

Internal lining

Installation guide

HardieGroove™ lining



James Hardie
A smarter way to build

AUSTRALIA JANUARY 2012

1 INTRODUCTION

HardieGroove™ lining combines the appearance of traditional timber tongue and groove wall panelling with the benefits of modern fibre cement.

Because the baseboard is James Hardie fibre cement, it's resistant to moisture, rotting, fire and termites when installed and maintained as directed.

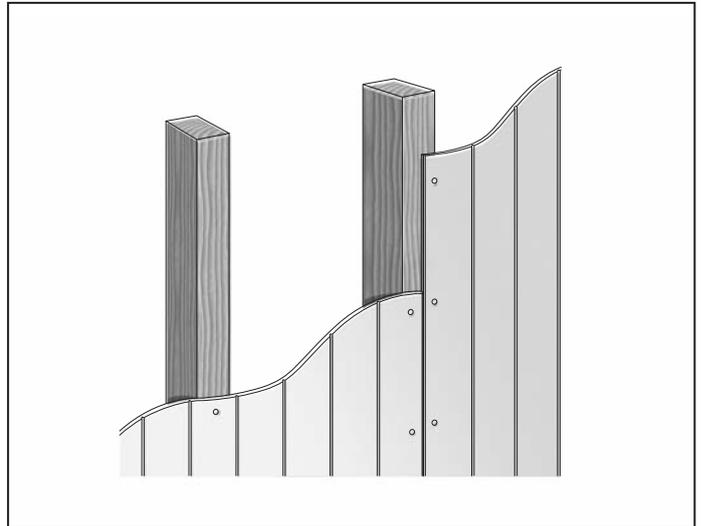
HardieGroove lining has decorative v-shaped grooves carved into the front face of the 7.5mm sheet, and is sanded, ready to be painted or stained in any colour.

HardieGroove™ 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.

HardieGroove™ 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 HardieGroove lining are:

- Durable internal lining sheet.
- Creates suitable surface for paint or stain finishes.
- Sheet edges have a 'half groove' to conceal sheet joins.
- Reliable impact resistant decorative lining. Ideal for wall lining where walls are prone to damage.
- Joins won't pull or shift apart.
- Authentic v-shaped grooves replicate traditional look and style.



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 that 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 James Hardie products, ensure you have the current manual. If you're not sure you do, or if you need more information, visit www.jameshardie.com.au or Ask James Hardie™ on 13 11 03.

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WE VALUE YOUR FEEDBACK

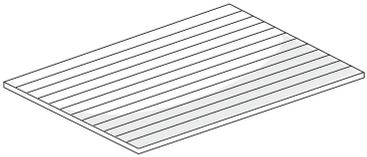
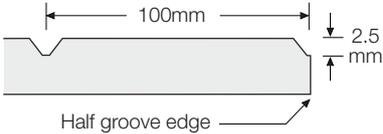
To continuously improve the development of our products and systems, we value your input. Please send any suggestions, including your name, contact details, and relevant sketches to:

Ask James Hardie™

Fax 02 9638 9535

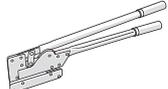
literaturefeedback@jameshardie.com.au

TABLE 1

PRODUCT	DESCRIPTION
	 <p>HardieGroove lining is a v-grooved internal lining board with the look of timber and with the durability of fibre cement.</p> <p>Individual batten widths are 100mm</p> <p>Sheet size: 2700mm x 1200mm x 7.5mm</p>

*All dimensions and masses are approximate and subject to manufacture tolerances.

TABLE 2

PRODUCT/ACCESSORIES/TOOLS			
PRODUCT	DESCRIPTION	PRODUCT	DESCRIPTION
	<p>HardieBlade™ Saw Blade. 185mm diameter A 185mm diameter poly-diamond blade for fast and clean cutting of James Hardie fibre cement. 1 each. Part No. 300660</p>		<p>HardieDrive™ Screw 32mm long A class 3 finish self-tapping wing-tipped screw for fastening to 0.8mm to 1.6mm BMT steel 500 per box. Part No. 305532</p>
	<p>James Hardie™ Score and Snap Knife A tungsten tipped knife for scoring fibre cement sheets. 20 per box. Part No. 305576</p>		<p>James Hardie™ Fibreshear Electric tool for cutting fibre cement sheets. 1 each. Part No. 300653.</p>
<p>COMPONENTS NOT SUPPLIED BY JAMES HARDIE</p> <p>James Hardie recommends the following products for use in conjunction with its HardiGroove 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>Galvanised fibre cement nails 30mm x 2.8 galvanised fibre cement nails for fastening to timber.</p>		<p>Buildex FibreTEKS® For fastening to 0.55mm to 0.75mm BMT steel frames. Length: 20mm ® denotes a registered mark of Buildex</p>
	<p>Underlay nails Use 25mm x 2.5mm ring shank underlay nails, for fastening to timber. Used where smaller head sized fasteners are desired.</p>		<p>Hand guillotine Guillotine for cutting fibre cement.</p>
	<p>Stud adhesive Use to fix James Hardie HardieGroove lining to timber or metal framing (refer to fig 7)</p>		

2 SAFE WORKING PRACTICES

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

James Hardie products contain sand, a source of respirable crystalline silica which is considered by some international authorities to be a cause of cancer from some occupational sources. Breathing excessive amounts of respirable silica dust can also cause a disabling and potentially fatal lung disease called silicosis, and has been linked with other diseases. Some studies suggest smoking may increase these risks. During installation or handling: (1) work in outdoor areas with ample ventilation; (2) minimise dust when cutting by using either 'score and snap' knife, fibre cement shears or, where not feasible, use a HardieBlade™ Saw Blade and dust-reducing circular saw attached to a HEPA vacuum; (3) warn others in the immediate area to avoid breathing dust; (4) wear a properly-fitted, approved dust mask or respirator (e.g. P1 or P2) in accordance with applicable government regulations and manufacturer instructions to further limit respirable silica exposures. During clean-up, use HEPA vacuums or wet cleanup methods - never dry sweep. For further information, refer to our installation instructions and Material Safety Data Sheets available at www.jameshardie.com.au. FAILURE TO ADHERE TO OUR WARNINGS, MATERIAL SAFETY DATA SHEETS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

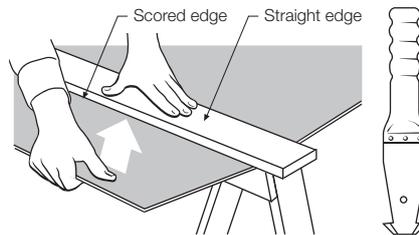
WORKING INSTRUCTIONS

Refer to recommended safe working practices before starting any cutting or machining of product.

Score and snap

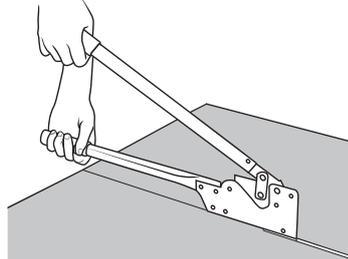
Score and snap is a fast and efficient method of cutting James Hardie building products using James Hardie's special tungsten tipped score and snap knife.

Preferably score on the face side of the product. Score against a straight edge and repeat the action to obtain adequate depth for clean break – normally one third of sheet thickness. Snap upwards to achieve break. Smooth any rough edges with a rasp.



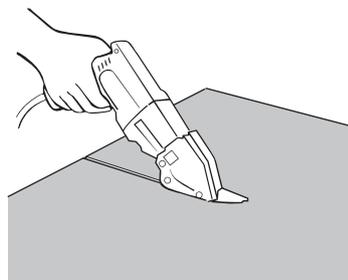
Hand guillotine

Make guillotine cut on the off-cut side of line to allow for the thickness of the blade.



Fibreshear

An electrically powered, fast, clean and effortless way of cutting James Hardie building products, especially around curves such as archways. Make fibreshear cut on the 'off-cut' side of the line to allow for the thickness of the shear.



JAMES HARDIE RECOMMENDED SAFE WORKING PRACTICES

CUTTING OUTDOORS

1. Position cutting station so wind will blow dust away from the user or others in working area.
2. Use one of the following methods based on the required cutting rate:

Best

- Score and snap
- Hand guillotine
- Fibreshear

Good

- Dust reducing circular saw equipped with HardieBlade™ Saw Blade and HEPA vacuum extraction.

DRILLING/OTHER MACHINING

When drilling or machining you should always wear a P1 or P2 dust mask and warn others in the immediate area.

CUTTING INDOORS

- Cut only using score and snap, hand guillotine or fibreshears (manual, electric or pneumatic).
- Position cutting station in a well-ventilated area.

IMPORTANT NOTES

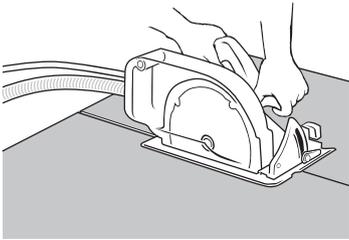
1. For maximum protection (lowest respirable dust production), James Hardie recommends always using "Best" - level cutting methods where feasible.
2. NEVER use a power saw indoors.
3. NEVER use a circular saw blade that does not carry the HardiBlade® logo.
4. NEVER dry sweep - Use wet suppression or HEPA vacuum.
5. NEVER use grinders.
6. ALWAYS follow tool manufacturer's safety recommendations.

P1 or P2 respirators should be used in conjunction with above cutting practices to further reduce dust exposures. Additional exposure information is available at www.jameshardie.com.au to help you determine the most appropriate cutting method for your job requirements. If concern still exists about exposure levels or you do not comply with the above practices, you should always consult a qualified industrial hygienist or contact James Hardie for further information.

3 FRAMING

HardieBlade™ Saw Blade

The HardieBlade™ Saw Blade used with a dust-reducing saw and HEPA vacuum extraction allows for fast, clean cutting of James Hardie fibre cement products. A dust-reducing saw uses a dust deflector or a dust collector which can be connected to a vacuum system. 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.



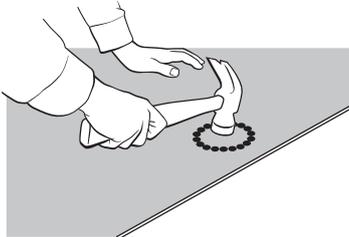
HOLE-FORMING

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 the sheet edges are properly supported.



STORAGE AND HANDLING

To avoid damage, all James Hardie building products should be stored with edges and corners of the sheets protected from chipping.

James Hardie building products must be installed in a dry state and protected from rain during transport and storage. The product must be laid flat under cover on a smooth level surface clear of the ground to avoid exposure to water, moisture, etc.

QUALITY

James Hardie conducts stringent quality checks to ensure any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

3.1 GENERAL

HardieGroove 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

HardieGroove lining must not be used in shower areas.

3.2 TIMBER

Use only seasoned timber. Unseasoned timber must not be used as it is prone to shrinkage and can cause HardieGroove lining and frames to move.

The minimum stud width is typically 35mm. However, where butt jointing is used the minimum stud width is 38mm at the joint. See Figure 11.

'Timber used for house construction must have the level of durability appropriate for the relevant climate and expected service life and conditions including exposure to insect attacks or to moisture, which could cause decay.'

Reference AS1684.2 'Residential Timber Framed Construction'.

3.3 STEEL

The minimum size for steel stud framing should be 64mm deep x 0.55mm base metal thickness (BMT). Steel framing must be designed in accordance with AS/NZS 4600 'Cold Formed Steel Structures'. 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.

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.



FIGURE 1 FRAME STRAIGHTNESS

A suggested maximum tolerance of between 3 and 4mm in any 3000mm length of frame will give best results. HardieGroove 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

HardieGroove 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.

NOTE

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

4.2 FASTENERS

TIMBER FRAME FASTENER SELECTION

7.5mm HardieGroove Lining	30mm x 2.8mm Galvanised FC Nail*
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* If a smaller head size is desired for aesthetic reasons use 25mm x 2.5mm ring shank underlay nails. Only suitable for low traffic areas.

STEEL FRAME FASTENER SELECTION

	0.55mm-0.75mm BMT	0.8mm-1.6mm BMT
7.5mm HardieGroove Lining	Buildex FibreTEKS® 20mm	Hardiedrive™ screw 32mm

Fasteners should be driven flush as shown in Figure 2. Fasteners should be screwed as close as possible to the stud corners to avoid deflection of the stud flange. See Figure 3.

NOTE

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

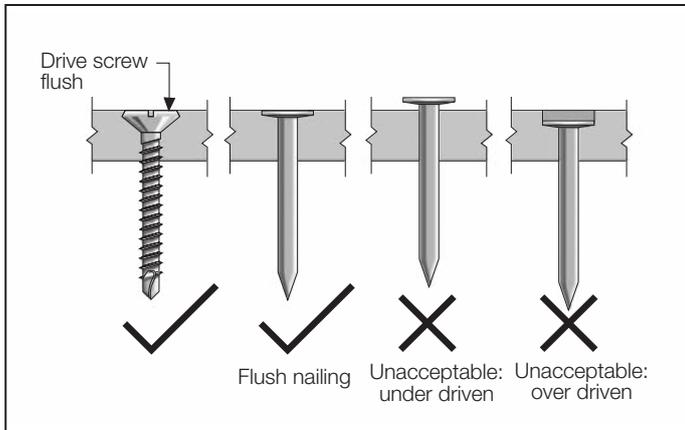


FIGURE 2 FASTENER DEPTH

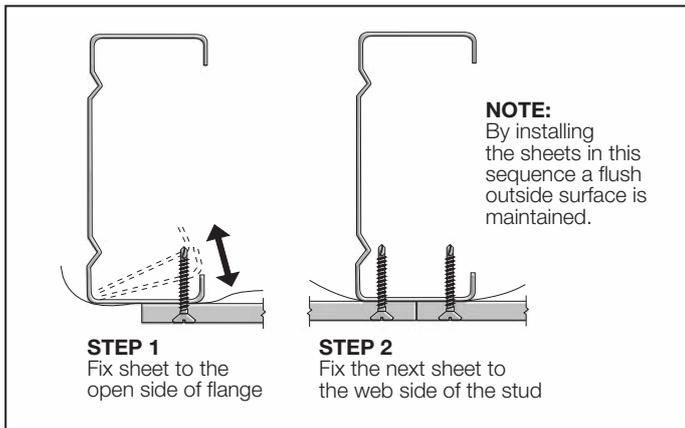


FIGURE 3 SCREW FASTENING

4.3 FIXING TO WALLS

Step 1

Place 7.5mm off-cut packers along floor as temporary support for sheets. This allows provision for frame movement. Put sheet in place as shown.



FIGURE 4 SHEET INSTALLATION

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 7 for full height and dado height walls respectively.



FIGURE 5 SHEET FIXING

Final step

Fix remaining sheets in similar sequence.

4.4 FULL SHEET FIXING

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

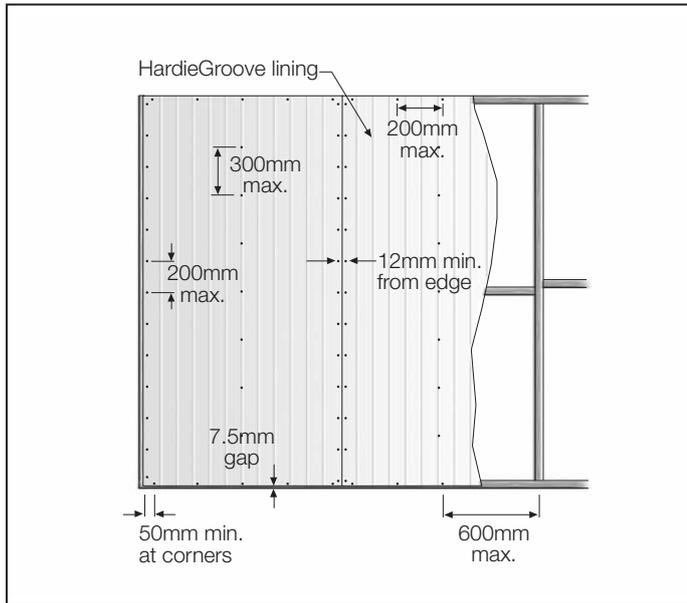


FIGURE 6 FULL SHEET FIXING

NOTE

To reduce the number of visible fixings the centre of the sheet can be fixed with adhesive. See Figure 7 for details.

4.5 DADO HEIGHT FIXING

HardieGroove 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 7.

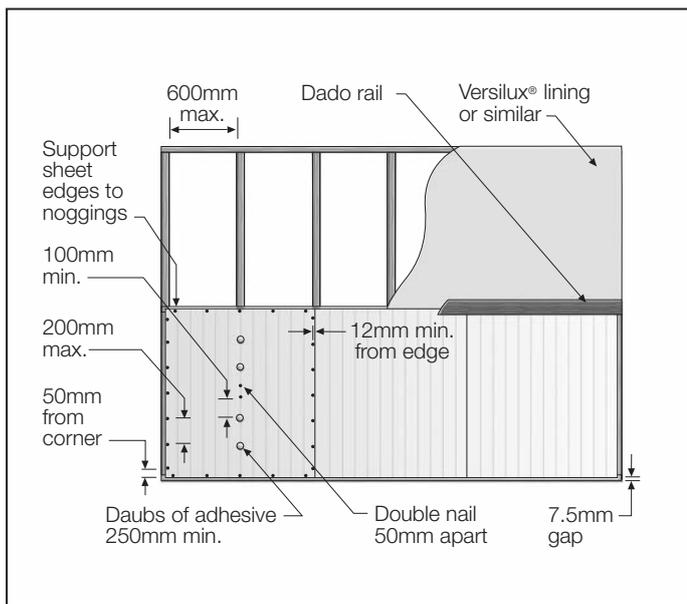


FIGURE 7 DADO HEIGHT FIXING

4.6 FIXING TO CEILINGS

In ceiling applications HardieGroove lining can be fixed either parallel or perpendicular to framing. See Figures 8 and 9 respectively.

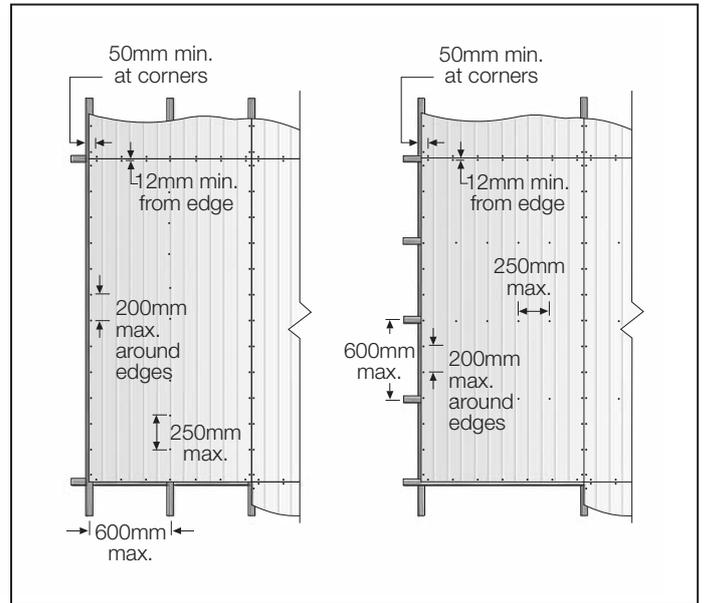


FIGURE 8 ALONG JOISTS

FIGURE 9 ACROSS JOISTS

NOTES

1. Fastener fixing method is shown, however, fastener/adhesive fixing method may also be used. See Figure 7.
2. In ceiling applications do not fix sheets to the bottom chord of roof trusses. Instead, fix to timber battens or metal furring channels.

5 JOINTING AND CORNERS

5.1 BUTT JOINTS

HardieGroove 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 10 and 11.

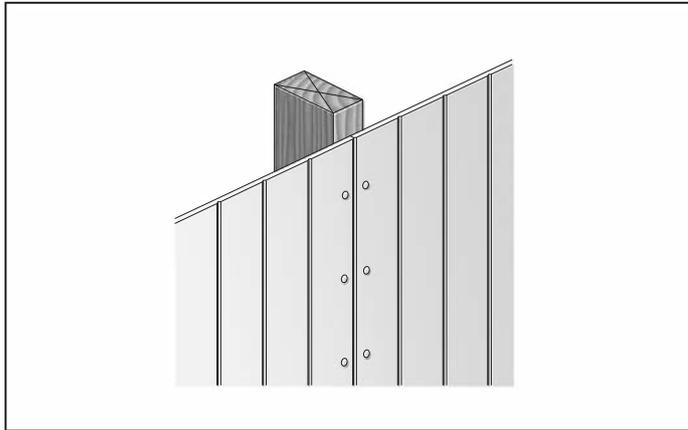


FIGURE 10 BUTT JOINT

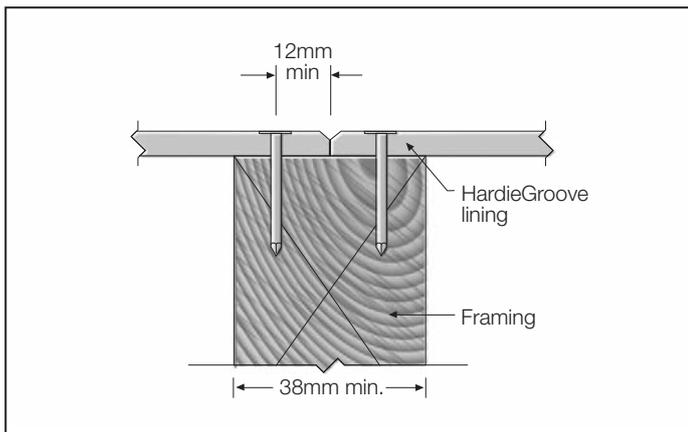


FIGURE 11 BUTT JOINT

5.2 CORNERS

External and internal corners are created by butting sheet edges as shown, see Figures 12 to 14. 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.

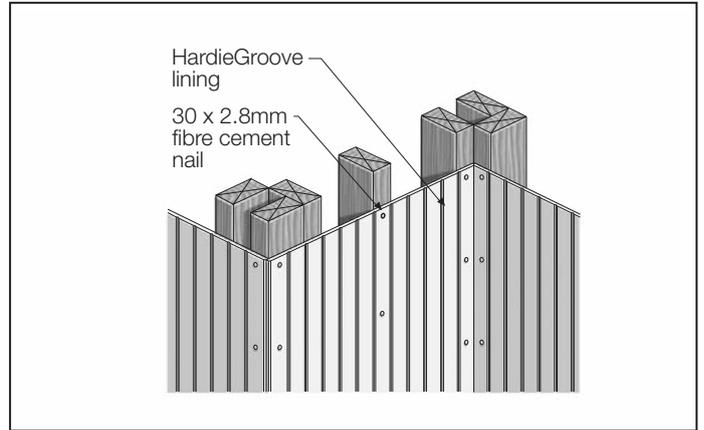


FIGURE 12 CORNER DETAILS

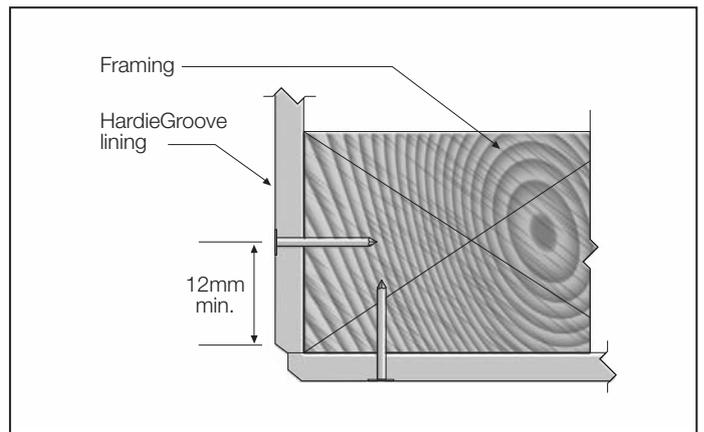


FIGURE 13 EXTERNAL CORNER

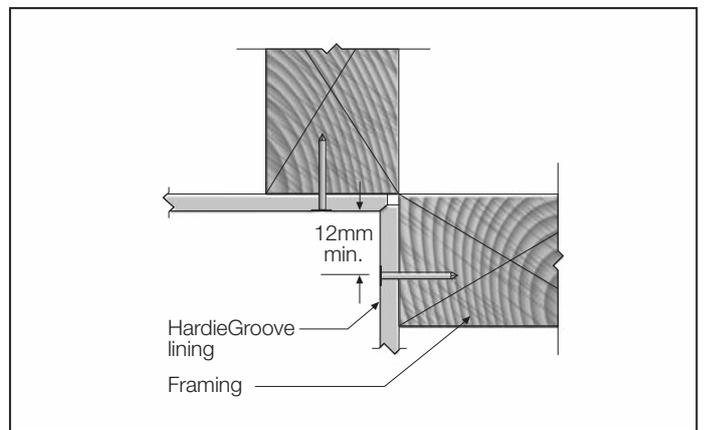


FIGURE 14 INTERNAL CORNER

6 PRODUCT INFORMATION

6.1 GENERAL

HardieGroove lining is a cellulose fibre reinforced cement building product. The basic composition is Portland cement, ground sand, cellulose fibre and water.

HardieGroove lining is manufactured to AS/NZS 2908.2 'Cellulose-Cement Products Part 2: Flat Sheets' (ISO 8336 'Fibre Cement Flat Sheets').

HardieGroove lining is classified Type B, Category 3 in accordance with AS/NZS 2908.2 'Cellulose-Cement Products'.

For Material Safety Data Sheets (MSDS) visit www.jameshardie.com.au or Ask James Hardie™ on 13 11 03.

6.2 PRODUCT MASS

Based on equilibrium moisture content the approximate mass of HardieGroove lining is 10.44kg/m².

6.3 DURABILITY

Resistance to moisture/rotting

HardieGroove lining has demonstrated resistance to permanent moisture induced deterioration (rotting) by passing the following tests in accordance with AS/NZS 2908.2:

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

Resistance to fire

The HardieGroove® lining is suitable where non-combustible materials are required in accordance with C1.12 of the Building Code of Australia.

James Hardie building products have been tested by CSIRO in accordance with AS/NZS 3837 and are classified as conforming to Group 1 material (highest and best result possible), with an average specific extinction area far lower than the permissible 250m²/kg, as referenced in Specification C1.10a of the BCA.

Resistance to termite attack

Based on testing completed by CSIRO Division of Forest Products Report Numbers FP349 and FP274 James Hardie fibre cement has demonstrated resistance to termite attack.

6.4 FINISHES

Once HardieGroove lining has been fixed in place, fill over all fixings with a sandable finishing compound.

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 HardieGroove 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.

6.5 MAINTENANCE

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

NOTES

7 WARRANTY

HardieGroove™ lining

10 Year Warranty

January 2012

James Hardie Australia Pty Limited ("James Hardie") warrants to the first purchaser of HardieGroove™ lining (**Product**) from James Hardie and the last purchaser of the Product prior to installation that, subject to compliance with the Conditions of Warranty below:

- for a period of 10 years from the date of purchase, the Product will be free from defects due to defective factory workmanship or materials; and
- for a period of 10 years from the date of purchase, the Product will be resistant to damage from cracking, moisture, rotting, fire and termites to the extent set out in James Hardie's relevant published literature current at the time of installation; and
- for a period of 12 months from the date of purchase that the accessories supplied by James Hardie will be free from defects due to defective factory workmanship or materials.

For the purposes of this warranty, a "defect" in respect of the Product means a non-compliance with AS/NZS 2908.2:2000 Cellulose-cement products - Flat sheet.

CONDITIONS OF WARRANTY

This warranty is strictly subject to the following conditions:

- (a) James Hardie will not be liable for breach of this warranty unless the claimant provides proof of purchase of the Product and makes a written claim to James Hardie at the address set out below, 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) the Product is subject to natural variation in finish as part of the manufacturing process. The builder/installer must ensure the Product meets aesthetic requirements before installation. Subject to the terms of this warranty, after installation of the Product, James Hardie is not liable for claims arising from aesthetic surface variations if such variations were, or would upon reasonable inspection have been, apparent prior to installation;
- (c) this warranty cannot be relied upon by any other person and is not transferable;
- (d) 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 go to or contact Ask James Hardie™ on 13 11 03. 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;
- (e) the project must be designed and constructed in strict compliance with all relevant provisions of the current Building Code of Australia, regulations and standards;
- (f) if the claimant chooses to rely upon this warranty then the claimant's sole remedy under this warranty for breach of this 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;
- (g) In the circumstances where the Australian Consumer Law does not apply in respect of the purchase of the Product, 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);

- (h) In the circumstances where the Australian Consumer Law does not apply in respect of the purchase of the Product, all warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extent allowed by law;
- (i) If meeting a claim under this warranty involves re-coating of Product, there may be slight colour differences between the original and replacement Product due to the effects of weathering and variations in materials over time and James Hardie is not liable for any such colour differences;
- (j) In the circumstances where the Australian Consumer Law does not apply in respect of the purchase of the Product and therefore to this warranty, all expenses incurred as a result of claiming under this warranty are to be borne by the claimant.
- (k) In the circumstances where the Australian Consumer Law does apply in respect of the purchase of the Product and therefore to this warranty, if James Hardie accepts or it is determined by James Hardie that the claimant has a valid claim under this warranty, James Hardie will bear the claimant's reasonable costs of claiming under this warranty. The claimant is responsible for all other costs of claiming under this warranty. All claims for such costs are to be notified to James Hardie at the address outlined below within 21 days from when the claimant first makes a claim under this warranty.

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 (d), (e), (g) and (h) above. Further, 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 in that literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the Building Code of Australia, regulations and standards.

IMPORTANT NOTE

If you acquire goods manufactured by James Hardie as a consumer according to the Australian Consumer Law, our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Any rights a consumer may have under this warranty are in addition to other rights and remedies of a consumer under a law in relation to the goods to which this warranty relates. Nothing in this document shall exclude or modify any legal rights a customer may have under the Australian Consumer Law or otherwise which cannot be excluded or modified at law.

Contact details if you wish to make a claim under this warranty: For more information or to make a claim under this warranty please Ask James Hardie™ on 13 11 03, visit www.jameshardie.com.au or www.accel.com.au, email James Hardie via our website or write to James Hardie at:

James Hardie Australia Pty Ltd
10 Colquhoun Street Rosehill NSW 2142
PO Box 70 Parramatta NSW 2124

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