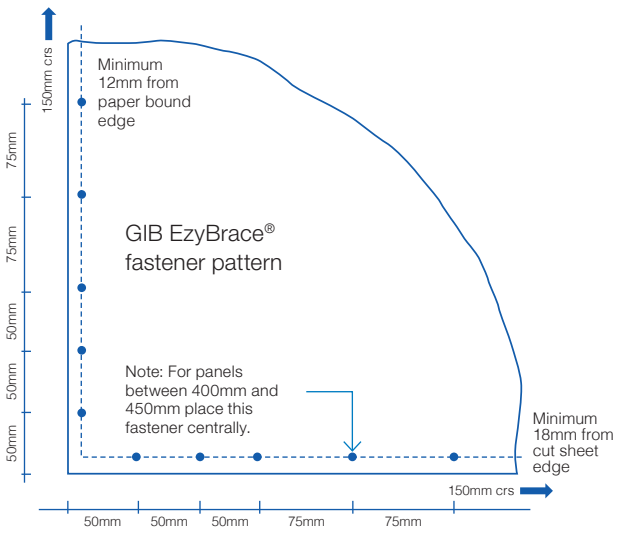
Fastener centres

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

JOINTING

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





Unless stated all fastener spacings are maximums.

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

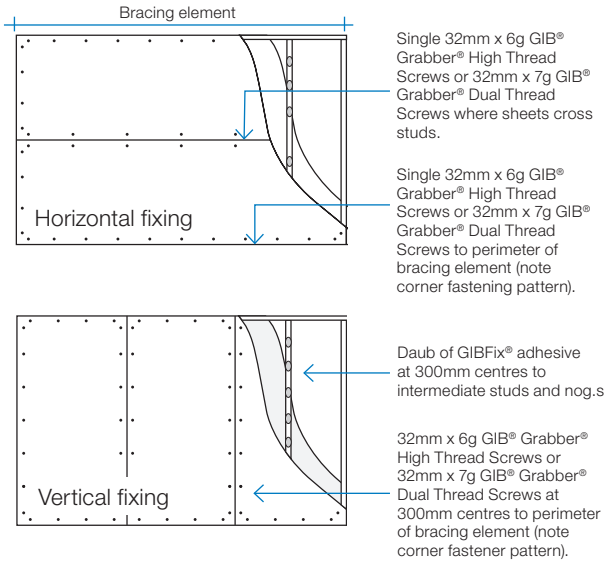
32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. If using the GIBFix® Angle use 32mm x 7g GIB® Grabber® Dual Thread Screws.

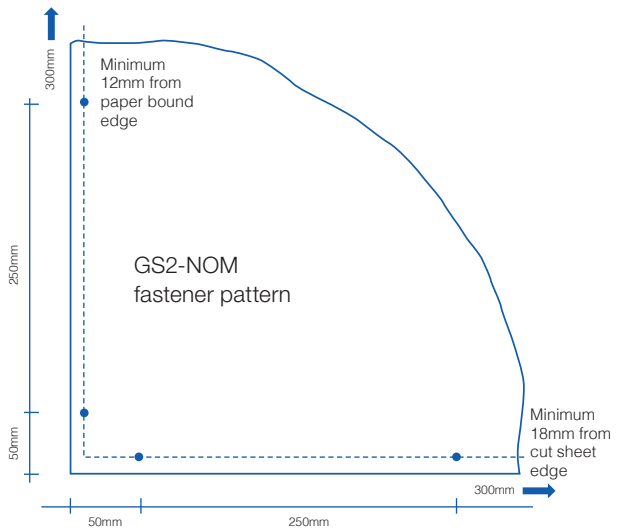
Fastener centres

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.





Unless stated all fastener spacings are maximums.

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

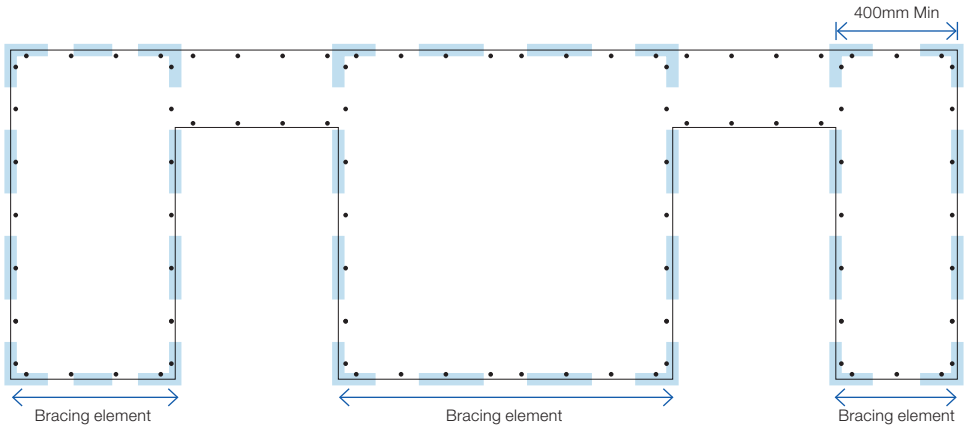
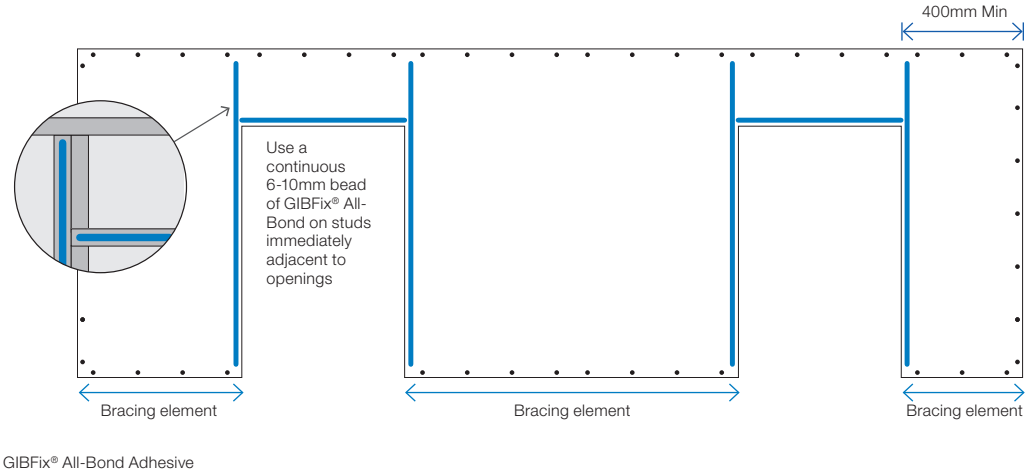
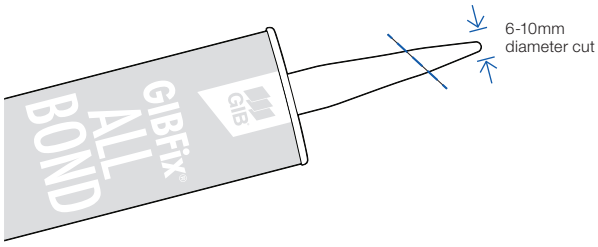


FIGURE 38: SCREW AND ADHESIVE FIX FOR OPENINGS



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

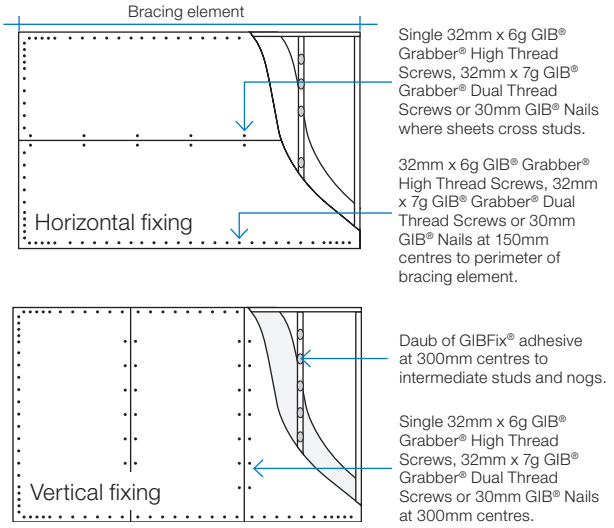
32mm x 6g GIB® Grabber® High Thread Screws,32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

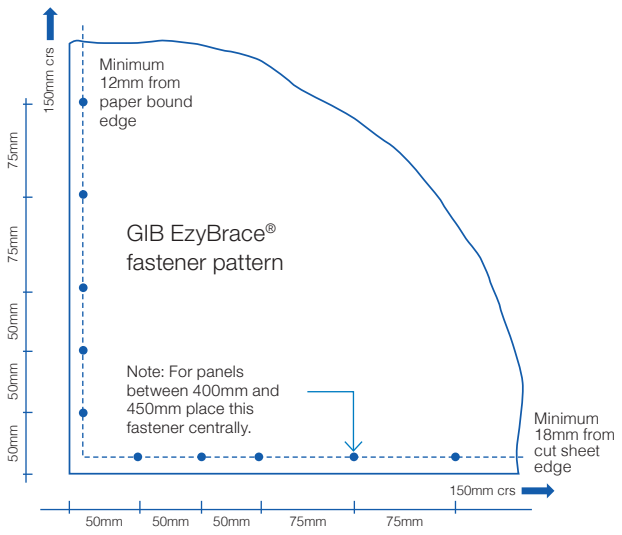
Fastener centres

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.





Unless stated all fastener spacings are maximums.

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.

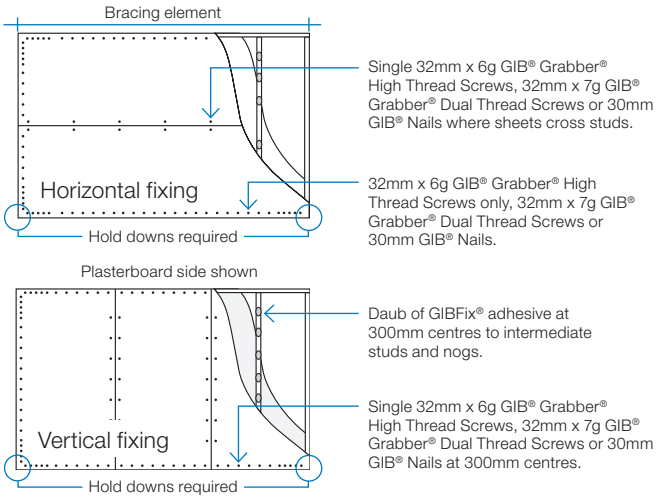
If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws. Plywood: 50 x 2.8mm Galv or Stainless steel annular grooved FH nails.

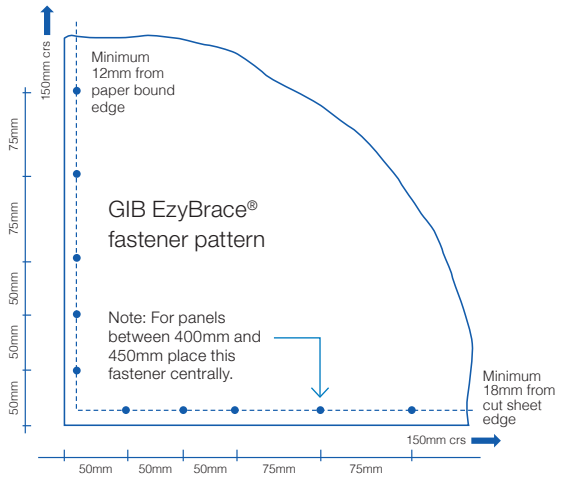
Fastener centres

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.





Unless stated all fastener spacings are maximums.

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

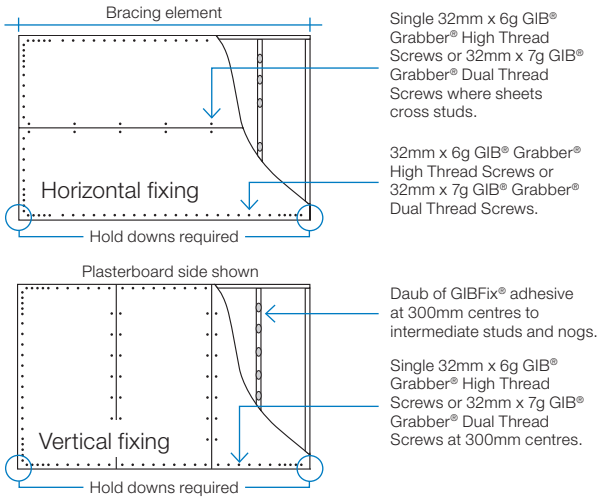
32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

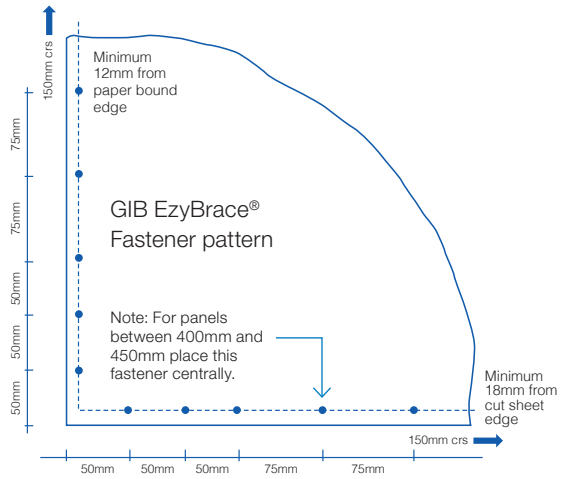
Fastener centres

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.





Unless stated all fastener spacings are maximums.

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.

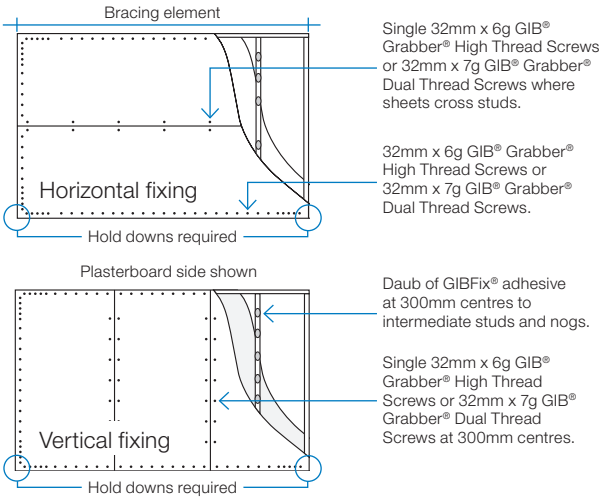
If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

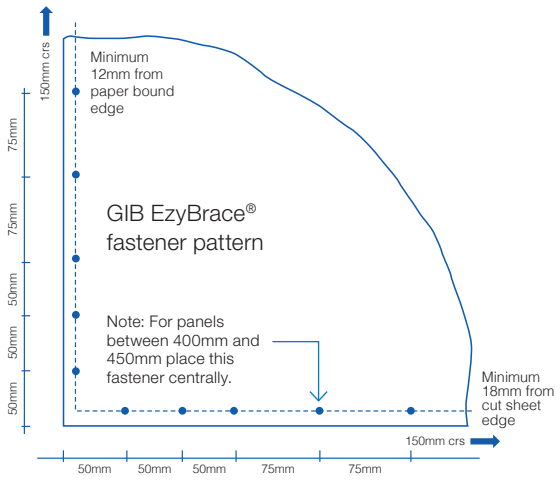
Fastener centres

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.





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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

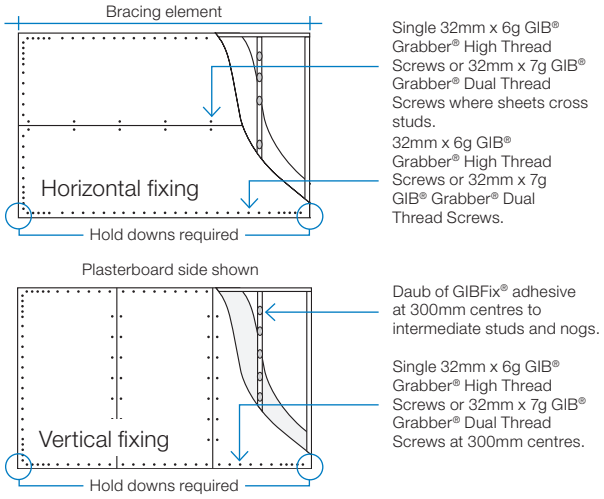
GIB Braceline® side: 32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. Plywood: 50 x 2.8mm Galv or Stainless steel annular grooved FH nails. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread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

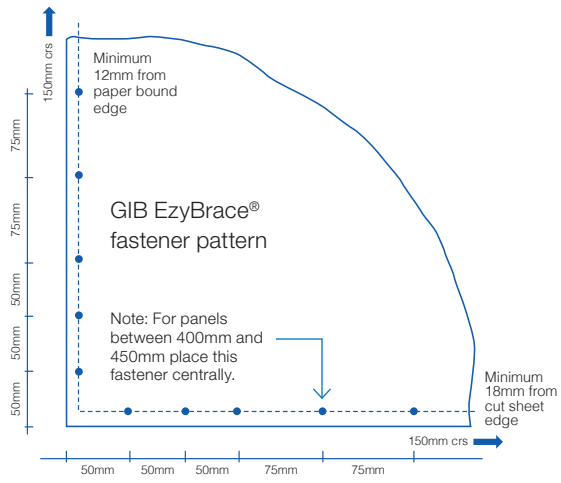
Fastener centres

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.





Unless stated all fastener spacings are maximums.

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^{CERTTM}

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

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 Fyreline®, GIB Ultraline®, GIB Braceline®, GIB Toughline®, GIB Noiseline®, GIB Aqualine®, GIB Nail®, GIB Tradeset®, GIB Plus 4®, GIB-Cove®, GIB Lite Blue®, GIBFix®, the colour mauve for GIB Toughline®, GIB HandiBrac®, GIB EzyBrace®, the colour blue for GIB Braceline®, the colour pink for GIB Fyreline®, 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.

GIB®

FOR MORE INFORMATION VISIT

gib.co.nz

OR CALL THE GIB® HELPLINE

0800 100 442

GIB Standard Plasterboard

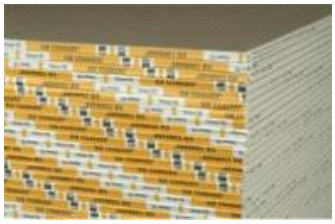
Product Technical Statement: 101955

miproducts
THE NATIONAL PRODUCT DATABASE

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



masterspec partner

Company Contact Details

GIB

Company:	Winstone Wallboards Ltd
Physical Address:	37 Felix Street Penrose AUCKLAND
Postal Address:	PO Box 12256 Penrose AUCKLAND
Telephone:	64 09 6330100
Fax:	64 09 6330101
Email:	info@gib.co.nz
Website:	www.gib.co.nz

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

Date last validated: **12 July 2017**

Date last updated: **12 July 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

6192H Hardie™ Ceramic Tile Underlay

James Hardie
+64 0800 808868
info@jameshardie.co.nz
www.jameshardie.co.nz

SUPPORTING DOCUMENTS

Hardie Ceramic Tile Underlay Product Technical Statement April 2025

Ref 112481. Uploaded 8 Apr 2025

Purpose: Performance

© CIL Masterspec Oct 2026

Hardie™ Ceramic Tile Underlay

JamesHardie™

jameshardie.co.nz

Product Technical Statement

Product Description:

Hardie™ Ceramic Tile Underlay is available in a 6mm thickness.

Scope of Use:

Hardie™ Ceramic Tile Underlay is suitable for use as a substrate over internal flooring to lay tiles, heavy grade vinyl or cork over for use in dry or wet area applications.

Limitations:

Hardie™ Ceramic Tile Underlay must not be used in following situations:

- In external deck applications
- Directly over concrete

Compliance with the NZBC:

The following clauses of the NZBC are applicable to Hardie™ Ceramic Tile Underlay and it complies with these requirements as explained below.

Durability - B2: Hardie™ Ceramic Tile Underlay is manufactured in accordance with AS/NZS 2908.2 and meets the durability performance requirements of Clause B2.3.1 (b) and B2.3.2.

Hazardous Building Materials - F2: Hardie™ Ceramic Tile Underlay complies with the requirements of Clause F2.3.1 and will not present a health hazard when handled as per its installation manual.

Installation:

Hardie™ Ceramic Tile Underlay must be installed in accordance with the Flooring Installation Manual by James Hardie. The information and details are available online at **www.jameshardie.co.nz** or Ask James Hardie™ at 0800 808 868 for further information.

Warranty:

Hardie™ Ceramic Tile Underlay has a product warranty of 15 years when installed and maintained as per the current installation manual.

Hardie™ Ceramic Tile Underlay is not subject to a warning or ban under section 26 of the Building Act.

Hardie™ Ceramic Tile Underlay is manufactured in Australia.

© 2025 James Hardie New Zealand Limited. ™ and ® Denotes a trademark or registered trademark owned by James Hardie Technology Limited.

6311FF Forte Timber Overlay System

Forté
+64 9 2389911
info@forte.co.nz
forte.co.nz

SUPPORTING DOCUMENTS

Forté Timber Overlay Flooring System (Generic) 111993

Ref 35832. Uploaded 28 Oct 2021

Purpose: Installation, Maintenance, Environmental

© CIL Masterspec Oct 2026

Forté Timber Overlay Flooring System (Generic)

Product Technical Statement: 111993

miproducts

For use with all Forté Timber Flooring Collections
View miproducts listing

Level of assurance needed to demonstrate NZ Building Code Compliance

MEDIUM

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

Forté confirms that this minimum level of assurance has been met or exceeded by the following:
Forté
Alternative Solution for E3

Technical Statement

Product Description

This system has been updated to allow for the recent changes to Building Code E3 (Internal Moisture).

Description

The Timber Overlay Flooring System follows a glue-down installation method and is designed for use with Prefinished Engineered Plank Flooring from Forté.

Key components:

1. Forté Timber Flooring Planks *(See Options Available)*
2. Installation onto a Suitable Substrate *(See Suitable Substrates)*
3. Installation in accordance with the forte Timber Overlay Flooring System **Design Guide** and **Installation Guide**.

Options Available:

- Artiste Refined Collection
- Artiste Rustic Collection
- Atelier Collection
- Moda Altro Collection
- Ultra Collection
- Urban Collection

Suitable Substrates:

1. Concrete floors (slab-on-grade or suspended)
2. Timber flooring (Structural or Overlay, but not timber joists)
3. Concrete floors with Hydronic Underfloor Heating system (set into slab 45mm minimum)
4. In-Screed Electric Underfloor Heating system (set into screed 8mm minimum)
5. Waterproof Membrane Systems when approved by the Membrane System Supplier
6. Acoustic Underlay glued to an approved substrate

Scope of use

The Forte Timber Overlay Flooring System as per the **Design Guide** and **Installation Guide** is designed for use as non-structural overlay flooring inside residential and commercial buildings. Installations outside of the scope of use will not be covered under warranty.

Scope of Use:

- The flooring is suitable for all areas other than Garages and Commercial Kitchens.
- The flooring should always be installed onto an approved substrate (refer to **Design Guide**)
- Additional requirements must be adhered to for installations in Wet Areas (refer to **Design Guide**)
- Additional requirements must be adhered to for installations with Underfloor Heating (refer to **Design Guide**)
- The area with flooring should be protected against changes in climate. (refer to **Care & Maintenance Guide**)
- The flooring should be separated from fuel burning appliances, flues, and chimneys in accordance with NZCB Section C AS/1.
- For installations where a single length/run of the timber flooring will be over 15 meters, please contact Forte to ensure suitability for installation.

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(c)
- **Clause C3 Fire affecting areas beyond the fire source:** Performance C3.4(b)

Moda ALTRO
Urban

masterspec partner

Company Contact Details

forté
Nature Refined

Company:	Forté
Physical Address:	3 Keith Place Pukekohe Auckland
Postal Address:	PO Box 778 PUKEKOHE
Telephone:	64 9 2389911
Email:	info@forte.co.nz
Website:	forte.co.nz

- **Clause D1 Access routes:** Performance D1.3.3(d), D1.3.3(g)
- **Clause E3 Internal moisture:** Performance E3.3.2, E3.3.3, E3.3.5, E3.3.6
- **Clause F2 Hazardous building materials:** Performance F2.3.1

Notes

Additional Technical Advice Note available for compliance with NZBC E3 Internal Moisture

Evidence

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

Clause B2: B 2.3.1(c)

Compliance: NZS 3602 Table 3 (All Collections)

Clause C3: C 3.4(b):

Compliance: C/VM2 Appendix B Table B1 (All Collections)

Clause D1: D 1.3.3(d):

Compliance:

- Residential Level Surfaces: D1/AS1 Table 2 (All Collections)
- Residential Level Surfaces: D1/AS1 Table 2 (All Collections)
- Residential Stairs: AS4586 Appendix A (All Collections)
- Commercial Level Surfaces (Dry): D1/AS1 Table 2 (All Collections)
- Commercial Level Surfaces (Wet): D1/AS1 2.1.2a (Some Collections)
- Commercial Stairs: D1/AS1 2.1.5 (Some Collections require slip-resistant nosings)

Clause E3: E3.3.2, E3.3.3, E3.3.5, E3.3.6

Compliance:

1. Alternative Solution based on E3/AS1 (Installation without Waterproof Membrane)
    - Single Dwelling Residential
    - Multi Dwelling Residential Kitchens (If overflow met per 2.0.1 of E3/AS1)
2. E3/AS2 (Internal Wet-area Membrane Systems)
    - Always suitable in a Wet Area when installed over Wet-area Membrane

Clause F2: F2.3.1

Compliance: AS/NZS 2098.11 & AS/NZS 4266.1 (All Collections)

Supporting Evidence

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

Forté
Alternative Solution for E3

Use in Service History

Forte Timber Overlay Flooring Systems have been used in New Zealand since 2008

Product Criteria

Design requirements

The Flooring should be designed in accordance with the Forte **Timber Overlay Flooring System Design Guide**

Installation requirements

The Flooring should be installed in accordance with the Forte **Timber Overlay Flooring System Installation Guide**

Maintenance requirements

The flooring should be maintained in accordance with the relevant Forte **Care & Maintenance Guide**

Company Product Information

Environmental

The NZGBC requirements for Timber Flooring are Responsibly Sourced and Low VOC.

- All Timber Flooring Collections from Forte are Responsibly Sourced and available with either a PEFC or FSC Certificate.
- All Timber Flooring Collections from Forte are Low in Formaldehyde and meet an E1 or E0 rating.

Forté Timber Overlay Flooring System (Generic)

Product Technical Statement: 111993

miproducts

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

6743FB Zone FireZone Vanguard Timber Fire Treatment

Zone Architectural Products
+64 09 6231699
info@zone.net.nz
www.zone.net.nz

SUPPORTING DOCUMENTS

FireZone Vanguard FP TDS

Ref 106172. Uploaded 3 Mar 2026

Purpose: Performance, Installation, Maintenance

© CIL Masterspec Oct 2026

FIREZONE™ VANGUARD FP

TECHNICAL DATA SHEET v4 20241001

FireZone™ VANGUARD FP is a natural and non-toxic factory processed fire retardant treatment system designed for both internal and external use, Type A & Group 1-S on locally supplied timber substrates.

RECOMMENDED USE

Located in New Zealand, we can fire rate many timber substrates supplied directly by your choice of local timber supplier. As the system is both non-toxic and durable, it can be used for both internal and external substrates. No change to the aesthetic of the timber substrate.

Timber must be supplied directly to Zone in its raw form for processing.

- Exterior – Fully exposed *Group 1-S, Type A, Type B*
- Interior – Moisture Rich Environments *Group 1-S*
- Interior – Dry Environments *Group 1-S*

SUSTAINABILITY

- 100% Natural substances
- 100% Biodegradable
- Non-toxic
- No contents listed on the SVHC – List of substances of very high concern- REACH
- Cradle to Cradle Certified – Gold Level
- pH Neutral
- Does not induce corrosion on fixings
- Zero VOC emissions

DURABILITY – FIRE PERFORMANCE

VANGUARD FP fire retardant does not add or detract from the natural durability of timber.

MAINTENANCE

The fire performance of VANGUARD FP treated timber will last for the life time of the timber substrate. According to EN16755:2017: No maintenance of the system is required. Please refer to timber suppliers for timber substrate maintenance requirements. Exterior coating and stain maintenance must be strictly adhered to.

FIXINGS

Stainless fixings must be used for VANGUARD FP treated timbers.

COATINGS

A range of typically specified coatings are compatible with the VANGUARD FP system. Please contact Zone for a up to date list of compatible coatings or stains.

For external use, VANGUARD FP treated timber must be factory coated with an external oil prior to delivery to site, with cut ends coated onsite prior to install.

FIREZONE™ VANGUARD FP

TECHNICAL DATA SHEET v4 20241001

TIMBER SPECIFICATION

VANGUARD FP is a fire rating solution, all technical specifications for your internal timber linings, or external timber cladding must be advised through your choice of local timber supplier.

VANGUARD FP SPECIFICATION

VANGUARD FP can be specified using Masterspec section 6742FB which can be linked directly to your chosen timber suppliers Masterspec section. Contact Zone for specification assistance.

FIRE PERFORMANCE

Exterior Cladding – Type A

Compliant to NZBC C/AS1 in accordance with Table 5.1 requirements for external cladding and NZBC C/AS2 in accordance with Table C1.3 to a Type A classification according to report BC-2057-2023.

Exterior, interior moisture rich and interior dry environments – Group 1-S

Tested to ISO5660-1, EN13501-1:2018 and EN16755:2017 and compliant with NZBC C/AS2 Clause 4.17 achieving a Group 1-S classification.

TIMBER SPECIES

Exterior Cladding – Type A

For exterior cladding either of the following timber species are available with a minimum thickness of 16mm:

- Western Red Cedar
- TMT Taiga
- Thermally Modified Nordic Pine

Exterior and interior moisture rich environments – Group 1-S

The choice of timber species is crucial for external use – specify external timber substrates through your choice of local timber supplier with confidence. Please see below a list of suggested substrates for external use, this is not exhaustive (general minimum thickness of ≥12mm):

- Western Red Cedar (min thickness ≥9mm)
- Accoya/ Accoya Grey
- TMT Taiga
- TMT Taxon
- TMT Ash
- Truwood
- TMT Spruce
- Abodo Vulcan
- Alaskan Yellow Cedar

Interior dry – Group 1-S

Please see below a list of suggested substrates for internal use, this is not exhaustive (general minimum thickness ≥12mm):

Timber Species – Panels, Cladding and Battens:

- Western Red Cedar (min thickness ≥9mm)
- Accoya / Accoya Grey
- Ashin
- TMT Taiga
- TMT Taxon
- Pine Radiata
- TMT Ash
- TMT Spruce
- TMT Ayous
- Spruce
- Larch
- Abodo Vulcan
- Truwood
- Alaskan Yellow Cedar
- Western Hemlock

Plywood Species:

- Pine
- Birch
- Poplar
- Hoop Pine
- Birch Veneer Poplar Core
- Eucalyptus

TERMS AND CONDITIONS

Please refer to Zone Architectural Products standard Terms and Conditions available at www.zone.net.nz

6812A Ardex Undertile Waterproofing Membranes

ARDEX New Zealand Limited
+64 800 227339
specifications@ardexnz.com
www.ardex.co.nz

SUPPORTING DOCUMENTS

ARDEX WPM 750 - Weldtec Undertile Waterproofing Membrane 103447

Ref 10063. Uploaded 26 Jun 2020

Purpose: Performance, Installation, Maintenance

© CIL Masterspec Oct 2026

ARDEX WPM 750 - Weldtec Undertile Waterproofing Membrane

Product Technical Statement: 103447

Undertile sheet waterproofing membrane for wet area tiling

View miproducts listing

Level of assurance needed to demonstrate NZ Building Code Compliance

HIGH

Supporting documentation should include technical information by manufacturer and either a BRANZ or independent Appraisal or CodeMark

ARDEX confirms that this minimum level of assurance has been met or exceeded by the following:
BRANZ Appraisal
727





masterspec partner

Company Contact Details

Company:	ARDEX New Zealand Limited
Physical Address:	32 Lane Street Woolston Christchurch
Postal Address:	PO Box 19549 Woolston Christchurch
Telephone:	64 03 3736900
Fax:	64 03 3849779
Email:	specifications@ardexnz.com
Website:	www.ardex.co.nz

Technical Statement

Product Description

ARDEX WPM 750 is a sheet membrane system that is used for waterproofing tiled areas such as showers and bathrooms. As compared to liquid waterproofing membranes, ARDEX WPM 750 gives a thin and consistent waterproofing gauge. This system can also fast track installation as there is no need to wait for liquids to dry – simply apply the solvent free adhesive and then the membrane (like wallpaper). Tiling can begin 60 minutes after the membrane is installed. The laps and corners of the membrane are heat-welded for a secure join - creating a fail-safe waterproofed area.

Scope of use

ARDEX WPM 750 Undertile Sheet Membrane has been appraised for use as waterproofing membrane for internal wet areas of buildings, within the following scope:

- on floor substrates of concrete, plywood, compressed fibre cement sheet and fibre cement sheet tile underlay, and on wall substrates of concrete, concrete masonry, wet area fibre cement sheet lining systems and wet area plasterboard lining systems; and,
- when protected from physical damage by ceramic or stone tile finishes; and,
- where floors are designed and constructed such that deflections do not exceed 1/360th of the span.

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 E3 Internal moisture:** Performance E3.3.6
- **Clause F2 Hazardous building materials:** Performance F2.3.1

Evidence

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

BRANZ Appraisal 727 (2011)

Supporting Evidence

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

BRANZ Appraisal
727

Product Criteria

Design requirements

Ardex WPM 750 (Undertile Butynol®) is made up of synthetic rubber with properties which resist ageing from heat, sunlight and ozone and is heat weldable. Polypropylene filaments are welded onto both sides of the membrane for better wetting by water based adhesives. It has excellent gas impermeability and toughness and remains flexible at low temperatures.Laps and corners are to be heat formed and/or welded. Tiling can be done directly on the membrane after 60 minutes with common Ardex tiling adhesives like X77, X56 STS8/E90, Quickbond/Abalastic, 2 part Optima or ABAFLEX.Undertile Butynol® is marketed by Ardex as a warranted undertile waterproofing product using solvent free adhesives and fixed by their trained and experienced approved Applicators.

Installation requirements

Roll out ARDEX WPM 750 Undertile Butynol® and cut to the measured length. Smooth ARDEX WPM 750 Undertile Butynol® on contact to minimise air entrapment beneath the membrane. Floor

sheets of ARDEX WPM 750 Undertile Butynol® must extend up the wall at least 150mm. Make sure the Undertile Butynol® is laid tightly into all corners. Wall sheets of Undertile Butynol® should overlap the 150mm upstand. Weld seams and laps with the Leister Triac S Hot Air Gun. Roll with a rubber roller to ensure seams and laps are secure. Walls, internal corners & transitions. Apply the ARDEX WPM 750 Undertile Butynol® membrane 1800mm up the walls or to a height of 150mm above the shower rose. For unenclosed showers the membrane must extend a minimum of 1500mm out from the shower rose

Maintenance requirements

No maintenance of the membranes will be required provided significant substrate movement does not occur and the tile finish remains intact. Regular checks must be made of the tiled areas to ensure they are sound and will not allow moisture to penetrate. Any cracks or damage must be repaired immediately by repairing the tiles, grouts and sealants.

In the event of damage to the membrane, the tiling must be removed and the membrane repaired by removing the damaged portion and applying a patch as for new work.

Drainage outlets must be maintained to operate effectively, and ceramic or stone tile finishes must be kept clean.

Company Product Information

Quality Assurance

ISO 9001 (Quality Management)

Relationships

New Zealand Made

Member of New Zealand Green Building Council

Date last validated: **15 November 2018**

Date last updated: **15 November 2018**

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SYSTEM WARRANTY

PURPOSE OF THIS DOCUMENT

Blue Building Solutions Limited (company number 3204709) trading as VENT ("VENT") offers a Roof Ventilation system ("System") comprising of a group of related products and components ("Products") as described in the Schedule. VENT's Systems reduce internal moisture and mitigate the risk of associated issues.

The following warranties apply to each System, including the Products that form part of that System.

WARRANTY

1. Subject to the conditions and exclusions set out in this warranty document, and for the Warranty Period as defined below, VENT warrants that each System or Product forming part of that System:

    a) Will be free of defects due to faulty or defective factory workmanship;

    b) Will be free of defective materials; and

    c) Where a product has a BRANZ appraisal, will comply with the relevant provisions of the building code to the extent set out in the relevant BRANZ product appraisal,

    (each a "Warranty").

WARRANTY PERIOD

2. Each Warranty runs 15 years from the date of purchase ("Warranty Period"). If a System has been repaired or replaced in accordance with the Warranty, the repaired or replaced System is warranted for the remainder of the original Warranty Period.

WARRANTY CONDITIONS

3. Each Warranty is provided subject to the following conditions:

    a) VENT will not be liable under any Warranty unless the customer complies with the Warranty Claim Procedure below.

    b) Any project in which the System is used must be designed and constructed in strict compliance with all relevant legislation, regulations, standards and codes (including but not limited to the New Zealand Building Code) and in accordance with the terms specified in any building consent issued by any local or territorial authority with jurisdiction over the area in which the project is being undertaken.

    c) The System must be installed, used and maintained in strict accordance with the installation requirements provided by VENT and all VENT instructions, methods and procedures current at the time of purchase.

    d) VENT will not be liable under any Warranty where a substitute product has been used within the System.

e) VENT must be provided a reasonable opportunity to inspect the alleged defective System in situ and prior to its removal, repair or replacement.

f) In no circumstances may a Warranty claim be made after the expiry of the Warranty Period.

INSTALLATION REQUIREMENTS

4. Each System must be installed in accordance with the following requirements for the Warranty to be valid:

   a) The System must be installed by or under the direct supervision of a registered or licensed building practitioner or qualified roofer and maintained strictly in accordance with any VENT instructions, methods and procedures relating to the System and current at the time of installation.

   g) The System must be installed using the combination of VENT supplied Products as described in the Schedule.

   b) The System must be installed in accordance with all applicable codes of practice (including but not limited to the New Zealand Metal Roof and Wall Cladding Code of Practice), furthermore, all other products, including joining systems, applied to, or used in conjunction with the System must be applied or installed by a registered or licensed building practitioner and maintained strictly in accordance with the relevant manufacturer's instructions and good trade practice.

WARRANTY CLAIM PROCEDURE

5. Any claim under this Warranty must be submitted to VENT (at the contact details set out in the Schedule) as follows:

   a) Written notice of the claim setting out the issues with the System must be given to VENT no later than 28 days after the defect is discovered (“Notice”).

   b) Together with the Notice, the customer must provide a copy of this Warranty and written proof of purchase in the form of an invoice or receipt from the supplier from which the System was purchased.

   c) If the defect is discovered after installation, the customer must provide (in addition to the details required under clause 5(a) above) specific details of the installation including the name and qualifications of the installer and the date the System was installed.

6. The customer will be responsible for all expenses incurred in making a claim under this Warranty, including any costs incurred in returning a defective System or Product to VENT for repair or inspection.

LIABILITY

7. In the event that a Warranty claim is made, and that claim is accepted by VENT, VENT’s total liability to the customer under the Warranty is limited, at VENT’s option, to:

   a) The supply, at no cost to the customer of a replacement:

i. System or Product; or

ii. System or Product that is the same as or functionally equivalent to the original System or Product;

b) The repair, at no cost to the customer, of the System or Product; or

c) Refunding the customer the purchase price of the affected System or Product,

VENT will not be liable to reinstall the System or Product, or for the cost of reinstallation of the System or Product.

8. Where VENT elects to repair or replace the System or Product, the replacement may vary from the original due to manufacturing techniques and materials used. VENT will endeavour to supply a System or Product that is as similar as possible to the original System or Product.

9. Subject to clauses 7 and 11, VENT will not be liable for any claim, loss or damage (whether direct or indirect) including property damage or personal injury, consequential loss, economic loss or loss of profits, howsoever arising.

10. Without limiting any other provision of this Warranty, VENT will not be liable for:

a) Any claim, damage or defect arising from or in any way attributable to settlement or structural movement and/or movement of or failure of materials to which the System is attached, incorrect design of the structure, defects attributed to faulty installation of the System, pollution, incorrect cleaning (including the incorrect use of chemicals or cleaning methods), animals or insects, falling objects, neglect, fire, explosion, radiation, collision or other accident, vandalism or malicious damage, acts of God including but not limited to war, riots, industrial action, earthquakes, cyclones, floods, hail or sand storms or other severe weather conditions or unusual climatic conditions, normal wear and tear, mechanical, chemical or other damage sustained during transport, handling, storage or installation, growth of mould, mildew, fungi, bacteria or any organism on the System;

b) Any claim, damage or defect arising from the installation of the System;

c) Any System or Product removed from its first place of installation and re-installed;

d) Any damage or deterioration to any part of the System caused by work carried out on the System after installation including, but not limited to, people walking over or on the System;

e) Any damage or deterioration to the extent that it is caused or contributed to by any third party design or engineering of the building or structure in which the System is installed or attached to;

f) Any damage or deterioration to the extent that it is caused or contributed to by third party materials and accessories including, but not limited to, clips and nails, fire wall batts and battens; and

g) Any damage or deterioration due to prolonged exposure to direct or indirect sunlight or ultraviolet radiation.

RIGHTS OF CONSUMERS

11. Where the customer is a consumer as defined in the Consumer Guarantees Act 1993 (“CGA”) any benefits under this Warranty are in addition to any rights or remedies that may be available to the consumer under the CGA.

12. If the customer is not a consumer, all warranties, conditions, liabilities and obligations other than those specified in this Warranty are excluded to the fullest extent allowed by law and the Consumer Guarantees Act 1993 does not apply.

SCHEDULE

System	Products/Components
Trussed Roof Pitches 5 to15 degrees	- G2500N Over facia vent - G502 Roll Panel Vent
Trussed Roof Pitches 15- 30 degrees	- G1200N Over facia vent - G502 Roll Panel Vent
Trussed Roof Pitches >30 degrees	- G1200N Over facia vent - G502 Roll Panel Vent - RV10P/DT
Mono-pitch Skillion Roofs – All Angles	- G2500N Over facia vent - VB20 Vented Batten - RV10 - Half Ridge Vent
Pitched Skillion Roofs – All Angles	- G2500N Over facia vent - VB20 Vented Batten - RV10 Ridge Vent
Iron roof claddings – above sheathing ventilation	- VB10 10mm vented batten
Wall Systems	**Products/Components**
Cavity Wall system	- VB20 Vented batten

OUR CONTACT DETAILS

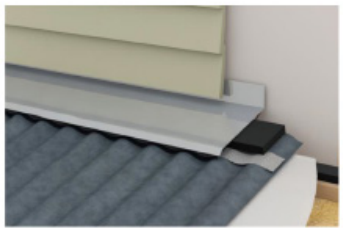
Blue Building Solutions Limited trading as VENT

63 Hull Road
Mount Maunganui 3116
New Zealand

BRANZ Appraised

Appraisal No. 979 [2023]

ROOF VENTILATION PRODUCTS





Appraisal No. 979 (2022)

This Appraisal replaces BRANZ Appraisal No. 979 [2017]

BRANZ Appraisals

Technical Assessments of products for building and construction.

Blue Building Solutions Limited T/A VENT

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BRANZ

1222 Moonshine Rd,
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Product

1.1 Roof Ventilation Products consist of a range of extruded battens and vents for use in pitched and skillion roof construction. The Roof Ventilation Products, when used together, will form a system to assist with the ventilation of the roof space.

Scope

2.1 Roof Ventilation Products have been appraised for use as non-structural roof battens and vents for use with pitched and skillion roof construction on buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regard to building height and floor plan area; and,
- with profiled metal roof cladding; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High.

2.2 Building designers are responsible for incorporation of Roof Ventilation Products into their design for weathertightness and detailing of junctions.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, Roof Ventilation Products, 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. Roof Ventilation Products meet the requirements for loads arising from gravity loads, wind and impact [i.e. B1.3.3 (b), (h) and (j)]. See Paragraphs 8.1-8.3.

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years and B2.3.2. Roof Ventilation Products meet these requirements. See Paragraphs 9.1 and 9.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Roof Ventilation Products contribute to meeting this requirement. See Paragraphs 12.1-12.3.

Clause E3 INTERNAL MOISTURE: Performance E3.3.1. Roof Ventilation Products contribute to meeting this requirement. See Paragraph 13.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Roof Ventilation Products meet this requirement.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Technical Specification

4.1 System components and accessories supplied by VENT are:

- **VENT Ventilated Roof and Drainage Batten 20 mm (VB20)** - manufactured from extruded polypropylene. The battens are cut after extruding to a finished size of approximately 45 mm wide by 20 mm thick and provide a ventilation opening area of approximately 16,000 mm² per lineal metre. VENT Ventilated Roof and Drainage Battens 20 mm are coloured black and are supplied in 1,800 mm long lengths. These battens are installed between the roof underlay and the structural battens and purlins.
- **VENT Ventilated Roof and Drainage Batten 10 mm (VB10)** - manufactured from extruded polypropylene. The battens are cut after extruding to a finished size of approximately 45 mm wide by 10 mm thick and provide a ventilation opening area of approximately 8,000 mm² per lineal metre. VENT Ventilated and Drainage Battens 10 mm are coloured black and are supplied in 1,800 mm long lengths. These battens are installed between the roof underlay and the roof cladding.
- **VENT Ridge Vent** - manufactured from extruded polypropylene with an aluminium-based conformable, soft edge flashing along the bottom edges. VENT Ridge Vents are coloured black with a grey flashing, are supplied in 1,200 mm long lengths, and provide a ventilation opening area of approximately 8,000 mm² per lineal metre.
  - **RV10P** - the vents are cut after extruding to a finished size of approximately 410 mm wide (including the flashing) by 20 mm thick. RV10P are suitable for trough depths that are less than 34 mm.
  - **RV10DT** - the vents are cut after extruding to a finished size of approximately 460 mm wide (including the flashing) by 20 mm thick. RV10DT are suitable for trough depths that are between 34 mm and 60 mm.
- **VENT Apron Vent** - manufactured from extruded polypropylene with an aluminium-based conformable, soft edge flashing along the bottom edges. VENT Apron Vents are coloured black with a grey flashing, are supplied in 1,200 mm long lengths, and provide a ventilation opening area of approximately 8,000 mm² per lineal metre.
  - **RV10P Half** - are VENT Ridge Vent RV10P cut in half. RV10P Half are suitable for trough depths that are less than 34 mm.
  - **RV10DT Half** - are VENT Ridge Vent RV10DT cut in half. RV10DT Half are suitable for trough depths that are between 34 mm and 60 mm.

4.2 System components and accessories supplied by the building contractor are:

- **VENT Ventilated Roof and Drainage Batten fixings** - 40 x 2.5 mm hot-dip galvanised flat head nails, or hot-dip galvanised or stainless steel finishing brads at approximately 400 mm centres.

Handling and Storage

5.1 Handling and storage of the Roof Ventilation Products, whether on-site or off-site, is under the control of the building contractor. Roof Ventilation Products must be protected from direct sunlight and physical damage, and should be stored flat and under cover.

Technical Literature

6.1 This Appraisal must be read in conjunction with:

- Management of Condensation, VENT Ridge/Apron/Barge Vent RV10P, RV10P-Half, RV10DT & RV10DT-Half, Dec 2022.
- Management of Condensation, VENT Ventilation & Drainage Batten 10 mm, VB10, Dec 2022.
- Management of Condensation, VENT Ventilation & Drainage Batten 20 mm, VB20, Dec 2021.
- VENT Passive Ventilation Drawings 1-11, dated 18/6/2023.

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.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Design Information

General

7.1 Roof Ventilation Products can be used to provide passive ventilation of the roof space. The design of the roof ventilation system is subject to specific design and is the responsibility of the designer.

7.2 Roof Ventilation Products are designed to be used with profiled metal roof claddings in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 8.4, or to a specific design. Roof fixings must take into account the thickness of the products for roof fixing penetration into the supporting structure.

7.3 The VENT Ventilated Roof and Drainage Batten 20 mm (VB20) provides a path for passive air flow over the top of structural battens and purlins. It is most suited for skillion roofs and commercial buildings.

7.4 The VENT Ventilated Roof and Drainage Batten 10 mm (VB10) provides a path for passive air flow over the top of the roof underlay.

7.5 The VENT Ridge Vent provides ventilation at roof ridges.

7.6 The VENT Apron Vent provides ventilation at the lower roof void or through the roof barge.

7.7 For further design guidance, refer to roof ventilation articles in BRANZ Publications: BUILD 148, BUILD 151, BUILD 152, BUILD 155, and BUILD 158.

Structure

8.1 The VENT Ventilated Roof and Drainage Battens must be considered as non-structural roof battens only.

Impact Resistance

8.2 The VENT Ventilated Roof and Drainage Battens (VB10 and VB20) have adequate resistance to impact loads likely to be encountered in normal residential and commercial use. The battens also have adequate resistance to compressive loads likely to be encountered during fixing of the claddings. They will withstand normal foot traffic and the function of the products will not be impaired by such traffic.

Wind Zone

8.3 Roof Ventilation Products are suitable for use in all Wind Zones of NZS 3604 up to, and including, Extra High.

Durability

9.1 Roof Ventilation Products are required to meet the performance requirements of NZBC Clause B2.3.1 (b) 15 years.

Serviceable Life

9.2 Roof Ventilation Products will have a durability equivalent to that of the roof cladding, to meet code compliance with NZBC Clause B2.3.2, provided the cladding system is maintained in accordance with this Appraisal and the Roof Ventilation Products are continually protected from ultraviolet (UV) light.

Maintenance

10.1 No maintenance is required for Roof Ventilation Products. Regular checks, at least annually, must be made of the roof cladding, flashings and penetrations to ensure they are maintained weathertight and continue to perform their function, to ensure that water will not penetrate the cladding.

Prevention of Fire Occurring

11.1 Separation or protection must be provided to Roof Ventilation Products from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solution C/AS1 and Verification Method C/VM1, and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

External Moisture

12.1 Roof Ventilation Products must only be used under long run metal roof claddings that meet the requirements of the NZBC, such as those covered by NZBC Acceptable Solution E2/AS1.

12.2 Roof Ventilation Products, when installed in accordance with the Technical Literature and this Appraisal, will assist in the total cladding system's compliance with NZBC Acceptable Solution E2/AS1.

12.3 The detailing of the roof cladding system, including junctions, is the responsibility of the building designer. These details have not been assessed as part of this Appraisal.

Internal Moisture

13.1 Roof Ventilation Products will contribute to the control of internal moisture by providing passive air flow. The building designer is responsible for the design of roof space ventilation.

Installation Information

Installation Skill Level Requirement

14.1 All design and building work must be carried out in accordance with the Roof Ventilation Products Technical Literature and this Appraisal by competent and experienced tradespersons conversant with Roof Ventilation Products. 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 License Class.

System Installation

Roof Underlay Installation

15.1 The selected building underlay must be installed in accordance with the underlay manufacturer's instructions, prior to the installation of the VENT Apron Vent, VENT Ridge Vent, VENT Ventilated Roof and Drainage Batten 10 mm (VB10) and over the VENT Ventilated Roof and Drainage Batten 20 mm (VB20).

Roof Cladding

15.2 Profiled metal roof cladding, including flashings and stop ends, must be in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 8.4, or to a specific design. Roof cladding fixing penetrations into supporting timber must be in accordance with NZBC Acceptable Solution E2/AS1 or specific design.

VENT Ventilation Roof and Drainage Battens

15.3 The battens may be cut on-site with a knife, hand saw or drop saw.

15.4 The VB20 battens must be installed under the roof underlay to the purlins, whereas the VB10 battens must be installed on top of the roof underlay. The battens can be temporary fixed with the adhesive backing. The battens must be fixed in place with 40 x 2.5 mm hot-dip galvanised flat head nails or galvanised or stainless steel finishing brads at approximately 400 mm centres.

VENT Ridge Vent

15.5 The ridge vent may be cut on-site with a knife, hand saw or drop saw.

15.6 The ridge vent is laid centrally over the roof apex with the flashing tape to either side. The ridge vent is then temporarily fixed in place with tape or screws at each corner, ensuring the underside of the vent is flat against the roof.

VENT Apron Vent

15.7 The VENT Ridge Vent must be cut in half with a knife, hand saw or drop saw to create the VENT Apron Vent.

15.8 The vent is placed over the top of the roof cladding. The protective paper is removed from the underside of the flashing tape and then moulded to the roof cladding.

15.9 Additional fixing screw length is required to accommodate the 20 mm thickness of the VENT Apron Vent.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Inspections

15.10 The Technical Literature must be referred to during the inspection of Roof Ventilation Products installations.

Health and Safety

16.1 There are no specific health and safety requirements for Roof Ventilation Products, however safe use and handling procedures for the components that make up the cladding system must be followed in accordance with the requirements of the relevant manufacturer's Technical Literature.

Basis of Appraisal

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

Tests

17.1 The following testing has been completed by BRANZ:

- Roof Ventilation Products were heat-aged and compressed to assess the durability performance of the products.

Other Investigations

18.1 A durability opinion has been given by BRANZ technical experts.

18.2 The practicability of installation of Roof Ventilation Products has been assessed by BRANZ and found to be satisfactory.

18.3 The Technical Literature for Roof Ventilation Products has been examined by BRANZ and found to be satisfactory.

Quality

19.1 The manufacture of Roof Ventilation Products 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.

19.2 The quality of supply to the market is the responsibility of Blue Building Solutions Limited T/A VENT.

19.3 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems, building underlays, flashing tapes, air seals and cladding system, in accordance with the instructions of the designer.

19.4 The quality of the installation, handling and storage on-site of Roof Ventilation Products is the responsibility of the installer.

Sources of Information

- BUILD 148 June/July 2015 Ventilation dries attic space.
- BUILD 151 December 2015/January 2016 Roof space moisture.
- BUILD 152 February/March 2016 Passive roof ventilation.
- BUILD 155 August/September 2016 Vents in skillion roofs.
- BUILD 158 February/March 2017 Airflow through ceilings.
- 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.

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BRANZ

In the opinion of BRANZ, Roof Ventilation Products 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 Blue Building Solutions Limited T/A VENT, 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. Blue Building Solutions Limited T/A VENT:
   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 Blue Building Solutions Limited T/A VENT.
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 Blue Building Solutions Limited T/A VENT or any third party.

For BRANZ



Claire Falck
Acting Chief Executive
Date of Issue:
20 July 2023

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