

## Underlay

# Installation guide

James Hardie™ Ceramic tile underlay  
James Hardie™ Vinyl and cork underlay



**James Hardie**  
A smarter way to build

AUSTRALIA JANUARY 2012

# 1 INTRODUCTION

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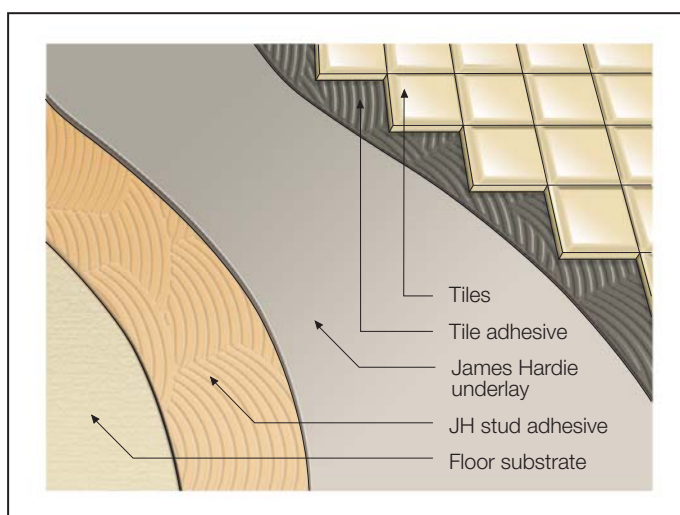
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James Hardie manufactures two types of fibre cement underlays for use under tiles, vinyl and cork and in timber flooring applications. All of these James Hardie™ underlays come with a pre-marked nailing pattern and are suitable for use over internal timber, particle board or plywood floors in wet and dry areas.

**James Hardie™ Ceramic tile underlay** is a larger underlay sheet with pre-marked nailing pattern on the face. Its main features are:

- Larger board size is ideal for bigger bathrooms and large floor areas being tiled.
- Sealer increases cement based tile adhesive working time by 50%.
- Can be used in wet and dry areas.
- Durable and reliable.
- Minimises tile movement, reducing the potential for tile cracking.

**James Hardie™ Vinyl and cork underlay** is a pre-marked sheet which provides a smooth base for vinyl and cork flooring finishes.



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](http://www.jameshardie.com.au) or Ask James Hardie™ on 13 11 03.

## 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:

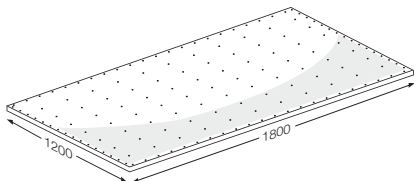
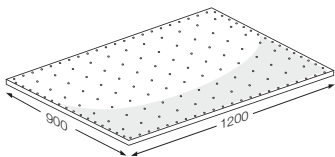
Ask James Hardie™

Fax 02 9638 9535

[literaturefeedback@jameshardie.com.au](mailto:literaturefeedback@jameshardie.com.au)

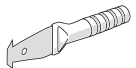
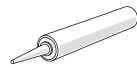



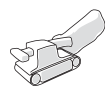
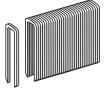

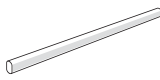



TABLE 1

JAMES HARDIE™ UNDERLAYS INFORMATION		
PRODUCT	DESCRIPTION	QUANTITY / SIZE
	<p><b>James Hardie™ Ceramic tile underlay</b> Fibre cement underlay sheet with pre-marked nailing pattern on the face. Suitable for ceramic tiles.</p> <p><b>Approx. mass: 17.5kg per sheet</b></p>	<p><b>Thickness:</b> 6mm <b>Width:</b> 1200mm <b>Length:</b> 1800mm</p> <p>Part No: 403190 30 Per Pack</p>
	<p><b>James Hardie™ Vinyl and cork underlay</b> Fibre cement underlay sheet with pre-marked nailing pattern on the face. Suitable for vinyl and cork finishes.</p> <p><b>Approx. mass: 7kg per sheet</b></p>	<p><b>Thickness:</b> 5mm <b>Width:</b> 900mm <b>Length:</b> 1200mm</p> <p>Part No: 400459 30 Per Pack</p>

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

TABLE 2

PRODUCT / ACCESSORIES / TOOLS			
<b>COMPONENTS SUPPLIED BY JAMES HARDIE</b>			
<b>ACCESSORIES</b>	<b>DESCRIPTION</b>	<b>ACCESSORIES</b>	<b>DESCRIPTION</b>
	<p><b>James Hardie™ Score and Snap Knife</b> A tungsten tipped knife for scoring fibre cement sheets. 20 Per Box. Part No. 305576</p>		<p><b>James Hardie™ Joint Sealant. 300ml cartridge</b> A general purpose, paintable, exterior grade polyurethane joint sealant. 20 per box. Part No. 305534</p>
<b>COMPONENTS NOT SUPPLIED BY JAMES HARDIE</b>			
James Hardie recommends the following products for use in conjunction with its underlay products. 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.			
<b>ACCESSORIES</b>	<b>DESCRIPTION</b>	<b>ACCESSORIES</b>	<b>DESCRIPTION</b>
	<p><b>Underlay nails</b> 25mm x 2.5 fibre underlay nails</p>		<p><b>Level/straight edge</b> For checking straightness of underlying flooring.</p>
	<p><b>Underlay gun nails</b> 27mm x 2.1mm bright steel, annular thread, flat head collated nail. C21/27R by DuoFast or Bostich 27mm x 2.1 nails</p>		<p><b>Sander</b> For sanding uneven underlying flooring.</p>
	<p><b>Staples</b> 22mm length x 5mm wide galvanised or copper etched, chisel point, narrow crown staple - resin coated. Suitable for vinyl and cork only.</p>		<p><b>Notched trowel</b> For adhesive application to back of James Hardie underlay.</p>
	<p><b>Backing rod</b> Backing to be used with sealant in movement joints.</p>		
	<p><b>Stud adhesive</b> Used for adhering underlay onto particle board or plywood floors in tiled applications. 4 litre / 5.2Kg</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](http://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.

### 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

##### Better

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

##### Good

- Dust reducing circular saw equipped with HardieBlade™ Saw Blade.

#### CUTTING INDOORS

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

#### SANDING/DRILLING/OTHER MACHINING

When sanding, drilling or machining you should always wear a P1 or P2 dust mask and warn others in the immediate 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 HardieBlade™ logo.
4. NEVER dry sweep - Use wet suppression or HEPA vacuum.
5. NEVER use grinders.
6. ALWAYS follow tool manufacturers' 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](http://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.

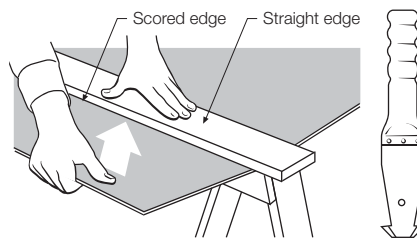
## WORKING INSTRUCTIONS

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

### Score and snap

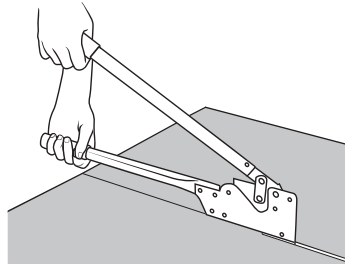
Score and snap is a fast and efficient method of cutting James Hardie building products using James Hardie's special tungsten tipped score and snap knife.

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

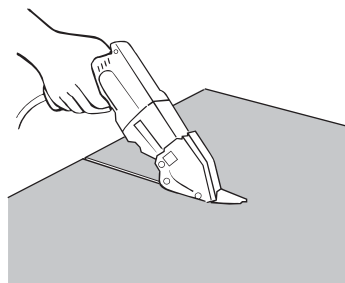
Make guillotine cut on the off-cut side of line to allow for the thickness of



the blade.

### Fibreshear

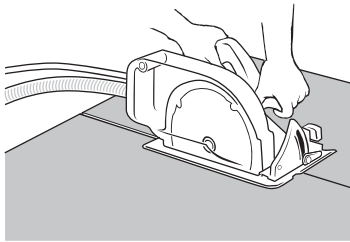
An electrically powered, fast, clean and effortless way of cutting James Hardie building products, especially around curves such as archways. Make fibreshear cut on the 'off-cut' side of the line to allow for the



thickness of the shear.

### 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.



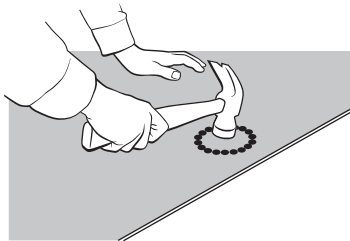
### HOLE-FORMING

#### 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 PREPARATION

## GENERAL

All construction must be carried out in accordance with the relevant building regulations and standards. Prior to installation, ensure the existing flooring and supporting framing is suitable for tiling. Contact your builder, designer or engineer if in doubt. Also check that the flooring is firmly fixed to floor joists.

## UNDERFLOOR VENTILATION

Check that adequate ventilation exists under all timber floors (especially new floors) and that the areas are free from damp.

## EXISTING TIMBER FLOORS

Remove all existing floor coverings to expose timber flooring. Check floor boards to make sure they are firmly nailed to the floor joist. Loose boards must be re-nailed firmly into place.

Floor boards must be reasonably flat for James Hardie™ Ceramic tile underlay. If the boards are badly warped or cupped the whole floor should be rough sanded before the underlay is fixed.

In the case of James Hardie™ Vinyl and cork underlay, it's essential that the floor boards are flat. If they aren't, the floor must be rough sanded before the underlay is fixed. It's recommended that floor sanding be carried out by an experienced tradesman.

Bearers must be in contact with piers. If they aren't, they should be packed to ensure there is no perceivable spring in the floor.

Ensure floor is clean of dust, dirt and grease before fixing underlay sheets.

## NOTES

1. James Hardie Underlays are suited only as a substrate for tiles on timber floors. For tiling of walls use Villaboard® lining.
2. James Hardie underlays must not be used on concrete slabs. To build up height of concrete, purpose-made concrete levelling compounds are more suitable.

## SUBSTRATE PREPARATION

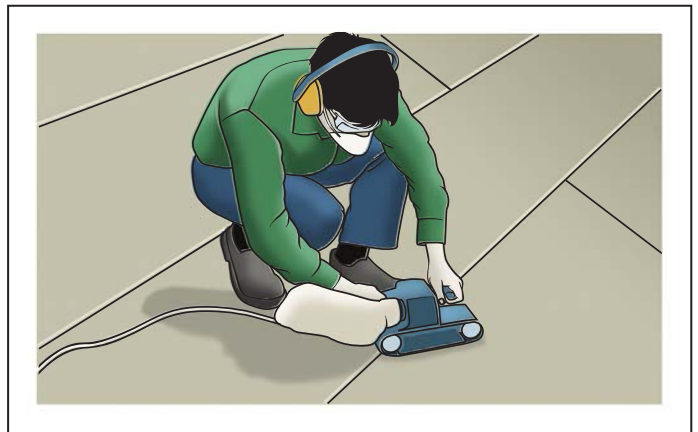
### Step 1

Use a straight edge to check that the timber floor is not out of level by more than 1mm over a 1m length.



### Step 2

If the floor is warped or cupped the whole floor should be rough sanded before the underlay is fixed.



### Step 3

Ensure floor substrate and James Hardie underlay sheets are clean of dust, dirt and grease before fixing underlay sheets.



# 4 INSTALLATION

## Step 1

Use a straight edge as a guide when scoring James Hardie™ Ceramic tile underlay and Vinyl and cork underlay as shown.



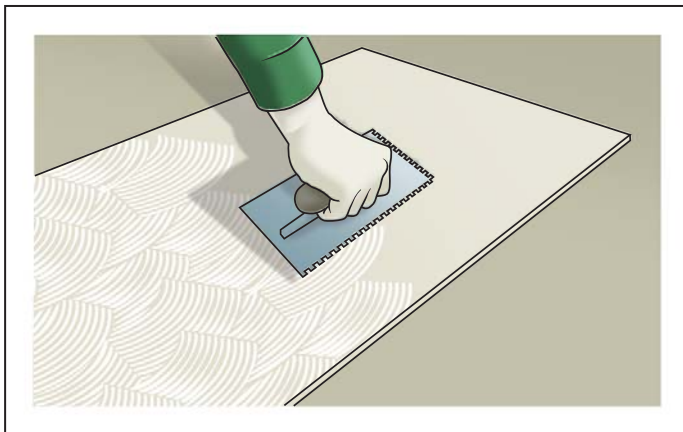
## Step 2

Firmly support sheet near cut while snapping upward to break. For James Hardie™ Vinyl and cork underlay only, keep cut edges to the outside, i.e. against walls, cupboards, etc.



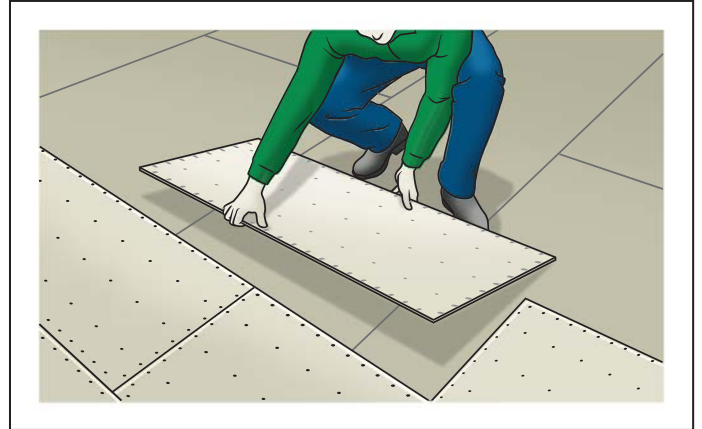
## Step 3

Spread a suitable stud adhesive on the back of the underlay sheet with a 3mm notched trowel/spreader paying particular attention to the sheet edges. If fixing to hardwood floors, adhesive is not necessary.



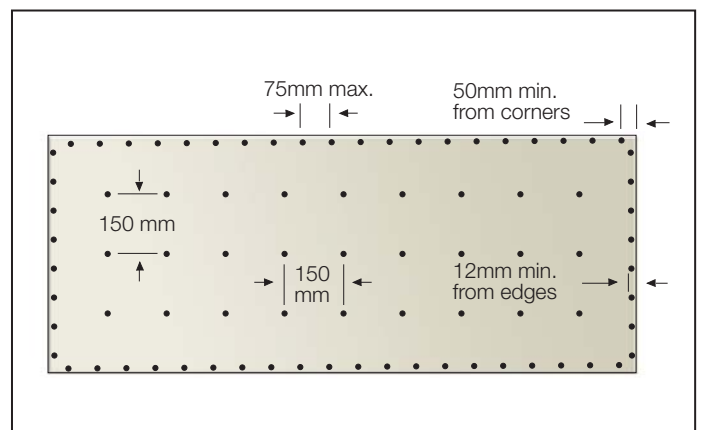
## Step 4

Sheets are laid closely in a staggered (brick) pattern. Sheets are laid perpendicular to the direction of flooring substrate, as joints must not coincide with the joints in the timber floor (minimum offset of 100mm is required for sheet flooring substrates). Ensure sheet edges are 3mm back from walls. Temporarily fix each sheet with two or three nails or staples to avoid movement.



## Step 5

Fix sheets from centre outwards using the pre-marked nailing pattern, driving fasteners flush with sheet surface. When hand nailing use 25mm x 2.5mm underlay nails. Staples may be used with James Hardie™ Vinyl and cork underlay on hardwood floors only. Staples should be driven so that the crown finishes 0.5mm below the sheet surface.



### Step 6

Apply tile adhesive over James Hardie underlay in accordance with adhesive manufacturer's recommendations.



### Step 7

Install tiles in accordance with tile manufacturer's recommendations.



## ADDITIONAL REQUIREMENTS FOR JAMES HARDIE™ VINYL AND CORK UNDERLAY

Nails or staples can be used on hardwood floors. Only nails should be used on softwood floors. Staples should be driven so that the crown finishes approximately 0.5mm below the sheet surface. Nails should be driven absolutely flush with the surface of the sheet. Failure to do this can result in nail heads showing through floor coverings. Do not damage sheet face with hammer indentations.

Where minor height variations (3mm or less) occur at butt joints, these may be levelled out by filling with Ardex Feather Finish (Refer to Ardex for more information) or equivalent, instead of sanding. Ensure this is dry prior to applying the adhesive.

Flush-sand all joints between sheets and the areas created by fasteners with a belt or rotary sander. The Vinco No. SV25 upright sander and Makita belt sander No.9401 fitted with a No.401 vacuum cleaner are recommended. Use aluminium oxide or silicone carbide medium grit papers. All sanders must be fitted with effective dust collection devices – see recommended safe working practices.

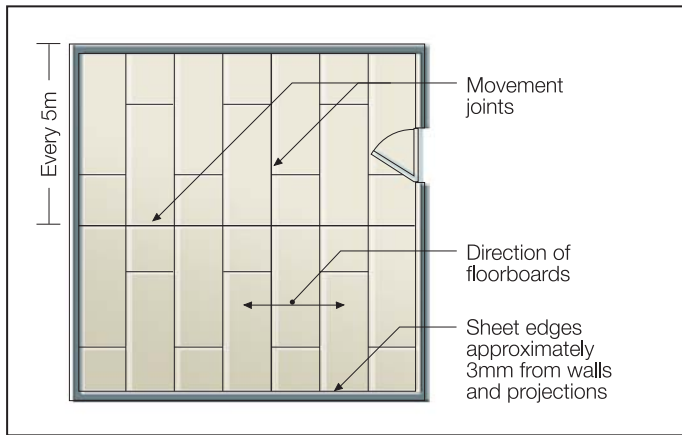
Failure to provide an absolutely smooth, ridge and indentation-free underlay surface will cause unsightly blemishes to appear on the vinyl or cork floor coverings.

Never dry sweep the sanded floor - vacuum only. Where cork tiles or sheeting are to be laid, reseal sanded areas with Cemstick or Bondcrete. Allow resealed areas to dry before laying the floor covering.

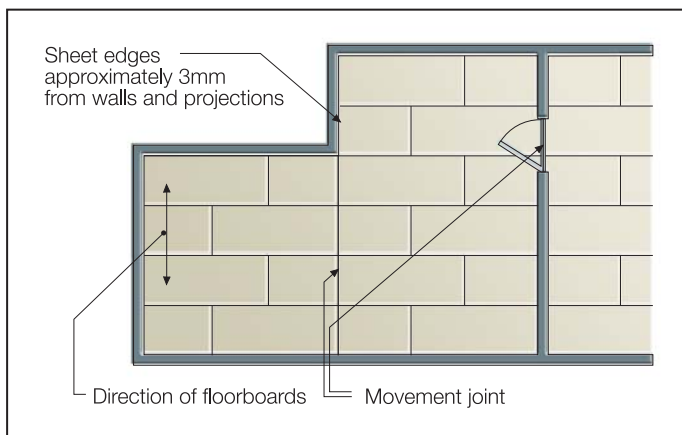


# 5 MOVEMENT JOINTS

Provide movement joints where floor dimensions exceed 5m in one or both directions or where existing structural joints are located. Position joints symmetrically about the centre of the floor as shown below.

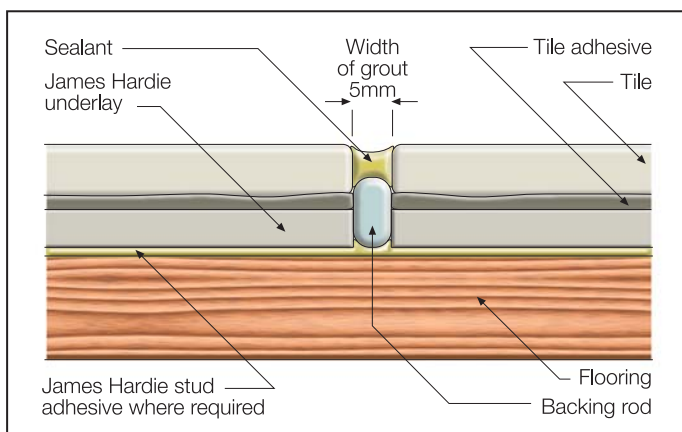


Also provide movement joints where there are changes of direction, such as an L-shaped room, and at doorways where the tiled surface is carried through to the next room as shown.



At the movement joint, ensure the gap comes through sheet and tiles. Place a polyethylene backing rod in the bottom of the joint between the underlay sheets and top the joint off with a suitable sealant.

The width of the movement joint should be approximately equal to the width of the grout line. It is important that the movement joints be carried through to the top of the floor surface i.e. they should not be covered by tiles.



# 6 FINISHES

## GENERAL

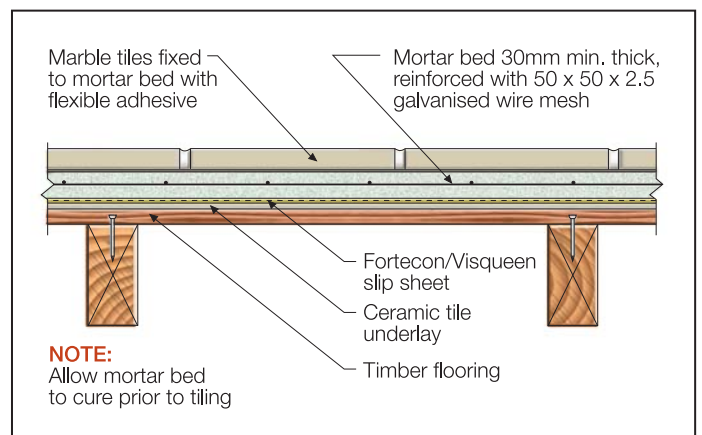
James Hardie underlays must be finished with a suitable floor covering i.e. ceramic floor tiles, vinyl tiles or sheeting, or cork tiles. For the suitability and installation requirements of floor coverings, check with the manufacturer.

## SLATE FLOOR TILES

Slate may be used in much the same way as ceramic tiles. The slate should not be less than about 9mm thick.

## MARBLE FLOOR TILES

Marble is a relatively weak material and if used as a flooring material should be isolated from structural movement. This can be achieved by modifying the flooring system to incorporate a fully reinforced mortar bed as shown below. It is recommended that the services of a tradesperson experienced in the application of marble tiles be obtained.



# 7 MAINTENANCE

Regular checks and maintenance of components including sealant, grout and waterproofing must be done as required by the manufacturer.

Certain floor coverings have protective clear coatings which enhance the durability and prolong the life of such floor coverings. For maintenance requirements check with both the floor covering and coating manufacturer.

# 8 PRODUCT INFORMATION

## GENERAL

James Hardie underlays are cellulose fibre reinforced cement building products. The basic composition is Portland cement, ground sand, cellulose fibre and water.

James Hardie underlays are manufactured to AS/NZS 2908.2 'Cellulose-Cement Products Part 2: Flat Sheets' (ISO 8336 'Fibre Cement Flat Sheets').

James Hardie underlays are classified Type B, Category 3 in accordance with AS/NZS 2908.2 'Cellulose-Cement Products'.

## PRODUCT MASS

Based on equilibrium moisture content the approximate mass of:

- James Hardie™ Ceramic tile underlay is 8.1 kg/m<sup>2</sup>.
- James Hardie™ Vinyl and cork underlay is 6.7 kg/m<sup>2</sup>.

## DURABILITY

### Resistance to moisture/rotting

James Hardie underlays have 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

James Hardie flooring products have been tested to AS/ISO 9239, and exceed the requirements stipulated in the Building Code of Australia - Specification C1.10a Fire Hazard Properties – Floors, Walls & Ceilings. All James Hardie flooring products have a critical radiant flux values greater than the minimum requirement of 4.5 kW/m<sup>2</sup> (highest value in accordance with Table 1), and a smoke development rate well below the maximum allowable smoke development rate of 750 percentage-minutes.

### Resistance to termite attack

Based on testing completed by CSIRO Division of Forest Products and Ensis Australia James Hardie building products have demonstrated resistance to termite attack.

# 9 WARRANTY

## James Hardie™ Ceramic Tile Underlay and James Hardie™ Vinyl and Cork Underlay

### 10 Year Warranty

#### January 2012

James Hardie Australia Pty Limited ("James Hardie") warrants to the first purchaser of James Hardie™ Ceramic Tile Underlay and James Hardie™ Vinyl and Cork Underlay (**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](http://www.jameshardie.com.au) or [www.accel.com.au](http://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**  
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