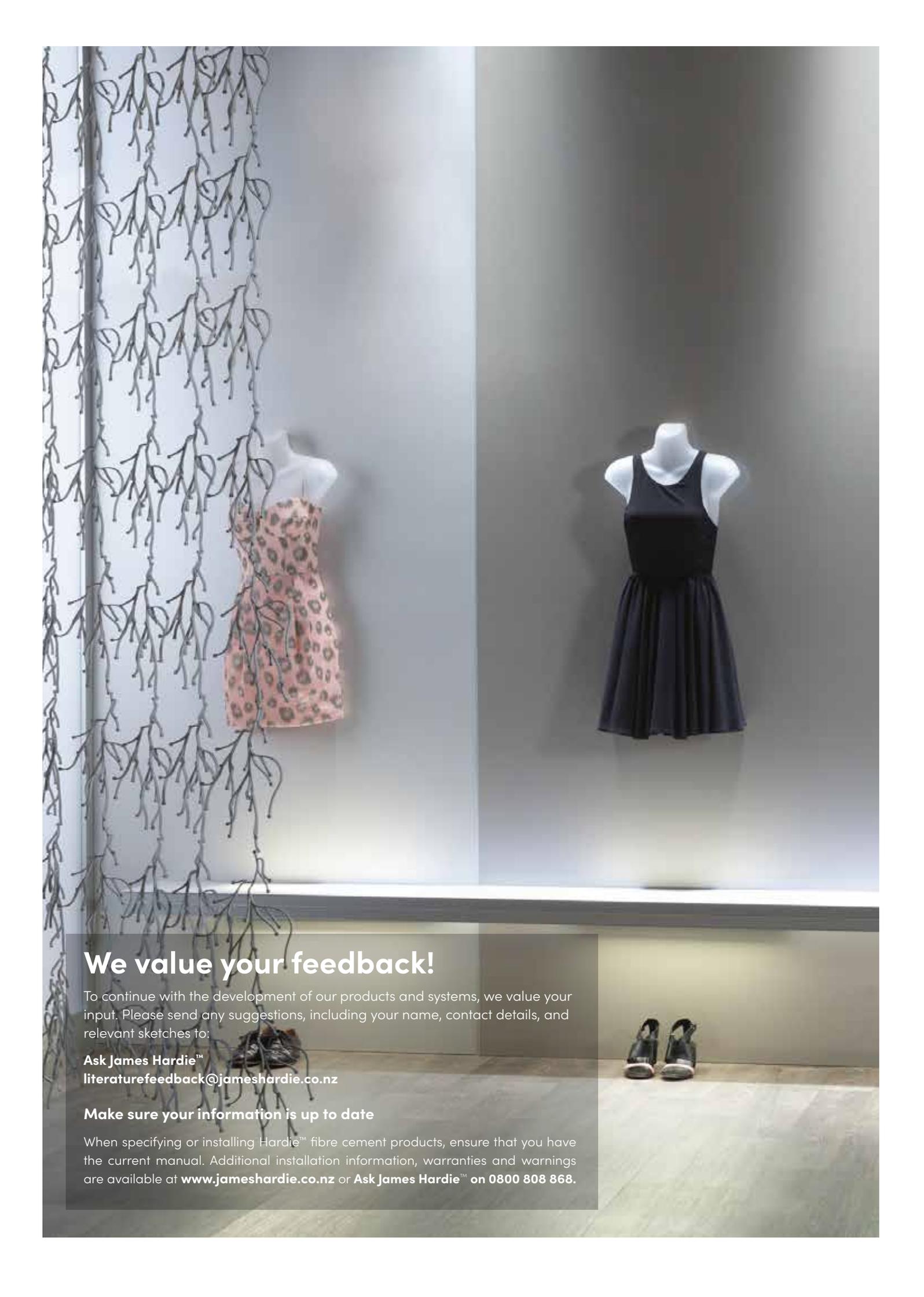


Installation Manual

March 2022 New Zealand





We value your feedback!

To continue with the development of our products and systems, we value your input. Please send any suggestions, including your name, contact details, and relevant sketches to:

Ask James Hardie™
literaturefeedback@jameshardie.co.nz

Make sure your information is up to date

When specifying or installing Hardie™ fibre cement products, ensure that you have the current manual. Additional installation information, warranties and warnings are available at www.jameshardie.co.nz or **Ask James Hardie™** on 0800 808 868.

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1 Features and Benefits

Invibe™ Panel is an internal pre-finished panel characterised by a lustrous coloured look.

Invibe Panel's core DNA is durability, because it's made from Hardie™ 6mm thick cement-composite substrate that's coated using UV coating technology.

Invibe Panel offers a 'double shield' of durability in a vast range of commercial and residential interior wall applications in both wet and dry areas.

Sheet size	2700 x 1200mm
Thickness	6mm
Finish	Gloss
Application	Commercial and residential interior wall in both wet and dry areas.

1.1 Invibe Panel key benefits

Key attributes apply when the product is installed and maintained correctly and to the extent set out in James Hardie's published literature current at the time of installation. For more information about performance, installation, warranties and warnings go to www.jameshardie.co.nz

1.1.1 A lustrous, coloured look in a gloss finish

A carefully selected colour range that delivers an 'on trend' palette to suit a variety of different aesthetics.

1.1.2 Design integrity

Design integrity is maintained over time due to a high level of performance. It's resistant to fading, yellowing, cracking, peeling and flaking. It also provides good resistance to abrasion, wear and light surface scratching.

1.1.3 Low maintenance

Low maintenance and easy to clean. Resistant to general stains, bacteria and mould.

1.1.4 Dimensional stability

It's resistant to rotting, cracking, warping and swelling due to the robust nature of the Hardie™ cement-composite substrate.

1.1.5 Fire resistance

Made from a non-combustible substrate and achieves the best possible surface finish classification of 'Group 1-S' – assessed as per ISO 5660 cited in 'Protection from Fire' of clause C of the NZBC. This enables Invibe Panel to be used in the broadest range of fire exit ways in commercial and residential building applications.

1.1.6 Resistant to damage from moisture and steam

Can be used in wet area applications, including enclosed shower areas. The UV coating technology coating provides an impervious surface barrier to moisture, and the Hardie™ cement-composite substrate is a homogenous material that is resistant to damage from moisture.

1.1.7 Fast and easy installation

Can be direct-fixed to either timber or light gauge steel frames at 600mm max centres, saving time and money. Invibe Panel can be silicone butt-jointed or installed with the range of aluminium mouldings to create a variety of different looks.

1.1.8 Warranty

Invibe Panel comes with a 15 year product warranty.

Key benefits apply when the product is installed and maintained correctly and to the extent set out in James Hardie's published literature current at the time of installation. For more information about performance, installation, warranties and warnings go to www.jameshardie.co.nz

1.2 UV Coating Technology

UV coating technology is expressed through a series of advanced and durable coatings combined with Hardie™ cement-composite substrates that also have durability as its core DNA.

UV coating technology brings together these two durable elements to create products that offer a 'double shield' of durability, from the surface level coating to the core.

The coating has been formulated with the end product in mind, to further enhance its look, finish and durability.

UV coating technology attributes include:

- Resistance to general stains
- Resistance to yellowing and fading.
- Resistance to cracking, peeling and flaking.
- Resistance to bacteria and mould.
- Resistance to abrasion, wear and light surface scratching.
- Low maintenance and easy-to-clean.
- Made from products that contain no VOC's (Volatile organic compounds)
- Resistance to damage from moisture and steam.

The UV coating technology has been formulated for a lustrous look and finish. Invibe Panel offers a 'double shield' of durability in a vast range of commercial and residential interior wall applications in both wet and dry areas.

1.3 Invibe Panel

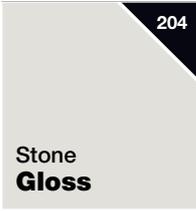


Most Invibe Panels are available ex stock. For large quantities a lead time may apply.

The colours represented in all imagery have been reproduced as a guide only. For complete satisfaction, please refer to physical product samples for the exact colour and finish.

Due to typical nature of coating, a slight colour variation may occur between batches. For best results in colour matching it is recommended that required product quantities for each project are placed in full to ensure panels are supplied from the same batch. Batch numbers are printed at the bottom of the label located on the rear of the panel.

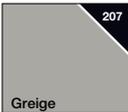
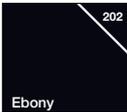
Table 1

Invibe Panel information		
Product	Size/Colour	
Invibe Panel is an internal pre-finished panel characterised by a lustrous coloured look.	2700 x 1200 x 6mm	
	Name	Code
 <p>Blanc Gloss</p>	Invibe Panel Blanc Gloss	404623
 <p>Ebony Gloss</p>	Invibe Panel Ebony Gloss	404625
 <p>Stone Gloss</p>	Invibe Panel Stone Gloss	404629
 <p>Greige Gloss</p>	Invibe Panel Greige Gloss	404635

All dimensions provided are approximate only and subject to manufacturing tolerances.

Owing to manufacturing tolerances, slight colour variations are also likely to occur between different batches of lining.

Table 2

Accessories supplied by James Hardie					
Colour	Accessory	Code	Colour	Accessory	Code
 Blanc	Sheet jointer - wet area 2700mm	305688	 Greige	Sheet jointer - wet area 2700mm	305703
	Internal corner 2700mm	305689		Internal corner 2700mm	305704
	External corner 2700mm	305690		External corner 2700mm	305705
	Cap mould 2700mm	305691		Cap mould 2700mm	305706
 Ebony	Sheet jointer - wet area 2700mm	305682	Naturally Anodised	Internal corner 2700mm	304504
	Negative jointer 2700mm	305683		External corner 2700mm	304502
	Internal corner 2700mm	305684		Cap mould 2700mm	304500
	External corner 2700mm	305685		Negative jointer 2700mm	305752
	Cap mould 2700mm	305686		Sheet jointer - wet area 2700m	304506
 Stone	Sheet jointer - wet area 2700mm	305735			
	Internal corner 2700mm	305736			
	External corner 2700mm	305737			
	Cap mould 2700mm	305738			



***Note:** All aluminium naturally anodised mouldings and Ebony negative detail moulding are available ex stock
 All powder coated mouldings are available ex stock.
 Large quantities of powder coated mouldings would be indent only, with a minimum 14 working day lead time.
 All powder coated mouldings are only available in a semi-gloss finish that can be used with the Invibe Panels.

James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets their aesthetic expectations before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation. James Hardie will only offer a replacement product if Invibe Panel supplied are found to be out of its manufacturing specification.

Table 3

Accessories/tools supplied by James Hardie				
	Accessory	Size (mm)	Material/appearance	Code
	Hardie™ Blade Saw Blade	184mm diameter	Polydiamond blade	300660
	Hardie™ Two Sided Adhesive Tape	12mm x 33m	Red Tape	305433
	Hardie™ Knife Scoring tool for easy cutting.			305926

Table 4

Accessories/Tools not supplied by James Hardie	
The following products are for use in conjunction with Invibe Panel. James Hardie does not supply these products. Please contact component manufacturer for information on their warranties and further information on their products.	
Accessory	Description
	Adhesive Fullers™ Max Bond™, Selleys® Liquid Nails, Sika® Nailbond® Fast, Sika® Nailbond® PB, Sika® Sikaflex® 11FC, Bostik® Seal n Flex® 1, Bostik® Tuf as Nails. Used for adhering panel to wall.
	Dulux® 1 Step, Dulux® Acraprime® 501/1 or similar Used for priming panel edge and back of panel
	Sellotape® 5850 Super Mask 18mm or Gator® Bond Breaker Tape To go behind sealant joint
	3M® Scotch™ Long-Mask® #2090 or Sellotape® 5855 Long Life Used for masking panel for silicone joint
	Refer to sealant manufacturer for various colour options and their suitability.
Cleaners	Refer clause 10.2
	Brad nail Used for fixing aluminium mouldings to timber framing

2 Safe Working Practices

WARNING - DO NOT BREATHE DUST AND CUT ONLY IN WELL VENTILATED AREA

Hardie™ products contain sand, a source of respirable crystalline silica. May cause cancer if dust from product is inhaled. Causes damage to lungs and respiratory system through prolonged or repeated inhalation of dust from product.

Intact fibre cement products are not expected to result in any adverse toxic effects. The hazard associated with fibre cement arises from the respirable crystalline silica present in dust generated by activities such as cutting, rebating, drilling, routing, sawing, crushing, or otherwise abrading fibre cement, and when cleaning up, disposing of or moving dust.

When doing any of these activities in a manner that generates dust, follow James Hardie's instructions and best practices to reduce or limit the release of dust.

If using a dust mask or respirator, use an AS/NZS 1716 P1 filter and refer to Australian/New Zealand Standard 1715:2009 Selection, Use and Maintenance of Respiratory Protective Equipment for more extensive guidance and more options for selecting respirators for workplaces. For further information, refer to our installation instructions and Safety Data Sheets available at www.jameshardie.co.nz.

FAILURE TO ADHERE TO OUR WARNINGS, SAFETY DATA SHEETS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

Crystalline Silica is

- Commonly known as sand or quartz
- Found in many building products e.g. concrete, bricks, grout, wallboard, ceramic tiles, and all fibre cement materials.

Why is Crystalline Silica a health hazard?

- Silica can be breathed deep into the lungs when present in the air as a very fine (respirable) dust
- Exposure to silica dust without taking the appropriate safety measures to minimise the amount being breathed in, can lead to a potentially fatal lung disease – silicosis – and has also been linked with other diseases including cancer. Some studies suggest that smoking may increase these risks
- The most hazardous dust is the dust you cannot see.

When is Crystalline Silica a health hazard?

- It's dangerous to health if safety protocols to control dust are not followed when cutting, drilling or rebating a product containing crystalline silica
- Products containing silica are harmless if intact (e.g. an un-cut sheet of wall board)

Avoid breathing in crystalline silica dust

Safe working practices

- ✗ NEVER use a power saw indoors or in a poorly ventilated area
- ✗ NEVER dry sweep
- ✓ ALWAYS use M Class or higher vacuum or damp down dust before sweeping up
- ✗ NEVER use grinders
- ✓ ALWAYS use a dust reducing circular saw equipped with a sawblade specifically designed to minimise dust creation when cutting fibre cement – preferably a sawblade that carries the Hardie™ Blade name or one with at least equivalent performance – connected to an M Class or higher vacuum
- ✓ Before cutting warn others in the area to avoid dust
- ✓ ALWAYS follow tool manufacturers' safety recommendations
- ✓ ALWAYS expose only the minimum required depth of blade for the thickness of fibre cement to be cut
- ✓ ALWAYS wear a properly-fitted, approved dust mask or respirator P1 or higher in accordance with applicable government regulations and manufacturer instructions
- ✓ Consider rotating personnel across cutting tasks to further limit respirable silica exposures.

Use one of the following methods for cutting Invibe Panel:

Best

- Hardie™ Knife
- Fibreshear

Better

Dust reducing circular saw equipped with Hardie™ Blade Saw Blade and connected to a M Class or higher vacuum.

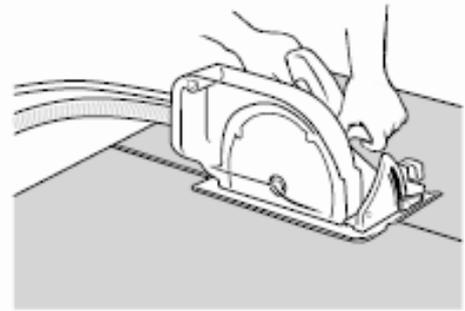
When cutting outdoors

- ✓ Make sure you work in a well ventilated area
- ✓ Position cutting station so wind will blow dust away from yourself and others in the working area
- ✓ Cut products with either a Hardie™ Knife or fibre cement shears or, when not feasible, a Hardie™ Blade Saw Blade (or equivalent) and a dust reducing circular saw connected to a M Class or higher vacuum
- ✓ When sawing, sanding, rebating, drilling or machining fibre cement products, always:
 - Wear your P1 or higher mask (correctly fitted in accordance with manufacturers' instructions), ask others to do the same.
 - Keep persons on site at least 2 metres and as far as practicable away from the cutting station while the saw is in operation
 - If you are not clean shaven, then use a powered air respirator with a loose-fitting head top
 - Wear safety glasses
 - Wear hearing protection
 - When others are close by, ask them to do the same
- ✓ Make sure you clean up BUT never dry sweep. Always hose down with water/wet wipe or use an M Class or higher vacuum

Working Instructions

Hardie™ Blade Saw Blade

The Hardie™ Blade Saw Blade used with a dust-reducing saw is ideal for fast, clean cutting of Hardie™ fibre cement products. A dust-reducing saw uses a dust collector connected to a M Class or higher vacuum. When sawing, clamp a straight edge to the sheet as a guide and run the saw base plate along the straight edge when making the cut.



Hole-Forming

For smooth clean cut circular holes:

- Mark the centre of the hole on the sheet
- Pre-drill a 'pilot' hole
- Using the pilot hole as a guide, cut the hole to the appropriate diameter with a hole saw fitted to a heavy duty electric drill



For irregular holes:

- Small rectangular or circular holes can be cut by drilling a series of small holes around the perimeter of the hole then tapping out the waste piece from the sheet face
- Tap carefully to avoid damage to sheets, ensuring that the sheet edges are properly supported

2.1 Storage and delivery

Keeping products and people safe

Off loading

- ✓ Hardie™ products should be off-loaded carefully by hand or by forklift
- ✓ Hardie™ products should not be rolled or dumped off a truck during the delivery to the jobsite

Storage

Hardie™ products should be stored:

- ✓ In their original packaging
- ✓ Under cover where possible or otherwise protected with a waterproof covering to keep products dry
- ✓ Off the ground – either on a pallet or adequately supported on timber or other spacers
- ✓ Flat so as to minimise bending

Hardie™ products must not be stored:

- ✗ Directly on the ground
- ✗ In the open air exposed to the elements

James Hardie is not responsible for damage due to improper storage and handling.

2.2 Tips for safe and easy handling of Invibe panel

- ✓ Carry with two people
- ✓ Hold near each end and on edge
- ✓ Exercise care when handling sheet products to avoid damaging the edges/corners

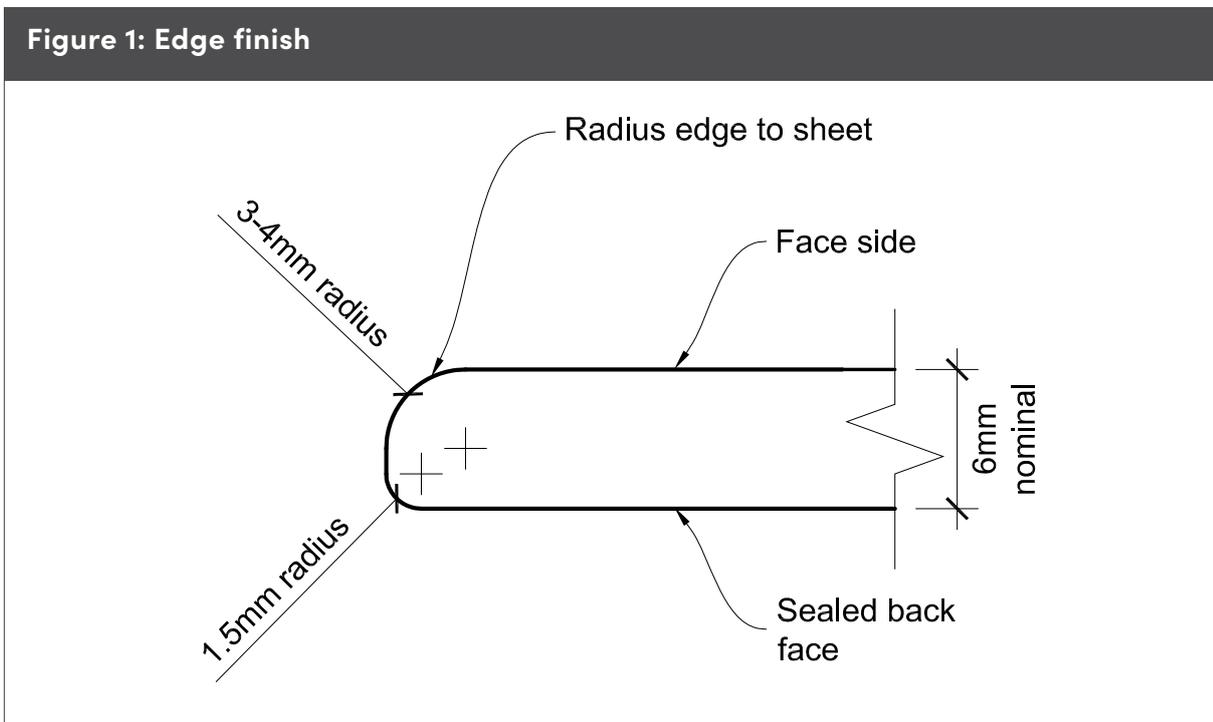
3 Applications

3.1 Invibe Panel

Table 5

Invibe Panel can be used in following internal applications		
Application examples		Definition
<p>DRY Shop linings, changing rooms, commercial fit outs, restaurants etc. Hallways, bedrooms, lounges, kitchens etc. Around fire places*</p>	<p>WET Showers, bathrooms, toilets, kitchens, laundries, veterinarian clinics, butcher shops, commercial kitchens etc.</p>	<p>Decorative panels for use as a design feature. Wet or dry areas that require a sealed, impervious surface. Food hygiene areas which require protection from dirt and bacteria build-up.</p>

*Maximum serviceable temperature up to 60°.

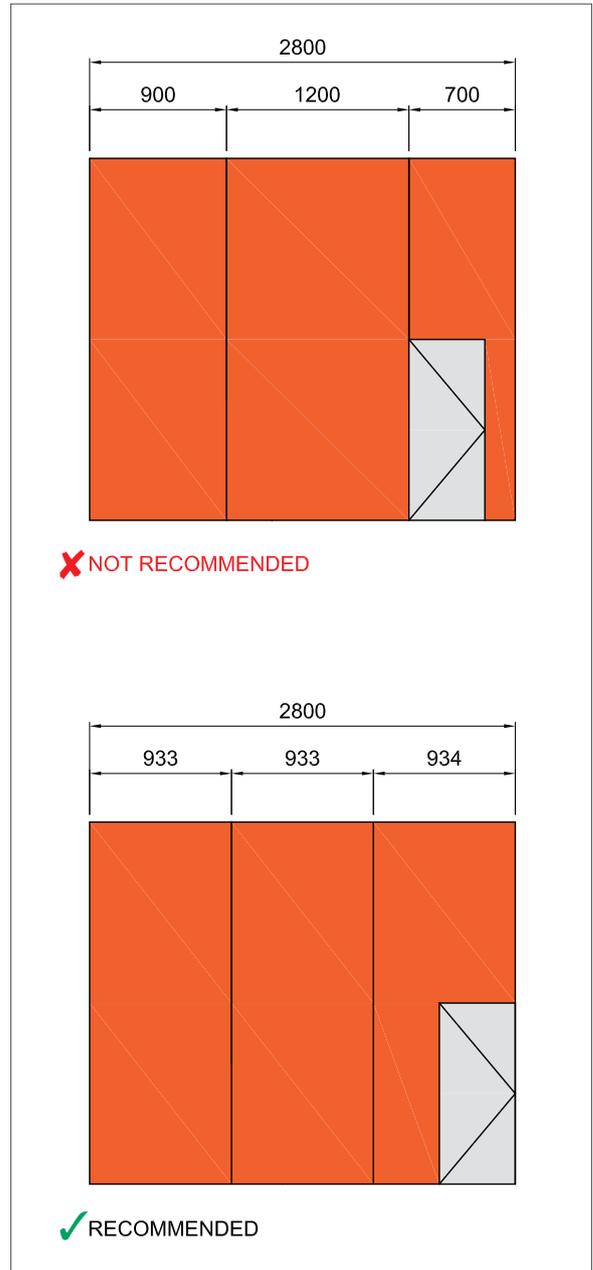
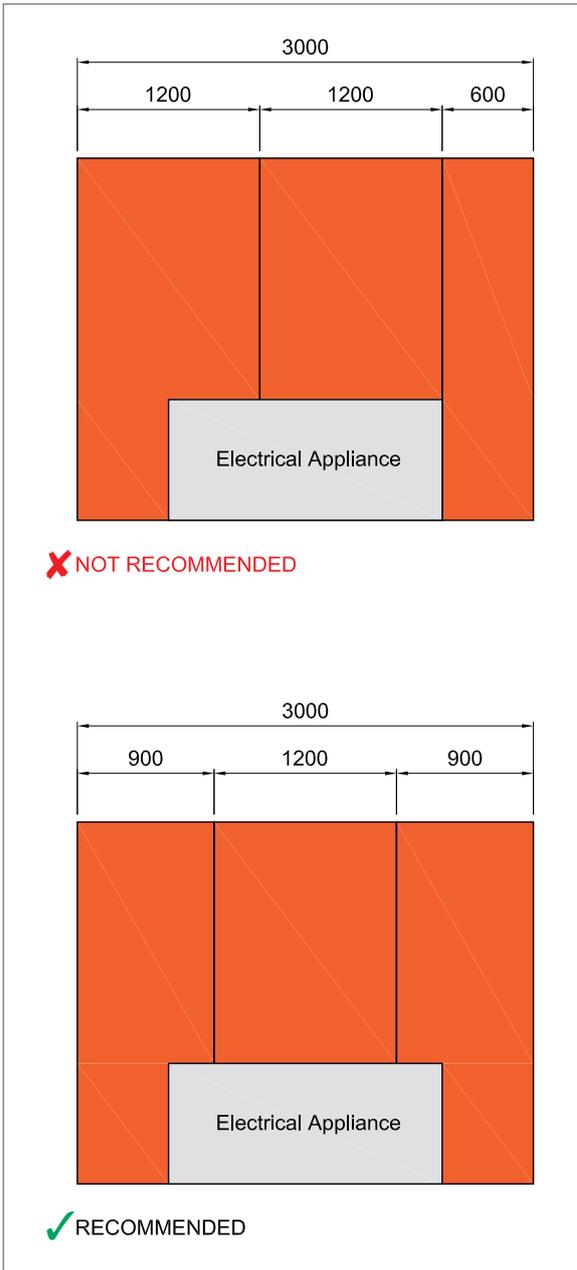


Notes:

1. The paint finish is carried to the sheet radius edge to allow for silicone sealant joints to be used in the installation.
2. Where possible sheet edges with greater coverage (typically one end) are best orientated so that they are the lowest edge.

3.2 Panel layout

Invibe Panel should be set out to form joints in an aesthetically pleasing manner and to ensure the installation looks balanced.



4 NZBC Considerations

The performance of Invibe Panel have been tested in accordance with the standards and verification methods required by the New Zealand Building Code (NZBC) and the test results demonstrate they comply with the following requirements:

4.1 Internal Moisture

Invibe Panel complies with the requirements of section 3.1.2 of Clause E3/AS1 of the NZBC. Invibe Panel must be installed in accordance with this specification to satisfy the relevant provisions of the NZBC.

4.2 Durability

Invibe Panel is manufactured in accordance with the AS/NZS 2908. When installed and maintained in accordance with this installation manual, they comply with the durability requirements of Table 1, Clause B2 of the NZBC.

4.3 Food Preparation and Prevention of Contamination

The surface of Invibe Panel complies with the hygiene requirements of Clause G3 of the NZBC.

4.4 Substrate Bracing

Because the sheets are adhesive-fixed they are not suitable for structural sheet bracing. When structural sheet bracing is required, fix Villaboard™ Lining to achieve the bracing rating required, then adhesive-fix Invibe Panel onto the face of the Villaboard™ Lining. Refer to the Bracing Design Manual by James Hardie for further information.

4.5 'Group Number' Classification

Internal wall linings are required to be tested to establish their 'Group Numbers' in accordance with ISO 5660 or ISO 9773 specified in 'Protection from Fire' clause C of the NZBC. Invibe Panel has been tested and has a 'Group Number 1-S' classification. This is the best performance that can be expected of a prefinished wall lining.

5 Framing/substrate

5.1 General Requirements

Invibe Panel can be fixed directly to both timber and steel frames, load bearing and non-load bearing. All framework for walls and ceilings must comply with this specification and applicable current New Zealand standards.

Studs must be spaced at a maximum of 600mm centres with continuous top and bottom plates and nogs at 1200mm maximum centres.

Sheet fixing tolerances are at a minimum when a steel frame is used, therefore set-out must be accurate.

5.2 Timber Frame

Timber framing must be in accordance with the NZS 3604 'Timber-framed Buildings'. Refer to NZS 3602 regarding treatment requirements and allowable moisture contents of timber. Specific design to NZS 3603 and AS/NZS 1170 can also be undertaken, provided that:

- the framing centres do not exceed those given in this specification;
- the minimum framing member widths conform to this specification.

Invibe Panel must not be fixed to timber framing that exceeds the allowable specified moisture content as per NZS 3602.

Timber framing must be 45mm minimum width.

5.3 Steel Frame

The details in this manual are drawn for timber framing. However, steel framing can also be used at the same framing centres as for a timber frame.

Steel framing members for load-bearing construction must be fabricated from light-gauge sheet steel 0.55mm to 1.6mm thick.

Steel framing for non load-bearing construction must be a minimum of 0.55mm thick. The frames must be firmly secured together and must not rely on the sheeting for stability. A minimum flange width of 38mm is required to adequately adhere the sheets. Instructions by the proprietary framing manufacturer must be followed.

5.4 Batten Requirements

Timber/steel battens are required when sheets are fixed over:

- polystyrene or similar substrates;
- concrete, masonry block or brick.

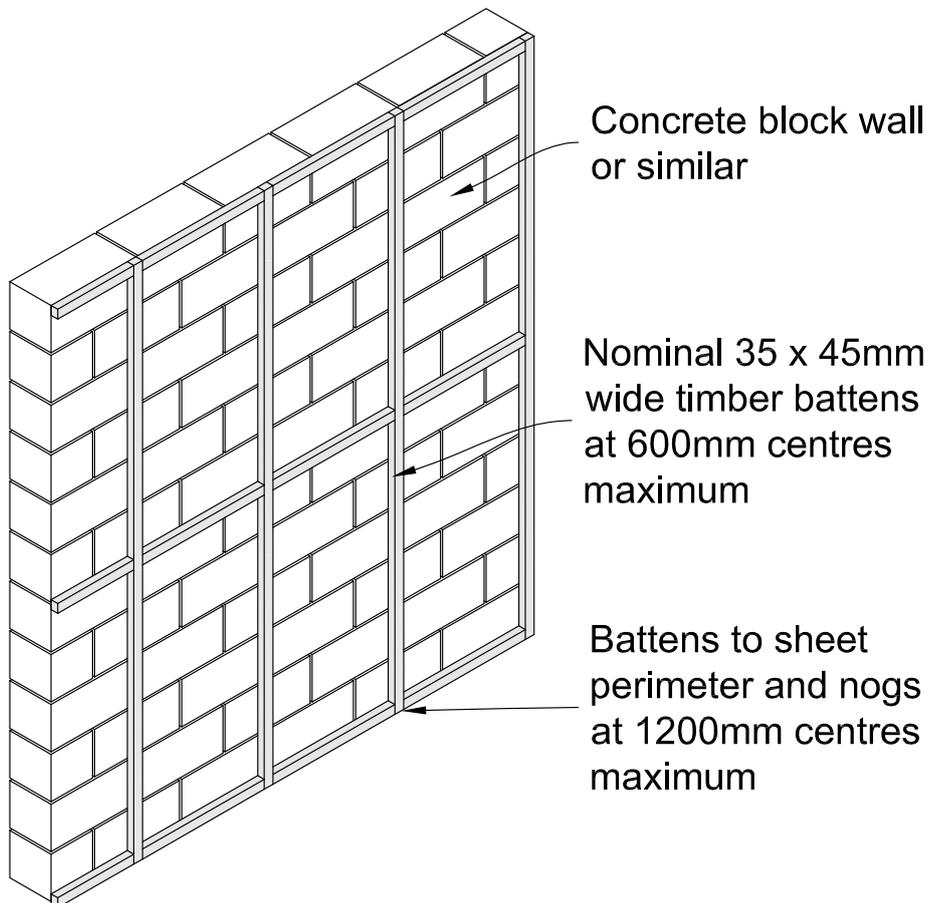
Allow concrete or block walls to dry out before battening and ensure that all exterior faces are adequately sealed.

Notes: Steel battens 72mm wide x 23mm deep x 0.55mm thick, with a minimum bearing surface of 38mm and with minimum 275g/m² zinc coating, can also be used.

5.5 Battening Specification

Refer to Figure 2. Take care to ensure the battens are packed and aligned to give a true even surface for the sheets to be fixed. Check the face of the battens with a long straight-edge before fixing the linings.

Figure 2: Invibe Panel batten layout



5.6 Fixing to Fibre Cement or Plasterboard

Invibe Panel can either be fixed directly to the framing or fixed directly over Villaboard™ Lining or plasterboard.

5.7 Packers

Use 3-4mm thick packers for packing the frame when 6mm Invibe Panel is being used with standard rebated jambs or other situations where the thickness needs to be increased (refer Figure 3).

6 Installation

6.1 Panel Installation Checklist

Step 1: Before you start

- Read the information in this manual. Note that Invibe Panel is NOT suitable for floors, benchtops, exterior cladding or exterior signage.
- Check that timber for framing is dry – the moisture content as per the NZS 3602 (refer Section 5).
- Check the sheet batch numbers to ensure the sheets are all from the same batch to be colour matched.
- Ensure the timber and sheet surface are free from any dirt or grime before installation.

Step 2: Required tools

- Caulking gun
- Hand saw
- Hammer
- Electric drill and titanium bits
- Level
- Tape measure
- Saw horses
- Rasp
- Pencil
- Score-and-snap knife

Step 3: Check your materials

- Invibe Panel sheets as per the required quantity.
- Solvent-based wallboard adhesive (refer Table 4).
- Aluminium sheet jointers and mouldings (refer Table 2).
- Silicone sealant, (refer Figure 10) and recommended masking tape.
- Bondbreaker tape.
- Hardie™ 2 sided adhesive tape or timber cut to length for temporarily bracing sheets into place.
- Batch No.s are identical (owing to manufacturing tolerances, slight colour variations are likely to occur between different batches of lining).

Step 4: Choose the installation method

- Ascertain the correct panel to meet your specific requirements (refer Tables 2, 6 and 7).
- Choose the appropriate fixing method.
- Choose the appropriate jointing method, whether an aluminium moulding or sealant.

Step 5: Prepare your walls

- Check framing for flatness and straightness. Plane back any timber high spots.
- Check that all framing is secure and well nailed.
- Punch all framing nails.

- Check that all plumbing and electrical fittings are fixed in the correct location.
- Accurately measure the distances between framing for sheet sizes. Measure at the top, bottom and centre of the frame as a check, and allow tolerances so the sheet will fit easily.

Step 6: Measure the sheets

- When cutting, accurately measure and mark out on the face of the Invibe Panel sheet (use a soft builder's pencil). Allow 1 to 2mm clearance each side to fit into jointers.
- When using mouldings, accurately measure the mould to work out allowances for fitting into the moulding.
- Allow for sealant width when using silicone joints.

Step 7: Cut and form the sheets

- Accurately cut the sheets (refer to section 2).
- Mark out the positions of any holes or penetrations required in the sheets (refer to section 2).
- Panel with cut edges must be site prepared and primed. Use Dulux® 1 Step or Dulux® Acraprime® 501/1 or similar, available from paint stockists. Be careful not to miss any areas. All site cut sheet edges for silicone joints must be site sealed.
- Panel to baths or bottom of showers must have bottom edge and back 100mm sealed (refer Figure 13 to 16).
- For best results in shower applications always use the factory finished edge for the bottom drip edge.

Step 8: Apply adhesive, sealant and install the sheets

Refer to rest of clause 6 and clause 7 for jointing options. Always ensure the timber or sheet surface are free from any dirt or grime before installation.

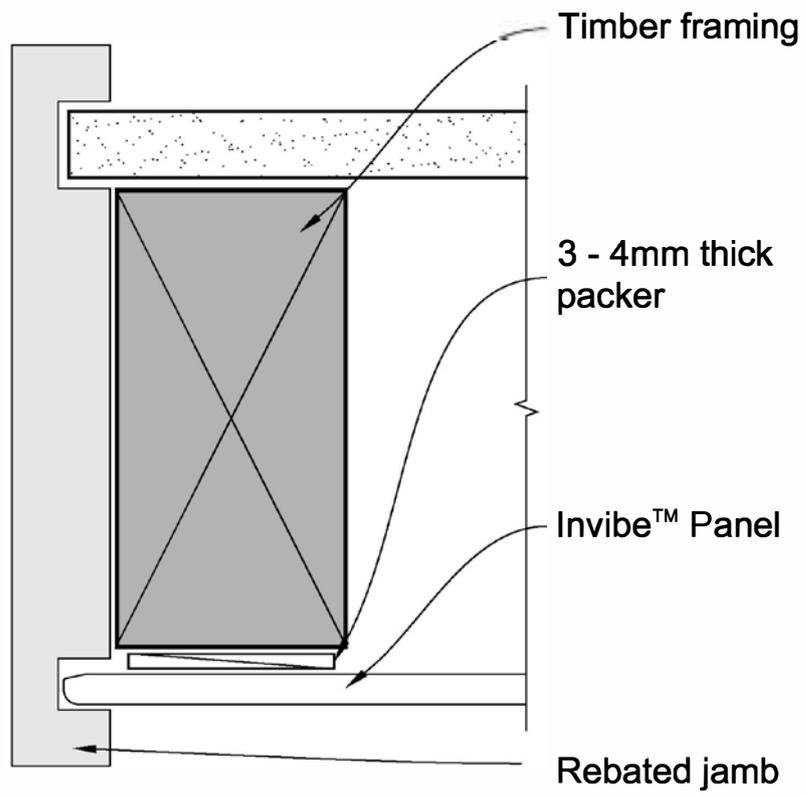
Step 9: Finishing touches

- Clean up all sheets and jointers with kerosene on a clean cloth to remove all pencil marks, adhesive or excess sealant.
- Remember to maintain the sheets and clean on a regular basis (refer clause 10).

6.2 Packers

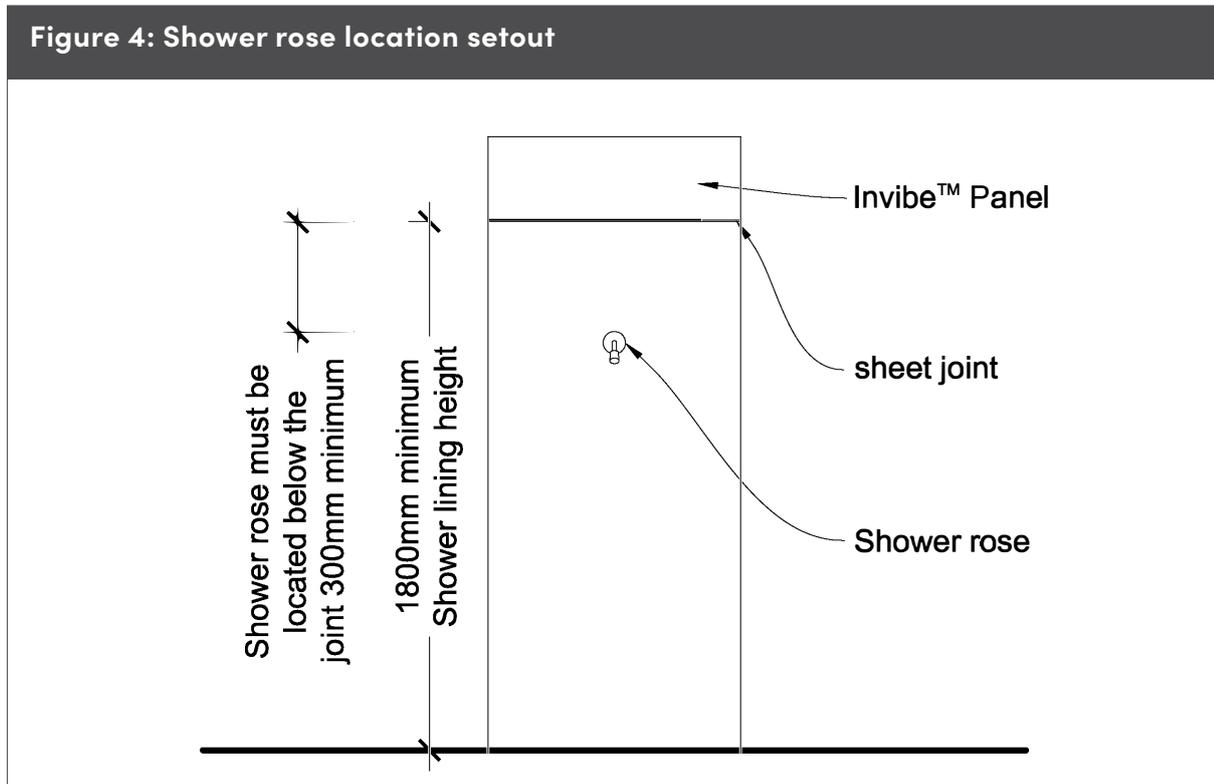
Use 3-4mm thick packers for packing the frame when lining is being used with standard rebated jambs (refer Figure 3).

Figure 3: Panel jamb rebate



6.3 Sheet Set-out and Shower Rose Location

The shower rose must be positioned below any sheet joints (refer Figure 4). This is to stop water from the shower rose running behind the joint.



6.4 General Fixing Requirements

All fixing for walls and ceilings must comply with this specification. At all adhesive-fixed sheet joints, the centre line of the joint must coincide with the centre line of the stud, nog or plate. This is to ensure sufficient adherence of adjoining sheets to the frame along the sheet edges.

Best practice notes: In wet areas where possible always:

- 1. Use a factory sealed edge at the bottom.**
- 2. If there is any variation in quality of the factory sheet edges, put the best one to the bottom.**

Fix the sheet from the centre working towards the outside, to avoid drumminess. Fix Invibe Panel to the timber or steel frame using a polyurethane wallboard adhesive (to the centres shown in the relevant diagrams), to the perimeter of all sheets, intermediate studs, plates and nogs. For further adhesive instructions refer to clause 6.6.

Sheets must be fixed 6mm clear of the floor for general wall applications. Care must be taken to ensure that this gap does not become filled with residue during the construction process.

Fix aluminium mouldings with nails or screws at 300mm max centres.

For sheets with a shower base refer to Figures 13 and 14.

6.5 Sheet Fixing Sequence for Showers

In shower boxes with sheets on three sides, the fixing sequence is important. Fix the rear sheet first with the jointers in place, then fix the remaining two sheets on sides.

6.6 Adhesive Fixing

Adhesive fixing is used to avoid fixing penetrations in the sheet face. Fix Invibe Panel to the framing with a good-quality polyurethane wallboard adhesive.

For adhesive fixing the Invibe Panel can either be fixed in conjunction with Hardie™ 2 sided adhesive tape or the sheet can be temporarily braced for approximately 24 hours to allow the adhesives to cure and gain full adhesion. When using adhesive tape, apply a 150mm long strip of tape on the framing in between daubs of adhesive which are applied at 200mm c/c to the entire framing. Refer to Figure 6. Do not apply double sided tape on the stud where an aluminium jointer is fixed as the tape will not allow the Invibe Panel to slide into the jointer.

When using the temporary bracing method always ensure that the edges and the sheet surface is braced adequately and protect the sheet surface against scratching. The bracing member should be aligned with the framing behind Invibe Panel. Support and temporarily brace the sheets during adhesive setting, in accordance with the adhesive manufacturer's instructions (refer to Figure 7). Ensure timber braces are aligned over solid framing behind.

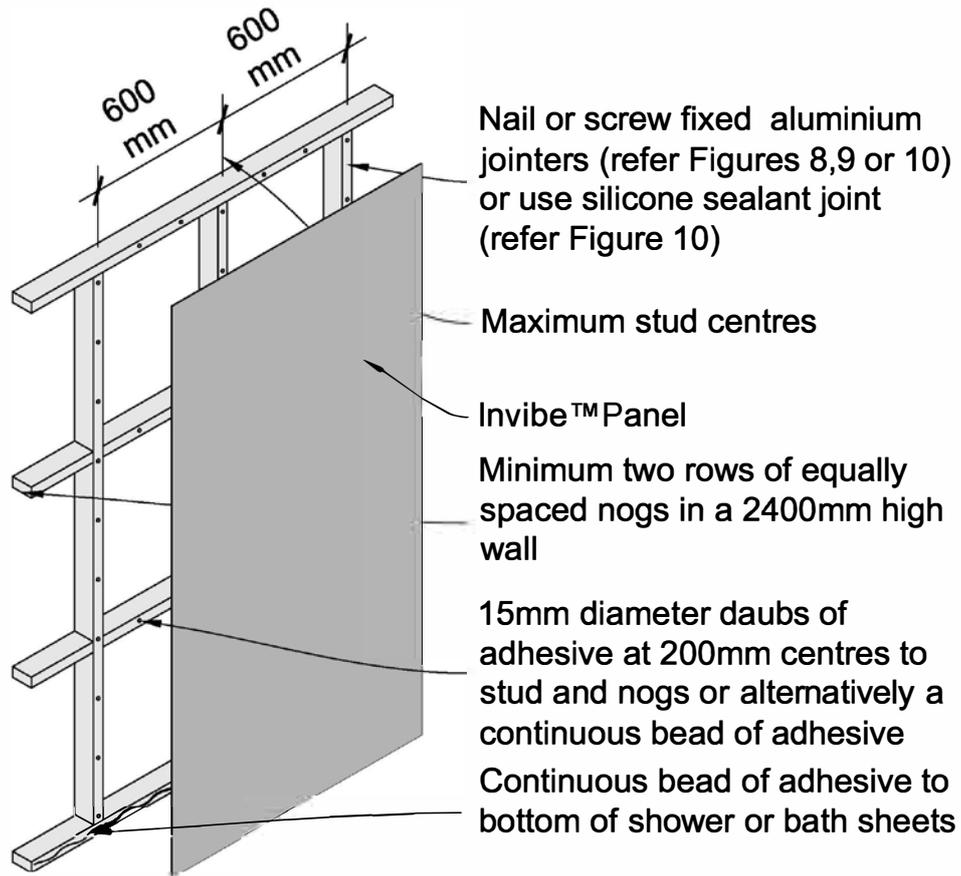
Wallboard adhesives in accordance with this manual are suitable for Invibe Panel installation. Recommended adhesives include: **Sika® NailBond® Premium, Fullers™ Max Bond™, Bostik® 'Seal-N-Flex®1', Selleys® Liquid Nails, No More Nails** or similar. Refer to adhesive manufacturers' recommendations to ascertain suitability for the intended use.

- Clean the frame surface before applying the adhesive. Also clean the back surface of Invibe Panel before fixing to remove any loose material/dust.
- Never apply excessive force to fix panel into position.
- Place daubs of wallboard adhesive on intermediate studs or battens and nogs at 200mm centres (refer Figures 5 and 6).
- Fit aluminium sheet jointers to both sides of the Invibe Panel sheet or allow spacings between the sheets for silicone joints.
- In wet areas, you must use silicone sealant in the aluminium jointers and mouldings.
- The aluminium sheet jointers are brad nail fixed into position at 300mm max centres.
- The gap between the sheets must be spaced 2mm as per Figure 10 when silicone jointing method is used.
- Once the sheets are adhesive fixed and finally in place, either the temporary bracing is required or adhesive tape is used to hold the sheet (refer Figure 6). Always protect the sheet surface against scratching.

Notes:

1. Refer to adhesive manufacturer's recommendations for use.
2. The contact method of adhesive bonding can also be used by experienced builders.
3. Ensure the room is well ventilated when working with solvents.

Figure 5: Invibe Panel fixing to walls — adhesive method



Note: For high impact areas extra nogs must be provided, or fix 6mm Villaboard™ Lining to the framing before installing Invibe Panel.

Figure 6: Invibe Panel fixing to walls — tape and adhesive method

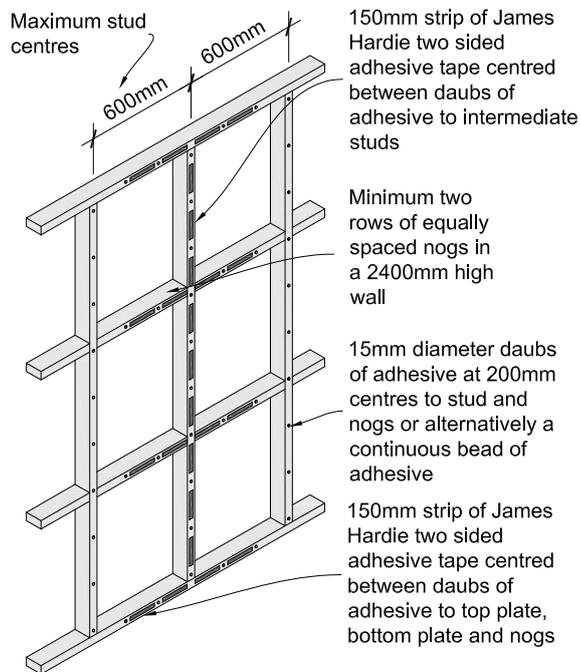
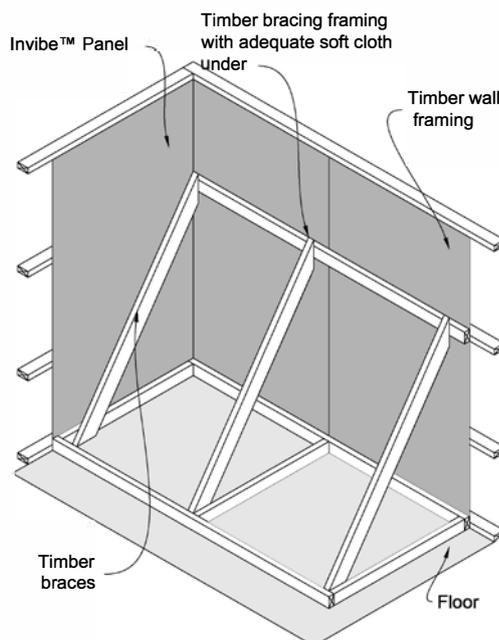


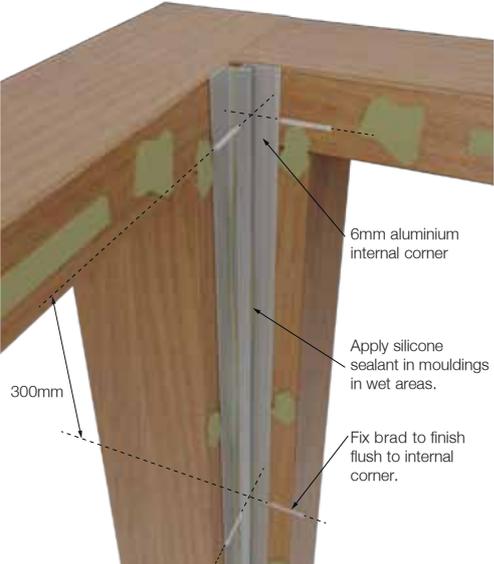
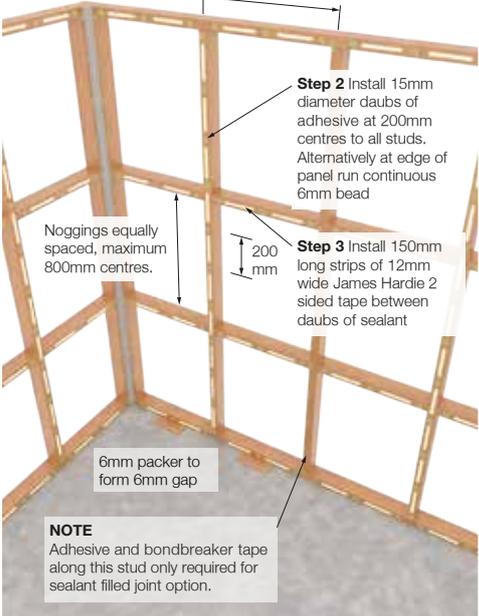
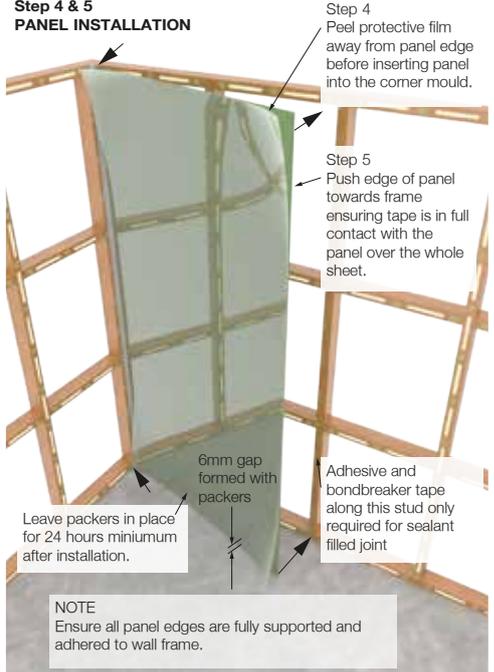
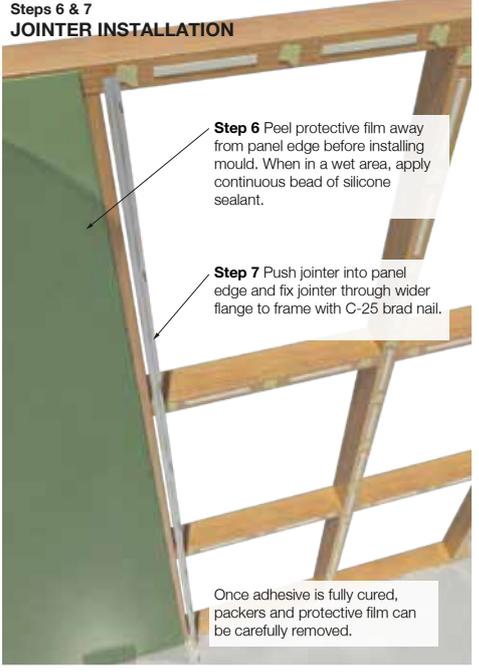
Figure 7: Temporary Invibe Panel bracing



Note: Ensure edges are well braced and timber braces are aligned over solid framing behind

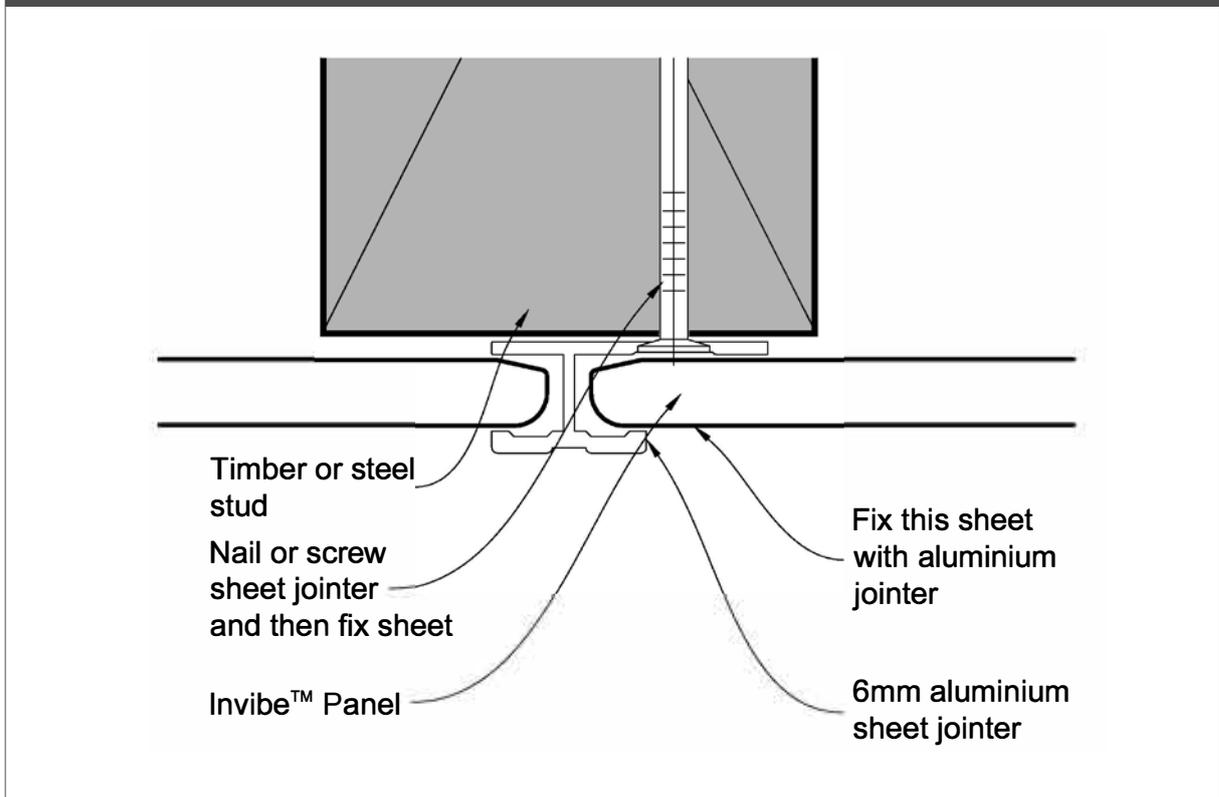
7 Jointing

Table 6

Aluminium moulding jointing procedures	
<p>Step 1 CORNER PREPARATION</p> <p>Install 6mm aluminium internal corner. Fix using C-25 brad nails at 300mm max centres.</p>  <p>6mm aluminium internal corner</p> <p>Apply silicone sealant in mouldings in wet areas.</p> <p>Fix brad to finish flush to internal corner.</p> <p>300mm</p>	<p>Steps 2 & 3 PANEL PREPARATION</p> <p>Studs at 600mm maximum centres.</p> <p>Step 2 Install 15mm diameter daubs of adhesive at 200mm centres to all studs. Alternatively at edge of panel run continuous 6mm bead</p> <p>Step 3 Install 150mm long strips of 12mm wide James Hardie 2 sided tape between daubs of sealant</p> <p>Noggings equally spaced, maximum 800mm centres.</p> <p>200mm</p> <p>6mm packer to form 6mm gap</p> <p>NOTE Adhesive and bondbreaker tape along this stud only required for sealant filled joint option.</p> 
<p>Step 4 & 5 PANEL INSTALLATION</p> <p>Step 4 Peel protective film away from panel edge before inserting panel into the corner mould.</p> <p>Step 5 Push edge of panel towards frame ensuring tape is in full contact with the panel over the whole sheet.</p> <p>6mm gap formed with packers</p> <p>Adhesive and bondbreaker tape along this stud only required for sealant filled joint</p> <p>Leave packers in place for 24 hours minimum after installation.</p> <p>NOTE Ensure all panel edges are fully supported and adhered to wall frame.</p> 	<p>Steps 6 & 7 JOINTER INSTALLATION</p> <p>Step 6 Peel protective film away from panel edge before installing mould. When in a wet area, apply continuous bead of silicone sealant.</p> <p>Step 7 Push jointer into panel edge and fix jointer through wider flange to frame with C-25 brad nail.</p> <p>Once adhesive is fully cured, packers and protective film can be carefully removed.</p> 

7.1 Dry Area Wall Joints

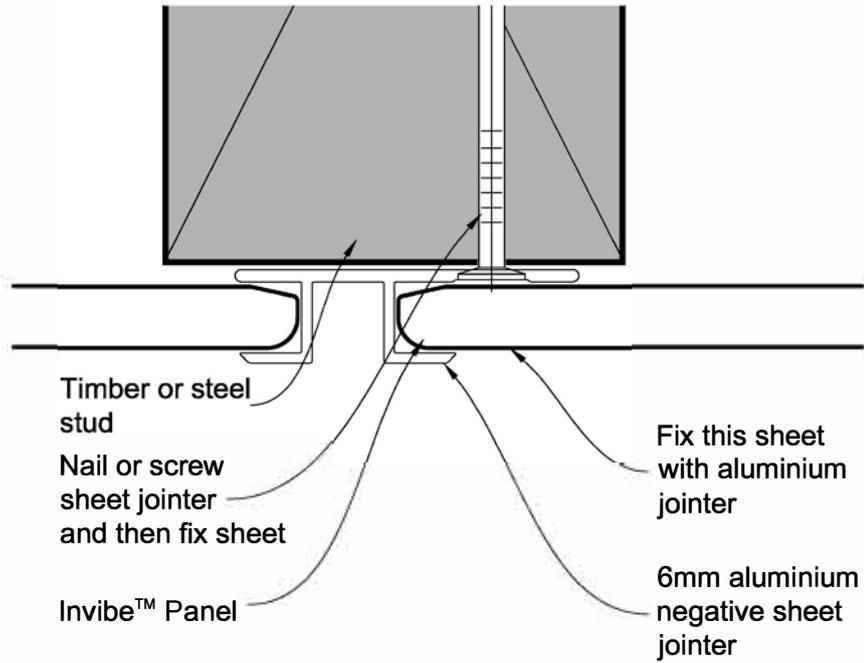
Figure 8: Aluminium jointer detail dry area



When using a cap mould, cut the vertical jointer shorter to suit.

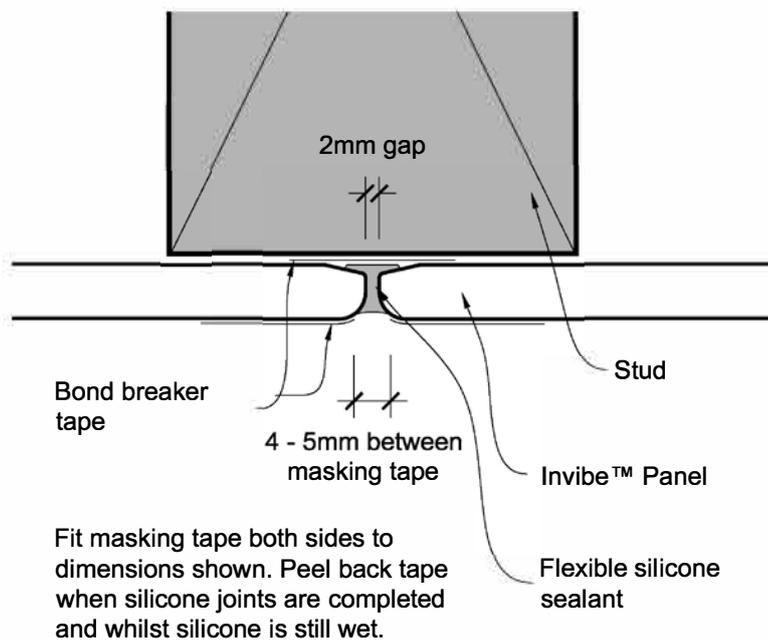
Silicone joint detail as per Figure 10 is also suitable for dry area lining applications.

Figure 9: Aluminium negative jointer detail dry area



Silicone jointing option can only be used in dry area applications as per Figure 10.

Figure 10: Silicone joint detail



Sealant Notes:

1. The silicone jointing method is suitable only for factory radiused-edge sheets.
2. Sealants are generally available in the market. Refer to manufacturer regarding colour coordinates and colour options available.
3. Do not touch silicone with bare finger. Use a plastic spoon or wear a plastic glove.
4. Always follow manufacturer's instructions.

7.2 Wet Area Wall Joints

When the aluminium jointer method is used for wet area applications with Invibe Panel, ensure that all the sheet edges have been sealed into jointers with a silicone sealant (refer Figure 10). When using a cap mould, cut the vertical jointer shorter to suit.

Fix mouldings at max 300 centres with nail or screw.

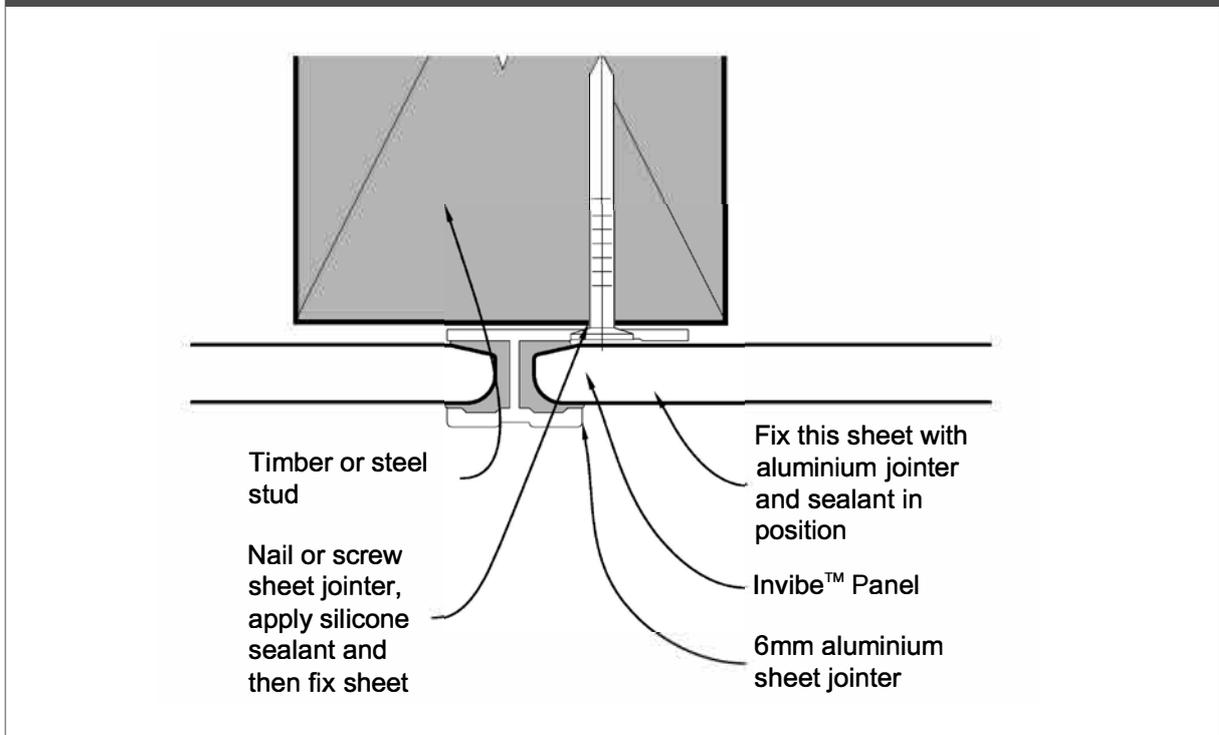
Around baths and showers:

- Around baths silicone detail to be used.
- For a stainless-steel shower installation it is essential that a drip edge is formed at the bottom of the sheet (refer Figure 14).

Penetrations:

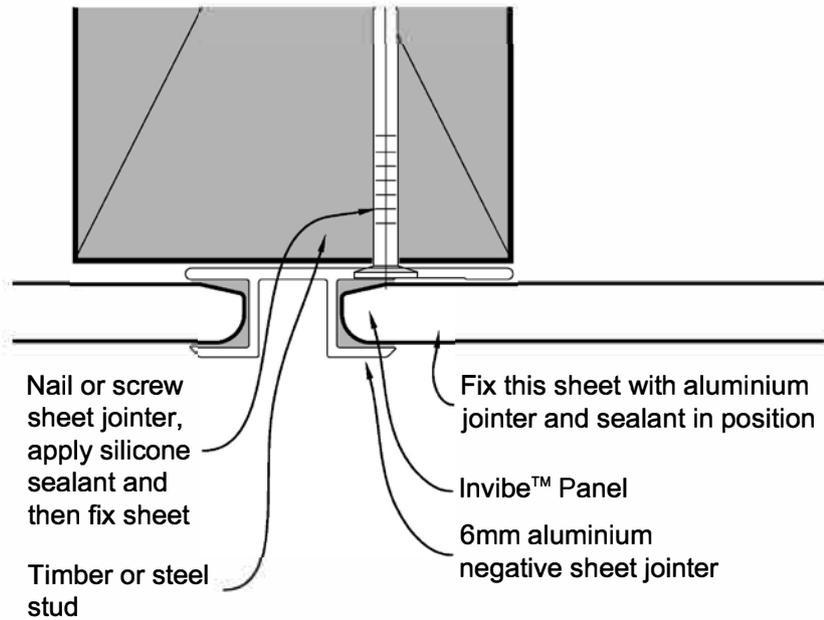
- Seal all fittings and penetrations through Invibe Panel with a silicone or similar sealant. Use flanges/face plates to cover the penetrations.
- Ensure that adequate moisture management is achieved for the details not covered in this manual. Refer to designer for the details.

Figure 11: Aluminium jointer detail wet area



Note: For showers and similar wet areas the aluminium jointer/corners/caps must be silicone-sealant filled.

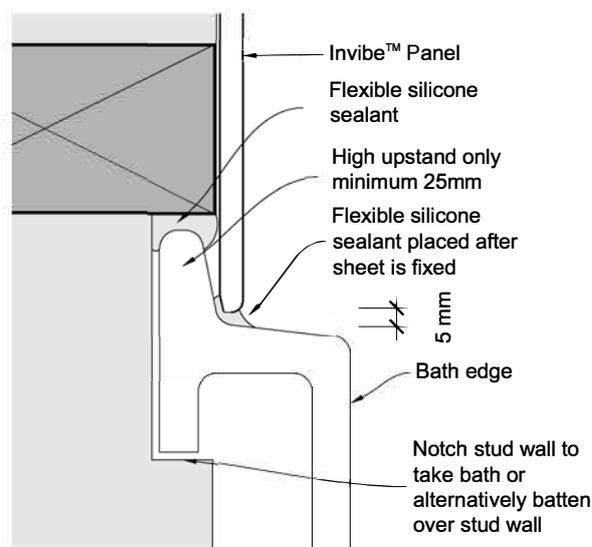
Figure 12: Aluminium negative jointer detail



7.3 Wet Area Wall-To-Floor Joints

For details of 6mm Invibe Panel junction with a tiled floor, refer to Figure 15. For details of 6mm Invibe Panel junction with a vinyl covered floor, refer to Figure 16.

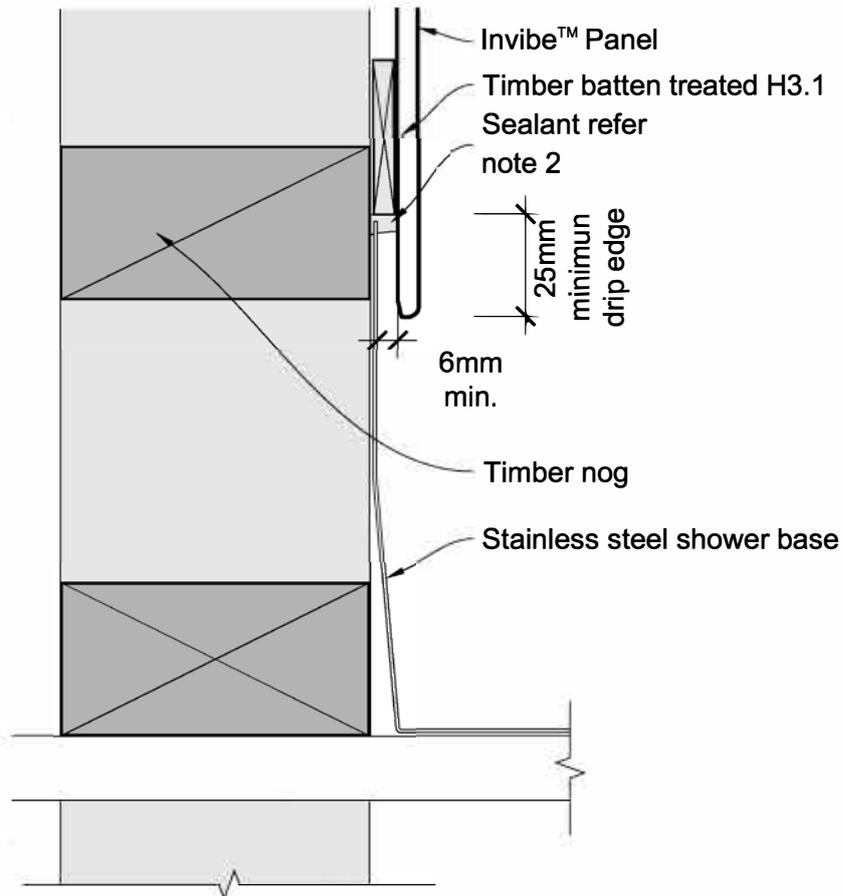
Figure 13: Invibe Panel sealant bath/acrylic shower detail



Notes:

1. This detail is suitable for high-upstand baths only.
2. Seal bottom edge and 100mm up back of sheet with Dulux® 1 Step, Dulux® Acraprime® 501/1 or similar.
3. High-upstand acrylic shower bases can be finished to a similar detail.

Figure 14: Invibe Panel shower drip edge detail



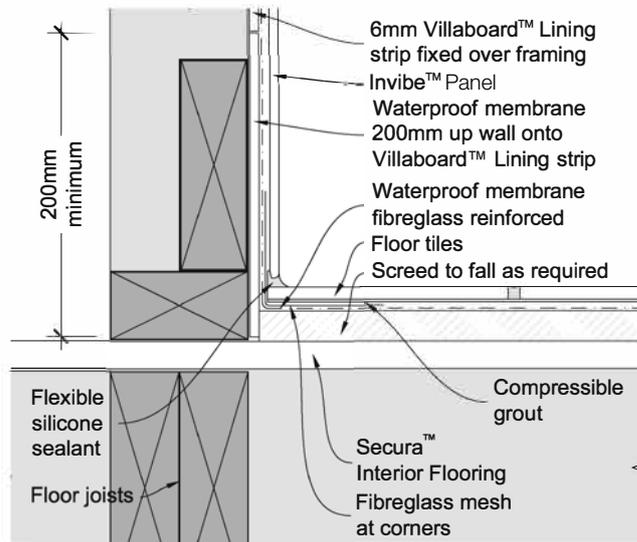
Notes:

1. Seal bottom edge and 100mm up back of sheet with Dulux Primercryl, Dulux Acraprime 501/1 or similar.
2. It is important to use sealant here to prevent possible damage to the framing.
3. The shower tray can be notched into the stud to eliminate battening.

Notes:

1. The bottom edge and 100mm up the back face must be sealed with Dulux® 1 Step, Dulux® Acraprime® 501/1 or similar.
2. It is important to use sealant here to prevent possible damage to the framing.
3. The shower tray can be notched into the stud to eliminate battening.

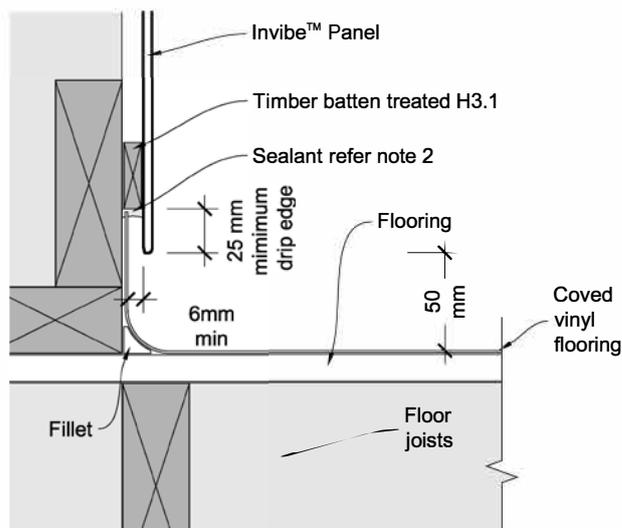
Figure 15: Invibe Panel wall to tiled floor detail



Notes:

1. Secura™ Interior Flooring to be installed as per the installation manual.
2. Tiles to be laid prior to Invibe Panel installation.
3. Seal bottom edge and 100mm up back of panel with Dulux® 1 Step, Dulux® Acraprime® 501/1 or similar.

Figure 16: Invibe Panel to covered vinyl floor detail



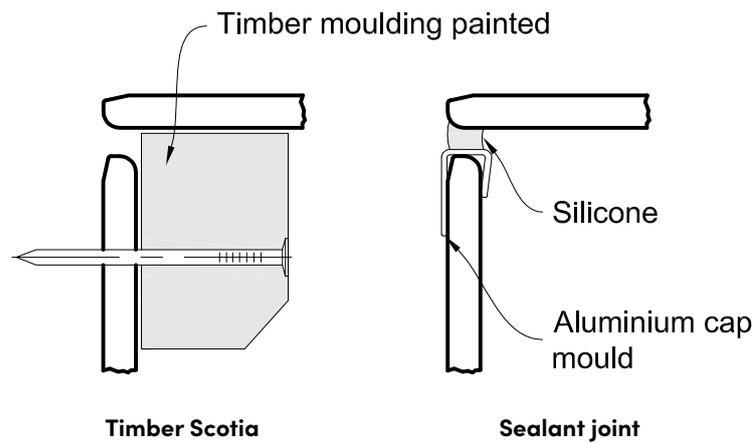
Notes:

1. The bottom edge and 100mm up the back face must be sealed with Dulux® 1 Step, Dulux® Acraprime® 501/1 or similar.
2. It is important to use sealant here to prevent possible damage to the framing.
3. The vinyl and supporting substructure can be notched into the stud to eliminate battening.

7.4 Wall-to-ceiling Joints

Use either a timber moulding or aluminium cap. Refer to Figure 17 for details.

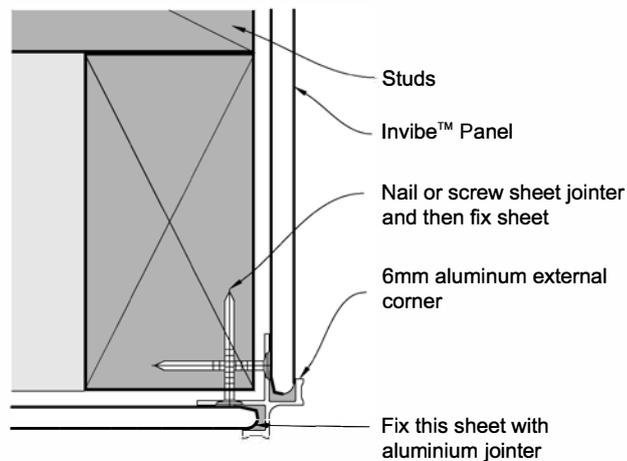
Figure 17: Invibe Panel ceiling scotia moulding alternatives



7.5 External corner joints

Use the external corner mould.

Figure 18: Aluminium External Corners



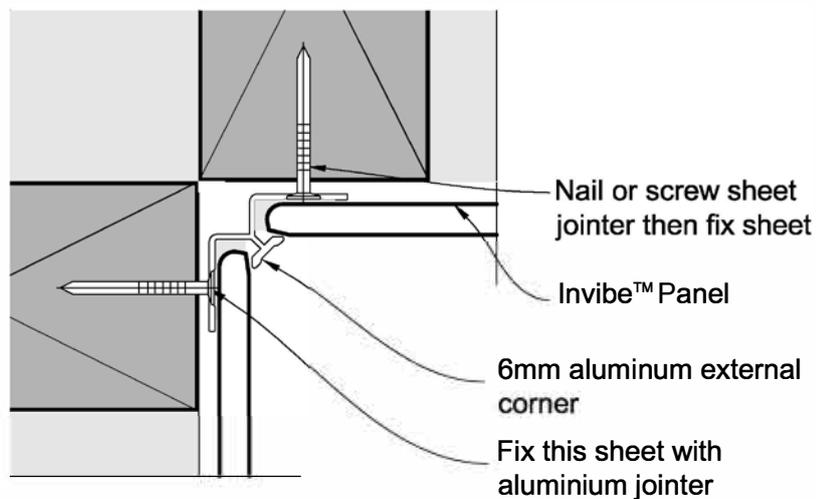
Note: All site cut edges to be sealed
Silicone required in wet areas with Invibe™ panel

7.6 Internal Corner Joints

For Invibe Panel there are two internal jointing options:

- The internal corner mould.
- Silicone joint – when a site cut sheet edge is used to form a corner, ensure the cut edge butts into the corner framing and the manufactured edge forms a gap to finish the silicone joint in dry areas only.

Figure 19: Aluminium Internal Corner



Note: All site cut edges to be sealed
Silicone required in wet areas with Invibe™ Panel

Sealant Notes:

1. The silicone jointing method is suitable only for factory radiused-edge sheets in dry areas only.
2. Sealants are generally available in the market. Refer to manufacturer regarding colour coordinates and colour options available.
3. Do not touch silicone with bare finger. Use a plastic spoon or wear a plastic glove.
4. Always follow manufacturer's instructions.

8 Special Applications

8.1 Indoor Swimming Pool Application

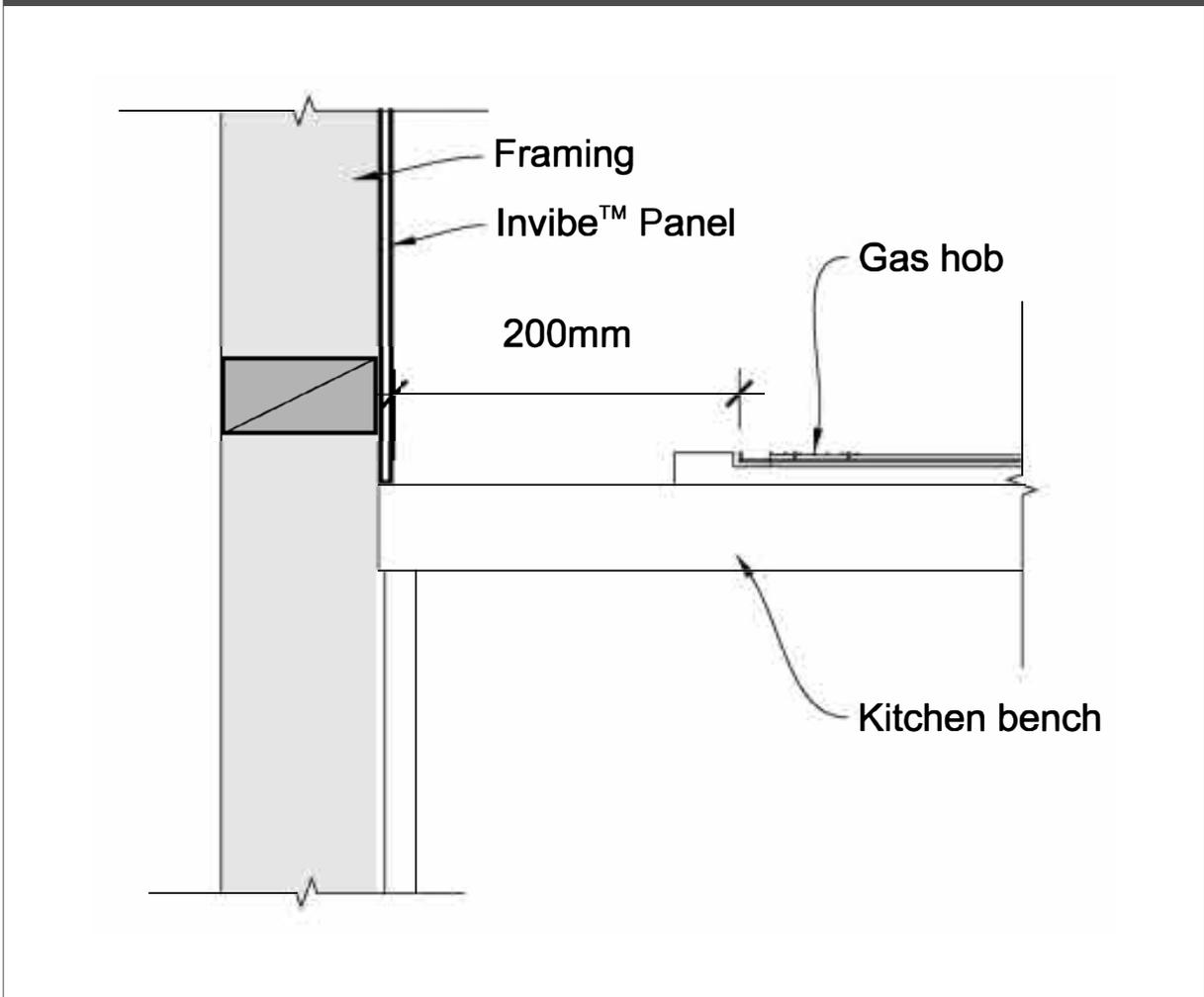
A chlorine environment is not suitable for wallboard adhesives, therefore when using Invibe Panel in areas such as indoor swimming pool areas, check with the adhesive manufacturer regarding their suitability in this application or use stainless steel screws with cup washers. It is recommended that a higher level of timber treatment is used for timber framing in this environment. The back face of sheets must be fully sealed.

Invibe Panel must be cleaned more frequently when used in a chlorine environment.

8.2 Splashback

Invibe Panel can be used as a splashback. Minimum clearance of 200mm must be maintained from the closest outer ring of gas hob and 100mm of electric hob.

Figure 20: Invibe Panel splashback to benchtop

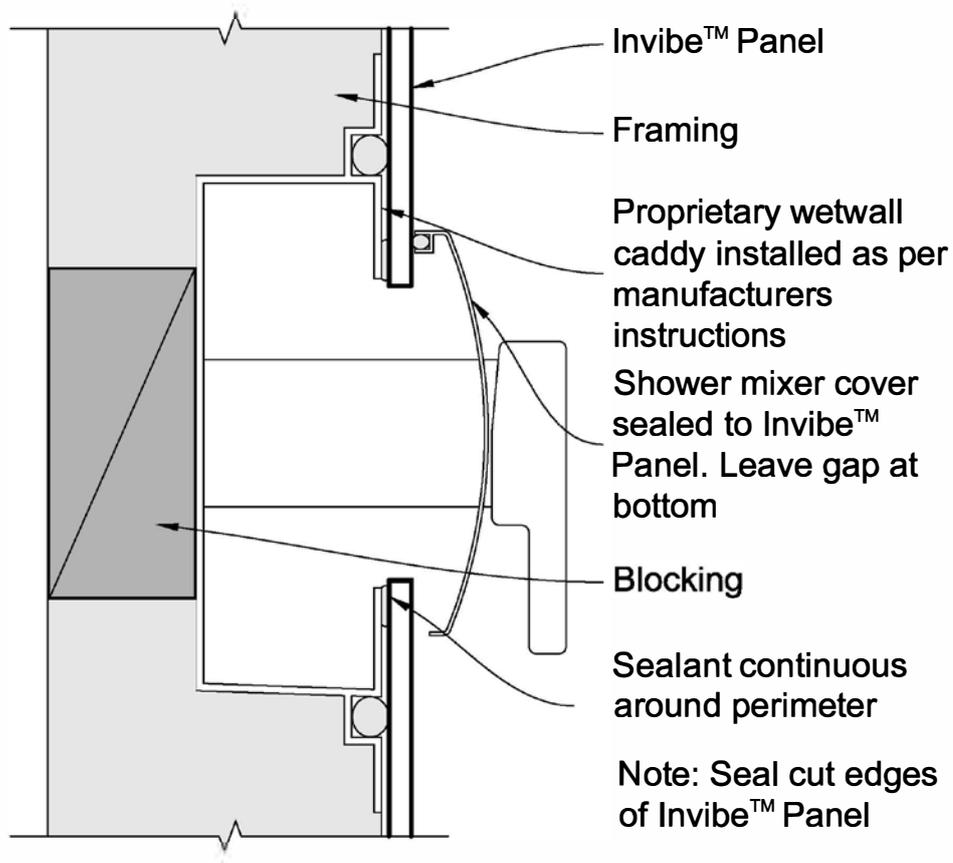


8.3 Wet Area Penetration

Sealing Penetrations:

- Apply sealant around taps and fixture penetrations after fixing the sheets into place.

Figure 21: Optional wet wall caddy



9 Product Information

9.1 Product Description

Invibe Panel is a pre-finished wall lining for use in wet, semi-wet and dry internal areas.

Invibe Panel's are manufactured by James Hardie. The base sheets are a light grey colour. All sheets have the face side fully sanded to give a smooth finish, and are polyurethane coated. Invibe Panel is also clear coated on the back of the sheet. The name 6.0 Base Sheet is printed across the back of all sheets at regular intervals. Additional identification is the name written on the sticker applied to back of lining. Invibe Panel is for interior use only. They must not be used for external applications. The unique radiused, painted edge of Invibe Panel sheets mean they can be silicone jointed in dry areas only.

Invibe Panel is manufactured to AS/NZS 2908.2 'Cellulose-Cement Products Part 2: Flat Sheets' (ISO 8336 'Fibre Cement Flat Sheets') standards in New Zealand. James Hardie is an ISO 9001 certified manufacturer. Invibe Panel is classified Type B, Category 3 in accordance with AS/NZ 2908.2 'Cellulose-Cement Products'.

Invibe Panel has demonstrated resistance to permanent moisture induced deterioration (rotting) and has passed the following tests in accordance with the AS/NZS 2908.2:

- Water permeability
- Warm water
- Heat rain
- Soak dry

For Safety Data Sheets (SDS) visit www.jameshardie.co.nz or Ask James Hardie on 0800 808 868.

9.2 Panel Properties

Invibe Panel has been tested to demonstrate the following properties;

- Resistant to permanent moisture induced deterioration.
- Stable within the normal range of moisture and temperature changes.
- Soft impact resistance.
- Water and steam resistant
- Non combustible material.
- Easily cut and fixed.
- Contains silica. (refer to Safe Working Practices.)
- Easy to clean.

Invibe Panel does not support mould growth. Invibe Panel is ideal in conditions where there is moisture. However, wetting of the back of the sheet must be avoided as this will degrade the support framing and may eventually lead to the deterioration of the Invibe Panel.

9.3 Sheet Mass

The equilibrium moisture content of Invibe Panel can vary depending on the seasons. The approximate mass of Invibe Panel sheet is 9.5kg/m² at equilibrium moisture content level.

9.4 Fire Properties

Invibe Panel has a 'Group Number 1-S' classification as per the requirements of clause C of the NZBC.

The panels are not suitable to achieve a fire rating due to the fact that the panels are only adhesive fixed.

10 Maintenance

10.1 General

Invibe Panel is resistant to damage from moisture, but still the sheet must be installed and maintained to resist the penetration of moisture. It is important that the sealants and jointers are prevented from any damage to ensure that water doesn't penetrate behind the Invibe Panel.

Regular inspections are required to determine whether any system components need replacing. Refer to cleaning recommendation in clause 10.2.

10.2 Cleaning Procedures

- Simply wipe the surface with a damp cloth.
- Always use a non-abrasive soft cloth to clean the sheet surface. Non-abrasive cleaning detergents can be used if needed.
- Not all cleaners are suitable for Invibe Panel.
- Do not use abrasive cleaning methods such as steel wool or powder cleaners as they may mark and erode the painted surface.

Product Warranty

James Hardie New Zealand Limited ("James Hardie") warrants to the first purchaser of the Product for a period of 15 years from the date of purchase that the Invibe™ Panel (the "Product") will be free from defects due to defective factory workmanship or materials and, subject to compliance with the conditions below, will be resistant to cracking, rotting, fire and damage from termite attacks to the extent set out in James Hardie's relevant published literature current at the time of installation. James Hardie warrants for a period of 15 years from the date of purchase that the accessories supplied by James Hardie to be used in conjunction with the Product will be free from defects due to defective factory workmanship or materials.

Nothing in this document shall exclude or modify any legal rights a customer may have under the Consumer Guarantees Act or otherwise which cannot be excluded or modified at law.

CONDITIONS OF WARRANTY:

The warranty is strictly subject to the following conditions:

- a) James Hardie will not be liable for breach of warranty unless the claimant provides proof of purchase and makes a written claim either within 30 days after the defect would have become reasonably apparent or, if the defect was reasonably apparent prior to installation, then the claim must be made prior to installation;
- b) this warranty is not transferable;
- c) the Product must be installed and maintained strictly in accordance with the relevant James Hardie literature current at the time of installation and must be installed in conjunction with the components or products specified in the literature. To obtain copies of such literature please contact 'Ask James Hardie™ 0800 808 868'. Further, all other products, including coating and jointing systems, applied to or used in conjunction with the Product must be applied or installed and maintained strictly in accordance with the relevant manufacturer's instructions and good trade practice;
- d) the project must be designed and constructed in strict compliance with all relevant provisions of the current New Zealand Building Code ("NZBC"), regulations and standards;
- e) the claimant's sole remedy for breach of warranty is (at James Hardie's option) that James Hardie will either supply replacement product, rectify the affected product or pay for the cost of the replacement or rectification of the affected product;
- f) James Hardie will not be liable for any losses or damages (whether direct or indirect) including property damage or personal injury, consequential loss, economic loss or loss of profits, arising in contract or negligence or howsoever arising. Without limiting the foregoing James Hardie will not be liable for any claims, damages or defects arising from or in any way attributable to poor workmanship, poor design or detailing, settlement or structural movement and/or movement of materials to which the Product is attached, incorrect design of the structure, acts of God including but not limited to earthquakes, cyclones, floods or other severe weather conditions or unusual climatic conditions, efflorescence or performance of paint/coatings applied to the Product, normal wear and tear, growth of mould, mildew, fungi, bacteria, or any organism on any Product surface or Product (whether on the exposed or unexposed surfaces);
- g) all warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extent allowed by law;
- h) if meeting a claim under this warranty involves re-coating of Products, there may be slight colour differences between the original and replacement Products due to the effects of weathering and variations in materials over time.

Disclaimer: The recommendations in James Hardie's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to conditions (c), (d), (f) and (g) above. James Hardie has tested the performance of Invibe™ Panel when installed in accordance with the Invibe™ Panel installation manual, in accordance with the standards and verification methods required by the NZBC and those test results demonstrate the product complies with the performance criteria established by the NZBC. However, as the successful performance of the relevant system depends on numerous factors outside the control of James Hardie e.g. quality of workmanship and design etc. James Hardie shall not be liable for the recommendations made in its literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the NZBC, regulations and standards as it is the responsibility of the building designer to ensure that the details and recommendations provided in the relevant James Hardie installation manual are suitable for the intended project and that specific design is conducted where appropriate.

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