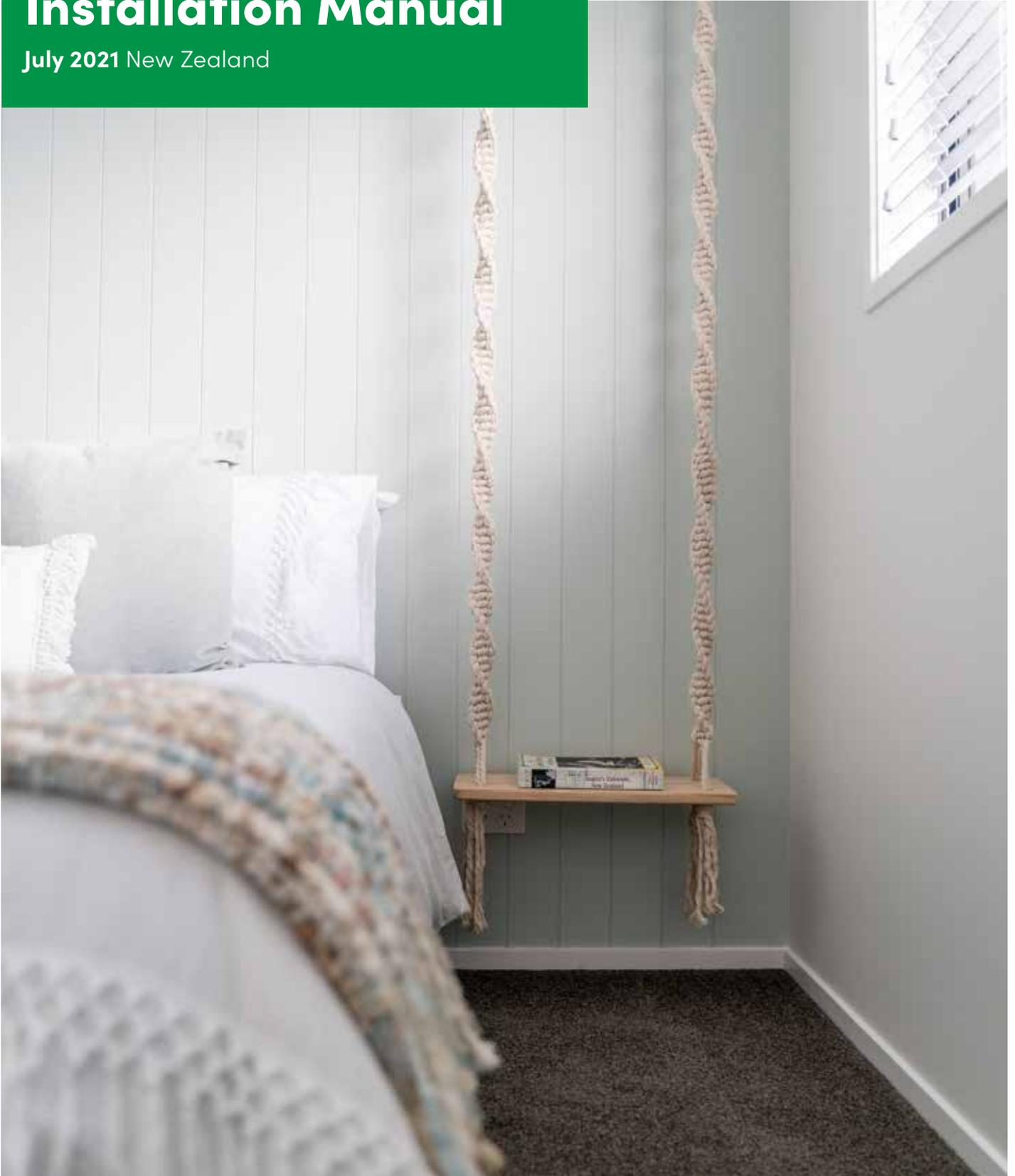


Installation Manual

July 2021 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.

Contents

1	Introduction	4		
2	Safe Working Practices	7		
2.1	Storage and Delivery	9		
2.2	Tips for Safe and Easy Handling of Hardie™ Groove Lining	10		
3	Framing	10		
3.1	General	10		
3.2	Timber	10		
3.3	Steel	11		
3.4	Preparation	11		
4	Installation	12		
4.1	Sheet Layout	12		
4.2	Fasteners	12		
4.3	Fixing To Walls	13		
4.4	Full Sheet Fixing	15		
4.5	Dado Height Fixing	17		
4.6	Fixing Over Plasterboard Lining	19		
4.7	Fixing To Ceilings and Soffits	19		
4.8	Fixing To Masonry Substrates	20		
5	Jointing and Corners	21		
5.1	Butt Joints	21		
5.2	Corners	23		
6	Product Information	26		
6.1	General	26		
6.2	Product Mass	26		
6.3	Durability	26		
6.4	Fire Properties	26		
6.5	Finishes	26		
6.6	Maintenance	26		
	Product Warranty	27		

1 Introduction

Hardie™ Groove Lining combines the appearance of traditional timber tongue and groove wall panelling with the benefits of modern fibre cement.

Because the baseboard is Hardie™ fibre cement, it's resistant to fire, rot resistant and resistant to moisture damage when installed and maintained as directed.

Hardie™ Groove Lining has decorative v-shaped grooves carved into the front face of the 7.5mm sheet, and is sanded, ready to be painted in any colour.

Hardie™ Groove Lining can be fixed to the full height of the wall or at dado height to create a decorative, hard-wearing, impact resistant lining in hallways and to withstand the toughest treatment in family rooms, rumpus rooms, laundries and bathrooms (not suitable for shower areas).

Hardie™ Groove Lining is also ideal for use in ceilings, either to add interest to a modern design, or to create historical detail on a renovation project.

The main features of Hardie™ Groove Lining are:

- Durable internal lining, soffit and ceiling sheet.
- Creates suitable surface for paint finish.
- Sheet edges have a 'half groove' to achieve concealed sheet joints.
- Reliable impact resistant decorative lining. Ideal for wall lining where walls are prone to damage.
- Resistance to damage from moisture making it ideal for bathrooms, laundries and kitchens.
- Joints won't pull or shift apart.
- Authentic v-shaped grooves replicate traditional tongue and groove look and style.
- Ideal as feature wall to dado height.

The specifier or other responsible party for the project must ensure the information and details in this guide are appropriate for the intended application and specific design and detailing is undertaken for areas which fall outside the scope of this documentation.

Make sure your information is up to date

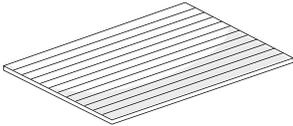
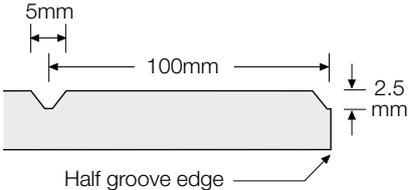
When specifying or installing Hardie™ fibre cement products, ensure you have the current manual. If you're not sure you do, or if you need more information, visit www.jameshardie.co.nz or Ask James Hardie™ on 0800 808 868.

Hardie™ Groove Lining is only for use in internal applications.

For use externally on eaves and soffits refer to the Eaves and Soffits Installation Manual by James Hardie.

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 Hardie™ Groove Lining supplied are found to be out of its manufacturing specification.

Table 1

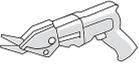
Product	Description	Description
		<p>Hardie™ Groove Lining is a v-grooved internal lining board with the look of timber and the durability of fibre cement.</p> <p>Individual batten widths are 100mm</p> <p>Sheet sizes: 2400mm x 1200mm x 7.5mm Product code 400246 2700mm x 1200mm x 7.5mm Product code 400245</p>

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

Table 2

Product/Accessories/Tools supplied by James Hardie					
Product	Description	Code	Product	Description	Code
	Hardie™ Blade Saw Blade 184mm diameter, poly diamond blade, for fast, clean cutting of Hardie™ fibre cement.	300660		FibreTEKS® Screw For fastening to 0.75mm to 1.0mm BMT steel frames. Class 3 finish. Length: 30mm x 9g © denotes a registered mark of Buildex®	1000/box 303840
	Hardie™ Base Coat For finishing fastener heads. Volume: 4kg Pail 15kg Bag	304490 304491		Hardie™ Drive Screw s/s 316 30mm x 7g	100/jar 300928
	Soffit Scotia Mould 2 pcs. (base and cap) 2400mm	300916		Villadrive™ Wood Screw Envirodrab coating. Length: 30mm x 6g	100/jar 300992 5kg/box 300993 1000 collated 300994
	Hardie™ Knife Scoring tool for easy cutting.	305926			

Table 3

Product/Accessories/Tools not supplied by James Hardie			
<p>James Hardie recommends the following products for use in conjunction with its Hardie™ Groove Lining. James Hardie does not supply these products and does not provide a warranty for their use. Please contact the component manufacturer for information on their warranties and further information on their products.</p>			
	<p>Hardie™ Flex nails 40 x 2.8mm galvanised or stainless steel 316 fibre cement nails for fastening to timber.</p>		<p>Fibreshear Electric cutting tool.</p>
	<p>Adhesive Sealant Sika® Sikaflex® 11FC, Bostik® Seal N Flex-1, Fuller™ Max Bond™, Selleys® Liquid Nails</p>		<p>Brad Nail ND 50 To be used in conjunction with 6mm bead of adhesive on a stud/nogs. Only suitable for internal walls.</p>

2 Safe Working Practices

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

Hardie™ fibre cement 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 for cutting:

Best

- Hardie™ Knife
- Hand guillotine
- Fibreshear

Better

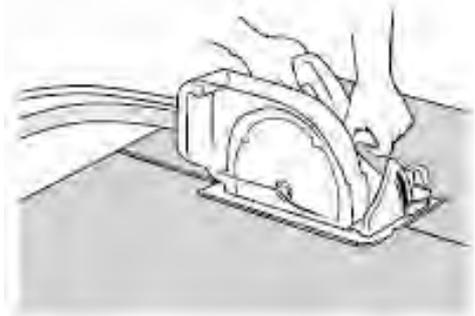
Dust reducing circular saw equipped with Hardie™ Blade Saw Blade and connected to a M Class or higher vacuum.

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

When cutting indoors

- ✗ Never cut using a circular saw indoors
- ✓ Position cutting station in a well ventilated area
- ✓ Cut ONLY using a Hardie™ Knife, hand guillotine or fibreshears (manual, electric or pneumatic)
- ✓ 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™ fibre cement products should be off-loaded carefully by hand or by forklift
- ✓ Hardie™ fibre cement products should not be rolled or dumped off a truck during the delivery to the jobsite

Storage

Hardie™ fibre cement 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™ fibre cement 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 Hardie™ Groove Lining

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

3 Framing

3.1 General

Hardie™ Groove Lining can be fixed to either timber or light gauge domestic type steel framing. The framing used must comply with the relevant building regulations and standards and the requirements of this manual.

Note: Hardie™ Groove Lining must not be used in shower areas.

3.2 Timber

Timber framing must comply with the durability requirements of Clause 'B2' of the NZBC. Timber must be treated as per the requirements of the NZS 3602.

Timber framing sizes and set out must satisfy the minimum requirements of NZS 3604 and this installation guide.

The minimum stud width of 35mm may be used. However, where butt jointing is used the minimum stud width is 45mm at the joint. See Figure 13.

Reference NZS 3604 'Timber-framed Buildings'.

3.3 Steel

The minimum size for steel stud framing should be 64mm deep x 0.55mm base metal thickness (BMT). Steel framing shall comply with NASH 3405 Steel Framed Buildings. Steel sections shall be galvanised or zinc coated of 0.55mm – 1.6mm BMT. Studs must not be less than 38mm wide at butt joints.

Figure 1: Frame straightness



3.4 Preparation

Ensure frame is square and work from a central datum line. Frames must be straight and true to provide a flush face to receive the sheeting.

A suggested maximum tolerance of between 3mm and 4mm in any 3000mm length of frame will give best results. Hardie™ Groove Lining will not straighten excessively warped or distorted frames and any warping may still be visible after the internal lining is installed.

4 Installation

4.1 Sheet Layout

Hardie™ Groove Lining is usually fixed vertically. Sheet joints must coincide with the centre line of the framing member.

The long edges of the sheet have a unique half groove, which achieves a concealed joint.

Where fixing half height sheets as a dado wall, provide a row of noggings to allow for fastening of the sheet edge.

When fixing around window openings, best practice would be to align the sheet joints with the window jamb.

4.2 Fasteners

Fasteners must have the appropriate level of durability required for the intended project.

Fasteners must be fully compatible with all other material that they are in contact with to ensure the durability and integrity of the assembly.

- On timber frame use Villadrive™ screws 30mm x 6g or Hardie™ Drive stainless steel screws for quick installation of Hardie™ Groove Lining.
- Alternatively the Hardie™ Groove Lining can be fixed with 40 x 2.8mm Hardie™ Flex nails or ND 50 brad nails.
- For fixing Hardie™ Groove Lining to 0.55 – 1.0mm BMT steel framing, use 30mm Buildex® FibreTEKS collated screws.

Nails must be finished flush (Figure 2). Screws can be driven 0.5mm below the sheet surface to achieve the required finish level (Figure 2). In steel framing the fasteners should be driven as close as possible to the stud corners to avoid deflection of the stud flange, see Figure 3.

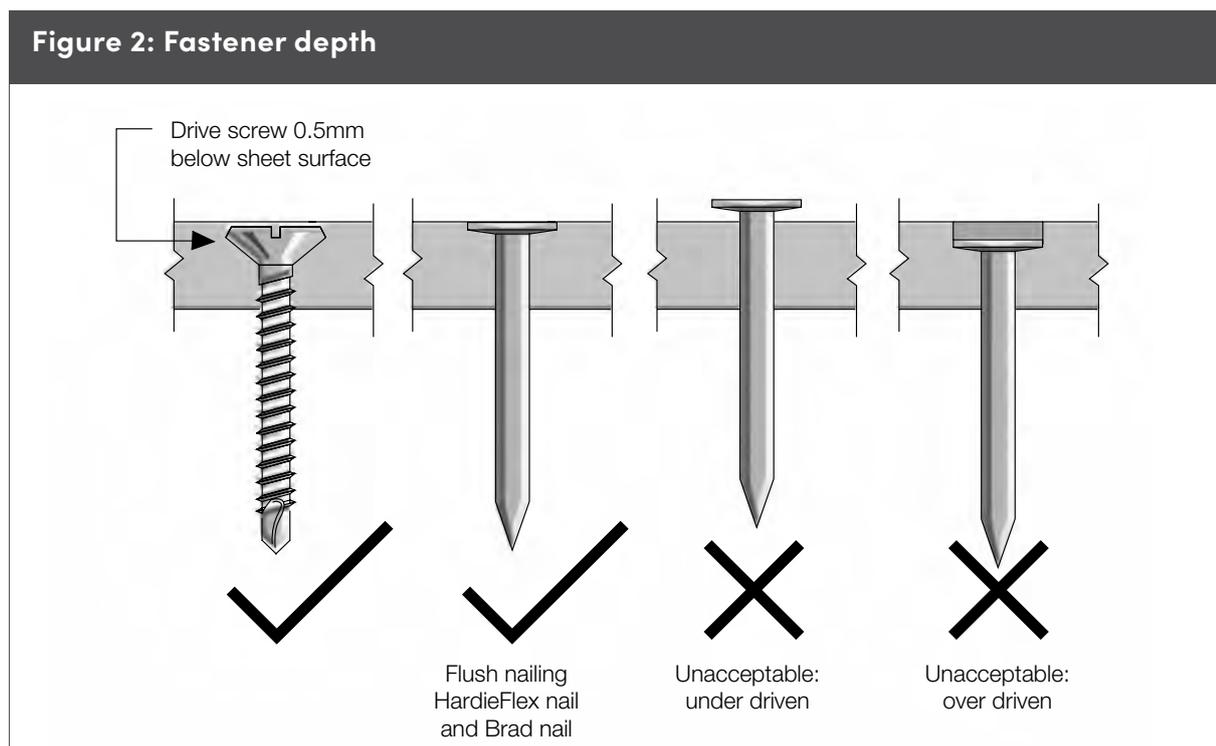
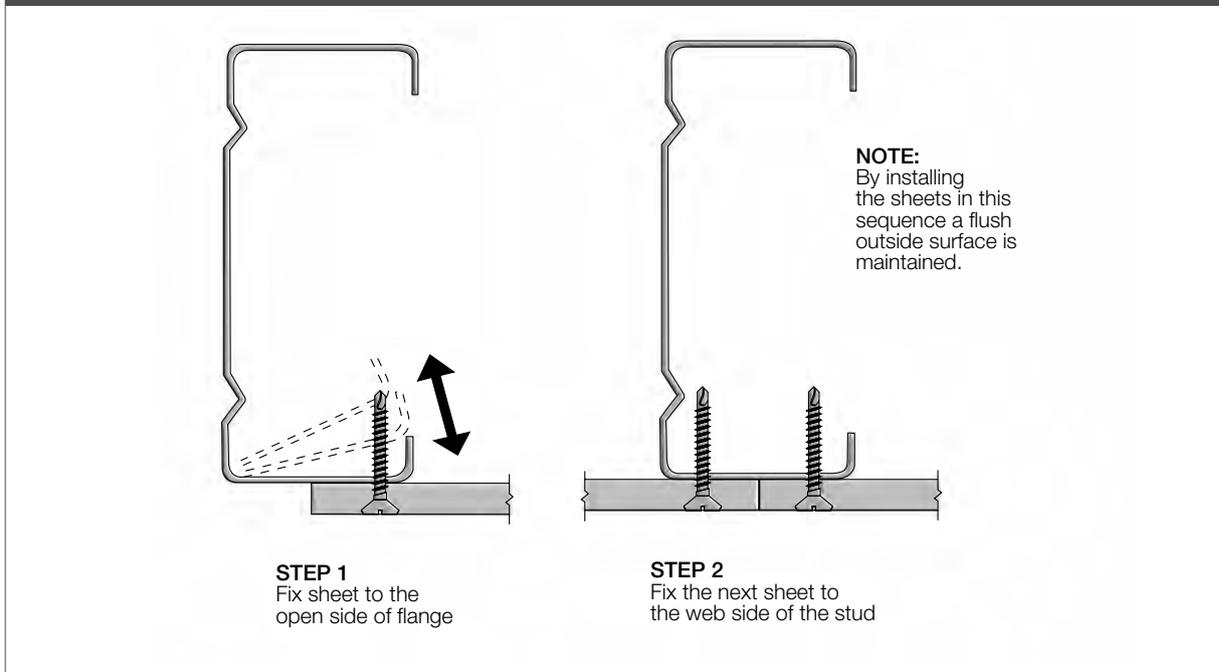


Figure 3: Screw fastening



Note: Do not place nails or screws within 100mm of the adhesive daubs.

4.3 Fixing to Walls

Step 1

Place 6.0mm off-cut packers along floor as temporary support for sheets.

This allows provision for frame movement. Put sheet in place as shown.

Step 2

Fix sheet starting from the centre of sheet and working outwards to avoid any druminess. For fastener spacings refer to Figures 6 and 8 for full height and dado height walls respectively.

Final step

Fix remaining sheets in similar sequence.

Figure 4: Sheet installation



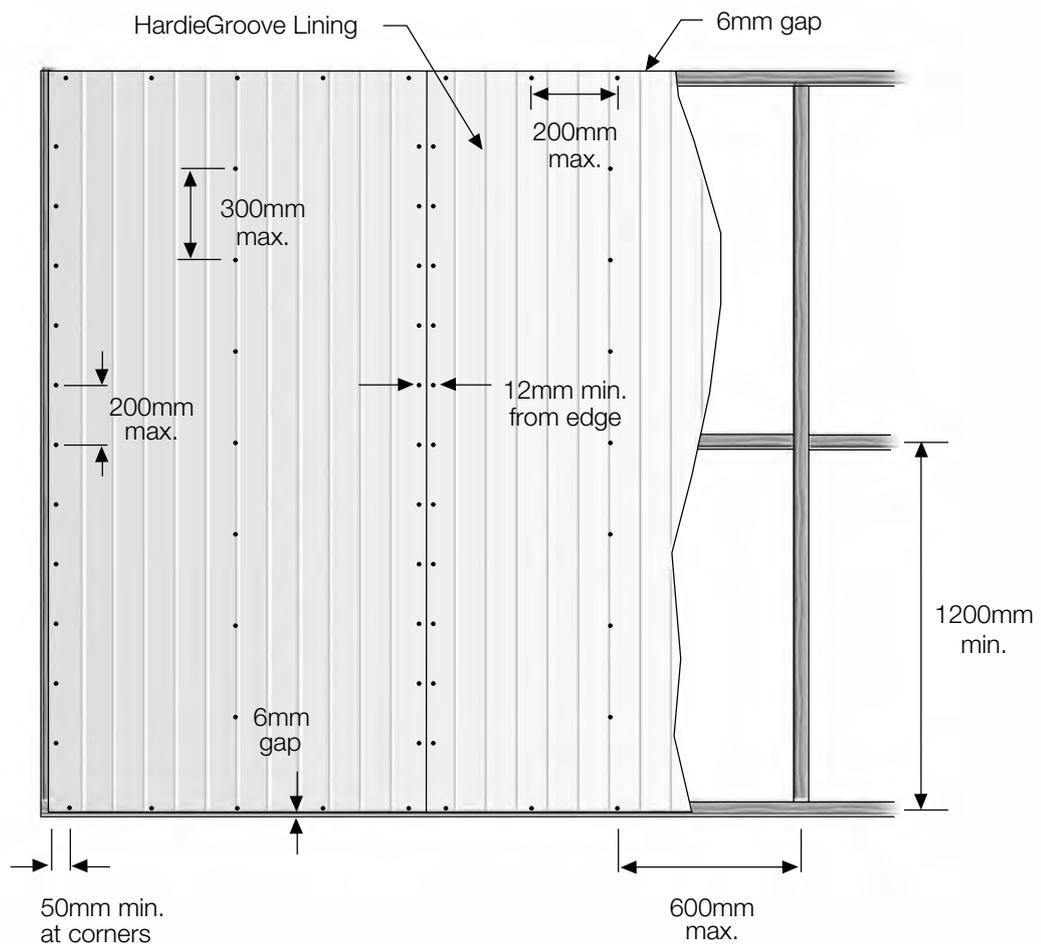
Figure 5: Sheet fixing



4.4 Full Sheet Fixing

When fixing full sheets of Hardie™ Groove Lining to framed walls, fasten sheets as shown in Figure 6. Sheet butt joints must coincide with the centre line of framing members.

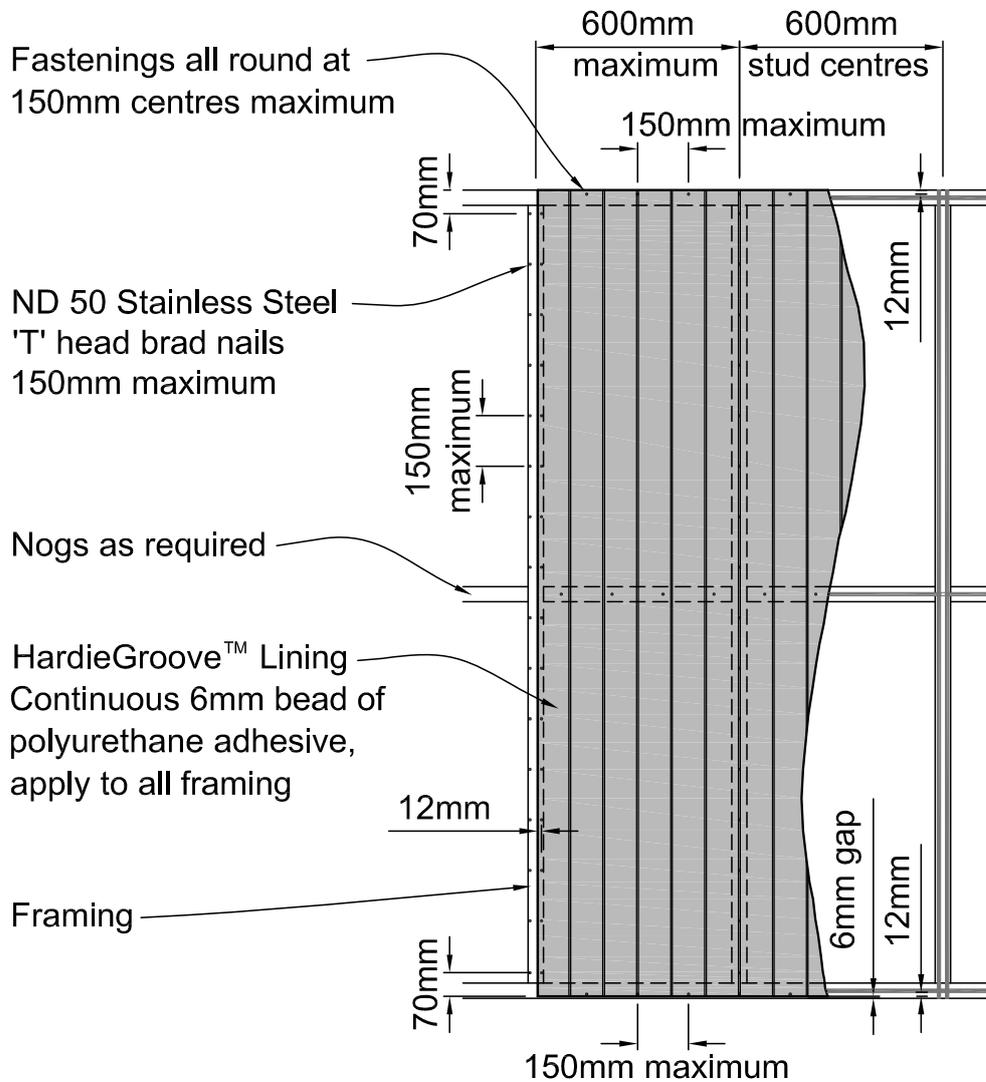
Figure 6: Full sheet fixing



Notes:

1. To reduce the number of visible fixings the centre of the sheet can be fixed with adhesive. See Figure 8 and 9 for details.
2. Hardie™ Groove Lining can also be fixed using brad nails in conjunction with adhesives to reduce visible fixings.

Figure 7: Brad nail fixing



4.5 Dado Height Fixing

Hardie™ Groove Lining may be installed to half the wall height to create a dado appearance. Ensure top of sheet is fixed to an in-line row of noggings as shown in Figure 8 and 9.

Figure 8: Dado height fixing with brads

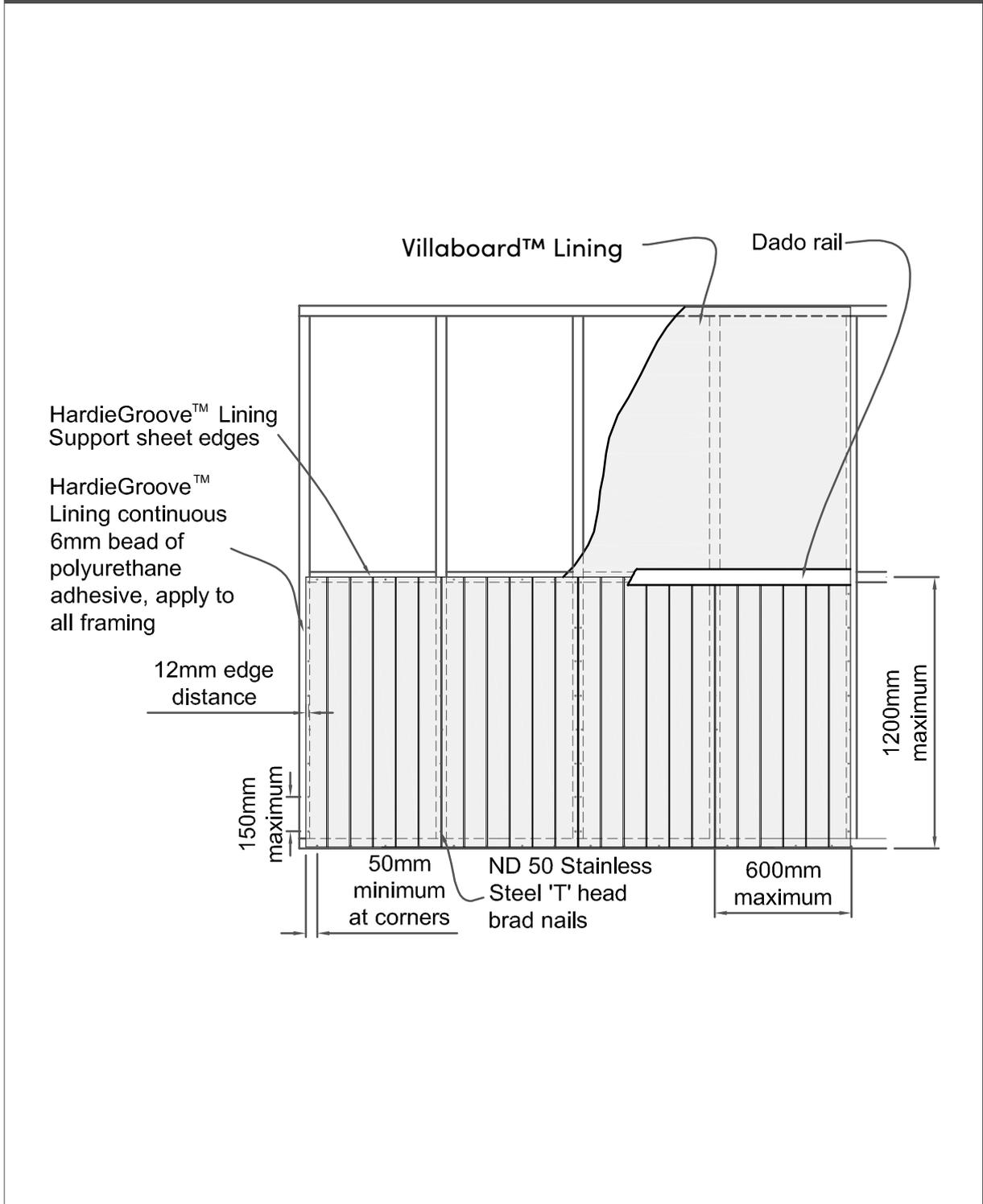
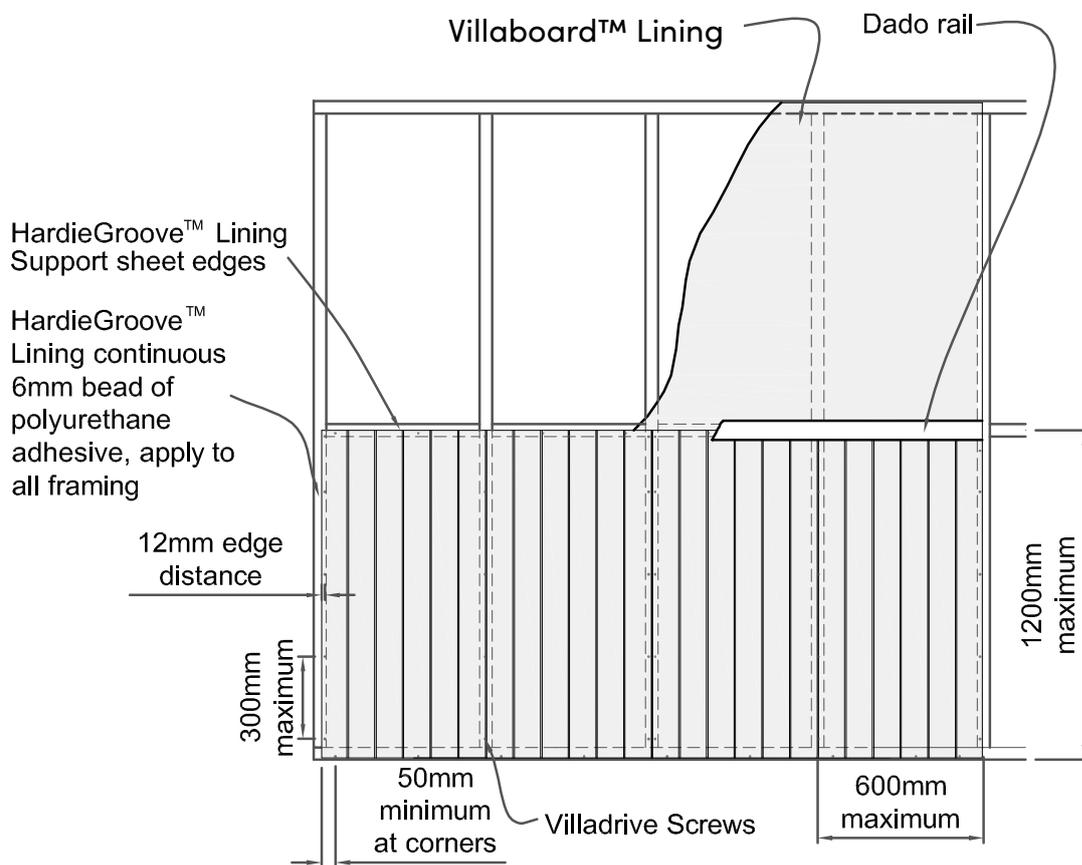


Figure 9: Dado height fixing with screws



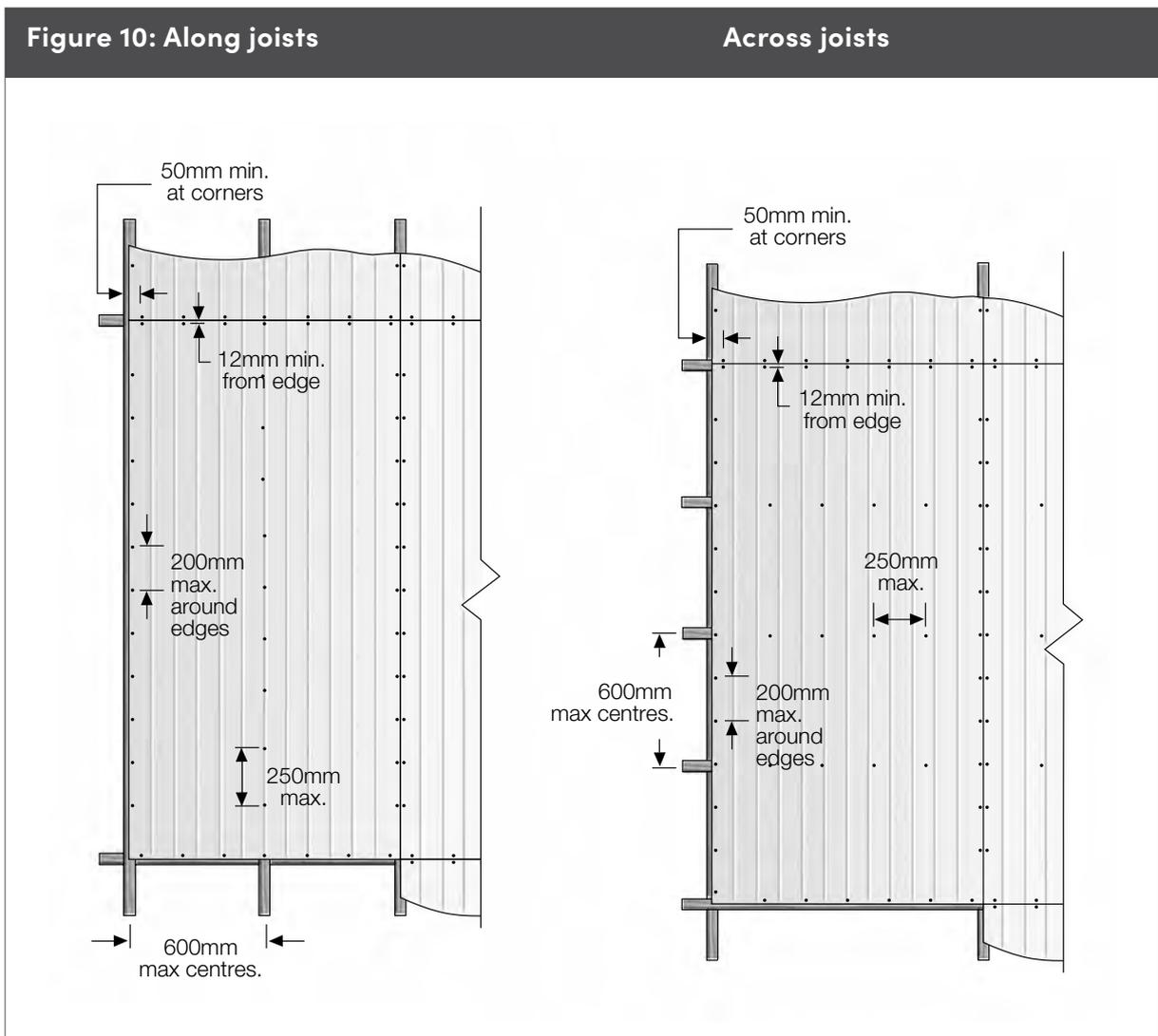
4.6 Fixing Over Plasterboard Lining

Hardie™ Groove Lining can be fixed over an existing plasterboard lining. The sheet must be fixed with minimum 50mm nail or a screw 40mm x 8g.

4.7 Fixing To Ceilings and Soffits

For Fixing Hardie™ Groove Lining to soffit/ceiling, refer to Eaves and Soffit Linings Installation Manual for further detailed information.

In ceiling applications Hardie™ Groove Lining can be fixed either parallel or perpendicular to framing. See Figure 10.

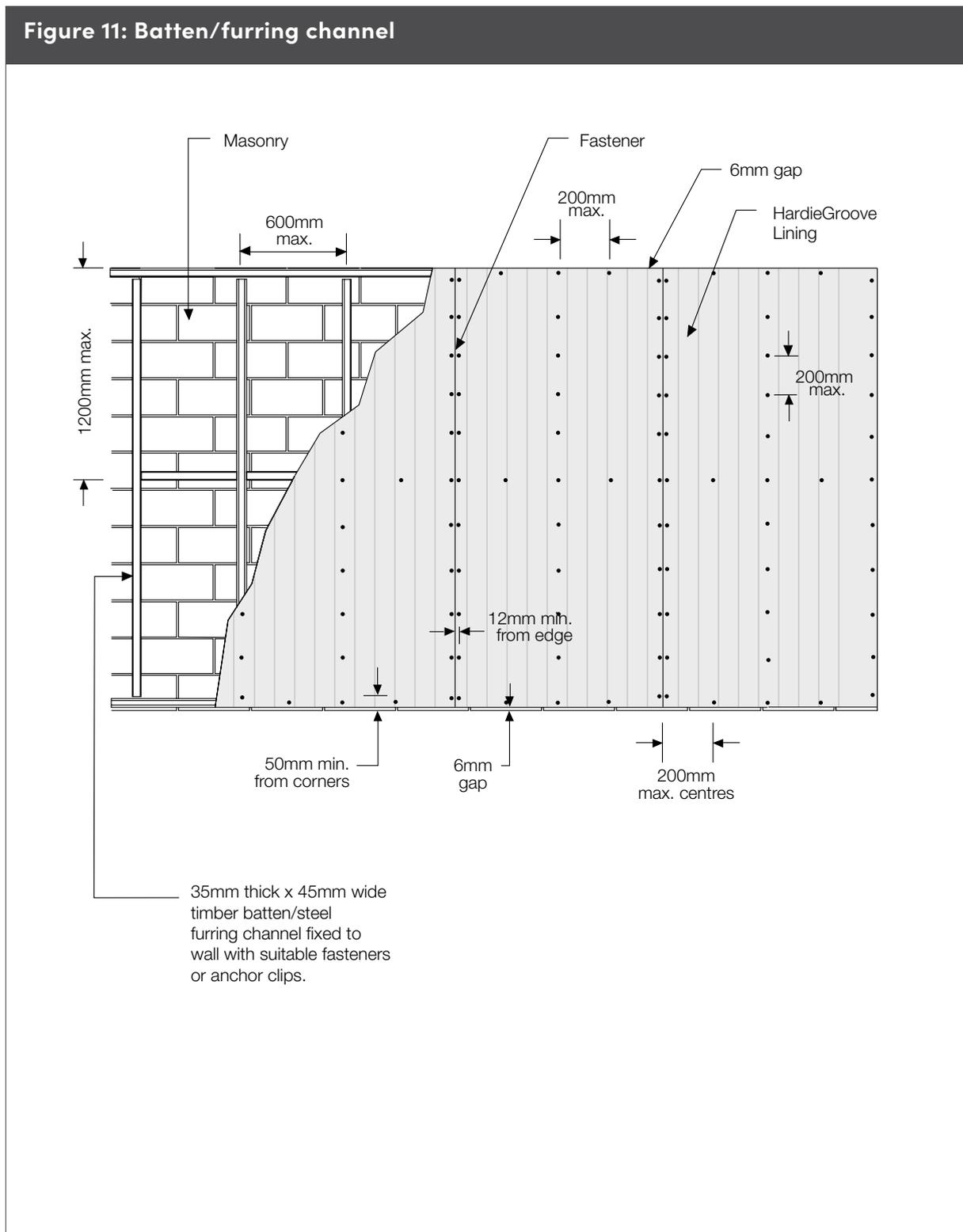


Notes:

1. Fastener fixing method is shown, however, fastener/adhesive fixing method may also be used. See Figure 8 and 9.
2. In ceiling applications do not fix sheets to the bottom chord of roof trusses. Instead, fix to timber battens or metal furring channels.
3. Do not use brad nails in ceiling/soffit applications.
4. When butt jointing short ends of Hardie™ Groove Lining in ceiling/soffit applications, the short edges must be cut square and have chamfer formed.

4.8 Fixing To Masonry Substrates

Hardie™ Groove Lining can be installed over masonry substrates. Refer Figure 11.



5 Jointing and Corners

5.1 Butt Joints

Hardie™ Groove Lining is butt jointed by joining two factory finished half groove sheet edges on stud. This creates a grooved look consistent with the rest of the sheet. See Figures 12 and 13.

Figure 12: Butt joint

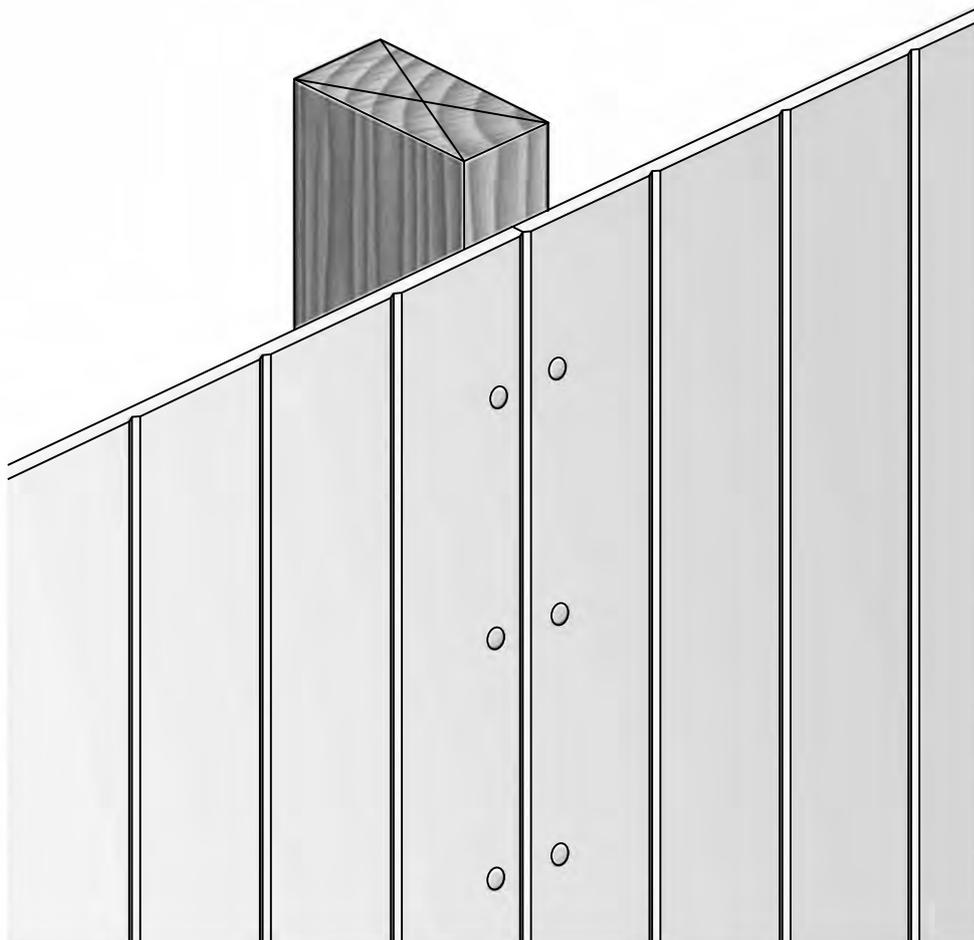
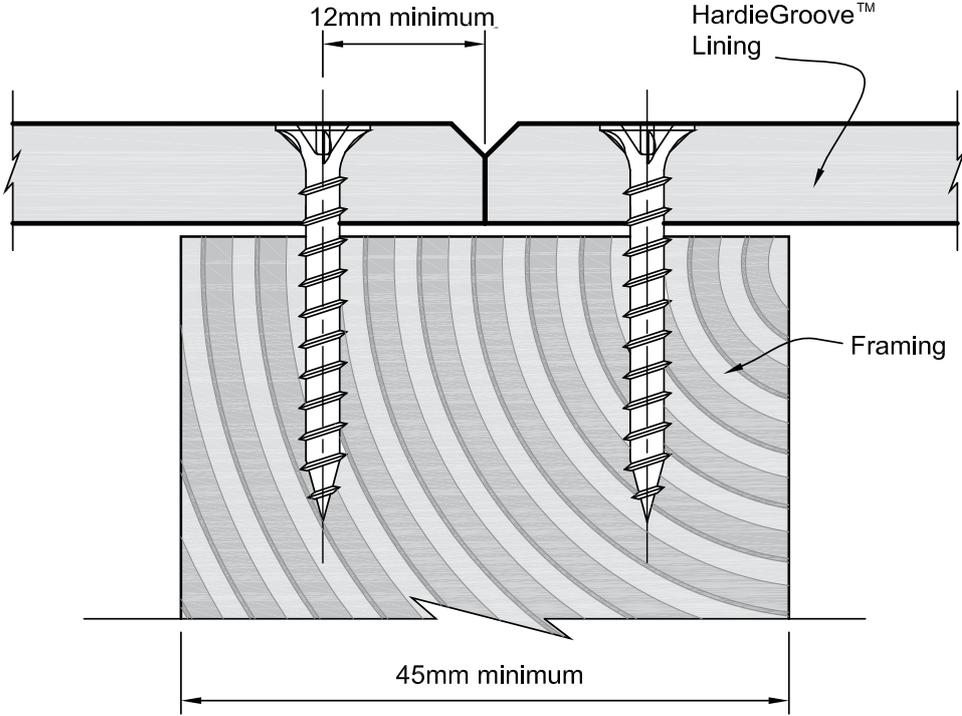


Figure 13: Butt joint



5.2 Corners

External and internal corners are created by butting sheet edges as shown, see Figures 14 to 16. If sheets need to be trimmed, for best appearance place the cut sheet edge into corner first ensuring that it is hidden by the overlapping sheet. Alternatively a suitable timber moulding may be used.

Figure 14: Corner details

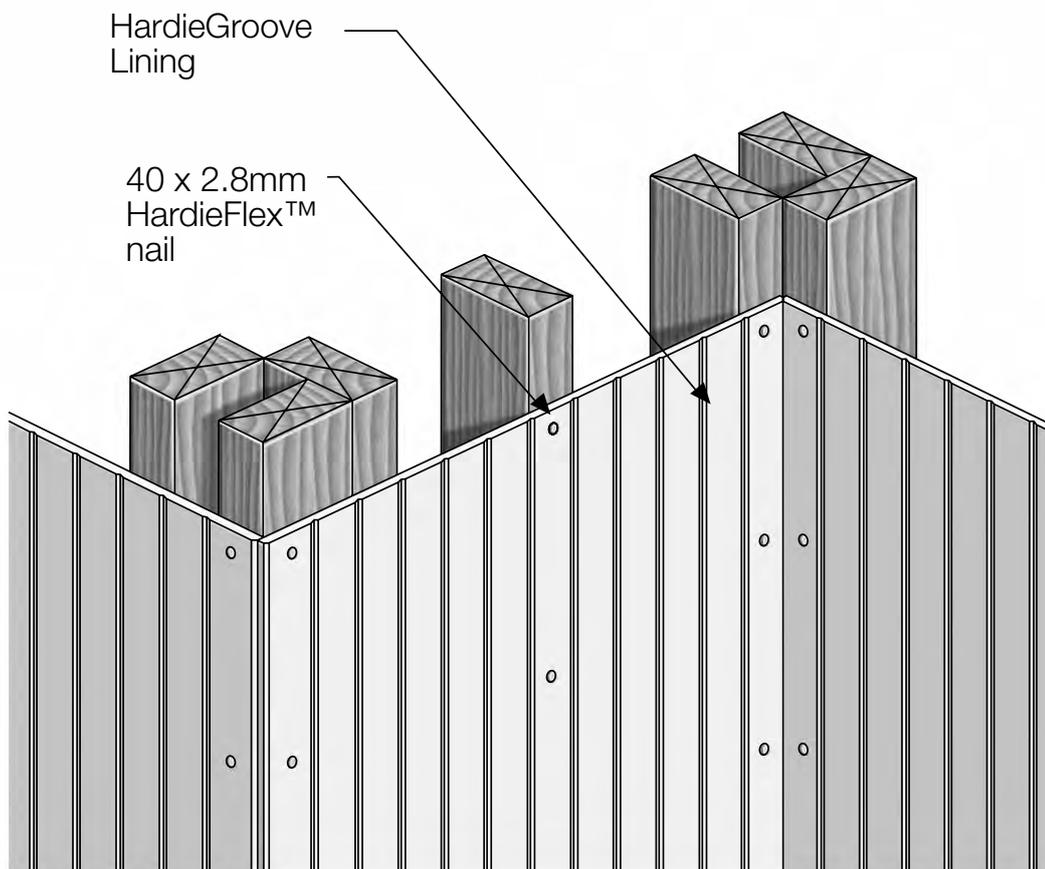


Figure 15: External corner

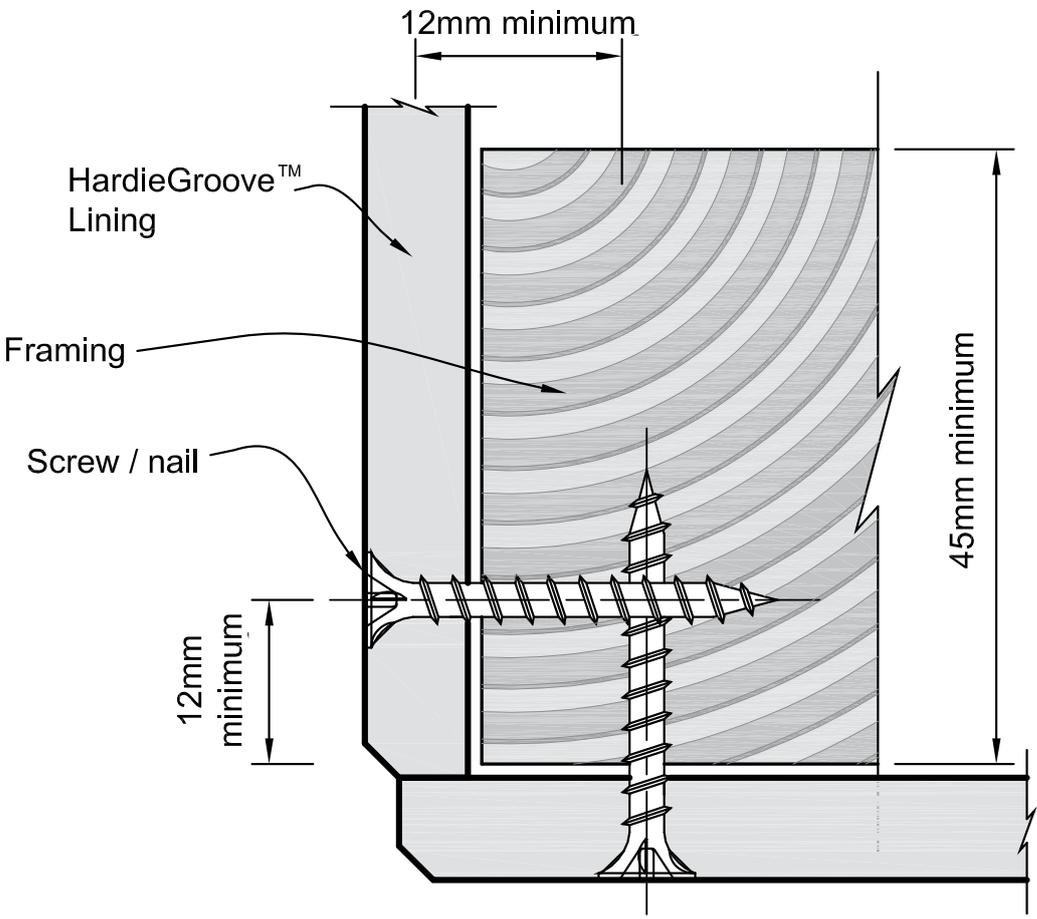
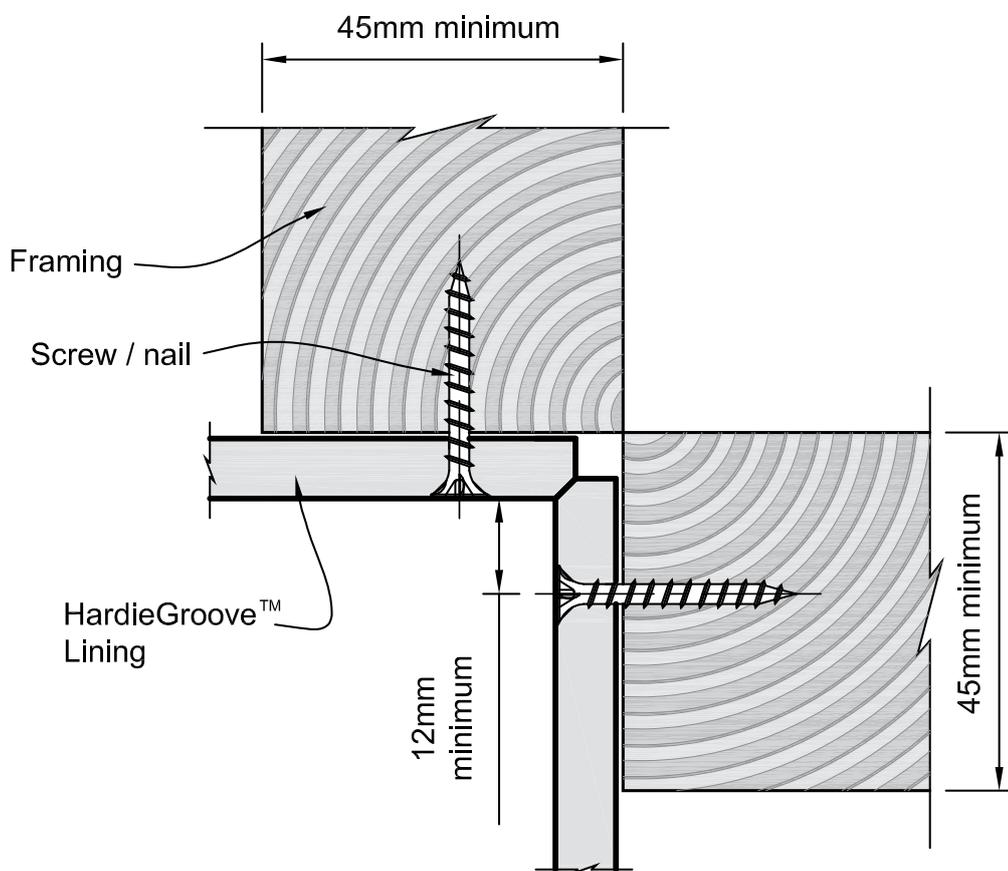


Figure 16: Internal corner



6 Product Information

6.1 General

Hardie™ Groove Lining is a cellulose fibre reinforced cement building product. The basic composition is Portland cement, ground sand, cellulose fibre and water.

Hardie™ Groove Lining is manufactured to AS/NZS 2908.2 'Cellulose-Cement Products Part 2: Flat Sheets' (ISO 8336 'Fibre Cement Flat Sheets').

Hardie™ Groove Lining is classified Type B, Category 3 in accordance with AS/NZS 2908.2 'Cellulose-Cement Products'. For Safety Data Sheets (SDS) visit www.jameshardie.co.nz or Ask James Hardie™ on 0800 808 868.

6.2 Product Mass

Based on equilibrium moisture content the approximate mass of Hardie™ Groove Lining is 10.44kg/m².

6.3 Durability

Resistance to moisture/rotting

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

- Heat rain (Clause 6.5)
- Water permeability (Clause 8.2.2)
- Warm water (Clause 8.2.4)
- Soak dry (Clause 8.2.5)

6.4 Fire Properties

Maximum service temperature for the Hardie™ Groove Lining is 60°C.

Hardie™ Groove Lining sheet has been tested for heat release rate as per AS/NZS 3837 and the product has a Heat Release Rate below 50 kw/m².

Hardie™ Groove Lining has a 'Group Number' classification of 1-S as per the requirements of clause C of the NZBC.

6.5 Finishes

Once Hardie™ Groove Lining has been fixed in place, fill over all fixings with Hardie™ Base Coat compound.

Villadrive or Hardie™ Drive screws should be finished 0.5mm below the surface.

When dry, lightly sand smooth and finish with a suitable paint system. Refer to the paint manufacturer for paint suitability, mixing and application.

If staining Hardie™ Groove Lining, care must be taken to ensure the desired finish is achieved. It is advisable to test the stain on an off-cut, paying particular attention to fasteners and filled areas.

6.6 Maintenance

James Hardie recommends that the cleaning and maintenance of the Hardie™ Groove Lining be undertaken regularly as per the recommendations of the coating manufacturer. Joints must also be maintained and be free of dirt and grime.

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 Hardie™ Groove Lining (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 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 Hardie™ Groove Lining when installed in accordance with the Hardie™ Groove Lining 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) 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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