



Kaipara te Orangāhui

KAI PARA
DISTRICT

Two Oceans Two Harbours

Approved Building Consent Documents

Please note: A copy of the stamped, approved documents must be available onsite for **all** inspections.

SUPPORTING MANUFACTURER DOCUMENTATION

For information only. Specification and contract documentation takes precedence.

This version includes documents related to:

Performance | Installation | Maintenance | Warranty | Environmental

5 & 7 Eagle Ray Road

Project Specification

5 & 7 Eagle Ray Road, Mangawhai, New Zealand

Project Ref: 2435

Printed: 11 April 2025

Manufacturer Documents Index

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4161T Kingspan Thermakraft Underlays, Foils, DPC, DPM, & Tapes



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SUPPORTING DOCUMENTS

Aluband Bituminous Window Flashing Tape - Data Sheet

Ref 98757. Uploaded 24 Sep 2024

Purpose: Performance

Aluband Bituminous Window Flashing Tape - Install Guide

Ref 98758. Uploaded 24 Sep 2024

Purpose: Installation

Ausmesh Safety Mesh - Data Sheet

Ref 99343. Uploaded 2 Oct 2024

Purpose: Performance

Ausmesh Safety Mesh - Install Guide

Ref 99345. Uploaded 2 Oct 2024

Purpose: Installation

BRANZ Appraisal 1029 - Ausnet Hexagonal Wire Netting

Ref 75508. Uploaded 20 Jan 2025

Purpose: Performance

BRANZ Appraisal 1104 - Thermathene Orange 300µm DPM

Ref 109941. Uploaded 6 Mar 2025

Purpose: Performance

BRANZ Appraisal 329 - Supercourse 500 DPC Damp Proofing Course & Concealed Flashing

Ref 80574. Uploaded 27 Nov 2023

Purpose: Performance

BRANZ Appraisal 695 - Watergate Plus Wall Underlay

Ref 94355. Uploaded 26 Jul 2024

Purpose: Performance

BRANZ Appraisal 878 - Aluband Bituminous Window Flashing Tape

Ref 109934. Uploaded 6 Mar 2025

Purpose: Performance

BRANZ Appraisal 917 - CoverTek 403 Fire Retardant Roof & Wall Underlay

Ref 91836. Uploaded 14 Jun 2024

Purpose: Performance

Covertex 403 - Data Sheet

Ref 96227. Uploaded 21 Aug 2024

Purpose: Performance

Covertex 403 - Install Guide

Ref 94352. Uploaded 26 Jul 2024

Purpose: Installation

Kingspan Thermakraft Aluband Flashing Tape 113283

Ref 108304. Uploaded 13 Feb 2025

Purpose: Installation, Maintenance, Warranty

Kingspan Thermakraft Ausnet 113284

Ref 108706. Uploaded 20 Feb 2025

Purpose: Installation, Maintenance, Warranty

Kingspan Thermakraft Covertex 403 113299

Ref 77119. Uploaded 9 Oct 2023

Purpose: Installation, Maintenance, Warranty

Kingspan Thermakraft Supercourse 500 DPC 113304

Ref 108707. Uploaded 20 Feb 2025

Purpose: Installation, Maintenance, Warranty

Kingspan Thermakraft Thermathene Orange 113307

Ref 77111. Uploaded 9 Oct 2023

Purpose: Installation, Maintenance, Warranty

Kingspan Thermakraft Watertight Plus 113281

Ref 77112. Uploaded 9 Oct 2023

Purpose: Installation, Maintenance, Warranty

Supercourse 500 DPC - Data Sheet

Ref 99394. Uploaded 3 Oct 2024

Purpose: Performance

Supercourse 500 DPC - Install Guide

Ref 99395. Uploaded 3 Oct 2024

Purpose: Installation

Thermathene Orange 300µm DPM - Data Sheet

Ref 99417. Uploaded 3 Oct 2024

Purpose: Performance

Thermathene Orange 300µm DPM - Install Guide

Ref 58994. Uploaded 26 Jul 2024

Purpose: Installation

PRODUCT DATA SHEET

Thermakraft[™] ALUBAND Window Flashing Tape



TI
V
Plus

Thermakraft ONE WRAP SYSTEM

10 Products - One system
One warranty

Water Vapour
Permeable

Thermakraft[™] ALUBAND

Bituminous adhesive flexible window flashing tape

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

Aluband comes in four roll sizes:

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



Aluband

Bituminous adhesive flexible window flashing tape



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Scope of Use

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

- Installed into and around frame joinery opening over the wall underlay and exposed frame to cover both the face and edge of the opening framing as a secondary weather resistant barrier.
- Installed at joinery heads to seal flashing upstands to the wall underlay.
- To assist the overall weathertightness performance of window and door joinery installations.
- To be used in conjunction with air seals and joinery flashing systems. Installer must check for air seal product compatibility with Aluband Window Flashing Tape.
- Aluband Window Flashing Tape must be used with Thermakraft Corner Moulded Pieces (on windowsill corners).
- Situated in NZS 3604:2011 Wind Zones up to, and including 'Extra High'.

General

- Compatible with all Thermakraft building underlays.
- Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent chemical to flash off in well ventilated area. Recommended minimum 7 days.
- Thermakraft corner moulds **MUST** be used at flashing corners (see installation guide).
- Aluband is not subject to a warning or ban under section 26 of the Building Act 2004 when used as per the product scope.

Limitations

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

Compliance:

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

Durability:

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

Product Warranty

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



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



The recommendations contained in Kingspan's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to any conditions contained in the Warranty. All product dimensions and performance claims are subject to any variation caused by normal manufacturing process and tolerances. Furthermore, as the successful performance of the relevant system depends on numerous factors outside the control of Kingspan (for example quality of workmanship and design), Kingspan shall not be liable for the recommendations in that literature and the performance of the Product, including its suitability for any purpose or ability to satisfy the relevant provisions of the Building Code, regulations and standards. Literature subject to change without notification. Latest documentation can be found online. E&OE.

INSTALLATION GUIDE

Thermakraft[™] ALUBAND Window Flashing Tape



Thermakraft ONE WRAP SYSTEM

10 Products - One system
One warranty

Thermakraft[™] ALUBAND

Bituminous adhesive flexible window flashing tape.

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

Product usage

Aluband Window Flashing Tape is installed into and around frame joinery opening over the wall underlay and exposed frame to cover both the face and edge of the opening framing as a secondary weather resistant barrier. It can also be installed at joinery heads to seal flashing upstands to the wall underlay.



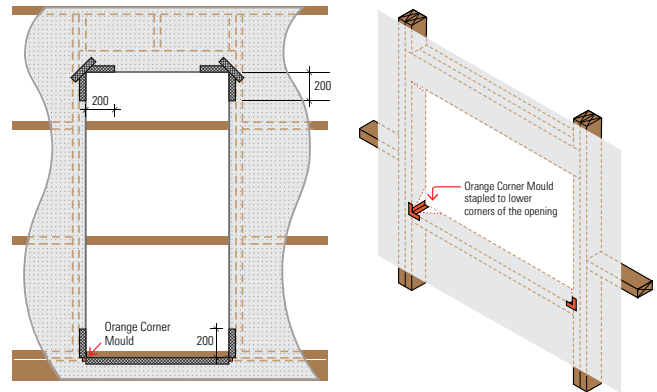
Aluband

Bituminous adhesive flexible window flashing tape



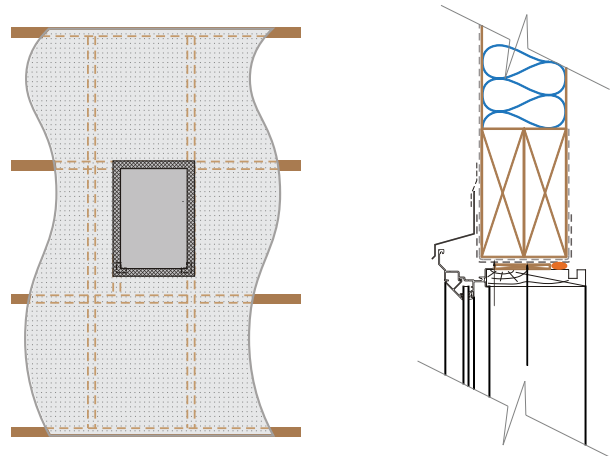
Application Method

- Cut the wall underlay/air barrier at a 45° angle away from each corner. Fold flaps tightly into the window or door opening and fix with staples on the back faces of the framing.
- Fix the Orange Corner Moulded Piece to the bottom corners by way of staples or clouts to the two jambs. Always ensure that Aluband is applied to surfaces that are clean and free of dust, contaminants, solvents, oils or waxes. Note the following: 150mm wide tape is used for 100mm wide window or door framing, and the 200mm wide tape is used for 140mm to 150mm wide reveals. (With steel framed houses use Double Sided Tape to attach the Orange Corner Moulded Piece to metal framing).
- Measure 200mm up both jambs, add 400mm to the length of the window sill and cut to suit that measurement.
- First remove the release film from the tape; align the back edge of the tape with the inside edge of the sill.
- Using an appropriate tool, firmly press the tape onto the wall underlay to ensure good adhesion and ensure the tape is fitted tightly into the jamb to sill corners.
- At the sill/jamb corners cut the tape from the external edge of the frame outwards. Fold flaps back onto the wall underlay/air barrier and press tape firmly for good adhesion.
- Proceed to fit the Window Flashing Tape to the top corners of the frame (200mm across lintel x 200mm down jamb).
- For window or door lintel to jamb junction, apply a butterfly using the 75mm wide x 100mm long Aluband. Fix at a 45° angle to the jamb with an overlap at the corner of 3mm.
- Door frames are to be treated similarly to window openings. The sill may be either a timber or a concrete floor.
- Window Flashing Tape is used to seal the up stand of the window head flashing to the building underlay. (Refer to the cladding manufacturer's details).
- Aluband must NOT be left exposed to the weather or UV for more than 42 days.



Window and door frames

- Staple orange corner piece to the bottom corner sill. Place tape 200mm up the jambs and across the full width of the sill opening. Align tape with the back of the frame opening.
- At the top corner place tape 200mm down the jamb and 200mm across the lintel. Place a strip of 75mm tape across the top corner.



Application Tips

- Always use an appropriate tool to apply firm pressure onto the tape during installation. This will ensure proper adhesion of the tape to the building underlay or other substrates.
- Install the Aluband Window Flashing above 5°C.
- Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent chemical to flash off in a well ventilated area. Recommended minimum 7 days.

Aluband

Bituminous adhesive flexible window flashing tape



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Important Information

To assist the adhesion of Aluband window flashing tape, Kingspan suggests the following two options. This is particularly relevant in the following conditions:

- In temperatures below 5°C.
- When adhering to difficult to bond substrates such as rough/uneven surfaces.
- When the tape has been lifted or moved after initial application.

Application of Heat:

- Press the window sill tape into position in the usual manner.
- Apply a gentle heat, using a heat gun on low heat to the top of the window sill tape.
- Once the adhesive starts to soften use an appropriate tool or a roller to firmly press the tape into the wall underlay ensuring good adhesion.
- Take care not to damage the foil face lining.

Difficult to Bond Substrates Surface Preparation:

- Always ensure that Aluband is applied to surfaces that are clean and free of dust, contaminants, solvents, oils or waxes.
- Application of Scotch® Super 77™ Spray Adhesive: When installing Aluband Flashing Tapes on difficult to bond substrates, Scotch® Super 77™ Spray Adhesive may be used. Ensure that the substrate is dry and free of dirt before applying the spray adhesive. Apply a light spray/coating of the spray adhesive onto the substrate. Wait for a minute to allow the spray adhesive to become tacky. When tacky to the touch apply the flashing tape in the normal manner.

Adhesives and Sealants:

- After the installation of Aluband window flashing tape, ensure that the edges do NOT come into contact with solvent based sealants or adhesives. Solvents in these products can adversely affect the adhesion or dissolve the bituminous adhesive and cause it to run.
- If the application of solvent based adhesives or sealants are necessary, cover the edges with Thermakraft joining tape or a true aluminium foil tape to form a barrier. With a true aluminium foil tape, the installer must test the bonding strength.
- The installer must check the compatibility of the Aluband window flashing tape with the sealant or adhesive product to ensure the components are fully compatible.

Handling and Storage

Aluband window flashing tape must be handled with care to prevent damage such as tearing, excessive puncture and roll deformation.

The product must be stored under cover well away from direct moisture, rainfall contact and sunlight (UV). Care should be taken not stack other materials on top of the product.



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AUSMESH
Roof Safety
Mesh

AUSMESH

Galvanised roof safety mesh

Kingspan Ausmesh is a superior quality roof underlay support and fall safety mesh for use on a variety of commercial buildings. Ausmesh is constructed of high tensile galvanised wire exceeding 450MPa and when used for roofing becomes a permanent fixture in the building.

Ausmesh comes in sizes up to 2400 wide and can be cut to length for efficiency:

1800mm x 50m	Available cut to length*	
2400mm x 50m	Available cut to length*	

* **Note:** Production time allowance may vary - contact your Kingspan Insulation Representative for more information.



Ausmesh

Galvanised roof safety mesh



Product Description

Width	Mesh Size	Wire Diameter	Tensile Strength	Wire Coating	Length	Weight
1800mm 2250mm 2400mm	300mm x 150mm	2mm galvanised	Crosswire/ Transverse Wire min 450MPa	Standard AS/NZS 4534:2006 WO2	Standard roll size 50m	1800 width = ~23.5kg per roll.
			Line Wire/ Longitudinal Wire min 500 MPa			2250 width = ~29kg per roll.
						2400 width = ~31kg per roll.

Scope of Use

- Roof safety mesh as a primary means for fall protection when working at heights in domestic, commercial and industrial building applications that use steel or timber structure.
- Suitable for the support of foil underlays (Thermakraft Thermabar 344 and Thermabar 397) in exposed roof spaces, and synthetic underlays (Thermakraft Covertek 407, 405 and 403) in enclosed roof spaces.
- May be used to support insulation. Usage intent and compatibility must be checked by the designer with the insulation manufacturer.

General

- Constructed of 2mm high tensile galvanised steel wire.
- Longitudinal wires are spaced at 150mm centres with cross wires spaced at 300mm centres forming a rectangular shape.
- Roof application only for fall protection and underlay support.
- Ausmesh is not subject to a warning or ban under section 26 of the Building Act 2004 when used as per the product scope.

Limitations

- **Only** to be used in enclosed buildings.
- Not recommended for use for exposed structures such as canopies or awnings as it will compromise the durability of the roof safety mesh.

- Not recommended for use for coastal or seashore and high internal moisture loading buildings.
- NOT to be exposed to sunlight, dust, rain or other weather elements. Recommended same day coverage by roof cladding.

Compliance

- Ausmesh complies to AS/NZS 4389:2015 standard (Roof Safety Mesh).

Durability

Meets the Performance Requirements outlined in AS/NZS 4389:2015 standard providing;

- It is not damaged.
- Is installed in accordance with instructions.
- Is installed by or under guidance of Licensed Building Practitioners.
- Is compatible with building structure materials used*.

* **Note:** Specifiers and product user must test for building structure materials' compatibility with Ausmesh before installation.

Product Warranty

Ausmesh is covered by the standard Kingspan Insulation Warranty. Refer to Kingspan Insulation Warranty statement for further details. This is available online at thermakraft.co.nz or call **0800 806 595**.

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AUSMESH

Roof Safety Mesh



AUSMESH

Galvanised roof safety mesh

Kingspan Ausmesh is a superior quality roof underlay support and fall safety mesh for use on a variety of commercial buildings. Ausmesh is constructed of high tensile galvanised wire exceeding 450MPa and when used for roofing becomes a permanent fixture in the building.

Product usage

Apart from meeting the requirements of a roof safety mesh product, Ausmesh can also be used to support Thermakraft roof underlay products.



Ausmesh

Galvanised roof safety mesh

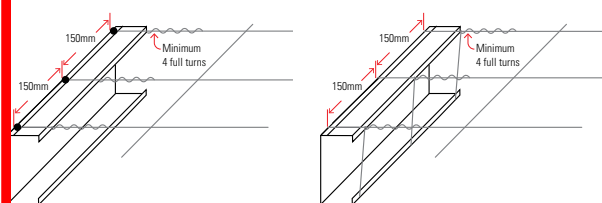


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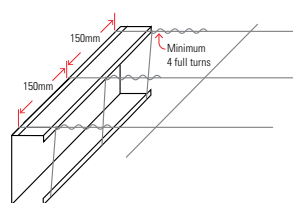
Application Method

There are strict requirements for the installation of safety mesh so that it meet its safety and durability performance. The installer must refer to AS/NZS 4389:2015 for the full installation requirements and fixing details. Below is a brief overview of the installation of Ausmesh.

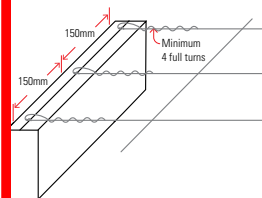
- Crosswire or transverse wire should face up and longitudinal wire should face down.
- Roof Safety Mesh shall be pulled taut to ensure only a natural sag between each purlin or roof member. This natural sag shall not be modified to create artificial sag.



Longitudinal wires passed through holes drilled in purlins



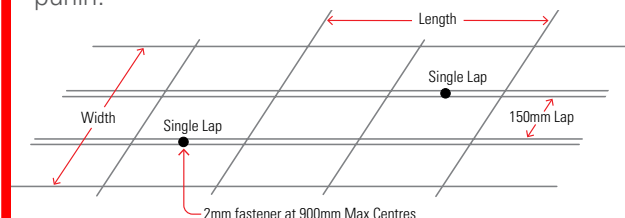
Longitudinal wires wrapped around steel or wood purlin



Longitudinal wires passed through 40mm long x 3.5 diam. staples

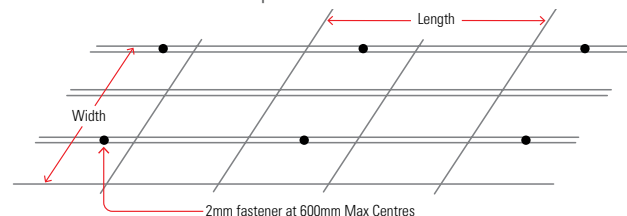
Single side laps:

- Purlins less than 1200mm - mesh to be lapped minimum 150mm.
- Purlins 1200-2199mm - mesh to be lapped min 150mm and side lap to be fastened with 2mm ring fastener at 900mm max centres between each purlin.



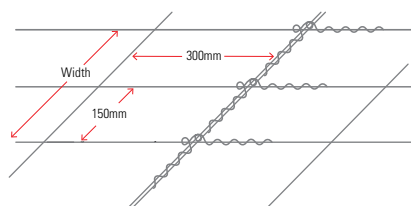
Double side laps:

- Purlins 2200mm or greater to be side lapped min 300mm and side lap to be fastened at max 600mm centres between each purlin - laps to be fastened on both sides of the lap.



End joints in wire:

TWO transverse wires are placed together. The longitudinal tail wires (approx 300mm long) are tied around each other, one being twisted four times around the main portion of the same wire, the other longitudinal wire twisted once around the main portion of the same wire then four times around the two transverse wires.



Handling and Storage

Ausmesh must be handled with care to prevent damage such as scratching the wires and deforming the roll.

The product must be stored under cover well away from direct moisture, rainfall contact and sunlight (UV). Care should be taken not stack other materials on top of the product.



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BRANZ Appraised

Appraisal No. 1029 [2023]

THERMAKRAFT AUSNET HEXAGONAL WIRE MESH

Appraisal No. 1029 [2023]

This Appraisal replaces BRANZ
Appraisal No. 1029 [2018]

BRANZ Appraisals

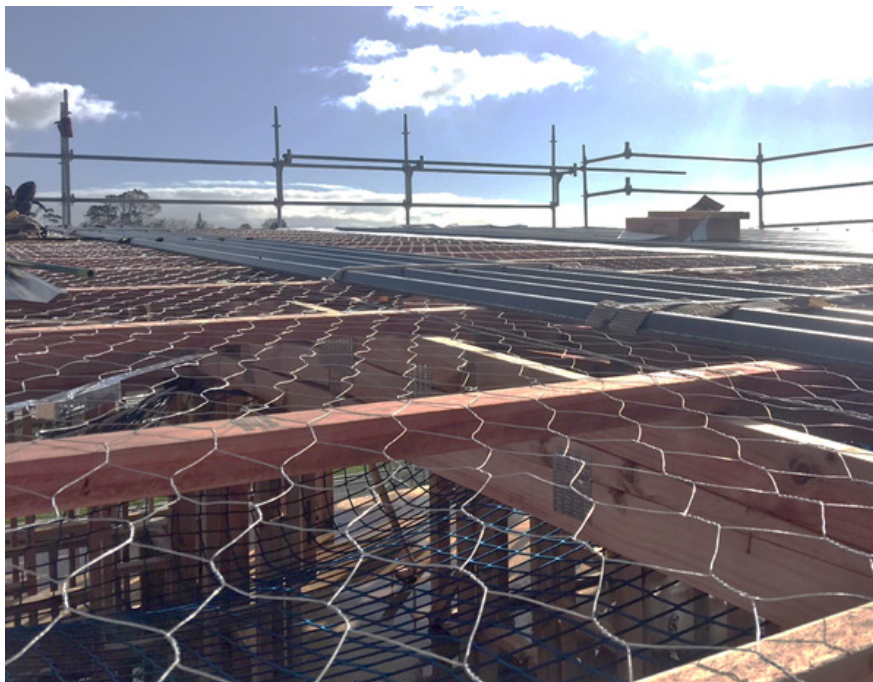
Technical Assessments of products
for building and construction.

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BRANZ

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Product

- 1.1 Thermakraft AUSNET Hexagonal Wire Mesh is a galvanised steel wire mesh for use on timber and steel framing to support roof underlays. Thermakraft AUSNET Hexagonal Wire Mesh can also be used to support foils and insulation. The mesh is manufactured from 1 mm diameter galvanised steel wire forming a nominal 50 mm and 75 mm hexagonal mesh.

Scope

- 2.1 Thermakraft AUSNET Hexagonal Wire Mesh has been appraised as a roof underlay support, and also a foil and insulation support 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 a roof pitch not less than 3°; and,
 - with profiled metal roof cladding; and,
 - with masonry tile roof cladding; and,
 - with metal tile roof cladding; and,
 - situated in NZS 3604 Wind Zones up to, and including, Extra High.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Thermakraft AUSNET Hexagonal Wire Mesh, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 [a] 50 years, B2.3.1 [b] 15 years and B2.3.2. Thermakraft AUSNET Hexagonal Wire Mesh meets these requirements. See Paragraphs 9.1-9.3.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Thermakraft AUSNET Hexagonal Wire Mesh contributes to meeting this requirement. See Paragraphs 10.1 and 10.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Thermakraft AUSNET Hexagonal Wire Mesh meets this requirement.

Technical Specification

- 4.1 Thermakraft AUSNET Hexagonal Wire Mesh is manufactured from 1 mm diameter galvanised steel wire forming a nominal 50 mm and 75 mm hexagonal mesh. Thermakraft AUSNET Hexagonal Wire Mesh is supplied in rolls 2 m wide x 25 and 50 m long.

Accessories

- 4.2 Accessories used with Thermakraft AUSNET Hexagonal Wire Mesh supplied by the building contractor:
- **Fixings for timber frame** – stainless steel staples, galvanised flat head clouts or fencing batten staples that are at least 25 mm in length.
 - **Fixings for steel frame** – Class 4 to AS 3566.2 requirements or stainless steel self-tapping screws.

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.

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
- AUSNET Product Datasheet, Version 4.0, dated September 2022.
 - AUSNET Installation Guide, Version 6.0, dated September 2022.
- 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 AUSNET Hexagonal Wire Mesh is intended for use as a roof underlay support to limit the entry of wind into the roof cavity, and to assist in the moisture management of the roof cladding system.
- 7.2 Thermakraft AUSNET Hexagonal Wire Mesh is suitable for use at roof pitches 3° and above, over timber or steel-framed roof structures. Thermakraft AUSNET Hexagonal Wire Mesh can be installed vertically or horizontally and must span no greater than 1,200 mm in one direction.
- 7.3 Thermakraft AUSNET Hexagonal Wire Mesh is suitable for use as a roof underlay support in accordance with NZBC Acceptable Solution E2/AS1 Paragraph 8.1.5.1.
- 7.4 Thermakraft AUSNET Hexagonal Wire Mesh may also be suitable for use as a roof underlay support for curved roof assemblies. Curved roof assemblies are not covered by the NZBC Acceptable Solution E2/AS1 and therefore are the subject of specific design and are outside the scope of this Appraisal.
- 7.5 Thermakraft AUSNET Hexagonal Wire Mesh is suitable for use as a support for foil pliable membranes and bulk thermal insulation in accordance with their manufacturer's instructions.
- 7.6 Thermakraft AUSNET Hexagonal Wire Mesh is not suitable for, and must not be used as a safety mesh.

Structure

- 8.1 Thermakraft AUSNET Hexagonal Wire Mesh is suitable for use in all Wind Zones of NZS 3604 up to, and including, Extra High.

Durability

- 9.1 Thermakraft AUSNET Hexagonal Wire Mesh meets code compliance with NZBC Clause B2.3.1 (a), not less than 50 years for roof underlay support used where the roof cladding durability requirement or expected serviceable life is not less than 50 years, e.g. under masonry roof tile cladding, and code compliance with NZBC Clause B2.3.1 (b), 15 years for roof underlays used where the roof cladding durability requirement is 15 years.

Serviceable Life

- 9.2 Provided the roof cladding is maintained in accordance with the cladding manufacturer's instructions and the roof cladding remains weather resistant, Thermakraft AUSNET Hexagonal Wire Mesh is expected to have a serviceable life equal to that of the roof cladding.
- 9.3 For applications in commercial and industrial buildings where the wire mesh is exposed, the serviceable life will be dependent on the interior environment.

External Moisture

- 10.1 Thermakraft AUSNET Hexagonal Wire Mesh is appraised for use under roof underlays and claddings that meet the requirements of the NZBC, such as those covered by NZBC Acceptable Solution E2/AS1.
- 10.2 Thermakraft AUSNET Hexagonal Wire Mesh, 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

- 11.1 All design and building work must be carried out in accordance with the Thermakraft AUSNET Hexagonal Wire Mesh Technical Literature and this Appraisal by competent and experienced tradespersons conversant with Thermakraft AUSNET Hexagonal Wire Mesh. 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

Underlay Installation

- 12.1 When used as an underlay support, Thermakraft AUSNET Hexagonal Wire Mesh must be run continuously across roof rafters, top truss chords or across purlins and be fixed in place. Joining between cut lengths of mesh along roof rafters, truss chords or purlins must NOT be carried out as sharp cut wire edges can pierce or puncture the roof underlay.
- 12.2 The installation direction of Thermakraft AUSNET Hexagonal Wire Mesh must be the same as the underlay direction. For example, if the underlay is installed from the top point of the roof to the lowest point (vertically) then the AUSNET hexagonal mesh will need to follow the same direction.
- 12.3 When used as an underlay support for profiled metal cladding systems, Thermakraft AUSNET Hexagonal Wire Mesh is located over the purlins.
- 12.4 When used as an underlay support for masonry or metal tile cladding systems, Thermakraft AUSNET Hexagonal Wire Mesh is located under the tile battens, over the rafter or roof truss.
- 12.5 When used as a support for foil or insulation, the placement of Thermakraft AUSNET Hexagonal Wire Mesh is in accordance with the instructions of the foil or insulation supplier.
- 12.6 To fix Thermakraft AUSNET Hexagonal Wire Mesh onto timber framing, stainless steel staples, galvanised flat head clouts or fencing batten staples that are at least 25 mm long in length are used.
- 12.7 To fix Thermakraft AUSNET Hexagonal Wire Mesh onto steel framing, Class 4 or stainless steel self-tapping screws are used. Note, the self-tapping screw must project through the steel frame by at least 10 mm.

- 12.8 Adequate fixing must be used to fully support the mesh. The fixing location must NOT be directly through the mesh's wire twist points as this can result in damaging the steel wire.

Inspections

- 12.9 The Technical Literature must be referred to during the inspection of Thermakraft AUSNET Hexagonal Wire Mesh installations.

Basis of Appraisal

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

Tests

- 13.1 Thermakraft AUSNET Hexagonal Wire Mesh has been tested in accordance with Appendix E of AS/NZS 4534 to determine the coating mass for the steel wire in grams per square metre.

Other Investigations

- 14.1 A durability opinion has been provided by BRANZ technical experts.
- 14.2 The practicability of installation of Thermakraft AUSNET Hexagonal Wire Mesh has been assessed by BRANZ and found to be satisfactory.
- 14.3 The Technical Literature, including installation instructions, has been examined by BRANZ and found to be satisfactory.

Quality

- 15.1 The manufacture of Thermakraft AUSNET Hexagonal Wire Mesh has been examined by BRANZ, the details of the methods adopted for quality control and the quality of the materials used, have been obtained and found to be satisfactory.
- 15.2 The quality of supply to the market is the responsibility of Kingspan Insulation NZ Limited.
- 15.3 Building designers are responsible for the design of the building, and for the incorporation of the wire mesh into their design in accordance with the instructions of Kingspan Insulation NZ Limited.
- 15.4 Quality of installation is the responsibility of the installer in accordance with the instructions of Kingspan Insulation NZ Limited.

Sources of Information

- AS/NZS 3566.2:2002 Self-drilling screws for the building and construction industries Part 2: Corrosion resistance requirements.
- AS/NZS 4534:2006 Zinc and zinc/aluminium-alloy coatings on steel wire.
- NZS 3604:2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of Amendments – Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



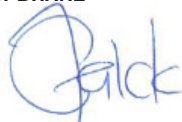
In the opinion of BRANZ, **Thermakraft AUSNET Hexagonal Wire Mesh** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

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 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 **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:

14 September 2023

BRANZ Appraised
Appraisal No. 1104 [2020]

THERMATHENE ORANGE CONCRETE UNDERLAY

Appraisal No. 1104 [2020]
Amended 06 September 2024

BRANZ Appraisals

Technical Assessments of products
for building and construction.



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Thermakraft

Product

- 1.1 Thermathene Orange Concrete Underlay is a polythene sheet for use as a damp-proof membrane [DPM] under floor slabs.

Scope

- 2.1 Thermathene Orange Concrete Underlay has been appraised for use as a DPM under concrete slab-on-ground floors complying with NZS 3604 or NZS 4229.
- 2.2 Thermathene Orange Concrete Underlay has also been appraised for use as a DPM on buildings subject to specific design within the following scope:
 - where the DPM is laid on a granular base prepared to not damage the DPM; and,
 - where the DPM is adequately protected against damage in service.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Thermathene Orange Concrete Underlay, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 [a] not less than 50 years. Thermathene Orange Concrete Underlay meets this requirement. See Paragraph 8.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.3. Thermathene Orange Concrete Underlay meets this requirement. See Paragraphs 9.1-9.3.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Thermathene Orange Concrete Underlay meets this requirement.

Technical Specification

4.1 Materials supplied by Kingspan Insulation NZ Limited are as follows:

- **Thermathene Orange Concrete Underlay** – a 300-micron thick, polythene sheet used as a DPM membrane. It is supplied in rolls 4 m wide x 25 m long.
- **Sealing Tapes** – Kingspan Insulation NZ Limited recommend the use of Thermakraft General Purpose Tape, Aluband Window Flashing Tape (bituminous) or Thermakraft Premium Joining Tape for sealing laps between Thermathene Orange Concrete Underlay sheets, sealing around penetrations and for repairing small tears.

Handling and Storage

5.1 Handling and storage of all materials whether on-site or off-site is under the control of the installer. Thermathene Orange Concrete Underlay must be handled with care to prevent damage. The product must be stored under cover well away from direct moisture, rainfall contact and sunlight (UV). Care should be taken to not stack other materials on top of the product.

Technical Literature

6.1 This Appraisal must be read in conjunction with:

- Product Data Sheet Thermathene Orange, Issue 5.0, dated September 2022
- Installation Guide Thermathene Orange, Issue 4.0, dated September 2022

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

Concrete Substrate

Concrete Slab-on-Ground

7.1 The DPM must be laid on a minimum of 75 mm thickness of suitable clean and compacted fill (granular base) for slab-on-ground applications. The structural concrete slab placed over the membrane must be a minimum of 100 mm thick.

Durability

Serviceable Life

- 8.1 Thermathene Orange Concrete Underlay is a suitable DPM material (polyethylene sheet), and is expected to have a serviceable life of at least 50 years provided it is installed and maintained in accordance with this Appraisal and is continually protected from sunlight and ultraviolet (UV) radiation.
- 8.2 Thermathene Orange Concrete Underlay may be exposed for a maximum period of 30 days before the concrete slab is placed.

External Moisture

- 9.1 Thermathene Orange Concrete Underlay, when installed in accordance with this Appraisal and the Technical Literature, will prevent moisture from being transmitted through the concrete slab-on-ground. The DPM has a vapour flow resistance of not less than 90 MNs/g.
- 9.2 Thermathene Orange Concrete Underlay meets the requirements of:
- NASH Building Envelope Solutions, Table 23; and,
 - NASH Standard Part 2, Paragraph 4.2 (which cites NZS 3604 and NZS 4229); and,
 - NZBC Acceptable Solution E2/AS1, Table 23; and,
 - NZS 3604 Clause 7.5.4.2; and,
 - NZS 4229 Clause 7.4.2.

- 9.3 Building designers must ensure junctions with other membranes, such as at the floor/wall junction, form a waterproof joint. These junctions have not been assessed and are outside the scope of this Appraisal.

Installation Information

Installation Skill Level Requirement

- 10.1 All design and building work must be carried out in accordance with the Thermathene Orange Concrete Underlay Technical Literature and this Appraisal by competent and experienced tradespersons conversant with installing DPMs. 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

Substrate Preparation

- 11.1 All surfaces must be checked to ensure they are clean, smooth and free from sharp edges, loose or foreign materials or other material that may damage the DPM.

Membrane Installation

- 11.2 The DPM must be installed in accordance with the Technical Literature. Sheet edges and ends must be overlapped by 150 mm minimum and taped with the Thermakraft General Purpose Tape or Aluband Window Flashing Tape. The DPM must be inspected for damage and any damage must be repaired. The DPM must not be exposed to UV radiation for any longer than 30 days before the structural concrete slab is placed.

Inspections

- 11.3 The Technical Literature must be referred to during the inspection of the DPM installation.

Basis of Appraisal

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

Tests

- 12.1 Thermathene Orange Concrete Underlay has been tested for tensile strength and elongation, tear propagation, puncture resistance before and after accelerated weathering and water vapour permeability.

Other Investigations

- 13.1 A durability opinion has been given by BRANZ technical experts.
13.2 The practicability of installation has been assessed by BRANZ and found to be satisfactory.
13.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 14.1 The manufacture of Thermathene Orange Concrete Underlay has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory. BRANZ undertakes an ongoing review of product quality on an inwards goods process.
14.2 The quality of material supplied to the market is the responsibility of Kingspan Insulation NZ Limited.
14.3 Quality of installation on-site is the responsibility of the building contractor.
14.4 Designers are responsible for the building design, and for the incorporation of the concrete underlay into their design in accordance with the instructions of Kingspan Insulation NZ Limited.



Sources of Information

- NASH Building Envelope Solutions: 2019 Light steel-framed buildings.
- NASH Standard Part Two: 2019 Light steel-framed buildings.
- NZS 3101:2006 Concrete structures standard.
- NZS 3604:2011 Timber-framed buildings.
- NZS 4229:2013 Concrete masonry buildings not requiring specific engineering design.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 06 September 2024

This Appraisal has been amended to update the Appraisal Holder and the Technical Literature.



In the opinion of BRANZ, **Thermathene Orange Concrete 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;
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 - 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



Chelydra Percy

Chief Executive

Date of Issue:

19 May 2020

BRANZ Appraised
Appraisal No. 329 [2022]

THERMAKRAFT™ SUPERCOURSE 500 DAMP-PROOF COURSE AND CONCEALED FLASHING

Appraisal No. 329 [2022]

This Appraisal replaces BRANZ

Appraisal No. 329 [2016]

Amended 29 August 2023

BRANZ Appraisals

Technical Assessments of products
for building and construction.

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Product

- 1.1 Thermakraft™ Supercourse 500 is a single layer black polyethylene film, embossed on both faces to produce a small diamond pattern. It is for use as a general damp-proof course (DPC), and also as a concealed flashing for masonry veneer cladding.

Scope

- 2.1 Thermakraft™ Supercourse 500 has been appraised for use as a DPC for separating timber, wood-based products and metal from concrete, masonry or clay brick in accordance with NZS 3604.
- 2.2 Thermakraft™ Supercourse 500 has also been appraised for use as a DPC and flashing in masonry veneer walls in accordance with NZBC Acceptable Solution E2/AS1.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Thermakraft™ Supercourse 500 Damp-Proof Course and Concealed Flashing, 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 and B2.3.2. Thermakraft™ Supercourse 500 meets these requirements. See Paragraph 8.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2 and E2.3.3. When used as a flashing as part of a masonry veneer cladding system, Thermakraft™ Supercourse 500 contributes to meeting the requirements of E2.3.2. When used as a DPC, Thermakraft™ Supercourse 500 meets the requirements of E2.3.3. See Paragraphs 11.1 and 11.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Thermakraft™ Supercourse 500 meets this requirement.

Technical Specification

- 4.1 Thermakraft™ Supercourse 500 is a 0.5 mm thick, extruded polyethylene film. It consists of a single layer of black polyethylene, embossed on both faces to produce a small diamond pattern. The total thickness of the product after embossing is 0.75 mm. Thermakraft™ Supercourse 500 is supplied in rolls 30 m long and is available in widths of 50, 75, 90, 100, 150, 200, 250, 300, and 500 mm. Other widths are available upon request.
- 4.2 Each roll is labelled with the product name, dimensions, standards reference and manufacturer's information.

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 and must be stored under cover, in clean, dry conditions.

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
 - Installation Guide, Thermakraft™ Supercourse 500, Issue 4.0, dated September 2022.
 - Product Data Sheet, Thermakraft™ Supercourse 500, Issue 7.0, dated August 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.

Design Information

General

- 7.1 Thermakraft™ Supercourse 500 exceeds the vapour resistance requirements of NZBC Acceptable Solution E2/AS1, Table 23 for DPCs and is a suitable moisture impermeable alternative to bituminous DPCs.
- 7.2 Thermakraft™ Supercourse 500 is intended for use as a DPC separating timber, wood-based products and metal from concrete or masonry elements, or where required, timber jack studs or bearers from concrete or timber piles, e.g. where required by NZS 3604, Paragraph 2.3.3 and Figure 6.3. When used as a DPC, the roll width selected must enable the Thermakraft™ Supercourse 500 to extend at least 6 mm beyond each face of the timber in accordance with the requirements of NZS 3604, Paragraph 2.3.3 b].
- 7.3 Thermakraft™ Supercourse 500 is also intended for use as a flashing material with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.2.4 and also as a DPC in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.2.5.

Timber Treatment

- 7.4 Thermakraft™ Supercourse 500, when used as a DPC or flashing, is suitable for use in contact with timber treated with light organic solvent preservative (LOSP) or water-based timber preservatives. The solvent from the timber treatment must be allowed to evaporate [generally at least one week] prior to the installation of Thermakraft™ Supercourse 500.

Exposure Zone Fixing Selection

- 7.5 Where Thermakraft™ Supercourse 500 is used as a flashing behind masonry veneer, fixings shall be hot-dip galvanised clouts in NZS 3604 Exposure Zones B and C, and stainless steel clouts in Exposure Zone D.

Durability

Serviceable Life

- 8.1 Thermakraft™ Supercourse 500 is expected to have a serviceable life in excess of 50 years when it is installed in accordance with the requirements of this Appraisal and the Technical Literature, provided it is not exposed to the weather or ultraviolet (UV) light for a total of more than 30 days, and is never exposed to chemicals or solvents that will degrade polyethylene.

Control of Internal Fire and Smoke Spread

- 9.1 DPCs and flashings are exempt from the surface finish requirements of NZBC Acceptable Solutions C/AS1 and C/AS2 by NZBC Acceptable Solution C/AS1, Paragraph 4.3 e], and NZBC Acceptable Solution C/AS2, Paragraph 4.17.6 e].

Prevention of Fire Occurring

- 10.1 Separation or protection must be provided to Thermakraft™ Supercourse 500 from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Verification Method C/VM1 and Acceptable Solution C/AS1, and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

- 11.1 Thermakraft™ Supercourse 500, when installed as a flashing in accordance with the Technical Literature and this Appraisal, will assist in the masonry veneer cladding system meeting the performance requirements of NZBC Clause E2.3.2.
- 11.2 Thermakraft™ Supercourse 500, when used as a DPC in accordance with the Technical Literature and this Appraisal, prevents walls, floors and structural elements in contact with the ground from absorbing or transmitting moisture in quantities that could cause undue dampness or damage to building elements to meet the performance requirements of NZBC Clause E2.3.3.

Installation Information

Installation Skill Level Requirement

- 12.1 All design and building work must be carried out in accordance with the Thermakraft™ Supercourse 500 Technical Literature and this Appraisal by competent and experienced tradespersons conversant with DPC and flashing installation. 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.

Installation

General

- 13.1 Rolls of Thermakraft™ Supercourse 500 may be cut to length with a sharp knife.

DPC Installation

- 13.2 The surfaces to be separated must be smooth and flat, free from projections such as small stones or sharp ridges that may puncture the membrane when pressure is applied.
- 13.3 When used to separate timber and wood-based products from concrete or masonry, Thermakraft™ Supercourse 500 should be temporarily held in place with small hot-dip galvanised clouts or zinc plated staples. The strip of DPC must be wide enough to fully protect the width of the material in contact with the concrete or masonry. Refer also to Paragraph 7.2.
- 13.4 When used under timber plates fixed over concrete floor slabs and foundation walls, a small slit should be made in the material before pushing down over the bolts or fixings. Alternatively, a small hole can be formed by gently tapping the product resting on top of the bolt until a puncture is formed.

Flashing Installation

- 13.5 Thermakraft™ Supercourse 500 must be fixed in place to framing members at maximum 300 mm centres with small hot-dip galvanised clouts.
- 13.6 Horizontal and vertical joints must be no less than 75 mm wide, with the direction of the lap ensuring that water is shed to the outer face of the flashing.
- 13.7 At the sill/jamb junction, the jamb flashing must overlap the sill flashing.

Basis of Appraisal

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

Tests

- 14.1 The following tests have been carried out on Thermakraft™ Supercourse 500: water permeability, thickness, mass per unit area, pigment, impact resistance, and labelling, all in accordance with AS/NZS 2904 and AS/NZS 4347. The test results have been reviewed by BRANZ experts and found to be satisfactory.

Other Investigations

- 15.1 Durability and weathertightness opinions were given by BRANZ technical experts.
- 15.2 Site inspections have been carried out by BRANZ to assess the practicability of installation.
- 15.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 16.1 The manufacture of Thermakraft™ Supercourse 500 has not been examined by BRANZ, but details of the quality and composition of the materials used were obtained and found to be satisfactory. BRANZ undertakes an ongoing review of product quality on an inwards goods basis.
- 16.2 The quality of supply to the market is the responsibility of Kingspan Insulation NZ Limited.
- 16.3 Building designers are responsible for the design of the building, and for the incorporation of Thermakraft™ Supercourse 500 into their design in accordance with the instructions of Kingspan Insulation NZ Limited.
- 16.4 Quality of installation is the responsibility of the installer in accordance with the instructions of Kingspan Insulation NZ Limited.

Sources of Information

- AS/NZS 2904:1995 Damp-proof courses and flashings.
- AS/NZS 4347:1995 Damp-proof courses and flashings - Methods of test.
- NZS 3604:2011 Timber-framed buildings.
- NZS 4229:2013 Concrete masonry buildings not requiring specific engineering design.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No.1, dated 29 August 2023

This Appraisal has been amended to update the Appraisal Holder, to omit roll widths of 140, 400 and 1,000 mm, and to update the technical literature.



In the opinion of BRANZ, **Thermakraft™ Supercourse 500 Damp-Proof Course and Concealed Flashing** 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

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5. BRANZ provides no certification, guarantee, indemnity or warranty, to **Kingspan Insulation NZ Limited** or any third party.

For BRANZ



Chelydra Percy

Chief Executive

Date of Issue:

09 February 2022

BRANZ Appraised
Appraisal No. 695 [2023]

WATERGATE PLUS WALL UNDERLAY

Appraisal No. 695 [2023]

This Appraisal replaces BRANZ
Appraisal No. 695 [2017]
Amended 14 May 2024

BRANZ Appraisals

Technical Assessments of products
for building and construction.



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Product

- 1.1 Watergate Plus is a fire-retardant, flexible synthetic wall underlay for use under direct fixed and non-direct fixed wall cladding on timber and steel-framed buildings. The product is manufactured from coated, non-woven polyolefin and is coloured white.

Scope

Flexible Wall Underlay

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

Use over Rigid Wall Underlay

- 2.2 Watergate Plus has been appraised for use as a flexible wall underlay over rigid wall underlays on 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 absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; and,
 - 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, Extra High.

Specific Design

- 2.3 Watergate Plus 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 Watergate Plus into their design in accordance with the declared properties and the instructions of Kingspan Insulation NZ Limited.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Watergate Plus 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. Watergate Plus 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). Watergate Plus Wall Underlay meets this requirement. See Paragraph 10.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the cladding system, Watergate Plus Wall Underlay will contribute to meeting this requirement. See Paragraphs 12.1 and 12.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Watergate Plus Wall Underlay meets this requirement.

Technical Specification

- 4.1 Watergate Plus is a white, 105 g/m² non-woven, microporous polyolefin fabric underlay.
- 4.2 The product is supplied in various sizes, refer to Table 1. The product is printed with the Watergate Plus logo repeated along the length of the roll and can also be co-branded with custom printing. The rolls are wrapped in clear polythene film.

Table 1: Roll Dimensions

Width (mm)	Length (m)	Coverage (m ²)
1,370	18.5	25
1,370	37	50
1,370	73	100
2,740	18.5	50
2,740	36.5	100

Accessories

- 4.3 Accessories used with Watergate Plus, which are supplied by the installer are:
- **Fixings** - 6-8 mm staples, large head clouts minimum 20 mm long, self-drilling screws, proprietary underlay fixings, double-sided tape (for steel framing) or other temporary fixings to attach the wall 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 installed 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.

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
- Installation Guide - Watergate Plus, Issue 6.0, April 2024.
 - Product Data Sheet - Watergate Plus, Issue 11.0, April 2024.
- 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

- 7.1 Watergate Plus is intended for use as an alternative to conventional building papers which are fixed over timber or steel-framed walls in order to limit the entry of wind into building cavities, and to act as a secondary barrier to wind-driven rain. Refer to Table 2 for material properties.
- 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 building is closed in. Hence, the building must be closed-in and made weatherproof before moisture sensitive materials such as wall or ceiling linings and insulation materials are installed.
- 7.3 Watergate Plus must not be exposed to the weather or ultraviolet (UV) light for a total of more than 90 days before being covered by the wall cladding.
- 7.4 Watergate Plus is suitable for use as an air barrier where walls are not lined, such as attic spaces at gable ends, in accordance with NZBC Acceptable Solution E2/AS1 or NASH Building Envelope Solutions, Paragraph 9.1.4 [c].
- 7.5 In cavity installations where the cavity battens are installed at greater than 450 mm centres, the 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, or vertical cavity battens or thermal break sheathing [steel framing only].

Table 2: Material Properties

NZS 2295 Property	Property Performance Requirement	Actual Property Performance
Absorbency	$\geq 100 \text{ g/m}^2$	Pass
Vapour Resistance	$\leq 7 \text{ MN s/g}$	Pass
Water Resistance	$\geq 20 \text{ mm}$	Pass
pH of Extract	≥ 6 and ≤ 9	Pass
Shrinkage	$\leq 0.5\%$	Pass
Mechanical	Edge tear and tensile strength	Edge tear [Average]: Machine direction = 77 N Cross direction = 56 N Tensile strength [Average]: Machine direction = 2.5 kN/m Cross direction = 1.8 kN/m
Air Barrier	Air resistance: $\geq 0.1 \text{ MN s/m}^3$	Pass. Watergate Plus can be used as an air barrier.

Claddings

- 7.6 Watergate Plus 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.

Stucco Plaster

- 7.7 Watergate Plus is suitable for use as a non-rigid backing material for stucco plaster in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.3.5.1 for timber framing or NASH Building Envelope Solutions, Paragraph 9.3.5.1 for steel framing. The underlay must be supported with 75 mm galvanised mesh or plastic tape or wire at 150 mm centres run across the cavity battens to limit deflection to a maximum of 5 mm.
- 7.8 Watergate Plus may also be used as a slip layer over rigid backings for stucco plaster in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.3.3.1 b) for timber framing or NASH Building Envelope Solutions, Paragraph 9.3.3.1 b) for steel framing.

Structure

- 8.1 Watergate Plus 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.

Durability

- 9.1 Watergate Plus meets code compliance with NZBC Clause B2.3.1 [a] not less than 50 years for wall underlays used 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 for wall underlays used where the cladding durability requirement is 15 years.

Serviceable Life

- 9.2 Provided it is not exposed to the weather or UV light for a total of more than 90 days, and provided the exterior cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather-resistant, Watergate Plus is expected to have a serviceable life equal to that of the cladding.

Control of Internal Fire and Smoke Spread

- 10.1 Watergate Plus has an AS 1530 Part 2 flammability index of not greater than 5 and therefore meets the requirements of NZBC Acceptable Solution C/AS2, Paragraph 4.17.8 b), for the surface finish requirements of suspended flexible fabric used as an underlay to exterior cladding that is exposed to view in occupied spaces.

Prevention of Fire Occurring

- 11.1 Separation or protection must be provided to Watergate Plus 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 Watergate Plus must be used behind 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 Watergate Plus, when installed in accordance with the Technical Literature and this Appraisal will assist in the total cladding systems 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 Watergate Plus Wall Underlay Technical Literature and this Appraisal by competent and experienced tradespersons conversant with wall 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 License Class.

Underlay Installation

- 14.1 Watergate Plus must be fixed to all framing members at maximum 300 mm centres with clouts, staples, self-drilling screws or proprietary underlay fixings. For steel framing, double-sided tape may be used which is applied to each stud in continuous strips. The underlay must be pulled taut over the framing before fixing.
- 14.2 Watergate Plus must be run horizontally and must extend from the upper-side of the top plate to the under-side 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.
- 14.3 The 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.
- 14.4 Watergate Plus 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.
- 14.5 When fixing the product in windy conditions, care must be taken due to the large sail area created by wide roll widths.
- 14.6 Any damaged areas of Watergate Plus, 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.

Inspections

- 14.7 The Technical Literature must be referred to during the inspection of Watergate Plus 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 Watergate Plus 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, pH of extract in accordance with AS/NZS 1301.421s and air resistance to BS 6538.3. A range of these tests were completed before and after Watergate Plus was exposed to UV light.
- 15.2 The flammability index of Watergate Plus has been evaluated in accordance with AS/NZS 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 Watergate Plus in direct contact with metal wall cladding has been completed by BRANZ.
- 16.3 The practicability of installation of Watergate Plus has been assessed by BRANZ and found to be satisfactory.
- 16.4 The Technical Literature, including installation instructions, has been examined by BRANZ and found to be satisfactory.

Quality

- 17.1 The manufacture of Watergate Plus has not been examined by BRANZ, but details of the methods adopted for quality control and the quality of the materials used, have been obtained 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 wall 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 4201.1:1994 Pliable building membranes and underlays - Methods of test - Resistance to dry delamination.
- AS/NZS 4201.2:1994 Pliable building membranes and underlays - Methods of test - Resistance to wet delamination.
- 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.
- NZS 2295:2006 Pliable, permeable building underlays.
- NZS 3604:2011 Timber-framed buildings.
- NASH Building Envelope Solutions: 2019 Light steel-framed buildings.
- NASH Standard Part Two: 2019 Light Steel Framed Buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 14 May 2024

This Appraisal has been amended to update the Technical Literature.



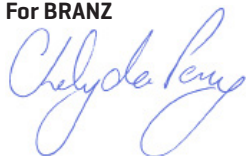
In the opinion of BRANZ, **Watergate Plus Wall Underlay** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

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 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 **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



Chelydra Percy

Chief Executive

Date of Issue:

08 February 2023

BRANZ Appraised
Appraisal No. 878 [2025]

THERMAKRAFT ALUBAND WINDOW FLASHING TAPE

Appraisal No. 878 [2025]

This Appraisal replaces BRANZ
Appraisal No. 878 [2019]

BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 Thermakraft Aluband Window Flashing Tape, in conjunction with the Thermakraft Corner Moulded Piece, is a flexible flashing tape system for use around framed joinery openings as a secondary weather resistant barrier.
- 1.2 The system is installed into and around the framed joinery opening over the wall underlay and exposed frame to cover both the face and edge of the opening framing. Thermakraft Aluband Window Flashing Tape is also used at joinery heads to seal flashing upstands to the wall underlay.

Scope

Timber Framing

- 2.1 Thermakraft Aluband Window Flashing Tape has been appraised for use as a flexible flashing tape with external wall cladding for timber-framed buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 for timber-framed buildings; and
 - with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
 - situated in NZS 3604 Wind Zones up to, and including, Extra High.

Steel Framing

- 2.2 Thermakraft Aluband Window Flashing Tape has also been appraised for use as a flexible flashing tape with external wall cladding for steel-framed buildings within the following scope:
 - the scope limitations of NASH Building Envelope Solutions Paragraph 1.1 for steel-framed buildings; and,
 - with a risk score of 0-20, calculated in accordance with NASH Building Envelope Solutions; and,
 - situated in NASH Standard Part 2 Wind Zones up to, and including, Extra High.

Specific Design

- 2.3 Thermakraft Aluband Window Flashing Tape has also been appraised for weathertightness when used on buildings subject to specific design up to an ultimate limit state [ULS] wind pressure of 2.5 kPa with wall cladding systems complying with NZBC Acceptable Solution E2/AS1 or a valid BRANZ Appraisal that specifies a flexible flashing system; and, with flexible wall underlays compatible with the flashing tape and complying with the NZBC; and, situated in NZS 3604 Wind Zones up to, and including, Extra High [refer to Paragraph 7.3].

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Thermakraft Aluband Window Flashing Tape, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 [b] 15 years and B2.3.2. Thermakraft Aluband Window Flashing Tape meets these requirements. See Paragraphs 8.1 and 8.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Thermakraft Aluband Window Flashing Tape contributes to meeting this requirement. See Paragraphs 7.1-7.4 and 11.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Thermakraft Aluband Window Flashing Tape meets this requirement.

Technical Specification

- 4.1 System components and accessories supplied by Kingspan Insulation NZ Ltd are:
- **Thermakraft Aluband Window Flashing Tape** is a polymeric faced, bituminous modified, self-adhesive tape with a release backing paper. The tape is supplied in rolls 200, 150 and 75 mm wide x 25 m long and 150 mm wide x 10 m long. The rolls are wrapped in clear polythene film.
 - **The Thermakraft Corner Moulded Piece** is made from inert polyethylene and is coloured orange. It is used in conjunction with the Thermakraft Aluband Window Flashing Tape and building underlays as part of the Thermakraft Aluband Window Flashing Tape system.
- 4.2 Accessories used with the system which are supplied by the installer are:
- **Thermakraft Corner Moulded Piece Fixings** - staples, clouts or other temporary fixings to attach the corner mould to the framing prior to the installation of the Thermakraft Aluband Window Flashing Tape.
 - **Scotch® Super 77™ Multipurpose Adhesive** - a clear spray primer.

Handling and Storage

- 5.1 Handling and storage of all materials supplied by Kingspan Insulation NZ Ltd, whether on-site or off-site, is under the control of the installer. Thermakraft Aluband Window Flashing Tape and accessories must be protected from damage and weather. Rolls must be stored under cover, in clean, dry conditions away from direct exposure to sunlight.

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
- Installation Guide - Thermakraft™ ALUBAND, Issue 6.0, August 2024.
 - Product Data Sheet - Thermakraft™ ALUBAND, Issue 7.0, August 2024.
- 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 Aluband Window Flashing Tape meets the requirements of AC 148:2001 which is an alternative solution to the version of AC 148 referenced by NZBC Acceptable Solution E2/AS1 Paragraph 9.1.5 b) and NASH Building Envelope Solutions Paragraph 9.1.5 b). The installation method for Thermakraft Aluband Window Flashing Tape is an alternative solution to the installation method shown within NZBC Acceptable Solution E2/AS1, Figures 72A and 72B and NASH Building Envelope Solutions, Figures 72A and 72B.
- 7.2 The use of flexible flashing systems around window and door joinery openings is critical to assist the overall weathertightness performance of window and door joinery installations.

- 7.3 Thermakraft Aluband Window Flashing Tape is suitable for use over flexible wall underlays compatible with the flashing tape in NZS 3604 Wind Zones up to, and including, Extra High. In the Extra High Wind Zone, the flexible underlay must be installed over a rigid underlay complying with NZBC Acceptable Solution E2/AS1, Table 23 or NASH Building Envelope Solutions, Table 23.
- 7.4 Thermakraft Aluband Window Flashing Tape is designed to prevent air leakage and water penetration around window and door openings at framing junctions [e.g. at the sill trimmer and opening stud junction], and to keep any water that gets past the cladding, or through the joinery, from direct contact with the framing timber.
- 7.5 Thermakraft Aluband Window Flashing Tape is not designed to overcome poor detailing and workmanship of the window or door joinery installation. The system must not be considered in isolation, but be considered as part of the wall cladding system. Thermakraft Aluband Window Flashing Tape is designed to be used in conjunction with air seals and joinery flashing systems, not as a substitute.
- 7.6 When Thermakraft Aluband Window Flashing Tape is used in conjunction with LOSP [light organic solvent preservative] treated timber, the solvent from the timber treatment must be allowed to evaporate [generally at least one week] prior to the installation of the system.

Durability

- 8.1 Assessment of durability to meet the NZBC is based on difficulty of access and replacement, and the ability to detect failure of Thermakraft Aluband Window Flashing Tape both during normal use and maintenance of the building.

Serviceable Life

- 8.2 Provided it is not exposed to the weather or ultraviolet (UV) light for a total of more than 42 days, and provided the exterior cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather resistant, Thermakraft Aluband Window Flashing Tape is expected to have a serviceable life equal to that of the cladding.

Maintenance

- 9.1 No maintenance is required for Thermakraft Aluband Window Flashing Tape. Regular checks, at least annually, must be made of the junctions between the joinery and wall cladding to ensure that they are maintained weathertight and that the primary means of weather resistance for the junction e.g. flashing, sealant, etc. continues to perform its function, to ensure that water will not penetrate the cladding.

Prevention of Fire Occurring

- 10.1 Separation or protection must be provided to Thermakraft Aluband Window Flashing Tape 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

- 11.1 Where a cladding manufacturer specifies the use of generic flashing tapes around window and door joinery openings at framing junctions as part of their system, or they specify the use of flexible flashing tapes that comply with NZBC E2/AS1, Paragraph 9.1.5 b) or NASH Building Envelope Solutions Paragraph 9.1.5 b), Thermakraft Aluband Window Flashing Tape may be used.

Installation Information

Installation Skill Level Requirement

- 12.1 All design and building work must be carried out in accordance with the Thermakraft Aluband Window Flashing Tape Technical Literature and this Appraisal by competent and experienced tradespeople conversant with flashing tapes. Where the work involves Restricted Building Work [RBW] this must be completed by, or under the supervision of, a Licenced Building Practitioner [LBP] with the relevant Licence class.

General

- 13.1 The selected wall underlay must be installed in accordance with the manufacturer's instructions, and must completely cover the joinery opening. The underlay is then cut on a 45° angle away from each corner of the opening so the flaps can be folded into the opening and secured to the interior face of the timber framing.
- 13.2 Fit a Thermakraft Corner Moulded Piece into each of the bottom corners to create a seal at the corner junction. The corner piece must be fixed to the framing with staples or clouts.
- 13.3 Before the Thermakraft Aluband Window Flashing Tape is applied, the substrate surfaces must be clean, dry and free from any surface contaminants such as dust and grease that may cause loss of adhesion. When installing Thermakraft Aluband Window Flashing Tape on difficult to bond substrates, Scotch® Super 77™ Multipurpose Adhesive may be used. Ensure that the wall underlay/substrate is dry and free of dirt before applying the spray adhesive. Apply a light spray/coating of the spray adhesive onto the underlay/substrate. Wait for a minute to allow the spray adhesive to become tacky. When tacky to the touch, apply the flashing tape in the normal manner.
- 13.4 A length of Thermakraft Aluband Window Flashing Tape must be cut to the length of the sill plus 400 mm. The tape is installed flush with the interior face of the opening and is applied along the entire length of the sill and 200 mm up each jamb. The overhanging tape is cut at the corner of the opening to allow the tape to be folded onto the face of the building underlay. Ensure that adequate adhesion of the tape is achieved and that the tape is installed tight into the sill/jamb junction.
- 13.5 A 400 mm length of Thermakraft Aluband Window Flashing Tape must be installed 200 mm down the jamb and 200 mm along the lintel at each of the top corners of the window or door joinery opening. A 75 mm wide x 100 mm long sealing tape 'butterfly' must be installed at 45° across the corner of the head/jamb junction overlapping the corner by 3 mm to create a seal at the corner junction.
- 13.6 Thermakraft Aluband Window Flashing Tape must not be stretched. To avoid wastage, the tape can be lapped 100 mm minimum onto itself without reducing the performance of the Thermakraft Aluband Window Flashing Tape system.
- 13.7 If the Thermakraft Aluband Window Flashing Tape is exposed to the weather or UV light for more than 42 days, then it must be replaced with new material.

Installation Temperature

- 13.8 Thermakraft Aluband Window Flashing Tape must not be installed at temperatures of less than 5°C.

Inspections

- 13.9 The Technical Literature must be referred to during the inspection of Thermakraft Aluband Window Flashing Tape installations.

Basis of Appraisal

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

Tests

- 14.1 Testing of Thermakraft Aluband Window Flashing Tape has been completed by BRANZ to the requirements of ICC Evaluation Service Acceptance Criteria for Flashing Materials AC 148:2001. The adhesion of Thermakraft Aluband Window Flashing Tape to black bituminous Kraft building paper complying with the requirements of NZBC Acceptable Solution E2/AS1, Table 23 or NASH Building Envelope Solutions Table 23 and selected other synthetic wall underlays has been tested and found to be satisfactory.

Other Investigations

- 15.1 An assessment was made of the durability of Thermakraft Aluband Window Flashing Tape by BRANZ technical experts.
- 15.2 Site inspections were carried out by BRANZ to examine the practicability of installation.
- 15.3 The Technical Literature has been reviewed by BRANZ and found to be satisfactory.

Quality

- 16.1 The manufacture of Thermakraft Aluband Window Flashing Tape has not been examined by BRANZ, but details of the quality and composition of the materials used were obtained and found to be satisfactory.
- 16.2 The quality of supply to the market is the responsibility of Kingspan Insulation NZ Ltd.
- 16.3 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and wall underlays in accordance with the instructions of the designer.
- 16.4 The quality of installation, handling and storage on site is the responsibility of the installer in accordance with the instructions of Kingspan Insulation NZ Ltd.

Sources of Information

- ICC Evaluation Service, Inc, AC148 Acceptable Criteria for Flexible Flashing Materials, July 2001.
- NZS 3604:2011 Timber-framed buildings.
- NASH Building Envelope Solutions: 2019 Light steel framed buildings.
- NASH Standard Part Two: 2019 Light steel framed buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



In the opinion of BRANZ, **Thermakraft Aluband Window Flashing Tape** 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 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;
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 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
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2. **Kingspan Insulation NZ Ltd:**
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 - 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 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 **Kingspan Insulation NZ Ltd** or any third party.

For BRANZ



Claire Falck

Chief Executive

Date of Issue:

07 January 2025

BRANZ Appraised

Appraisal No. 917 [2020]

**THERMAKRAFT
COVERTEK 403 ROOF
AND WALL UNDERLAY**

Appraisal No. 917 [2020]

This Appraisal replaces BRANZ
Appraisal No. 917 [2016] and
No. 918 [2016]

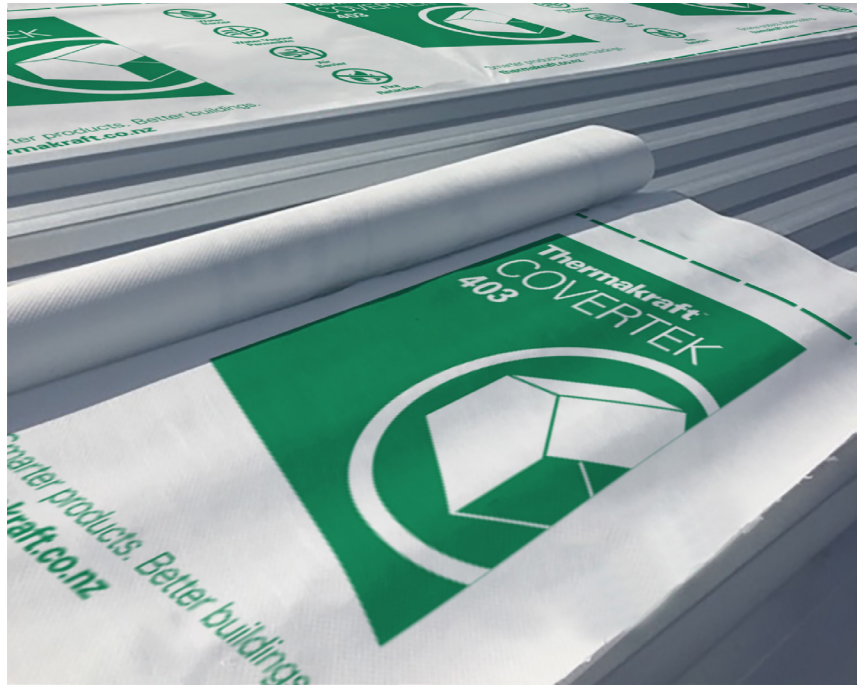
Amended 14 May 2024

BRANZ Appraisals

Technical Assessments of products
for building and construction.


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**Product**

- 1.1 Thermakraft Covertek 403 Roof and Wall Underlay is a fire retardant, synthetic building underlay for use under roof and wall claddings. The product consists of a micro-porous, water-resistant film, laminated to two layers of non-woven spun-bonded polyolefin.

Scope**Roof Underlay**

- 2.1 Thermakraft Covertek 403 has been appraised for use as a non self-supporting roof underlay on 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 403 has also been appraised for use as a flexible wall underlay for buildings within the following scope:
- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 for timber-framed buildings; or,
 - the scope limitations of NASH Building Envelope Solutions, Paragraph 1.1 for steel-framed buildings; and,
 - with direct-fixed absorbent and non-absorbent wall claddings; or,
 - with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; or,
 - with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1 for timber-framed buildings or to NASH Building Envelope Solutions for steel-framed buildings; and,
 - situated in NZS 3604 and NASH Standard Part 2 Wind Zones up to, and including, Very High; or,
 - situated in NZS 3604 and NASH Standard Part 2 Wind Zones up to, and including, Extra High when used over a rigid wall underlay in accordance with NZBC Acceptable Solution E2/AS1 or NASH Building Envelope Solutions, Paragraph 9.1.7.2.

Specific Design

- 2.3 Thermakraft Covertek 403 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 403 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 403 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 403 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 403 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 403 Roof and Wall Underlay contributes to meeting this requirement. See Paragraphs 12.1 and 12.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Thermakraft Covertek 403 Roof and Wall Underlay meets this requirement.

Technical Specification

- 4.1 Thermakraft Covertek 403 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 403 Roof and Wall Underlay is coloured white on the top and bottom faces.
- 4.2 The product is supplied in rolls 1.35 m wide x 18.6 m, 37 m and 55 m long. The product is printed with the Covertek 403 logo repeated along the length of the roll. The rolls are wrapped in clear polythene film.

Accessories

- 4.3 Accessories used with Thermakraft Covertek 403 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.
 - **Roof underlay support [timber frame]** - polypropylene strap, or minimum 0.9 mm diameter galvanised steel wire mesh where required to support the roof underlay in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 8.1.5.1. *[Note: The mesh must be galvanised in accordance with AS/NZS 4534.]*
 - **Roof underlay support [steel frame]** - polypropylene strap, or minimum 0.9 mm diameter galvanised steel wire mesh where required to support the roof underlay in accordance with NASH Building Envelope Solutions, Paragraph 8.1.5.1. *[Note: The mesh must be galvanised in accordance with AS/NZS 4534.]*
 - **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.

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
- Installation Guide Covertek 403, Issue 3.0, dated April 2024
 - Product Data Sheet Covertek 403, Issue 7.0, dated April 2024
- 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 403 Roof and Wall Underlay is intended for use as an alternative to conventional kraft paper underlays, which are fixed over timber or steel-framed roofs and walls. The underlay is intended to limit the entry of wind into the roof and wall cavities. For roofs the underlay assists in the moisture management of the roof cladding system and for walls it acts as a secondary barrier to wind-driven rain. Refer to Table 1 for material properties.

Table 1: Material Properties

NZBC E2/AS1 Table 23 Roof Underlay Properties	Roof Property Performance Requirement	Wall Property Performance Requirement	Results
Absorbency	$\geq 150 \text{ g/m}^2$	$\geq 100 \text{ g/m}^2$	Pass $\geq 150 \text{ g/m}^2$
Vapour Resistance	$\leq 7 \text{ MN s/g}$	$\leq 7 \text{ MN s/g}$	Pass
Water Resistance	$\geq 100 \text{ mm}$	$\geq 20 \text{ mm}$	Pass $\geq 100 \text{ mm}$
pH of Extract	≥ 6 and ≤ 9	≥ 6 and ≤ 9	Pass
Shrinkage	$\leq 0.5\%$	$\leq 0.5\%$	Pass
Mechanical	Edge tear and tensile strength	Edge tear and tensile strength	Edge tear [Average]: Machine direction = 217N Cross direction = 104 N Tensile strength [Average]: Machine direction = 4.57 kN/m Cross direction = 2.63 kN/m
Air Barrier	Not applicable	Air resistance $\geq 0.1 \text{ MN s/m}^3$	Pass. Thermakraft Covertek 403 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 403 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 42 days when used as a wall underlay.

Timber and Steel Framing

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

Use as a Roof Underlay

- 7.5 Thermakraft Covertek 403 Roof and Wall Underlay is suitable for use under roof claddings on buildings as a roof underlay in accordance with NZBC Acceptable Solution E2/AS1, Table 23 for timber-framed buildings and NASH Building Envelope Solutions, Table 23 for steel-framed buildings.
- 7.6 Thermakraft Covertek 403 Roof and Wall Underlay is suitable for use in residential and commercial roofs with roof pitches of minimum 10° and above and must be fully supported with a corrosion resistance roof underlay support. Thermakraft Covertek 403 can be installed vertically and horizontally and must span no more than 300 mm in one direction. *[Note: For roof pitches less than 10°, Kingspan Insulation NZ Limited recommends the use of Thermakraft Covertek 407. Refer to BRANZ Appraisal No. 651].*
- 7.7 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 300 mm	Yes	Yes
	300 mm or less	No	No

Use as a Wall Underlay

- 7.8 Thermakraft Covertek 403 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.
- 7.9 Thermakraft Covertek 403 Roof and Wall Underlay is suitable for use as an air barrier where walls are not lined, such as attic spaces at gable ends, in accordance with NZBC Acceptable Solution E2/AS1 or NASH Building Envelope Solutions, Paragraph 9.1.4 [c].
- 7.10 In cavity installations where the cavity battens are installed at greater than 450 mm centres, Thermakraft Covertek 403 Roof and Wall Underlay must be restrained between the battens to prevent the underlay bulging into the cavity space when bulk insulation is installed in the wall frame cavity. Refer to NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5 for timber frame or NASH Building Envelope Solutions, Paragraph 9.1.9.5 for steel frame. Wall underlay restraint options include polypropylene strap, 75 mm galvanised mesh or galvanised wire, vertical cavity battens or thermal break sheathing [steel frame only].

Structure

- 8.1 Thermakraft Covertek 403 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 and NASH Standard Part 2 up to, and including, Extra High when used as an overlay for rigid wall underlays or as a roof underlay.

Durability

- 9.1 Thermakraft Covertek 403 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 403 Roof and Wall Underlay is expected to have a serviceable life equal to that of the cladding. This is provided the cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather-resistant. In addition, the product must not be exposed to the weather or UV light for a total of more than 7 days when used as a roof underlay prior to installation of the roofing. When used as a wall underlay a total exposure of 42 days applies prior to installation of the wall cladding.

Control of Internal Fire and Smoke Spread

- 10.1 Thermakraft Covertek 403 Roof and Wall Underlay has an AS 1530 Part 2 flammability index of not greater than 5 and therefore meets the requirements of NZBC Acceptable Solutions C/AS1 and C/AS2, Paragraph 4.17.8 b], for the surface finish requirements of suspended flexible fabric used as an underlay to exterior cladding that is exposed to view in occupied spaces.

Prevention of Fire Occurring

- 11.1 Separation or protection must be provided to the Thermakraft Covertek 403 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 403 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 403 Roof and Wall Underlay, when installed in accordance with the Technical Literature and this Appraisal, will assist in the total cladding system's compliance with NZBC Clause E2.

Installation Information

Installation Skill Level Requirements

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

Underlay Installation

General

- 14.1 Thermakraft Covertek 403 Roof and Wall Underlay must be fixed at maximum 300 mm centres to all framing members with large-head clouts 20 mm long, 6-8 mm stainless steel staples, self-drilling screws or proprietary underlay fixings. The membrane must be pulled taut over the framing before fixing.
- 14.2 When fixing the product in windy conditions, care must be taken due to the large sail area created.
- 14.3 Any damaged areas of Thermakraft Covertek 403 Roof and Wall Underlay, such as tears, holes or gaps around service penetrations, must be repaired. Damaged areas can be repaired by covering with new material lapping the damaged area by at least 150 mm and taping, or by taping small tears.

Roof Underlay

- 14.4 Thermakraft Covertek 403 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 403 Roof and Wall Underlay has a 150 mm lap line printed continuously along the top face.

Wall Underlay

- 14.6 Thermakraft Covertek 403 Roof and Wall Underlay must be run horizontally and must extend from the upper-side of the top plate to the under-side 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 underlay. End laps must be made over framing and be no less than 150 mm wide.
- 14.7 Thermakraft Covertek 403 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° 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 403 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 403 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 403 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, pH of extract in accordance with AS/NZS 1301.421s and air resistance to BS 6538.3. A range of these tests were completed before and after Thermakraft Covertek 403 Roof and Wall Underlay was exposed to UV light.
- 15.2 The flammability index of Thermakraft Covertek 403 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 403 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 403 Roof and Wall Underlay has been assessed by BRANZ and found to be satisfactory.
- 16.4 The Technical Literature, including installation instructions, has been examined by BRANZ and found to be satisfactory.

Quality

- 17.1 The manufacture of Thermakraft Covertek 403 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.

Amendments

Amendment No. 1, dated 14 May 2024

This Appraisal has been amended to update the Appraisal Holder.

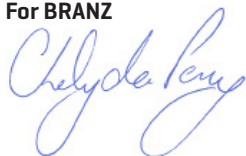
In the opinion of BRANZ, **Thermakraft Covertek 403 Roof and Wall Underlay** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

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 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 **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



Chelydra Percy

Chief Executive

Date of Issue:

27 November 2020

Thermakraft COVERTEK 403



**Thermakraft
ONE WRAP
SYSTEM**

10 Products - One system
One warranty

Thermakraft[™] COVERTEK 403

Non self-supporting roof and wall underlay

Kingspan Thermakraft Covertek 403 is a fire retardant, light weight roof and wall underlay designed as a means of managing condensation, water vapour transfer and water ingress. Primarily developed as a roof underlay, Covertek 403 can also be used on walls if you are after a one stop solution. It is not self-supporting as a roof underlay and is a more affordable option where a supporting component is to be installed in the building.

Covertek 403 comes in three roll sizes:

1350mm wide	18.6m long	25m ² coverage*
1350mm wide	37m long	50m ² coverage*
1350mm wide	56m long	75m ² coverage*

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



CodeMark 
CMNZ30069



Covertex 403

Non self-supporting roof and wall underlay



Scope of Use

Roof Application

- Suitable with masonry tile, metal tile and profiled metal roof cladding.
- Can be used on roofs up to and including NZS 3604:2011 'Extra High' wind zones.
- Covertex 403 requires underlay support (not self-supporting).
- Will provide temporary weather protection during construction (maximum 7 days for roof application), same day coverage recommended.

Wall Application

- Can be used with timber and steel framing, either directly fixed or in conjunction with an 18mm minimum drained cavity.
- With absorbent wall claddings (e.g. timber, brick or fibre cement) or non-absorbent wall claddings (e.g. metal or plastic).
- Is suitable for use in all Wind Zones of NZS 3604:2011 up to, and including, 'Very High', when used as 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 temporary weather protection during construction (maximum 42 days for wall application).

General

- Is fire retardant.
- Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent chemical to flash off in well ventilated area. Recommended minimum 7 days.
- Tear resistant and strong.
- Covertex 403 is not subject to a warning or ban under section 26 of the Building Act 2004 when used as per the product scope.

Limitations

Cannot be exposed to the weather or UV for more than 7 days as a roof underlay and 42 days as a wall underlay.

Can only be used as a Roof underlay on roofs of 10°pitch or greater.

- Must be used with underlay support products in roof application.
- Must not be used under translucent roof sheeting.
- Recommended NOT to be left exposed in applications such as under unlined canopies, soffits and lean-to designs. Warranty void when used in exposed applications.

Compliance

Roof Application

- Covertex 403 can be used as a roof underlay within the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1, with regards to building height and floor plan area.
- Refer to BRANZ Appraisal No. 917 and CodeMark certificate CMNZ30069 for full details.

Wall Application

- Covertex 403 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
- Refer to BRANZ Appraisal No. 917 and CodeMark certificate CMNZ30069 for full details.

Flammability Index

Covertex 403 Underlay has an AS 1530 Part 2:1993 Flammability Index of not greater than 5 and therefore meets the requirements of NZBC Acceptable Solution C/AS2, Paragraph 4.17.8 b), for the surface finish requirements of suspended flexible fabric used as an underlay to exterior cladding that is exposed to view in occupied spaces.

Durability

Meets the Performance Requirements of NZBC Clauses B2, Durability (B2.3.1 (a) 50 years, B2.3.1 (b) 15 years and B2.3.2), and F2.3.1, providing:

- It is not damaged.
 - Is installed in accordance with instructions.
 - Is not left exposed for more than 7 days (roof) same day coverage recommended.
 - Is installed by or under guidance of Licensed Building Practitioners.
 - Is compatible with cladding system used.*
- * **Note:** specifiers and product user must test for roof or wall cladding system compatibility with the underlay before installation.

Covertex 403

Non self-supporting roof and wall underlay



Property Performance

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

NZBC E2/AS1 Table 23 (NZS2295:2006) Roof	Absorbency	Vapour Resistance	pH of Extract	Shrinkage	Water Resistance	Air Resistance
Property Performance Requirement	≥ 150gsm	≤ 7 MN.s/g	≥ 5.5 and ≤ 8	≤ 0.5%	≥ 100mm	≥ 0.1 MN.s/m ³
Property Performance	Pass	Pass	Pass	Pass	Pass	Pass*

Note: Can be used as an air barrier.

Control of Condensation

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

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

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

Skillion and Warm Roof Construction are particularly sensitive to moisture accumulation and the design and installation of roof construction needs to take into account the higher condensation risks. Refer MRM Code of Practice for details.

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

Product Warranty

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

Recycling and Waste

All of our synthetic and foil underlays are fully recyclable through saveBOARD™ New Zealand. For a recycling site nearest you, please contact info@kingspaninsulation.co.nz or visit us at thermakraft.co.nz.



0800 806 595
www.thermakraft.co.nz

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



Thermakraft™
COVERTEK
403**Thermakraft**
ONE WRAP
SYSTEM10 Products - One system
One warranty

Thermakraft™ COVERTEK 403

Non self-supporting roof and wall underlay

Kingspan Thermakraft Covertek 403 is a fire retardant, light weight roof and wall underlay designed as a means of managing condensation, water vapour transfer and water ingress. Primarily developed as a roof underlay, Covertek 403 can also be used on walls if you are after a one stop solution. It is not self-supporting as a roof underlay and is a more affordable option where a supporting component is to be installed in the building.

Product Usage

Covertek 403 is a synthetic roof and wall underlay designed as a means of managing condensation, and water ingress in roof applications. Constructed using a microporous water-resistant film sandwiched between two layers of spun-bonded polyolefin Covertek 403 is fire retardant, absorbent and breathable.



Covertex 403

Non self-supporting roof and wall underlay



Roof Application Method

Residential:

Roof Long-run metal/vertical or horizontal installation method

- Fix using stainless steel 8-12mm staples or 20mm flat head clouts, or appropriate proprietary fastenings on timber framed structure. Fixing at 300mm centres. Fixing types and requirements for steel framed structure can be found in the NZ Metal Roof and Wall Cladding Code of Practice (COP).
- Covertex 403 must be installed in a manner that prevents ponding of water.
- Covertex 403 must be fully supported by Roof Safety Mesh 300mm x 150mm, hexagonal netting or suitable strapping that satisfy the requirements of the MRM Code of Practice and NZBC.
- For roof pitches below 10°, Covertex 405 or 407 recommended.
- Covertex 403 upper sheet lapped over lower sheets (shiplap) to ensure water is shed to the outer face.

Note: Covertex 403 can move downwards. To prevent this, it must be "Captured" by the fastenings at each purlin. Horizontal fix must not be used on purlin distance greater than 1200mm to allow for 150mm laps.

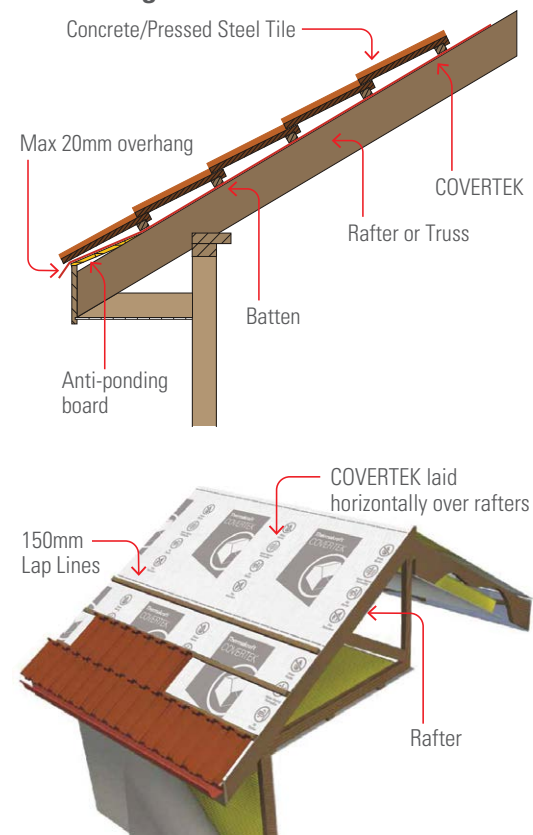
- Must be laid firmly (tight/taut) without creases. All laps either vertical or horizontal must be a minimum of 150mm lap.
- Covertex 403 will provide temporary weather protection during construction (maximum 7 days), same day coverage recommended. DO NOT over expose the product for more than 7 days.
- Covertex 403 may be unwound to the full length from the gutter to the ridge. However, when ridge ventilation is required Covertex 403 may be terminated or slit at the ridge purlin to allow a free passage of air.
- Covertex 403 must NOT overhang the gutter line by more than 20 mm, or if eaves flashings are used, terminate on the upper side of the flashing. More details can be found in the NZ Metal Roof and Wall Cladding Code of Practice (COP).
- Flue penetrations must have a minimum distance of 50mm from Covertex 403 (refer to NZ Metal Roof and Wall Cladding Code of Practice 10.11.5).
- Covertex 403 must be free of tears and punctures, fit tightly and be lap taped around all penetrations (except flue penetrations), to provide drainage for any condensation, or surface water from leaks.

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

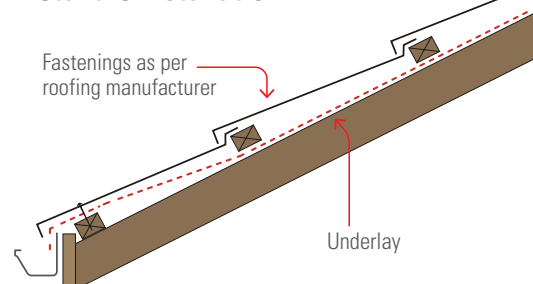
Concrete/Metal tile roofing

- Covertex 403 must be laid over rafters prior to fixing the tile battens. The maximum span between rafters for Covertex 403 is 1200mm. Masonry tile roofs must have antiponding boards in accordance with NZBC E2/AS1.
- Installed Covertex 403 may be laid over the top of the antiponding boards and draped into the gutter by no more than 20mm. Antiponding boards must be treated in accordance with NZBC E2/AS1.
- Can be installed above the battens or purlins for profiled metal roof claddings and otherwise in accordance with NZBC E2/AS1.
- Covertex 403 must be installed by a licensed building practitioner.

Tile roofing



Metal tile installation

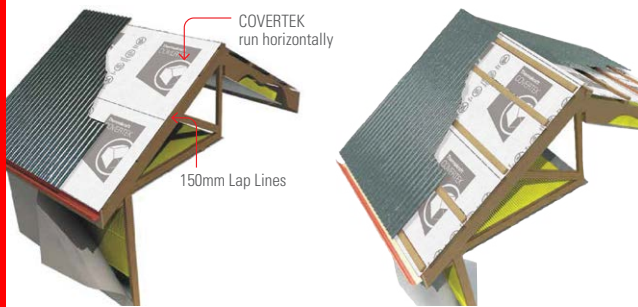


Covertex 403

Non self-supporting roof and wall underlay



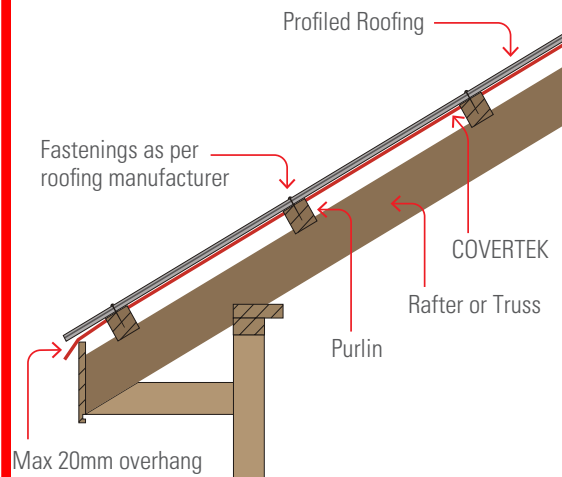
Corrugated roofing:



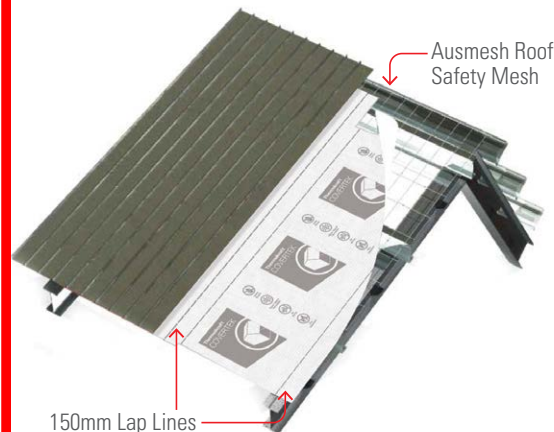
Covertex 403 can be direct fix or cavity fix and must be installed in a manner that prevents ponding of water and span no more than 200mm.

Long run metal roofing:

Wooden construction



Steel construction



Wall Application Method

- Fix Covertex 403 underlay with printed side facing the exterior.
- Fix to all exterior walls from below bearers to the top plate. Pull the Covertex 403 underlay tight and fix securely to the frame with fasteners such as galvanized Little Grippers, 6mm-8mm staples or 20mm large head galvanized clouts at 300mm centres horizontally and vertically. Additional fasteners should be used around each opening to be cut out. Fixing types and requirements for steel framed structure can be found in the MRM Code of Practice.
- When fixing Covertex 403 underlay to Steel framing the same procedures applies, use adhesive spray or tape or flat head screws to fasten to the framing or thermal break, the exterior cladding fastenings will act as the permanent fixings.
- Cover all windows and door openings with Covertex 403 underlay.
- It is recommended that the Covertex 403 underlay is not cut and prepared for window installation until the arrival of the windows. Minimum of 150mm lap is required at joins, all vertical laps must be made over studs. Horizontal laps to be laid ship lap style allowing water to be shed to the outer face of the membrane.
- When windows and doors are ready for installation, the Covertex 403 underlay covering the openings should cut at 45° and folded into the opening and securely fastened. Thermakraft window flashing tapes are recommended as the window flashing system.
- NB. In accordance with NZBC Acceptable Solution E2/AS1, wall underlay must be prevented from bulging into the drained cavity. Where stud spacing is greater than 450mm Thermakraft Stud Strap or Thermastrap run horizontal at 300 centres is an acceptable means of prevention.
- Once installed, Covertex 403 must not be left exposed to the weather or UV for a maximum of 42 days. Covertex 403 underlays will provide temporary weather protection during construction allowing work to continue. Internal linings and insulation must not be installed until the exterior cladding is completed.
- Fastenings behind Brick Veneer Cladding must have an equivalent service life to that of Brick Veneer (50 years). Refer to NZS 3604.

Continued over...

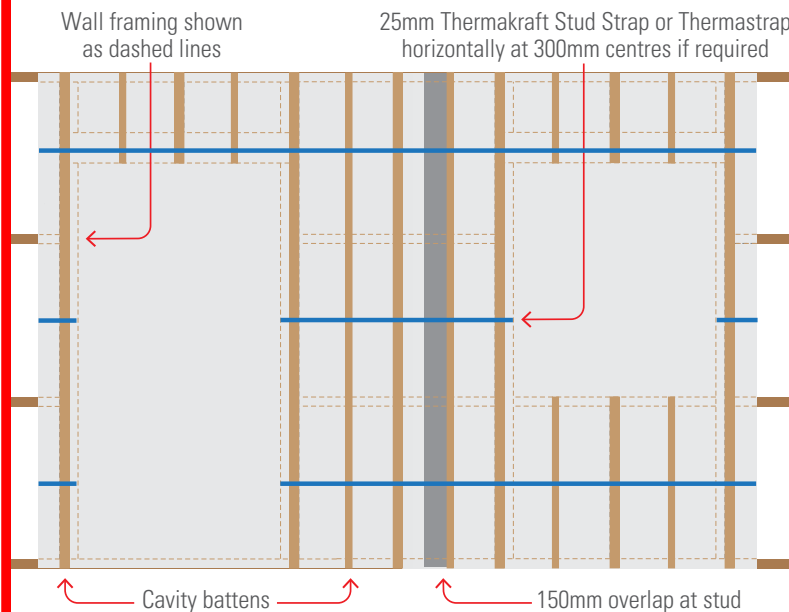
Covertex 403

Non self-supporting roof and wall underlay



KDC - Approved Building Consent Document - BC250144_SD_ISSUED - Pg 58 of 268 - 11/07/2025 - vsingh

- Make good any forced tears with Thermakraft window flashing tapes. Any large areas which require repair may be covered with a second layer of underlay, a lap of 150mm is required.
- Covertex 403 underlay must be installed by, or under the guidance of, a licensed building practitioner.



Application Tips

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

Handling and Storage

Covertex 403 must be handled with care to prevent damage such as tearing and roll deformation.

The product must be stored under cover well away from direct moisture, rainfall contact and sunlight (UV). Care should be taken not stack other materials on top of the product.



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www.thermakraft.co.nz

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



The recommendations contained in Kingspan's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to any conditions contained in the Warranty. All product dimensions and performance claims are subject to any variation caused by normal manufacturing process and tolerances. Furthermore, as the successful performance of the relevant system depends on numerous factors outside the control of Kingspan (for example quality of workmanship and design), Kingspan shall not be liable for the recommendations in that literature and the performance of the Product, including its suitability for any purpose or ability to satisfy the relevant provisions of the Building Code, regulations and standards. Literature subject to change without notification. Latest documentation can be found online. E&OE.

Kingspan Thermakraft Aluband Flashing Tape

Product Technical Statement: 113283



Bituminous self adhesive flashing tape.

[View miproducts listing](#)



Level of assurance needed to demonstrate NZ Building Code Compliance

Supporting documentation should include self-assessment and technical information by manufacturer



Kingspan Thermakraft confirms that this minimum level of assurance has been met or exceeded by the following:

BRANZ Appraisal

[878](#)



The following information has been provided by Kingspan Thermakraft demonstrating how this product complies with the [Building Product Information Requirements](#).

Technical Statement

Product Class

CLASS 1

Product Description

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

Scope of use

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

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

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 B2 DURABILITY: Performance B2.3.1 (b) 15 years and B2.3.2. Thermakraft Aluband Window Flashing Tape meets these requirements.
- Clause E2 External moisture:** Performance E2.3.2
Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Thermakraft Aluband Window Flashing Tape contributes to meeting this requirement.
- Clause F2 Hazardous building materials:** Performance F2.3.1
Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Thermakraft Aluband Window Flashing Tape meets this requirement.

Notes

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

Evidence

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

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



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Kingspan Thermakraft Aluband Flashing Tape

Product Technical Statement: 113283



Acceptable Solution E2/AS1, Table 2; and, Can be used with wall cladding systems complying with NZBC Acceptable Solution E2/AS1.

Supporting Evidence

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



BRANZ Appraisal

[878](#)

Product Criteria

Design requirements

[Aluband Data Sheet](#)

Installation requirements

[Aluband 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

Building Product Information Requirements

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Importer

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Business Email:

technical@kingspaninsulation.co.nz

Company Website:

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Contact Number/s:

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Product Identifier

ALU075025 ALU15010 ALU150025 ALU200025

Warnings

This product has no warnings associated with it.



Date last validated: **13 February 2025**



Date last updated: **13 February 2025**

New Zealand owned, galvanised wire mesh for supporting roofing products

[View miproducts listing](#)



Level of assurance needed to demonstrate NZ Building Code Compliance

Supporting documentation should include self-assessment and technical information by manufacturer



Kingspan Thermakraft confirms that this minimum level of assurance has been met or exceeded by the following:

BRANZ Appraisal

[1029](#)



The following information has been provided by Kingspan Thermakraft demonstrating how this product complies with the [Building Product Information Requirements](#).

Technical Statement

Product Class

CLASS 1

Product Description

Ausnet is a galvanised steel wire mesh used to support roof underlays, foils and glass wool insulation. Ausnet is easy to install and can be used on timber and steel framing. The product consists of a pattern of woven flat hexagonal shaped wires.

Scope of use

With a roof pitch not less than 3°

With profiled metal roof cladding

With masonry tile roof cladding.

With metal tile roof cladding

Situated in NZS 3604 wind zones up to and including extra high

For use on timber and steel framing to support roof underlays, foils and insulation.

Product should be enclosed within the dry roof space with no direct exposure to the weather upon the roofing completion work.

Product should not be installed in a roof space where air extraction, air ventilation, kitchen exhaust fan or dehumidifying devices are venting directly into the roof space.

Product must not be continuously exposed to a corrosive environment and/or high relative humidity environment greater than or equal to 90%.

When AUSNET is installed as per Kingspan Thermakraft's installation instructions and BRANZ Appraisal No. 1029 [2023], the product will meet the requirements of the New Zealand Building Code B2 Durability.

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 B2 DURABILITY: Performance B2.3.1 (a) 50 years, B2.3.1 (b) 15 years and B2.3.2. Thermakraft AUSNET Hexagonal Wire Mesh meets these requirements.

AUSNET is constructed of 1.0mmdiameter wire and is galvanise coated to 150g/m2. This strictly conforms to the W10 wire coating class in the AS/NZS 4534:2006 standard.

- **Clause E2 External moisture:** Performance E2.3.2

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Thermakraft AUSNET Hexagonal Wire Mesh contributes to meeting this requirement.

Ausnet is classified as an acceptable Solution in accordance with E2/AS1 and meets the requirements of NZBC.

- **Clause F2 Hazardous building materials:** Performance F2.3.1

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Thermakraft AUSNET Hexagonal Wire Mesh meets this requirement.



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Evidence

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

Thermakraft AUSNET Hexagonal Wire Mesh meets code compliance with NZBC Clause B2.3.1 (a), not less than 50 years for roof underlay support used where the roof cladding durability requirement or expected serviceable life is not less than 50 years, e.g. under masonry roof tile cladding, and code compliance with NZBC Clause B2.3.1 (b), 15 years for roof underlays used where the roof cladding durability requirement is 15 years.

Supporting Evidence

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



BRANZ Appraisal
[1029](#)

Product Criteria

Design requirements

[Ausnet Data Sheet](#)

Installation requirements

[Ausnet 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

Building Product Information Requirements

Manufacturer

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Contact Number/s:

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Product Identifier

AUSNET200075050 AUSNET200075100 AUSNET200050050 AUSNET200050100

Warnings

This product has no warnings associated with it.



Date last validated: **20 February 2025**



Date last updated: **20 February 2025**

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Kingspan Thermakraft Covertex 403

Product Technical Statement: 113299



Fire retardant synthetic roof and wall underlay. Absorbent, breathable, not self supporting

[View miproducts listing](#)



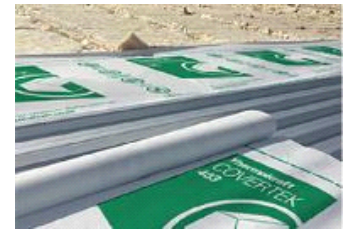
Level of assurance needed to demonstrate NZ Building Code Compliance

Supporting documentation should include self-assessment and technical information by manufacturer



Kingspan Thermakraft confirms that this minimum level of assurance has been met or exceeded by the following:

CodeMark
[CMNZ 30069 RevG](#)
BRANZ Appraisal
[917](#)



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Technical Statement

Product Description

Covertex 403 is a fire retardant, light weight roof and wall underlay designed as a means of managing condensation, water vapour transfer and water ingress. Primarily developed as a roof underlay, Covertex 403 can also be used on walls if you are after a one stop solution. It is not self-supporting as a roof underlay and is a more affordable option where a supporting component is to be installed in the building.

Scope of use

Roof Application

- Suitable with masonry tile, metal tile and profiled metal roof cladding.
- Can be used on roofs up to and including NZS 3604 'Extra High' wind zones.
- Covertex 403 requires underlay support (not self-supporting).
- Will provide temporary weather protection during construction (maximum 7 days roof application), same day coverage recommended.

Wall Application

- Can be used with timber and steel framing, either directly fixed or in conjunction with an 18mm minimum drained cavity.
- With absorbent claddings (e.g. timber, brick or fibre cement) or non-absorbent wall claddings (e.g. metal or plastic).
- 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 42 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), B2.3.2

Clause B2 DURABILITY: Performance B2.3.1 (a), not less than 50 years, B2.3.1 (b), 15 years and B2.3.2.

Kingspan Thermakraft Covertex 403 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).

Kingspan Thermakraft Covertex 403 Roof and Wall Underlay meets this requirement.

- **Clause E2 External moisture:** Performance E2.3.2

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the roof or wall cladding system, Kingspan Thermakraft Covertex 403 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. Kingspan Thermakraft Covertex 403 Roof and Wall Underlay meets this requirement.

Evidence

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

Compliance Roof Application

Can be used as a roof underlay within the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1, with regards to building height and floor plan area. Refer BRANZ Appraisal No 917 (2016) and CodeMark certificate for full details.

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 .

Refer BRANZ Appraisal No 917 (2020) and CodeMark CMNZ 30069 RevG.

Flammability Index Covertex 403 Underlay has an AS 1530 Part 2 Flammability Index of not greater than 5 and therefore meets the requirements of NZBC Acceptable Solutions C/AS2 to C/AS6, Paragraph 4.17.8 b), for the surface finish requirements of suspended flexible fabric used as an underlay to exterior cladding that is exposed to view in occupied spaces. It may therefore be used with no restrictions in all buildings.

Supporting Evidence

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



CodeMark
[CMNZ 30069 RevG](#)



BRANZ Appraisal
[917](#)

Product Criteria

Design requirements

[Covertex 403 Data Sheet](#)

Installation requirements

[Covertex 403 Install Guide](#)

Maintenance requirements

No regular maintenance required.

Warranties

[Kingspan Thermakraft Warranty Statement](#)

Company Product Information

Quality Assurance



ISO 9001 (Quality Management)

Relationships



Member of New Zealand Green Building Council



New Zealand Made



Date last validated: **09 October 2023**



Date last updated: **09 October 2023**

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Kingspan Thermakraft Supercourse 500 DPC

Product Technical Statement: 113304



Synthetic damp proof course used to prevent moisture transfer between building materials

[View miproducts listing](#)



Level of assurance needed to demonstrate NZ Building Code Compliance

Supporting documentation should include self-assessment and technical information by manufacturer



Kingspan Thermakraft confirms that this minimum level of assurance has been met or exceeded by the following:

BRANZ Appraisal

[329](#)



The following information has been provided by Kingspan Thermakraft demonstrating how this product complies with the [Building Product Information Requirements](#).

Technical Statement

Product Class

CLASS 1

Product Description

Supercourse 500 DPC is a general damp-proof course (DPC) used to prevent moisture transfer between building materials. It is also used as a concealed flashing for masonry veneer cladding.

Manufactured using a single layer of black polyethylene, Supercourse 500 DPC is tough, high-impact and tear resistant. It is a suitable moisture impermeable alternative to bituminous DPC.

Scope of use

Intended for use as a damp-proof course separating timber and wood-based products and metal from concrete, masonry elements or clay bricks.

Can also be used to separate timber jack studs or bearers from concrete or timber piles.

Can be used as a concealed flashing in masonry veneer walls.

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

Available in 9 product width sizes. Made from 100% recycled materials.

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:

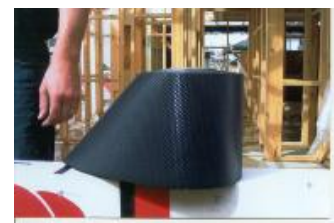
- Clause B2 Durability:** Performance B2.3.1(a)
Clause B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years and B2.3.2.
Kingspan Thermakraft Supercourse 500 meets these requirements.
- Clause E2 External moisture:** Performance E2.3.2, E2.3.3
Clause E2 EXTERNAL MOISTURE: Performance E2.3.2 and E2.3.3. When used as a flashing as part of a masonry veneer cladding system, Kingspan Thermakraft Supercourse 500 contributes to meeting the requirements of E2.3.2. When used as a DPC, Kingspan Thermakraft Supercourse 500 meets the requirements of E2.3.3.
- Clause F2 Hazardous building materials:** Performance F2.3.1
Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Kingspan Thermakraft Supercourse 500 meets this requirement.

Evidence

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

When Supercourse 500 is used and installed as a damp-proof course and/or concealed flashing behind masonry veneer walls, the product will meet or contribute to meeting the following provisions of the NZBC:

- Clause B2 Durability: Performance B2.3.1 (a), 50 years and B.2.3.2.
- Clause E2 External Moisture: Performance E2.3.2 and E2.3.3. When used as flashing as part of a masonry veneer cladding system, Supercourse 500 will contribute to meeting the requirement of



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E2.3.2. When used as a damp-proof course, Supercourse 500 will meet the requirements of E2.3.3.

- Clause F2 Hazardous Building Materials: Performance F2.3.1. Supercourse 500 meets this requirement and will not present a health hazard to people.

More details can be found in Supercourse 500 BRANZ Appraisal 329 (2022).

Supporting Evidence

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



BRANZ Appraisal
[329](#)

Product Criteria

Design requirements

[Supercourse 500 DPC Data Sheet](#)

Installation requirements

[Supercourse 500 DPC Install Guide](#)

Maintenance requirements

No regular maintenance required.

Warrantees

[Kingspan Thermakraft Warranty Statement](#)

Company Product Information

Quality Assurance



ISO 9001 (Quality Management)

Relationships



New Zealand Made



Member of New Zealand Green Building Council

Building Product Information Requirements

Manufacturer

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Contact Number/s:

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Product Identifier

SPC05030 SPC07530 SPC09030 SPC10030 SPC15030 SPC20030 SPC25030 SPC30030
SPC50030

Warnings

This product has no warnings associated with it.

Kingspan Thermakraft Supercourse 500 DPC

Product Technical Statement: 113304



Date last validated: **20 February 2025**



Date last updated: **20 February 2025**

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Kingspan Thermakraft Thermathene Orange

Product Technical Statement: 113307



Damp proof membrane 300-micron polyethylene film made from recycled materials

[View miproducts listing](#)



Level of assurance needed to demonstrate NZ Building Code Compliance

Supporting documentation should include self-assessment and technical information by manufacturer



Kingspan Thermakraft confirms that this minimum level of assurance has been met or exceeded by the following:

BRANZ Appraisal

[1104](#)



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Technical Statement

Product Description

Thermathene Orange is a 300 micron concrete underlay that is made from a puncture and tear resistant polyethylene film.

Thicker and stronger than conventional polythene, it is also commonly known as Damp Proof Membrane (DPM).

Scope of use

Thermathene Orange is intended for use as a damp-proof membrane separating concrete slab from ground soil.

The product acts as a vapour barrier to stop ground moisture penetrating the concrete. Thermathene Orange must be sealed with Thermakraft White General Purpose tape, Thermakraft Premium Joining Tape or Aluband/Thermaflash Window Flashing Tape at the laps joints to form a complete vapour barrier.

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 B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years. Thermathene Orange Concrete Underlay meets this requirement.
- **Clause E2 External moisture:** Performance E2.3.3
Clause E2 EXTERNAL MOISTURE: Performance E2.3.3. Thermathene Orange Concrete Underlay meets this requirement.
- **Clause F2 Hazardous building materials:** Performance F2.3.1
Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Thermathene Orange Concrete Underlay meets this requirement.

Evidence

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

Thermathene Orange is an acceptable solution as per the requirements of the NZBC.

Thermathene Orange meets the requirements of NZBC 3604:2011 Clause 7.5.4.2, NZBC Acceptable Solutions E2/AS1, Table 23 and NZS 4229:2013 Clause 7.4 & 7.6.

When Thermathene Orange is used and installed as a damp-proof membrane as per Kingspan Thermakraft's literature, the product will meet or contribute to meeting the following provisions of the NZBC: Clause B2 Durability: Performance B2.3.1 (a), 50 years, Clause E2 External Moisture: Performance E2.3.3 & Clause F2 Hazardous Materials: Performance F2.3.1.

Refer to BRANZ Appraisal No. 1104 [2020] for full details.

Supporting Evidence

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



BRANZ Appraisal

[1104](#)

Product Criteria

Design requirements

[Thermathene Orange Data Sheet](#)

Installation requirements

[Thermathene Orange 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



Date last validated: **09 October 2023**



Date last updated: **09 October 2023**

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Kingspan Thermakraft Watergate Plus

Product Technical Statement: 113281



Fire retardant, water resistant, air barrier, vapour permeable wall underlay.

[View miproducts listing](#)



Level of assurance needed to demonstrate NZ Building Code Compliance

Supporting documentation should include self-assessment and technical information by manufacturer



Kingspan Thermakraft confirms that this minimum level of assurance has been met or exceeded by the following:

CodeMark

[BRANZ-CM-1002-Re](#)

BRANZ Appraisal

[695](#)



masterspec partner

Company Contact Details



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Technical Statement

Product Description

Kingspan Thermakraft Watergate Plus is specifically designed as a wall underlay behind exterior wall cladding. Made from synthetic materials Watergate Plus is fire retardant, water resistant and vapour permeable. The water vapour transfer rate of the product has been optimised to minimise condensation risk in homes without compromising its primary water barrier properties.

Scope of use

Watergate Plus can be used as a wall underlay on both residential and commercial buildings within the following scope:

- With absorbent wall claddings (e.g. timber, brick or fibre cement) or non-absorbent wall claddings (e.g. metal or plastic).
- Can be used with timber and steel framing, either directly fixed or in conjunction with an 18mm minimum drained cavity.
- With masonry veneer in accordance with NZBC Acceptable Solution E2/AS1 and E2/AS4. Situated in NZS3604 and NASH Building Wind Zones 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.
- Is suitable to be used in conjunction with thermal breaks on steel framed buildings.

Refer to BRANZ Appraisal No 695 (2017) and CodeMark Certificate BRANZ-CM-1002 for full details.

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 B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years, B2.3.1 (b) 15 years and B2.3.2. Watergate Plus 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). Watergate Plus meets this requirement.
- Clause E2 External moisture:** Performance E2.3.2
Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the cladding system, Watergate Plus will contribute to meeting this requirement.
- Clause F2 Hazardous building materials:** Performance F2.3.1
Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Watergate Plus meets this requirement.

Evidence

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

Watergate Plus has been appraised with the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 and E2/AS4, with regards to building height and floor plan area. Watergate Plus has also been BRANZ appraised for use on buildings subject to specific weathertightness design. Building designers are responsible for the building design and for the incorporation of Watergate Plus into their design in accordance with the declared properties and the instructions of Kingspan Insulation NZ Ltd.

Supporting Evidence

Kingspan Thermakraft Watergate Plus

Product Technical Statement: 113281



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



CodeMark
[BRANZ-CM-1002-Re](#)



BRANZ Appraisal
[695](#)

Product Criteria

Design requirements

[Watergate Plus Data Sheet](#)

Installation requirements

[Watergate Plus 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

	Date last validated: 09 October 2023		Date last updated: 09 October 2023
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**Thermakraft™
SUPERCOURSE
500**

Thermakraft™ SUPERCOURSE 500

Synthetic Damp Proof Course

Kingspan Thermakraft Supercourse 500 is a general damp-proof course (DPC) used to prevent moisture transfer between building materials. It is also used as a concealed flashing for masonry veneer cladding.

Manufactured using a single layer of black polyethylene, Supercourse 500 is tough, high-impact and tear resistant. It is a suitable moisture impermeable alternative to bituminous DPC.



Supercourse 500

Synthetic Damp Proof Course



Supercourse 500 comes in nine roll sizes:

Product Code	Roll Size	Rolls Per Carton
SPC05030	50mm x 30m	42
SPC07530	75mm x 30m	24
SPC09030	90mm x 30m	24
SPC10030	100mm x 30m	18
SPC15030	150mm x 30m	12
SPC20030	200mm x 30m	6
SPC25030	250mm x 30m	6
SPC30030	300mm x 30m	6
SPC50030	500mm x 30m	

Scope of Use

- Supercourse 500 intended for use as a damp-proof course separating timber and wood-based products and metal from concrete, masonry elements or clay bricks.
- Can also be used to separate timber jack studs or bearers from concrete or timber piles.
- Supercourse 500 can be used as a concealed flashing in masonry veneer walls.

General

- Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent chemical to flash off in well ventilated area. Recommended minimum 7 days.
- Available in nine product width sizes.
- Supercourse 500 is not subject to a warning or ban under section 26 of the Building Act 2004 when used as per the product scope.

Limitations

- Maximum weather or UV exposure is 30 days.
- Supercourse 500 is NOT a window flashing tape and NOT a thermal break product.

Compliance

When Supercourse 500 is used and installed as a damp-proof course and/or concealed flashing behind masonry veneer walls, the product will meet or contribute to meeting the following provisions of the NZBC:

- Clause B2 Durability: Performance B2.3.1 (a), not less than 50 years and B2.3.2.
- Clause E2 External Moisture: Performance E2.3.2 and E2.3.3. When used as a flashing as part of a masonry veneer cladding system, Supercourse 500 will contribute to meeting the requirement of E2.3.2. When used as a damp-proof course, Supercourse 500 will meet the requirements of E2.3.3.
- Clause F2 Hazardous Building Materials: Performance F2.3.1. Supercourse 500 meets this requirement and will not present a health hazard to people.

More details can be found in Supercourse 500 BRANZ Appraisal 329.

Durability

Supercourse 500 is expected to have a serviceable life in excess of 50 years when it is:

- Installed in accordance with Kingspan Insulation's literature and BRANZ Appraisal.
- Not over exposed to the weather or UV (not more than 30 days).
- Never exposed to chemicals or solvents that will degrade or affect polyethylene material.

Product Warranty

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



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Thermakraft™
SUPERCOURSE
500



Thermakraft™ SUPERCOURSE 500

Synthetic Damp Proof Course

Supercourse 500 is a general damp-proof course (DPC) used to prevent moisture transfer between building materials. It is also used as a concealed flashing for masonry veneer cladding.

Manufactured using a single layer of black polyethylene, Supercourse 500 is tough, high-impact and tear resistant. It is a suitable moisture impermeable alternative to bituminous DPC.



Supercourse 500

Synthetic Damp Proof Course



Product usage

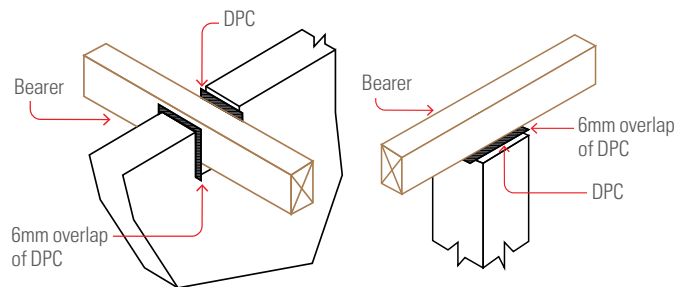
Supercourse 500 provides a moisture barrier protection and prevent walls, floors and structural elements in contact with the ground absorbing or transmitting moisture. When used as a flashing in masonry walls, the product provides moisture protection around window and door joinery.

Application Method

Damp-Proof Course (DPC) Installation

- Strips of Supercourse 500 may be cut to length with a sharp knife.
- Surface must be smooth and flat, free from sharp ridges/projections such as small stones that may puncture membrane.
- The strip of Supercourse 500 must be wide enough to fully protect the width of material in contact with concrete or masonry.
- When used to separate timber and wood-based products from concrete or masonry, Supercourse 500 should be temporarily held in place with small hot-dip galvanised clouts or zinc plated staples.

Note: when use as a DPC, the roll width selected must be enable the Supercourse 500 to extend 6mm beyond each face of the timber in accordance with the requirement of the NZ 3604:2011 standard paragraph 2.3.3 (b). See extract image below from NZ 3604:2011.



Note: Timber, unless otherwise stated, to be treated to the levels specified in NZS 3604:2011.

- A small slit should be made in the material to accommodate the bolts or fixings when used under timber plates or concrete floors or foundation walls. Alternative, a small hole can be formed by gently tapping the product resting on top of the bolt until a puncture is formed.

Flashing Installation

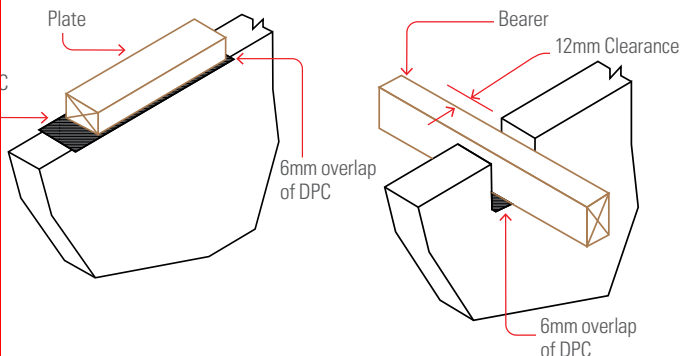
- Supercourse 500 must be fixed in place to framing members at 300mm centres with small hot-dip galvanised clouts.
- Horizontal and vertical joints must be no less than 75mm wide, with the direction of the lap ensuring that water is shed to the outer face of the flashing.
- At the sill/jamb junction, the jamb flashing must overlap the sill flashing.

Supercourse 500 is unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent chemical to flash off in a well ventilated area. Recommended minimum 7 days.

Handling and Storage

Supercourse 500 must be handled with care to prevent damage such as tearing and roll deformation.

The product must be stored under cover well away from direct moisture, rainfall contact and sunlight (UV). Care should be taken not stack other materials on top of the product.



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Thermakraft™
THERMATHENE
ORANGE



Thermakraft™ **THERMATHENE** **ORANGE**

Damp Proof Membrane (DPM)

Kingspan Thermakraft Thermathene Orange is a high strength concrete underlay that is made from a puncture and tear resistant polyethylene film. Thicker and stronger than conventional polythene, it is also commonly known as a Damp-Proof Membrane (DPM).



Thermathene Orange

Damp Proof Membrane (DPM)



Thermathene Orange comes in one roll size:

Product Code	Width	Length	Coverage
PFO3004025	4000mm	25m	100m ² coverage

Scope of Use

Thermathene Orange is intended for use as a damp-proof membrane separating the concrete slab from ground soil. The product acts as a vapour barrier to stop ground moisture penetrating the concrete. Thermathene Orange must be sealed with White General Purpose Tape, Premium Joining Tape or Aluband Window Flashing Tape at the lap joints to form a complete vapour barrier.

General

- Unaffected by LOSP treated timber. However, LOSP treated timber must have sufficient time for the solvent chemical to flash off in a well ventilated area. Recommended minimum 7 days.
- 4m x 25m [100m²] unfolded size.
- 300 Micron in thickness.
- Thermathene Orange is not subject to a warning or ban under section 26 of the Building Act 2004 when used as per the product scope.

Limitations

- Maximum weather or UV exposure is 30 days.
- Cannot be used as a roof or wall underlay.

Compliance

Thermathene Orange is an Acceptable Solution as per the requirements of the NZBC. Thermathene Orange meets the requirements of NZS 3604:2011 Clause 7.5.4.2, NZBC Acceptable Solutions E2/AS1, Table 23 and NZS 4229:2013 Clause 7.4 & 7.6.

When Thermathene Orange is used and installed as a damp-proof membrane as per Kingspan Insulation's literature, the product will meet or contribute to meeting the following provisions of the NZBC: Clause B2 Durability: Performance B2.3.1 (a), 50 years, Clause E2 External Moisture: Performance E2.3.3 & Clause F2 Hazardous Materials: Performance F2.3.1.

Refer to BRANZ Appraisal No. 1104 for full details.

Product Warranty

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

KDC - Approved Building Consent Document - BC250144_SD_ISSUED - Pg 78 of 268 - 11/07/2025 - vsingh



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The recommendations contained in Kingspan's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to any conditions contained in the Warranty. All product dimensions and performance claims are subject to any variation caused by normal manufacturing process and tolerances. Furthermore, as the successful performance of the relevant system depends on numerous factors outside the control of Kingspan (for example quality of workmanship and design), Kingspan shall not be liable for the recommendations in that literature and the performance of the Product, including its suitability for any purpose or ability to satisfy the relevant provisions of the Building Code, regulations and standards. Literature subject to change without notification. Latest documentation can be found online. E&OE.

Thermakraft™
THERMATHENE
ORANGE



Thermakraft™ **THERMATHENE** **ORANGE**

Damp Proof Membrane (DPM)

Thermathene Orange is a high strength concrete underlay that is made from a puncture and tear resistant polyethylene film. Thicker and stronger than conventional polythene, it is also commonly known as a Damp-Proof Membrane (DPM).

Product usage

Thermathene Orange is used as a concrete underlay and a moisture vapour barrier in areas where protection is required. The product is 300 microns in thickness and is coloured orange. Thermathene Orange may also be used under suspended subfloors as ground protection from rising damp.



Thermathene Orange

Damp Proof Membrane (DPM)



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Application Method

- Thermathene Orange should be installed in accordance with the requirements of NZS3604:2011 and must be laid on a properly prepared base as required by NZS3604:2011 Section 7.5.3 to 7.5.62.
- Thermathene Orange must be laid in a continuous manner with all laps minimum 150mm, and penetrations to be taped with Thermakraft White General Purpose Tape, Aluband Window Flashing Tape, Premium Joining Tape or Thermaflash.
- Thermathene Orange should be laid in a neat fashion with a smooth surface, with as many of the ripples as possible eliminated.
- Thermathene Orange must be inspected for any damage (tears or penetrations) prior to concrete placement. Any damage must be repaired with Thermakraft White General Purpose Tape, Aluband Window Flashing Tape, Premium Joining Tape or Thermaflash. For any larger damage a patch of Thermathene Orange maintaining a 150mm lap and must be taped over the damaged area.
- Thermathene Orange must not be left exposed for more than 30 days.
- Thermathene must be installed by a licensed building practitioner.
- Thermathene Orange may also be used to cover ground areas under suspended timber floors to prevent the rise of dampness. Ensure that the site is clear of rubbish, sharp edges such as rocks or bricks. Slit and patch around jack studs or pipe work. All penetrations and joints must be taped with Thermakraft White General Purpose Tape, Aluband Window Flashing Tape, Premium Joining Tape or Thermaflash.

Handling and Storage

Thermathene Orange must be handled with care to prevent damage, the product must be stored under cover well away from direct moisture, rainfall contact and sunlight (UV). Care should be taken not stack other materials on top of the product.



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4231HA James Hardie Axon™ Panel Cladding



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SUPPORTING DOCUMENTS

Axon Panel BRANZ Appraisal 1211

Ref 87485. Uploaded 5 Apr 2024

Purpose: Performance

Axon Panel CodeMark Certificate CMNZ30165

Ref 87484. Uploaded 5 Apr 2024

Purpose: Performance

Axon Panel Product Technical Statement

Ref 85769. Uploaded 5 Mar 2024

Purpose: Performance

James Hardie Axon™ Panel 101218

Ref 10161. Uploaded 26 Jun 2020

Purpose: Performance, Installation, Maintenance, Environmental, Warranty



Product

- 1.1 Axon™ Panel Cladding is a cavity-based or direct-fixed, fibre cement sheet wall cladding. It is designed to be used as an external wall cladding for residential and light commercial type buildings where domestic construction techniques are used.

Scope

- 2.1 Axon™ Panel Cladding has been appraised as a direct-fixed, external wall cladding for buildings within the following scope:
- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
 - with a risk score of 0-6, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
 - situated in NZS 3604 Wind Zones up to, and including, Very High.
- 2.2 Axon™ Panel Cladding, when installed over timber cavity battens, has also been appraised as an external wall cladding for buildings within the following scope:
- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
 - with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
 - situated in NZS 3604 Wind Zones up to, and including, Extra High.
- 2.3 Axon™ Panel Cladding, when installed over Hardie™ CLD™ Structural Cavity Battens, has also been appraised for weathertightness and structural wind loading when used as an external wall cladding for buildings between 0 and 25 m high within the following scope:
- buildings with a building height not exceeding 25 m; and,
 - constructed with timber framing complying with the NZBC; and,
 - situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 1.5 kPa where studs are at maximum 600 mm centres; and,
 - situated in specific design wind pressures up to a maximum design differential ULS of 3.2 kPa where studs are at maximum 400 mm centres; and,
 - with inter-storey deflections designed for and up to height/180 of horizontal in-plane movement during seismic serviceable limit state (SLS) events (based on a 3 m inter-storey height); and,
 - constructed with timber framing subject to specific engineering design; and,
 - when fixed over James Hardie RAB™ Board rigid air barrier for buildings over 10 m in height.
- 2.4 Axon™ Panel Cladding must only be installed vertically on vertical, flat surfaces.
- 2.5 Axon™ Panel Cladding has been appraised for use with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. [Note: The Appraisal of Axon™ Panel Cladding relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone.]

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Axon™ Panel Cladding, 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. Axon™ Panel Cladding meets the requirements for loads arising from self-weight, wind, impact and creep [i.e. B1.3.3 (a), (h), (j) and (q)]. See Paragraphs 9.1-9.4.

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years and B2.3.2. Axon™ Panel Cladding meets these requirements. See Paragraphs 10.1-10.4.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Axon™ Panel Cladding meets this requirement. See Paragraphs 14.1-14.5.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Axon™ Panel Cladding meets this requirement.

Technical Specification

4.1 System components and accessories for Axon™ Panel Cladding, which are supplied by James Hardie New Zealand Limited are:

Axon™ Panels

- Axon™ Panels are fibre cement panels manufactured from a water-resistant cellulose cement formulation. They are manufactured to conform to the requirements of AS/NZS 2908.2, in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.7.2. The panels are formed, cut to length and then cured by high-pressure autoclaving. They are branded 'Axon™ Panel' at regular intervals on the back face. Axon™ Panels are sealed and primed on the face and the back is clear sealed.

Axon™ Panel Grooved

- Axon™ Panel 133 mm Grooved is a 9 mm thick shiplap-jointed panel with grooves on the front face nominal 10 mm wide by 2.25 mm deep, spaced at 133 mm centres. It is available 1,200 mm wide and 2,450, 2,750, 3,000 or 3,600 mm long.
- Axon™ Panel 133 mm Grooved Grained is a 9 mm thick shiplap-jointed panel with grooves on the front face nominal 10 mm wide by 2.25 mm deep, spaced at 133 mm centres. Between the grooves is a wood-grain texture. It is available 1,200 mm wide and 3,000 mm long.
- Axon™ Panel 400 mm Grooved is a 9 mm thick shiplap-jointed panel with grooves on the front face nominal 10 mm wide by 2.25 mm deep, spaced at 400 mm centres. It is available 1,200 mm wide and 2,450, 2,750 or 3,000 mm long.

Axon™ Panel Textured

- Axon™ Panel Smooth [formerly known as EasyLap™ Panel] is a 9 mm thick shiplap-jointed panel, available 1,200 mm wide and 2,450 or 3,000 mm long.
- Axon™ Panel Brushed Concrete is a 8.5 mm thick shiplap-jointed panel with an embedded textured surface. It is available 1,200 mm wide and 2,440, 2,750, 3,000 or 3,600 mm long.

Accessories

- Hardie™ CLD™ Structural Cavity Batten - 19 mm thick fibre cement cavity batten installed over RAB™ Board or a flexible underlay. It is 19 mm thick x 70 mm wide x 3,000 mm long.
- Hardie™ Aluminium Radius External Box Corner - a box corner mould to form the external joints, etch-primed and available in 2,750, 3,000 or 4,000 mm lengths.
- Hardie™ Aluminium Invert External Box Corner - a box corner mould to form the invert external joints, etch-primed and available in 2,750 or 4,000 mm lengths.
- Hardie™ 9 mm Panel Aluminium Horizontal 'h' Mould - a horizontal flashing to flash the horizontal joints, etch-primed and available in 3,000 mm lengths.

- **Hardie™ 9 mm Aluminium Angle T Socket** - a horizontal T flashing to flash the horizontal joints, etch-primed and available in 3,000 mm lengths.
- **Hardie™ Angle T Horizontal Jointer** - a jointer to cover the butt joint of T mould, etch-primed and available in 100 mm lengths.
- **Hardie™ Angle T External Corner Jointer** - a T mould external corner, etch-primed.
- **Aluminium 'h' Mould Jointer** - a jointer to cover the butt joint of 'h' mould. Available in 100 mm lengths.
- **Hardie™ 9 mm Panel Aluminium 'h' External Corner Jointer** - a 'h' mould external corner.
- **Hardie™ CLD™ Batten Corner Flashing Aluminium** - used at internal corner sealant joints at floor joist level.
- **Hardie™ Axent™ Trim** - for box corners and facings, 19 mm thick, 3,000 mm long and available 45, 70 or 89 mm wide.
- **uPVC Vent Strip** - available in 3,000 mm lengths.
- **uPVC Corner Under Flashing** - a 50 x 50 mm corner mould used for internal and external joints.
- **Inseal® 3259 tape** - black, compressible, medium density, polyvinyl chloride (PVC) closed cell foam. The tape is 1.5 mm thick and is supplied in rolls 48 and 80 mm wide, and 50 m long.

4.2 Accessories supplied by the building contractor are:

- **Cavity battens** - nominal 50 mm wide by 25 mm thick (minimum finished size of 45 mm wide by 18 mm thick) timber cavity battens, treated to Hazard Class H3.1.
- **C-25 brad nail** - Grade 304 stainless steel brad nails used to fix Axon™ Panels to Hardie™ CLD™ Structural Cavity Battens.
- **ND 50 brad nail** - 50 mm stainless steel brad nail used to fix Axon™ Panels direct fixed to timber framing.
- **65 x 2.87 mm RounDrive ring shank nails** - hot-dip galvanised or stainless steel nails used for fixing Hardie™ CLD™ Structural Cavity Battens to timber framing.
- **Hardie™ Flex 60 x 3.15 mm nails** - for fixing panels through timber cavity battens. Hot-dip galvanised or 316 stainless steel.
- **Hardie™ Flex 75 x 3.15 mm nails** - for fixing panels through timber cavity battens. Hot-dip galvanised or 316 stainless steel.
- **Adhesive sealant** - Bostik® Seal N' Flex™-1 or Sika Sikaflex® 11FC.
- **Flexible wall underlay** - building paper complying with NZBC Acceptable Solution E2/AS1, Table 23, or breather-type membranes covered by a valid BRANZ Appraisal or CodeMark for use as wall underlays.
- **Flexible wall underlay support** - polypropylene strap, 75 mm galvanised mesh, galvanised wire, or additional vertical battens for securing the flexible wall underlay in place and preventing bulging of the bulk insulation into the drainage cavity. *[Note: Mesh and wire galvanising must comply with AS/NZS 4534.]*
- **Rigid wall underlay** - HomeRAB™ Pre-Cladding/RAB™ Board, plywood or fibre cement panel complying with NZBC Acceptable Solution E2/AS1, Table 23, or rigid sheathing covered by a valid BRANZ Appraisal or CodeMark for use as rigid air barrier systems.
- **Horizontal drained joint flashing.**
- **Joinery head flashings** - folded from aluminium or galvanised steel to suit the window or door trim opening. Refer to NZS 3604, Section 4 and NZBC Acceptable Solution E2/AS1, Table 20 for durability requirements.
- **Window and door trim cavity air seal** - air seals and PEF rod complying with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.6, or self-expanding, moisture cure polyurethane foam air seals covered by a valid BRANZ Appraisal for use around window, door and other wall penetration openings.
- **Flexible sill and jamb flashing tape** - flexible flashing tapes complying with NZBC Acceptable Solution E2/AS1, Paragraph 4.3.11, or flexible flashing tapes covered by a valid BRANZ Appraisal for use around window and door joinery openings.

- **Flexible sealant** - sealant complying with NZBC Acceptable Solution E2/AS1, or sealant covered by a valid BRANZ Appraisal or CodeMark for use as a weather sealing sealant for exterior use.

Finishing System Specification

- 4.3 Paint systems, where elected to be applied by James Hardie New Zealand Limited, are selected in consultation with the designer and building contractor. Finishing systems applied by James Hardie New Zealand Limited have not been assessed by BRANZ, and are therefore outside the scope of this Appraisal.
- 4.4 All exposed faces, including top edges at sills and bottom edges of Axon™ Panels, trims and accessories must be finished with an acrylic exterior paint system complying with any of Parts 7, 8, 9 or 10 of AS 3730. Finishing must be carried out within 90 days of installation to protect the Axon™ Panels and give the desired finish colour to the exterior walls.
- 4.5 All cut edges of Axon™ Panels are to be sealed on-site with an acrylic sealer suitable for use with the selected proprietary acrylic paint system as listed in the Technical Literature for the Axon™ Panel Cladding.

Handling and Storage

- 5.1 Handling and storage of all materials supplied by James Hardie New Zealand Limited or the building contractor, whether on-site or off-site, is under the control of the building contractor. Axon™ Panels are packed on pallets and must be kept dry during transport. The panels must be horizontally stacked on a flat surface and must always be sufficiently supported so that they do not sag. They must be kept dry at all times, either by storing under cover or providing water covers to the stack, so they are stored in a dry ventilated space. Axon™ Panels must always be lifted from a stack by two people and then be carried on edge.
- 5.2 Accessories must be stored so they are kept clean, dry and undamaged. All accessories must be used within the maximum storage period recommended by the manufacturer.

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
 - Axon™ Panel Direct Fixed Technical Specification, dated March 2024.
 - Axon™ Panel Timber Cavity Batten Technical Specification, dated March 2024.
 - Axon™ Panel Fixed to Hardie™ CLD™ Structural Cavity Batten Technical Specification, dated March 2024.
- 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

Framing

Timber Treatment

- 7.1 Timber wall framing behind Axon™ Panel Cladding must be treated as required by NZBC Acceptable Solution B2/AS1.

Timber Framing

- 7.2 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. In all cases, studs shall be at a maximum of 600 mm centres. Nogs/dwangs must be fitted flush between the studs and spaced to suit the site framing requirements.
- 7.3 The moisture content of the timber framing must not exceed 24% at the time of the cladding installation. *[Note: If Axon™ Panel Cladding is fixed to framing with a moisture content of greater than 24%, problems may occur at a later date due to excessive timber shrinkage.]*

General

- 8.1 Axon™ Panels are available in a variety of sheet lengths to readily accommodate installations up to 3 m in height without requiring a horizontal junction between sheets.
- 8.2 When Axon™ Panel Cladding is used for specifically designed buildings up to 3.2 kPa ULS wind pressure, only the weathertightness and structural aspects of the cladding are within the scope of this Appraisal. All other aspects of the building need to be specifically designed and are outside the scope of this Appraisal.
- 8.3 At ground level, the bottom edge of Axon™ Panel Cladding must be kept clear of paved surfaces, such as footpaths, by a minimum of 100 mm and unpaved surfaces by 175 mm, in accordance with NZBC Acceptable Solution E2/AS1, Table 18. The ground clearances to finished floor levels as set out in NZS 3604 must be adhered to.
- 8.4 At balcony, deck or low pitch roof/wall junctions, the bottom edge of Axon™ Panel Cladding must be kept clear of any adjacent surface, or above the top surface of any adjacent roof flashing by a minimum of 50 mm.
- 8.5 Punchings in the cavity vent strip provide a minimum ventilation opening area of 1,000 mm² per lineal metre of wall.
- 8.6 All external walls of buildings must have barriers to airflow in the form of flexible wall underlays and interior linings with all joints stopped for Wind Zones up to, and including, Very High, and rigid wall underlays for buildings in the Extra High Wind Zone and specifically designed buildings up to 2.5 kPa design differential ULS wind pressure.
- 8.7 All external walls of buildings must have barriers to airflow in the form of 9 mm thick RAB™ Board when used on buildings between 10-25 m high, or situated in specific design wind pressures over a maximum differential ULS of 1.5 kPa.
- 8.8 Unlined gables and walls must incorporate either RAB™ Board, a rigid sheathing or an air barrier which meets the requirements of NZBC Acceptable Solution E2/AS1, Table 23. For attached garages, wall underlays must be selected in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.4. Where rigid wall underlays are used, the panel fixing lengths must be increased by a minimum of the thickness of the underlay.
- 8.9 Where cladding penetrations through the Axon™ Panel Cladding are wider than the cavity batten spacing, allowance must be made for airflow between adjacent cavities by leaving a minimum gap of 10 mm between the bottom of the vertical cavity batten and the flashing to the opening.
- 8.10 Where the system abuts other cladding systems, designers must detail the junction to meet their own requirements and the performance requirements of the NZBC. Details not included within the Technical Literature have not been assessed and are outside the scope of this Appraisal. Such details should be discussed with James Hardie New Zealand Limited technical team for guidance.

Inter-storey Junctions

- 8.11 Inter-storey drained joints must be constructed in accordance with the Technical Literature. Inter-storey drained joints must be provided to limit continuous cavities to the lesser of 2-storeys or 7 m in height, in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.9.4 b). For buildings more than 10 m high, a drained horizontal joint must be provided at each floor to accommodate the inter-storey deflections.

Structure

Mass

- 9.1 The mass of Axon™ Panel Cladding, when installed on the wall, is 12.1 kg/m² at equilibrium moisture content [EMC]. The cladding is therefore considered a light wall cladding in terms of NZS 3604.

Impact Resistance

- 9.2 Axon™ Panel Cladding will resist impacts likely to be encountered in normal residential use. The likelihood of impact damage to the cladding used in light commercial situations should be considered at the design stage, and appropriate protection such as the installation of bollards and barriers should be provided for vulnerable areas.

Wind Zones

- 9.3 Axon™ Panel Cladding, when installed as a direct-fixed cladding, is suitable for use in all Wind Zones of NZS 3604 up to, and including, Very High where buildings are designed to meet the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 1.1.
- 9.4 Axon™ Panel Cladding, when installed over timber cavity battens, is suitable for use in all Wind Zones of NZS 3604 up to, and including, Extra High where buildings are designed to meet the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 1.1, or up to 2.5 kPa ULS wind pressure where buildings are specifically designed.
- 9.5 Axon™ Panel Cladding, when installed over Hardie™ CLD™ Structural Cavity Battens, is suitable for use in buildings up to 25 m high, situated in specific design wind pressures up to maximum design differential ULS of 3.2 kPa, where studs are at maximum 400 mm centres.

Durability

- 10.1 Axon™ Panel Cladding meets the performance requirements of NZBC Clause B2.3.1 [b] 15 years for the Axon™ Panels and flashings, when installed in accordance with the manufacturer's instructions and when painted within 90 days of installation.

Serviceable Life

- 10.2 Axon™ Panel Cladding installations are expected to have a serviceable life of at least 50 years provided that they are maintained in accordance with this Appraisal and the Technical Literature.
- 10.3 Coastal locations can be very corrosive to fasteners, especially locations within 500 m from the sea, including harbours, or 100 m from tidal estuaries and sheltered inlets, and otherwise as shown in NZS 3604, Figure 4.2. These coastal locations are defined in NZS 3604 as Zone D. It is recommended that Axon™ Panel Cladding be fixed with stainless steel fasteners in these situations.
- 10.4 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 Axon™ Panel Cladding 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

- 11.1 Regular maintenance is essential for Axon™ Panel Cladding to continue to meet the NZBC durability performance provision and to maximise the serviceable life.
- 11.2 Annual inspections must be made to ensure that all aspects of the cladding, including applied finishing systems, flashings and any sealed joints remain in a weatherproof condition. Any damaged areas or areas showing signs of deterioration which would allow moisture ingress must be repaired immediately. Sealant and paint coatings must be repaired in accordance with the sealant or paint coating manufacturer's instructions.
- 11.3 Regular cleaning [at least annually] of the finish is required to remove grime, dirt and organic growth and to maximise the life and appearance of the coating. Grime may be removed by brushing with a soft brush, warm water and detergent. Paint systems must be re-coated at approximately 7-10 yearly intervals in accordance with the paint manufacturer's instructions.
- 11.4 Minimum ground clearances as set out in this Appraisal must be maintained at all times during the life of the cladding. *[Note: Failure to adhere to the minimum ground clearances given in this Appraisal and the Technical Literature may adversely affect the long-term durability of Axon™ Panel Cladding].*

Prevention of Fire Occurring

- 12.1 Separation or protection must be provided to Axon™ Panel Cladding 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.

Control of External Fire Spread

Vertical Fire Spread - Buildings 10 m in height or less

- 13.1 When the system is used in buildings 10 m or less in height, 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

- 13.2 Axon™ Panel Cladding can form part of an external wall cladding system designed to meet Vertical Fire Spread requirements. The following information is provided to support the specific engineering design.
- 13.3 Axon™ Panel Cladding, as part of the James Hardie External Cladding System, has been tested to NFPA 285 and has passed the test criteria. The components listed in Table 1 form a part of the James Hardie External Cladding System and have been tested and achieved the listed classifications.

Table 1: Components of the Axon™ Panel Cladding system

Component	Test Method	Result
Axon™ Cladding Panels	AS/NZS 3837:1998 Component of NFPA 285 test	Pass: Type A Pass
James Hardie Rigid Air Barrier (RAB™ Board)	AS/NZS 3837:1998 Component of NFPA 285 test	Pass: Type A Pass
Hardie™ CLD™ Structural Cavity Battens	Component of NFPA 285 test	Pass
Joinery and joint flashings and mouldings	Aluminium as defined in C/AS2 definitions	Non-combustible
Inseal Foam Tape	Component of NFPA 285 test	Pass
Fixings	Steel as defined in C/AS2 definitions	Non-combustible

Horizontal Fire Spread

- 13.4 Axon™ Panels have a peak heat release rate of less than 100 kW/m² and a total heat released of less than 25 MJ/m². Refer to NZBC Acceptable Solutions C/AS1 and C/AS2 and NZBC Verification Method C/VM2 for fire resistance rating [FRR] and control of external fire spread requirements for external walls.

External Moisture

- 14.1 Axon™ Panel Cladding, when installed in accordance with this Appraisal and the Technical Literature, will prevent the penetration of moisture that could cause undue dampness or damage to building elements.
- 14.2 The cavity must be sealed off from the roof and subfloor space to meet code compliance with NZBC Clause E2.3.5.
- 14.3 Axon™ Panel Cladding allows excess moisture present at the completion of construction to be dissipated without permanent damage to building elements to meet code compliance with NZBC Clause E2.3.6.
- 14.4 The details given in the Technical Literature for weather sealing are based on the weathertightness design principles outlined in NZBC Acceptable Solution E2/AS1. The ingress of moisture must be excluded by detailing joinery and wall interfaces as shown in the Technical Literature and the relevant provisions of NZBC Acceptable Solution E2/AS1. Weathertightness details that are developed by the designer are outside the scope of this Appraisal and are the responsibility of the designer for compliance with the NZBC.
- 14.5 Where a designed cavity drainage path is used in conjunction with Axon™ Panel Cladding, it does not reduce the requirements for junctions, penetrations, etc. to remain weather-resistant.

Internal Moisture

- 15.1 Buildings must be constructed with an adequate combination of thermal resistance and ventilation, and space temperature must be provided to all habitable spaces, bathrooms, laundries and other spaces where moisture may be generated or may accumulate.

Water Vapour

- 15.2 Axon™ Panel Cladding is not a barrier to the passage of water vapour, and when installed in accordance with the Technical Literature and this Appraisal, will not create or increase the risk of moisture damage resulting from condensation.

Installation Information

Installation Skill Level Requirement

- 16.1 All design and building work must be carried out in accordance with the Axon™ Panel Cladding Technical Literature and this Appraisal, by competent and experienced tradespersons conversant with Axon™ Panel Cladding. 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

Wall Underlay and Flexible Sill and Jamb Tape Installation

- 17.1 Flexible underlay or rigid wall underlay and flexible sill and jamb tape systems must be installed by the building contractor, in accordance with the underlay and tape manufacturer's instructions and NZBC Acceptable Solution E2/AS1, prior to the installation of the cavity battens and the Axon™ Panel Cladding. Flexible wall underlay must be installed horizontally and be continuous around corners. Underlay must be lapped 75 mm minimum at horizontal joints and 150 mm minimum over studs at vertical joints. Rigid wall underlays must be installed in accordance with the instructions of the manufacturer and the Technical Literature. Particular attention must be paid to the installation of the wall underlay and sill and jamb tapes around window and door openings to ensure a continuous seal is achieved and all exposed wall framing in the opening is protected.
- 17.2 In cavity installations where studs are at greater than 400 mm centres and a flexible wall underlay is used, a wall underlay support must be installed in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5.

RAB™ Board

- 17.3 RAB™ Board must be installed in accordance with the Technical Literature and BRANZ Appraisal No. 611 James Hardie Rigid Air Barriers.

Timber Cavity Battens

- 17.4 Cavity battens must be installed vertically over the flexible or rigid wall underlay to the wall studs. The battens must be temporarily fixed in place with 40 x 2.8 mm or longer nails at maximum 800 mm centres. Where a rigid wall underlay is used, the length of the cladding fixing must be increased by a minimum of the thickness of the underlay.

Hardie™ CLD™ Structural Cavity Battens

- 17.5 Hardie™ CLD™ Structural Cavity Battens must be fixed to the wall framing over the wall underlay to the studs at maximum 600 mm centres where the studs are at 600 mm centres or at 400 mm centres when studs are at 400 mm centres. Where a rigid wall underlay is used, the length of the fixing must be increased by a minimum of the thickness of the underlay. The battens are run continuously over the studs but must not run continuously over the floor joists. The smallest section of Hardie™ CLD™ Structural Cavity Batten must be at least 300 mm long.

Axon™ Panel Cladding Installation

- 17.6 Axon™ Panels may be cut on-site by 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.
- 17.7 Axon™ Panels must be kept dry prior to installation. Before the panels are installed, cut ends exposed to the exterior such as at aluminium box corners or internal corners must be sealed with an acrylic sealer to reduce the absorbency of the fibre cement. Prior to installing cladding, ensure all pipes and penetrations have been sealed in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.9.
- 17.8 Cavity battens and cavity closers (when applicable) must be installed in accordance with the Technical Literature and NZBC Acceptable Solution E2/AS1.
- 17.9 Before the Axon™ Panels are installed, the sheet set out must be checked and the internal and external corners prepared to suit the selected design option, e.g. external box corners or corner soakers. The necessary flashings, including window flashings, must be installed before commencing with sheet fixing.
- 17.10 Axon™ Panel Cladding must be installed whilst ensuring alignment at the base of the cladding, ensuring the bottom edge of the Axon™ Panels overhang the bottom plate or bearer by a minimum of 50 mm.
- 17.11 Vertical sheet joints in Axon™ Panels must be made over solid support, either cavity battens in the case of a cavity installation, or over studs or vertical blocking within the wall frame in direct-fixed installations. Axon™ panel fixings must be installed as shown in the Technical Literature with regard to position from the sheet edge and installation angle. Vertical joints can be overlaid with a timber batten, in accordance with the details contained in the Technical Literature.
- 17.12 Axon™ Panels must be fixed in accordance with the Technical Literature and this Appraisal. Consideration shall be given to the type of installation (direct-fixed or cavity) and any requirements for corrosion resistance. In cases where a rigid wall underlay is used, cladding fixings shall be increased in length by at least the thickness of the rigid wall underlay to ensure the fixing performance is not compromised.

Aluminium Joinery Installation

- 17.13 Aluminium joinery and associated head and sill flashings and joinery support bars must be installed by the building contractor in accordance with the Technical Literature. A 7.5 mm nominal gap must be left between the joinery reveal and the wall framing so a PEF rod and air seal can be installed after the joinery has been secured in place.
- 17.14 After installing the window and door joinery, trim profiles such as planted sills and scribes may be installed in accordance with the Technical Literature to provide additional weatherproofing for the joinery/cladding junction.

Finishing

- 17.15 The finish coating manufacturer's instructions must be followed at all times for application of the paint finish. Axon™ Panel Cladding must be clean and dry before commencing painting.

Inspections

- 17.16 The Technical Literature must be referred to during the inspection of Axon™ Panel Cladding installations.

Health and Safety

- 18.1 Cutting of Axon™ Panels must be carried out in well ventilated areas, and a dust mask and eye protection must be worn.
- 18.2 When power tools are used for cutting or forming holes, health and safety measures as set out in the Technical Literature must be observed.
- 18.3 Safe use and handling procedures for Axon™ Panel Cladding are provided in the Technical Literature.

Basis of Appraisal

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

Tests

- 19.1 Uniform wind face load tests to simulate wind pressures on Axon™ Panel Cladding were carried out by a James Hardie Australia Pty Ltd NATA accredited laboratory. The testing determined design wind suction pressures, and by comparing these pressures with the NZS 3604 and AS/NZS 1170 pressure coefficients, the fixing requirements were determined for timber-framed walls. The test methods and results have been reviewed by BRANZ and found to be satisfactory.
- 19.2 Axon™ Panel Cladding has been tested by a James Hardie Australia Pty Ltd NATA accredited laboratory in accordance with AS/NZS 2908.2 and ISO 8336. The testing covered: soak-dry, bending strength, warm water soaking, heat/rain, freeze/thaw and apparent density. The test methods and results have been reviewed by BRANZ and found to be satisfactory.
- 19.3 The James Hardie External Cladding System has been tested to NFPA 285 by Intertek and has passed the test criteria.
- 19.4 Axon™ Panel Cladding has been tested to AS/NZS 4284 by FacadeLab.

Investigations

- 20.1 Structural, weathertightness and durability opinions of Axon™ Panel Cladding have been provided by BRANZ technical experts.
- 20.2 Site inspections have been carried out by BRANZ to assess the practicability of installation, and to examine completed installations.
- 20.3 The Technical Literature for Axon™ Panel Cladding has been examined by BRANZ and found to be satisfactory.

Quality

- 21.1 The manufacture of Axon™ Panel Cladding has been examined by BRANZ, including methods adopted for quality control. Details regarding the quality of materials used and finished product was obtained by BRANZ and found to be satisfactory.
- 21.2 The quality of components and accessories supplied by James Hardie New Zealand Limited is the responsibility of James Hardie New Zealand Limited.
- 21.3 Quality of installation on-site is the responsibility of the installer, in accordance with the Axon™ Panel Cladding Technical Literature.
- 21.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the building underlay, cavity battens, Axon™ Panels and accessories, in accordance with the instructions of James Hardie New Zealand Limited.
- 21.5 Sub-trades are responsible for the installation of penetrations, flashing etc. that are relevant to their trade, in accordance with the Axon™ Panel Cladding Technical Literature.
- 21.6 Building owners are responsible for the maintenance of Axon™ Panel Cladding in accordance with the instructions of James Hardie New Zealand Limited.

Sources of Information

- AS 3566.1-2002 Self-drilling screws for the building and construction industries - General requirements and mechanical properties.
- AS 3730 Guide to the properties of paints for buildings.
- AS/NZS 2904:1995 Damp-proof courses and flashings.
- AS/NZS 2908.2:2000 Cellulose-cement products - Flat sheet.
- AS/NZS 4284:2008 Testing of building facades.
- AS/NZS 4680:2006 Hot-dip galvanised [zinc] coatings on fabricated ferrous articles.
- BRANZ Appraisal No. 611 James Hardie Rigid Air Barriers.
- BRANZ EM7 Performance of mid-rise cladding systems.
- ISO 5660.1:2015 Heat release rate [cone calorimeter method].
- ISO 8336:2017 Fibre-cement flat sheets - Product specification and test methods.
- NZS 3602:2003 Timber and wood-based products for use in building.
- NZS 3604:2011 Timber-framed buildings.
- SNZ TS 4211:2022 Specification for the performance of windows.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 13 October 2022

This Appraisal has been amended to correct the serviceable life statement.

Amendment No. 2, dated 03 April 2024

This Appraisal has been amended to change the Appraisal name and to increase the scope for buildings up to 25 m in height.



In the opinion of BRANZ, **Axon™ Panel Cladding** 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 **James Hardie New Zealand Limited**, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

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

For BRANZ



Chelydra Percy

Chief Executive

Date of Issue:

19 May 2022

Certificate no: CMNZ30165

Version: A

Original issue date: 15/03/2024

Version date: 15/03/2024

Renewal Date: 15/03/2027

1 Certificate Holder Details



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Complaints: The complaints process for this certificate can be found here: www.global-mark.co.nz/complaints

Global-Mark Managing Director.

Harve Michoux



Product Certificate

Axon™ Panel Cladding System by James Hardie

3. Description of Building Method or Product

Axon™ Panel Cladding System is a cavity-based or direct fixed fibre cement panel wall cladding system.

Axon™ Panel are supplied in various panel surface variations e.g. grooved 133, grooved 400, smooth or textured. The panels are 2450, 2750mm, 3000mm and 3600mm long.

The cladding is finished with a latex paint system.

4. Intended use of Building Method or Product

The system is designed to be used as part of an external cladding system on timber framed building

5. New Zealand Building Code Provisions

The System if designed, used, installed and maintained in accordance with the conditions of this Certificate will comply with or contribute to compliance with the following performance provisions of the NZ Building Code:

Clause B1 STRUCTURE:	Performance B1.3.1, B1.3.2 and B1.3.4, for the relevant physical conditions of B1.3.3 (a), (h), (i) & (q)
Clause B2 DURABILITY:	Performance B2.3.1(b) 15 years and B2.3.2(a)
Clause C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE:	Performance C3.5 and C3.7
Clause E2 EXTERNAL MOISTURE:	Performance E2.3.2, E2.3.5, E2.3.6 and E2.3.7
Clause F2 HAZARDOUS BUILDING MATERIALS:	Performance F2.3.1

6. Conditions and Limitations of Use

1. The system is certified:
 - a. as a direct fixed external wall cladding for buildings:
 - i. within the scope limitations of the NZBC Acceptable Solution E2/AS1, 3rd Edition, amendment 10, 5 November 2020, Paragraph 1.1,
 - ii. with a risk score of up to 6, calculated in accordance with the NZBC Acceptable Solution E2/AS1, 3rd Edition, amendment 10, 5 November 2020, Table 2,



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Certificate no: CMNZ30165

Version: A

Original issue date: 15/03/2024

Version date: 15/03/2024

Renewal Date: 15/03/2027

- iii. situated in in NZS 3604:2011 Wind Zones up to, and including Very High, and
 - b. as a cavity fixed external wall cladding for buildings:
 - i. within the scope limitations of the NZBC Acceptable Solution E2/AS1, 3rd Edition, amendment 10, 5 November 2020, Paragraph 1.1,
 - ii. with a risk score of up to 20, calculated in accordance with the NZBC Acceptable Solution E2/AS1, 3rd Edition, amendment 10, 5 November 2020, Table 2,
 - iii. situated in in NZS 3604:2011 Wind Zones up to, and including Extra High, and
 - c. as a cavity fixed external wall cladding for buildings specifically engineering designed (SED):
 - i. up to 25m in height, and
 - ii. with an inter-storey drift of span/180 maximum, and
 - iii. either:
 1. the design ultimate limit state (ULS) differential wind pressure does not exceed 2.5 kPa with the stud and batten spacing no more than 600mm centres, or
 2. the design ultimate limit state (ULS) differential wind pressure does not exceed 3.2 kPa with the stud and batten spacing no more than 450mm centres,
 - d. located:
 - i. in all exposure zones (except microclimates) as defined in NZS3604:2011 section 4.2, and
 - ii. anywhere in relation to the relevant boundary for Importance Levels 1 to 4 buildings within the scope of:
 1. C/AS1, Second edition, 2 November 2023 paragraph 1.1.1 or
 2. C/AS2, amendment 3, 2 November 2020 paragraph 1.1.1
2. The system shall be specified, installed, inspected and maintained in accordance with the following sets of documents collectively referenced as the Applicable Technical Specification to the extent that their scope covers that for this Certificate:
 - a. For the Direct fix applications,
 - i. Axon™ Panel Direct Fixed – Technical specification, March 2024, and
 - ii. Fire & Acoustic Design Manual (November 2020) by James Hardie section 4:16 Control of External Fire Spread, figures No's. 1 to 8 and 12 to 20, specifically details JHETGA30, JHETGA60 and JHETAA60.
 - b. For the Cavity application for building described in 1b above
 - i. Axon™ Panel Timber Cavity Batten - Technical Specification – March 2024 or Axon™ Panel Fixed to Hardie™ CLD™ Structural Cavity Batten – Technical specification, March 2024 as applicable , and
 - ii. Fire & Acoustic Design Manual (November 2020) by James Hardie section 4:16 Control of External Fire Spread, figures No's. 1 to 8 and 12 to 20, specifically details JHETGA30, JHETGA60, JHETAA60, JHETGR30-A, JHETGR60-A and JHETRR60-A.

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- c. For the Cavity application for building described in 1c above
 - i. Axon™ Panel Fixed to Hardie™ CLD™ Structural Cavity Batten – Technical specification, March 2024, and
 - ii. Fire & Acoustic Design Manual (November 2020) by James Hardie section 4:16 Control of External Fire Spread, figures No's. 1 to 8 and 12 to 20, specifically details JHETGR30-A, JHETGR60-A and JHETRR60-A.

The details JHETGA30, JHETGA60, JHETAA60, JHETGR30-A, JHETGR60-A and JHETRR60-A have only been assessed and certified with respect to external fire spread via Axon™ Panel Cladding. For walls located within 1.0 m of a relevant boundary, Axon™ Panel Cladding System may be used as an external façade/cladding attached to the exterior of fire rated wall systems as depicted within the Fire and Acoustic Design Manual (November 2020). Fire Resistance rating performance of the wall assembly falls outside the scope of this certificate

(Note: Above provisions of the documents are related to the use of the system with timber frame construction, **steel-frame construction is outside the scope of this certification**).

3. In wind zones greater than Very High a rigid air barrier which complies with Table 23 of E2/AS1 shall be used. In Buildings exceeding 10 m in height RAB™ Board must be used including horizontal control joints in accordance with the requirements of the Codemark certificate for RAB™ Board. (Refer to GM-CM30130)
4. The system is certified for use:
 - a. with the ancillary components as described in this certificate,
 - b. with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. Only joinery compliant with the requirements of NZS 4211:2008 including amendment 1 for the relevant Wind Zone or wind pressure shall be used.
5. CLD battens are required to be used in all cavity applications other than the building described in 1b.
6. Axon™ Panel Cladding System shall only be installed vertically on vertical surfaces.
7. All exposed faces, including top edges at sills and all bottom edges of Axon™ Panel and fibre cement ancillary components shall be finished with a latex exterior paint system complying with any of Parts 7, 8, 9, or 10 of AS 3730
8. E2.3.5 and E2.3.6 compliance is limited to cavities created between the internal surface of the weatherboards and the underlay or RAB™ Board's.

7. Health and Safety Information

Standard industry safety practices and manufacturer safety requirements as detailed in the technical literature including the applicable SDS must be observed at all times. Please refer to James Hardie SDS Fibre Cement Products June 2022

8. Basis for Certification

The certification decision is based on independent technical review(s) of test report(s), engineering opinion(s) and other documented evidence(s), factory audit(s) and site review(s)



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Code Clause	Compliance pathway	Evidence
B1 STRUCTURE	Alternate solution based on NZS3604:2011 and comparison with E2/AS1	001,002, 003, 004, 005, 015, 016, 017 & 022
B2 DURABILITY	Alternate solution based on expert judgement	001, 005, 015, 016, 017 & 020
C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE	Alternate solution based on expert judgement and testing to NFPA 285	001,006, 007, 008,009,010, 011, 012, 015, 016, 017 & 018
E2 EXTERNAL MOISTURE	Alternate solution based on expert judgement and testing to AS/NZS4284	001, 005, 013, 014, 015, 016, 017, 020 & 021
F2 HAZARDOUS BUILDING MATERIALS	Alternate solution based on expert judgement	001, 015, 016, 017 & 019

9. Supporting Documentation for Certification

Rev	Author	Description	Date and/or Revision
001	GLOBAL-MARK	Codemark Certification GM-CM30130 HomerABTM Pre-Cladding and RABTM Board by JAMES HARDIE	Rev A
002*	BRANZ	BRANZ Assessment – Face Load Strength of James Hardie Linea Weatherboard Clad Walls and Variations of Sheet thickness and Nail type (reviews STO483)	STO102/SM30/SJT dated 11 November 2002
003	Cardno	CERTIFICATION OF JAMES HARDIE 9MM AXON™ CLADDING WITH OPTIONAL FIXING TO CAVITY TRIM BATTENS	605726-LO-07-3 dated 19/10/2021
004*	David Beneke Consulting	PRODUCER STATEMENT PS-1 STRUCTURAL DESIGN VERIFICATION OF JAMES HARDIE TITAN® PANEL CLADDING FOR NEW ZEALAND	2018-27-LO-05 dated 19/12/2017
005*	James Hardie Building products	Test certificate Heat-rain Resting of Axon in a/w ISO 8336	HR004-06 dated 11/08/2006
006*	Intertek B&C	JH cavity fix wall assembly fire test as per NFPA 285	J6706.01-121-24 - 20th August 2019



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Product Certificate

Axon™ Panel Cladding system by James Hardie



007*	Intertek B&C	JH cavity fix wall assembly fire test as per NFPA 285	J6707.01-121-24 - 21st August 2019
008*	BRANZ	Fire Assessment Report based Cone calorimeter test.	FH3182 21 November 2002
009*	BRANZ	Fire Assessment Report based Cone calorimeter test.	FH 2976 15 May 2001
010*	BRANZ	Fire Assessment Report based Cone calorimeter test (BRANZ Project No. FC10254-001).	FSR 4206 Issue2 7 November 2018
011*	BRANZ	Fire technical Opinion: Technical opinion based on NFPA 285 Compliance with NZBC C/AS2, clause 5.8.2 (b) and C/VM2 Part A (a).	FC12172-001 1 November 2019
012*	BRANZ	Fire technical Opinion: Fire resistance of James Hardie Wall Systems with Service Penetrations	FC12040-004 -03 December2019
013*	Facadelab	Testing of James Hardie Panel 9mm nominal thickness with LCD structural cavity batten and 140 mm Framing in accordance with AS/NZS 4284:2008 Testing of Building Facades	23-07
014*	James Hardie Research and Product Development Centre	E2/VM1 test on Scyon Axon Fibre Cement cladding System	TS033-13 dated 08/01/2014
015	James Hardie	Axon™ Panel Direct Fixed – Technical specification	March 2024
016	James Hardie	Axon™ Panel Timber Cavity Batten - Technical Specification	March 2024
017	James Hardie	Axon™ Panel Fixed to Hardie™ CLD™ Structural Cavity Batten – Technical specification	March 2024
018	James Hardie New Zealand Limited	James Hardie Fire & Acoustic Design Manual. Section 4:17 Control of External Fire Spread, figures No's. 1 to 9 8 and 12 to 20, specifically details JHETGA30, JHETGA60, JHETAA60, JHETGR30-A, JHETGR60-A and JHETRR60	November 2022
019	James Hardie New Zealand Limited	LQA8N - SAFETY DATA SHEET- JAMES HARDIE FIBRE CEMENT SHEETS PRODUCTS	Version No.: 2.0 ISSUED Date : 22/06/2022



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Certificate no: CMNZ30165

Version: A

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Version date: 15/03/2024

Renewal Date: 15/03/2027

Product Certificate

Axon™ Panel Cladding system by James Hardie



020*	James Hardies New Zealand	Axon Panel	21 February 2024
021*	James Hardie Australia	Test Report TS-0032-12	20 February 2013
022*	James Hardies R&D Australia	Test Report TS-008-21	9 August 2021

* These documents were provided commercial in confidence and are not publicly available

10. Supporting Information About Description (Optional)

Nil

11. Supporting Information About Intended Use (Optional)

Nil

12. Supporting Information About Conditions and Limitations of Use (Optional)

Nil

All CodeMark certificates that are current much be registered with MBIE. MBIE maintains a register of valid product certificates. [Please find the register here.](#)

If the certificate is not listed on this register or it appears as (SUSPENDED), it is not a valid CodeMark certificate and does not have to be accepted by a building consent authority as establishing compliance with the New Zealand Building Code.



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Axon™ Panel

Product Technical Statement

Product Description: Axon™ Panel is a 9mm thick vertical grooved ship-lapped edge panel manufactured using low density fibre cement formulation.

Scope of Use: Axon™ Panel installed using Hardie™ CLD™ Structural Cavity Battens or timber cavity battens is suitable for use as external wall cladding in residential buildings within the scope of E2/AS1, or in residential/commercial buildings exposed to design wind pressure up to 2.5kPa (ULS) maximum covered by a specific engineering design (SED).

Axon™ Panel can also be installed direct to the framing (without cavity) for residential buildings within or up to the risk score 6 calculated as per Table-2 of E2/AS1. Axon™ Panel can also be used for external wall bracing applications in residential buildings as per NZS 3604.

Limitations: Axon™ Panel must not be used in following situations

- Installed horizontally
- In curved wall applications
- In situations where it stays in contact with ground moisture.

Compliance with NZBC: The following clauses of the NZBC are applicable to Axon™ Panel and it complies with these requirements as explained below.

Structure - B1: Uniformly Distributed Load testing has been completed and the suitability of Axon™ Panel and its fixings have been verified to meet wind pressure requirement up to design wind pressure of 2.5kPa and complies with the requirements of Clause B1.3.1, B1.3.2 and B1.3.4.

Axon™ Panel has been tested as per BRANZ P21 test method and is suitable for structural bracing.

Durability - B2: Axon™ Panel and Hardie™ CLD™ Structural Cavity Battens have been tested at a NATA accredited laboratory in accordance with AS/NZS 2908.2 and meets the durability performance requirements as per Clause B2.3.1(a) and B2.3.2.

Fire Performance - C: Axon™ Panel has been tested and is suitable for use where 'non-combustible' cladding materials are required to be used on external fire rated walls close to boundaries. It meets the requirements of Clause C3.5 and C3.7.

External Moisture - E2: Axon™ Panel has been tested as per the installation details published for weathertightness as per E2/VM1 and meets the requirements of Clause E2.3.2.

Hazardous Building Materials - F2: Axon™ Panel complies with the requirements of Clause F2.3.1 and will not present a health hazard when handled as per its technical specifications.

Energy Efficiency - H1: Axon™ Panel wall in external application using bulk insulation meets the construction R-Value requirements of Clause H1.

Installation: Axon™ Panel must be installed in accordance with the current Axon™ Panel/EasyLap™ Panel Technical Specification. The specification and details are available online at www.jameshardie.co.nz or Ask James Hardie™ at 0800 808 868 for further information.

Axon™ Panel has a BRANZ appraisal. Refer to BRANZ appraisal No. 1211 at www.branz.co.nz

Warranty: Axon™ Panel has a product warranty of 15 years when installed and maintained as per the current technical specification.

Axon™ Panel is not subject to a warning or ban under section 26 of the Building Act. Axon™ Panel is manufactured in Australia.

Fibre cement panel with subtle vertical lines

[View miproducts listing](#)



Level of assurance needed to demonstrate NZ Building Code Compliance

Supporting documentation should include technical information by manufacturer and either a BRANZ or independent Appraisal or CodeMark



James Hardie confirms that this minimum level of assurance has been met or exceeded by the following:

Axon Panel meets the E2/VM1 test criteria. Call James Hardie for further information

[Axon Panel James Hardie](#)

Technical Statement

Product Description

James Hardie's Axon™ Panel presents you with a cladding product with subtle vertical lines. Panels can be painted any colour of the spectrum, including black. Shiplap jointing option facilitates concealed vertical joints giving it a versatile look. Combined with its superior weather resistance and durability, when you select Axon Panel you'll be designing a home that will reflect your style and personality.

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 B1 Structure:** Performance B1.3.1, B1.3.2
- **Clause B2 Durability:** Performance B2.3.1(b), B2.3.2
- **Clause C3 Fire affecting areas beyond the fire source:** Performance C3.6, C3.7(a)
- **Clause E2 External moisture:** Performance E2.3.2, E2.3.3, E2.3.4, E2.3.5, E2.3.6
- **Clause F2 Hazardous building materials:** Performance F2.3.1
- **Clause H1 Energy efficiency :** Performance H1.3.1

Evidence

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

Structure - B1: Uniform wind face load tests have been completed at a NATA accredited James Hardie laboratory and the suitability of its fixings has been verified to meet wind pressure requirement in various wind zones classified in NZS 3604 and SED wind zone up to wind pressure of 2.5kPa and meets the requirements of B1.3.1, B1.3.2 and B1.3.4. Axon Panels have been tested as per BRANZ P21 test method for structural bracing.

Durability - B2: Axon Panel has been tested at a NATA accredited laboratory in accordance with AS/NZS 2908.2 and meets the durability performance requirements as per B2.3.1(a) and B2.3.2 of this clause.

Fire Performance - C: Axon Panel has been assessed and is classified as non-combustible material and is suitable for use on external walls close to boundaries.

External Moisture - E2: Axon Panel cavity cladding as per its details has been tested for weathertightness as per E2/VM1 (as contained within NZBC Clause E2).

Hazardous Building Materials - F2: Axon Panel complies with the requirements of F2.3.1 and will not present a health hazard when handled as per its technical specifications.

Energy Efficiency - H1: Axon Panel walls constructed using bulk insulation meets the construction R Value requirements as per Table 1 of Clause H1..

Supporting Evidence

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



Axon Panel meets the E2/VM1 test criteria. Call James Hardie for further information

[Axon Panel James Hardie](#)

Product Criteria

Design requirements

Axon™ Panel is ideal for general cladding purpose for both residential and light commercial buildings. Axon™ Panel can also be used to achieve special feature looks combined with other



masterspec partner

Company Contact Details



JamesHardie™

Company: James Hardie

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Penrose
AUCKLAND

Postal Address: PO Box 12070
Penrose
AUCKLAND

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Website: www.jameshardie.co.nz

James Hardie Axon™ Panel

Product Technical Statement: 101218



James Hardie claddings such as Linea™ Weatherboard and Titan™ Façade Panel.

Installation requirements

For installation information refer to Axon™ Panel Technical Specification.

Maintenance requirements

- As a guide, it is recommended that the basic normal maintenance tasks shall include, but not be limited to:
- Washing down exterior surfaces every 6-12 months*
- Re-coating exterior protective finishes if necessary**
- Regular inspection and repair if necessary of the cladding, sealants, etc.
- Cleaning out gutters, down pipes and overflow pipes as required.
- Pruning back vegetation which is close to or touching the building as well as ensuring the New Zealand Building Code ground clearance requirements are maintained especially where gardens are concerned.
- The clearance between the bottom edge of Axon Panel and the finished ground must always be maintained.

**Do not use a water blaster to wash down the cladding. In extreme coastal conditions or sea spray zones, wash every 3-4 months.*

***Refer to the paint manufacturer for washing down and recoating requirements related to ongoing paint performance.*

Warrantees

Axon Panel has a standard product warranty of 15 years when installed and maintained as per the technical specification.

Company Product Information

Environmental

We aim to conduct business in an environmentally sound and sustainable manner and to use management systems and operating procedures to identify, monitor, control and reduce the impact of our operations and our products on the environment. We strive to continually improve our manufacturing processes and product formulations to minimise our carbon footprint. As such, we are committed to ecologically sustainable development (ESD) principles.

Quality Assurance



ISO 9001 (Quality Management)

Relationships



New Zealand Made



Date last validated: 21 August 2019



Date last updated: 21 August 2019

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

4283RM RCS Fibre Cement Sheet Finishing Systems



Resene Construction Systems

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SUPPORTING DOCUMENTS

BRANZ Appraisal 500 - Fibre Cement Sheet Finishing System

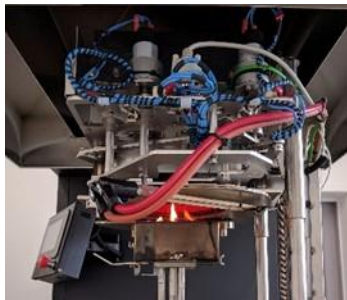
Ref 103057. Uploaded 19 Nov 2024

Purpose: Performance

Maintenance Guide

Ref 32512. Uploaded 19 Nov 2024

Purpose: Maintenance



BRANZ Fire Test Report

FH18500-01-1

CONE CALORIMETER TEST OF MINERAL RENDER SYSTEM WITH RESENE X200 PAINT FINISH IN ACCORDANCE WITH ISO 5660

CLIENT

Resene Construction Systems
5 Venture Place
Middleton
Christchurch 8024
New Zealand



All tests and procedures reported herein, unless indicated, have been performed in accordance with the laboratory's scope of accreditation



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TEST SUMMARY

Objective

To conduct cone calorimeter testing and reduce the data in accordance with ISO 5660 Part 1:2002 as specified in New Zealand Building Code (NZBC) Acceptable Solutions C/AS1 Appendix E E.5 and C/AS2 Appendix C C7.1. The testing was conducted on client supplied specimens for the purposes of determination of the performance in accordance with:

- NZBC Acceptable Solution C/AS1: Appendix E, Table E.5.1.1
- NZBC Acceptable Solution C/AS2: Appendix C, Table C1.3

Test sponsor

Resene Construction Systems
5 Venture Place
Middleton
Christchurch 8024
New Zealand

Description of test specimen

The product is described by the client as a Mineral Render System with a Mineral Texture and a Resene X200 paint finish in white. Samples were supplied applied to a nominally 9 mm fibre cement board for a total nominal thickness of 15 mm.

Date of tests

10th September 2024

Test results

For the purposes of compliance with the relevant building code documents, the following classification is considered applicable to the tested samples as described in Section 1.

Building Code Document	Cladding Material Type
NZBC Acceptable Solutions C/AS1: Appendix E, Table E.5.1.1 - Classification of materials in external wall cladding systems	Type A
NZBC Acceptable Solutions C/AS2: Appendix C, Table C1.3 - Classification of cladding materials	Type A



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LIMITATION

The results reported here relate only to the item/s tested.

TERMS AND CONDITIONS

This report is issued in accordance with the Terms and Conditions as detailed and agreed in the BRANZ Services Agreement for this work.



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SIGNATORIES



Author

L. M. Grant
Associate Fire Testing Engineer
Authorised to author this report



Reviewed by

L. Q. Greive
Fire Testing Engineer
Authorised to review this report



Authorised by

L. F. Hersche
Fire Testing Engineer
Authorised to release this report to client

DOCUMENT REVISION STATUS

ISSUE NO.	DATE ISSUED	DESCRIPTION	AUTHOR	REVIEWER
1	2/10/2024	Initial Issue	LMG	LQG

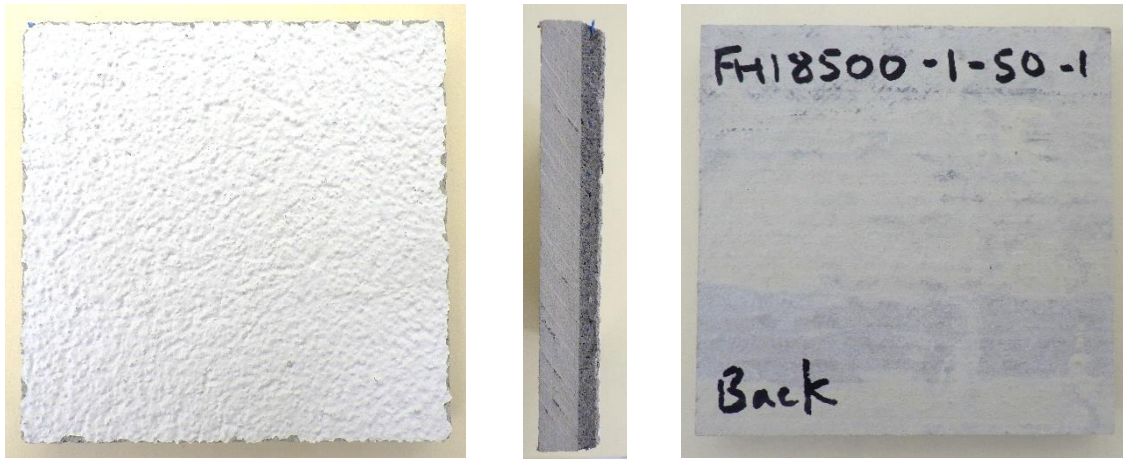
1. GENERAL

1.1 Sample description

The product submitted by the client for testing was identified by the client as a Mineral Render System with a Mineral Texture and a Resene X200 paint finish in white. Samples were supplied applied to a nominally 9 mm fibre cement board for a total nominal thickness of 15 mm.

Figure 1 illustrates a representative specimen of that tested.

Figure 1: Representative specimen (Exposed face on left, edge view centre, reverse face on right)



1.2 Sample measurements

The following physical parameters were measured for each specimen prior to testing.

Table 1: Physical parameters

Client ID	Specimen ID	Initial properties		Overall apparent density (kg/m ³)	Colour
		Mass (g)	Mean thickness (mm)		
Mineral Render System with a Mineral Texture and Resene X200	FH18500-1-50-1	195.6	14.5	1349	White
	FH18500-1-50-2	198.8	15.3	1299	
	FH18500-1-50-3	191.1	14.8	1291	
	FH18500-1-50-4	203.7	15.2	1340	
	FH18500-1-50-5	184.8	14.5	1274	
	FH18500-1-50-6	191.2	14.8	1292	

2. EXPERIMENTAL PROCEDURE

2.1 Test standard

The tests were carried out and data reduced according to the test procedures described in ISO 5660:2002, Reaction-to-fire tests – Heat release, smoke production and mass loss – Part 1: Heat release rate; (the test standard). The sample preparation and test procedure were as described in 2.4, 2.5 and **Error! Reference source not found.**, with the following specific requirements:

- An applied external heat flux of 50 kW/m², and
- A test duration of 15 minutes, and
- The total heat release rate measured from the start of the test, and
- Sample orientation horizontal, and
- Ignition initiated by the external spark igniter.

2.2 Test date

The tests were conducted on 10th September 2024 by Ms Lisa Grant at BRANZ Limited laboratories, Judgeford, New Zealand.

2.3 Specimen conditioning

All specimens were conditioned to moisture equilibrium (constant weight), at a temperature of 23 ± 2°C and a relative humidity of 50 ± 5% immediately prior to testing.

2.4 Special weathering

According to Acceptable Solutions C/AS1 Appendix E E.5.1.3 and C/AS2 C7.1.3, timber claddings which have a fire-retardant treatment incorporated in or applied to them are required to be subjected to the regime of accelerated weathering described in ASTM D 2898 Method B with the water flow rate from Method A before testing. The tested specimens were not timber claddings incorporating a fire retardant and therefore were not subjected to the accelerated weathering.

2.5 Specimen wrapping and preparation

All tests were conducted and the specimens prepared in accordance with the test standard. The spark igniter and the stainless-steel retainer frame were used. All specimens were wrapped in a single layer of aluminium foil, covering the unexposed surfaces.

2.6 Test programme

The test program consisted of six replicate specimens tested at an irradiance level of 50 kW/m². All tests were carried out with the specimen horizontal, and with a nominal duct flow rate of 0.024 m³/s.

2.7 Calculation of heat release without ignition

If a tested specimen does not display ignition, the average heat release rate values are to be calculated from the last negative heat release reading after the test begins.



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If the last recorded negative heat release reading is not able to be established as there were multiple negative heat release readings over the course of the test, average values are calculated from the first positive heat release reading after the start of the test.

2.8 Specimen selection

BRANZ was not involved in the selection of the materials submitted for testing. The test materials used were supplied to the laboratory by the client.



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3. TEST RESULTS AND REDUCED DATA

3.1 Test results and reduced data – ISO 5660

The test results obtained for the Mineral Render System with X200 finish, as described in Section 1, are presented in Table 2 below. The data has been reduced in accordance with Section 2.1.

Table 2: Test results and reduced data – ISO 5660

Material	Test specimens as described in Section 1						Mean
Specimen test number	FH18500-1-50-1	FH18500-1-50-2	FH18500-1-50-3	FH18500-1-50-4	FH18500-1-50-5	FH18500-1-50-6	
Test Date	10/09/2024	10/09/2024	10/09/2024	10/09/2024	10/09/2024	10/09/2024	
C-Factor	0.0434	0.0434	0.0434	0.0434	0.0434	0.0434	0.0434
Time to sustained flaming s	94	96	106	98	90	99	97
Observations ^a	Refer to table 3						
Test duration ^b s	900	900	900	900	900	900	900
Mass remaining, m_r g	179.9	184.0	175.4	188.8	169.0	175.9	178.8
Mass pyrolyzed %	8.0	7.4	8.2	7.3	8.5	8.0	7.9
Specimen mass loss ^c kg/m ²	1.7	1.5	1.6	1.5	1.7	1.6	1.6
Specimen mass loss rate ^c g/m ² .s	2.1	1.9	2.0	1.9	2.0	2.0	2.0
Heat release rate							
peak, $\dot{q}_{\max}''$ kW/m ²	61.1	61.5	47.1	56.2	49.1	56.3	55.2
average $\dot{q}_{\text{avg}}''$							
Over 60 s from ignition kW/m ²	35.7	35.5	24.5	31.1	26.5	31.5	30.8
Over 180 s from ignition kW/m ²	15.8	16.8	12.4	14.1	13.0	15.1	14.5
Over 300 s from ignition kW/m ²	11.3	12.7	9.5	10.6	9.2	11.8	10.9
Over 600 s from ignition kW/m ²	7.5	8.8	7.6	7.7	6.4	8.8	7.8
Total heat released MJ/m ²	5.6	6.4	5.8	5.8	4.9	6.9	5.9
Average Specific Extinction Area m ² /kg	31.1	26.5	0 [^]	7.7	0 [^]	10.5	4.3
Effective heat of combustion ^d , $\Delta h_{c,\text{eff}}$ MJ/kg	3.1	3.8	3.3	3.4	2.7	4.0	3.4

Notes:

^a no significant observations were recorded

^b determined by test duration of 15 minutes, as described in Section 2.1

^c measured from ignition to end of test.

^d measured from the start of the test

[^]Negative result recorded as zero



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3.2 Observations

Table 3: Observations and incidents recorded during testing

Sample ID	Time (s)	Description
FH18500-1-50-1	85-94	Unsustained flaming observed until ignition
	139	Flaming extinguished
FH18500-1-50-2	90-96	Unsustained flaming observed until ignition
	147	Flaming extinguished
FH18500-1-50-3	85-106	Unsustained flaming observed until ignition
	136	Flaming extinguished
FH18500-1-50-4	85-98	Unsustained flaming observed until ignition
	139	Flaming extinguished
FH18500-1-50-5	75-90	Unsustained flaming observed until ignition
	133	Flaming extinguished
FH18500-1-50-6	85-99	Unsustained flaming observed until ignition
	137	Flaming extinguished

4. VARIABILITY ANALYSIS

The test standards require that the mean heat release rate (HRR) readings over the first 180 secs from ignition for the three specimens should differ by no more than 10 % of the arithmetic mean of the three readings. In the event of this criterion not being met, a further three specimens are required to be tested. Specimens which do not ignite have values calculated as detailed in Section 2.7. Table 4 presents the HRR results for each specimen and their comparison with the arithmetic mean:

Table 4: Heat release rate

Specimen ID	Average HRR over 180 s from ignition	Arithmetic mean	% difference from the arithmetic mean
FH18500-1-50-1	15.8	15.0	5.2
FH18500-1-50-2	16.8		12.1
FH18500-1-50-3	12.4		-17.3

Table 4 identifies that two of the specimens exposed to 50 kW/m² irradiance exceeded the acceptance criteria, therefore a further three specimens were required. Results for all six specimens are collected in Table 5 below.

Table 5: Heat release rate for six specimens

Specimen ID	Average HRR over 180 s from ignition	Arithmetic mean	% difference from the arithmetic mean
FH18500-1-50-1	15.8	14.5	8.6
FH18500-1-50-2	16.8		15.8
FH18500-1-50-3	12.4		-14.6
FH18500-1-50-4	14.1		-3.1
FH18500-1-50-5	13.0		-10.7
FH18500-1-50-6	15.1		4.0

5. SUMMARY

The report summary for the specimens as described in Section **Error! Reference source not found.**, exposed to an irradiance of 50 kW/m² is given in Table 6 below with rates of heat release illustrated in Figure 2.

Table 6: Report summary

Mean Specimen thickness (mm)	Irradiance (kW/m ²)	Mean Time to Ignition (s)	Mean Peak Heat Release Rate (kW/m ²)	Mean Total Heat Released (MJ/kg)
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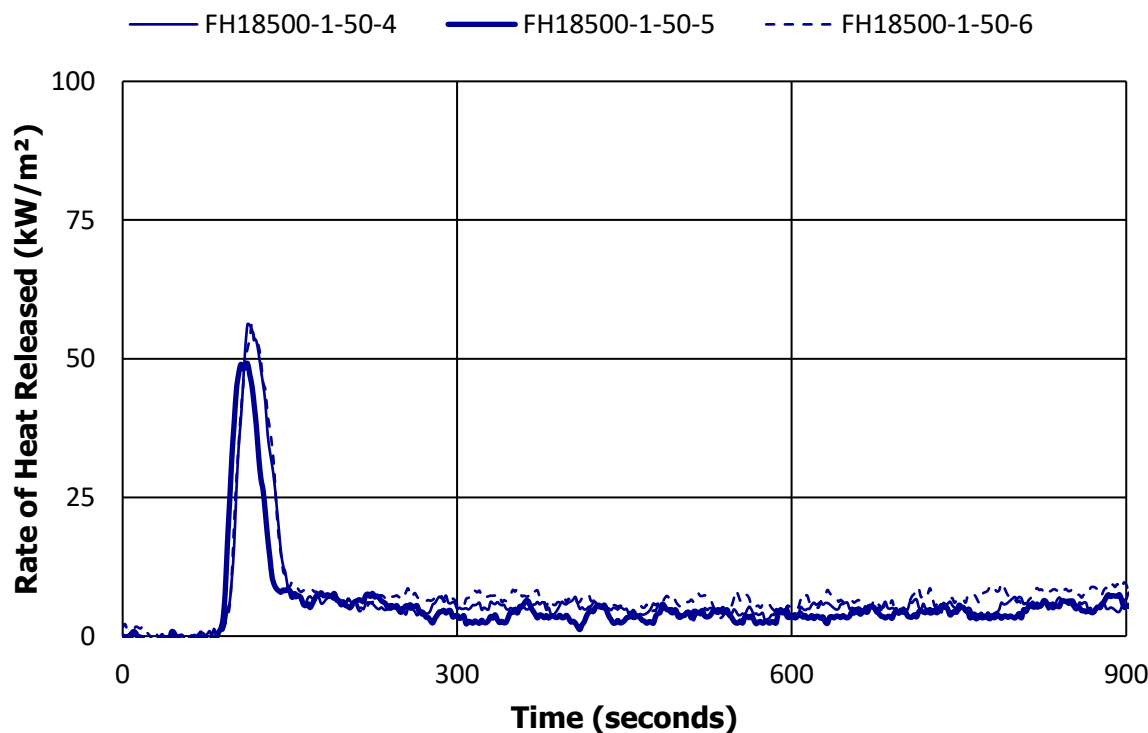
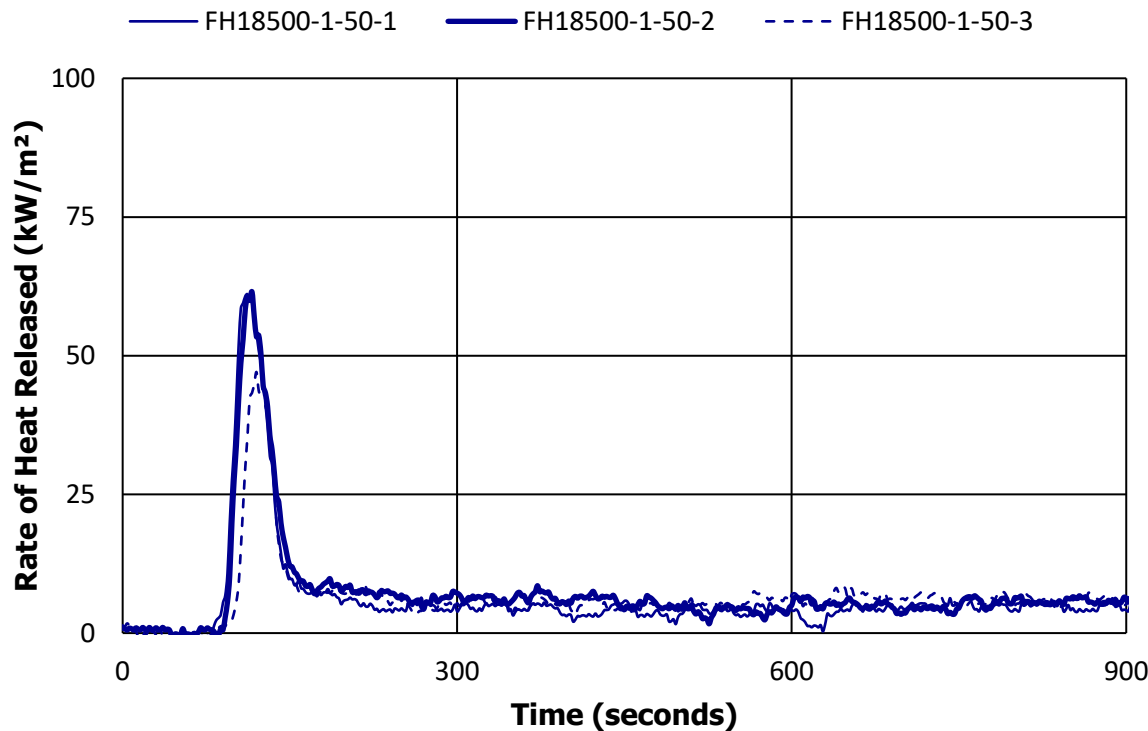
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14.9	50	97	55.2	5.9
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Figure 2: Rate of heat release versus time



6. TEST RESULTS IN ACCORDANCE WITH NZBC ACCEPTABLE SOLUTION C/AS1 AND C/AS2

The fire test results for the samples have been evaluated against the New Zealand Building Code (NZBC) Acceptable Solutions C/AS1 Table E.5.1.1 and C/AS2 Table C1.3 for determination of cladding material type.

6.1 NZBC Acceptable Solution C/AS1 Table E.5.1.1 and C/AS2 Table C1.3

The required mean limits for the tested parameters are as follows:

Cladding material type	Peak heat release rate (kW/m ²)	Total heat released (MJ/m ²)
Type A	≤ 100	≤ 25
Type B	≤ 150	≤ 50

The test results for tested samples are as follows:

Table 7: Test results for replicate specimens

Parameter	Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Specimen 6	Mean
Peak HRR (kW/m ²)	61.1	61.5	47.1	56.2	49.1	56.3	55.2
Total Heat Release (MJ/m ²)	5.6	6.4	5.8	5.8	4.9	6.9	5.9

The tested samples recorded a mean Peak Heat Release of 55.2 KW/m² and a mean Total Heat Release of 5.9 MJ/m² and it is therefore considered to satisfy the requirements of NZBC Acceptable Solutions C/AS1 and C/AS2.

7. NZBC CONCLUSION

For the purposes of compliance with the relevant building code documents, the following classification is considered applicable to the Mineral Render System with X200 finish as described in Section 1.

Building Code Document	Performance
NZBC Acceptable Solutions C/AS1: Appendix E, Table E.5.1.1 - Classification of materials in external wall cladding systems	Type A
NZBC Acceptable Solutions C/AS2: Appendix C, Table C1.3 - Classification of cladding materials	Type A

END OF TEST REPORT



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FH18500-01-C1

CLASSIFICATION REPORT



This is to certify that the specimens described below were tested by BRANZ in accordance with NZBC Acceptable Solutions C/AS1 and C/AS2

Test Sponsor

Resene Construction Systems
5 Venture Place
Middleton
Christchurch 8024
New Zealand

Date of tests

10th September 2024

Reference BRANZ Test Report

FH18500-01-1 – 2 October 2024

Test specimens as described by the client

Mineral Render with Resene X200

A Mineral Render System with a Mineral Texture and a Resene X200 paint finish in white. Samples were supplied applied to a nominally 9 mm fibre cement board for a total nominal thickness of 15 mm.

Specimen ID	Mean Results for Replicates			Colour
	Mass (g)	Thickness (mm)	Apparent Density (kg/m ³)	
FH18500-1-50-1,2,3,4,5,6	194.2	14.9	1308	White

Classification in accordance with the New Zealand Building Code

Calculations were carried out according to New Zealand Building Code (NZBC) Acceptable Solutions C/AS1 Table E.5.1.1 and C/AS2 Table C1.3 for determination of cladding material type. The classification for the sample as described above is given in the table below.

Building Code Document	Performance
NZBC Acceptable Solution C/AS1: Appendix E, Table E.5.1.1 - Classification of materials in external wall cladding systems	Type A
NZBC Acceptable Solution C/AS2: Appendix C, Table C1.3 - Classification of cladding materials	

Issued by


L. M. Grant
Associate Fire Testing Engineer
BRANZ

Reviewed by


L. Q. Greive
Fire Testing Engineer
BRANZ

Regulatory authorities are advised to examine test reports before approving any product.



Issue Date

2 October 2024

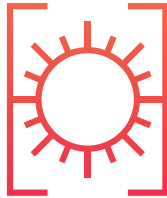
Authorised by


L. F. Hersche
Fire Testing Engineer
IANZ Approved Signatory

All tests and procedures reported herein, unless indicated, have been performed in accordance with the laboratory's scope of accreditation

MAINTENANCE PROGRAMME

Summer



Autumn



Winter



Spring



MY HOME
MAINTENANCE PROGRAMME

Date
Signature

Resene
Construction Systems

ROCKCOTE
Plaster
Systems

Maintenance Item	E.T.A.	Best time																	
Clean out gutters*1 Remove leaves and other obstructions	6 Monthly	Autumn																	
Inspect exterior sealant junctions Window perimeter / pipe penetrations / control joints	Yearly	Early Winter																	
Ground - cladding clearances 175mm unpaved / 100 mm paved	Yearly	Early Winter																	
Inspect drain & supper outlets. Also check to cladding base. Remove leaves and other obstructions	Yearly	Early Winter																	
Re-point exterior walls. Refer Resene Construction Systems Maintenance Guide	7 -10 years	Summer																	
Balustrade / wall intersections. If cracking has occured contact Resene Construction Systems	Yearly	End of Summer																	
Inspect exterior walls, roof and guttering	Yearly	End of Summer																	
Clean exterior walls	12 -18 months	End of Summer																	
Resene Paint prep and housewash liquid concentrate	12 -18 months	End of winter																	

Our Maintenance Programme has been designed to provide you with peace of mind when it comes to looking after your property investment.

Your home is probably the biggest investment you will make and is likely to be your most valuable asset, and the best way to protect this asset is with a little regular maintenance. For less effort than would be typically expended on maintaining your car or your garden your home can be kept in first class condition life long.

Simple things like clearing leaves from blocked gutters, keeping gardens at an appropriate distance from the cladding, and cleaning windows in a timely manner, all contribute to the longevity of your home.

We have produced this pro-active maintenance programme, to advise and assist you of your obligations as the owner not only for the long-term performance and look of your exterior façade, but to comply with the requirements of the New Zealand Building Code.

This document has a Maintenance planner included so keep in a safe place for easy reference and monitoring of your efforts, and too show prospective buyers what you have undertaken during your ownership.

It is your responsibility as the owner to advise Resene Construction Systems immediately should you or the occupier notice anything untoward, such as visible cracks or impact damage.

Plan what maintenance you propose to undertake.

Take into consideration the type of work that is required, and the time of year you want to get it done. Most external maintenance is completed in the summer, as this is generally the best weather for outside jobs. A little time and effort now can prevent expensive repairs in the long term. If you are planning on fixing brackets, security lights, or any other fixture to the exterior make sure you have the skills and equipment to undertake the task. If exterior work requires you to make a penetration through the exterior façade you must call us for direction 0800 50 70 40 a simple phone call could save you time and money later.



How often should I clean my Resene Construction Systems Façade?

You will need to clean down your plaster finish every 12-18 months. Most airborne dirt particles accumulate on exterior surfaces during the summer months, so, before the winter rain washes the dirt from gutters and windows down the walls, give these areas a clean; this will dramatically reduce the chances of your plaster finish being stained. Also when cleaning, check your spouting to make sure there are no leaves that could block drains or cause overflows when it rains.

How do I clean my Resene Construction Systems Façade?

For best results use Resene Paint Prep and House Wash liquid concentrate. Apply the diluted solution with a soft broom, and low pressure wash to remove. Most detergents have a detrimental effect on fish life so avoid letting the washings run off into the storm-water system. DO NOT use harsh solvent based cleaners.

If the Resene Construction Systems surface gets damaged how is it repaired?

Contact your Registered Plasterer, they will provide the necessary expertise to remedy the damage.

If you are unable to contact a Registered Plasterer call us 0800 50 70 40 we will arrange for an onsite visit and provide an assessment for repairing the cladding.



Do I need to re-paint?

Re-painting the exterior should be undertaken by a professional painter every 7-10 years to ensure the integrity of the entire system. If you have selected a dark colour you can expect to repaint earlier. To make life easier, we will send you a letter in advance with the original plastering contractors details to arrange a quote for re-painting. The system warranty requires that the exterior is overcoated with Resene paints. This ensures you are maintaining the cladding with the best possible and compatible coating system. Also check that the LRV light reflectance value is not lower than what was originally applied as this may impact on the performance of the system.

Can I raise the landscaping up against the plaster?

No. All exterior claddings fixed over timber frame require a minimum ground clearance to ensure no moisture gets to the bottom timber plate of the wall by capillary action. Also cavity based exterior claddings require ground clearance to allow for adequate drainage and air flow behind them. Resene Construction Systems façade systems are installed 50mm below the bottom plate and are installed over a drained and ventilated cavity.



The New Zealand Building Code requires the following clearances from paved and unpaved surfaces:

Paved surface – 100mm from the underside of cladding

Unpaved surface – 175mm from the underside of cladding.



Resene

Construction Systems

Christchurch

Telephone 03 3386328

Auckland

Telephone 09 259 2732

Wellington

Telephone 04 567 3576

Our contractor network is New Zealand wide from
Kaitia in the North to Invercargill in the South.

Call 0800 50 70 40 for your nearest consultant or
visit our website: reseneconstruction.co.nz

4311D Dimond Profiled Metal Roofing



Dimond

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roofspec@dimond.co.nz

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

SUPPORTING DOCUMENTS

Dimond BB900 Product Technical Statement

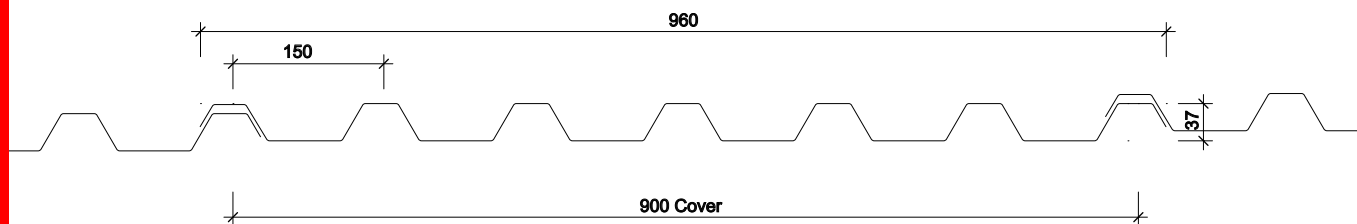
Ref 104188. Uploaded 2 Dec 2024

Purpose: Performance, Installation, Maintenance, Environmental, Warranty

Dimond Product Technical Statement

Ref 104184. Uploaded 2 Dec 2024

Purpose: Performance, Installation, Maintenance, Environmental, Warranty



PRODUCT DESCRIPTION

Brownuilt 900's strong angular ribs resist bucking, offers good resistance to foot traffic whilst maintaining an eye-catching aesthetic. Primarily used in large scale commercial buildings, BB900 also creates a good looking wall cladding. When inverted BB900 Reverse Run can be used as a horizontal or vertical wall cladding offering wide ribs with narrow pans; enhancing the design of your project.

DESIGN GUIDELINES

Recommend use when:

- Roof pitch is 3° and above
- Max purlin spacing does not exceed the wind uplift load from the BB900 load span charts
- Specify coating on steel to match the environment
- Can be used as wall cladding either vertically or horizontally with a capillary groove
- Specify fixing type and length to be used with the correct purlin material
- Ensure there is an allowance for thermal expansion on sheet lengths above 20m
- Can be installed on top of cavibat ventilation batten

BUILDING CODE COMPLIANCE

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 for a period of 15 years:

- Clause B2 Durability: Performance B2.3.1
- Clause C3 Fire affecting areas beyond the fire source: Buildings C3.3
- Clause E2 External moisture: Performance E2.3.1, E2.3.2
- Clause F2 Hazardous building materials: Performance F2.3.1

EVIDENCE MEETS NZBC

Best information available from Pacific Coilcoaters and New Zealand Steel, and past history of use of long run metal roofing and cladding products in New Zealand indicate that, provided the product use and maintenance is in line with the guidelines contained in the current literature referenced, Dimond® Roofing long run metal roofing & wall cladding systems can be expected to meet the performance criteria in clause B2, C3, E2, and F2 of the New Zealand Building Code, for a period of not less than 15 years.

SUPPORTING EVIDENCE

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



NZ Metal Roofing Manufacturers Association Inc. (NZMRM)
[Code of Practice](#)



ENVIRONMENTAL

Manufactured from coated steel produced by New Zealand Steel at Glenbrook from Ironsand mined off North Island's West coast and Zinalume® coated.

COLOURSTEEL® is factory painted at New Zealand Steel, Glenbrook or if its ColorCote® its painted at Pacific Coilcoaters Penrose. ColorCote® MagnaFlow™ base coated steel and coating is imported from Asia, but painted at Pacific Coilcoaters in Penrose. Both NZ sites operate within strict environmental controls and recycle cleaning and washing water and control that is exhausted into the environment.

Dimond® Roofing recycle all steel scrap waste and offcuts which can then be remelted down and reused in other steel based products.

At the end of its useful life as a roofing profile can be recycled back by remelted down.

Aluminium is imported from overseas and painted at New Zealand at Pacific Coilcoaters.

Duraclad® is manufactured in Auckland under tight environmental controls.

COATINGS & CLASSES

Manufactured using different paint coatings available from New Zealand Steel or Pacific Coilcoaters depending on the durability required for the environment the roof or wall will be installed in, in accordance with AS/NZS 2728. As a guide for areas 1m to 50m of breaking surf, use ColorCote® AlumiGard™ or plain unpainted aluminium. Sites within 50m to 100m of breaking surf COLOURSTEEL® MAXX® can be used, then at 100 m (Category 4) ColorCote® MagnaFlow™ (ZM8) can be used, beyond 200m (Category 3) then ColorCote® ZinaCore™ (ZR8) or COLOURSTEEL® ENDURA®, and beyond can use Zinalume®.

Refer to environmental literature available from Pacific Coilcoaters or New Zealand Steel or contact Dimond® Roofing on 0800 666 377.

Duraclad® is recommended for use in special areas such as fertiliser works or very severe marine.

SPANS

Product	Material	Thickness BMT (mm)	Roofing Max. Span End Span (m)*	Roofing Max. Span Internal (m)*	Walls Max. Span End Span (m)	Walls Max. Span Internal (m)
BB900 (min. pitch 3°)	Steel (G550)	0.40	1.50	2.20	1.90	2.90
		0.55	2.30	3.40	2.70	4.10
		0.75	2.70	4.00	N/A	N/A
	Aluminium (H36)	0.70	1.10	1.70	1.60	2.40
		0.90	1.90	2.80	2.20	3.30
	Duraclad® (GRP)	1.70	0.80	1.20	1.40	2.00

GRP = Glass reinforced Plastic.

Spans for roofing where the maximum serviceability wind uplift load does not exceed 1.5 kPa or under foot traffic is suitable for Restricted Access spans for walls are limited by an acceptable appearance or a serviceability wind uplift load of 1.0 kPa.

For more information, please refer to Dimond Roofing website <http://www.dimond.co.nz/products/brownbuilt-900>

FIXINGS

Purlin Material	Screw Fastener			
	Roofing Rib		Wall Cladding Plan	
	Screw Length* (mm)	Designation (gauge-TPI x length mm)	Screw Length* (mm)	Designation (gauge-TPI x length mm)
Timber	75	T17 - 14g - 10 x 75	50	Roofzip M6 x 50 HG-Z4
Steel	65	Tek - 14g - 10 x 65 Tek - 12g - 14 x 68	20	Tek - 12g - 14 x 20

*If sarking, cavity batten or insulation is used over the purlins or for wall cladding fixed through a cavity batten, into the stud, the screw length will need to be increased by at least the sarking, insulation or cavity batten thickness.

FIXINGS CONT.

The Limit State Load/Span Capacity Chart is based on 6 screw fasteners/sheet/purlin without the use of load spreading washers (except for Duraclad® material, which must be fitted with profiled metal washers and 36mm EPDM seals).

Where screws are used without load spreading washers, the profile's load span ability is reduced by 60%.

Spans may require the specification and use of side lap stitching screws.

Materials	Thickness (mm)	Maximum Side Lap Fastener Spacing (mm)
Steel	0.40	1500
	0.55	2000
	0.75	2400
Aluminium	0.70	1500
	0.90	2000
Duraclad® (GRP) Rib height greater than 30mm	1.70	1000

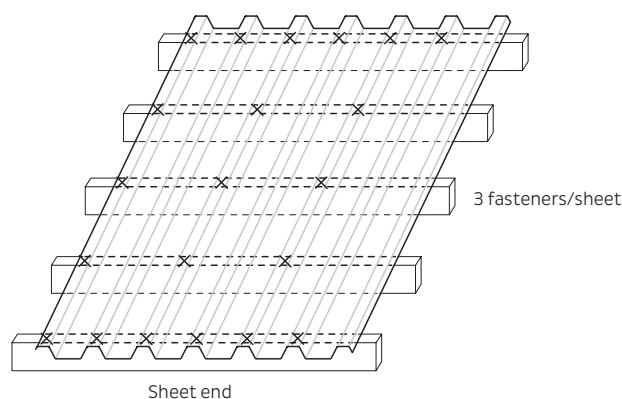
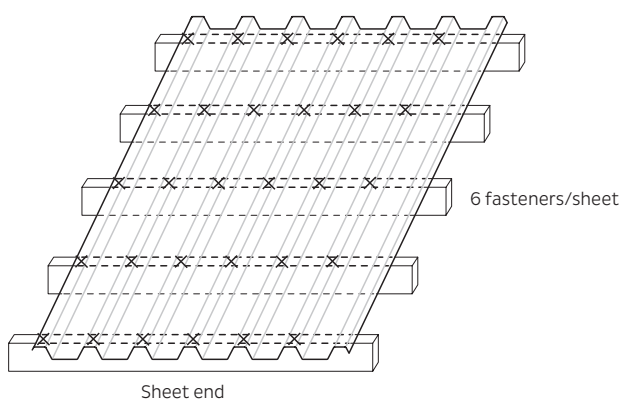
The recommended side-lap fasteners for stitching sheets together are:

Metal Sheeting

10 - 16 x 16mm	Hex head	Tek screws
10 - 12 x 20mm	Hex head	Type 17 screws

INSTALLATION REQUIREMENTS

Brownbuilt 900 Fastener Layout Options



Can be installed over plastic cavibat battens.

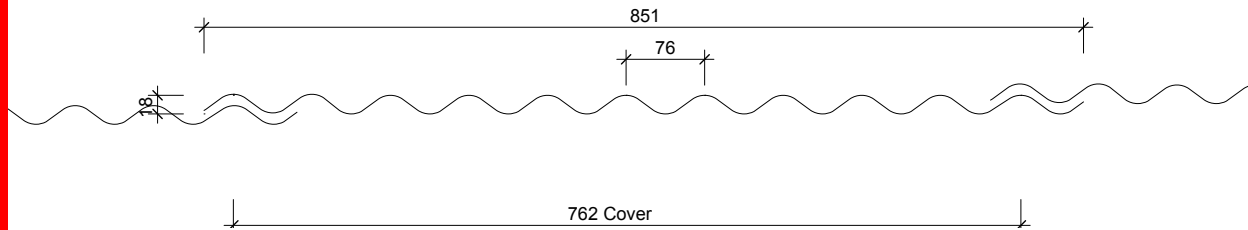
For more information, please refer to Dimond® Roofing website:

<http://www.dimond.co.nz/products/brownbuilt-900>

SPECIAL CONDITIONS

Manufactured in Auckland.

When used as wall cladding a Capillary groove is formed in underlap edge to reduce risk of side lap leakage.



PRODUCT DESCRIPTION

Corrugate is a traditional favorite with Kiwis because of its truly classic look that is great on all different styles of building. Used for both roofing and cladding, you'll never go wrong with classic Corrugate.

DESIGN GUIDELINES

Recommend use when:

- Roof pitch is 8° and above
- As a wall cladding
- Max purlin spacing does not exceed wind uplift load from the Corrugate load span charts
- Specify coating on steel to match the environment
- Specify fixing type and length to be used with the correct purlin material
- Ensure there is an allowance for thermal expansion on sheet lengths above 20m
- Can be installed on top of cavibat ventilation batten

BUILDING CODE COMPLIANCE

The product will, if used in accordance with the Dimond® Roofing installation and maintenance requirements, assist with meeting the following provisions of the building code for a period of 15 years:

- Clause B2 Durability: Performance B2.3.1
- Clause C3 Fire affecting areas beyond the fire source: Buildings C3.3
- Clause E2 External moisture: Performance E2.3.1, E2.3.2
- Clause F2 Hazardous building materials: Performance F2.3.1

EVIDENCE MEETS NZBC

Best information available from Pacific Coilcoaters and New Zealand Steel, and past history of use of long run metal roofing and cladding products in New Zealand indicate that, provided the product use and maintenance is in line with the guidelines contained in the current literature referenced, Dimond® Roofing long run metal roofing & wall cladding systems can be expected to meet the performance criteria in clause B2, C3, E2 and F2 of the New Zealand Building Code, for a period of not less than 15 years.

SUPPORTING EVIDENCE

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



NZ Metal Roofing Manufacturers Association Inc. (NZMRM)
[Code of Practice](#)



ENVIRONMENTAL

Manufactured from coated steel produced by New Zealand Steel at Glenbrook from Ironsand mined off North Island's West coast and Zinalume® coated. COLOURSTEEL® is factory painted at New Zealand Steel, Glenbrook or if its ColorCote® its painted at Pacific Coilcoaters Penrose. ColorCote® MagnaFlow™ base coated steel and coating is imported from Asia, but painted at Pacific Coilcoaters in Penrose. Both NZ sites operate within strict environmental controls and recycle cleaning and washing water and control that is exhausted into the environment.

Additionally, Aluminium is imported from overseas and painted at New Zealand at Pacific Coilcoaters, Duraclad® is manufactured in Auckland under tight environmental controls.

Dimond Roofing has met the criteria for "Level A" certification for the Global GreenTag™ GreenRate™ ecolabel and as part of Dimond's Toitū carbonreduce® accreditation, essential Scope 1 & 2 emissions, are being measured as well as voluntarily measuring Scope 3 emissions.

Additionally Dimond® Roofing recycle all steel scrap waste and offcuts which can then be remelted down and reused in other steel based products.



COATINGS & CLASSES

Manufactured using different paint coatings available from New Zealand Steel or Pacific Coilcoaters depending on the durability required for the environment the roof or wall will be installed in, in accordance with AS/NZS 2728. As a guide for areas 1m to 50m of breaking surf, use ColorCote® AlumiGard™ or plain unpainted aluminium. Sites within 50m to 100m of breaking surf COLOURSTEEL® MAXX® can be used, then at 100 m (Category 4) ColorCote® MagnaFlow™ (ZM8) can be used, beyond 200m (Category 3) then ColorCote® ZinaCore™ (ZR8) or COLOURSTEEL® ENDURA®, and beyond can use Zinalume®.

Refer to environmental literature available from Pacific Coilcoaters or New Zealand Steel or contact Dimond® Roofing on 0800 666 377.

Duraclad® is recommended for use in special areas such as fertiliser works or very severe marine.

SPANS

Product	Material	Thickness BMT (mm)	Roofing Max. Span End Span (m)*	Roofing Max. Span Internal (m)*	Walls Max. Span End Span (m)	Walls Max. Span Internal (m)
Corrugate (min. pitch 8°)	Steel (G550)	0.40	0.80	1.20	1.00	1.50
		0.55	1.00	1.50	1.20	1.90
	Aluminium (H36)	0.70	0.50	0.80	0.80	1.20
		0.90	0.80	1.20	1.20	1.80
	Duraclad® (GRP)	1.70	0.60	0.90	0.90	1.40

GRP = Glass reinforced plastic.

Spans for roofing where the maximum serviceability wind uplift load does not exceed 1.5 kPa or under foot traffic is suitable for restricted access roof.

Spans for walls are limited by an acceptable appearance or a serviceability wind uplift load of 1.0kPa.

For more information, please refer to Dimond Roofing website <http://www.dimond.co.nz/products/corrugate>

FIXINGS

Purlin or frame material	Roof - rib fixed		Wall - pan fixed		
	Steel based sheet	Aluminium based sheet	Steel based sheet		Aluminium based sheet
Timber	T17 x 12 – 11 x 50 M6 x 50 HG-Z4 Roofzip	14g x 55mm Alutite with a 8mm dia. Clearance hole, alum. Profiled washer & 36mm dia EPDM seal	Non cavity	M6 x 50mm HG - Z4 Roofzip	12g x 35mm Alutite
			Cavity	M6 x 50mm HG - Z4 Roofzip	14g x 55mm Alutite
Steel up to 1.5mm thick	M6 x 50 HG-Z4 Roofzip or Tek 12g – 14 x 35 Class 4	Stainless steel grade 304 14g x 50mm with a 8mm dia clearance hole, alum. Profiled washer & 36mm dia EPDM seal	Non cavity	Tek 12g – 14 x 20 Class 4	Stainless steel grade 304 14g x 20mm with a 15mm dia bonded washer, through an 8mm dia. Clearance hole
			Cavity	Tek 12g – 14 x 35 Class 4	Stainless steel grade 304 14g x 50mm with a 15mm dia bonded washer, through an 8mm dia. Clearance hole
Steel 1.5mm to 4.5mm thick	Tek 12g – 14 x 35 Class 4	Stainless steel grade 304 14g x 50mm with a 8mm dia clearance hole, alum. Profiled washer & 36mm dia EPDM seal	Non cavity	Tek 12g – 14 x 20 Class 4	Stainless steel grade 304 14g x 20mm with a 15mm dia bonded washer, through an 8mm dia. Clearance hole
			Cavity	Tek 12g – 14 x 35 Class 4	Stainless steel grade 304 14g x 50mm with a 15mm dia bonded washer, through an 8mm dia. Clearance hole

If sarking, cavity batten or insulation is used over the purlins or for wall cladding fixed through a cavity batten, into the stud, the screw length will need to be increased by at least the sarking, insulation or cavity batten thickness.

The Limit State Load/Span Capacity Chart is based on 5 screw fasteners/sheet/purlin with the use of load spreading washers (except for Duraclad® material, which must be fitted with profiled metal washers and 36mm EPDM seals).

Long spans may require the specification and use of side lap stitching screws.

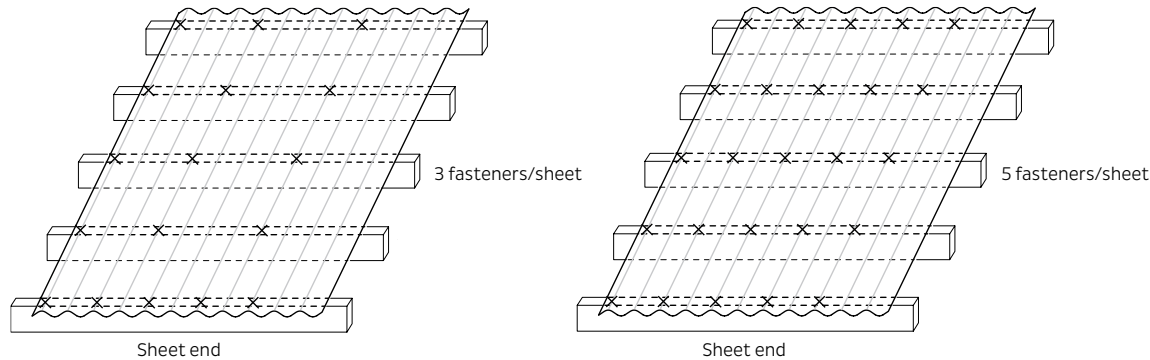
We recommend side-lap fasteners for stitching sheets together are:

Metal Sheeting

10 - 16 x 16mm	Hex head	Tek screws
10 - 12 x 20mm	Hex head	Type 17 screws

INSTALLATION REQUIREMENTS

Dimond Corrugate Fastener Layout Options



can be installed over vented plastic cavibat battens.

For more information, please refer to Dimond® Roofing website:

<http://www.dimond.co.nz/products/corrugate>

SPECIAL CONDITIONS

Manufactured in Whangarei, Auckland, Hamilton, Wellington, Christchurch, Dunedin, Invercargill.

5113G GIB Plasterboard Linings



Winstone Wallboards Ltd

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www.gib.co.nz

SUPPORTING DOCUMENTS

BRANZ Appraisal 427 (2021) GIB® Wet Area Systems

Ref 20082. Uploaded 3 Sep 2024

Purpose: Performance

Declare Certification - GIB Aqualine®

Ref 101832. Uploaded 5 Nov 2024

Purpose: Environmental

Declare Certification - GIB® Standard

Ref 101835. Uploaded 5 Nov 2024

Purpose: Environmental

GIB Standard Plasterboard 101955

Ref 10140. Uploaded 26 Jun 2020

Purpose: Installation

GIB® Goldline™

Ref 11554. Uploaded 3 Sep 2024

Purpose: Installation, Maintenance

GIB® Wet Area Systems

Ref 37693. Uploaded 3 Sep 2024

Purpose: Maintenance

GIBFix® Framing Systems

Ref 11550. Uploaded 3 Sep 2024

Purpose: Installation, Maintenance

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.



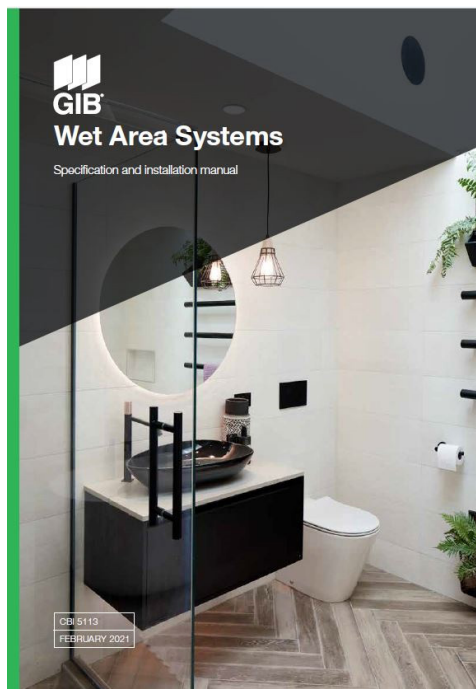
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BRANZ

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Product

- 1.1 GIB® Wet Area Systems are for the interior lining of timber and steel-framed walls and ceilings in wet areas such as bathrooms, laundries, kitchens and toilets where a water-resistant lining material is desirable.

Scope

- 2.1 GIB® Wet Area Systems have been appraised for use as a wet area wall and ceiling lining in buildings within the following scope:
- on timber-framed walls and ceilings within the scope limitations on NZS 3604; or,
 - on steel-framed walls and ceilings within the scope limitations of NASH Standard Part 2, or,
 - on timber and light gauge steel-framed walls and ceilings subject to specific design.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, GIB® Wet Area Systems, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. GIB® Wet Area Systems meet the requirements for loads arising from self-weight and impact [i.e. B1.3.3 (a) and (j)]. See Paragraphs 8.1-8.3.

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years and B2.3.1 (c) 5 years. GIB® Wet Area Systems meet these requirements. See Paragraphs 9.1-9.5.

Clause E3 INTERNAL MOISTURE: Performance E3.3.4 and E3.3.5. GIB® Wet Area Systems meet these requirements. See Paragraphs 12.1-12.3.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. GIB® Wet Area Systems meet this requirement.

Technical Specification

4.1 The GIB® plasterboards and accessories used in GIB® Wet Area Systems, and supplied by Winstone Wallboards Ltd are as follows:

GIB® Plasterboards

- **GIB Aqualine®** is a paper-bound, modified water-resistant gypsum-plaster core sheet lining material. It is available in 10 and 13 mm sheet thicknesses. Sheets are available in various edge profiles and lengths from 2,400 mm to 4,800 mm. Refer to Table 1. The nominal sheet weights are 8 kg/m² and 11 kg/m² for 10 mm and 13 mm thick sheets respectively. GIB Aqualine® face paper is green in colour.
- **GIB Toughline® Aqua** is a paper-bound, modified water-resistant gypsum-plaster core sheet lining material. It is available in a sheet thickness of 13 mm. Sheets are available in various edge profiles and lengths from 2,400 mm to 3,000 mm. Refer to Table 1. The nominal sheet weight is 11.4 kg/m². GIB Toughline® Aqua face paper is mauve in colour.
- **GIB Weatherline®** is an exterior-grade, glass-fibre fleece-wrapped modified-gypsum core sheet material. The product is available in 10 mm and 13 mm thicknesses and a board width of 1,200 mm. Standard sheet lengths are 2,450, 2,700 and 3,000 mm. Custom sheet lengths are also available. The nominal sheet weights are 9 kg/m² and 11.5 kg/m² for 10 mm and 13 mm thick sheets respectively.

Table 1: GIB® Wet Area Plasterboard Available Sheet Sizes

Plasterboard Type	Sheet Thickness [mm]	Sheet Edge Profile	Sheet Width [mm]	Sheet Length [mm]					
				2,400	2,450	2,700	3,000	3,600	4,800
GIB Aqualine®	10	TE/TE	1,200	✓		✓	✓	✓	
		TE/SE	1,200	✓					✓
		TE/SE	1,350	✓				✓	
	13	TE/TE	1,200	✓		✓	✓	✓	
GIB Toughline® Aqua	13	TE/TE	1,200	✓		✓	✓		
GIB Weatherline®	10	SE/SE	1,200		✓	✓	✓		
	13	SE/SE	1,200			✓	✓		

TE = Tapered Edge SE = Square Edge

Fastenings

- GIB® Grabber® High Thread Drywall screws for fixing to timber: 6 g x 25 mm and 32 mm.
- GIB® Grabber® Self Tapping Drywall screws for fixing to light gauge steel: 6 g x 25 mm and 32 mm.

Adhesive and Sealants

- GIBFix® One [Acrylic].
- GIBFix® All-Bond [Solvent].

GIB® Accessories

- Corner Support Angle - GIBFix® Angle or GIB® Rondo® NZ18. Minimum 32 x 32 x 0.55 mm galvanised metal angle.

GIB® Jointing Compounds

- As specified in the GIB® Wet Area Systems and GIB® Site Guide Technical Literature.

- 4.2 System components and accessories for the GIB® Wet Area Systems, which are supplied by the building contractor are:

Waterproofing

- A waterproofing system complying with AS/NZS 4858.

Finishes

- Finishes such as tiling, flexible sheet vinyl, paints and wallpapers have not been assessed and are outside the scope of this Appraisal.

Handling and Storage

- 5.1 The best results are achieved when GIB® plasterboards are treated as a finishing material and protected from damage. Sheets must be stacked flat and kept dry at all times. For limits on stack heights see the GIB® Site Guide. Sheets must be carried on edge and not dragged.
- 5.2 All accessories must be kept dry.

Technical Literature

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

Design Information

General

- 7.1 GIB® Wet Area Systems provide a water-resistant lining as a base for finishing systems in wet areas such as bathrooms, toilets, laundries and kitchens. The typical finishes are ceramic tiles and flexible sheet vinyl to walls, and paint and wallpaper to walls and ceilings. *[Note: GIB Weatherline® is a suitable substrate for ceramic tiles and sheet vinyl. For paint or wallpaper finishes use GIB Aqualine® or GIB Toughline® Aqua.]*
- 7.2 GIB® Wet Area Systems must not be used in the following situations:
- For bracing applications in shower areas or adjacent baths [See Paragraphs 7.4 and 8.2].
 - In areas of high humidity (above 90% RH) or continually wet areas such as group showers, steam rooms, or swimming pools.
 - Installed over a vapour barrier.
 - Applied directly to masonry, concrete or solid plaster.
 - Applied over other sheet lining materials.
 - Used externally of the building envelope.
 - Exposed to temperatures of 52°C or greater for prolonged periods. (Refer to appliance and fitting manufacturers for installation details.)
- 7.3 GIB Aqualine® may be substituted for some other GIB® plasterboard products in specific GIB® Bracing Systems, GIB® Fire Rated Systems and GIB® Noise Control Systems. Refer to the relevant systems technical literature for details.

Wet Areas

- 7.4 Wet areas are spaces where sanitary fixtures and sanitary appliances are located such as bathrooms, toilets, laundries and kitchens. There are two general categories of wet areas as follows:
- Water Splash – These are areas subject to intermittent splashing of water such as around baths, vanities, tubs and sinks.
 - Shower Areas – These are areas subject to frequent and heavy water splash such as enclosed showers, unenclosed shower zones and showers over baths.
- 7.5 Both the above wet area categories must be finished with surfaces and joints that are impervious and easily cleaned. In addition, shower areas must be waterproofed. This can be achieved using proprietary rigid shower lining systems, flexible vinyl shower wall finishes, or tiling. Tiled shower areas must include a wet area waterproofing membrane system under the tiles.

Intertenancy Walls – Wet Areas

- 7.6 Intertenancy construction that incorporates fire resistance and noise control must be protected from water splash. In shower areas, GIB® Wet Area plasterboards must not be substituted for other GIB® plasterboards but must be an extra lining layer. Refer to the Technical Literature.

Tiling

- 7.7 GIB® Wet Area Systems are suitable as a substrate for tiling up to the following weights:
- 10 mm GIB Aqualine® and GIB Weatherline® – up to 26 kg/m².
 - 13 mm GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® – up to 40 kg/m².
- [Note: Most ceramic and porcelain wall tiles weigh less than 20 kg/m². For further information on tiling consult the BRANZ Good Practice Guide – Tiling.]*

Framing

- 7.8 Supporting framing must comprise one of the following, subject to the minimum sizes, dwang centres and all other frame requirements of GIB® Wet Area Systems Technical Literature:
- Timber framing must be designed and constructed in accordance with NZS 3604, or to a specific design using NZS 3603 and AS/NZS 1170. Refer to Paragraph 15.2 regarding recommended moisture content of timber framing.
 - Steel framing must be designed and constructed in accordance with NASH Standard Part 2, or to a specific design in accordance with AS/NZS 1170.

Structure

Bracing

- 8.1 GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® can be used in GIB EzyBrace® Systems. Refer to BRANZ Appraisals Nos. 928 [2016] and 1048 [2019].
- 8.2 GIB Wet Area Systems must not be used for bracing in shower areas or behind baths.

Impact Resistance

- 8.3 GIB® plasterboards provide adequate resistance to soft body impact, based upon experience of use in domestic and light commercial applications. GIB Toughline® Aqua is recommended by Winstone Wallboards Ltd where higher impact resistance is desired.

Durability

Serviceable Life

- 9.1 GIB® Wet Area Systems have a serviceable life of at least 15 years as a fully protected shower or water splash lining. As a general wall and ceiling lining, GIB® Wet Area Systems will have a serviceable life in excess of 50 years. The ability of GIB® plasterboards to remain durable is dependent on being protected and remaining dry in service, and being maintained in accordance with this Appraisal.

Maintenance

- 9.2 The building must be maintained weathertight and all lining systems protected from internal and external moisture.
- 9.3 Finishes to water splash and shower areas, including tiles, grout, waterproof membranes, sealants and flexible sheet vinyl must be checked to ensure the integrity of the system is maintained. They must be repaired or replaced if necessary. When repairing or replacing finishes, the GIB® plasterboard substrate must be checked for defects and repaired or replaced, as required.
- 9.4 For flexible sheet vinyl, particular attention must be paid to joints, especially at corners. Checks should be made to ensure the vinyl has not been punctured. Where damage has occurred, repairs must be made immediately.
- 9.5 Impact damage to GIB® plasterboard, resulting in small holes and cracks, may be patched, stopped and finished. For larger areas of damage, expert advice on repair must be sought from Winstone Wallboards Ltd.

Prevention of Fire Occurring

- 10.1 Separation or protection must be provided to the GIB® Wet Area Systems from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 and C/AS2, and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

Fire Affecting Areas Beyond the Fire Source

Control of Internal Fire and Smoke Spread

- 11.1 The gypsum plasterboard used in GIB® Wet Area Systems without an applied paint or wallpaper finish has been tested in accordance with ISO 5660 and achieved a Material Group Number of 1-S.
- 11.2 The gypsum plasterboard used in GIB® Wet Area Systems with an untested applied finish of a waterborne or solvent borne paint coating ≤ 0.4mm thick achieves a Material Group Number of G2-S in accordance with Table A1 of NZBC Verification Method C/VM2.
- 11.3 A lower Material Group Number may be achieved when used with a tested finishing system. The Material Group Number for the complete lining system must be obtained from the supplier of the finish product or system.

Fire Resistance Ratings (FRRs)

- 11.4 GIB® Wet Area plasterboards, when used as part of GIB® Fire Rated Systems, can be used to provide FRRs as determined by NZBC Acceptable Solutions C/AS1 and C/AS2 and NZBC Verification Method C/VM2. Refer to BRANZ Appraisal No. 289 [2018] and relevant technical literature.

Internal Moisture

- 12.1 When installed in accordance with this Appraisal, GIB® Wet Area Systems will provide wall surfaces adjacent to sanitary fixtures and sanitary appliances that are impervious and easily cleaned.
- 12.2 The construction methods in the Technical Literature meet with the internal moisture requirements of the NZBC Acceptable Solution E3/AS1.
- 12.3 To minimise internal condensation, adequate levels of ventilation and thermal resistance must be provided to all spaces where moisture may be generated.

Airborne and Impact Sound

- 13.1 GIB® Wet Area plasterboards, when used as part of GIB® Noise Control systems, can be used to provide acoustic ratings as required by NZBC Acceptable Solution G6/AS1. Refer to BRANZ Appraisal No. 394 [2017] and relevant technical literature.

Installation Information

Installation Skill Level Requirement

- 14.1 Installation of GIB® Wet Area Systems must be completed by, or under the supervision of, a Licensed Building Practitioner with the relevant Licence Class, in accordance with the Technical Literature and this Appraisal.

General

- 15.1 GIB® Wet Area Systems must be installed in accordance with the Technical Literature. For inspection, reference must be made to the Technical Literature.

Framing

- 15.2 To achieve an acceptable decorative finish, the walls must not be lined unless the moisture content of timber framing is less than 18%. Winstone Wallboards Ltd recommend a moisture content of 8–12% where buildings are to be air conditioned or centrally heated.

Cutting

- 15.3 GIB® Wet Area plasterboards are easily cut by scoring the face paper with a sharp short-bladed trimming knife, and then snapping the plasterboard away from the cut face and cutting the back paper or by sawing. Use of a metal straightedge facilitates clean straight cuts. Cut edges can be tidied up by using a knife. Paper dags should be removed.

Fixing Sheets

Non-Tiled Areas

- 16.1 GIB® Wet Area plasterboards may be installed vertically or horizontally. Sheets are fixed with GIB® Grabber® screws at 300 mm centres around the perimeter of the sheet, and with GIBFix® adhesive on all intermediate studs and dwangs. Adhesive must not be used under fasteners. A 5–10 mm gap must be left between the floor and the bottom of the sheet.

Tiled Areas

- 16.2 Control joints must be provided at maximum 4 m centres.
- 16.3 Internal corners in shower areas must be reinforced with a minimum 32 x 32 x 0.55 mm galvanised metal angle [i.e. GIBFix® Angle or GIB® Rondo® NZ18] prior to lining the walls.
- 16.4 GIB® Wet Area plasterboards may be installed vertically or horizontally. Sheets are fixed with GIB® Grabber® screws at 150 mm centres to the perimeter of wall and to all intermediate studs. Adhesive must not be used in place of screws.

Ceilings

- 16.5 Supports of timber or steel battens or ceiling joists must be 450 mm centres for 10 mm GIB Aqualine®, or 600 mm centres for 13 mm GIB Aqualine® or GIB Toughline® Aqua.
- 16.6 GIB Aqualine® and GIB Toughline® Aqua sheets must be fixed with GIB® Grabber® screws at 600 mm centres around the perimeter of the ceiling and at 200 mm centre along supports. Alternatively, sheets are screw fixed at 600 mm centres along the supports and GIBFix® adhesive placed at 200 mm centres between the screws.

Penetrations and Sealants

- 17.1 All cut-outs for pipe penetrations must be made neatly using a hole saw. Cut-outs should be made approximately 12 mm diameter greater than the pipe.
- 17.2 A bead of sealant must be placed to the full thickness of the plasterboard sheet around all pipe penetrations, at bath rims and preformed shower bases and where an impervious junction is required at the floor/wall line.
- 17.3 In tiled areas, a bead of sealant 6 mm wide must also be placed to the full thickness of the tiles where the above situation occurs. The sealant manufacturer's technical literature must be followed for installation.

Jointing and Finishing

- 18.1 Jointing must be carried out in accordance with GIB® Site Guide Technical Literature.
- 18.2 Tiled shower areas must incorporate a waterproofing membrane over GIB® Wet Area Systems. Waterproofing membranes are outside the scope of this Appraisal and must otherwise be specified and approved.

Health and Safety

- 19.1 Dust resulting from the sanding of stopping and finishing compounds may be a respiratory irritant, and the use of a suitable facemask is recommended.

Basis of Appraisal

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

Tests

- 20.1 Winstone Wallboards Ltd GIB® plasterboards have been assessed for the following properties: MOR, MOE, paper tensile strength, paper shear strength, nail pull resistance, edge hardness, water resistance, hard and soft body impact tests and humidified deflection.
- 20.2 Cone calorimeter tests to ISO 5660 have been carried out by BRANZ.

Other Investigations

- 21.1 An assessment was made of the durability of the systems by BRANZ technical experts and found to be satisfactory.
- 21.2 Site inspections were carried out by BRANZ to assess the practicability of the installation of the systems, and to view completed installations.
- 21.3 The GIB® Wet Area Systems and GIB® Site Guide Technical Literature have been examined by BRANZ and found to be satisfactory.

Quality

- 22.1 Winstone Wallboards Ltd's manufacturing process and details of the quality and composition of the materials, have been examined by BRANZ and found to be satisfactory.
- 22.2 The quality management systems of Winstone Wallboards Ltd have been assessed and registered by TELARC as meeting the requirements of ISO 9001: 2015, Registration No. 581.
- 22.3 Winstone Wallboards Ltd is responsible for the quality of the product supplied.
- 22.4 The quality of the application and finish on site is the responsibility of the installation, stopping and finishing contractors.
- 22.5 Designers are responsible for the design of buildings.
- 22.6 Building owners are responsible for the maintenance in accordance with the instructions of Winstone Wallboards Ltd.



Sources of Information

- AS/NZS 1170: 2002 Structural design actions - General principles.
- AS/NZS 2588: 2018 Gypsum plasterboard.
- BRANZ Good Practice Guide: Tiling [3rd edition], April 2015.
- ISO 5660-1:2002 Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate [cone calorimeter method].
- NZS 3603: 1993 Timber Structures Standard.
- NZS 3604: 2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of Amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

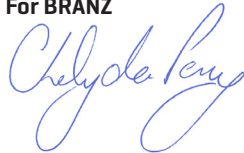
In the opinion of BRANZ, **GIB® Wet Area Systems** are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Winstone Wallboards Ltd**, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

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

For BRANZ



Chelydra Percy

Chief Executive

Date of Issue:

15 February 2021



10mm & 13 mm GIB Aqualine® Plasterboard Winstone Wallboards

Final Assembly: Tauranga, New Zealand; Christchurch, New Zealand

Life Expectancy: 50 Year(s)

Embodied Carbon: 2.14kgCO2-eq for 10mm; 3.08kgCO2-eq for 13mm

Declared Unit: 1m2

End of Life Options: Recyclable (100%), Landfill (100%)

Ingredients:

Gypsum; Cellulose Fibre - Paper; Vermiculite; Fibreglass; Methylhydrogenpolysiloxane; Amylodextrin; Metaphosphoric acid (H3P3O9), trisodium salt; 2-Naphthalenesulfonic acid, polymer with formaldehyde, sodium salt; α-D-Glucopyranoside, β-D-fructofuranosyl; Boric acid; Alcohols, C9-11, branched and linear, ethoxylated, sulfates, sodium salts [1 - 2.5 moles ethoxylated]

Living Building Challenge Criteria: Compliant

I-13 Red List:

- | | |
|---|-----------------------------|
| ☒ LBC Red List Free | % Disclosed: 100% at 100ppm |
| ☐ LBC Red List Approved | VOC Content: Not Applicable |
| ☐ Declared | |

I-10 Interior Performance: Exception I08-E1: Product Air Quality Testing In Oceania

I-14 Responsible Sourcing: Not Applicable

WWL-0002

EXP. 01 NOV 2025

Original Issue Date: 2015

MANUFACTURER RESPONSIBLE FOR LABEL ACCURACY

INTERNATIONAL LIVING FUTURE INSTITUTE™ living-future.org/declare



GIB® Standard Winstone Wallboards

Final Assembly: Tauranga, New Zealand; Christchurch, New Zealand

Life Expectancy: 50 Year(s)

Embodied Carbon: 1.85 kg CO2e for 10mm; 2.33 kg CO2e for 13mm

Declared Unit: 1m2

End of Life Options: Recyclable (100%), Landfill (100%)

Ingredients:

Gypsum; Cellulose Fibre - Paper; Fibreglass; Amylodextrin; 2-Naphthalenesulfonic acid, polymer with formaldehyde, sodium salt; Metaphosphoric acid (H3P3O9), trisodium salt; α -D-Glucopyranoside, β -D-fructofuranosyl; Alcohols, C9-11, branched and linear, ethoxylated, sulfates, sodium salts [1 - 2.5 moles ethoxylated]

Living Building Challenge Criteria: Compliant

I-13 Red List:

- | | |
|---|-----------------------------|
| ☒ LBC Red List Free | % Disclosed: 100% at 100ppm |
| ☐ LBC Red List Approved | VOC Content: Not Applicable |
| ☐ Declared | |

I-10 Interior Performance: Exception I08-E1: Product Air Quality Testing In Oceania

I-14 Responsible Sourcing: Not Applicable

WWL-0005

EXP. 01 NOV 2025

Original Issue Date: 2015

MANUFACTURER RESPONSIBLE FOR LABEL ACCURACY

INTERNATIONAL LIVING FUTURE INSTITUTE™ living-future.org/declare

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](#)

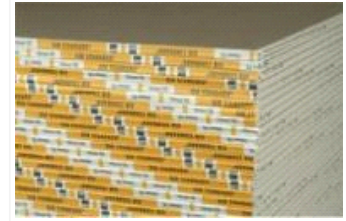


Appraisal Company

GIB confirms that this minimum level of assurance has been met or exceeded by the following:

GIB

[Technical Data](#)



Technical Statement

Product Description

GIB® Standard plasterboard is an economical lining material available in 10mm and 13mm thicknesses.

13mm GIB® Standard plasterboard is recommended for use on ceilings as it is stronger and more rigid than 10mm GIB® Standard plasterboard.

Sheets have a width of 1200mm and are available in 2400, 2700, 3000, 3300, 3600, 4200, 4800 and 6000mm lengths - see the [selector chart](#) for more information.

GIB Standard plasterboard is available with both edges tapered to allow for flush finishing, or with 1 tapered, 1 square edge to provide a flat surface for finishing trims when fixing horizontally

New Zealand Building Code (NZBC)

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

Notes

Evidence

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

Supporting Evidence

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



CodeMark



BRANZ Appraisal

Use in Service History

Product Criteria

Installation requirements

GIB® Standard must be installed in accordance with the manufacturer's Technical Literature.

Warrantees

Company Product Information

Relationships

GIB

[Technical Data](#)



Environmental Choice New Zealand

masterspec partner

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Date last validated: 12 July 2017



Date last updated: 12 July 2017

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GIB® Goldline™ Platinum

Tape-On Trims

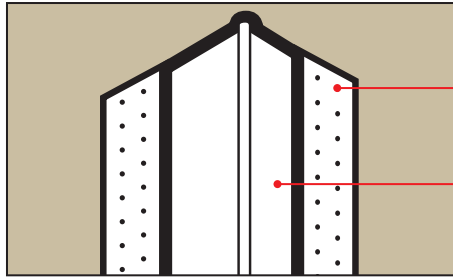


- Made with a patented, high quality paper laminated to galvanised steel forms.
- Simply installed by embedding directly into the joint compound
- No need for fasteners, so there's no chance of fastener popping
- Significantly reduces the risk of cracking because the trim is not directly fastened to the frame

Introduction

GIB® Goldline™ Platinum paper-faced metal trims are made with a patented, high quality paper laminated to galvanised steel forms. The metal provides maximum strength and protection for the corner, while the paper provides reinforcement to reduce cracking caused by the movement or shrinkage of framing members. The result is a clean, precise corner that is long lasting, provides superior resistance to edge cracking, rust resistance and is not subject to fastener popping.

Features

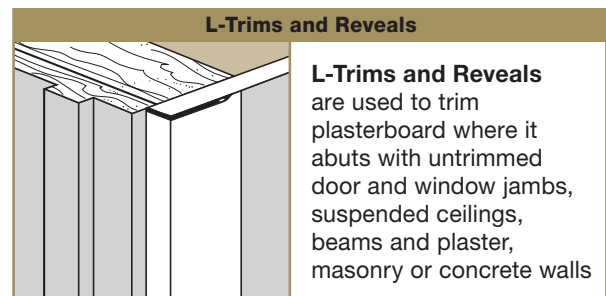
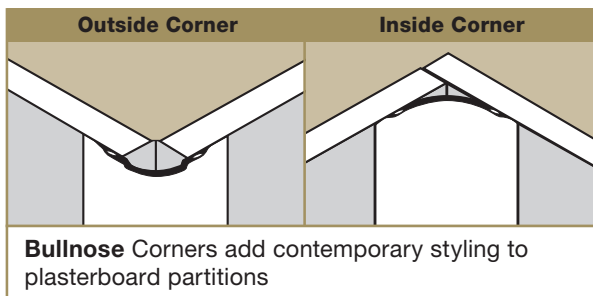
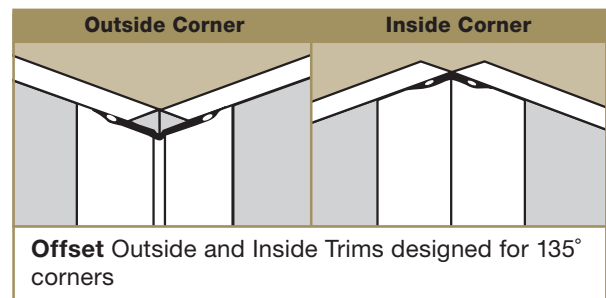
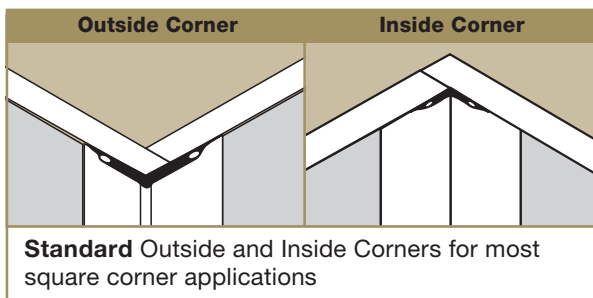


Strong paper tape provides reinforcement to significantly reduce the risk of cracking caused by movement or shrinkage of framing.

Galvanised steel provides strength and protection for corners and increased rust resistance.

- GIB® Goldline™ Platinum's paper is resistant to scuffing, fluffing and damages caused by sanding and plasterboard knives and trowels.
- The paper flange bonds well to the joint compound to reduce the risk of cracking caused by any minor movement and shrinkage of framing members.
- GIB® Goldline™ Platinum Tape-On Trims are easily installed without the need for fasteners using GIB® joint compound so nail popping is not a problem.
- Paper-face provides superb resistance to chipping due to excellent compound and paint adhesion.
- Galvanized coated steel provides exceptional corrosion resistance.
- Easy to adjust during application resulting in a clean, precise corner.
- Available in a wide variety of widths and profiles to suit any plasterboard application.
- Meets or exceeds specifications laid out in ASTM C1047.

Applications



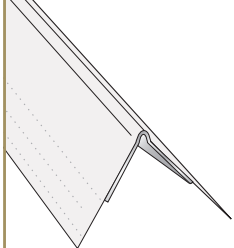
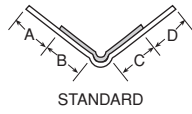
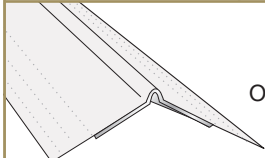
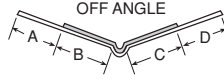
Square Tape-On Trims



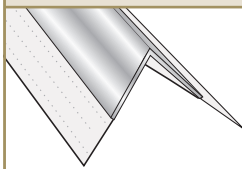
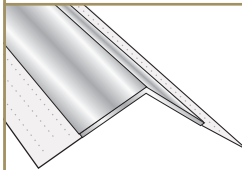
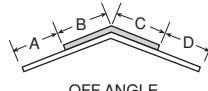
GIB® Goldline™ Platinum Square Tape-On Trims create clean lines and precise square corners. The traditional styling of these corners provide sharp lines which give architectural details such as paint transitions and step bulkheads a more dramatic look.

GIB® Goldline™ Platinum Square Tape-On Trims offer a wide selection of profiles for use on 90° outside/inside and 135° off angle outside/inside corners to accommodate any thickness of plasterboard. GIB® Goldline™ Platinum Square Tape-On Trims can be quickly and easily installed using GIB® joint compound, so there is no chance of fastener popping.

Square Tape-On Outside Corners

TYPE		DIMENSIONS				PROFILE	AVAILABILITY
		A	B	C	D		
	G1-W STANDARD	22mm	13mm	19mm	22mm	90°  STANDARD	2.4m, 2.7m, 3.0m
	G1-U WIDE EQUAL LEG	19mm	19mm	19mm	19mm		
	G1-O OFF ANGLE	16mm	19mm	13mm	16mm	135° OFF ANGLE 	2.4m, 3.0m

Square Tape-On Inside Corners

TYPE		DIMENSIONS				PROFILE	AVAILABILITY
		A	B	C	D		
	G2 STANDARD	16mm	10mm	10mm	16mm	90°  STANDARD	2.4m, 2.7m, 3.0m
	G2-O OFF ANGLE	16mm	19mm	19mm	16mm		
						135° OFF ANGLE 	2.4m, 3.0m

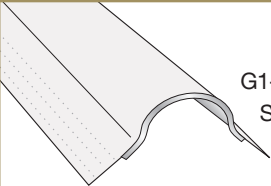
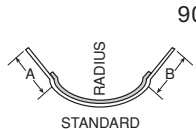
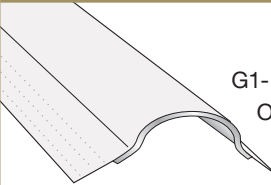
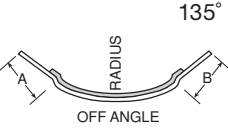
Bullnose Tape-On Trims



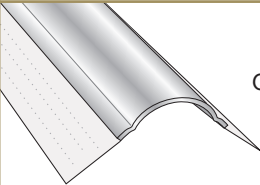
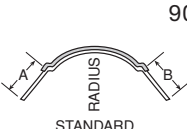
GIB® Goldline™ Platinum Bullnose Tape-On Trims create a smooth rounded corner giving a sense of openness and contemporary style to any room. The bullnose profile also assists with safety around the home. Any knocks or impact to the rounded corners are less likely to cause injury and/or chip the corner.

GIB® Goldline™ Platinum Bullnose Tape-On Trims are suitable for 10mm, 13mm and 16mm plasterboard and are quickly and easily installed using GIB® joint compound. The result is a strong corner that is not subject to fastener popping. Available in outside/inside 90° and outside 135° off angle corners.

Bullnose Tape-On Outside Corner

TYPE	DIMENSIONS			PROFILE	AVAILABILITY
	A	RADIUS	B		
 G1-B OUTSIDE STANDARD	22mm	19mm	22mm	 90° STANDARD	2.4m, 2.7m, 3.0m
 G1-BO OUTSIDE OFF ANGLE	25mm	19mm	25mm	 135° OFF ANGLE	3.0m

Bullnose Tape-On Inside Corner

TYPE	DIMENSIONS			PROFILE	AVAILABILITY
	A	RADIUS	B		
 G2-B INSIDE STANDARD	22mm	19mm	22mm	 90° STANDARD	2.4m, 3.0m

Tape-On L-Trims & Reveals



GIB® Goldline™ Platinum Tape-On L-Trims and Reveals are used to finish rough edges of plasterboard where it abuts other building components such as suspended ceilings, beams, masonry or concrete walls, untrimmed door and window jambs and bi-fold door openings. All of these trims can be quickly and easily installed using GIB® joint compound, leaving a strong finish that is not subject to fastener popping. Available in a wide variety of sizes, suitable for most applications.

GIB® Goldline™ Platinum Tape-On L-Trims and Reveals can also be used together to form control joints in large areas, providing an attractive architectural finish.

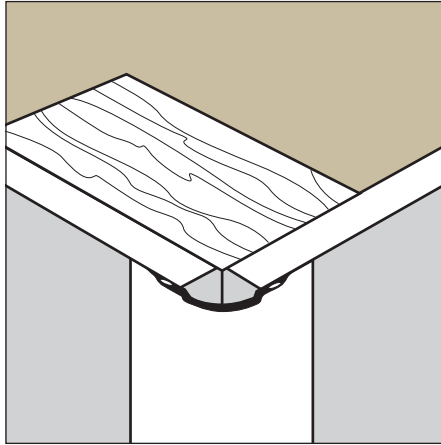
Tape-On L-Trims

TYPE		DIMENSIONS			PROFILE	AVAILABILITY
		A	B	C		
	G4 9.5mm Use with 10mm GIB® plasterboard	12mm	27.5mm	30mm		2.4m, 3.0m
	G4 12.5mm Use with 13mm GIB® plasterboard	15mm	27.5mm	30mm		

Tape-On Reveals

TYPE		DIMENSIONS				PROFILE	AVAILABILITY
		A	B	C	D		
	GR 13mm x 13mm Use with 10mm GIB® plasterboard	13mm	13mm	27mm	30mm		3.0m
	GR 13mm x 16mm Use with 13mm GIB® plasterboard	13mm	16mm	25mm	30mm		

Installation

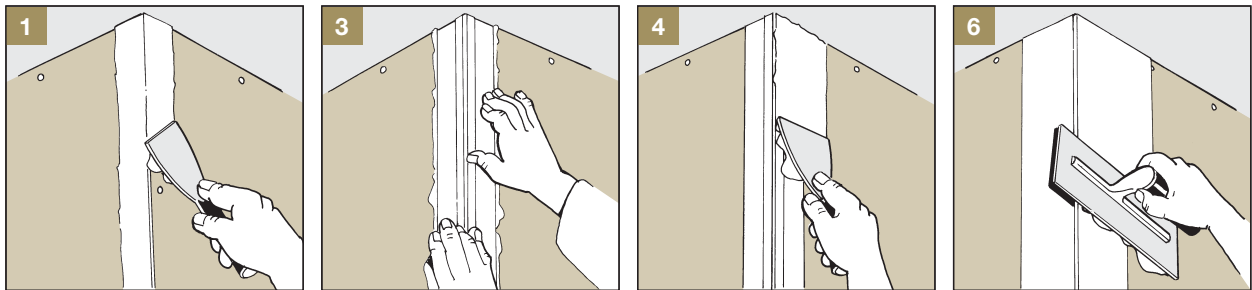


GIB® Goldline™ Platinum Tape-On Trims are simply installed by embedding directly into the joint compound. There's no need for fasteners, so there's no chance of fastener popping. Because the trim is not directly fastened to the frame, the risk of cracking is significantly reduced.

A slightly thinner mix of compound is recommended for the installation of GIB® Goldline™ Platinum Tape-On Trims because it provides better paper adhesion. This means adding a little more water when mixing up the compound. Setting and premix compounds designed for embedding must be used. ie; do not use finishing compounds for the first two coats.

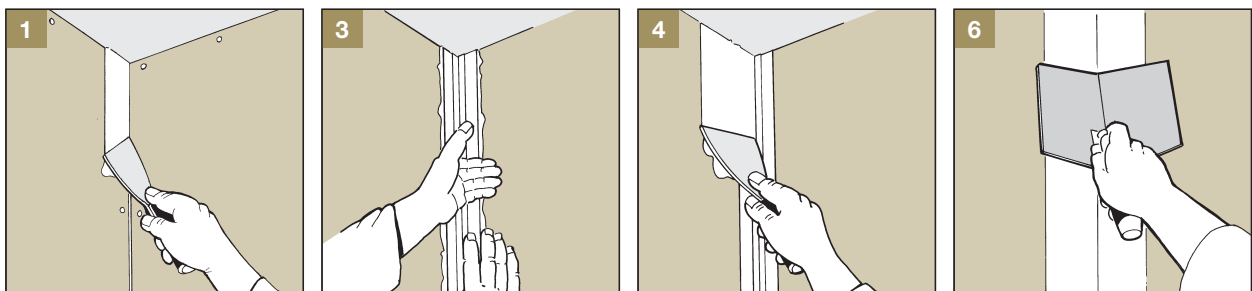
When you are installing external Bullnose Corners, check that the plasterboard edges do not extend past the corner of the framing substrate on either side (see figure). If the plasterboard edges do protrude, simply trim them back prior to commencing installation.

External



1. Apply a 75mm wide band of GIB® joint compound to each side of the GIB® plasterboard corner.
2. Cut trim to required length and position over the joint compound. Allow 10mm at the bottom for expansion and contraction of framing members, and mitre any corners which will be abutting other trims at corners.
3. Press the trim firmly into the compound, evenly along its full length, thus embedding the paper tape and forcing out excess compound. The installation of the trim may be performed with the aid of a corner roller.
4. Using a 100mm broad-knife, wipe off surplus compound and eliminate all air bubbles under the paper. Be careful not to remove all compound.
5. Flush the joint with a 150mm broad-knife or trowel using additional compound. Remove any excess jointing compound on the nose of the trim by wiping with a damp sponge.
6. Allow to harden and dry, then apply a light top coat of GIB® finishing compound. This is done using a large (250-300mm wide) finishing knife or trowel, and applying compound in a band about 200mm wide. Level the compound by drawing the knife along the trim with one edge of the blade riding on the nose of the trim and the other on the surface of the GIB® plasterboard.
7. Repeat for the other side of the trim. Allow to dry.
8. Apply a second top coat of GIB® finishing compound once previous coat is dry. Feather the edges of each coat about 50mm beyond the preceding coat, and again wiping the trim with a damp sponge. When the top coat is completely dry, lightly sand taking care not to scuff the face paper of the GIB® plasterboard.

Internal



Inside corners are installed similarly to outside corners except usually only one top coat of GIB® finishing compound is required. A corner roller may be used to apply and smooth the compound if desired.

GIB® Goldline™ Platinum products

Manufactured by Bailey Metal Products Limited.

Distributed nationwide by authorised GIB® distributors.

Winstone Wallboards Ltd accepts no liability if GIB® Goldline™ Platinum tape-on trims are not installed in strict accordance with the instructions contained in 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 current index of publications on www.gib.co.nz before using this publication. If you are unsure whether this is the current publication, simply call the GIB® Helpline on 0800 100 442.

Trademarks

The names GIB® and GIB Tradeset® are registered marks of Fletcher Building Holdings Limited.

The name Goldline™ is a trademark of Bailey Metal Products Limited.

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Platinum is a series of Goldline™



DRYWALL TRIMS



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Patent New Zealand 302378

Printed January 2006 Ref: CBI 5113



Wet Area Systems

Specification and installation manual

CBI 5113

FEBRUARY 2021

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GIB® HELPLINE

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RESIDENTIAL AND NON-RESIDENTIAL APPLICATIONS. BATHROOMS, LAUNDRIES, TOILETS AND KITCHENS.

Protection from internal moisture is an important consideration when designing interior lining systems for homes, multi-unit apartments, educational, healthcare and commercial applications.

The New Zealand Building Code sets out minimum standards for wet area spaces in residential dwellings. However, often higher levels of performance and protection from internal moisture is demanded.

The GIB® Wet Areas System specification and installation manual provides internal lining options and details for specifiers, builders and building owners.

USE ONLY THE CURRENT SPECIFICATION

This manual supersedes the publication GIB Aqualine® Wet Area Systems March 2007. Winstone Wallboards Ltd accepts no liability for reliance upon publications that have been superseded.

If you are unsure whether this is the current publication, call the GIB® Helpline on 0800 100 442 or go to gib.co.nz

BEWARE OF SUBSTITUTION

The performance of GIB® Wet Area 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.

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This publication

This publication is a best practice guide to the design and construction of wall and ceiling linings in wet areas with intermittent water exposure within residential and non-residential buildings, as covered by NZ Building Code Clause E3 Internal Moisture.

The information is designed to be helpful to designers, contractors and home-owners wishing to achieve a result that is easy to incorporate into modern design, simple and clear to construct, and that will satisfy the needs, requirements and expectations of both the NZ Building Code and the end user.

Wet areas in the home often require relatively frequent and expensive renovation or repair, often because of the ingress of water to the structure of the building.

To form a complete wet area system it is important to specify compatible materials and systems, designed to cope with conditions that are common in wet areas, and to ensure correct installation using best practice.

WET AREAS

Generally, wet areas are described as spaces to where fresh water is reticulated, such as bathrooms, toilets, laundries and kitchens. Within wet areas the following requirements apply;

1. NZBC Clause E3.3.4 states that wall surfaces adjacent to sanitary fixtures or sanitary appliances must be impervious and easily cleaned.
2. NZBC Clause E3.3.6 states that surfaces of building elements likely to be splashed must be constructed in a way that prevents water splash from penetrating behind linings or into concealed spaces.

NZ Building Code Clause E3 also refers to other requirements not covered in this publication, such as ventilation, condensation control and overflow management. Ongoing maintenance of wet areas is also important to maximise service life.

GIB AQUALINE®, GIB TOUGHLINE® AQUA AND GIB WEATHERLINE®

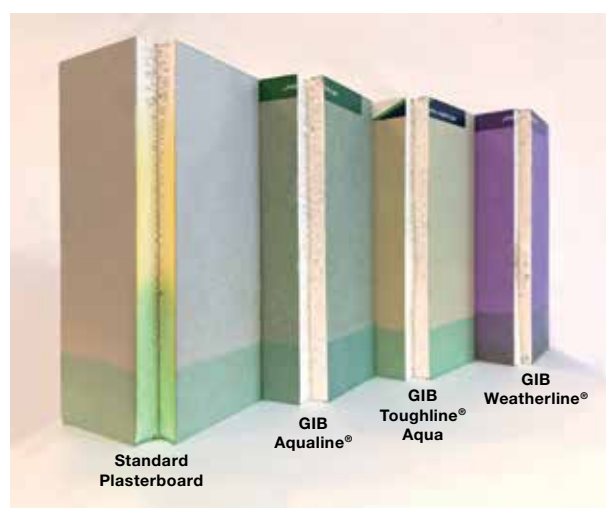
Although able to cope with infrequent short-term exposure, standard gypsum plasterboard will have a shortened life expectancy when frequently exposed to water or a high moisture environment.

The NZ Building Code does not call for water resistant linings in wet areas but it is desirable to specify lining materials which will maintain their integrity longer when exposed more frequently to moisture, and to one-off events such as leaks or flooding.

GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® feature a water-resistant polymer impregnated core, designed for wet area applications. These core formulations not only resist penetration of moisture through the lining into the framing behind, but also resist water “wicking” up the core, a common cause of long-term damage where a water-resistant lining has not been used.

WATER ABSORPTION TEST

The illustrations below show how GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® compare with standard plasterboard after soaking for two-hours in green dye.



WHERE TO USE GIB® WET AREA LININGS

In order to prolong the life expectancy of the space it is highly desirable to include wet area linings in situations where there is an increased risk of water or moisture damage. Applications include walls and ceilings in bath and shower rooms, and walls in laundries, toilets and kitchens.

BENEFITS

- Water resistant and durable linings help protect against water damage
- Proven substrate for paint, wallpaper, waterproofing membranes, tiles, sheet vinyl and rigid sheet shower linings
- Suitable for both residential and non-residential applications
- Dimensionally stable and an excellent substrate for ceramic tiles
- Conventional jointing methods
- Easy to cut and form openings
- Contains glass fibres and other additives to increase strength and fire resistance
- May be used in GIB® Bracing, GIB® Fire Rated and GIB Noise Control® Systems (see Compliance with the NZ Building Code, Clauses B1, C3 and G6). Consult the appropriate GIB® literature for installation details

HANDLING AND STORAGE

- GIB® plasterboard must be stored under cover, stacked flat and clear of the floor with sufficient support to avoid sagging
- GIB® plasterboard must be handled as a finishing material

LIMITATIONS

- GIB® wet area linings must not be used for bracing purposes in shower cubicles or above baths. For more information refer to page 9 of this manual
- Do not use GIB® wet area linings where exposed for extended periods to humidity levels above 90% RH, such as in group shower or steam rooms, or where exposed to moisture and chlorine rich environments such as in indoor swimming pools
- GIB® wet area linings used in a bathroom or other high humidity environment must not be directly applied to solid plaster (gypsum or cement), wood-based sheet linings or similar materials, masonry or concrete, without strapping or steel furring channels
- GIB® wet area linings must not be installed over a vapour barrier or a wall acting as a vapour barrier
- Cracked or damaged sheets must never be used
- GIB Aqualine® or GIB Toughline® Aqua must not be used in external applications
- GIB® plasterboard must not be exposed to temperatures in excess of 52°C for prolonged periods. Heat-generating devices may include halogen lighting, cooking elements, radiant heating, solid fuel exhausts and fire surrounds. Consult the appliance manufacturer for installation details

Table 1: GIB® Wet Area linings sheet dimensions and weights

Product	Sheet face colour	Thickness (mm)	Sheet width (mm)	Edge Type	Sheet length (mm)						Max. Weight (kg/m²)
					2400	2450	2700	3000	3600	4800	
GIB Aqualine®	Green	10	1200	TE/TE							8.0
			1200	TE/SE							
			1350	TE/SE							
		13	1200	TE/TE							11.0
GIB Toughline® Aqua	Mauve	13	1200	TE/TE							11.4
GIB Weatherline®	Purple	10	1200	SE/SE							9.0
		13	1200	SE/SE							11.5

BOARD SUBSTITUTION OPTIONS
Acceptable GIB Aqualine® alternatives

10mm GIB Aqualine® can be replaced with:	10mm GIB Weatherline® 13mm GIB Toughline® Aqua
13mm GIB Aqualine® can be replaced with:	13mm GIB Weatherline® 13mm GIB Toughline® Aqua

GIB® Wet Area System construction details in this manual refer to the use of GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® sheets may also be used in place of GIB Aqualine®.

FLEXIBLE SHEET VINYL – SHOWERS AND OTHER WET AREAS

- GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® are suitable substrates for flexible vinyl wall finishes in wet areas of residential, commercial or institutional buildings
- Framing requirements and installation procedures are presented in this literature, except that the lining gap at the floor is no more than 5mm when a pencil cove detail is used
- The installation of galvanised steel reinforcing angles behind internal lining corners is recommended for sheet vinyl applications in showers or shower over bath situations
- The lining must be jointed and stopped to a paint quality finish (Level 4) – trowel marks can telegraph even through a commercial grade 2mm vinyl
- A commercial grade vinyl is recommended in commercial or institutional bathrooms and showers
- In areas directly exposed to liquid water, all joints in flexible sheet vinyl must be heat welded
- Installation of flexible vinyl must be carried out strictly in accordance with the specifications provided by the suppliers/ manufacturers of the vinyl

RIGID SHEET SHOWER LININGS

- The wall surface must be free of dust before installation of the lining
- Avoid lining joints as much as possible and where necessary flush with plaster to achieve a level surface
- Do not pre-seal or paint areas which are to be covered by the rigid shower linings
- The suppliers of thin (usually 2-3mm) and rigid acrylic shower linings commonly recommend direct adhesive fixing to wall linings using solvent-based adhesives
- Care must be taken to ensure that rooms are adequately ventilated
- Water temperature changes will cause movement of the thin acrylic sheet, which in turn will stress the adhesive and wall lining substrate
- Consult the supplier of the shower lining for full installation details
- Suppliers of rigid sheet acrylic shower linings recommend a minimum of 24 hours for the adhesive to cure fully prior to the shower being put into service

WATERPROOF MEMBRANE SYSTEMS AND TILING

- A waterproof membrane system must be applied to lining materials used as a substrate for ceramic tiles in a shower or shower over bath situation
- The wall surface in a shower or shower over bath situation is not complete and ready for tiling until coated with a waterproof membrane system over the lining and once penetrations for shower mixers, taps and associated fittings are sealed
- The installation of galvanised steel reinforcing angles behind internal lining corners is required for tiled wall applications in showers or shower over bath situations
- In-situ waterproofing membrane materials manufactured to AS/NZS 4858:2004 “Wet Area Membranes” are recommended and must be applied to manufacturer’s recommendations. Typically, these types of membrane systems are not suitable for paint and wallpaper finishes
- Waterproof membrane systems must be fully cured and dry prior to application of tiling adhesives
- Preformed sheet membranes are also available and may be more suitable where curing times or specialist skills are an issue
- The details shown in this manual are generic in nature. For accurate detailing, follow the specifications provided by the supplier of the proprietary waterproof membrane system

For further information on tiling consult the BRANZ Good Practice Guide – Tiling.

PENETRATIONS AND SEALANTS

As leaks and water ingress typically occur at junctions between building elements and at penetrations, it is essential that particular attention is given to these details at the time of installation. Lack of attention to detail can result in water damage that could remain undetected for a long time.

- Ensure that all cut-outs for pipe penetrations are made neatly, and slightly oversize, with a hole saw. These penetrations should be of a diameter no more than 12mm greater than that of the pipe
- Shower mixer and tap penetrations should be sealed with an appropriate flange system to prevent the passage of moisture into the wall cavity. Refer to New Zealand Building Code Clause E3 Internal Moisture November 2020 for examples of acceptable options
- Sealants should be of a mould inhibiting type and be paintable. Neutral cure silicones will generally meet these requirements
- Surfaces should be dry and free from dust before application, a minimum of a 4mm joint width provided and the depth should not exceed the width
- Apply a bead of sealant to the full depth of the lining in the following locations:
 - Around all tap/pipe bodies
 - The gap between the bath rim and the bottom edge of the wet area lining
 - Between the upstand of preformed shower bases and the bottom edge of the lining
 - Where an impervious junction is required at the floor/wall line, carefully seal the gap between the bottom edge of the board and the finished floor. Leave a 5-10mm gap at the bottom of the wall lining for this purpose, ensuring the gap is free from dirt and dust
- Do not locate shower heads or taps on fire rated or intertenancy walls. Should this be unavoidable always use tested and approved proprietary penetration seals

RENOVATIONS

Bathrooms, kitchens and laundries are the most renovated rooms in the house, partly due to fashion considerations and partly because of damage sustained by ingress of water and moisture.

When renovating these rooms it is often easier and more cost-effective to remove the existing linings and replace them. This allows for a new start in the room and offers sound substrates for new surfaces such as tiling and painting, where otherwise flaking paint or damaged plasterboard may compromise good and sound finish or practice. At the very least re-lining will:

- Allow for inspection of framing where damage may have occurred and provide the opportunity to repair such damage
- Allow plumbing and electrics to be checked and altered or replaced where required
- Provide the opportunity to install thermal and acoustic insulation, water-resistant linings, and propriety plumbing penetration flange systems where appropriate
- Make the job easier

MAINTENANCE

Lack of maintenance is frequently the cause of premature and often expensive failure of components and building elements within wet areas.

It is important to regularly inspect and repair any potential problem before it becomes expensive to reinstate. Good maintenance should include:

- Ongoing ventilation. At the very least, good passive ventilation (e.g. window vents); but good active ventilation (e.g. extraction fans) of an appropriate size for the room is recommended
- Impervious coatings and surfaces should be checked for wear and damage and maintained and re-coated before ingress of water to the substrate occurs
- Regular cleaning with appropriate cleaners so that build-up of matter, such as mould, is well controlled
- Sealants at junctions and penetrations should be checked for adhesion on a regular basis and replaced where adhesion failure to substrates occurs
- Where pipe leaks have become evident, however small, they should be repaired promptly and any area around such leaks dried out completely before any other repairs are carried out

Compliance with the NZ Building Code

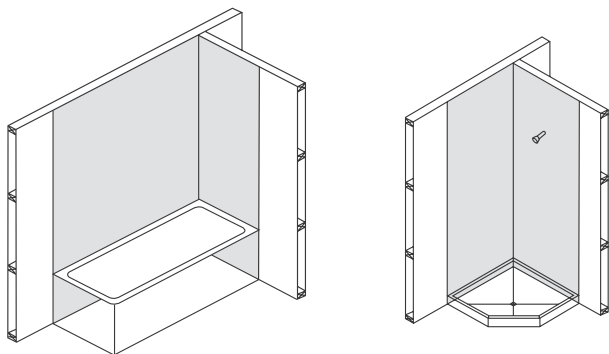
STRUCTURE – CLAUSE B1

The design and material specification for steel and timber framing used in GIB® Wet Area systems must be in accordance with the performance requirements of NZ Building Code Clause B1 (Structure).

Bracing elements are required to have a durability of 50 years. GIB® 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, such as at bath and shower tray locations.

Otherwise, GIB® Bracing Systems can be used in water-splash areas, provided these are maintained impervious for the life of the building.

GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® can be used in place of GIB® Standard plasterboard in GIB® bracing elements. They can also be used in place of GIB Braceline® in GIB® bracing elements 900mm or longer, provided the perimeter of the element is fixed with GIB® Grabber 32mm x 6g screws at 100mm centres, using the GIB Braceline® corner fixing pattern. Refer to the GIB® Bracing System literature.



No bracing in the shaded areas.

DURABILITY – CLAUSE B2

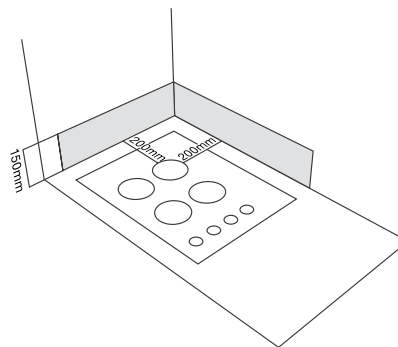
When installed and maintained in accordance with this literature, GIB® Wet Area systems tiled or vinyl covered have a serviceable life of at least 15 years. They comply with the requirements of NZ Building Code Clause B2 (Durability) for use in wet areas directly exposed to liquid water, e.g. showers, showers over baths and splash-backs.

When used as a general wet area lining and maintained under normal dry internal conditions, GIB® Wet Area Systems have a serviceable life of at least 50 years and comply with NZ Building Code Clause B2 (Durability) for use within toilets, kitchens, bathrooms and laundries not directly exposed to liquid water.

FIRE AFFECTING AREAS BEYOND THE SOURCE – CLAUSE C3

GIB® Fire Rated Systems provide passive fire protection in accordance with the requirements of NZ Building Code Clause C3. When GIB Aqualine® or GIB Toughline® Aqua is substituted into fire rated systems in place of the equivalent thickness GIB Fyrelite®, the Fire Resistance Rating (FRR) of that system will be maintained.

The protection of combustible surfaces surrounding gas cooking appliances is covered by the latest version of AS/NZS 5601.1.



As a guide the following options are acceptable for wall surfaces within 200mm of the periphery of a gas element to a height of 150mm above the element for the full dimension (width and depth) of the cooktop surface area:

- 5mm tiles on GIB® plasterboard
- 5mm toughened glass on GIB® plasterboard
- or any system that can be demonstrated to meet the specific requirements of AS/NZS 5601.1

GIB® plasterboard products must not be exposed to temperatures in excess of 52°C for sustained periods. Check with the appliance manufacturer that this requirement will be met. It would be unusual for surfaces outside 200mm to exceed 52°C for sustained periods.

INTERNAL MOISTURE – CLAUSE E3

The New Zealand Building Code Clauses that relate to wall surfaces are;

E3.3.4 - Wall surfaces adjacent to sanitary fixtures or sanitary appliances must be impervious and easily cleaned.

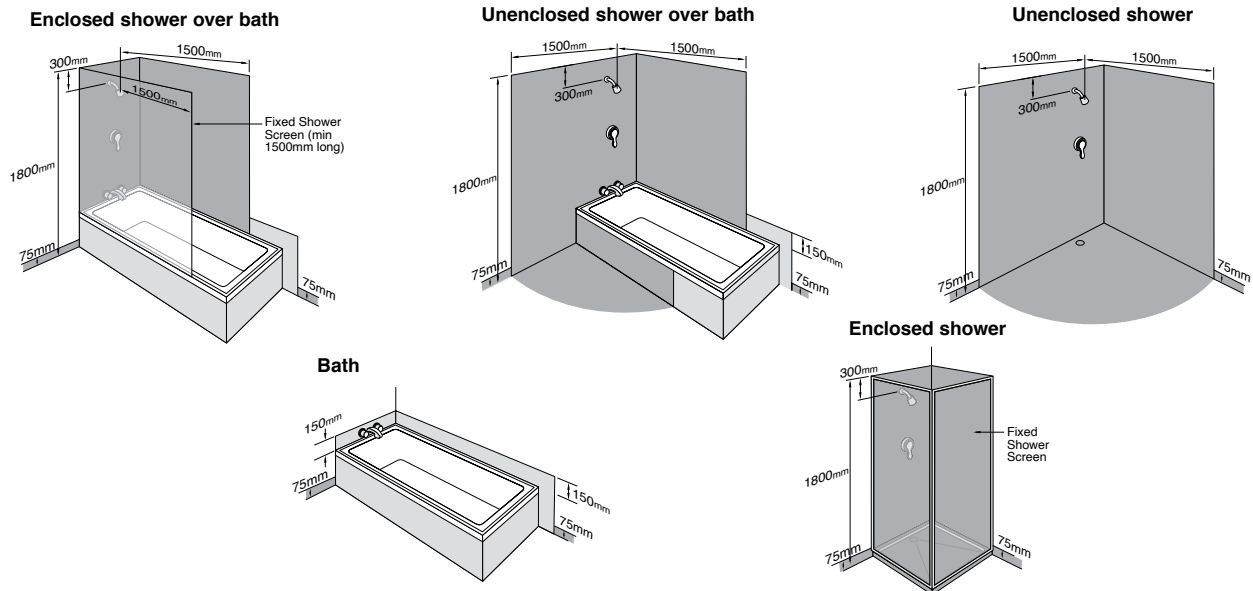
E3.3.5 - Surfaces of the building elements likely to be splashed or become contaminated in the course of the intended use of the building, must be impervious and easily cleaned.

E3.3.6 - Surfaces of building elements likely to be splashed must be constructed in a way that prevents water splash from penetrating behind linings or into concealed spaces.

New Zealand Building Code Acceptable Solution E3/AS2 substantially refers to the Waterproof Membrane Association Incorporated (WMAI) Code of Practice for Internal Wet Area Membrane Systems (IWAM), August 2020.

The IWAM Code of Practice refers to wet area membranes and over-surfaces that are easy to clean and suggests an extent as outlined below for a typical bathroom application. For further details refer to the IWAM Code of Practice which also lists suitable rigid sheet materials and tiling membranes.

Shaded areas in the diagrams below represent the minimum extent of wall surfaces requiring impervious sheet materials or waterproof membrane systems prior to tiling.



HAZARDOUS BUILDING MATERIALS – CLAUSE F2

At no stage during its serviceable life does GIB Aqualine® constitute a health hazard. It therefore meets the provisions of NZ Building Code Clause F2 (Hazardous Building Materials). Dust resulting from the sanding of stopping compounds may be a respiratory irritant and the use of a suitable facemask is recommended.

VENTILATION – CLAUSE G4

NZ Building Code Clause G4 (Ventilation) requires buildings to have a means of collecting or otherwise removing steam generated from laundering, utensil washing, bathing or showering. To prolong the life of interior linings and surface finishes and to minimise the risk of moisture related problems such as condensation and mould growth, adequate heating, thermal insulation and mechanical ventilation must be provided in kitchens, bathrooms and laundries.

AIRBORNE AND IMPACT SOUND – CLAUSE G6

GIB® Noise Control Systems can be used to provide ratings for Sound Transmission Class (STC) and Impact Insulation Class (IIC) in accordance with the requirements of NZ Building Code Clause G6 (Airborne and Impact Sound). When GIB Aqualine®, GIB Toughline® Aqua or GIB Weatherline® is substituted into GIB® Noise Control systems in place of the equivalent thickness GIB® Standard plasterboard or GIB Fyrelite®, the STC and IIC rating of that system will be maintained. When GIB Aqualine®, GIB Toughline® Aqua or GIB Weatherline® is substituted in place of the equivalent thickness GIB Noiseline®, a small performance loss may occur. For further information refer to the GIB Noise Control® Systems literature or contact the GIB® Helpline 0800 100 442.

TIMBER WALL FRAMING

Framing dimensions must comply with the requirements of NZS 3604:2011.

- The moisture content of timber framing shall be 18% or less at the time of lining
- Studs shall be spaced at 600mm centres maximum for both 10mm and 13mm GIB® plasterboard
- Nogs to be evenly spaced with a maximum spacing of 1350mm. Alternatively, nogs may be staggered 150mm maximum either side of a horizontal joint line
- Nogs are not required behind horizontal joints except in shower situations or specific fire or noise control systems

FASTENERS

- Minimum 32mm x 6g GIB® Grabber® High Thread screws.

FASTENER CENTRES

- 300mm centres to top and bottom plates and to perimeter studs
- Single fasteners to each stud where the horizontal joint crosses the studs

- Place fasteners 12mm from sheet edges and 18mm from sheet ends
- Daubs of GIBFix® adhesive at 300mm centres to intermediate studs
- Do not place adhesive at sheet edges or under fasteners. Sheet edges at door or window openings can be adhesive fixed unless forming part of the perimeter of a bracing element

For bracing, noise control or fire rating applications including fastener lengths consult the relevant GIB® technical publication.

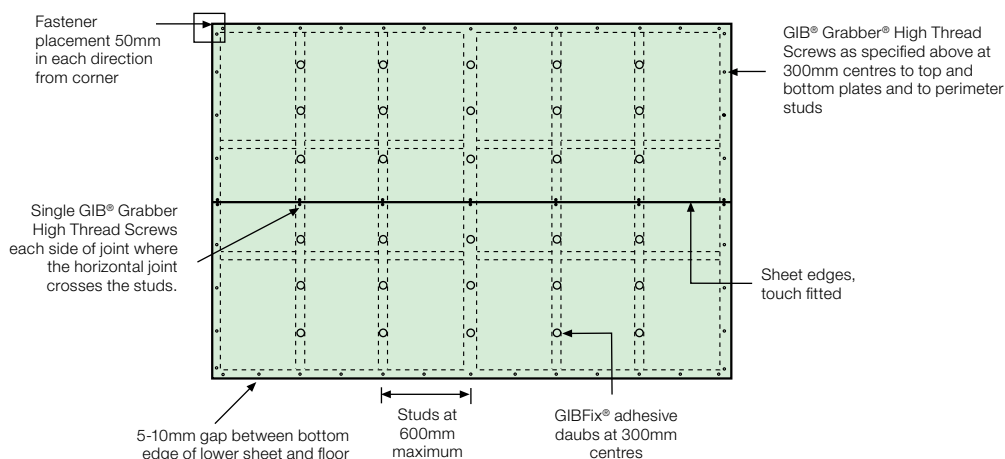
LINING

- Use minimum 10mm GIB® plasterboard
- Install the sheets leaving a 5-10mm gap at the floor line to allow for movement of the framing members and to allow for cleaning dirt and rubbish before sealing
- Sheets to be touch fitted.

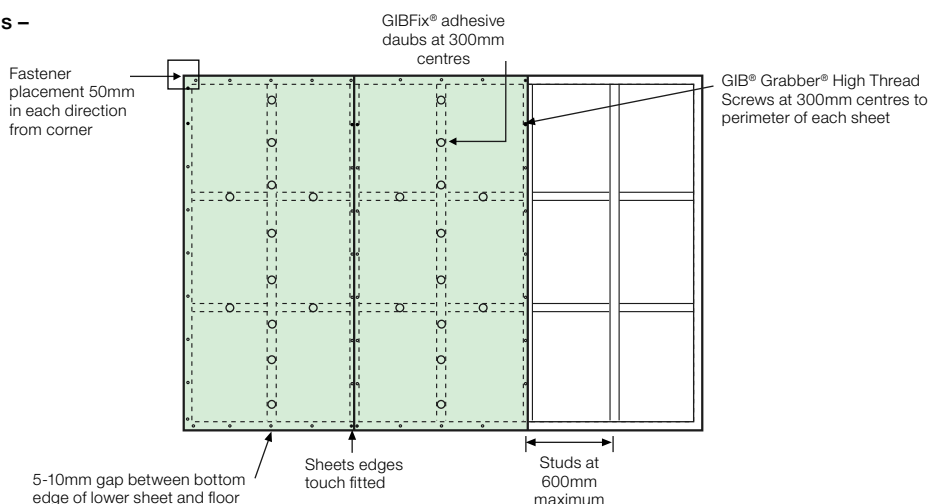
JOINTING

- Jointing shall be carried out in accordance with the instructions in the GIB® Site Guide.

Fastening the Linings – Horizontal Fixing Only



Fastening the Linings – Vertical Fixing Only



STEEL WALL FRAMING

The minimum sheet thickness for fixing on light gauge 0.55mm base metal thickness (BMT) steel framing is 13mm GIB® plasterboard. For bracing, noise control or fire rating applications consult the relevant GIB® technical publication.

Steel frame for residential construction is in accordance with NZBC B1/AS1 9.1 NASH Standard Part 2 Light Steel Framed Buildings, or by specific design. 10mm GIB plasterboard is commonly used on minimum 0.75mm BMT residential steel framing.

FASTENERS

- Minimum 25mm x 6g GIB® Grabber® Self Tapping Screws.

FASTENER CENTRES

- 300mm centres to top and bottom channels and to end studs
- Single screws to each stud where the horizontal joint crosses the studs
- Place fasteners 12mm from sheet edges and 18mm from sheet ends

- Daubs of GIBFix® All-Bond adhesive or screws at 300mm centres to intermediate studs
- Do not place adhesive at sheet edges or under fasteners.
- Sheet edges at door or window openings can be adhesive fixed.

For bracing, noise control or fire rating applications including fastener lengths consult the relevant GIB® technical publication.

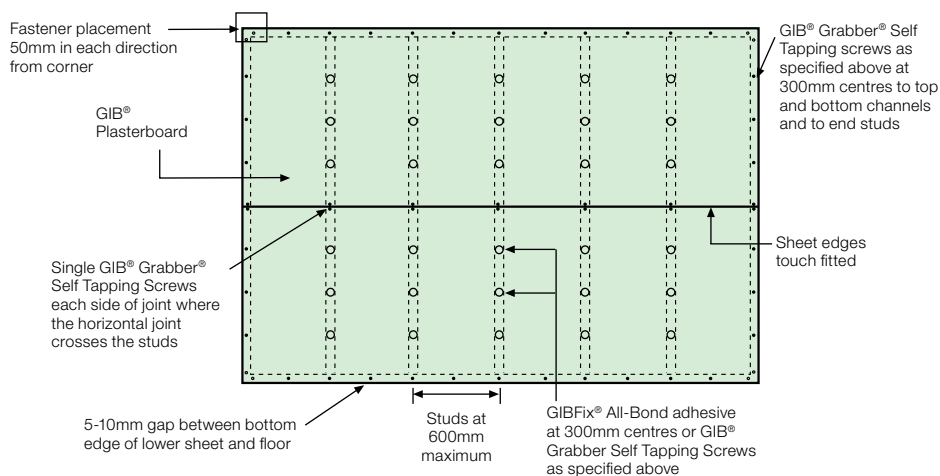
LINING

- Lay the sheets, leaving a 5-10mm gap at the floor line.
Note: If friction fitted steel studs have been used, sheets must be fitted hard to the floor. Ensure floor is cured and dry
- Sheets to be touch fitted.

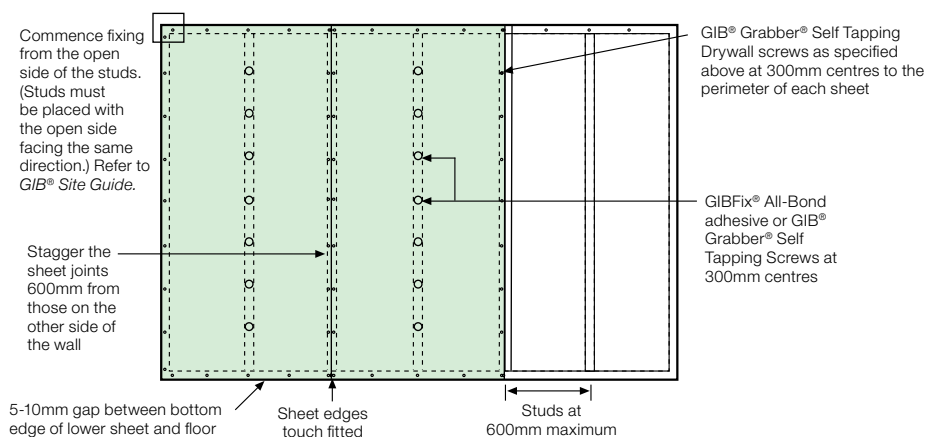
JOINTING

- Jointing shall be carried out in accordance with the instructions in the GIB® Site Guide

Fastening the Linings – Horizontal Fixing Only



Fastening the Linings – Vertical Fixing Only



TIMBER WALL FRAMING

Framing dimensions and spacing must be appropriate for the tile weight and comply with the requirements of NZS 3604:2011 Timber Framed Buildings, or relevant specific design Standard.

NOGS

For impact protection in shower cubicles or shower over bath situations it is important that all sheet joints are made on solid framing. This may require vertical fixing or the installation of additional nogs. Also provide nogs:

- Adjacent to each pipe penetration and behind sink and tub flashings
- Between all studs above bath flanges and preformed shower bases

CORNER REINFORCING

- Prior to lining in tiled areas (shower cubicles and shower over bath only) the internal corners shall be reinforced with a minimum
- 32 x 32 x 0.55mm NZ18 or 45 x 45 x 0.55mm GIBFix® Angle. Angles need to be temporarily held in place until secured by the lining fixings.

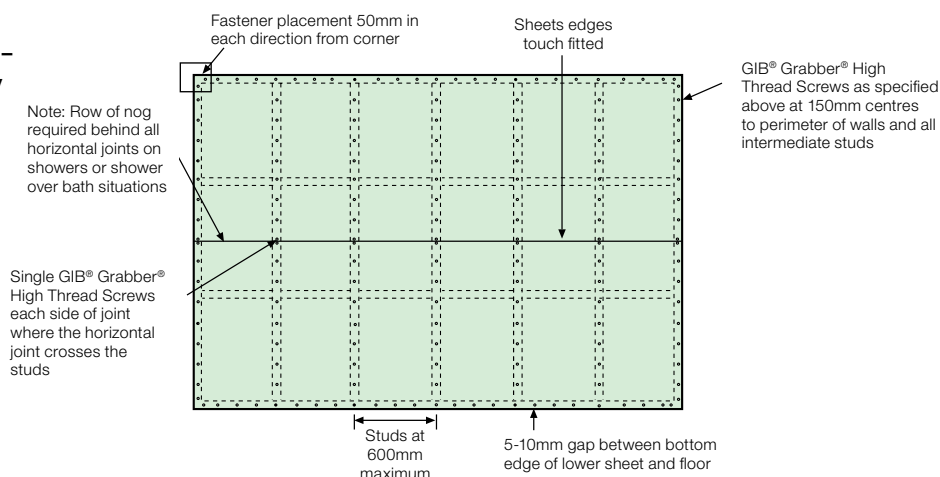
FASTENERS

- Minimum 32mm x 6g GIB® Grabber® High Thread Screws

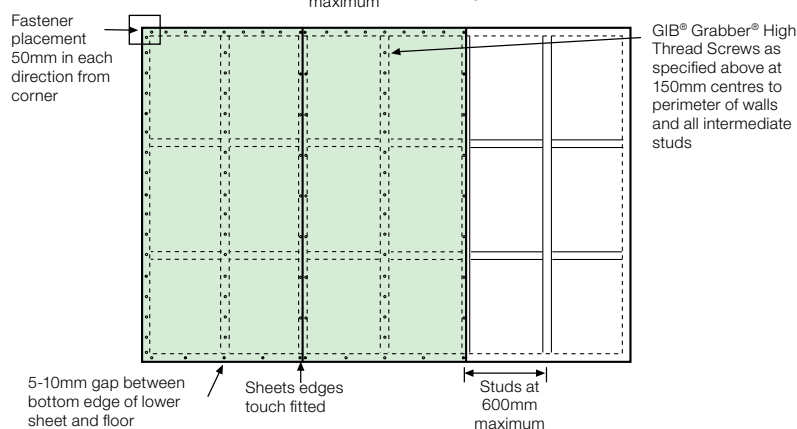
FASTENER CENTRES

- 150mm centres to perimeter of wall and all intermediate studs
- Adhesive is not to be used in place of mechanical fasteners
- Place fasteners 12mm from sheet edges and 18mm from sheet ends

Fastening the Linings – Horizontal Fixing Only



Fastening the Linings – Vertical Fixing Only



- Single fasteners to each stud where the horizontal joint crosses the studs
- Where relevant, fastener lengths must comply with the requirements of GIB® Fire Rated Systems or GIB® Noise Control Systems

For bracing, noise control or fire rating applications including fastener lengths consult the relevant GIB® technical publication.

LINING AND TILE WEIGHTS

- Use minimum 10mm GIB® plasterboard
- For maximum permitted tile weights refer to pg 16 of this manual
- GIB® Wet Area linings may be fixed vertically or horizontally
- Sheets are touch fitted
- Provide a 5-10mm gap at the wall/floor junction and between the bottom edge of the lining and any bath rim or preformed shower base to allow for placement of sealant
- Do not tile on the resilient side of GIB Rail® or STWC Acoustic Clip (ST001) and channel noise control system
- GIB® Wet Area linings are suitable for tiling full height of walls, but if a wall is to be partially tiled (e.g. half high), only the area of wall under the tiles needs to be fixed as required for tiled areas. The remainder of the wall may be fixed as for non-tiled areas

JOINTING

- Jointing shall be carried out in accordance with the instructions of the GIB® Site Guide

STEEL WALL FRAMING

Framing dimensions and spacing must be appropriate for the tile weight and comply with the requirements of NASH Standard Part 2:2019 Light Steel Framed Buildings, or relevant specific design Standard.

- Linings are placed hard to floor, bedded into a sealant bead
- Steel framing for tiling to have a minimum base metal thickness (BMT) of 0.75mm

NOGS

For impact protection in shower cubicles or shower over bath situations it is important that all sheet joints are made on solid framing. This may require vertical fixing or the installation of additional noggs. Also provide noggs:

- Adjacent to each pipe penetration and behind sink and tub flashings
- Between all studs above bath flanges and preformed shower bases

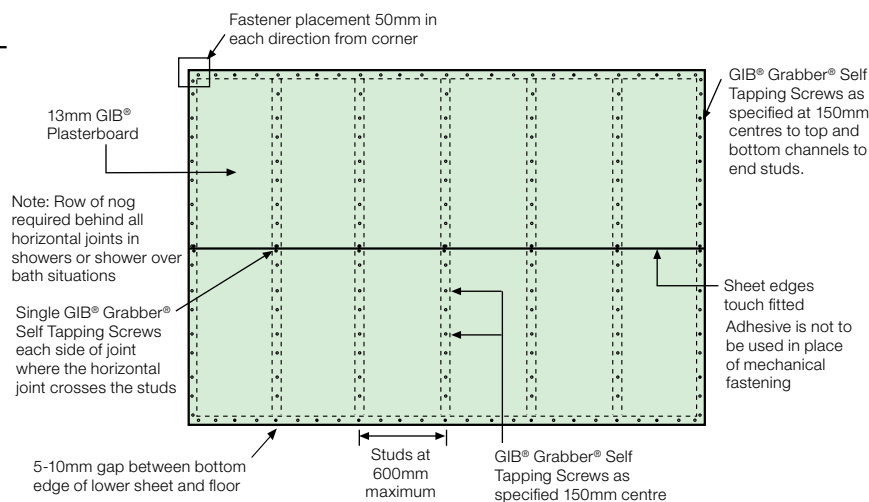
CORNER REINFORCING

- Prior to lining in tiled areas (shower cubicles and shower over bath only) the internal corners shall be reinforced with a minimum
- 32 x 32 x 0.55mm NZ18 or 45 x 45 x 0.55mm GIBFix® Angle. Angles need to be temporarily held in place until secured by the lining fixings

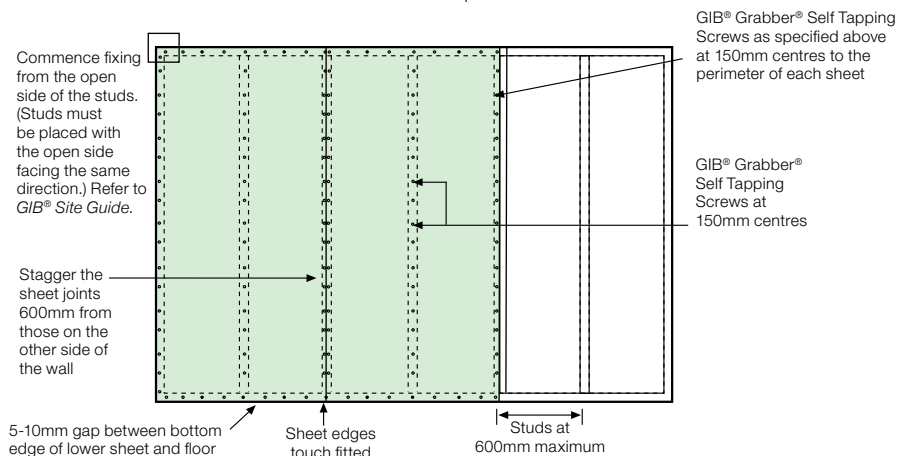
FASTENERS

- Minimum 32mm x 6g GIB® Grabber® Self Tapper screws

Fastening the Linings – Horizontal Fixing Only



Fastening the Linings – Vertical Fixing Only



FASTENER CENTRES

- 150mm centres to perimeter of wall and all intermediate studs
- Adhesive is not to be used in place of mechanical fasteners
- Single screws to each stud where the horizontal joint crosses the studs
- Place fasteners 12mm from sheet edges and 18mm from sheet ends.

For bracing, noise control or fire rating applications including fastener lengths consult the relevant GIB® technical publication.

LINING AND TILE WEIGHTS

- Use minimum 13mm GIB® plasterboard
- For maximum permitted tile weights refer to pg 16 of this manual
- GIB® Wet Area linings may be fixed vertically or horizontally
- Sheets are touch fitted
- Provide a 5-10mm gap at the wall/floor junction and between the bottom edge of the lining and any bath rim or preformed shower base to allow for placement of sealant
- Do not tile on the resilient side of GIB Rail® or STWC Acoustic Clip (ST001) and channel noise control system
- GIB® Wet Area linings are suitable for tiling full height of walls, but if a wall is to be partially tiled (e.g. half high), only the area of wall under the tiles needs to be fixed as required for tiled areas. The remainder of the wall may be fixed as for non-tiled areas

JOINTING

- Jointing shall be carried out in accordance with the instructions of the GIB® Site Guide

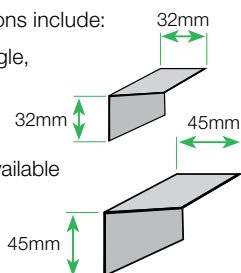
METAL ANGLES FOR TILED INTERNAL CORNERS

- Prior to lining in tiled areas (shower cubicles and shower over bath only) the internal corners shall be reinforced with a minimum 32 x 32 x 0.55mm galvanised metal angle.

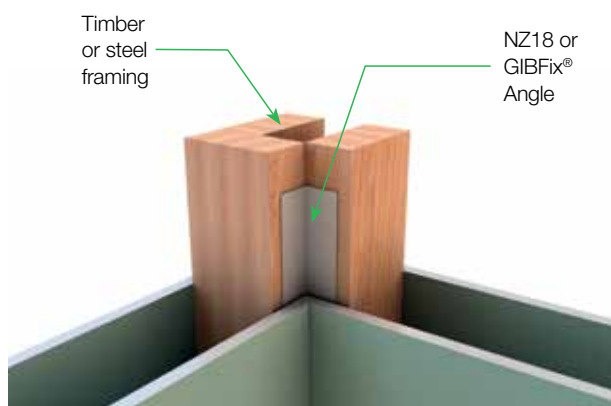
- Suitable GIB® metal angle options include:

- GIB® Rondo® NZ18 metal angle, available length: 3.0m

- GIBFix® Angle metal angle, available lengths: 2.4m and 2.7m



- Angles need to be temporarily held in place until secured by the lining fixings
- Minimum height of the metal angle is 1800mm



WATERPROOF MEMBRANE SYSTEMS

A waterproof membrane system must be applied to all lining materials used as a substrate for ceramic tiles in a shower or shower over a bath application, or any other tiled application exposed to frequent water splash.

For further information see p10.

TILES AND TILE WEIGHTS

In areas likely to be directly exposed to water, tiles may be ceramic, porcelain or stone must comply with the over-surface finish requirements of the IWAM Code of Practice and be bedded with a suitable tile adhesive on the waterproof membrane system. See page 10 for the minimum extent of wall surfaces requiring impervious sheet materials or waterproof membrane systems prior to tiling.

Smaller mosaic tiles are often lighter, but the integrity of grout joints might be more prone to impact, whilst heavier tiles are larger and have less and deeper grout and sealant joints. For more information also see AS 3958:2007 Ceramic tiles – Guide to the installation of ceramic tiles.

Table 2: Recommended maximum tile weights

Maximum Tile Weights for GIB Aqualine®, GIB Toughline® Aqua or GIB Weatherline®			
Stud Centre (maximum)	Fasteners Centre (maximum)	Lining Thickness	Tile Weight
600mm maximum	150mm maximum	10mm	26kg/m ²
		13mm	40kg/m ²

ADHESIVE AND GROUT WEIGHTS

The weight of adhesive and grout can vary depending on the type of tile and the installation process used. The maximum tile weights stated in table 2 are conservative and refer to the tile weight excluding grout and adhesive used. An additional 3kg/m² has been factored into tile adhesion testing on top of the above stated tile weights to account for adhesive and grout weight used during the installation of the tile.

CEILING FRAMING

Framing dimensions and spacing must comply with the requirements of NZS 3604:2011, NASH for steel or relevant NZ Standard.

For noise control or fire rating applications consult the relevant GIB® technical publication.

FASTENERS

- Steel battens – 25mm x 6g GIB® Grabber® Self Tapping screws
- Timber battens or Joists – 32mm x 6g GIB® Grabber® High Thread screws

ADHESIVES

- Steel battens - GIBFix® All-Bond
- Timber battens - GIBFix® All-Bond or GIBFix® One

FASTENERS CENTRES

- Single screws to the edges and centre of the sheets across each batten
- Single screw at 600mm maximum to the perimeter of the ceiling
- Screws to be 12mm from sheet edges
- Daubs of adhesive at 200mm centres between the screws
- Do not place adhesive at sheet edges or under fasteners, this may lead to screw pops

LINING

- The lining shall be fixed at right angles to the battens or joists
- Commence fixing from the centre of the sheets outwards.
- Sheets to be touch fitted
- Use long length sheets to minimise sheet end butt joints.
- Back-block sheet end butt joints
- See GIB® Site Guide for sheet edge backblocking requirements

BATTEN SPACINGS

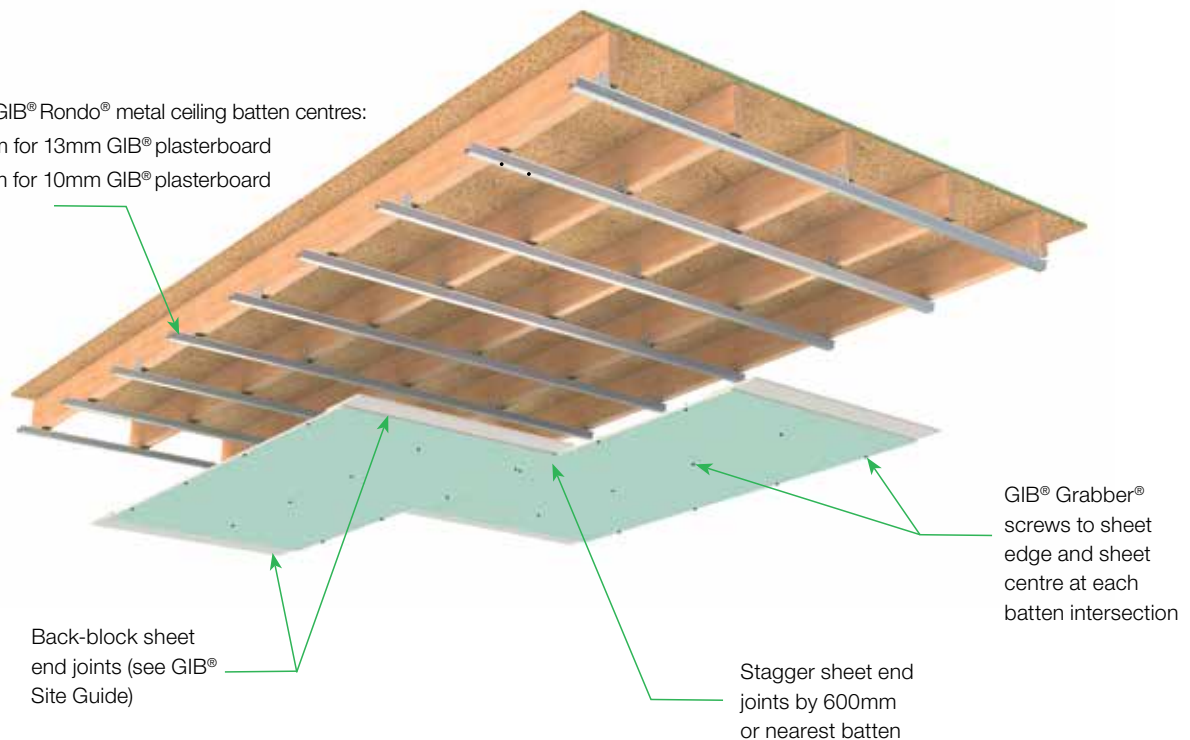
- 13mm GIB® plasterboard – 600mm centres maximum
- 10mm GIB® plasterboard – 450mm centres maximum

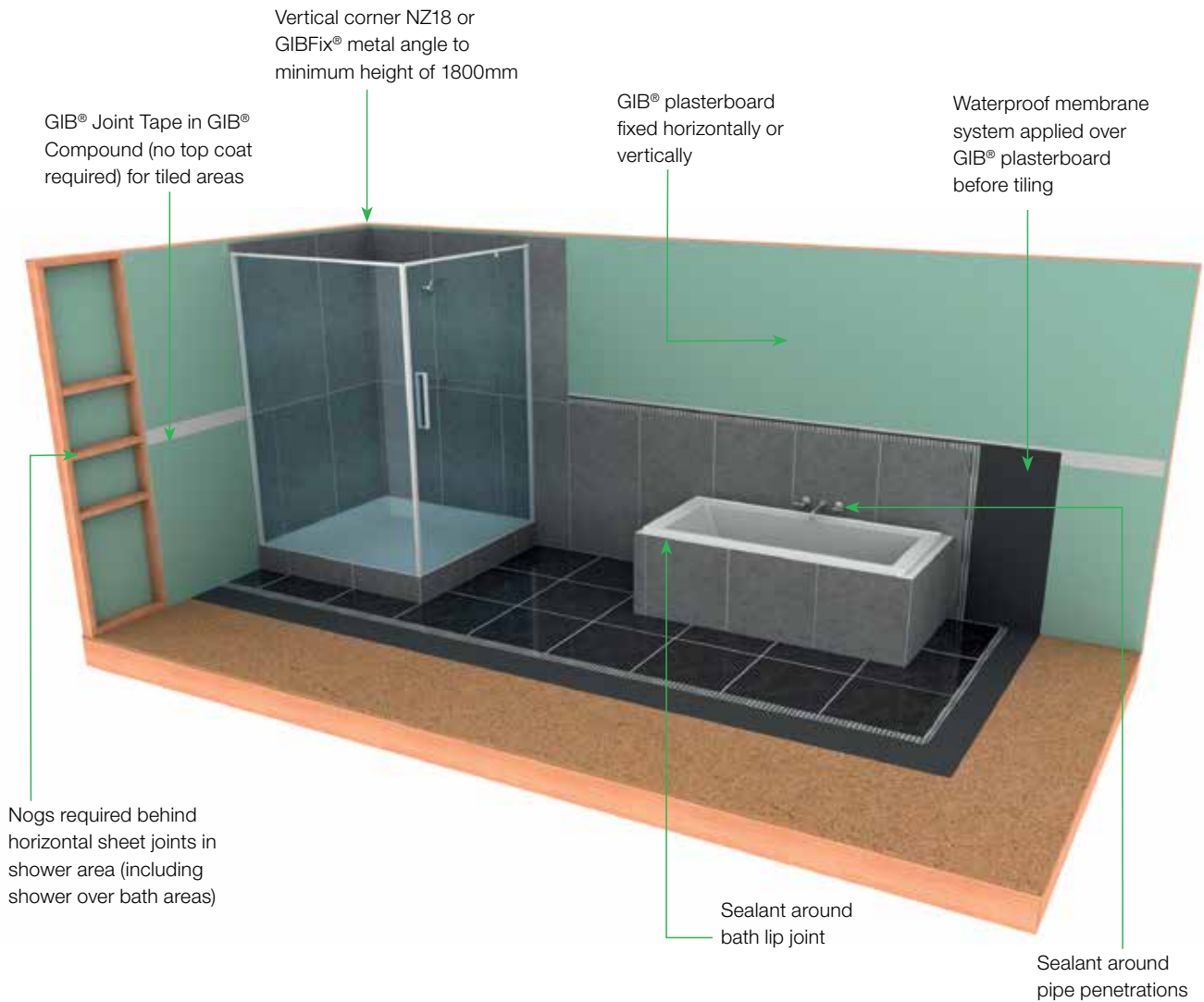
JOINTING

- All sheet joints must be paper tape reinforced and stopped in accordance with instructions in the GIB® Site Guide
- Do not fix tiles to GIB® plasterboard ceilings

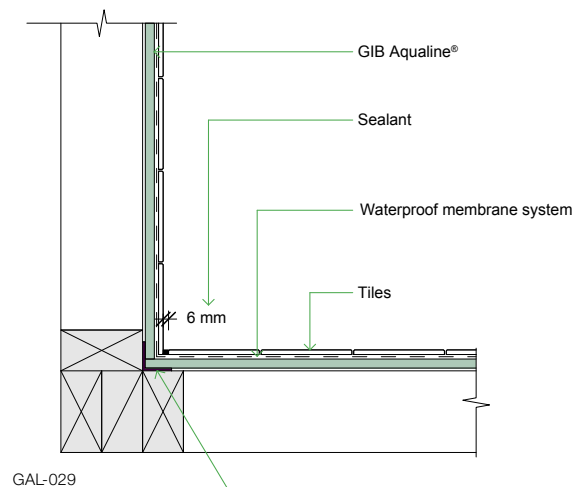
Maximum GIB® Rondo® metal ceiling batten centres:

- 600mm for 13mm GIB® plasterboard
- 450mm for 10mm GIB® plasterboard



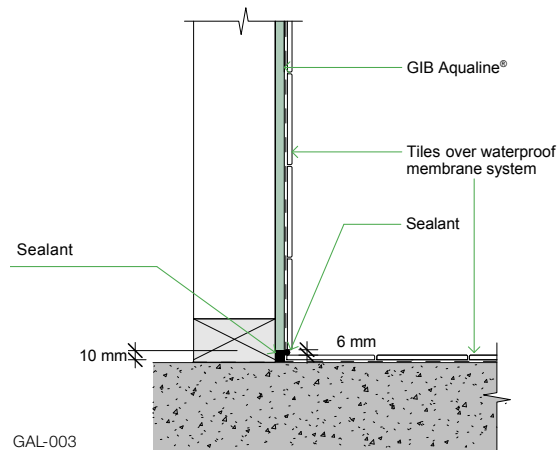


A: TILED INTERNAL CORNER

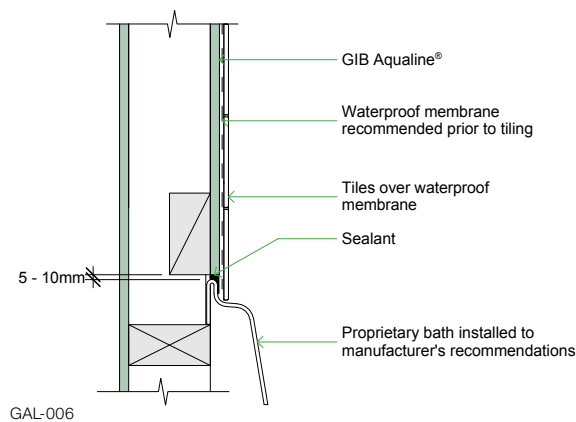


32 x 32 x 0.55mm vertical fixed galvanised steel angle NZ18 or GIBFix® Angle

B: CERAMIC FLOOR LINING JUNCTION



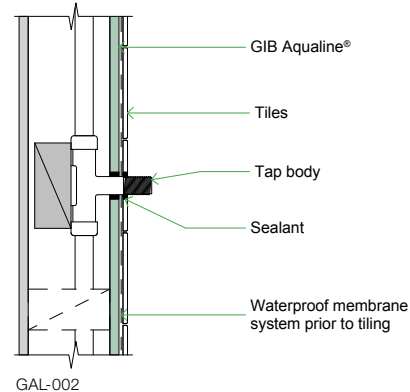
C: BATH LINING JUNCTION



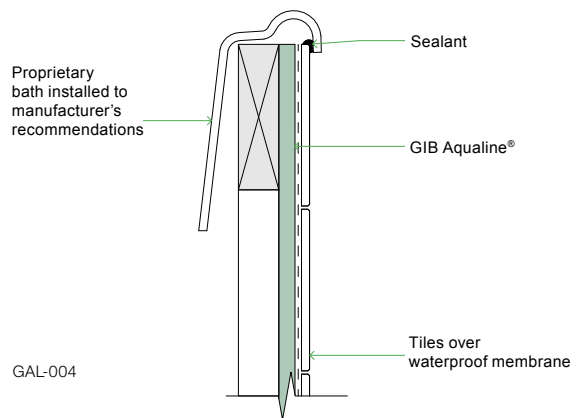
G: SHOWER MIXER PENETRATION IN WET WALL LININGS

Refer to the shower mixer manufacturer for shower mixer installation detailing including the use of proprietary products to prevent water or moisture ingress behind the wet wall lining.

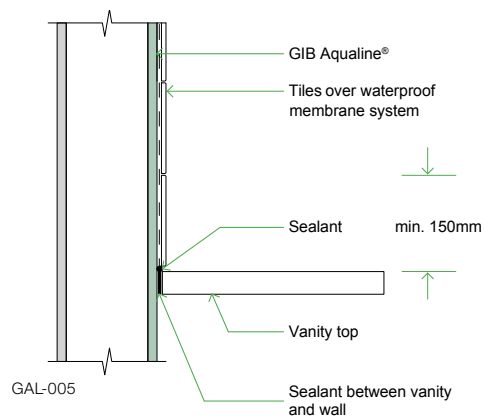
D: SEALING WET AREA PENETRATION



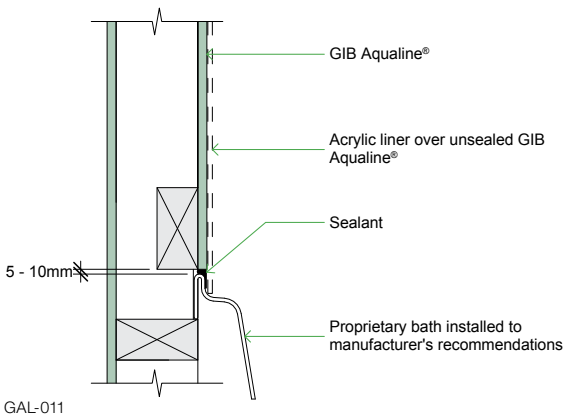
E: BATH CRADLE LINING DETAIL



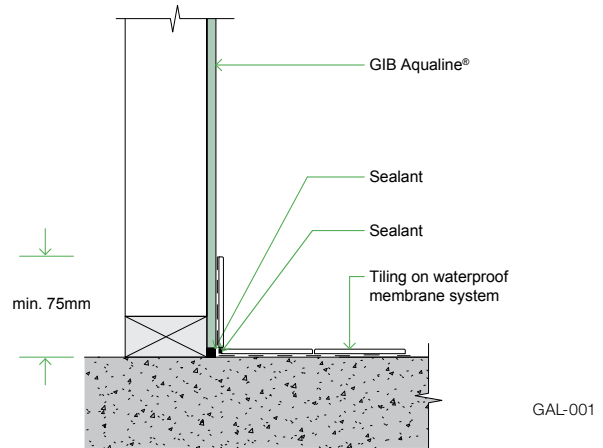
F: VANITY TOP LINING JUNCTION



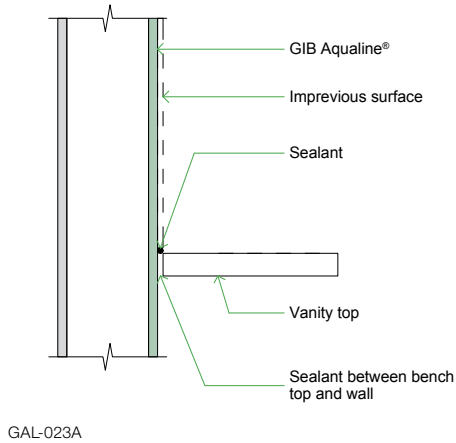
A: BATH LINING JUNCTION



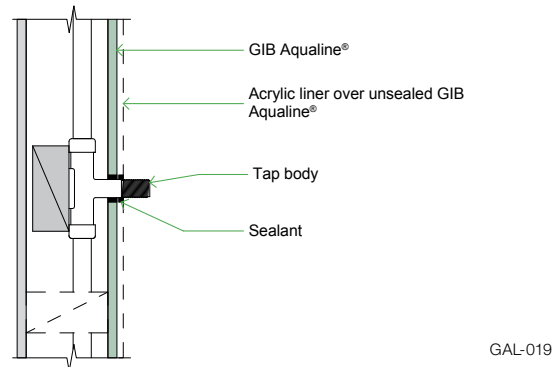
D: CERAMIC FLOOR SKIRTING LINING JUNCTION



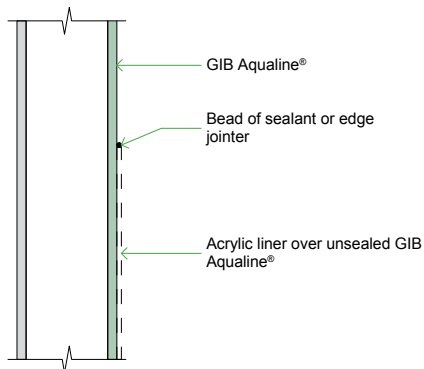
B: VANITY TOP LINING JUNCTION



E: SEALING SEMI WET AREA PENETRATION



C: UNSEALED PLASTERBOARD LINING

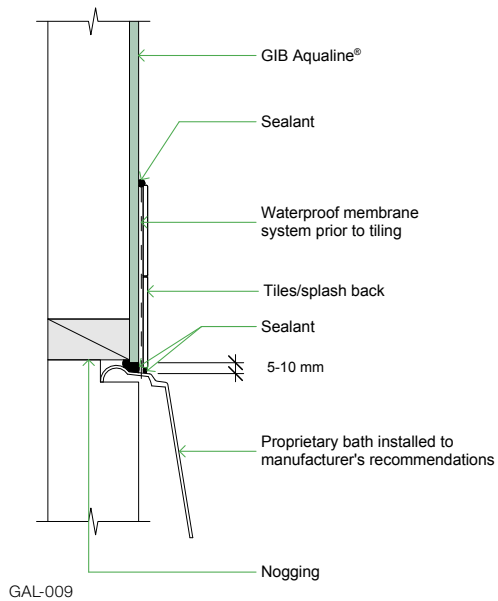


F: SHOWER MIXER PENETRATION IN WET WALL LININGS

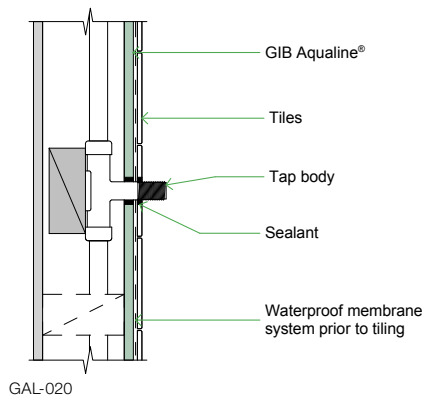
Refer to the shower mixer manufacturer for shower mixer installation detailing including the use of proprietary products to prevent water or moisture ingress behind the wet wall lining.



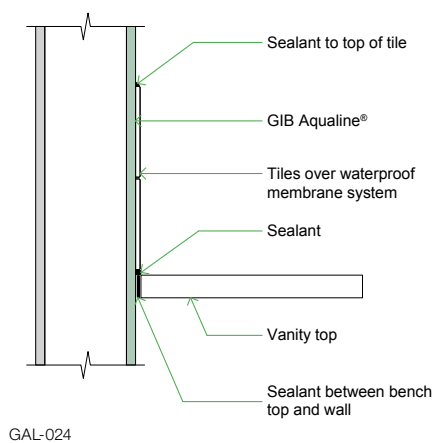
A: BATH LINING JUNCTION



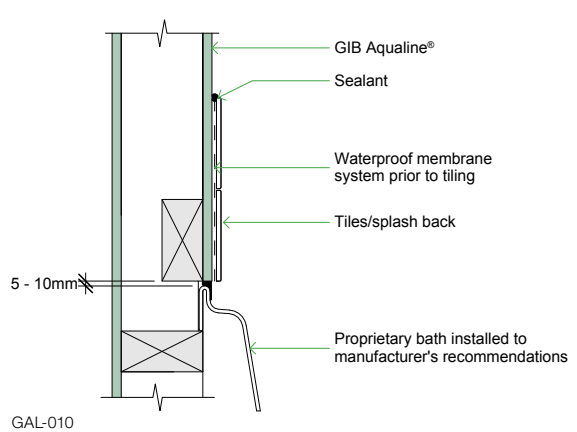
B: SEALING SEMI WET AREA PENETRATION



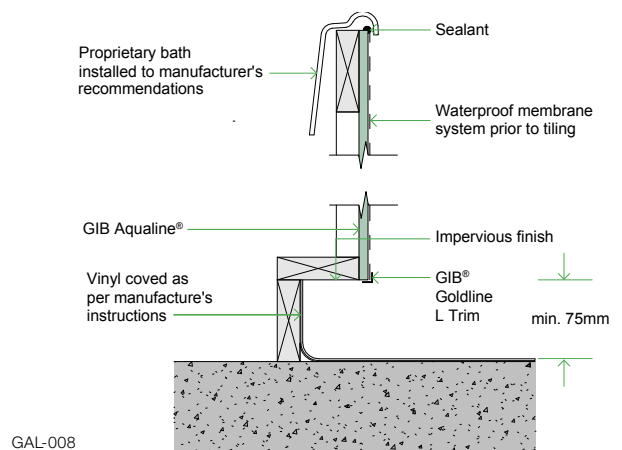
C: VANITY TOP LINING JUNCTION



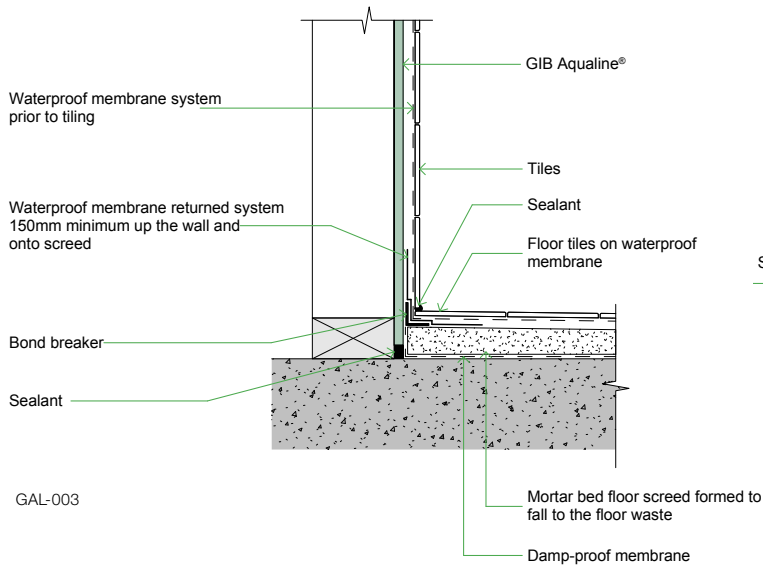
D: BATH LINING JUNCTION



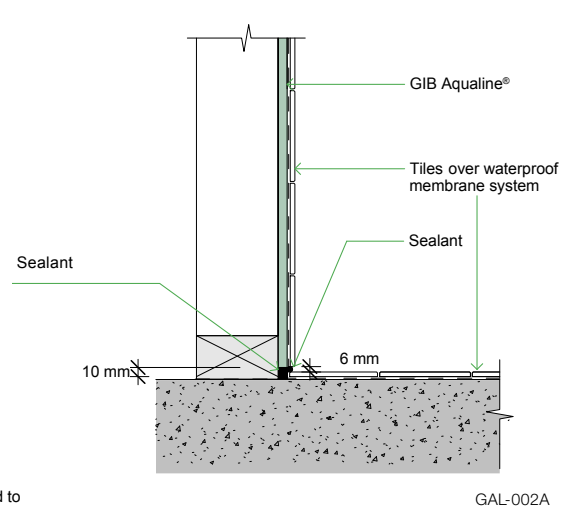
E: CRADLE VINYL LINING JUNCTION



A: MORTAR UNDER CERAMIC FLOOR LINING JUNCTION



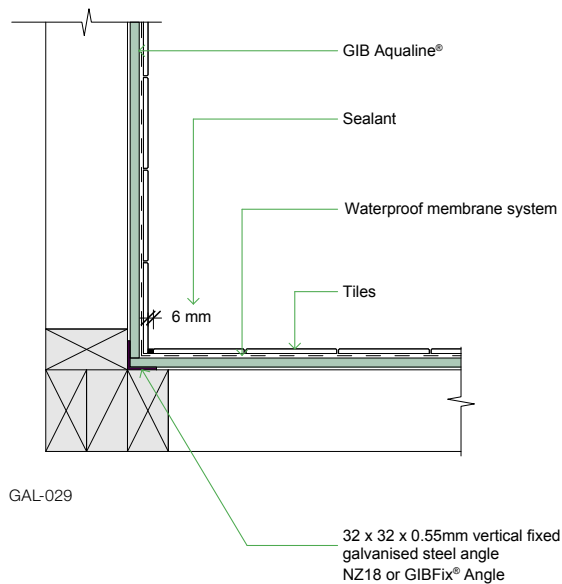
C: CERAMIC FLOOR LINING JUNCTION



PREFORMED SHOWER BASE JUNCTIONS

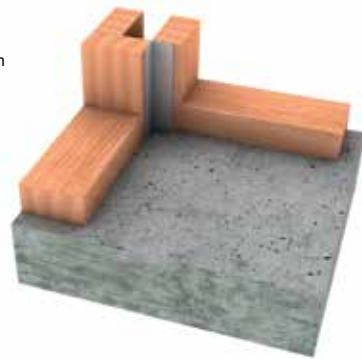
Refer to the shower base manufacturer for proprietary shower tray installation detailing including wet wall lining junction detailing.

B: TILED INTERNAL CORNER



D: TILED INTERNAL CORNER METAL ANGLE POSITION

Refer to page 16 of this publication for specification and installation guidance.

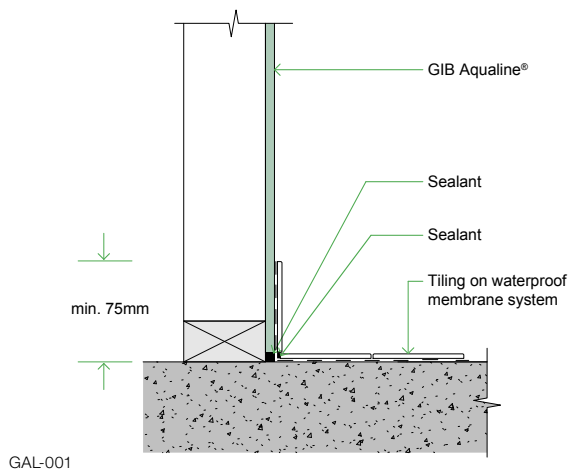


E: SHOWER MIXER PENETRATION IN WET WALL LININGS

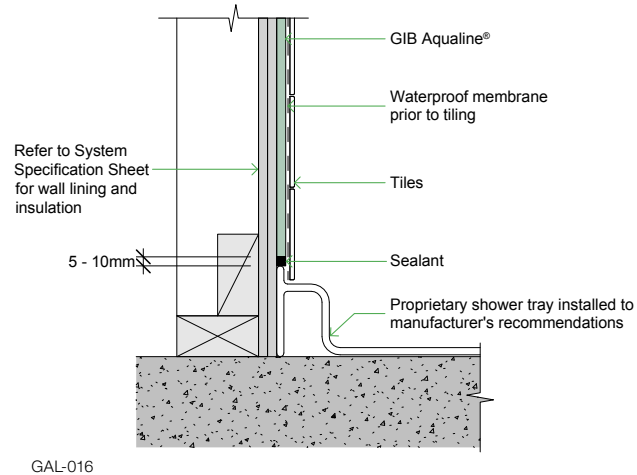
Refer to the shower mixer manufacturer for shower mixer installation detailing including the use of proprietary products to prevent water or moisture ingress behind the wet wall lining.



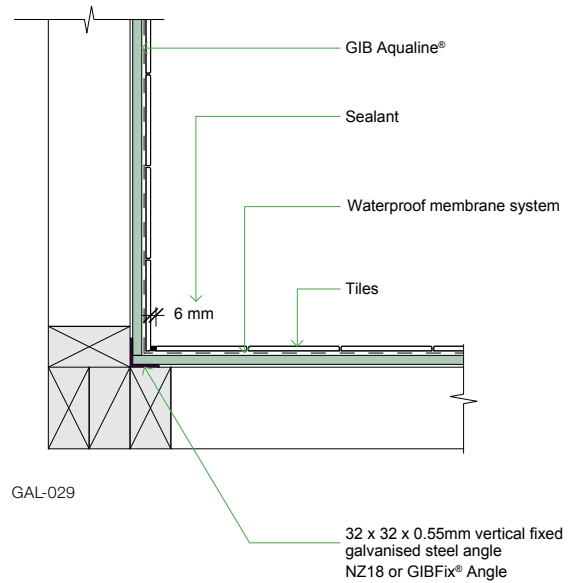
A: CERAMIC FLOOR SKIRTING LINING JUNCTION



B: MOULDED SHOWER TRAY DOUBLE LINING JUNCTION

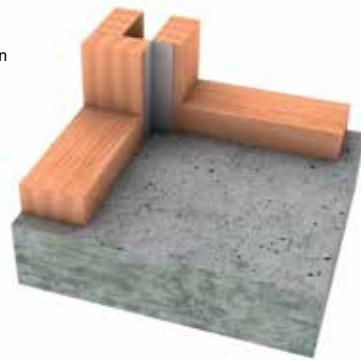


C: TILED INTERNAL CORNER



D: TILED INTERNAL CORNER METAL ANGLE POSITION

Refer to page 16 of this publication for specification and installation guidance.

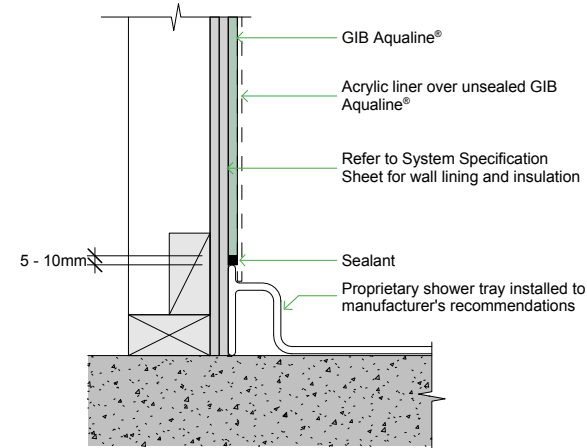


E: SHOWER MIXER PENETRATION IN WET WALL LININGS

Refer to the shower mixer manufacturer for shower mixer installation detailing including the use of proprietary products to prevent water or moisture ingress behind the wet wall lining.

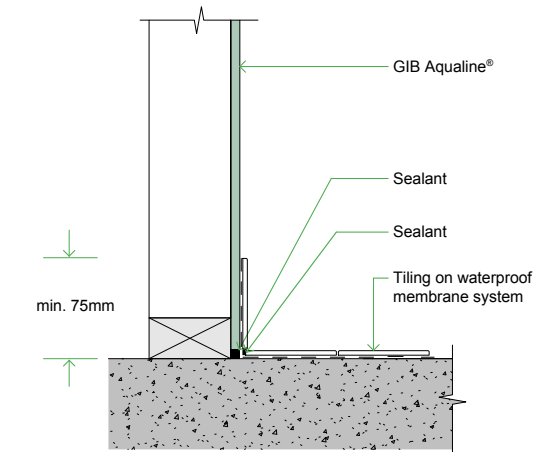


A: MOULDED SHOWER TRAY DOUBLE LINING JUNCTION



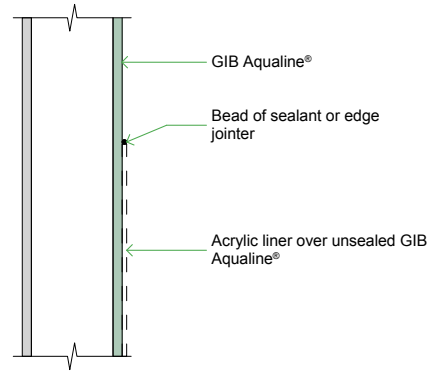
GAL-015

B: CERAMIC FLOOR SKIRTING LINING JUNCTION



GAL-001

C: UNSEALED PLASTERBOARD LINING



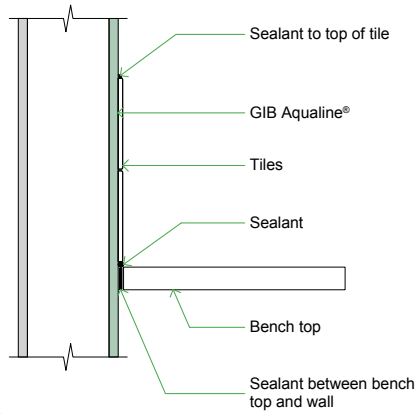
GAL-028

D: SHOWER MIXER PENETRATION IN WET WALL LININGS

Refer to the shower mixer manufacturer for shower mixer installation detailing including the use of proprietary products to prevent water or moisture ingress behind the wet wall lining.

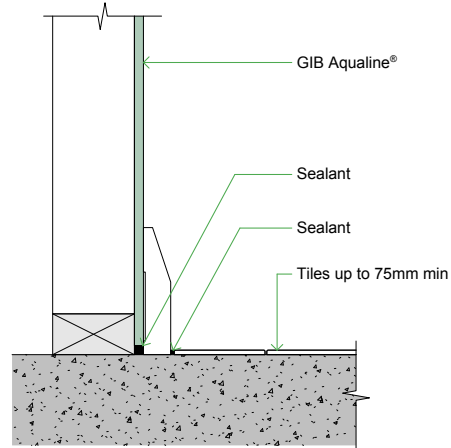


A: BENCH TOP LINING JUNCTION



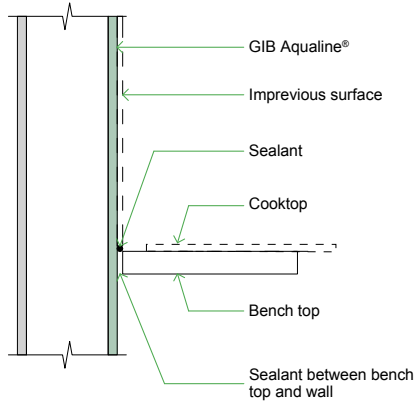
GAL-024

CERAMIC FLOOR SKIRTING LINING JUNCTION



GAL-001A

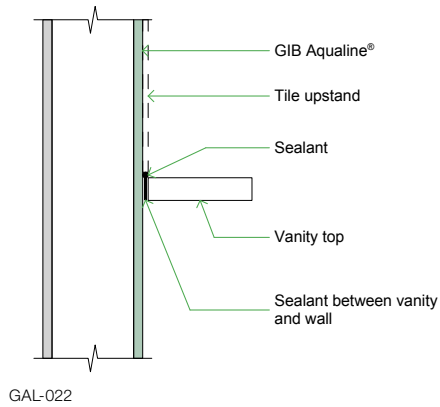
B: COOKTOP LINING JUNCTION



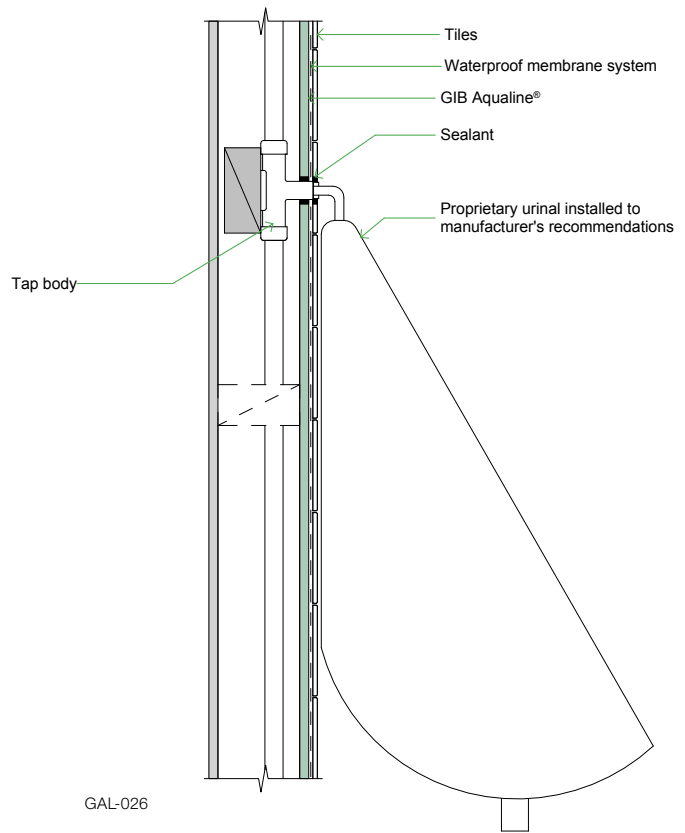
GAL-023B



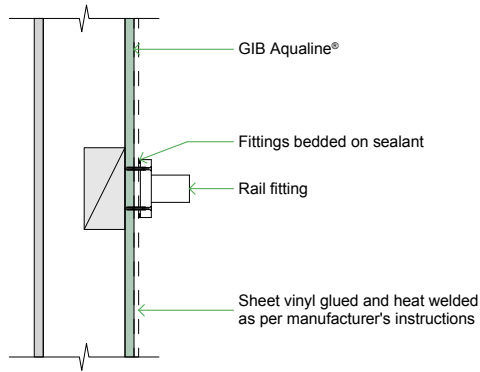
A: VANITY TOP LINING JUNCTION



B: SEALING WET AREA PENETRATION LINING JUNCTION

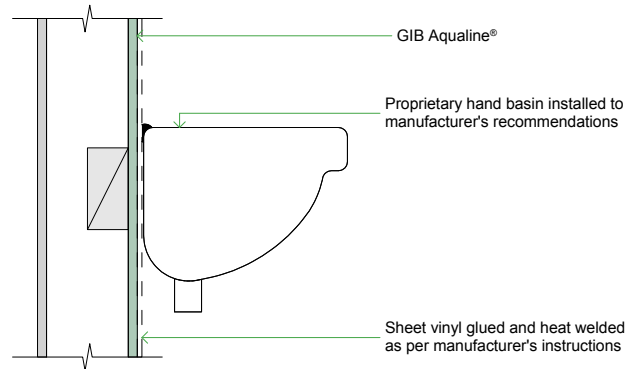


A: SURFACE MOUNTED WITH NOG



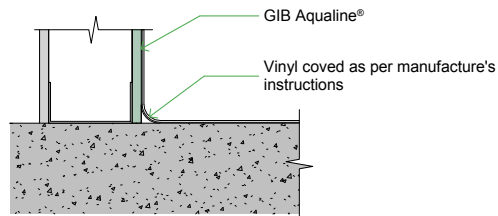
GAL-027

C: BASIN LINING JUNCTION



GAL-025

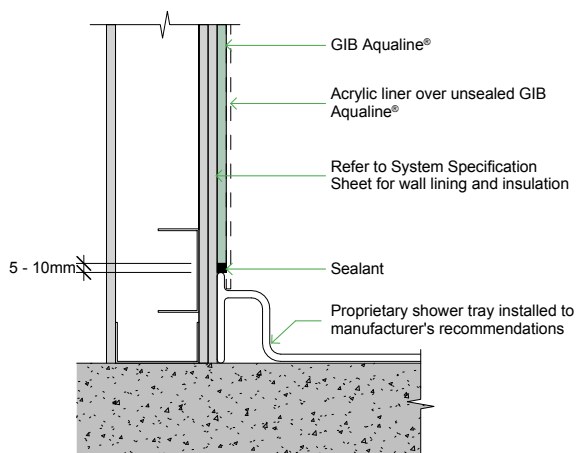
B: VINYL FLOOR LINING JUNCTION



GAL-006A

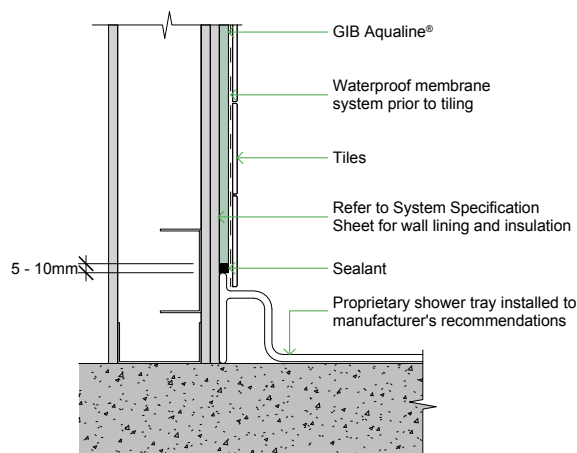


A: MOULDED SHOWER TRAY DOUBLE LINING JUNCTION



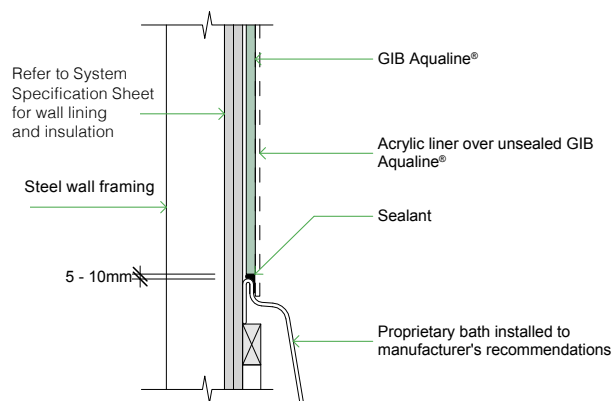
GAL-017

C: MOULDED SHOWER TRAY DOUBLE LINING JUNCTION



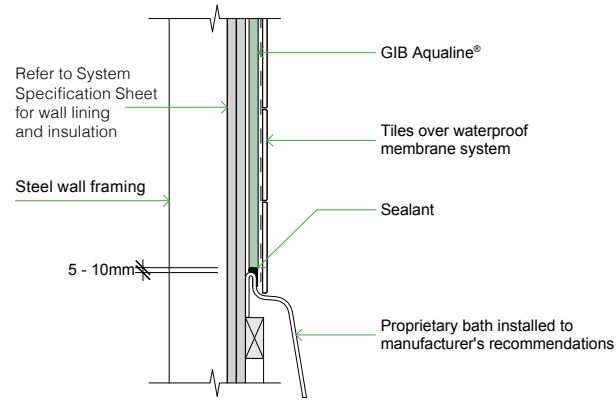
GAL-018

B: BATH DOUBLE LINING JUNCTION



GAL-013

D: BATH DOUBLE LINING JUNCTION



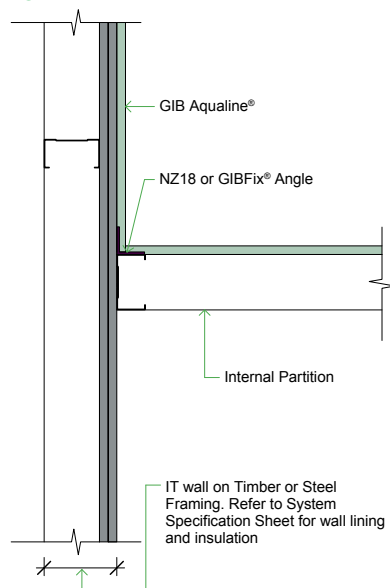
GAL-014

GIB® WET AREA SYSTEMS FIRE RESISTANCE AND NOISE CONTROL PERFORMANCE

Given recesses required for shower trays, bath upstands, etc., and the likelihood of renovations during the service life of the building, it is recommended that GIB® Wet Area linings in water splash areas are installed in addition to and over required fire and noise control systems in commercial or multi-residential applications.

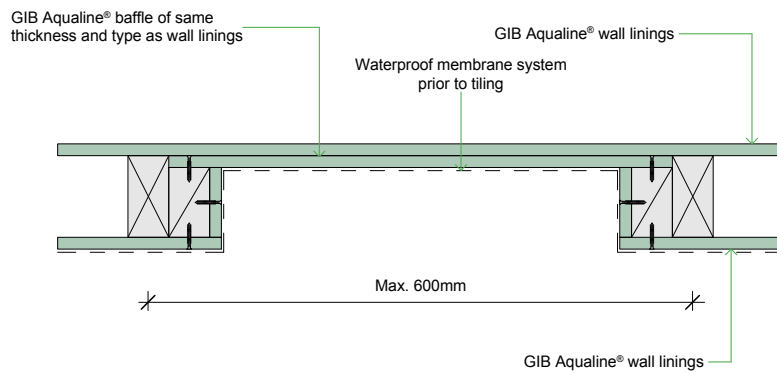
Do not tile on the resilient side of a GIB Rail® or Acoustic Resilient Mount (ST-001) and channel noise control system.

E: INTERTENANCY WALL AND WET AREA WALL JUNCTION

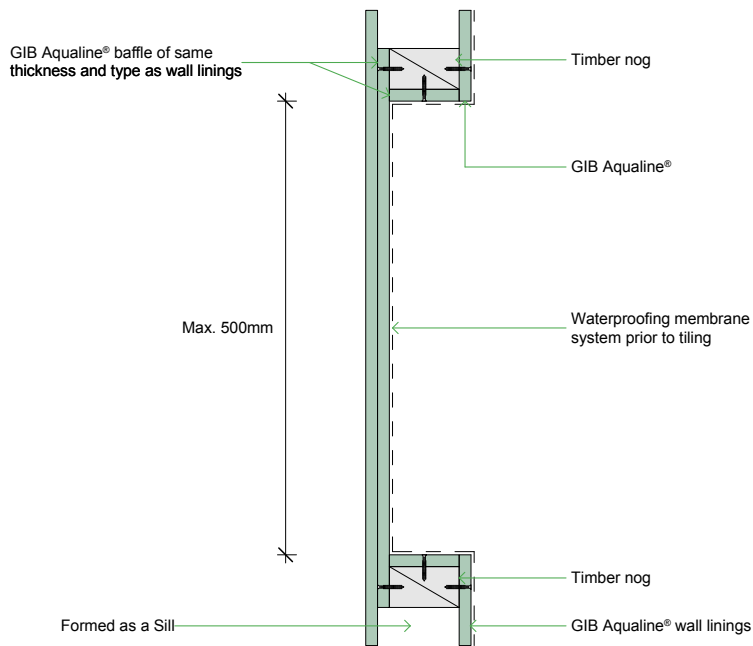


GAL-031C

TIMBER FRAME TILE RECESS

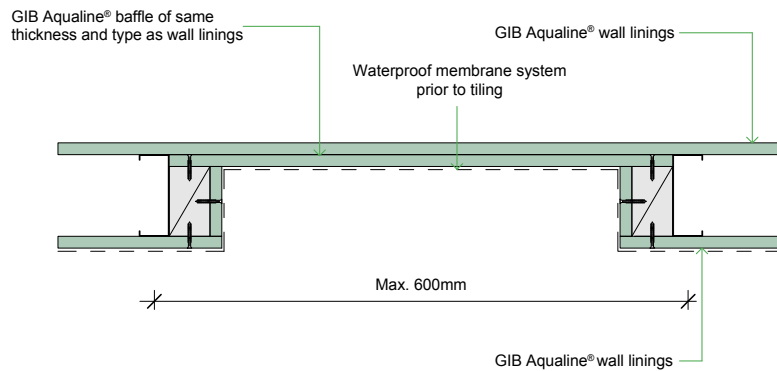


Larger recesses can be accommodated depending on specific framing layout provided 500mm is not exceeded in at least one direction.

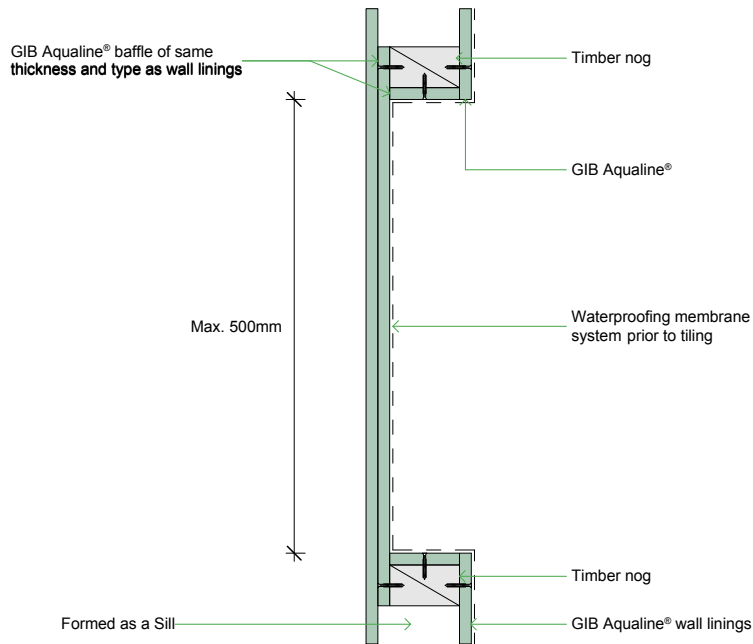


GAL-029B

STEEL FRAME TILE RECESS



Larger recesses can be accommodated depending on specific framing layout provided 500mm is not exceeded in at least one direction.



GAL-030

GIB® Wet Area Systems, February 2021

LIMITATIONS

Winstone Wallboards Ltd accepts no liability if the GIB® Wet Area 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® Wet Area 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® Wet Area 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 Lite Blue®, GIBFix®, GIB® Quiet Stud®, GIB Rail®, GIB Barrierline®, GIB X-Block®, 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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KDC - Approved Building Consent Document - BC250144_SD_ISSUED - Pg 184 of 268 - 11/07/2025 - vsingh

FOR MORE INFORMATION VISIT

gib.co.nz

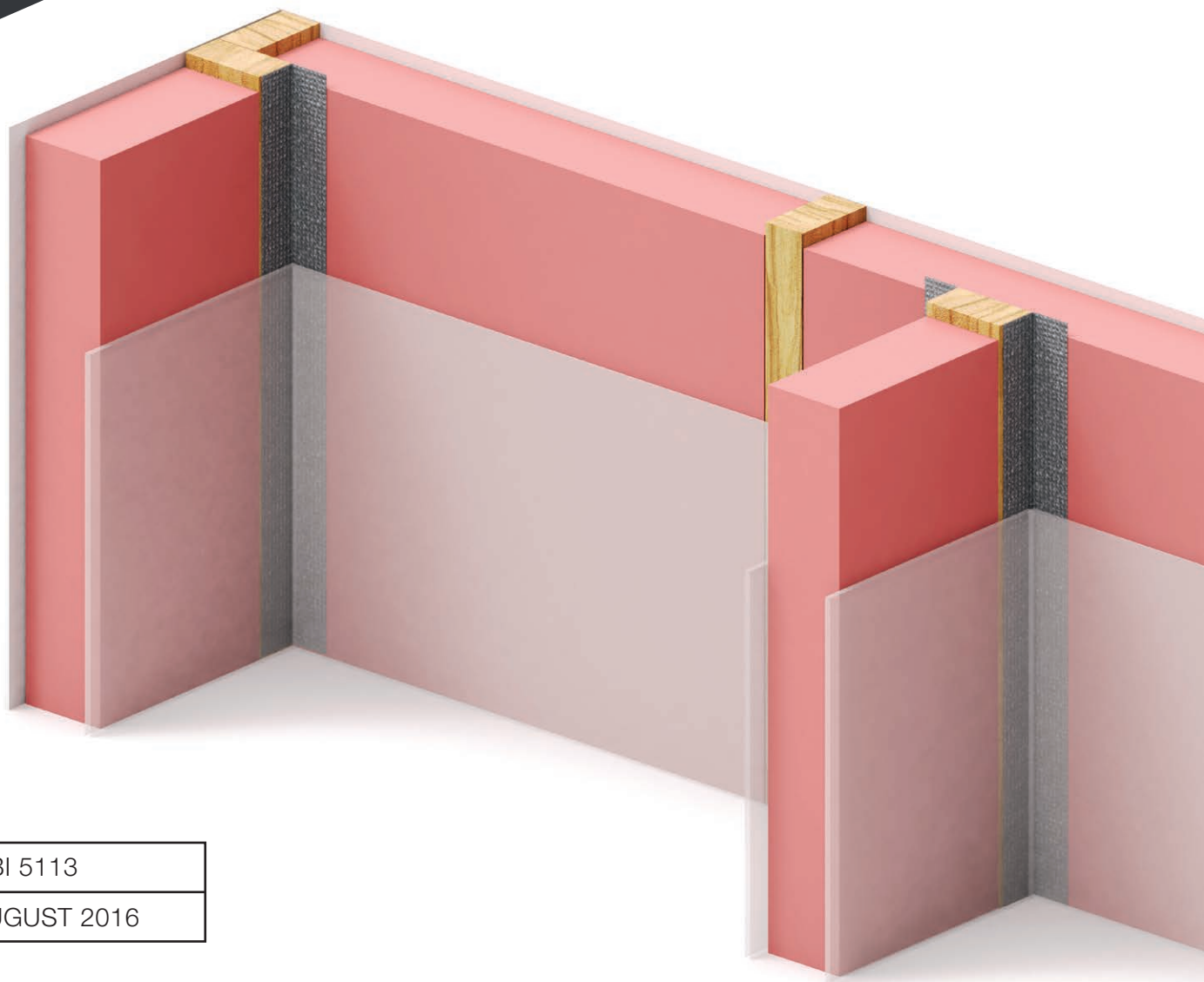
OR CALL THE GIB® HELPLINE

0800 100 442



GIBFix® Framing System

The NEW GIBFix® Framing System is an alternative approach to timber framing for buildings within the scope of NZS3604:2011



CBI 5113

AUGUST 2016

The GIBFix® Framing System offers:

- Reduced potential for fastener pop and joint cracking of interior plasterboard linings.
- Reduced potential for on-site call backs.
- Improved thermal performance.
- Fully integrated into the GIB EzyBrace® System.

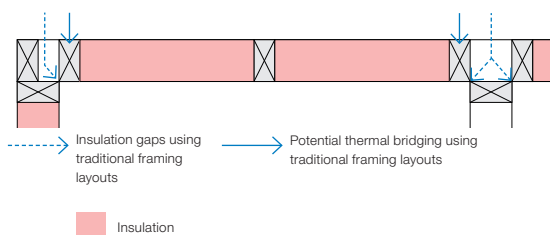
Why use the GIBFix® Framing System

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.

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

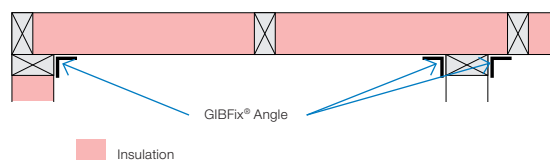
The GIBFix® Framing System offers better thermal efficiencies and minimises potential joint imperfections resulting from interior linings being fixed to multiple timber framing members.

FIGURE 1: TRADITIONAL WALL FRAMING LAYOUT



GFS004

FIGURE 2: GIBFIX® FRAMING SYSTEM (ALTERNATIVE LAYOUT)



GFS005

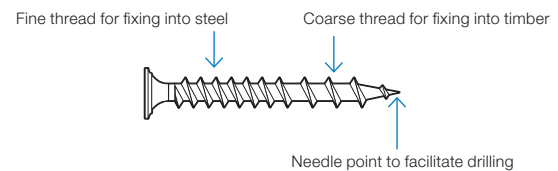
GIBFix® Framing System components

GIB® Grabber® 32mm x 7g Dual Thread Screws and GIBFix® Angles have been specifically developed for use as part of the GIBFix® Framing System but can also be used for standard fixing into timber or metal framing.

GIB® Grabber® Dual Thread Screws can be used with 10mm or 13mm GIB® plasterboard and are suitable for use in GIB EzyBrace® Systems.

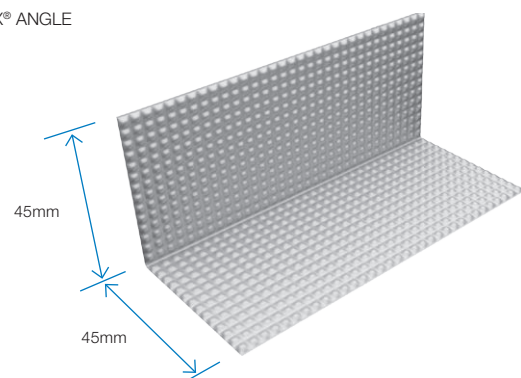
- Larger head for improved bracing performance and hold ability
- Dual thread for use with both timber and light steel framing

GIB® GRABBER® DUAL THREAD SCREW



- GIBFix® Angles support the plasterboard joint at wall and ceiling junctions. Angles are secured onto existing timber framing.
- Supports GIB® plasterboard corner joints and locks them together to reduce potential corner cracking which can occur when fastening plasterboard to independent framing members
- Knurled surface for easier fastener drilling
- Available in 2.4m and 2.7m lengths

GIBFIX® ANGLE



Dual Thread Screw and GIBFix® Angle interaction

The GIB® Grabber® Dual Thread Screw and GIBFix® Angles are designed to work together to reduce the potential impact of timber frame shrinkage on the interior plasterboard finish.

Figure 3 shows how twists and shrinkage, due to timber drying, can cause fastener pops and joint cracking in a conventional framing layout.

Figure 4 shows a corner junction using the GIBFix® Framing System and how removing non-essential framing and reinforcing plasterboard corners, using the GIBFix® Angle and GIB® Grabber® Dual Thread Screws, can greatly reduce the effect of timber movement.

GIB EzyBrace® Systems

To help achieve optimal framing and bracing design efficiency designers should consider the use of GIB EzyBrace® Systems used in conjunction with the GIBFix® Framing System.

For more information on the GIB EzyBrace® Systems refer to GIB EzyBrace® literature and design software downloadable from gib.co.nz/ezybrace or contact the GIB® Helpline on 0800 100 442.

FIGURE 3: TRADITIONAL WALL CORNER LAYOUT

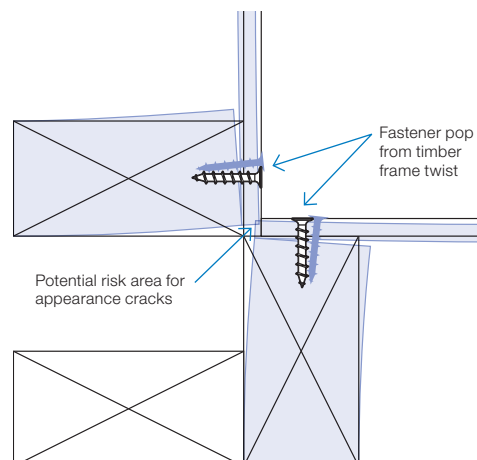
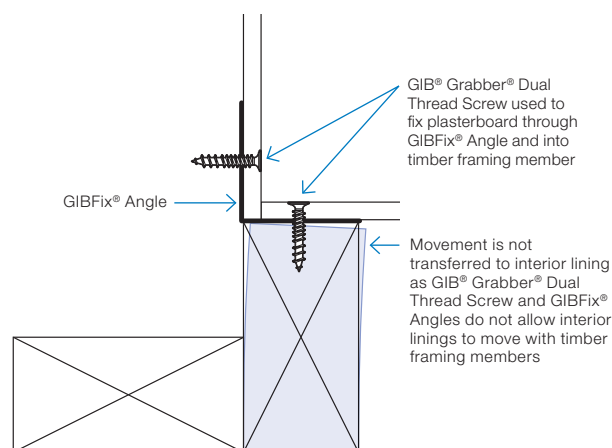


FIGURE 4: GIBFIX® FRAMING WALL CORNER LAYOUT



GIBFix® Framing System installation

FRAME LAYOUT

- The GIBFix® Framing System removes the need for traditional 3 stud set outs for internal intersecting walls. Using the GIBFix® Framing System, GIB® plasterboard can now be fixed using the GIBFix® Angles.
- For builders this means traditional double stud set outs on exterior walls cannot be used as a reference point when lining up connecting internal walls.
- It is recommended builders discuss marking options for wall intersections with their Frame and Truss provider to allow easy location of walls during onsite construction.
- A minimum of 2 equally spaced nogs for walls between 2.4m and 3m in height are required at corners and wall junctions
- Always check corner framing requirements for external cladding.

GIBFIX® ANGLE INSTALLATION

- The installation of the GIBFix® Angle occurs before installation of the GIB® plasterboard lining.
- Locate GIBFix® Angles with a single flat head clout (or similar fastener) at the top and bottom of each GIBFix® Angle to temporarily hold it in place.
- Using the specified sheet fastener pattern use GIB® Grabber® Dual Thread Screws to fasten through the GIB® plasterboard and GIBFix® Angles.

OVER LAPPING OF GIBFIX® ANGLES

- Where an additional section of GIBFix® Angle is required to allow GIBFix® Angles to run continuously from the top to bottom of the stud, overlap by a minimum of 300mm and place at least 2 fasteners through both GIBFix® Angles into the stud side.
- Winstone Wallboards recommends the shorter GIBFix® Angle section be placed at the top of the stud.

GIB® PLASTERBOARD INSTALLATION

- When installing the GIB® plasterboard it is recommended to start on the Stud Side first and then fasten off the GIB® plasterboard on the GIBFix® Angle Only Side (as shown). This reduces potential angle twist during the installation of the plasterboard lining.
- If the GIBFix® Angle Only Side must be fastened off first it is recommended that additional clouts are placed along the length of the GIBFix® Angle and into the underlying timber framing at a maximum spacing of 500mm prior to commencing installation of the plasterboard.

GIB EZYBRACE® SYSTEMS

- The GIBFix® Framing System is used in conjunction with GIB EzyBrace® Systems.
- For more information refer to GIB EzyBrace® 2016 System literature available at gib.co.nz/ezybrace.

FIGURE 5: TRADITIONAL INTERNAL WALL INTERSECTION

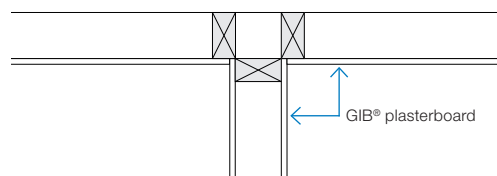


FIGURE 6: GIBFIX® FRAMING SYSTEM INTERNAL WALL INTERSECTION

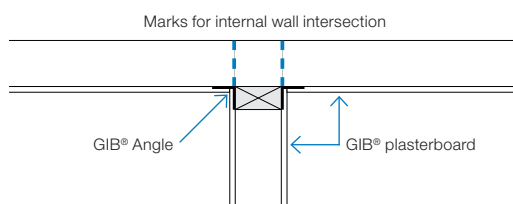
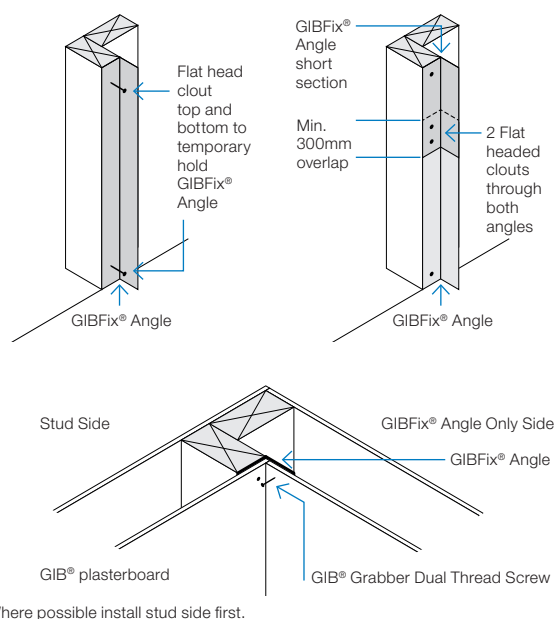


FIGURE 7: GIBFIX® ANGLE INSTALLATION



Where possible install stud side first.

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

Figure 8 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 a '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. 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.

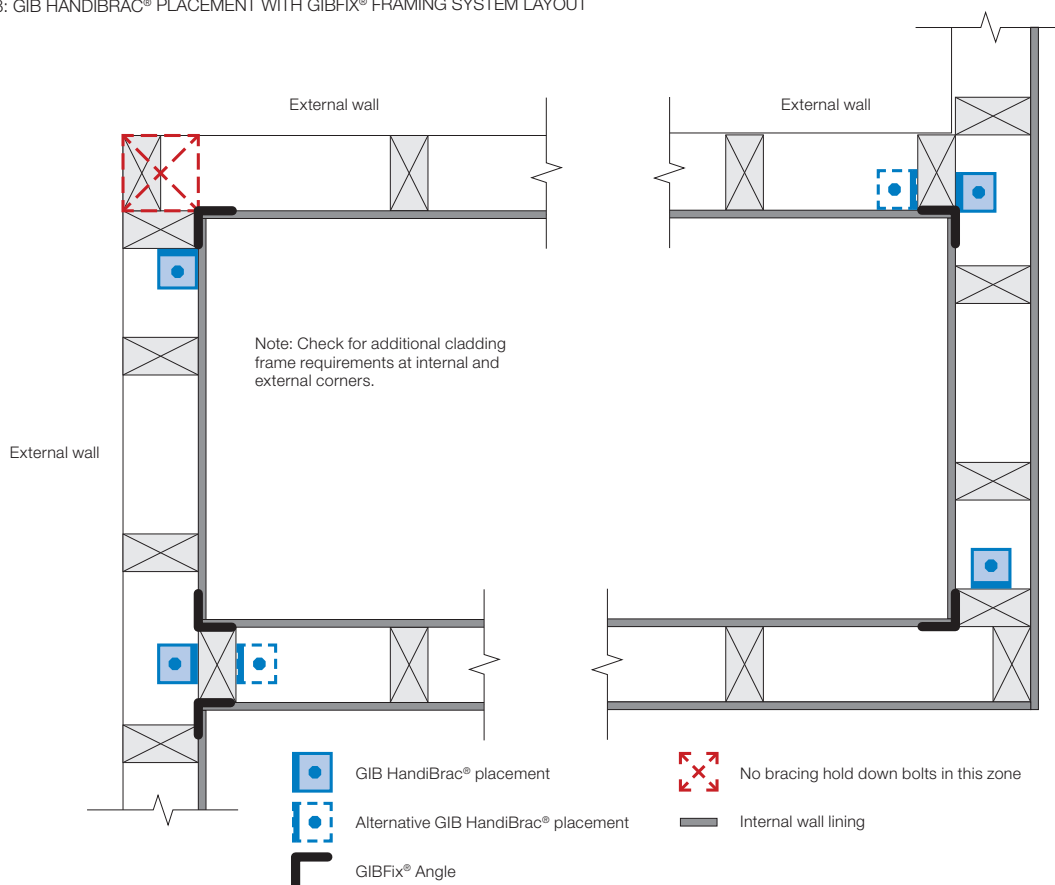
For bracing elements with sheet material both sides of the wall connect corner studs using 8/90mm gun nails as shown in figure 9.

TIMBER FLOORS

For timber floors bolt fixing in to solid joist or block is required.

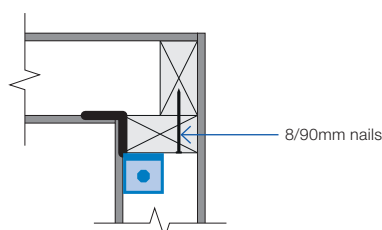
For more information on positioning and installation of GIB HandiBrac® refer to the GIB EzyBrace® Systems 2016 Literature or contact the GIB® Helpline on 0800 100 442

FIGURE 8: GIB HANDIBRAC® PLACEMENT WITH GIBFIX® FRAMING SYSTEM LAYOUT



GEB013

FIGURE 9: STUD CONNECTION FOR 'H' TYPE BRACING ELEMENTS WITH SHEET MATERIAL BOTH SIDES



GEB014

NZ Building Code

NZBC CLAUSE B1 - STRUCTURE

NZS 3604:2011 is a Compliance Document to NZBC Clause B1 and is silent on the placement of studs at wall intersections. The GIBFix® Framing System layout does not affect compliance with NZS3604:2011 or NZBC Clause B1 - Structure. A structural benefit of GIBFix® Framing System detailing is that all GIB® plasterboard corners are reinforced by a GIBFix® Angle adding robustness and seismic resilience. Corners are less prone to cracking due to relative movement of timber framing members.

NZBC CLAUSE B2 - DURABILITY

Under normal conditions of dry internal use GIBFix® Framing System components, have a service life in excess of 50 years and satisfy the requirements of NZBC Clause B2 – Durability. A 15 year durability requirement applies where linings are subject to direct water pressure, e.g. shower cubicle or shower over bath situations.

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 R 1.9 or R 2.0.

Home owners increasingly demand thermal efficiency and R-values well in excess of the minimum requirements of NZBC Clause H1 – Energy Efficiency.

Traditional 90mm timber framing limits the level of thermal insulation. Depending on Wind Zone and support to trusses or a second storey, nominally 90 x 45mm studs are commonly placed at 400 or 600mm centres or closer due to wall layout and the use of multiple studs at wall intersections. Thermal efficiency is further degraded by nogs or dwangs and services such as plumbing and wiring leaving limited space for bulk insulation.

To reduce thermal bridging, facilitate better installation of bulk insulation, and to achieve a more continuous thermal envelope, this literature recommends the use of GIBFix® Angles to replace triple studs at wall junctions.

For increased thermal efficiency the use of deeper studs and increased bulk insulation are recommended. Some designers prefer 140 x 45mm timber framing for exterior walls to increase thermal values, and alleviate problems with fitting insulation whilst leaving sufficient room for reticulating services. 140 x 45mm Studs can be placed at 600mm centres for all Wind Zones and heights including 3.0m (NZS3604:2011 Section 8-Walls).

See also BRANZ Study Report SR 246 (2011) Optimal Design of Timber Framing in Housing from branz.co.nz.

GIBFix® Framing System — August 2016

Winstone Wallboards Ltd accepts no liability if the GIBFix® Framing System is 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.

BEWARE OF SUBSTITUTION

The performance of GIB® Systems is very sensitive to design detailing and construction practices. 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.

CAD DESIGN DETAILS

Where applicable drawings related to GIBFix® Framing System 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.

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.

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FURTHER INFORMATION

For more information visit gib.co.nz/gibfix or call the GIB® Helpline 0800 100 442.



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FOR MORE INFORMATION VISIT

gib.co.nz

OR CALL THE GIB® HELPLINE

0800 100 442

5171G GIB Plasterboard Fire & Sound Linings



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info@gib.co.nz

www.gib.co.nz

SUPPORTING DOCUMENTS

BRANZ Appraisal 289 (2024) GIB® Fire Rated Systems

Ref 100447. Uploaded 18 Oct 2024

Purpose: Performance, Installation, Maintenance

Declare Certification - GIB Fyreline®

Ref 101836. Uploaded 5 Nov 2024

Purpose: Environmental

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.



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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.

Technical Specification

General

- 4.1 GIB® Fire Rated Systems are primarily based on two types of GIB® plasterboard, GIB® Standard plasterboard and GIB Fyrelite®. 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 Fyrelite®.
- 4.3 Similarly, 13 mm GIB Braceline®, GIB Noiseline®, GIB Aqualine®, GIB Toughline® and GIB Toughline® Aqua may be substituted for 13 mm GIB Fyrelite®.

GIB® Plasterboards

GIB Fyrelite®

- GIB Fyrelite® 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 Fyrelite® 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 Fyrelite® 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.

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*

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).

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.

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.

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 loss 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.

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

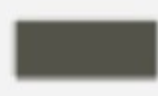
Chief Executive

Date of Issue:

19 September 2024



GIB Fyreline® Plasterboard Winstone Wallboards

Final Assembly: Tauranga, New Zealand; Christchurch, New Zealand
Life Expectancy: 50 Year(s)
Embodied Carbon: 1.96Kg Co2e for 10mm; 3.02Kg Co2e for 13mm; 4.19Kg Co2e for 16mm; 4.79Kg Co2e for 19mm 
Declared Unit: 1m2
End of Life Options: Recyclable (100%), Landfill (100%)

Ingredients:

Gypsum; Vermiculite; Cellulose Fibre - Paper; Fibreglass; Amylodextrin; 2-Naphthalenesulfonic acid, polymer with formaldehyde, sodium salt; Metaphosphoric acid (H3P3O9), trisodium salt; Boric acid; α-D-Glucopyranoside, β-D-fructofuranosyl

Living Building Challenge Criteria: Compliant

I-13 Red List:

- | | |
|---|-----------------------------|
| ☒ LBC Red List Free | % Disclosed: 100% at 100ppm |
| ☐ LBC Red List Approved | VOC Content: Not Applicable |
| ☐ Declared | |

I-10 Interior Performance: Exception I08-E1: Product Air Quality Testing In Oceania

I-14 Responsible Sourcing: Not Applicable

WWL-0004
EXP. 01 NOV 2025
Original Issue Date: 2015

6221A ARDEX Tiling Solutions



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SUPPORTING DOCUMENTS

ARDEX WPM 002 Liquid Safety Data Sheet

Ref 51051. Uploaded 12 Mar 2025

Purpose: Performance

ARDEX WPM 002 Powder Safety Data Sheet

Ref 51052. Uploaded 12 Mar 2025

Purpose: Performance

ARDEX WPM 002 Technical Data Sheet

Ref 51581. Uploaded 12 Mar 2025

Purpose: Performance



ARDEX WPM 002 Superflex 2 Part Liquid Ardex (Ardex NZ)

Chemwatch: 5439-85

Version No: 2.1.1.1

Safety Data Sheet according to the Health and Safety at Work (Hazardous Substances) Regulations 2017

Chemwatch Hazard Alert Code: 2

Issue Date: 13/01/2021

Print Date: 17/01/2021

S.GHS.NZL.EN

SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Identifier

Product name	ARDEX WPM 002 Superflex 2 Part Liquid
Chemical Name	Not Applicable
Synonyms	ABA superflex Liquid waterproofing membrane; former name: Superflex Bathroom & Balcony Two Part Liquid
Chemical formula	Not Applicable
Other means of identification	Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	The liquid component of two part Superflex waterproof coating. When mixed with the powder component in accordance with manufacturers directions, can be applied over conventional surfaces in wet areas and balconies. Will dry to form a flexible and tough waterproof membrane. Applied by brush or roller.
--------------------------	---

Details of the supplier of the safety data sheet

Registered company name	Ardex (Ardex NZ)
Address	32 Lane Street Woolston Christchurch New Zealand
Telephone	+64 3384 3029
Fax	+64 3384 9779
Website	Not Available
Email	Not Available

Emergency telephone number

Association / Organisation	Ardex (Ardex NZ)
Emergency telephone numbers	+64 3 373 6900
Other emergency telephone numbers	0800 764 766 (NZ NPC)

SECTION 2 Hazards identification

Classification of the substance or mixture

Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation. Not regulated for transport of Dangerous Goods.

ChemWatch Hazard Ratings

	Min	Max
Flammability	0	
Toxicity	1	
Body Contact	1	
Reactivity	0	
Chronic	2	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Classification [1]	Skin Sensitizer Category 1, Acute Aquatic Hazard Category 3, Chronic Aquatic Hazard Category 3
Legend:	1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI
Determined by Chemwatch using GHS/HSNO criteria	6.5B (contact), 9.1C, 9.1D

Label elements

ARDEX WPM 002 Superflex 2 Part Liquid

Hazard pictogram(s)



Signal word

Warning

Hazard statement(s)

- | | |
|------|--|
| H317 | May cause an allergic skin reaction. |
| H412 | Harmful to aquatic life with long lasting effects. |

Precautionary statement(s) Prevention

- | | |
|------|--|
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P261 | Avoid breathing mist/vapours/spray. |
| P273 | Avoid release to the environment. |
| P272 | Contaminated work clothing should not be allowed out of the workplace. |

Precautionary statement(s) Response

- | | |
|-----------|--|
| P321 | Specific treatment (see advice on this label). |
| P302+P352 | IF ON SKIN: Wash with plenty of water. |
| P333+P313 | If skin irritation or rash occurs: Get medical advice/attention. |
| P362+P364 | Take off contaminated clothing and wash it before reuse. |

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

- | | |
|------|--|
| P501 | Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation. |
|------|--|

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
5265-77-4	1-5	<u>2,2,4-trimethyl-1,3-pentanediol monoisobutyrate</u>
004-34-6	1-5	<u>cellulose</u>
6530-20-1	<1	<u>2-octyl-4-isothiazolin-3-one</u>
634-33-5	<1	<u>1,2-benzisothiazoline-3-one</u>
682-20-4	<1	<u>2-methyl-4-isothiazolin-3-one</u>
Not Available	30-60	Ingredients determined not to be hazardous

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: - Wash out immediately with fresh running water. - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. - Seek medical attention without delay; if pain persists or recurs seek medical attention. - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin contact occurs: - Immediately remove all contaminated clothing, including footwear. - Flush skin and hair with running water (and soap if available). - Seek medical attention in event of irritation.
Inhalation	- If fumes or combustion products are inhaled remove from contaminated area. - Lay patient down. Keep warm and rested. - Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. - Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. - Transport to hospital, or doctor.
Ingestion	- If swallowed do NOT induce vomiting. - If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. - Observe the patient carefully. - Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. - Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. - Seek medical advice.

Continued...

ARDEX WPM 002 Superflex 2 Part Liquid

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 Firefighting measures

Extinguishing media

The product contains a substantial proportion of water, therefore there are no restrictions on the type of extinguishing media which may be used. Choice of extinguishing media should take into account surrounding areas.

Although the material is non-combustible, evaporation of water from the mixture, caused by the heat of nearby fire, may produce floating layers of combustible substances.

In such an event consider:

- ▶ foam.

Special hazards arising from the substrate or mixture

Fire Incompatibility

None known.

Advice for firefighters

Fire Fighting

- ▶ Alert Fire Brigade and tell them location and nature of hazard.
- ▶ Wear breathing apparatus plus protective gloves in the event of a fire.
- ▶ Prevent, by any means available, spillage from entering drains or water courses.
- ▶ Use fire fighting procedures suitable for surrounding area.

Fire/Explosion Hazard

- ▶ The material is not readily combustible under normal conditions.
- ▶ However, it will break down under fire conditions and the organic component may burn.
- ▶ Not considered to be a significant fire risk.
- ▶ Heat may cause expansion or decomposition with violent rupture of containers.

Decomposes on heating and produces toxic fumes of:
carbon dioxide (CO₂)
nitrogen oxides (NO_x)
other pyrolysis products typical of burning organic material.
May emit poisonous fumes.
May emit corrosive fumes.

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills

- ▶ Clean up all spills immediately.
- ▶ Avoid breathing vapours and contact with skin and eyes.
- ▶ Control personal contact with the substance, by using protective equipment.
- ▶ Contain and absorb spill with sand, earth, inert material or vermiculite.

Major Spills

- Moderate hazard.
- ▶ Clear area of personnel and move upwind.
 - ▶ Alert Fire Brigade and tell them location and nature of hazard.
 - ▶ Wear breathing apparatus plus protective gloves.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling

- ▶ **DO NOT** allow clothing wet with material to stay in contact with skin
- ▶ Avoid all personal contact, including inhalation.
- ▶ Wear protective clothing when risk of exposure occurs.
- ▶ Use in a well-ventilated area.
- ▶ Prevent concentration in hollows and sumps.

Other information

- ▶ Store in original containers.
- ▶ Keep containers securely sealed.
- ▶ Store in a cool, dry, well-ventilated area.
- ▶ Store away from incompatible materials and foodstuff containers.

Conditions for safe storage, including any incompatibilities

Suitable container

- ▶ Polyethylene or polypropylene container.
- ▶ Packing as recommended by manufacturer.
- ▶ Check all containers are clearly labelled and free from leaks.

Storage incompatibility

- ▶ Avoid strong acids, bases.

SECTION 8 Exposure controls / personal protection

Control parameters

Continued...

ARDEX WPM 002 Superflex 2 Part Liquid

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
New Zealand Workplace Exposure Standards (WES)	cellulose	Cellulose (paper fibre)	10 mg/m3	Not Available	Not Available	Not Available

Emergency Limits

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
2,4-trimethyl-1,3-pentanediol monoisobutyrate	Trimethyl-1,3-pentanediol monoisobutyrate, 2,2,4-; (Texanol)	13 mg/m3	140 mg/m3	840 mg/m3

Ingredient	Original IDLH	Revised IDLH
2,4-trimethyl-1,3-pentanediol monoisobutyrate	Not Available	Not Available
cellulose	Not Available	Not Available
2-octyl-4-isothiazolin-3-one	Not Available	Not Available
2-benzisothiazoline-3-one	Not Available	Not Available
4-methyl-4-isothiazolin-3-one	Not Available	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
2-octyl-4-isothiazolin-3-one	E	≤ 0.1 ppm
2-benzisothiazoline-3-one	E	≤ 0.01 mg/m³
4-methyl-4-isothiazolin-3-one	D	> 0.01 to ≤ 0.1 mg/m³

Notes:	Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.
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Exposure controls

Appropriate engineering controls	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.
Personal protection	
Eye and face protection	▶ Safety glasses with side shields. ▶ Chemical goggles. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.
Skin protection	See Hand protection below
Hands/feet protection	▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber NOTE: ▶ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. ▶ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed. For esters: ▶ Do NOT use natural rubber, butyl rubber, EPDM or polystyrene-containing materials. The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. Personal hygiene is a key element of effective hand care.
Body protection	See Other protection below
Other protection	▶ Overalls. ▶ P.V.C apron. ▶ Barrier cream. ▶ Skin cleansing cream.

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the: "Forsberg Clothing Performance Index".
The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:
ARDEX WPM 002 Superflex 2 Part Liquid

Material	CPI
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Respiratory protection

Type BKAX-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum	Half-Face	Full-Face	Powered Air
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ARDEX WPM 002 Superflex 2 Part Liquid

BUTYL	A
NEOPRENE	A
VITON	A
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C
PE	C
PE/EVAL/PE	C
PVA	C
PVC	C
TEFLON	C

CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -
Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Protection Factor	Respirator	Respirator	Respirator
up to 10 x ES	BKAX-AUS P2	-	BKAX-PAPR-AUS / Class 1 P2
up to 50 x ES	-	BKAX-AUS / Class 1 P2	-
up to 100 x ES	-	BKAX-2 P2	BKAX-PAPR-2 P2 ^

^ - Full-face
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)
▶ Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
▶ The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
▶ Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Milky white emulsion with a characteristic odour; mixes with water.		
Physical state	Liquid	Relative density (Water = 1)	1.04
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	8.5-9.5	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	100 approx.	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	45-47
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled	Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual. Cellulose, given via the windpipe, caused fibrosis in the alveoli and airways, with injuries of the lung cells. Some health effects associated with
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ARDEX WPM 002 Superflex 2 Part Liquid

wood, cotton, flax, jute and hemp particles or fibres are not attributable to cellulose content but to other substances and/or impurities. The main effects of simple esters are irritation, stupor and insensibility. Headache, drowsiness, dizziness, coma and behavioural changes may occur.

Ingestion Accidental ingestion of the material may be damaging to the health of the individual.

Skin Contact Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. Limited evidence suggests that repeated exposure may cause skin cracking, flaking or drying following normal handling and use.

Eye Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

Chronic Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Inhalation studies using animals have shown that cellulose fibres can cause lung scarring, and humans exposed to cellulose at work are more likely to develop asthma and obstructive lung disease. The substance may also induce the production of free radicals in human white blood cells. < Studies indicate that diets containing large amounts of non-absorbable polysaccharides, such as cellulose, might decrease absorption of calcium, magnesium, zinc and phosphorus. This material contains a substantial amount of polymer considered to be of low concern. These are classified under having MWs of between 1000 to 10000 with less than 25% of molecules with MWs under 1000 and less than 10% under 500; or having a molecular weight average of over 10000. Chronic effects of exposure to diuron may include skin irritation, abnormal pigmentation, growth retardation, blurring of vision, abnormal liver, spleen and thyroid effects; red blood cell destruction, or reduction of the blood's oxygen carrying capacity causing bluish discolouration and breathlessness. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Based on experience with similar materials, there is a possibility that exposure to the material may reduce fertility in humans at levels which do not cause other toxic effects. Based on experience with animal studies, there is a possibility that exposure to the material may result in toxic effects to the development of the foetus, at levels which do not cause significant toxic effects to the mother.

ARDEX WPM 002 Superflex 2 Part Liquid

TOXICITY

Not Available

IRRITATION

Not Available

2,4-trimethyl-1,3-pentandiol monoisobutyrate

TOXICITY

dermal (guinea pig) LD50: >19 mg/kg^[2]Oral(Rat) LD50; >3200 mg/kg^[2]

IRRITATION

Eye: no adverse effect observed (not irritating)^[1]

Eyes - Moderate irritant *

Skin - Slight irritant *

Skin (rabbit): mild ***

Skin: no adverse effect observed (not irritating)^[1]

cellulose

TOXICITY

Dermal (rabbit) LD50: >0.002 mg/kg^[2]Inhalation(Rat) LC50; >5.8 mg/L4hrs^[2]Oral(Rat) LD50; >0.005 mg/kg^[2]

IRRITATION

Not Available

2-octyl-4-isothiazolin-3-one

TOXICITY

#LD50_derm 311 mg/kg^[2]Oral(Rat) LD50; 125 mg/kg^[1]

IRRITATION

Eye (rabbit): 0.5% non irritant

Eye (rabbit): 45% conc CORROSIVE

Eye (rabbit): 5% conc moderate

Eye(rabbit):100 mg SEVERE

Eye: adverse effect observed (irreversible damage)^[1]

Skin (rabbit): 45% conc SEVERE

Skin (rabbit): 500 mg/24 hours

Skin: adverse effect observed (corrosive)^[1]Skin: adverse effect observed (irritating)^[1]

1,2-benzisothiazoline-3-one

TOXICITY

dermal (rat) LD50: >2000 mg/kg^[1]Oral(Rat) LD50; 454 mg/kg^[1]

IRRITATION

Eye: adverse effect observed (irreversible damage)^[1]Skin: no adverse effect observed (not irritating)^[1]

2-methyl-4-isothiazolin-3-one

TOXICITY

dermal (rat) LD50: 242 mg/kg^[1]Oral(Rat) LD50; 120 mg/kg^[1]

IRRITATION

Eye: adverse effect observed (irreversible damage)^[1]Skin: adverse effect observed (corrosive)^[1]

Legend:

1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

2,2,4-TRIMETHYL-

Not a skin sensitiser (guinea pig, Magnusson-Kligman) *** Ames Test: negative *** Micronucleus, mouse: negative *** Not mutagenic *** No

ARDEX WPM 002 Superflex 2 Part Liquid

1,3-PENTANEDIOL MONOISOBUTYRATE	effects on fertility or foetal development seen in the rat *** [SWIFT] ** [Eastman] *** [Perstop]
2-OCTYL-4-ISOTHIAZOLIN-3-ONE	ROHM & HAAS Data ADI: 0.03 mg/kg/day NOEL: 60 mg/kg/day
2-BENZISOTHIAZOLINE-3-ONE	Acute toxicity data show that 1,2-benzisothiazoline-3-one (BIT) is moderately toxic by the oral and dermal routes but that this chemical is a severe eye irritant. Irritation to the skin from acute data show only mild skin irritation, but repeated dermal application indicated a more significant skin irritation response. The neurotoxicity observed in the rat acute oral toxicity study (piloerection and upward curvature of the spine at 300 mg/kg and above; decreased activity, prostration, decreased abdominal muscle tone, reduced righting reflex, and decreased rate and depth of breathing at 900 mg/kg) and the acute dermal toxicity study (upward curvature of the spine was observed in increased incidence, but this was absent after day 5 post-dose at a dose of 2000 mg/kg) were felt to be at exposures in excess of those expected from the use pattern of this pesticide and that such effects would not be observed at estimated exposure doses. Subchronic oral toxicity studies showed systemic effects after repeated oral administration including decreased body weight, increased incidence of forestomach hyperplasia, and non-glandular stomach lesions in rats. In dogs, the effects occurred at lower doses than in rats, and included alterations in blood chemistry (decreased plasma albumin, total protein, and alanine aminotransferase) and increased absolute liver weight. Developmental toxicity studies were conducted in rats with maternal effects including decreased body weight gain, decreased food consumption, and clinical toxicity signs (audible breathing, haircoat staining of the anogenital region, dry brown material around the nasal area) as well as increased mortality. Developmental effects consisted of increases in skeletal abnormalities (extra sites of ossification of skull bones, unossified sternebrae) but not external or visceral abnormalities. Reproductive toxicity: In a two-generation reproduction study, parental toxicity was observed at 500 ppm and was characterized by lesions in the stomach.
2-METHYL-4-ISOTHIAZOLIN-3-ONE	Based on laboratory and animal testing, exposure to the material may result in irreversible effects and mutations in humans. In light of potential adverse effects, and to ensure a harmonised risk assessment and management, the EU regulatory framework for biocides has been established with the objective of ensuring a high level of protection of human and animal health and the environment. To this aim, it is required that risk assessment of biocidal products is carried out before they can be placed on the market. A central element in the risk assessment of the biocidal products are the utilization instructions that defines the dosage, application method and amount of applications and thus the exposure of humans and the environment to the biocidal substance. Humans may be exposed to biocidal products in different ways in both occupational and domestic settings. Many biocidal products are intended for industrial sectors or professional uses only, whereas other biocidal products are commonly available for private use by non-professional users. No significant acute toxicological data identified in literature search. Formaldehyde generators (releasers) are often used as preservatives. The maximum authorised concentration of free formaldehyde is 0.2% and must be labelled with the warning sign "contains formaldehyde" where the concentration exceeds 0.05%. The use of formaldehyde-releasing preservatives ensures that the level of free formaldehyde in the products is always low but sufficient to inhibit microbial growth - it disrupts metabolism to cause death of the organism. However there is a concern that formaldehyde generators can produce amines capable of causing cancers (nitrosamines) when used in formulations containing amines. NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA. Considered to be a minor sensitiser in Kathon CG (1) (1). Bruze et al - Contact Dermatitis 20: 219-39, 1989
2,2,4-TRIMETHYL-1,3-PENTANEDIOL MONOISOBUTYRATE & 2-METHYL-4-ISOTHIAZOLIN-3-ONE	The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.
CELLULOSE & 2-OCTYL-4-ISOTHIAZOLIN-3-ONE & 2-METHYL-4-ISOTHIAZOLIN-3-ONE	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia.
2-OCTYL-4-ISOTHIAZOLIN-3-ONE & 2-BENZISOTHIAZOLINE-3-ONE & 2-METHYL-4-ISOTHIAZOLIN-3-ONE	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important.

Acute Toxicity	✗	Carcinogenicity	✗
Skin Irritation/Corrosion	✗	Reproductivity	✗
Serious Eye Damage/Irritation	✗	STOT - Single Exposure	✗
Respiratory or Skin sensitisation	✓	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

Legend: ✗ – Data either not available or does not fill the criteria for classification
 ✓ – Data available to make classification

SECTION 12 Ecological information

Toxicity

ARDEX WPM 002 Superflex 2 Part Liquid	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
2,2,4-trimethyl-1,3-pentanediol monoisobutyrate	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	>19mg/L	2
	EC50	48	Crustacea	>19mg/L	2
	EC50	72	Algae or other aquatic plants	8.1mg/L	2
	NOEC	72	Algae or other aquatic plants	2mg/L	2

Continued...

ARDEX WPM 002 Superflex 2 Part Liquid

cellulose	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
2-octyl-4-isothiazolin-3-one	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	0.122mg/L	2
	EC50	48	Crustacea	-0.055-0.171mg/L	4
	EC50	96	Algae or other aquatic plants	0.15mg/L	2
	BCF	1608	Fish	0.05-mg/L	4
	NOEL	96	Not Available	<0.003-mg/L	4
1,2-benzisothiazoline-3-one	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	-0.067-0.29mg/L	4
	EC50	48	Crustacea	0.097-mg/L	4
	EC50	72	Algae or other aquatic plants	0.07mg/L	2
	NOEL	96	Fish	0.031-mg/L	4
2-methyl-4-isothiazolin-3-one	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	-0.06-0.09mg/L	4
	EC50	48	Crustacea	-0.14-0.19mg/L	4
	EC50	72	Algae or other aquatic plants	0.0569mg/L	2
	EC10	72	Algae or other aquatic plants	0.0346mg/L	2
	NOEC	96	Algae or other aquatic plants	0.01mg/L	2
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
2,4-trimethyl-1,3-pentanediol monoisobutyrate	LOW	LOW
cellulose	LOW	LOW
2-octyl-4-isothiazolin-3-one	HIGH	HIGH
2-methyl-4-isothiazolin-3-one	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
2,4-trimethyl-1,3-pentanediol monoisobutyrate	LOW (LogKOW = 2.9966)
cellulose	LOW (LogKOW = -5.1249)
2-octyl-4-isothiazolin-3-one	LOW (LogKOW = 2.561)
2-methyl-4-isothiazolin-3-one	LOW (LogKOW = -0.8767)

Mobility in soil

Ingredient	Mobility
2,4-trimethyl-1,3-pentanediol monoisobutyrate	LOW (KOC = 22.28)
cellulose	LOW (KOC = 10)
2-octyl-4-isothiazolin-3-one	LOW (KOC = 2120)
2-methyl-4-isothiazolin-3-one	LOW (KOC = 27.88)

SECTION 13 Disposal considerations**Waste treatment methods**

Product / Packaging disposal	▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. ▶ Recycle wherever possible. ▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. ▶ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or incineration in a licensed
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-
- apparatus (after admixture with suitable combustible material).
▶ Decontaminate empty containers.

Ensure that the hazardous substance is disposed in accordance with the Hazardous Substances (Disposal) Notice 2017

Disposal Requirements

Packages that have been in direct contact with the hazardous substance must be only disposed if the hazardous substance was appropriately removed and cleaned out from the package. The package must be disposed according to the manufacturer's directions taking into account the material it is made of. Packages which hazardous content have been appropriately treated and removed may be recycled.
The hazardous substance must only be disposed if it has been treated by a method that changed the characteristics or composition of the substance and it is no longer hazardous.

SECTION 14 Transport information

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

Land transport (UN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
2,4-trimethyl-1,3-pentanediol monoisobutyrate	Not Available
cellulose	Not Available
2-octyl-4-isothiazolin-3-one	Not Available
2-benzisothiazoline-3-one	Not Available
4-methyl-4-isothiazolin-3-one	Not Available

Transport in bulk in accordance with the ICG Code

Product name	Ship Type
2,4-trimethyl-1,3-pentanediol monoisobutyrate	Not Available
cellulose	Not Available
2-octyl-4-isothiazolin-3-one	Not Available
2-benzisothiazoline-3-one	Not Available
4-methyl-4-isothiazolin-3-one	Not Available

SECTION 15 Regulatory information

Safety, health and environmental regulations / legislation specific for the substance or mixture

This substance is to be managed using the conditions specified in an applicable Group Standard

SR Number	Group Standard
SR002544	Construction Products (Subsidiary Hazard) Group Standard 2017

2,4-trimethyl-1,3-pentanediol monoisobutyrate is found on the following regulatory lists

- New Zealand Approved Hazardous Substances with controls
- New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
- New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
- New Zealand Inventory of Chemicals (NZIoC)

cellulose is found on the following regulatory lists

- International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
- New Zealand Inventory of Chemicals (NZIoC)
- New Zealand Workplace Exposure Standards (WES)

2-octyl-4-isothiazolin-3-one is found on the following regulatory lists

- New Zealand Approved Hazardous Substances with controls
- New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
- New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
- New Zealand Inventory of Chemicals (NZIoC)

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1,2-benzisothiazoline-3-one is found on the following regulatory lists

New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)

2-methyl-4-isothiazolin-3-one is found on the following regulatory lists

New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)

Hazardous Substance Location

Subject to the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Quantities
Not Applicable	Not Applicable

Certified Handler

Subject to Part 4 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Class of substance	Quantities
Not Applicable	Not Applicable

Refer Group Standards for further information

Maximum quantities of certain hazardous substances permitted on passenger service vehicles

Subject to Regulation 13.14 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Gas (aggregate water capacity in mL)	Liquid (L)	Solid (kg)	Maximum quantity per package for each classification
2.5A or 6.5B	120	1	3	

Tracking Requirements

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AIIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (2,2,4-trimethyl-1,3-pentanediol monoisobutyrate; 2-octyl-4-isothiazolin-3-one; 1,2-benzisothiazoline-3-one; 2-methyl-4-isothiazolin-3-one)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (cellulose)
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - ARIPS	Yes
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 Other information

Revision Date	13/01/2021
Initial Date	13/01/2021

Version Summary

Version	Issue Date	Sections Updated
2.1.1.1	13/01/2021	Classification

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

C—TWA: Permissible Concentration-Time Weighted Average
C—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
LV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

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TEL (+61 3) 9572 4700.



ARDEX WPM 002 Superflex 2 Part Powder

Ardex (Ardex NZ)

Chemwatch: 5439-86

Version No: 2.1.1.1

Safety Data Sheet according to the Health and Safety at Work (Hazardous Substances) Regulations 2017

Chemwatch Hazard Alert Code: 4

Issue Date: 13/01/2021

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S.GHS.NZL.EN

SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Identifier

Product name	ARDEX WPM 002 Superflex 2 Part Powder
Chemical Name	Not Applicable
Synonyms	Superflex Bathroom & Balcony Two Part Powder (former name)
Chemical formula	Not Applicable
Other means of identification	Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	The powder component of two part Superflex waterproof coating. When mixed with the liquid in accordance with manufacturers directions, can be applied over conventional surfaces in internal wet areas and balconies. Will dry to form a flexible and tough waterproof membrane. Applied by brush or roller.
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Details of the supplier of the safety data sheet

Registered company name	Ardex (Ardex NZ)
Address	32 Lane Street Woolston Christchurch New Zealand
Telephone	+64 3384 3029
Fax	+64 3384 9779
Website	Not Available
Email	Not Available

Emergency telephone number

Association / Organisation	Ardex (Ardex NZ)
Emergency telephone numbers	+64 3 373 6900
Other emergency telephone numbers	0800 764 766 (NZ NPC)

SECTION 2 Hazards identification

Classification of the substance or mixture

Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation. Not regulated for transport of Dangerous Goods.

ChemWatch Hazard Ratings

	Min	Max
Flammability	0	
Toxicity	1	
Body Contact	3	
Reactivity	0	
Chronic	4	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Classification [1]	Skin Corrosion/Irritation Category 2, Skin Sensitizer Category 1, Serious Eye Damage Category 1, Carcinogenicity Category 1, Specific target organ toxicity - single exposure Category 1, Specific target organ toxicity - repeated exposure Category 1
Legend:	1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI
Determined by Chemwatch using GHS/HSNO criteria	6.3A, 8.3A, 6.5B (contact), 6.7A, 6.9A

Label elements

Hazard pictogram(s)	
Signal word	Danger
Hazard statement(s)	
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H350	May cause cancer.
H370	Causes damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
Precautionary statement(s) Prevention	
P201	Obtain special instructions before use.
P260	Do not breathe dust/fume.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P270	Do not eat, drink or smoke when using this product.
Precautionary statement(s) Response	
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P311	IF exposed or concerned: Call a POISON CENTER/doctor/physician/first aider.
P310	Immediately call a POISON CENTER/doctor/physician/first aider.
P321	Specific treatment (see advice on this label).
Precautionary statement(s) Storage	
P405	Store locked up.
Precautionary statement(s) Disposal	
P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
4808-60-7.	30-60	<u>graded sand</u>
5997-15-1	10-30	<u>portland cement</u>
317-65-3	10-30	<u>calcium carbonate</u>
727-43-7	10-30	<u>barium sulfate</u>
5997-16-2	1-10	<u>calcium aluminate cement</u>
3397-24-5	1-10	<u>gypsum</u>
4808-60-7	<1	<u>silica crystalline - quartz</u>
3463-67-7	<1	<u>titanium dioxide</u>
Not Available	balance	Ingredients determined not to be hazardous

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ▶ Immediately hold eyelids apart and flush the eye continuously with running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin or hair contact occurs: ▶ Immediately flush body and clothes with large amounts of water, using safety shower if available. ▶ Quickly remove all contaminated clothing, including footwear.

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	▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ▶ Transport to hospital, or doctor.
Inhalation	▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor, without delay.
Ingestion	▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
For acute or short-term repeated exposures to highly alkaline materials:

- ▶ Respiratory stress is uncommon but present occasionally because of soft tissue edema.
- ▶ Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
- ▶ Oxygen is given as indicated.
- ▶ The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
- ▶ Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilisation of proteins allow deep penetration into the tissue. Alkalis continue to cause damage after exposure.

INGESTION:

- ▶ Milk and water are the preferred diluents
- ▶ No more than 2 glasses of water should be given to an adult.
- ▶ Neutralising agents should never be given since exothermic heat reaction may compound injury.

Catharsis and emesis are absolutely contra-indicated.
Activated charcoal does not absorb alkali.
Gastric lavage should not be used.
Supportive care involves the following:

- ▶ Withhold oral feedings initially.
- ▶ If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
- ▶ Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
- ▶ Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

SKIN AND EYE:

- ▶ Injury should be irrigated for 20-30 minutes.

Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology]

SECTION 5 Firefighting measures

Extinguishing media

- ▶ There is no restriction on the type of extinguisher which may be used.
- ▶ Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.
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Advice for firefighters

Fire Fighting	▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves in the event of a fire. ▶ Prevent, by any means available, spillage from entering drains or water courses. ▶ Use fire fighting procedures suitable for surrounding area.
Fire/Explosion Hazard	▶ Non combustible. ▶ Not considered a significant fire risk, however containers may burn. Decomposition may produce toxic fumes of: sulfur oxides (SOx) silicon dioxide (SiO2) metal oxides When aluminium oxide dust is dispersed in air, firefighters should wear protection against inhalation of dust particles, which can also contain hazardous substances from the fire absorbed on the alumina particles. Decomposes at high temperatures to produce barium oxide. Barium oxide is strongly alkaline and, upon contact with water, is exothermic. When barium oxide reacts with oxygen to give a peroxide, there is a fire and explosion risk. May emit poisonous fumes. May emit corrosive fumes.

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	▶ Remove all ignition sources. ▶ Clean up all spills immediately. ▶ Avoid contact with skin and eyes.
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Major Spills

- ▶ Control personal contact with the substance, by using protective equipment.
- Moderate hazard.
- ▶ **CAUTION:** Advise personnel in area.
 - ▶ Alert Emergency Services and tell them location and nature of hazard.
 - ▶ Control personal contact by wearing protective clothing.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling

- ▶ Avoid all personal contact, including inhalation.
- ▶ Wear protective clothing when risk of exposure occurs.
- ▶ Use in a well-ventilated area.
- ▶ Prevent concentration in hollows and sumps.

Other information

- ▶ Store in original containers.
- ▶ Keep containers securely sealed.
- ▶ Store in a cool, dry area protected from environmental extremes.
- ▶ Store away from incompatible materials and foodstuff containers.

Conditions for safe storage, including any incompatibilities

Suitable container

Multi-ply paper bag with sealed plastic liner or heavy gauge plastic bag.

NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse. Check that all containers are clearly labelled and free from leaks. Packing as recommended by manufacturer.

Storage incompatibility

- ▶ Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.
- ▶ Avoid contact with copper, aluminium and their alloys.

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
New Zealand Workplace Exposure Standards (WES)	graded sand	Quartz respirable dust	0.05 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	portland cement	Portland cement respirable dust	1 mg/m3	Not Available	Not Available	dsen-Dermal sensitiser
New Zealand Workplace Exposure Standards (WES)	portland cement	Portland cement	3 mg/m3	Not Available	Not Available	dsen-Dermal sensitiser
New Zealand Workplace Exposure Standards (WES)	calcium carbonate	Limestone (Calcium carbonate)	10 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	calcium carbonate	Marble (Calcium carbonate)	10 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	calcium carbonate	Calcium carbonate	10 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	barium sulfate	Barium sulphate	10 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	gypsum	Calcium sulphate (Gypsum, Plaster of Paris)	10 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	gypsum	Plaster of Paris (Calcium sulphate)	10 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	silica crystalline - quartz	Quartz respirable dust	0.05 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	titanium dioxide	Titanium dioxide	10 mg/m3	Not Available	Not Available	Not Available

Emergency Limits

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
graded sand	Silica, crystalline-quartz; (Silicon dioxide)	0.075 mg/m3	33 mg/m3	200 mg/m3
calcium carbonate	Carbonic acid, calcium salt	45 mg/m3	210 mg/m3	1,300 mg/m3
barium sulfate	Barium sulfate	15 mg/m3	170 mg/m3	990 mg/m3
silica crystalline - quartz	Silica, crystalline-quartz; (Silicon dioxide)	0.075 mg/m3	33 mg/m3	200 mg/m3
titanium dioxide	Titanium oxide; (Titanium dioxide)	30 mg/m3	330 mg/m3	2,000 mg/m3

Ingredient	Original IDLH	Revised IDLH
graded sand	25 mg/m3 / 50 mg/m3	Not Available
portland cement	5,000 mg/m3	Not Available
calcium carbonate	Not Available	Not Available

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Ingredient	Original IDLH	Revised IDLH
barium sulfate	Not Available	Not Available
calcium aluminate cement	Not Available	Not Available
gypsum	Not Available	Not Available
silica crystalline - quartz	25 mg/m3 / 50 mg/m3	Not Available
titanium dioxide	5,000 mg/m3	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
calcium aluminate cement	E	≤ 0.01 mg/m ³
Notes:	Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.	

Exposure controls

Appropriate engineering controls	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.
Personal protection	
Eye and face protection	- Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure. - Chemical goggles whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted. - Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection. - Alternatively a gas mask may replace splash goggles and face shields.
Skin protection	See Hand protection below
Hands/feet protection	- Elbow length PVC gloves NOTE: - The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. - Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed. The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. Personal hygiene is a key element of effective hand care. Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present. - polychloroprene. - nitrile rubber. - butyl rubber.
Body protection	See Other protection below
Other protection	- Overalls. - P.V.C apron. - Barrier cream. - Skin cleansing cream.

Respiratory protection

particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	P1 Air-line*	- -	PAPR-P1 -
up to 50 x ES	Air-line**	P2	PAPR-P2
up to 100 x ES	-	P3	-
		Air-line*	-
100+ x ES	-	Air-line**	PAPR-P3

* - Negative pressure demand ** - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

If inhalation risk above the TLV exists, wear approved dust respirator.

Use respirators with protection factors appropriate for the exposure level.

- Up to 5 X TLV, use valveless mask type; up to 10 X TLV, use 1/2 mask dust respirator
- Up to 50 X TLV, use full face dust respirator or demand type C air supplied respirator
- Up to 500 X TLV, use powered air-purifying dust respirator or a Type C pressure demand supplied-air respirator

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- ▶ Over 500 X TLV wear full-face self-contained breathing apparatus with positive pressure mode or a combination respirator with a Type C positive pressure supplied-air full-face respirator and an auxiliary self-contained breathing apparatus operated in pressure demand or other positive pressure mode
- ▶ Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- ▶ The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- ▶ Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- ▶ Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- ▶ Use approved positive flow mask if significant quantities of dust becomes airborne.
- ▶ Try to avoid creating dust conditions.

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Grey powdered cement mixture with insignificant odour. A strong alkaline action when wet with water.		
Physical state	Divided Solid	Relative density (Water = 1)	1.5 approx.
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Applicable
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Applicable
Initial boiling point and boiling range (°C)	100	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Negligible	Gas group	Not Available
Solubility in water	Partly miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled	The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual. Levels above 10 micrograms per cubic metre of suspended inorganic sulfates in the air may cause an excess risk of asthmatic attacks in susceptible people. Inhalation may result in ulcers or sores of the lining of the nose (nasal mucosa), and lung damage. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled. If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures. Effects on lungs are significantly enhanced in the presence of respirable particles.
Ingestion	Accidental ingestion of the material may be damaging to the health of the individual. Not normally a hazard due to the physical form of product. The material is a physical irritant to the gastro-intestinal tract
Skin Contact	The material may accentuate any pre-existing dermatitis condition Four students received severe hand burns whilst making moulds of their hands with dental plaster substituted for Plaster of Paris. The dental plaster known as "Stone" was a special form of calcium sulfate hemihydrate containing alpha-hemihydrate crystals that provide high compression

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strength to the moulds. Beta-hemihydrate (normal Plaster of Paris) does not cause skin burns in similar circumstances. Handling wet cement can cause dermatitis. Cement when wet is quite alkaline and this alkali action on the skin contributes strongly to cement contact dermatitis since it may cause drying and defatting of the skin which is followed by hardening, cracking, lesions developing, possible infections of lesions and penetration by soluble salts. Skin contact may result in severe irritation particularly to broken skin. Ulceration known as "chrome ulcers" may develop. Chrome ulcers and skin cancer are significantly related. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. The material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.

Eye If applied to the eyes, this material causes severe eye damage.

Chronic

Studies show that inhaling this substance for over a long period (e.g. in an occupational setting) may increase the risk of cancer. Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Animal testing shows long term exposure to aluminium oxides may cause lung disease and cancer, depending on the size of the particle. The smaller the size, the greater the tendencies of causing harm. Red blood cells and rabbit alveolar macrophages exposed to calcium silicate insulation materials in vitro showed haemolysis in one study but not in another. Both studies showed the substance to be more cytotoxic than titanium dioxide but less toxic than asbestos. In a small cohort mortality study of workers in a wollastonite quarry, the observed number of deaths from all cancers combined and lung cancer were lower than expected. Wollastonite is a calcium inosilicate mineral (CaSiO₃). Cement contact dermatitis (CCD) may occur when contact shows an allergic response, which may progress to sensitisation. Sensitisation is due to soluble chromates (chromate compounds) present in trace amounts in some cements and cement products. Soluble chromates readily penetrate intact skin. Cement dermatitis can be characterised by fissures, eczematous rash, dystrophic nails, and dry skin; acute contact with highly alkaline mixtures may cause localised necrosis. Pure calcium carbonate does not cause the disease pneumoconiosis probably due to its rapid elimination from the body. However, its unsterilised particulates can infect the lung and airway to cause inflammation. Crystalline silicas activate the inflammatory response of white blood cells after they injure the lung epithelium. Chronic exposure to crystalline silicas reduces lung capacity and predisposes to chest infections. High blood concentrations of calcium ion may give rise to dilation of blood vessels and depress heart function, leading to low blood pressure and fainting (syncope). Calcium ions enhance the effects of digitalis on the heart, and may precipitate digitalis poisoning. Calcium salts also reduce the absorption of tetracyclines. In newborns, giving calcium during treatment has resulted in calcification of soft tissue. Overexposure to the breathable dust may cause coughing, wheezing, difficulty in breathing and impaired lung function. Chronic symptoms may include decreased vital lung capacity and chest infections. Repeated exposures in the workplace to high levels of fine-divided dusts may produce a condition known as pneumoconiosis, which is the lodgement of any inhaled dusts in the lung, irrespective of the effect. This is particularly true when a significant number of particles less than 0.5 microns (1/50000 inch) are present. Chronic excessive intake of iron have been associated with damage to the liver and pancreas. People with a genetic disposition to poor control over iron are at an increased risk. Chromium (III) is an essential trace mineral. Chronic exposure to chromium (III) irritates the airways, malnourishes the liver and kidneys, causes fluid in the lungs, and adverse effects on white blood cells, and also increases the risk of developing lung cancer. Barium compounds may cause high blood pressure, airway irritation and damage the liver, spleen and bone marrow. Prolonged exposure may cause a lung inflammation and scarring. Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following.

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Not Available

IRRITATION

Not Available

graded sand**TOXICITY**Oral(Rat) LD50; =500 mg/kg^[2]**IRRITATION**

Not Available

portland cement**TOXICITY**

Not Available

IRRITATION

Not Available

calcium carbonate**TOXICITY**dermal (rat) LD50: >2000 mg/kg^[1]Oral(Rat) LD50; >2000 mg/kg^[1]**IRRITATION**

Eye (rabbit): 0.75 mg/24h - SEVERE

Eye: no adverse effect observed (not irritating)^[1]

Skin (rabbit): 500 mg/24h-moderate

Skin: no adverse effect observed (not irritating)^[1]**barium sulfate****TOXICITY**dermal (rat) LD50: >2000 mg/kg^[1]Oral(Rat) LD50; 0.307 mg/kg^[1]**IRRITATION**

Not Available

calcium aluminate cement**TOXICITY**dermal (rat) LD50: >2000 mg/kg^[1]Oral(Rat) LD50; >2000 mg/kg^[1]**IRRITATION**

Not Available

gypsum**TOXICITY**Oral(Rat) LD50; >1581 mg/kg^[1]**IRRITATION**

Not Available

silica crystalline - quartz**TOXICITY**Oral(Rat) LD50; =500 mg/kg^[2]**IRRITATION**

Not Available

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titanium dioxide	TOXICITY	IRRITATION	
	dermal (hamster) LD50: >=10000 mg/kg ^[2]	Eye: no adverse effect observed (not irritating) ^[1]	
	Oral(Rat) LD50; >=2000 mg/kg ^[1]	Skin (human): 0.3 mg /3D (int)-mild * Skin: no adverse effect observed (not irritating) ^[1]	
Legend:	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances		
PORTLAND CEMENT	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important.		
CALCIUM CARBONATE	No evidence of carcinogenic properties. No evidence of mutagenic or teratogenic effects. The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.		
GYPSUM	Gypsum (calcium sulfate dehydrate) irritates the skin, eye, mucous membranes, and airways. A series of studies involving Gypsum industry workers in Poland reported chronic, non-specific airways diseases. Repeat dose toxicity: Examination of workers at a gypsum manufacturing plant found restrictive defects on long-function tests in those who were chronically exposed to gypsum dust. Synergistic/antagonistic effects: Gypsum appears to be protective on quartz toxicity in animal testing.		
SILICA CRYSTALLINE - QUARTZ	WARNING: For inhalation exposure <u>ONLY</u> : This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS The International Agency for Research on Cancer (IARC) has classified occupational exposures to respirable (<5 um) crystalline silica as being carcinogenic to humans . This classification is based on what IARC considered sufficient evidence from epidemiological studies of humans for the carcinogenicity of inhaled silica in the forms of quartz and cristobalite. Crystalline silica is also known to cause silicosis, a non-cancerous lung disease. Intermittent exposure produces; focal fibrosis, (pneumoconiosis), cough, dyspnoea, liver tumours. * Millions of particles per cubic foot (based on impinger samples counted by light field techniques). NOTE : the physical nature of quartz in the product determines whether it is likely to present a chronic health problem. To be a hazard the material must enter the breathing zone as respirable particles.		
TITANIUM DIOXIDE	* IUCLID Laboratory (in vitro) and animal studies show, exposure to the material may result in a possible risk of irreversible effects, with the possibility of producing mutation. Exposure to titanium dioxide is via inhalation, swallowing or skin contact. When inhaled, it may deposit in lung tissue and lymph nodes causing dysfunction of the lungs and immune system. Absorption by the stomach and intestines depends on the size of the particle. It penetrated only the outermost layer of the skin, suggesting that healthy skin may be an effective barrier. There is no substantive data on genetic damage, though cases have been reported in experimental animals. The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.		
GRADED SAND & PORTLAND CEMENT & BARIUM SULFATE & CALCIUM ALUMINATE CEMENT & GYPSUM & TITANIUM DIOXIDE	No significant acute toxicological data identified in literature search.		
PORTLAND CEMENT & CALCIUM CARBONATE & CALCIUM ALUMINATE CEMENT & GYPSUM & TITANIUM DIOXIDE	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia.		
CALCIUM CARBONATE & TITANIUM DIOXIDE	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.		
Acute Toxicity	✗	Carcinogenicity	✓
Skin Irritation/Corrosion	✓	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	✓	STOT - Repeated Exposure	✓
Mutagenicity	✗	Aspiration Hazard	✗
Legend: ✗ – Data either not available or does not fill the criteria for classification ✓ – Data available to make classification			

SECTION 12 Ecological information

Toxicity

ARDEX WPM 002 Superflex 2 Part Powder	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available

ARDEX WPM 002 Superflex 2 Part Powder

graded sand	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
portland cement	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
calcium carbonate	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	>56000mg/L	4
	EC50	72	Algae or other aquatic plants	>14mg/L	2
	EC10	72	Algae or other aquatic plants	>14mg/L	2
	NOEL	1332.0	Not Available	1.0% w/w	4
barium sulfate	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	>3.5mg/L	2
	EC50	48	Crustacea	32.00mg/L	4
	EC50	72	Algae or other aquatic plants	>1.15mg/L	2
	NOEC	72	Algae or other aquatic plants	>=1.15mg/L	2
calcium aluminate cement	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	>100mg/L	2
	EC50	48	Crustacea	5.4mg/L	2
	EC50	72	Algae or other aquatic plants	3.6mg/L	2
	NOEC	72	Algae or other aquatic plants	2.6mg/L	2
gypsum	Endpoint	Test Duration (hr)	Species	Value	Source
	NOEL	6480	Not Available	60.9000-mg/L	4
silica crystalline - quartz	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
titanium dioxide	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	-1.85-3.06mg/L	4
	EC50	48	Crustacea	1.9mg/L	2
	EC50	72	Algae or other aquatic plants	-3.75-7.58mg/L	4
	BCF	24	Crustacea	0.66mg/L	4
	NOEC	552	Not Available	0.01-mg/L	4
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
gypsum	HIGH	HIGH
titanium dioxide	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
gypsum	LOW (LogKOW = -2.2002)
titanium dioxide	LOW (BCF = 10)

Mobility in soil

Ingredient	Mobility
gypsum	LOW (KOC = 6.124)
titanium dioxide	LOW (KOC = 23.74)

SECTION 13 Disposal considerations

Waste treatment methods

Continued...

ARDEX WPM 002 Superflex 2 Part Powder

KDC - Approved Building Consent Document - BC250144_SD_ISSUED - Pg 224 of 268 - 11/07/2025 - vsingh

Product / Packaging disposal	▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Management Authority for disposal. ▶ Bury residue in an authorised landfill. ▶ Recycle containers if possible, or dispose of in an authorised landfill.
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Ensure that the hazardous substance is disposed in accordance with the Hazardous Substances (Disposal) Notice 2017

Disposal Requirements

Packages that have been in direct contact with the hazardous substance must be only disposed if the hazardous substance was appropriately removed and cleaned out from the package. The package must be disposed according to the manufacturer's directions taking into account the material it is made of. Packages which hazardous content have been appropriately treated and removed may be recycled.

The hazardous substance must only be disposed if it has been treated by a method that changed the characteristics or composition of the substance and it is no longer hazardous.

SECTION 14 Transport information

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

Land transport (UN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
Graded sand	Not Available
Portland cement	Not Available
Calcium carbonate	Not Available
Sulfuric acid	Not Available
Aluminum silicate cement	Not Available
Gypsum	Not Available
Silica crystalline - quartz	Not Available
Titanium dioxide	Not Available

Transport in bulk in accordance with the ICG Code

Product name	Ship Type
Graded sand	Not Available
Portland cement	Not Available
Calcium carbonate	Not Available
Sulfuric acid	Not Available
Aluminum silicate cement	Not Available
Gypsum	Not Available
Silica crystalline - quartz	Not Available
Titanium dioxide	Not Available

SECTION 15 Regulatory information

Safety, health and environmental regulations / legislation specific for the substance or mixture

This substance is to be managed using the conditions specified in an applicable Group Standard

SR Number	Group Standard
SR002545	Construction Products (Toxic [6.7A]) Group Standard 2017

Graded sand is found on the following regulatory lists

- Chemical Footprint Project - Chemicals of High Concern List
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1: Carcinogenic to humans
- New Zealand Approved Hazardous Substances with controls
- New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
- New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
- New Zealand Inventory of Chemicals (NZIoC)
- New Zealand Workplace Exposure Standards (WES)

portland cement is found on the following regulatory lists

- New Zealand Inventory of Chemicals (NZIoC)
- New Zealand Workplace Exposure Standards (WES)

alcium carbonate is found on the following regulatory lists

- New Zealand Approved Hazardous Substances with controls
- New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
- New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
- New Zealand Inventory of Chemicals (NZIoC)
- New Zealand Workplace Exposure Standards (WES)

barium sulfate is found on the following regulatory lists

- New Zealand Inventory of Chemicals (NZIoC)
- New Zealand Workplace Exposure Standards (WES)

calcium aluminate cement is found on the following regulatory lists

- New Zealand Inventory of Chemicals (NZIoC)

gypsum is found on the following regulatory lists

- New Zealand Inventory of Chemicals (NZIoC)
- New Zealand Workplace Exposure Standards (WES)

silica crystalline - quartz is found on the following regulatory lists

- Chemical Footprint Project - Chemicals of High Concern List
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1: Carcinogenic to humans
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- New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
- New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
- New Zealand Inventory of Chemicals (NZIoC)
- New Zealand Workplace Exposure Standards (WES)

titanium dioxide is found on the following regulatory lists

- Chemical Footprint Project - Chemicals of High Concern List
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B: Possibly carcinogenic to humans
- International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
- New Zealand Approved Hazardous Substances with controls
- New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
- New Zealand Inventory of Chemicals (NZIoC)
- New Zealand Workplace Exposure Standards (WES)

Hazardous Substance Location

Subject to the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Quantities
Not Applicable	Not Applicable

Certified Handler

Subject to Part 4 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Class of substance	Quantities
Not Applicable	Not Applicable

Refer Group Standards for further information

Maximum quantities of certain hazardous substances permitted on passenger service vehicles

Subject to Regulation 13.14 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Gas (aggregate water capacity in mL)	Liquid (L)	Solid (kg)	Maximum quantity per package for each classification
2.5A or 6.5B	120	1	3	

Tracking Requirements

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (graded sand; portland cement; barium sulfate; calcium aluminate cement; gypsum; silica crystalline - quartz)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (portland cement)
Korea - KECI	Yes

National Inventory	Status
New Zealand - NZIoC	Yes
Philippines - PICCS	No (portland cement; calcium aluminate cement)
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (calcium aluminate cement)
Vietnam - NCI	Yes
Russia - ARIPS	No (calcium aluminate cement)
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 Other information

Revision Date	13/01/2021
Initial Date	13/01/2021

SDS Version Summary

Version	Issue Date	Sections Updated
2.1.1.1	13/01/2021	Classification, Ingredients, Physical Properties

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification Committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

AC—TWA: Permissible Concentration-Time Weighted Average
AC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit.
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

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ARDEX WPM 002

(Superflex Bathroom and Balcony Two Part)

Rapid drying time

Two component undertile waterproofing membrane

Advanced acrylic – will not re-emulsify

Fibre reinforced – eliminates the need for reinforcing mat

Meets class III category for AS 4858 Wet Area Membranes

Low VOC content – meets Green Building Council of Australia
Green Star IEQ-13 requirements



BRANZ Appraised
Appraisal No.473 [2017]



BRANZ Appraised
Appraisal No.472 [2017]

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ARDEX WPM 002

(Superflex Bathroom and Balcony Two Part) Two Component Undertile Waterproofing Membrane

DESCRIPTION

ARDEX WPM 002 (Superflex Bathroom and Balcony Two Part) is a tough, fast drying two component waterproofing membrane specifically designed for use under tiles. The product has been uniquely formulated with synthetic microfibres to increase its strength and eliminate the need for a separate reinforcement mat. ARDEX WPM 002 is based on the most advanced acrylic polymer technology, and is totally resistant to re-emulsification.

ARDEX WPM 002 is flexible, low in odour, and is fully compatible with polymer modified tile adhesives. ARDEX WPM 002 is one of the fastest drying acrylic membranes on the market – normally ready to tile in 16–24 hours @ 23°C. ARDEX WPM 002 meets the Green Building Council of Australia Green Star IEQ-13 requirements for Architectural Sealant when tested in accordance with SCAQMD Method 304-91 Determination of Volatile Organic Compounds (VOC) in Various Materials as referenced by South Coast Air Quality Management Division (SCAQMD) Rule 1168.

FEATURES/BENEFITS

- Fast drying ARDEX WPM 002 can be tiled over in 16–24 hours, or 4 hours @ 23°C / 50% RH in non critical areas*.
- Fibre reinforced: Excellent strength, eliminates need for reinforcing mat.
- Flexible: Accommodates normal building movement.
- Advanced acrylic: Will not re-emulsify.
- Designed for tiling: Fully compatible with ARDEX tile system adhesives.
- Water based, low odour and easy cleaning for undertile waterproofing in shower recesses.
- Conforms to the requirements of AS/NZ 4858:2004 Wet Area Membranes.

*Critical areas include areas where the membrane is applied over impermeable substances such as bond breakers or incorporating reinforcement. Longer drying times are necessary in these areas.

APPLICATION RANGE

Performance levels

Commercial and residential.

Location

Internal and external wet areas, balconies, decks, and other areas that will be tiled or otherwise protected from regular foot traffic.

Surfaces

Walls and floors.

Substrates

Concrete

Cured for min. 28 days or sealed when set with one coat ARDEX HydrEpoxy WPM 300 at a coverage rate of 3.0m² per litre and allowed to cure overnight.

Wet concrete should be allowed to dry thoroughly or sealed

with one coat of ARDEX HydrEpoxy WPM 300 as above.

Renders and screeds

Cured for min. 7 days or sealed when set with one coat ARDEX HydrEpoxy WPM 300 at a coverage rate of 3.0m² per litre and allowed to cure overnight. Wet render should be allowed to dry thoroughly or sealed with one coat of ARDEX HydrEpoxy WPM 300 as above.

Fibre cement

Wet area grade only.

Plasterboard

Wet area grade only.

Plywood

Structural plywood (PAA branded) or marine grade or other wet area grade only. Not recommended for external use (refer ARDEX).

Particleboard

Wet area grade, internal use only (special preparation is required – contact ARDEX). Not recommended for external use (refer ARDEX).

Permanent Immersion

It is recommended that ARDEX WPM 002 must be covered with tiles for permanent immersion applications. Contact ARDEX for use over existing membranes, covering materials, and any other substrates not listed.

SPECIFICATION CLAUSE

ARDEX WPM 002

The waterproofing membrane shall be ARDEX WPM 002, a two component cementitious acrylic modified fibre reinforced membrane formulated to provide a tough, long lasting water barrier under tiling systems.

PACKAGING

Two component: 20kg (approx 20 litres) liquid pail and 1x 20kg bag.

SHELF LIFE

12 months when stored in the original unopened packaging, in a dry place at 23°C. Do not store in direct sunlight. Replace lid tightly after use. Protect from frost. Use remaining contents from part used containers within 3 months.

MIXING

The mixing ratio of ARDEX WPM 002 is 1 part liquid (by weight) to 1 part powder (by weight). The unit is broken into equal components for accurate measurement. Stir the ARDEX WPM 002 liquid thoroughly and pour the accurate measure into a suitable clean plastic container. Add ARDEX WPM 002 powder to the liquid whilst stirring. Stir until a homogenous, lump free paste is achieved.

COVERAGE

Two coats are recommended for an effective waterproof membrane. Coverage will vary depending on the porosity of the surface. One 40kg kit will cover approximately 16–24m² (based on two coats) depending on area requirements between wall and floor surfaces to be treated.

ARDEX WPM 002

(Superflex Bathroom and Balcony Two Part) Two Component Undertile Waterproofing Membrane

Table 1

	Thickness per coat		Total dry film thickness (2 coats)	Theoretical Coverage		Per Unit
	Dry film	Wet film		Per coat	For 2 coats	
Floors	0.6mm	0.9mm	1.2mm	32m ²	16m ²	40kg kit
Walls	0.4mm	0.6mm	0.8mm	48m ²	24m ²	40kg kit

DRYING TIMES

Curing time will vary depending on temperature and humidity.

Recoat time

1–2 hours (23°C / 50% RH) between first and second coats. Alternatively, if a woven cloth reinforcement mat is used in corners between coats then the second coat can be applied whilst the first coat is still wet.

Dry through

The slowest drying areas are those where the membrane has been applied over a silicone bond breaker, eg. wall and floor junctions. The membrane cannot be tiled over until these critical areas are completely dry.

ARDEX WPM 002 membrane is totally dry in 16 hours at 23°C / 50% RH but can take up to 24 hours at 10°C / 50% RH in corners or for thick films. In areas where bond breakers or additional reinforcement are not used, ARDEX WPM 002 can be tiled over after 4 hours at 23°C / 50% RH.

Fully cured

The shower should not be used until the membrane has reached its full strength. Normally ARDEX WPM 002 membranes are fully cured after 3 days at 23°C, or after 5 days at 10°C. Drying times will vary depending on humidity, surface temperature and surface porosity. Do not apply on substrates where the surface temperature is below 10°C or above 35°C.

CLEANING

Wash hands, brushes, rollers, etc, with water while the membrane is still fresh. Remove cured material with mineral turpentine.

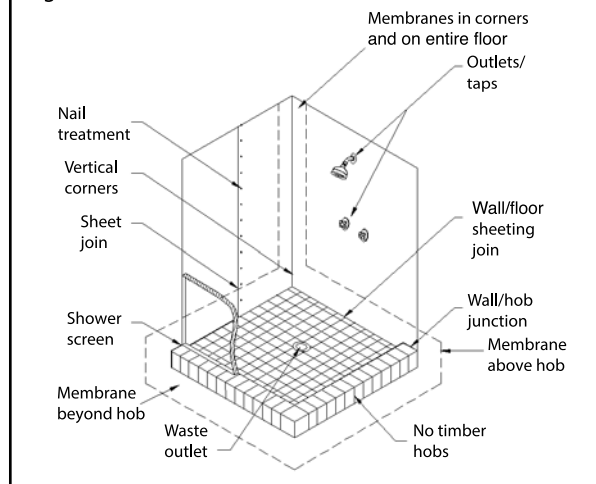
APPLICATION

Apply ARDEX WPM 002 by brush or roller. A medium nap (12–15mm pile) paint roller is recommended. New rollers should be dampened with water before being used for the first time. For best results with a paint brush use a good quality, 50mm long bristle variety.

To achieve the required dry film thickness per coat application must consist of laying the product onto the surface and light finish the surface. Do not try to apply in the same manner as a building paint. A conventional building paint is normally applied at 25–40 micrometers wet film thickness while ARDEX WPM 002 needs to be applied at between 0.6 and 0.9mm per coat depending on product and application (Refer to Table 1).

Critical areas: INTERNAL WET AREAS

Fig.1 – Shower recess – Critical areas



1. Construction should be at a minimum in accordance with AS 3740-2004 which is pictured above. ARDEX however recommends waterproofing the entire walls to at least 80 mm above the shower rose.
2. All render and tile bed requirements should be completed before application of the membrane and tiles or other floor coverings should be direct bonded to the membrane.
3. Ensure wall and floor sheets are installed as per sheet manufacturer's recommendations.
4. Ensure suitable brick/concrete hobs are used (do not use timber), and that the top of the hob does not slope outwards.
5. Ensure that falls to the waste are min 1:60 (ie. approx. 30mm in 2m) before waterproofing. Ensure outlet pipes are fixed securely and that the waste or drainage flanges are recessed into the floor.
6. Avoid sheet joints in shower recess floor. Ensure that sheets are securely fixed to the wall at the bottom edge, and sheet joints are sealed with a neutral cure silicone sealant spread approximately 8mm on either side of the joint.
7. Treat nail and screw holes with neutral cure silicone sealant.
8. Seal the perimeters of taps, shower outlets and waste outlets with neutral cure silicone sealant.
9. Apply a bead of neutral cure silicone sealant to all horizontal and vertical corners.
10. Apply a bead of neutral cure silicone sealant to the junction of the hob or angle and walls.
11. Waste outlets shall incorporate a leak control flange or similar in accordance with AS 3740 and the top surface shall be set flush with the surface to which the membrane is to be applied. A bead of neutral cure silicone shall be applied across the intersection of the leak control flange and the screed/floor.

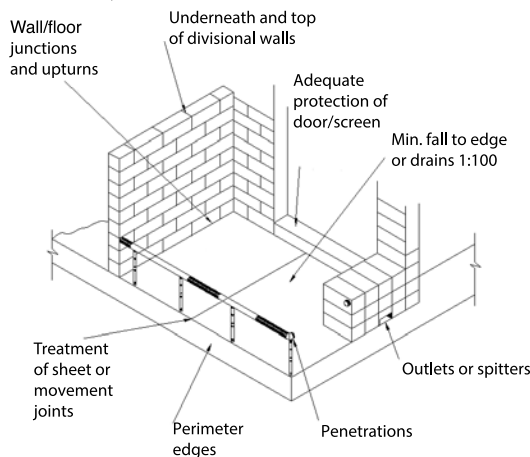
ARDEX WPM 002

(Superflex Bathroom and Balcony Two Part) Two Component Undertile Waterproofing Membrane

12. Apply the membrane to the entire shower recess floor and down into waste or drainage flange. Apply the membrane over the hob and at least 100mm beyond the outside edge of the hob (ideally to entire wet area floor).
13. Plastic (eg. PVC) fittings should be primed with a solvent based plumbers primer. Prime metal surfaces with a suitable metal primer.
14. Apply the membrane minimum 1800mm up the walls or 80mm above the height of the shower rose within the shower recess. In circumstances where the shower rose is positioned on the ceiling, ARDEX recommends the WPM 002 membrane be installed to the ceiling height.
15. Install the shower screen to inside edge of the hob.

BALCONIES AND DECKS

1. Ensure that the deck is constructed with falls to edge/
Fig.2 – Balcony – Critical areas



drains of min 1:100 (ie. 20mm in 2m) or else achieve the fall with a sand/cement screed.

2. Ensure suitable flashing is installed, ideally prior to the installation of the balcony screen/sliding door.
3. Treat any sheet joints with a neutral cure silicone prior to waterproofing.
4. Prepare and seal all wall/floor junctions with a bead of neutral cure silicone.
5. Apply the membrane as far up underneath the screen door flashing as possible (ideally waterproof prior to installing door).
6. Where possible, apply the membrane prior to building divisional walls.
7. Apply the membrane to the entire balcony floor and at least 100mm up the wall above the top surface of the finished tiles and finished below the wall drainage vents.
8. Apply the membrane to the top of the parapets and divisional walls, or else install suitable metal capping.
9. Apply the membrane down over the front edge of the balcony onto the drip rail.
10. Carefully seal any gaps around balcony penetrations prior to applying the membrane.

11. Apply the membrane down into outlets and drains, ensuring excess material is removed.
12. Ensure all weep holes are above the membrane application area.

APPLICATION NOTES

Surface preparation

Ensure all surfaces are structurally sound and totally dry. The pores of concrete surfaces should be open (absorbent surface). All sheet substrates must be securely fixed in accordance with the manufacturers instructions.

- Falls to outlets of at least 1:60 or approx. 30mm in 2m (wet areas) or 1:100 externally, must be achieved prior to tiling.
- The surface to be coated should be free from dust, oil, paint, curing compounds and any other contaminating materials.
- Damaged concrete should be repaired, levelled and surface defects including all cracks and sharp protrusions should be treated prior to the application of the membrane.
- Remove laitance on concrete or screeds by mechanical means.
- Highly dense (>40MPa) or steel trowelled concrete should be roughened by suitable mechanical means (shot blasting, grinding, etc).

Priming

The primer is a critical part of the waterproofing system. Apply one coat of ARDEX WPM 265 water based primer by brush or roller to all areas to be waterproofed including the floor waste. Allow the primer to be completely dry prior to the application of the ARDEX WPM 002 membrane. This will take around 20–30 minutes depending upon weather conditions and porosity of the substrate. Coverage is approximately 6m² per litre. Plastic (e.g. PVC) pipes should be primed with a solvent based plumbers pink primer. Prime metal surfaces with a suitable metal primer such as epoxy polyamide primer.

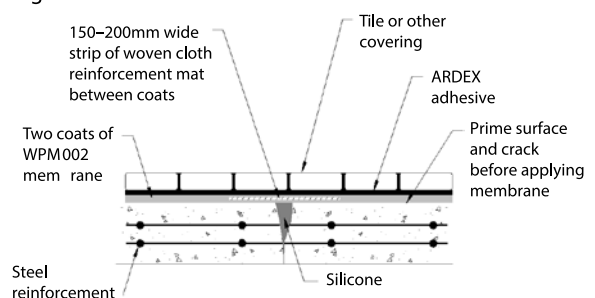
GENERAL APPLICATION

Crack preparation

Cracks <2mm:

Clean and remove any loose particles in the crack. Prime the

Fig.3 – Crack treatments



ARDEX WPM 002

(Superflex Bathroom and Balcony Two Part) Two Component Undertile Waterproofing Membrane

crack and adjacent area carefully with ARDEX WPM 265 water based primer and allow to dry before applying two coats of ARDEX WPM 002 membrane, in a band at least 200mm wide equidistantly across the crack, along the length of the crack.

Cracks 2–6mm:

(Refer to Fig.3) prepare and prime the crack as above. Apply a bead of neutral cure silicone into the crack and extend it 6mm either side. Apply a 300mm wide band of ARDEX WPM 002 equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of ARDEX Deckweb woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

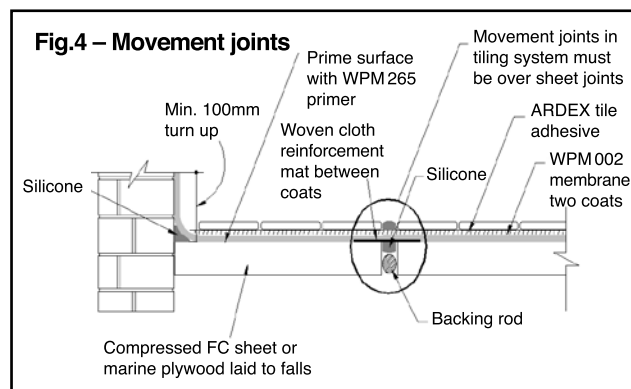
Cracks >6mm:

Contact ARDEX Technical Services for specifics with this.

Movement/construction joints

Movement joints (<6mm)

Clean and prime the joint before filling it with a bead of neutral cure silicone and extending it 6mm each side of joint. Apply



a 300mm wide band of ARDEX WPM 002 (Superflex Two Part) equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of ARDEX Deckweb woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

Construction joints (>6mm)

Use the same procedure as above, but replace the reinforcing mat with 120mm of ARDEX Coving Bandage. Note: if tiling, movement joints should be taken to the surface of the tiles. Fill the joints between the tiles immediately above the movement joints with an appropriate joint sealant. (Refer to Fig.4).

Corners and coving areas

After priming with ARDEX WPM 265 water based primer and allowing it to dry, apply a generous bead (16mm) of neutral cure silicone sealant in coving areas and corners. Smooth over the silicone so that it extends 8mm up the wall and 8mm over the floor and allow to touch dry. Apply a first coat of ARDEX WPM 002 to the area and allow the membrane to dry. Apply a second coat ensuring that excess product is removed from the junction (the final dry film thickness should be around 1.2mm) Alternatively, if a woven cloth reinforcement mat is

used between coats then the second coat can be applied as soon as the mat is fully bedded into the first coat.

WALL/FLOOR JUNCTION

After priming with ARDEX WPM 265 water based primer and allowing to dry, apply a generous bead (16mm) of neutral cure silicone sealant to seal all junctions between two substrates. Smooth over the silicone so that it extends 8mm up the wall and 8mm over the floor and allow to touch dry. Place a 190mm wide band of ARDEX Deckweb woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. The ARDEX WPM 002 should be applied to at least 150mm up the wall surfaces as per the recommendations for the application of ARDEX WPM 002 to floors.

Walls

Two coats of ARDEX WPM 002 are required to achieve a minimum total dry film thickness of 0.8mm. After priming with ARDEX WPM 265 water based primer and allowing to dry, apply two coats of ARDEX WPM 002 (to achieve a minimum dry film thickness of 0.8mm) in two opposite directions. Wall sheet joints should be treated with a neutral cure silicone, PVC duct tape or base jointing compound. In balcony situations take the membrane up underneath any existing cover flashing or install appropriate flashing. Allow the first coat to dry before applying the second coat.

Floors

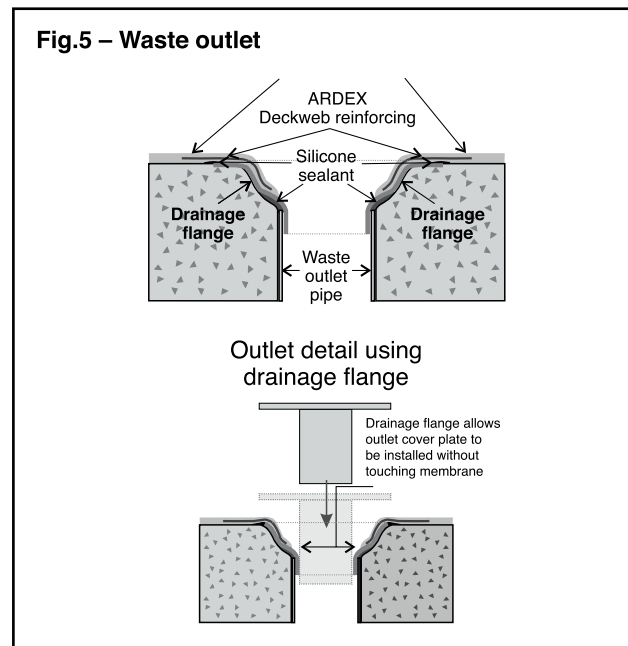
Two coats of ARDEX WPM 002 are required to achieve a minimum total dry film thickness of 1.2mm. The membrane should be extended at least 100mm up all perimeter walls.

Prime the surface with ARDEX WPM 265 water based primer and allow to dry. Apply the first coat over the primed surface and allow it to dry (1–2 hours at 23°C, 50% RH) before applying a second coat in an opposite direction. In shower recesses a drainage flange must be installed on all timber/sheeted floors, and are strongly recommended on all other substrates. Where possible rebate the flange into the floor. Seal the perimeter of the flange with neutral cure silicone sealant. If a flange is not installed the membrane must be applied down into the pipe. (Refer to Fig.5). Allow the membrane to dry completely before tiling.

ARDEX WPM 002

(Superflex Bathroom and Balcony Two Part) Two Component Undertile Waterproofing Membrane

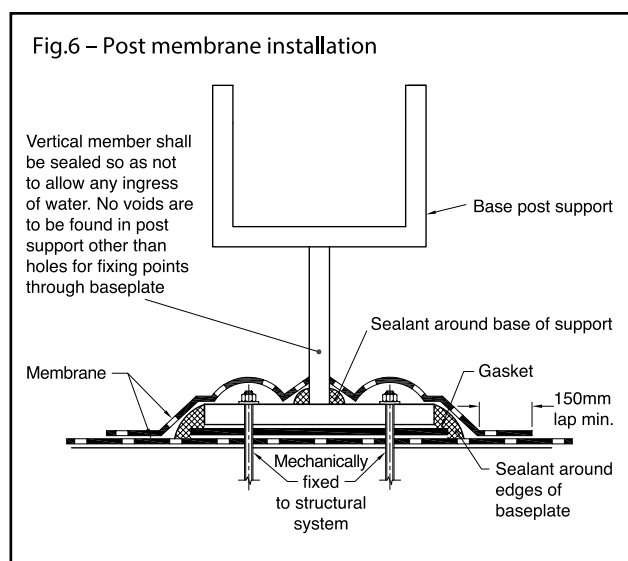
Waste outlet



Prime the surface with ARDEX WPM 265 water based primer and allow to dry. Surfaces of outlet flange must be primed with an appropriate primer.

Apply ARDEX WPM 002 over the adjacent floor surface extending down into the waste outlet pipe overlapping the pipe surfaces by at least 30mm. Place ARDEX Deckweb woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. (Refer to Fig.5).

Balcony penetrations (Refer Fig.6)



All upstands are to be mechanically fixed through the membrane, which must be fabricated with a base plate flange.

Prime the metal with an appropriate metal primer such as an epoxy polyamide primer and allow to dry. Apply a 10mm bead of neutral cure silicone around the perimeter of the penetration.

Apply the first coat of ARDEX WPM 002 on the substrate and the flanged metal.

Allow first coat to dry before applying a second coat ensuring a finished dry film thickness of no less than 1.2mm is achieved. Place a suitable flashing collar around the penetration sealing it with a suitable sealant.

ARDEX WPM 002 & STB TAPE INSTALLATION

1. Ensure area is free from contaminants and clean making sure to remove all dust and prime fibre cement sheet with an approved primer (listed in the primers section). Apply the tape and use a roller to ensure that a secure bond is made between the tape and substrate and carefully moulded into the corners.
2. Apply a first coat of ARDEX WPM 002 to the entire area to be waterproofed using a brush or roller, a medium nap (8–12mm pile) or 50mm long bristle paint brush is recommended. This first coat should be applied at 0.6mm (wet film thickness). Allow to dry. Dry time is approximately 1-2 hours.
3. Apply a second coat of the ARDEX WPM 002 membrane at a thickness of 0.6mm (wet film thickness). This will provide a total dry film thickness of 0.8mm over the ARDEX STB Tape. Care should be taken to ensure excessive build up of membrane is avoided over the ARDEX STB Tape. It is crucial that the dry film thickness at the edge of the tape of the ARDEX WPM 002 is at least 1.2mm so that stress and movements at this point are accommodated. The increase in film thickness is likely to slow down drying and curing in this area relative to the rest of the membrane areas. Final dry film thickness over floor and wall areas not covered by ARDEX STB Tape should be 1.2mm for floors and 0.8mm for walls.

Tiling systems

It is advisable to conduct a flood test of the waterproofed areas once the membrane has cured (after a minimum of 48 hours), and before the tiling commences. A broad range of ARDEX tile adhesives can be used over ARDEX Superflex membranes. Contact ARDEX or your nearest ARDEX stockist for advice on the most suitable system.

QUALITY PRODUCT

ARDEX WPM 002 is manufactured and tested to ARDEX procedures which are maintained in accordance with Quality System Standard ISO 9001.

PAY ATTENTION TO THE FOLLOWING

Do not use the product in the following situations:

- Areas subject to negative hydrostatic pressure or rising damp, unless treated with ARDEX HydrEpoxy WPM 300.
- Where the substrate is wet – wet surfaces can be sealed with one coat of ARDEX HydrEpoxy WPM 300 at a coverage rate of 3.0m² per litre and allowed to cure overnight.
- Where rain is imminent.
- Where the membrane will be left exposed and subjected to regular foot traffic.
- On glazed, glass or other totally impervious surfaces (eg. areas pre-treated with water repellants).

ARDEX WPM 002

(Superflex Bathroom and Balcony Two Part) Two Component Undertile Waterproofing Membrane

- Where substrates have ponding water or fail to meet the required falls in the applicable standards. It is recommended a corrective screed be installed or falls be created, prior to the application of ARDEX WPM 002.

For substrates or situations other than those listed contact ARDEX Technical Services.

Before any substrate preparation, installation or finishing methods relating to ARDEX product are undertaken, please be aware of any potential risks and use appropriate PPE (personal protective equipment). This may involve contacting substrate manufacturers for Safety Data Sheets.

SAFETY DATA

ARDEX WPM 002 Part A Liquid

This product may cause irritation and an allergic reaction to the skin. Avoid contact with skin and eyes. In case of contact with the eyes rinse with running water until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. If irritation continues, seek medical attention. Wear protective gloves, clothing, face and eye protection. Avoid inhaling dust/fumes/gas/mist/vapours/spray. This product is harmful to aquatic life with long lasting effects. Ensure adequate ventilation during mixing and application.

ARDEX WPM 002 Part B Powder

This product may cause irritation and an allergic reaction to the skin. It may cause serious eye injury and irritation to the respiratory system. May cause cancer. May cause damage to organs through prolonged or repeated exposure. In case of contact with the eyes rinse with running water until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. Wear protective gloves, clothing, eye and face protection. Avoid inhaling dust/fumes/gas/mist/vapours/spray. Ensure adequate ventilation during mixing and application. Store locked up. Check with your local Council regarding the disposal of contents. Keep out of the reach of children. Call the Poisons Information Centre on 0800 764 766 (NZ) or call a doctor if you feel unwell. At times updates can occur to data. For additional information and to ensure you have the most current technical and safety information please consult the latest Safety Data Sheet (SDS) and Technical Data Sheet found on the product page at ardex.co.nz

TECHNICAL DATA

CHARACTERISTICS OF COMPONENTS

Form and colour

Liquid	White, medium viscosity
Powder	Off White

CHARACTERISTICS OF MIXED PRODUCT

Mixing ratio	1:1 by weight
SG of mixed product	1.4kg/litre
Colour	Light Grey/Green

CHARACTERISTICS OF CURED MEMBRANE

Shore A hardness ASTM D2240

Dry film	85 – 90
Wet film	75 – 80

Tensile strength

7 days dry AS 1145 1.7 MPa

Full cure 28 days 2.9 MPa

Elongation at break

7 days dry AS1145 >300%

VOC content 25g/L

NOTE: Most of the tests have been carried out in the ARDEX laboratory under standard conditions (23±2°C, 50±5% RH).

DISCLAIMER

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

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This datasheet was issued by ARDEX New Zealand in January 2022 and is valid for 3 years, in some instances a newer version may be published. Always refer to ardex.co.nz for the latest technical data from ARDEX New Zealand Ltd.

6612J Jacobsen Entrance Matting Systems



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SUPPORTING DOCUMENTS

J-System 10 Year Product Warranty

Ref 81364. Uploaded 11 Dec 2023

Purpose: Warranty

KDC - Approved Building Consent Document - BC250144_SD_ISSUED - Pg 234 of 268 - 11/07/2025 - vsingh

Jacobsen® J-SYSTEM

10 Year Warranty

At Jacobsen, we stand behind our products. When our products are specified as part of a complete system, with J-System adhesives and floor preparation products, we will extend our product warranty to include the full system.

When used in isolation, our J-System products have a 10 year warranty. Please read this warranty document carefully.

10 Year Product Warranty

Jacobsen warrants that subject to the terms and conditions set forth below, our products will be free from manufacturing defects and will perform to a reasonable standard for a period of ten (10) years. This applies from the date of initial application or until the initial floor covering is removed, (whichever comes first). The J-System product needs to be used within the stated shelf life and the requirements and procedures detailed in our product data sheets or labels, together with industry standards governing subfloor preparation and installation, are followed.

Jacobsen shall not be liable for damages caused by improper construction, installation or application methods, lack of adhesion caused by use of incompatible products, Acts of God (such as hurricanes, flooding, earthquake, fire or other types of natural disasters), or any other circumstance beyond our control.

This Warranty assumes that all previous substrates and the materials used to construct them have been supplied and installed to industry standards. Any deficiencies in site conditions, structural substrates, and adverse issues caused by remaining substrate preparation materials, remaining floor coverings, improperly prepared adhesive residues and/or floor coatings will render this Warranty invalid.

Substrate moisture and pH testing must be documented at the time of installation in order to support any potential claims filed against this Warranty.

Our Warranty covers the cost of repair or replacement of subfloor preparation materials and the floor covering itself (based upon the square metreage of the portion of the floor proven to be defective due to a breach of this Warranty) and the fair market value labour charges related to both, not to exceed the original cost of installation.

No other associated special, incidental, or consequential damages or losses are covered, including but not limited to lost profits or business interruption. Any repair to, or replacement of, a localized area is not guaranteed to match existing installation; and any such discrepancies are not covered under this Warranty.

Jacobsen®

Talk to one of our experts, or visit our website:

0800 800 460 | customer.services@jacobsen.co.nz | jacobsen.co.nz



6745R Resene Protective Coatings - Steelwork



Resene Paints Ltd

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advice@resene.co.nz

www.resene.co.nz

SUPPORTING DOCUMENTS

Resene Product Data Sheet RA36 - Resene Armourcote 221 brushing epoxy primer

Ref 13384. Uploaded 24 Jan 2025

Purpose: Performance, Installation

Resene Product Data Sheet RA56 - Resene Uracryl 403 urethane acrylic gloss finish

Ref 13519. Uploaded 22 Jan 2025

Purpose: Performance, Installation

Resene Armourcote 221

brushing epoxy primer

Resene Armourcote 221 combines the performance properties of a quality inhibitive epoxy primer with the convenience of brush or roller application. Suitable for priming both ferrous and non-ferrous metals that are to be finished with brushing two component polyurethanes, such as Resene Uracryl 400 Series topcoats. Primer for new or maintenance work.

Typical uses

- Aluminium
- Galvanised steel
- Repaints
- Structural steel
- Zincalume

Physical properties

Vehicle type	Two component epoxy
Hardener	Polyamide
Pigmentation	Zinc phosphate
Solvent	Aromatic/glycol ether
Pot life	8 hours at 21°C
Mix ratio	4:1 (by volume)
Finish	Low gloss
Colour	Pale green
Dry time (minimum)	Touch dry: 3.5 hours at 25°C; 5 hours at 10°C
Recoat time (minimum)	6 hours at 25°C; 11 hours at 10°C
	Maximum: 2 weeks (Resene Uracryl 400 Series)
Theoretical coverage	11 sq. metres per litre (50 microns DFT)
	7.3 sq. metres per litre (75 microns DFT)
Volume solids	55%
Recommended DFT	50-75 microns per coat
Usual no. of coats	1-2
Abrasion resistance	Very good
Chemical resistance	Excellent when suitably topcoated
Heat resistance	Up to 90°C (dry, continuous)
Solvent resistance	Excellent when suitably topcoated
Durability	Excellent when topcoated
Thinning and clean up	Resene Thinner No.8

Performance and limitations

Performance

1. High performance epoxy primer for brush application.
2. Suitable for both new and maintenance work.
3. Brushing primer for use prior to application of Resene Uracryl 400 Series polyurethane brushing finishes.
4. Combination of Resene Armourcote 221 and a Resene Uracryl 400 Series finish allows the application of high performance coating systems in situations where restrictions of spray application apply.
5. Good low temperature cure characteristics.

Limitations

1. Not designed to give long-term protection in exterior situations without topcoating.
2. Drying and curing times are proportionally shorter at higher temperatures and longer at lower temperatures.
3. Consult manufacturer for topcoat recommendations if an alternative to a Resene Uracryl 400 Series finish is desired.

Armourcote 221 brushing epoxy primer

Surface preparation

Coating performance is, in general, proportional to the degree of surface preparation.

New aluminium, galvanised steel, Zincalume

Remove oil and grease with Resene Roof Wash and Paint Cleaner (see [Data Sheet D88](#)) or Resene Emulsifiable Solvent Cleaner (see [Data Sheet D804](#)). Slightly roughen surface by light sanding or alternatively lightly blast with fine non-metallic abrasive. Surface must be clean, dry and free from all contaminants including salt deposits.

New steel

Degrease according to SSPC SP1 solvent cleaning. Round off rough welds and sharp edges and remove weld spatter and flux.

Abrasive blast clean in accordance with SSPC SP6 (Sa 2) minimum. For total immersion service, blast clean in accordance with SSPC SP5 (Sa 3). Blast to achieve a 25-50 micron anchor profile. If profile is greater, additional film thickness is required for equivalent protection. Remove abrasive residue and dust from surface.

Repaints

Ensure all surfaces to be painted are dry and free from oil, grease, dust, mould, lichen, corrosion products and loose or flaking paint. Areas where flaking paint has been removed must be feathered back to a sound edge. In some cases existing sound paint will need to be lightly sanded to provide a mechanical key for the new coating system. Ensure that the existing paint system is compatible with the primer and topcoat system. A test area of the coating system applied to a prepared area is recommended. Leave the applied paint system to cure for at least 48 hours after application of the final coat before adhesion testing. Spot prime all bare areas with Resene Armourcote 221 and topcoat in accordance with recommended recoat times for primer and finish coats.

Residues and dust from old paint systems containing lead or chromate may be dangerous to the health of the operator and the environment. Ensure approved procedures are put in place to safeguard against this.

Contact manufacturer for specific recommendations if in doubt regarding preparation or recoating in maintenance situations.

Application

Mixing

Stir contents of each container separately using an explosion-proof mixer. Add total contents of hardener to total contents of base. Power mix for 5 minutes and allow to stand 5-15 minutes before applying.

Thinning

Thin only to improve workability with Resene Thinner No.8. Adjust application rate if thinning to ensure specified dry film thickness is achieved.

Application

Brush, roller (solvent resistant). When brushing or rolling work in a continuous direction and immediately lay off with a brush if bubbles persist.

Safety precautions

Consult Safety Data Sheet for this product prior to use. Users should ensure that they are familiar with all aspects concerning safe application of this product. **IF IN DOUBT, DO NOT USE THIS PRODUCT.**

*Please ensure the current Data Sheet is consulted prior to specification or application of Resene products.
If the surface you propose to coat is not referred to by this Data Sheet, please contact Resene for clarification.*

Resene Uracryl 403

urethane acrylic
gloss finish

Resene Uracryl 403 is a unique high performance two component finish coat with excellent resistance to abrasion, moisture, petroleum solvents and mineral and vegetable oils, alkalis and acids. The most unusual feature of Resene Uracryl 403 is that, unlike most other classes of high performance coatings, it looks as good as it protects. The sophisticated combination of aliphatic urethanes and urethane reactive acrylic resins gives a system unsurpassed for gloss and colour retention.

exterior/interior

Typical uses

As a long-life high-gloss topcoat for use over a wide variety of materials where aesthetic appearance is required together with excellent durability and very good chemical resistance.

Marine environments, aluminium, anti-graffiti, bridges, canopies, chemical plants, concrete wall surfaces, dairy factories, fibre cement, food processing plants, furniture, G.R.C panels, meat works, previously painted surfaces, pulp and paper mills, refineries, roofing, steel doors, palustrades, structural steel, tank farms

Vehicle type
Hardener
Pigmentation
Solvent
Pot life
Mix ratio
Finish
Colour

Physical properties

Urethane reactive acrylic
Aliphatic urethane
Light fast chemically resistant types
Aromatic, ester
3-4 hours at 18°C
3 parts base: 1 part hardener (by volume)
High gloss
Clear, white, selected BS2660, BS5252, Resene Total Colour System and Resene white colours
1.5 hours tack free at 18°C
Brush/roller: 12 hours at 18°C
Yes, dependent on substrate
10 sq. metres per litre (50 microns DFT)
50 microns per coat
Pigmented systems 1-2, clear systems 3-4
Excellent
Excellent
Very good
Very good
Hardener and mixed product contain small amounts of monomeric di-isocyanate
Excellent
Resene Thinner No.8 (brush/roller application)
Resene Thinner No.7A (spray application)

Dry time (minimum)
Recoat time (minimum)
Primer required
Theoretical coverage
Recommended DFT
Usual no. of coats
Abrasion resistance
Solvent resistance
Heat resistance
Chemical resistance
Toxicity (dry film)

Durability
Thinning and clean up

Performance

Performance and limitations

1. Enables use of high performance urethanes when spray application is difficult or undesirable.
2. Fast drying.
3. Positive curing even at low temperatures.
4. Excellent topcoat for brush application over epoxy coatings where gloss and colour retention is paramount.
5. Acrylic modification imparts ready self recoating with minimal preparation.
6. Excellent graffiti resistance.

Limitations

1. Not recommended as a tanklining.
2. In early stage of curing, film may be susceptible to mechanical damage.
3. Not recommended for direct application to zinc rich primers, such as inorganic zinc silicates.
4. Not recommended as a clear waterproofing system for concrete block and honed concrete block construction.

Please ensure the current Data Sheet and Safety Data Sheet are consulted prior to specification or application of Resene products. View Data Sheets online at www.resene.com/datasheets. If in doubt contact Resene.

Uracryl 403 urethane acrylic gloss finish

Surface preparation

Concrete

Leave new concrete to cure for a minimum of 28 days before painting. Surfaces shall be free of laitance, form release agents, curing agents, oil, grease and other penetrating contaminants. Concrete floors must be profiled by captive blasting, abrasive blasting, diamond grinding, or acid etching (see [Data Sheet D83](#)). Profiling should produce a profile similar to 180 grit sandpaper. If this is not achieved, repeat the profiling process. After profiling fill all small holes or voids by application of Resene Epox-O-Bond (see [Data Sheet D808](#)). Use of Resene Epox-O-Bond filler is only suitable when finishing with pigmented Resene Uracryl systems.

Fibre cement

Clean down to remove all dirt, dust and loose material. Ensure surface is free from oil, grease and mould. Seal with Resene Aquapoxy thinned 10%. Allow to cure for 24 hours then lightly sand surface to remove raised fibres.

Galvanised steel, Zincalume, aluminium and repaints

Remove oil or grease film with Resene Roof Wash and Paint Cleaner (see [Data Sheet D88](#)) and rinse thoroughly. Prime with Resene Vinyl Etch (see [Data Sheet RA31](#)). Old painted surfaces should be sound, clean and sanded to give a surface free from chalking, flaking paint, dirt, mould or grease. A test patch should be done to check that Resene Uracryl 403 does not lift the old paint. Spot prime any bare metal with recommended substrate primer.

Particle board, timber

Sand to establish a smooth clean surface. Stop all nailholes, joints and other surface irregularities. Apply cross-linking acrylic primer.

Steel

Degrease according to SSPC SP1 solvent cleaning. Remove all weld spatter, grind weld seams and sharp edges. Ensure complete removal of all weld flux by wire brushing followed by washing with copious quantities of freshwater. Dry abrasive blast to a minimum of SSPC SP10 (Sa 2.5). Blast to achieve a 25-50 micron anchor profile. Apply zinc rich or epoxy primer.

Residues and dust from old paint systems containing lead or chromate may be dangerous to the health of the operator and the environment. Ensure approved procedures are put in place to safeguard against this.

Application

Mixing

Stir each component separately using an explosion-proof mixer. Add total contents of hardener container to total contents of base. Power mix until uniformly blended and allow mixed product to stand for 10-15 minutes prior to application.

Application

Roller, brush, spray. Thin as required according to application method. When brushing or rolling work in a continuous direction and immediately lay-off with a brush if bubbles persist.

Clear systems for concrete/fibre cement: Apply Resene Uracryl 403 Clear as the sealer coat followed by a minimum of two coats of Resene Uracryl Clear in the desired gloss level.

Safety precautions

1. Consult Safety Data Sheet for this product prior to use. Users should ensure that they are familiar with all aspects concerning safe application of this product. IF IN DOUBT, DO NOT USE THIS PRODUCT
2. The hardener is sensitive to moisture and should be kept tightly sealed when not in use.
3. The hardener contains a trace (less than 1%) of hexamethylene di-isocyanate, which is of course further diluted when blended with the base. When brushed or rolled, normal ventilation procedures used with solventborne systems will ensure that the level in the air never reaches a M.A.C. of 0.02 p.p.m. As with any solventborne system, if adequate ventilation is not available, a respirator should be worn. When sprayed, mixed product may be harmful by inhalation. Wear suitable protective clothing, gloves, eye and face protection, including suitable breathing protection such as an air-supplied respirator or hood.
4. Do not breathe vapour. Avoid contact with skin and eyes. If eyes become contaminated flush with water for a minimum of 15 minutes. SEEK MEDICAL AID IMMEDIATELY. Wear suitable protective clothing, gloves and eye and face protection.
5. FLAMMABLE – keep away from sparks and open flame.

*Please ensure the current Data Sheet is consulted prior to specification or application of Resene products.
If the surface you propose to coat is not referred to by this Data Sheet, please contact Resene for clarification.*

Product Information Declaration

Shaw Contract Welcome II Range

Range Description

The Jacobsen Product Information Declaration (PID) applies to the carpet range sold by Jacobsen as Shaw Contract Welcome II

Identifiers

See individual sku codes under [identifiers](#)

Scope and Limitations of Intended Use

☒ Residential	☒ Commercial	☒ Interior	☒ Exterior
☒ High Traffic	☒ Low-Traffic	☒ Exposed Sunlight	☒ Wet Areas
☒ Artistic Environment	☒ Clean Room	☒ With Wheels	☒ Ramp/Entry
☒ Commercial Food Prep Areas	☒ Under-Floor Heating	☒ Over Existing Floor	☒ Splash Zones

B
Stability

Relevant NZBC Clause	Product Performance
B2.1(1)	Lifetime Commercial Limited
Residential	-
Commercial	Heavy Duty
Industrial	-

C
Protection from Fire

Relevant NZBC Clause	Product Performance
C3.4	
C3.4 (a) Wall	-
C3.4 (b) Floor	CHF 4.7 kW/m2 (ISO 9239.1:2010)

D
Access

Relevant NZBC Clause	Product Performance
D1.3.3	
Level Surface (Wet)	-
Level Surface (Dry)	Acceptable Solution
Suitable for food prep	-

E
Moisture

Relevant NZBC Clause	Product Performance
E3.3.3	Impervious and easily cleaned
E3.3.5	Impervious and easily cleaned
E3.3.6	Water resistant
NZBC/AS1	-

F
Safety of Users

Relevant NZBC Clause	Product Performance
F2.3.1	<0.5 mg/m3
	Does not encourage bacterial growth
	Phthalate-free
Indoor Air Quality	Optimal

G
Services and Facilities

Relevant NZBC Clause	Product Performance
G3.3.2 (b)	Water resistant
G6.3.2	-

H
Energy Efficiency

Relevant NZBC Clause	Product Performance
Thermal Rating	Not tested

X
Warnings and Bans

Building Act 2004	Product Performance
Section 26	-

Supporting Documents

All supporting documents can be found on the Jacobsen website, [jacobsen.co.nz](#) or by this QR code



Product Information Declaration

Shaw Contract Welcome II Range

B2.3.1

Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the specified intended life of the building, if stated, or:

- (c) 5 years if:
 1. the building elements (including services, linings, renewable protective coatings, and fixtures) are easy to access and replace, and
 2. failure of those building elements to comply with the building code would be easily detected during normal use of the building.

C3.4

Surface Linings

(b)

Floor surface materials in the following areas of buildings must meet the performance criteria specified below:

D2.3.3

Access routes shall:

(d)

have adequate slip-resistant walking surfaces under all conditions of normal use.

E3.3.3

Floor surfaces of any space containing sanitary fixtures or sanitary appliances must be impervious and easily cleaned.

E3.3.5

Surfaces of building elements likely to be splashed or become contaminated in the course of the intended use of the building, must be impervious and easily cleaned.

E3.3.6

Surfaces of building elements likely to be splashed must be constructed in a way that prevents water splash from penetrating behind linings or into concealed spaces.

F2.3.1

The quantities of gas, liquid, radiation or solid particles emitted by materials used in the construction of buildings, shall not give rise to harmful concentrations at the surface of the material where the material is exposed, or in the atmosphere of any space.

G3.3.2

Spaces for food preparation and utensil washing shall have:

(b)

all building elements constructed with materials which are free from hazardous substances which could cause contamination to the building contents

G6.3.1

The Sound Transmission Class of walls, floors and ceilings, shall be no less than 55.

G6.3.2

The Impact Insulation Class of floors shall be no less than 55.

H1

This clause requires enclosed spaces where temperature or humidity are modified to provide adequate thermal resistance and to limit uncontrollable airflow in certain buildings.

Note

It is expected that **Shaw Contract Welcome II** is installed, cleaned and maintained according to instructions and best practice guides housed on the product page.

All products may be subject to fading if exposed to excessive, unfiltered UV light.

Product Information Declaration

Shaw Contract Welcome II Range

Identifiers

This JPID covers all colours from Shaw Contract Welcome II including:

Red 10816	Ebony 10811
Pompadour 10815	Navy 10810
Black Chocolate 10814	Blue 5T031-31400
Steak 10813	Tobacco 5T031-31150
Walnut 5T031-31750	Charcoal 10812

Sustainability

Rating System	Rating	Product Performance
Green Star Buildings NZ	Responsible Product Value	25
	Exposure to Toxins	Tests available upon request
Green Star Design & As Built NZ (V1)	Credit 12	1 Point
	Credit 20	1 Point
	Credit 21	Sustainability Factor (SF) = 0.75
Green Star Interiors NZ (V1)	Credit 13	1 Point
	Credit 20	1 Point
	Credit 21	Sustainability Factor (SF) = 0.75
Green Star Performance NZ (V1)	Credit 21	1 Point
Homestar V5	HC 7	1 Point
	EN 3	1.5 Points
Homestar V4	Mat-1	2 Points
	Mat-2	1 Point
Environmental Product Declaration (EPD)		Yes
Embodied Carbon Emission Data		6.89 kg CO2/m2 (Cradle to Gate)

Environmental Credentials



Jacobsen®

Jacobsen 41D Morrin Road,
St Johns, 1072
0800 800 460
jacobsen.co.nz
sales@jacobsen.co.nz

NZBN:
9430040403328

ShawContract®

Product Manufacturer: **Shaw Contract**
Country of Origin: United States of America

Accolade® Collection

Technical Data

Product Classification		Accolade® Plus	Accolade® Foothold	Accolade® Safe
Type of floor covering	EN ISO 10581	Homogeneous sheet vinyl	Homogeneous sheet vinyl	Homogeneous sheet vinyl
Binder Content	EN ISO 10581.4.1	Type I	Type I	Type I
Classification (Use Area)	ISO 10874	Commercial: 34 (Very Heavy) Light Industrial: 43 (Heavy)	Commercial: 34 (Very Heavy) Light Industrial: 43 (Heavy)	Commercial: 34 (Very Heavy) Light Industrial: 43 (Heavy)
Warranty*	Commercial - available upon request	15 years	15 years	15 years
*Warranties are in addition to any rights consumers may have under Australian and New Zealand consumer laws. Terms and conditions apply - for full information in respect to the scope of the commercial warranty, contact your Armstrong Flooring representative.				

Physical Properties

Manufactured in	-	Australia	Australia	Australia
Polyurethane reinforced	-	Yes PUR	Yes PUR + Aluminium Oxide	-
Floures (Standard)	-	36	20	12
Overall thickness	ISO 24346	2.0mm	2.0mm	2.0mm
Surface texture	-	Lightly embossed	Embossed	Embossed
Roll width	ISO 24341	1.83m	1.83m	1.83m
Roll length	ISO 24341	20m	20m	20m
Coverage/roll	-	36.6m ²	36.6m ²	36.6m ²
Product weight/m ²	ISO 23997	3.0kg/m ²	2.9kg/m ²	2.9kg/m ²

Installation

	To current AS/NZS 1884 and Armstrong Flooring Installation Instructions – Homogeneous Vinyl Sheet Flooring	Full stick, reverse sheets, heat weld or seambond seams	Full stick, reverse sheets, heat weld or seambond seams	Full stick, reverse sheets, heat weld or seambond seams
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Sustainability

Green Tag GreenRate	-	GreenRate Level A	GreenRate Level A	GreenRate Level A
Green Tag LCARate	-	LCARate Gold	LCARate Gold	LCARate Gold
Environmental Product Declaration	-	Yes	Yes	Yes
Best Environmental Practice PVC	-	Yes	Yes	Yes
VOC Emissions	-	Compliant with Green Building Council low VOC emission rates	Compliant with Green Building Council low VOC emission rates	Compliant with Green Building Council low VOC emission rates

Technical Performance

Slip Resistance	AS 4586 Wet Pendulum (Appendix A) Wet Barefoot (Appendix C) Oil Wet (Appendix D)	P3 - R10	P4 B R11	P4 B R10
Fire Resistance (Floor)	AS ISO 9239-1 Critical Radiant Flux (CHF Value) Smoke Development Rate	≥ 4.5kW/m ² ≤ 750%.min	≥ 4.5kW/m ² ≤ 750%.min	≥ 4.5kW/m ² ≤ 750%.min
Fire Resistance (Walls)	AS 5637.1 Cone Calorimeter Average specific extinction area	Group 3 < 250m ² /kg	Group 3 < 250m ² /kg	Group 3 < 250m ² /kg
Colour fastness	ISO 105-B02, Method 3	Pass	Pass	Pass
Residual indentation	ISO 24343-1	Pass	Pass	Pass
Chemical resistance	-	Good resistance	Good resistance	Good resistance
Flexibility	ISO 24344, Method A	Pass	Pass	Pass
Castor chair	ISO 4918	Pass	Pass	Pass
Tear strength	ISO 16906	Pass	Pass	Pass
Static electrical propensity	EN 1815	Antistatic ≤ 2kV	Antistatic ≤ 2kV	Antistatic ≤ 2kV

Accreditation

Manufactured under accredited ISO 9001 quality, ISO 14001 environmental and ISO 45001 OHS management systems
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All specifications are current as at date of publication and may be changed without notice. For current and complete specifications please visit armstrongflooring.au or armstrongflooring.co.nz

All Armstrong Flooring products must be installed in accordance with the relevant Australian and/or New Zealand applicable standards and the Armstrong Flooring Installation Instructions.

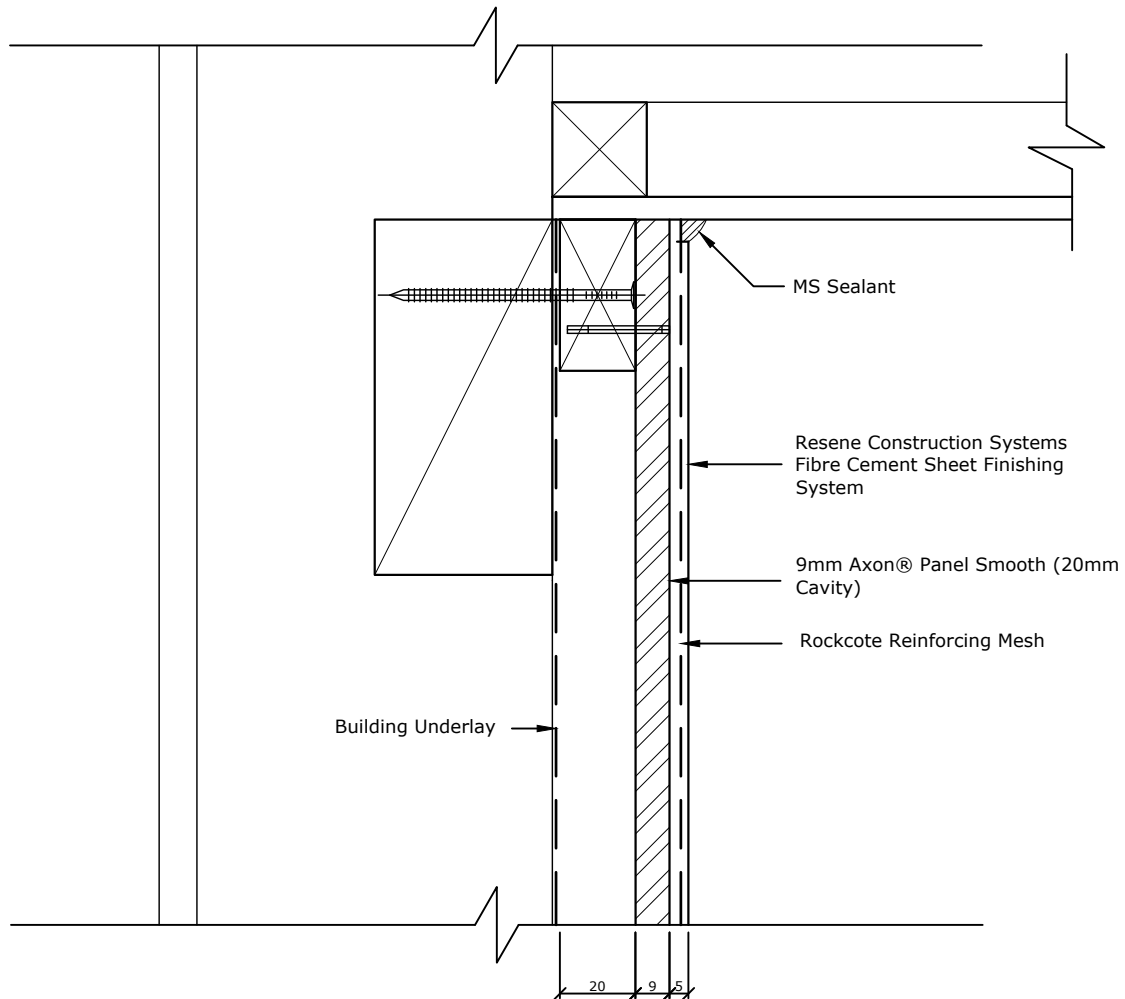
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AU: www.armstrongflooring.au/accolade
NZ: www.armstrongflooring.co.nz/accolade

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ArmstrongFlooring™



Mains Pressure Stainless Steel Cylinders Product technical statement

A product technical statement is a way to show how a product or system is fit for purpose for use in New Zealand and to demonstrate compliance with the New Zealand Building Code (Building Code Amendment Act 2013).

Product description

Designed and assembled in New Zealand, with the inner cylinder made in the UK, Rinnai mains pressure stainless steel hot water cylinders are available in four sizes; 135 L, 180 L, 250 L, and 300 L. Model and configuration¹ selection will be dependent on the hot water demand of the property.

The 180, 250, and 300 L cylinders, due to having an extra port (the eco inlet), can be connected to an open loop solar or hot water heat pump system.

To meet the New Zealand Building Code requirement² to disinfect water for legionella bacteria, the cylinder thermostat has been factory preset to 65 °C.

¹ Refer to the Rinnai website or the hot water pocket guide for available configurations

² Clause G12.3.9, Acceptable Solution G12/AS1 6.14.3

Scope of use

Suitable for indoor mains and low pressure residential and commercial applications. The system should be located and arranged so as to achieve the closest proximity to water draw off points.

They are not suitable as a spa or swimming pool heater.

Bore and tank water supplies should be considered to be corrosive and should be tested prior to using the system. For more information on water quality refer to the water quality statement in the owner and installer guide, available online.

Design guidelines

Specification and installation must be in accordance with Rinnai installation requirements and with the Building Code.

Rinnai specify that installation must be in compliance with AS/NZS 3000, and AS/NZS 3500.

Where there is potential of damage occurring from a leaking system, a suitably drained safe tray must be fitted as per AS/NZS 3500.4 5.4 and G12/AS1 6.11.3.



Mains Pressure Stainless Steel Cylinders Product technical statement

Compliance with the NZ Building Code

If specified, installed, and maintained in accordance with all Rinnai requirements the Rinnai mains pressure indoor stainless steel cylinders will comply with the below provisions of the NZ Building Code.

CODE CLAUSE	EVIDENCE OF COMPLIANCE
G9 Electricity	
G9.2, G9.3.3	Cylinders approved to AS/NZS 60335.2.27
G12 Water supplies	
G12.3.8	Cylinders approved to AS/NZS 60335.2.27
G12.3.9	Acceptable solution G12/AS1 6.14.3, the cylinder thermostat has been factory preset to 65 °C
H1 Energy efficiency provisions	
H1.3.4	Cylinders meet the requirements of the minimum energy performance standards (MEPS) by cylinder approval to NZS 4606 (Storage water heaters - General requirements), and AS/NZS 4692.1:2005 (Electric water heaters - Energy consumption, performance and general requirements)

Additional evidence to support the above statements

Supplier Declaration of Compliance:

- SDoC identification number - 2017 001 SS

Electrical safety approval

- Certificate of approval number - ESV170017

Special conditions: Installation requirements

Full appliance information can be found at www.rinnai.co.nz.

Limitation: To be installed in accordance with all Rinnai installation requirements and by a licensed gasfitter/plumber, and electrician. Upon completion of the installation, a final inspection and test to demonstrate that the cylinder has been installed in accordance with Rinnai's instructions is required by the installer. The installer is to issue an electrical safety certificate upon completion.

Special conditions - maintenance requirements

For reliable operation Rinnai cylinders should be maintained and serviced as detailed in the owner and installer guide. Installation, servicing, repair, and removal shall be carried out only by authorised personnel.

FIRE RATINGS

FOR DULUX PAINT SYSTEMS

Tested to ISO 5660 and/or evaluated in accordance
 with New Zealand Building Code C/VM2 A1.5

Decorative Finishes

DULUX SPEC PEC. CODE	SUBSTRATE*	UNDERCOAT	TOPCOAT (2 COATS UNLESS SPECIFIED)	GROUP NUMBER	REPORT NUMBER
NZ_SD08902	Masonry and Cementitious	Dulux 1Step Prep (Water Based)	Dulux Professional Ceiling Flat	1-S	5054
NZ_SD13019	Masonry and Cementitious	Dulux 1Step Prep (Water Based)	Dulux Ceiling White Flat	1-S	5054
NZ_SD13017	Masonry and Cementitious	Dulux 1Step Prep (Water Based)	Dulux Ceiling White +Plus Kitchen&Bathroom	1-S	5054
NZ_SD08939	Masonry and Cementitious	Dulux 1Step Prep (Water Based)	Dulux Wash&Wear	1-S	5054
NZ_SD08896	Masonry and Cementitious	Dulux 1Step Prep (Water Based)	Dulux Wash&Wear +Plus Kitchen&Bathroom	1-S	5054
NZ_SD10388	Masonry and Cementitious	Dulux 1Step Prep (Water Based)	Dulux Wash&Wear +Plus Anti-Bac	1-S	5054
NZ_SD10676	Masonry and Cementitious	Dulux 1Step Prep (Water Based)	Dulux Wash&Wear +Plus Super Hide	1-S	5054
NZ_SD08961	Masonry and Cementitious	Dulux EnvirO ₂ Acrylic Sealer Undercoat	Dulux EnvirO ₂ Interior Low Sheen	1-S	5054
NZ_SD08907	Masonry and Cementitious	Dulux EnvirO ₂ Acrylic Sealer Undercoat	Dulux EnvirO ₂ Ceiling Flat	1-S	5054
NZ_SD18296	Masonry and Cementitious	Dulux UltraAir Interior Primer	Dulux UltraAir Interior Walls Low Sheen	1-S	5054
NZ_SD18295	Masonry and Cementitious	Dulux UltraAir Interior Primer	Dulux UltraAir Interior Walls Matt	1-S	5054
NZ_SD18294	Masonry and Cementitious	Dulux UltraAir Interior Primer	Dulux UltraAir Ceiling White	1-S	5054
NZ_SD10407	Masonry and Cementitious	Dulux Professional Acrylic Sealer Undercoat	Dulux Professional Ceiling Flat	1-S	5054
NZ_SD13020	Masonry and Cementitious	Dulux Professional Acrylic Sealer Undercoat	Dulux Ceiling White Flat	1-S	5054
NZ_SD13016	Masonry and Cementitious	Dulux Professional Acrylic Sealer Undercoat	Dulux Ceiling White +Plus Kitchen&Bathroom	1-S	5054
NZ_SD10411	Masonry and Cementitious	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear	1-S	5054
NZ_SD10417	Masonry and Cementitious	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen&Bathroom	1-S	5054
NZ_SD10396	Masonry and Cementitious	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Anti-Bac	1-S	5054
NZ_SD10714	Masonry and Cementitious	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Super Hide	1-S	5054
NZ_SD08973	Fibre Cement Sheet	Dulux 1Step Prep (Water Based)	Dulux Professional Ceiling Flat	1-S	5054
NZ_SD13023	Fibre Cement Sheet	Dulux 1Step Prep (Water Based)	Dulux Ceiling White Flat	1-S	5054
NZ_SD12411	Fibre Cement Sheet	Dulux 1Step Prep (Water Based)	Dulux Ceiling White +Plus Kitchen&Bathroom	1-S	5054
NZ_SD08977	Fibre Cement Sheet	Dulux 1Step Prep (Water Based)	Dulux Wash&Wear	1-S	5054
NZ_SD08966	Fibre Cement Sheet	Dulux 1Step Prep (Water Based)	Dulux Wash&Wear +Plus Kitchen&Bathroom	1-S	5054
NZ_SD10389	Fibre Cement Sheet	Dulux 1Step Prep (Water Based)	Dulux Wash&Wear +Plus Anti-Bac	1-S	5054
NZ_SD10672	Fibre Cement Sheet	Dulux 1Step Prep (Water Based)	Dulux Wash&Wear +Plus Super Hide	1-S	5054
NZ_SD08981	Fibre Cement Sheet	Dulux EnvirO ₂ Acrylic Sealer Undercoat	Dulux EnvirO ₂ Interior Low Sheen	1-S	5054
NZ_SD08971	Fibre Cement Sheet	Dulux EnvirO ₂ Acrylic Sealer Undercoat	Dulux EnvirO ₂ Ceiling Flat	1-S	5054
NZ_SD18299	Fibre Cement Sheet	Dulux UltraAir Interior Primer	Dulux UltraAir Interior Walls Low Sheen	1-S	5054
NZ_SD18298	Fibre Cement Sheet	Dulux UltraAir Interior Primer	Dulux UltraAir Interior Walls Matt	1-S	5054
NZ_SD18297	Fibre Cement Sheet	Dulux UltraAir Interior Primer	Dulux UltraAir Ceiling White	1-S	5054
NZ_SD10408	Fibre Cement Sheet	Dulux Professional Acrylic Sealer Undercoat	Dulux Professional Ceiling Flat	1-S	5054
NZ_SD13021	Fibre Cement Sheet	Dulux Professional Acrylic Sealer Undercoat	Dulux Ceiling White Flat	1-S	5054
NZ_SD13015	Fibre Cement Sheet	Dulux Professional Acrylic Sealer Undercoat	Dulux Ceiling White +Plus Kitchen&Bathroom	1-S	5054
NZ_SD10412	Fibre Cement Sheet	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear	1-S	5054
NZ_SD10418	Fibre Cement Sheet	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen&Bathroom	1-S	5054

*Please see back page for detailed substrate specs

Decorative Finishes CONTINUED

DUSPEC PEC. CODE	SUBSTRATE*	UNDERCOAT	TOPCOAT (2 COATS UNLESS SPECIFIED)	GROUP NUMBER	REPORT NUMBER
NZ_SD10395	Fibre Cement Sheet	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Anti-Bac	1-S	5054
NZ_SD10716	Fibre Cement Sheet	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Super Hide	1-S	5054
NZ_SD08994	Fibrous Plaster	Dulux 1Step Prep (Oil Based)	Dulux Professional Ceiling Flat	1-S	5054
NZ_SD13025	Fibrous Plaster	Dulux 1Step Prep (Oil Based)	Dulux Ceiling White Flat	1-S	5054
NZ_SD13018	Fibrous Plaster	Dulux 1Step Prep (Oil Based)	Dulux Ceiling White +Plus Kitchen&Bathroom	1-S	5054
NZ_SD08998	Fibrous Plaster	Dulux 1Step Prep (Oil Based)	Dulux Wash&Wear	1-S	5054
NZ_SD10422	Fibrous Plaster	Dulux 1Step Prep (Oil Based)	Dulux Wash&Wear +Plus Kitchen&Bathroom	1-S	5054
NZ_SD10425	Fibrous Plaster	Dulux 1Step Prep (Oil Based)	Dulux Wash&Wear +Plus Anti-Bac	1-S	5054
NZ_SD10674	Fibrous Plaster	Dulux 1Step Prep (Oil Based)	Dulux Wash&Wear +Plus Super Hide	1-S	5054
NZ_SD10427	Paper-faced Plasterboard	Dulux 1Step Prep (Water or Oil Based)	Dulux Aquanamel	1-S	5054
NZ_SD09005	Paper-faced Plasterboard	Dulux 1Step Prep (Water or Oil Based)	Dulux Professional Ceiling Flat	1-S	5054
NZ_SD10437	Paper-faced Plasterboard	Dulux 1Step Prep (Water or Oil Based)	Dulux Ceiling White Flat	1-S	5054
NZ_SD12409	Paper-faced Plasterboard	Dulux 1Step Prep (Water or Oil Based)	Dulux Ceiling White +Plus Kitchen&Bathroom	1-S	5054
NZ_SD09023	Paper-faced Plasterboard	Dulux 1Step Prep (Water or Oil Based)	Dulux Wash&Wear	1-S	5054
NZ_SD09011	Paper-faced Plasterboard	Dulux 1Step Prep (Water or Oil Based)	Dulux Wash&Wear +Plus Kitchen&Bathroom	1-S	5054
NZ_SD10390	Paper-faced Plasterboard	Dulux 1Step Prep (Water or Oil Based)	Dulux Wash&Wear +Plus Anti-Bac	1-S	5054
NZ_SD10670	Paper-faced Plasterboard	Dulux 1Step Prep (Water or Oil Based)	Dulux Wash&Wear +Plus Super Hide	1-S	5054
NZ_SD12983	Paper-faced Plasterboard	Dulux 1Step Prep (Water or Oil Based)	Dulux Professional Fast Finish Water Based Enamel	1-S	5054
NZ_SD09034	Paper-faced Plasterboard	Dulux EnvirO ₂ Acrylic Sealer Undercoat	Dulux EnvirO ₂ Interior Low Sheen	1-S	5054
NZ_SD09007	Paper-faced Plasterboard	Dulux EnvirO ₂ Acrylic Sealer Undercoat	Dulux EnvirO ₂ Ceiling Flat	1-S	5054
NZ_SD18308	Paper-faced Plasterboard	Dulux EnvirO ₂ Acrylic Sealer Undercoat	Dulux EnvirO ₂ Water-Based Enamel Semi Gloss	1-S	5054
NZ_SD18287	Paper-faced Plasterboard	Dulux UltraAir Interior Primer	Dulux UltraAir Interior Walls Low Sheen	1-S	5054
NZ_SD18291	Paper-faced Plasterboard	Dulux UltraAir Interior Primer	Dulux UltraAir Interior Walls Matt	1-S	5054
NZ_SD18284	Paper-faced Plasterboard	Dulux UltraAir Interior Primer	Dulux UltraAir Ceiling White	1-S	5054
NZ_SD10428	Paper-faced Plasterboard	Dulux Professional Acrylic Sealer Undercoat	Dulux Aquanamel	1-S	5054
NZ_SD10409	Paper-faced Plasterboard	Dulux Professional Acrylic Sealer Undercoat	Dulux Professional Ceiling Flat	1-S	5054
NZ_SD10438	Paper-faced Plasterboard	Dulux Professional Acrylic Sealer Undercoat	Dulux Ceiling White Flat	1-S	5054
NZ_SD13014	Paper-faced Plasterboard	Dulux Professional Acrylic Sealer Undercoat	Dulux Ceiling White +Plus Kitchen&Bathroom	1-S	5054
NZ_SD10413	Paper-faced Plasterboard	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear	1-S	5054
NZ_SD10419	Paper-faced Plasterboard	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen&Bathroom	1-S	5054
NZ_SD10394	Paper-faced Plasterboard	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Anti-Bac	1-S	5054
NZ_SD10718	Paper-faced Plasterboard	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Super Hide	1-S	5054
NZ_SD10429	Paper-faced Plasterboard	Dulux Professional Ultra 5 Surfacer	Dulux Aquanamel	1-S	5054
NZ_SD09004	Paper-faced Plasterboard	Dulux Professional Ultra 5 Surfacer	Dulux Professional Ceiling Flat	1-S	5054
NZ_SD10439	Paper-faced Plasterboard	Dulux Professional Ultra 5 Surfacer	Dulux Ceiling White Flat	1-S	5054
NZ_SD12410	Paper-faced Plasterboard	Dulux Professional Ultra 5 Surfacer	Dulux Ceiling White +Plus Kitchen&Bathroom	1-S	5054
NZ_SD09009	Paper-faced Plasterboard	Dulux Professional Ultra 5 Surfacer	Dulux EnvirO ₂ Ceiling Flat	1-S	5054
NZ_SD09030	Paper-faced Plasterboard	Dulux Professional Ultra 5 Surfacer	Dulux Wash&Wear	1-S	5054
NZ_SD09013	Paper-faced Plasterboard	Dulux Professional Ultra 5 Surfacer	Dulux Wash&Wear +Plus Kitchen&Bathroom	1-S	5054
NZ_SD10394	Paper-faced Plasterboard	Dulux Professional Ultra 5 Surfacer	Dulux Wash&Wear +Plus Anti-Bac	1-S	5054
NZ_SD10671	Paper-faced Plasterboard	Dulux Professional Ultra 5 Surfacer	Dulux Wash&Wear +Plus Super Hide	1-S	5054
NZ_SD09035	Paper-faced Plasterboard	Dulux Professional Ultra 5 Surfacer	Dulux EnvirO ₂ Interior Low Sheen	1-S	5054
NZ_SD12645	Paper-faced Plasterboard	Dulux Professional Fast Finish Undercoat & Ceiling	Dulux Wash&Wear	1-S	5054
NZ_SD12646	Paper-faced Plasterboard	Dulux Professional Fast Finish Undercoat & Ceiling	Dulux Wash&Wear +Plus Kitchen&Bathroom	1-S	5054
NZ_SD12981	Paper-faced Plasterboard	Dulux Professional Fast Finish Undercoat & Ceiling	Dulux Wash&Wear +Plus Anti-Bac	1-S	5054
NZ_SD12980	Paper-faced Plasterboard	Dulux Professional Fast Finish Undercoat & Ceiling	Dulux Wash&Wear +Plus Super Hide	1-S	5054
NZ_SD12450	Paper-faced Plasterboard	Dulux Professional Fast Finish Undercoat & Ceiling	Dulux Professional Fast Finish Undercoat & Ceiling (1 coat)	1-S	5054
NZ_SD12820	Paper-faced Plasterboard	Dulux Professional Fast Finish Undercoat & Ceiling	Dulux Professional Fast Finish Water Based Enamel	1-S	5054
NZ_SD14415	Aged Uncoated Acoustic Ceiling Tiles	Dulux Professional Acousticoat Flat	Dulux Professional Acousticoat Flat (2nd light coat if required)	1-S	5054

*Please see back page for detailed substrate specs

Decorative Finishes CONTINUED

DUSPEC PEC. CODE	SUBSTRATE*	UNDERCOAT	TOPCOAT (2 COATS UNLESS SPECIFIED)	GROUP NUMBER	REPORT NUMBER
NZ_SD08884	Timber	Dulux 1Step Prep (Water or Oil Based)	Dulux Aquanamel	3	5095
NZ_SD10416	Timber	Dulux 1Step Prep (Water or Oil Based)	Dulux Professional Ceiling Flat	3	5095
NZ_SD13024	Timber	Dulux 1Step Prep (Water or Oil Based)	Dulux Ceiling White Flat	3	5095
NZ_SD13012	Timber	Dulux 1Step Prep (Water or Oil Based)	Dulux Ceiling White +Plus Kitchen&Bathroom	3	5095
NZ_SD09344	Timber	Dulux 1Step Prep (Water or Oil Based)	Dulux Wash&Wear	3	5095
NZ_SD10421	Timber	Dulux 1Step Prep (Water or Oil Based)	Dulux Wash&Wear +Plus Kitchen&Bathroom	3	5095
NZ_SD10392	Timber	Dulux 1Step Prep (Water or Oil Based)	Dulux Wash&Wear +Plus Anti-Bac	3	5095
NZ_SD10677	Timber	Dulux 1Step Prep (Water or Oil Based)	Dulux Wash&Wear +Plus Super Hide	3	5095
NZ_SD08886	Timber	Dulux 1Step Prep (Water or Oil Based)	Dulux Super Enamel	3	5352
NZ_SD12676	Timber	Dulux 1Step Prep (Water or Oil Based)	Dulux Professional Fast Finish Water Based Enamel	3	5095
NZ_SD18529	Timber	Dulux 1Step Water Based Primer Sealer Undercoat	Dulux EnvirO ₂ Interior Low Sheen	3	5095
NZ_SD18530	Timber	Dulux 1Step Water Based Primer Sealer Undercoat	Dulux EnvirO ₂ Ceiling Flat	3	5095
NZ_SD18528	Timber	Dulux 1Step Water Based Primer Sealer Undercoat	Dulux EnvirO ₂ Water Based Enamel Semi Gloss	3	5095
NZ_SD12987	Timber	Dulux Professional Fast Finish Undercoat & Ceiling	Dulux Professional Fast Finish Water Based Enamel	3	5095
NZ_SD10440	Timber	Dulux 1Step Water based Primer Sealer and Undercoat	Dulux EnvirO ₂ Interior Low Sheen	3	5095
NZ_SD10442	Timber	Dulux 1Step Water based Primer Sealer and Undercoat	Dulux EnvirO ₂ Ceiling Flat	3	5095
NZ_SD19078	Timber	Dulux 1Step Water Based Primer Sealer and Undercoat	Dulux UltraAir Interior Walls Low Sheen	3	5095
NZ_SD19079	Timber	Dulux 1Step Water Based Primer Sealer and Undercoat	Dulux UltraAir Interior Walls Matt	3	5095
NZ-SD19077	Timber	Dulux 1Step Water Based Primer Sealer and Undercoat	Dulux UltraAir Ceiling White	3	5095
NZ_SD10443	Timber	Dulux Professional Acrylic Sealer Undercoat	Dulux Aquanamel	3	5095
NZ_SD10410	Timber	Dulux Professional Acrylic Sealer Undercoat	Dulux Professional Ceiling Flat	3	5095
NZ_SD13022	Timber	Dulux Professional Acrylic Sealer Undercoat	Dulux Ceiling White Flat	3	5095
NZ_SD13013	Timber	Dulux Professional Acrylic Sealer Undercoat	Dulux Ceiling White +Plus Kitchen&Bathroom	3	5095
NZ_SD10414	Timber	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear	3	5095
NZ_SD10420	Timber	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen&Bathroom	3	5095
NZ_SD10393	Timber	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Anti-Bac	3	5095
NZ_SD10720	Timber	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Super Hide	3	5095
NZ_SD09045	Metal – Galvanised	Dulux PRECISION All Metal Primer	Dulux Aquanamel	1-S	5054
NZ_SD09052	Metal – Steel	Dulux Protective Coatings Luxaprim ZP	Dulux Aquanamel	1-S	5054
NZ_SD09123	Metal – Non Ferrous	Dulux 1Step Prep (Water Based)	Dulux Aquanamel	1-S	5054

High Demand Finishes

DUSPEC PEC. CODE	SUBSTRATE*	UNDERCOAT	TOPCOAT (2 COATS UNLESS SPECIFIED)	GROUP NUMBER	REPORT NUMBER
NZ_SD08955	Masonry and Cementitious	Dulux Protective Coatings Luxepoxy 4 White Primer	Dulux Enviropoxy WBE	1-S	5054
NZ_SD08989	Fibre Cement Sheet	Dulux Protective Coatings Luxepoxy 4 White Primer	Dulux Enviropoxy WBE	1-S	5054
NZ_SD18821	Paper-faced Plasterboard	Dulux Professional Acrylic Sealer Undercoat	SteriGuard Ultra White Low Sheen	1-S	5054
NZ_SD18822	Paper-faced Plasterboard	Dulux PRECISION Maximum Strength Adhesion Primer	SteriGuard Ultra White Low Sheen	1-S	5054
NZ_SC09019	Paper-faced Plasterboard	Dulux Protective Coatings Luxepoxy 4 White Primer	Dulux Protective Coatings Enviropoxy WBE	1-S	5054
NZ_SD18823	Paper-faced Plasterboard	Dulux Professional Total Prep	SteriGuard Ultra White Low Sheen	1-S	5054
NZ_SD18824	Paper-faced Plasterboard	Dulux Professional Total Prep	SteriGuard Ultra White Low Sheen	1-S	5054
NZ_SD18825	Paper-faced Plasterboard	Dulux Professional Acrylic Sealer Undercoat	SteriGuard Ultra White Low Sheen	1-S	5054
NZ_SD18826	Paper-faced Plasterboard	Dulux EnvirO ₂ Acrylic Sealer Undercoat	SteriGuard Ultra White Low Sheen	1-S	5054
NZ_SC09128	Timber	Dulux Protective Coatings Luxepoxy 4 White Primer	Dulux Protective Coatings Enviropoxy WBE	3	5095
NZ_SD18827	Timber	Dulux Professional Total Prep	SteriGuard Ultra White Low Sheen	3	5095
NZ_SD18828	Fibre Cement Sheet	Dulux Professional Total Prep	SteriGuard Ultra White Low Sheen	1-S	5054
NZ_SD18207	Metal – Galvanised	Dulux Protective Coatings Durebild STE	Dulux Protective Coatings Luxathane HPX (1 coat)	1-S	5054
NZ_SD18208	Metal – Steel	Dulux Protective Coatings Durepon FRX	Dulux Protective Coatings Luxathane HPX (1 coat)	1-S	5054
NZ_SD18211	Metal – Non Ferrous	Dulux Protective Coatings Luxepoxy 4 White Primer	Dulux Protective Coatings Luxathane HPX (1 coat)	1-S	5054

*Please see back page for detailed substrate specs

High Demand metallic finishes

DUSPEC PEC. CODE	SUBSTRATE*	UNDERCOAT	TOPCOAT (2 COATS UNLESS SPECIFIED)	GROUP NUMBER	REPORT NUMBER
NZ_SC09066	Metal – Galvanised	Dulux Protective Coatings Durebild STE	Dulux Protective Coatings Quantum FX + Dulux Quantum Clearcoat	1-S	5054
NZ_SC09068	Metal – Steel	Dulux Protective Coatings Durepon FRX	Dulux Protective Coatings Quantum FX + Dulux Quantum Clearcoat	1-S	5054
NZ_SC09067	Metal – Non Ferrous	Dulux Protective Coatings Luxepoxy 4 White Primer	Dulux Protective Coatings Quantum FX + Dulux Quantum Clearcoat	1-S	5054

Light industrial finishes

DUSPEC PEC. CODE	SUBSTRATE*	UNDERCOAT	TOPCOAT (2 COATS UNLESS SPECIFIED)	GROUP NUMBER	REPORT NUMBER
NZ_DC02903	Metal – Galvanised	Dulux Metalshield All Surface Primer	Dulux Metalshield QD Enamel Topcoat	1-S	5054
NZ_SC18359	Metal – Steel	Dulux Protective Coatings Luxaprime ZP	Dulux Metalshield QD Enamel Topcoat	1-S	5054

Clinical areas

DUSPEC PEC. CODE	SUBSTRATE*	UNDERCOAT	TOPCOAT (2 COATS UNLESS SPECIFIED)	GROUP NUMBER	REPORT NUMBER
NZ_SD10295	Masonry and Cementitious	Dulux 1Step Prep (Water Based)	Dulux SteriGuard Durable Acrylic	1-S	5054
NZ_SD10294	Fibre Cement Sheet	Dulux 1Step Prep (Water Based)	Dulux SteriGuard Durable Acrylic	1-S	5054
NZ_SD10293	Paper-faced Plasterboard	Dulux 1Step Prep (Water Based)	Dulux SteriGuard Durable Acrylic	1-S	5054

Clear finishes

DUSPEC PEC. CODE	SUBSTRATE*	UNDERCOAT	TOPCOAT (2 COATS UNLESS SPECIFIED)	GROUP NUMBER	REPORT NUMBER
NZ_SD11976	Masonry and Cementitious	–	Berger Jet Dry Stone & Paving Sealer	1-S	5054
NZ_SW10423	Masonry and Cementitious	–	Intergrain UltraClear (3 coats)	1-S	5054
NZ_SD08923	Masonry and Cementitious	–	Maxiproof (3 coats)	1-S	5054
NZ_SD11919	Fibre Cement Sheet	–	Berger Jet Dry Stone & Paving Sealer	1-S	5054
NZ_SW10424	Fibre Cement Sheet	–	Intergrain UltraClear (3 coats)	1-S	5054
NZ_SD08983	Fibre Cement Sheet	–	Maxiproof (3 coats)	1-S	5054
NZ_SW10444	Timber	–	Intergrain UltraDeck Timber Stain (3 coats)	3	5095
NZ_SW08874	Timber	–	Intergrain UltraClear (3 coats)	3	5095
NZ_SW08878	Timber	–	Maxiproof (3 coats)	3	5095

SUBSTRATE SPECIFICATIONS

SUBSTRATE TYPE	SPECIFICATIONS
Masonry and Cementitious	≥ 15 mm thick
Fibre Cement Sheet	≥ 6 mm thick
Fibrous Plaster	–
Paper-faced Plasterboard	≥ 9.5 mm thick ≥ 400 kg/m ³ core density < 5% by weight organic content
Timber	≥ 9 mm thick density ≥ 600 kg/m ³ for particle board or ≥ 400 kg/m ³ for all other wood and wood products
Metal – Galvanised	≥ 0.4 mm thick
Metal – Steel	≥ 0.4 mm thick
Metal – Non Ferrous	≥ 0.4 mm thick

Notes: These are not intended as full paint specifications.

For full paint specifications please see your Dulux Trade representative or email specifier@dulux.co.nz

Published on *New Zealand's Leading Bathroom Products Supplier | MacDonald Industries*
(<https://www.macdonaldindustries.co.nz>)

Hose Tap Vacuum Breaker



Hose Tap Vacuum Breaker

Product Code:

BFP-8

Overview

The Model BFP-8 is designed for installation on potable water lines such as service sinks, laundry tubs and hose bibb taps to protect against back-siphonage of polluted water into the potable water supply. A break-away set screw is included to prevent unauthorised removal. Assembly shall provide protection where a potential health hazard does not exist.

PRODUCT FEATURES

- Valve body brass.
- Maximum working water pressure 875kpa.
- Maximum working water temperature 82°C.
- 3/4" BSP threaded connections to suit 1/2" hose tap.

Source URL: <https://www.macdonaldindustries.co.nz/hose-tap-vacuum-breaker>



 Roll over image to zoom in Click on image to zoom



treoli

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TREVOLI - Whole House UV Option 6 - 20" Filters For Rainwater Tank/Bore/Well

Save 4%

Surge Protector (double)

No Surge Protector

Surge Protector (+\$22.00)

Bracket/Stand *

Standard Bracket

Stainless Bracket (+\$88.00)

Stand (+\$65.00)

Pressure Gauge

No Gauge

Pressure Gauge (+\$38.50) ~~(+\$45.10)~~

Price: **\$1,383.00** ~~\$1,444.52~~

Quantity:

–

1

+

Description

TREVOLI - Whole House Water Filtration & UV Option 6 -20" Filters for Rainwater Tank/Bore/Well

UV-OPT6

TREVOLI Ultraviolet Water Sterilizer - For Large homes. This U.V system destroys 99.99% of Harmful micro-organisms, including E-coli, Cryptosporidium, campylobacter and Giardia. Cost Effective, Environment friendly disinfection of water without chemicals.

Activated carbon is a highly porous form of carbon primarily derived from coal, wood and coconut shells for water treatment. It is produced by first heating the substance at low temperatures in an environment without oxygen to remove the volatile components (carbonization) and then the carbon is "activated" by additional high temperature heating in a controlled environment of oxygen and steam. The activation process opens up the carbon structure creating incredible porosity and a large and highly active surface area. One pound of activated carbon has the surface area equal to 125 acres.

Specifications:

- *Nominal recommended flow: 90 LPM (30 mJ/cm2)
- *Maximum recommended flow: 168 LPM (16 mJ/cm2)
- *Council recommended level - max flow: 66 LPM (40 mJ/cm2)
- *2 x 55watt lamps = 110 watts
- *Dimension: 910mm long - 5" Dia
- *Port size 1"
- *Temperature range-2-40 degrees

Features:

This UV option includes:

- *1 x 110 Watt UV Can complete with UV lamps, quartz sleeves, 1x regular ballast and 1x deluxe countdown timer ballast
- *3 x 20" Jumbo Big Blue water filter Housing Kits (BB20)
- *1 x 20" Jumbo Pleated 20 Micron
- *1 x 20" Jumbo Carbon Block Filter 5 micron

- *1 x 700mm stainless connection hose (BB20 housing to UV can)
- *1 x Intergrated mounting bracket (Available in s/steel)
- *Spanner

Applications:

This is the most cost effective and efficient method For the treatment of Biological contaminated water containing "faecal coliforms" caused by Birds, possums on exposed gutters and Live stock faecal run off into streams or shallow Bores.

For Best results install cartridge filtration before the UV system.

- Optional stainless steel bracket
- Optional with in-built stand
- Optional pressure gauge

Additional Information:

- Why do we need Water Filters?
- Chlorine & Chemical removal
- Carbon & GAC
- Giardia / Cryptosporidium
- Spare Filtration Cartridges and UV Bulbs

Two Year Back to Base Warranty
Pro Rata Warranty on UV Lamp
It is highly recommended a surge protector is installed (please see dropdown menu) to prevent surges and power cuts damaging the UV unit.
This will effect the outcome of the warranty for the ballast and lamp.

How to set up your UV can

Trevoli Ultra Violet Systems & Filtration



A Guide to Setting up your UV



Payment & Security



Your payment information is processed securely. We do not store credit card details nor have access to your credit card information.

You may also like

Save 15%  Trevoli Filter Housing \$38.50 \$45.10	Save 5%  Click Surge Protector From \$20.00	 TREVOLI - Whole Hou UV Option 2 for Rainw \$841.50	 TREVOLI - Whole House Water Filtration & UV Option 2 for Rainwater Tank/Bore (TM) \$841.50
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[PH: 0800 473 414](tel:0800473414)

sales@pumpsonline.co.nz

installs@pumpwarehouse.nz

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Saturday: 830am-1230pm

Sunday: Closed

Hamilton - 34C Somerset St, Frankton, 3204,

Monday to Friday: 830am-5pm

Saturday: Closed

Sunday: Closed

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Promax
LIQUID MANAGEMENT SOLUTIONS

Promax Floating Out-take Installation Instructions

The tank will need to be empty to install this fitting.

You cannot use the existing tank outlet to connect the Floating Out-take.

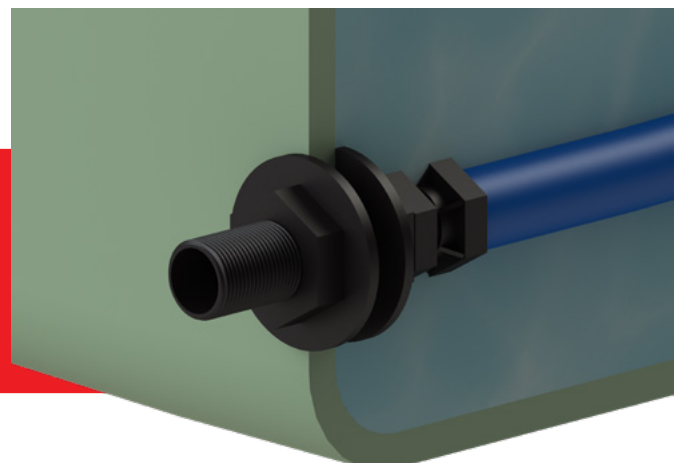
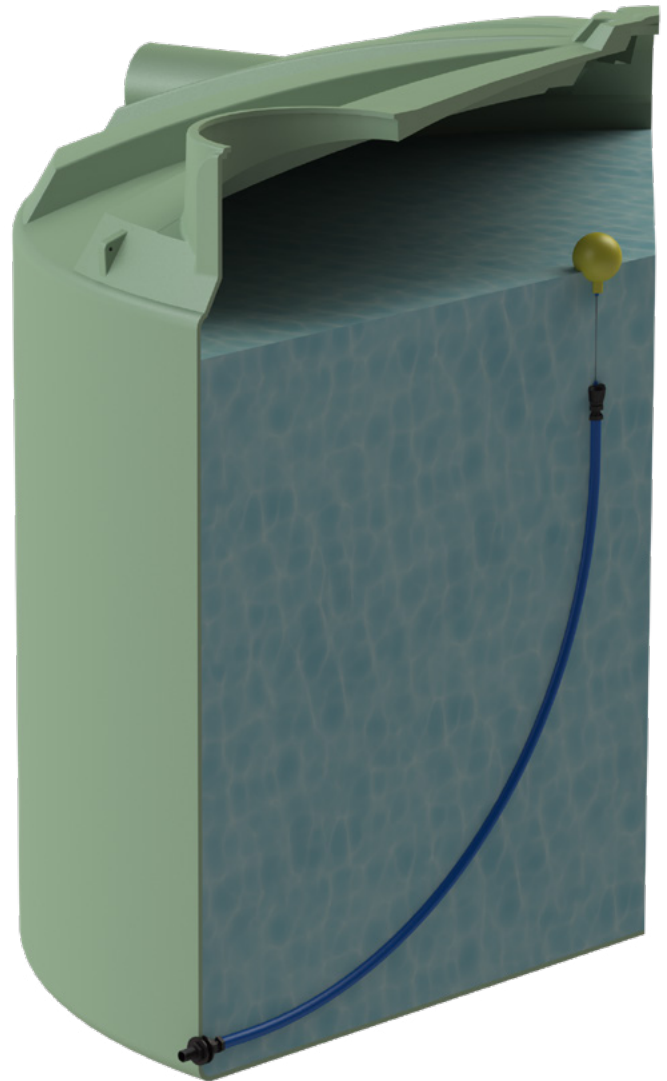
The kit includes the new Tank Fitting to be installed into the base of tank side-wall.

1. Select the best position for the Floating Out-take
2. Carefully drill a hole through the tank wall just big enough to allow the shank of the Tank Outlet Fitting to slide through.
3. Remove the nut from the Tank Outlet Fitting
4. Slide the shank of the fitting through the hole from the inside of the tank
5. Wind the nut onto the shank and tighten to seal

Tips:

1. To help get the tank outlet into position from the manhole use a wooden pole or wire to lever into position.
2. To help seal the fitting to the tank wall use a smear of silicone.

The floating out-take lies suspended within the tank to allow the best water to be drawn off just below the surface





Roll over image to zoom in Click on image to zoom



trevoli

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TREVOLI - CMB8-72 - Stainless Steel Multistage Water Pump for Large Home / Farm with Variable Speed Controller

Price: **\$1,727.00**

Quantity:

-

1

+

Add to cart

Description

TREVOLI - CMB8-72VP - Stainless Steel Multistage Water Pump for Large Home/ Farm with Variable Speed Controller

CMB8-72VP

This pump is ideal for domestic or farm water supply, providing mains pressure for a large single or multi-level homes and farms. Able to support up to 15 taps running at one time. Fitted with a variable speed constant pressure controller and 18L pressure tank.

Specifications:

- *Power -2200W - 3 Horsepower
- *Single phase with standard NZ 3 pin plug
- *Max Flow rate: 166 litres per minute
- *Max Pressure: 102 psi
- *Max discharge head: 72 metres
- *Max suction 1.5m
- *Inlet size: 1½ inch BSP (40mm)
- *Outlet size: 1½ inch BSP (40mm)
- *Built in thermal overload protection
- *Insulation class F
- *Rated for Continuous duty
- *Liquid temperature range: -20 - 70 deg C
- *Max operating pressure: 10 bar
- *Length: 450mm
- *Height (including pressure tank): 760mm

Common Applications:

- *Water supply for large / very large homes
- *Farm irrigation
- *General water transfer systems
- *Industrial/commercial applications
- *Domestic Household Pumps

Features:

- *Fitted with a variable speed constant pressure controller (IP54 rated)
- *Delivery pressure can be easily adjusted at any time
- *Controller provides soft starts to avoid water hammer and related problems
- *Pump motor operates at varying speed based on actual demand saving up to 50% electricity usage
- *Run Dry Protection
- *Corrosion resistant stainless steel construction
- *Stainless steel pump housing, motor shaft, impellor and intermediate chambers
- *Build in thermal overload protection
- *Quiet operation

Two Year Back to Base Warranty

[Manual for W713B VSD Controller](#)

[Manual for B603 VSD Controller](#)

[Parts List](#)

Payment & Security



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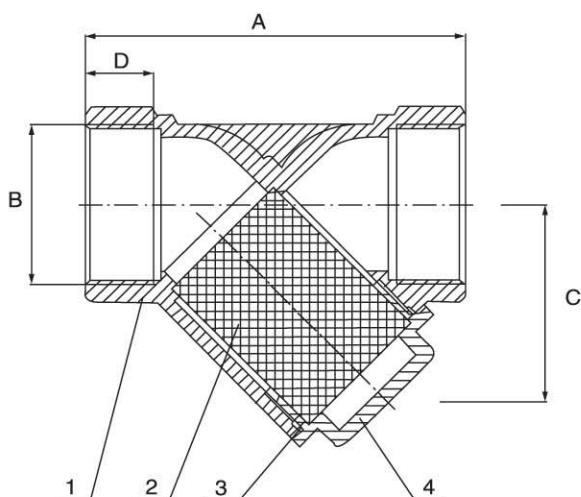
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Y STRAINER



MATERIALS	
PART	MATERIAL
Body	Bronze
Screen	Stainless Steel
Gasket	Graphoil
Cap	Bronze

TABLE OF DIMENSIONS						
SIZE	15	20	25	32	40	50
A	65mm	80mm	96mm	104mm	116mm	140mm
B	15mm	20mm	25mm	32mm	40mm	50mm
C	34mm	42mm	48mm	55mm	66mm	74mm
D	15mm	17mm	19mm	22mm	22mm	25mm

For Non-Health Hazard Applications

Job Name _____
 Job Location _____
 Engineer _____
 Approval _____

Contractor _____
 Approval _____
 Contractor's P.O. No. _____
 Representative _____

Series 007 Double Check Valve Assemblies

Sizes: 1/2" – 2"

Series 007 Double Check Valve Assemblies are designed to protect drinking water supplies from dangerous cross-connections in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation, fireline, or industrial processing. Only those cross-connections identified by local inspection authorities as non-health hazard shall be allowed the use of an approved double check valve assembly.

Check with local authority having jurisdiction regarding vertical orientation, frequency of testing or other installation requirements.

The valve shall meet the requirements of ASSE Std. 1015 and AWWA Std. C510. Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

Features

- Ease of maintenance — only one cover
- Top entry
- Replaceable seats and seat discs
- Modular construction
- Compact design
- Cast bronze body construction — 1/2" – 2"
- Top mounted ball valve test cocks
- Low pressure drop
- No special tools required for servicing
- 1/2" – 1" have tee handles

Specifications

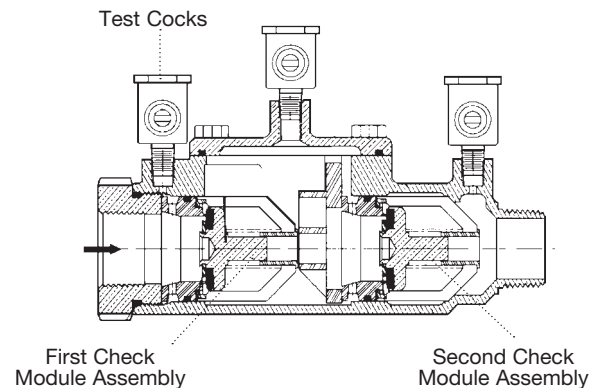
A Double Check Valve Assembly shall be installed at each noted location. The assembly shall consist of two positive seating check modules with captured springs and rubber seat discs. The check module seats and seat discs shall be replaceable. Service of all internal components shall be through a single bronze or stainless steel access cover secured with stainless steel bolts. The assembly shall also include two resilient seated isolation valves; four top mounted, resilient seated test cocks. The assembly shall meet the requirements of ASSE Std. 1015 and AWWA Std. C510. Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California. Assembly shall be a Watts Series 007.



1" 007M1QT



1" 007M1QT-S



The 007 Series features a modular design concept which facilitates complete maintenance and assembly by retaining the spring load.

Now Available
WattsBox Insulated Enclosures.

For more information, send for literature ES-WB.

NOTICE

Inquire with governing authorities for local installation requirements

Pressure — Temperature

1/2" – 2"

Temperature Range: 33°F – 194°F (0.5°C – 90°C).

Maximum Working Pressure: 203psi (14bar).

Standards

ASSE Std. 1015, AWWA Std. C510

IAPMO PS31, CSA B64.5

AS/NZS 2845.1

Approvals



ASSE, AWWA, IAPMO, CSA, UPC, WaterMark

Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

Models LF and S are not listed.

UL Classified (LF models only) 3/4" – 2" (except 007M3LF)

WaterMark applicable to A+NZ model

Horizontal and vertical "flow up" approval on all sizes

Suffix:

S - bronze strainer

LF - without shutoff valves

SH - stainless steel ball valve handles

HC - 2 1/2" inlet/outlet fire hydrant fittings (2" valve)

Prefix:

U - Union connections

Material

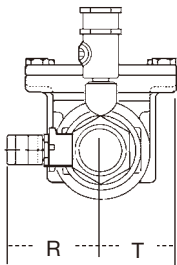
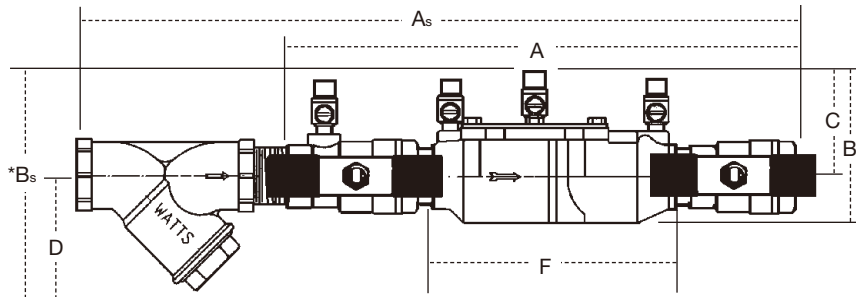
1/2" – 2"

Bronze body construction, silicon rubber disc material in the first and second checks. Replaceable polymer check seats for first and second checks. Stainless steel cover bolts. A+NZ models in DR brass, with BSP body connections.

Dimensions – Weights

Models

Sizes: 1/2" – 2"



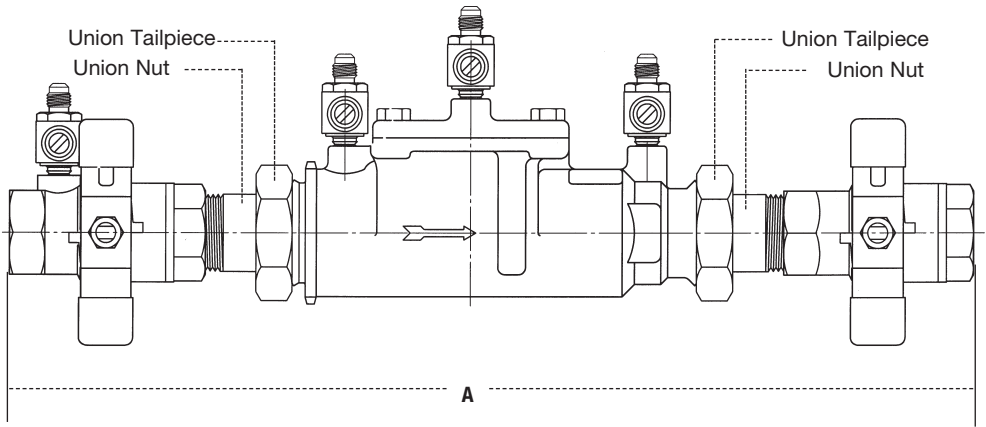
*Subscript 'S' = strainer model

MODEL	SIZE	DIMENSIONS														WEIGHT			
		A		B		C		D		F		G		R		T			
	in.	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
▲ 007QT	1/2	10	254	4 7/8	117	2 1/16	62	—	—	5	127	3 3/8	85	2 5/16	59	2 1/16	52	4.5	2
▲ 007M3QT	3/4	11 1/8	282	4	102	3 3/8	79	—	—	6 3/16	157	3 7/16	87	2 1/8	54	1 5/16	33	5	2.3
▲ 007M1QT	1	13 3/4	337	5 1/8	130	4	102	—	—	7 1/2	191	3 3/8	85	1 11/16	43	1 11/16	43	12	5.4
▲ 007M2QT	1 1/4	16 3/8	416	5	127	3 5/16	84	—	—	9 1/2	241	5	127	3	76	2	50	15	6.8
▲ 007M2QT	1 1/2	16 3/4	425	4 7/8	124	3 1/2	89	—	—	9 3/4	248	5 13/16	148	3 3/8	79	2 11/16	68	15.9	7.2
▲ 007M1QT	2	19 1/2	495	6 1/4	159	4	102	—	—	13 3/8	340	6 1/8	156	3 7/16	87	2 11/16	68	25.7	11.7
• 007QT-S	1/2	13	330	6	152	2 7/16	62	3	76	5	127	3 3/8	85	2 5/16	59	2 1/16	52	5.5	2.5
• 007M3QT-S	3/4	14 1/2	368	6 1/8	156	3 3/8	79	3	76	6 3/16	157	3 7/16	87	2 1/8	54	1 5/16	33	6.7	3.1
• 007M1QT-S	1	17 5/16	157	7 3/4	197	4	102	3 1/4	83	7 1/2	191	3 3/8	85	1 11/16	43	1 11/16	43	14	6.4
• 007M2QT-S	1 1/4	21 1/2	546	7 1/16	179	3 5/16	84	3 1/2	83	9 1/2	241	5	127	3	76	2	50	19	8.6
• 007M2QT-S	1 1/2	25 1/16	637	7 1/16	179	3 1/2	89	3 3/4	95	9 3/4	248	5 13/16	148	3 3/8	79	2 11/16	68	19.6	8.9
• 007M1QT-S	2	27 1/4	692	8 3/4	222	4	102	4	102	13 3/8	340	6 1/8	156	3 7/16	87	2 11/16	68	33.5	15.2

Suffix HC — Fire Hydrant Fittings dimension "A" = 23 1/2" (594mm)

Dimensions – Weights

1" U007M1QT



Sizes: 1/2" – 2"

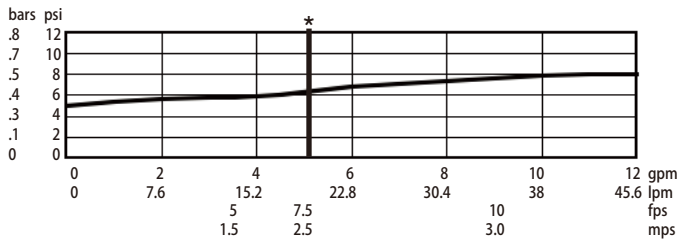
MODEL	SIZE	DIMENSIONS	
		A	
	<i>in.</i>	<i>in.</i>	<i>mm</i>
U007QT	1/2	12 ¹³ / ₁₆	326
U007M2QT	3/4	13 ¹³ / ₁₆	350
U007M2QT	1	16 ⁵ / ₈	422
U007M2QT	1 1/4	20 ³ / ₄	527
U007M2QT	1 1/2	21 1/2	546
U007M1QT	2	24 1/2	622

Capacity

As compiled from documented Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California lab tests.

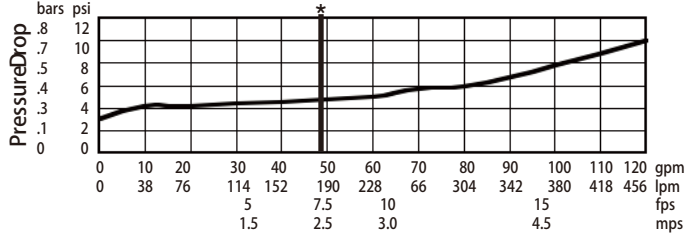
* Typical maximum system flow rate (7.5 feet/sec., 2.3 meters/sec.)
UL rated flow

½" (15mm)



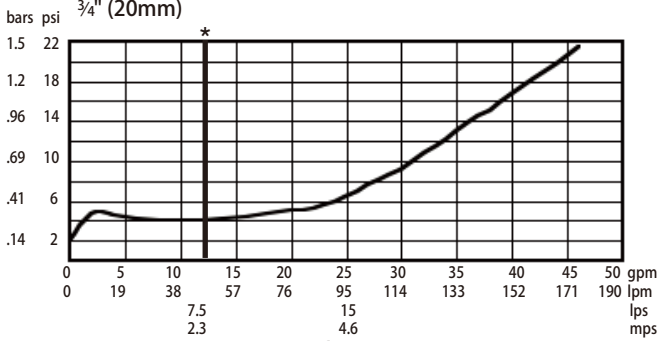
Flow

1½" (40mm)



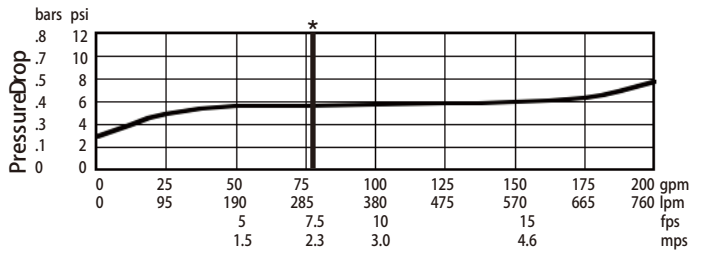
Flow

¾" (20mm)



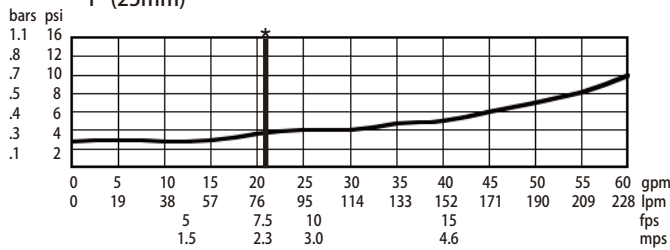
Flow

2" (50mm)



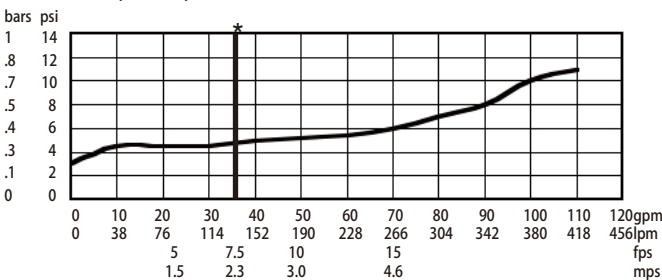
Flow

1" (25mm)



Flow

1¼" (32mm)



Flow

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