

HardieWrap

James Hardie

Installation Guide

HardieBreak™ Thermal Strip

COMPONENTS

Australia June 2020

Make sure your information is up to date.

When specifying or installing James Hardie™ products, ensure you have the current installation guide. If in doubt, or you need more information, visit www.jameshardie.com.au or Ask James Hardie™ on 13 11 03.

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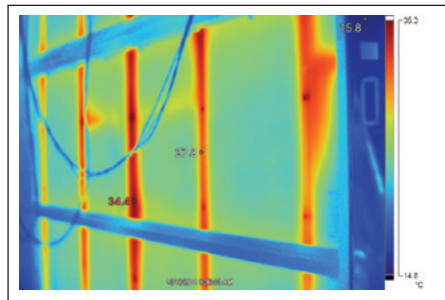
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1 INTRODUCTION

THERMAL BREAK SOLUTION FOR STEEL FRAMED WALL CONSTRUCTION

The National Construction Code (NCC) sections J1.5 and 3.12.1 Volumes 1 and 2 respectively, state for both residential and commercial buildings a thermal break with an R 0.2m² K/W must be installed behind external cladding where the cladding and internal lining make direct contact with the same metal frame.

Metal framed walls have a higher thermal conductance than timber framed walls which causes heat leakage to occur through the wall frame and into the building, see below infrared image. This heat leakage through the wall leads to a reduction in the wall's thermal performance compared to timber wall frames. Research has shown that a reduction in a steel wall's Total R-value without a thermal break can be up to 30%.



HardieBreak™ thermal strip is made from a hard dual-layer of Polyolefin which means it is durable, water resistant and robust. This minimises the likelihood of breakage of the strip during handling and installation and provides excellent compression resistance, great strength and excellent support to the cladding helping to minimise facade waviness and breakage during handling and installation. It is easy to handle and install because of the self adhesive backing strip that sticks directly to the vapour permeable membrane over framing members.

Specifically designed to satisfy NCC requirements, HardieBreak™ thermal strip helps to reduce ghosting effects in cool climates as well as improve acoustic performance by up to 5% compared to using no thermal break.

If you are a specifier...

or other responsible party for a project, ensure the information in this specification is appropriate for the application you are planning and that you undertake specific design and detailing for areas which fall outside the scope of these specifications.

If you are an installer...

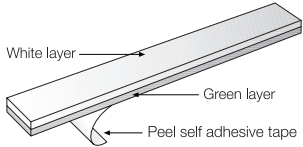
Ensure that you follow the design, moisture management and associated details and material selection provided by the designer and the HardieBreak™ Thermal Strip Installation Guide.

IMPORTANT NOTES

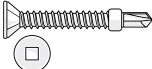
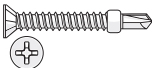
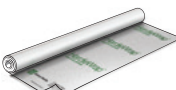
- 1. HardieBreak™ thermal strip may not be suitable in Type A and B fire-resisting construction as per Specification C1.1 (Volume 1) of the National Construction Code. Contact James Hardie on 13 11 03 for further information and advice prior to specification.**
- 2. When installing the external cladding do not overdrive fasteners or apply excessive force while screwing, ensure fasteners and cladding are fixed flush and only use an adjustable clutch screw gun.**
- 3. HardieBreak™ thermal strip is a combustible material and therefore must be kept away from flames and any other sources of ignition or heat.**
- 4. Failure to install, finish or maintain this product in accordance with applicable building code, regulations, standards and James Hardie's written application instructions may lead to personal injury, affect system performance, violate local building codes, and void James Hardie's product warranty.**

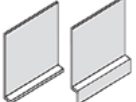
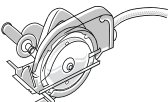



5. All warranties, conditions, liabilities (direct, indirect or consequential) and obligations whether arising in contract, tort or otherwise other than those specified in James Hardie's product warranty are excluded to the fullest extent allowed by law. For James Hardie's product warranty information and disclaimers about the information in this guide, see the Warranty section.

6. The builder must ensure the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying aesthetic surface variations following installation of the HardieBreak™ thermal strip and cladding.

HARDIEBREAK™ THERMAL STRIP			
A hard, dual layer density, closed cell polyolefin strip with a peel away self-adhesive strip for quick installation. HardieBreak™ thermal strip has a Material R-value of 0.2 m2K/W. The white face of HardieBreak™ thermal strip is installed facing outwards directly over a vapour permeable membrane and framing members.			
PRODUCT	UNIT LENGTH (MM)	UNIT WIDTH (MM)	THICKNESS (MM)
	2750	43	12
	PACK QTY	PACK WEIGHT (KG)	PACK (LINEAL METRES)
	45	10.3	123.75
Product Code: 305612			

All dimensions and masses are approximate and subject to manufacturing tolerances.

ACCESSORIES / TOOLS SUPPLIED BY JAMES HARDIE		
ACCESSORIES	DESCRIPTION	QUANTITY
	HardieDrive™ Screw 41mm long A class 3 self-tapping wing-tipped screw for fastening to 0.5mm to 1.6mm BMT light gauge steel frames. Part No. 305984	1000 per box
	HardieDrive™ Collated Screw 41mm long A class 3 self-tapping wing-tipped screw for fastening to 0.5mm to 1.6mm BMT light gauge steel frames. Suitable for use in most auto feed screw guns. Part No. 305982	1000 per box
	HardieWrap™ Weather Barrier A non-perforated, highly breathable and reflective safe-glare weather barrier designed to be used behind Scyon™ external cladding products to help protect the building. For alternate products, please refer to HardieWrap™ weather barrier section (p.2) Unit size 2750mm x 30000mm. Part No. 305664.	1 roll

ACCESSORIES / TOOLS NOT SUPPLIED BY JAMES HARDIE	
James Hardie recommends the following products for use in conjunction with the HardieBreak™ thermal strip. James Hardie does not supply these products. Please contact the component manufacturer for information on their warranties and further information on their products.	
ACCESSORIES	DESCRIPTION
	Cavity Closure flashing Corrosion resistant metal flashing fixed at the bottom of the wall to close off 12mm cavity created by HardieBreak™ thermal strip. An allowance must be made to allow trapped moisture to drain out. Available from local distributor or can be pre-bent from steel fabricator from corrosion resistant material.
	Dust-reducing saw with M class or higher vacuum extraction Dust reducing saw with a HardieBlade™ saw blade. Makita 5057KB / Hitachi C7YA. Used to cut James Hardie™ fibre cement.
	M class or higher vacuum Required to reduce the exposure to respirable dust and crystalline silica.
	Retractable utility knife Used to cut HardieBreak™ thermal strip to desired length.
	Screwdriver with adjustable clutch Only use a screwdriver with an adjustable clutch to help maintain fasteners flush with the cladding. Do not apply excessive force while screwing cladding to frame.

* Highly corrosive environments and areas within 1km of the coast require Class 4 or stainless steel coatings. Refer to the fastener manufacturer for recommendations.

2 SAFE WORKING PRACTICES

For information on working safely with the HardieBreak™ thermal strip refer to the product SDS at www.jameshardie.com.au.

STORAGE AND HANDLING

To avoid damage and installation issues, all James Hardie™ products should be stored in an internal dry area. James Hardie™ products must be installed in a dry state to a dry surface and protected from weather during transport and storage. HardieBreak™ thermal strip has a peel away tape and, in order to maintain the adhesion, a shelf life of 12 months is recommended.

Always store HardieBreak™ thermal strip flat.

3 DESIGN / FRAMING

SCOPE

General

This guide covers the use of the HardieBreak™ thermal strip in an external residential or commercial wall application over a non-compressible vapour permeable membrane and a light-gauge steel frame. HardieBreak™ thermal strip is installed behind James Hardie™ external cladding. Not suitable and required for use on timber frames.

DESIGN

General

All design and construction must comply with the appropriate requirements of the current National Construction Code (NCC) and other applicable regulations and standards.

Responsibility

The specifier or other party responsible for the project must ensure that the details in this specification are appropriate for the intended application and that additional detailing is performed for specific design or any areas that fall outside the scope of this specification.

Slab and Footings

The slab and footings on which the building is situated must comply with AS 2870 'Residential Slabs and Footings – Construction' and the requirements of the National Construction Code (NCC).

Ground Clearances

Install James Hardie™ external cladding and HardieBreak™ thermal strip with a minimum 150mm clearance to the earth on the exterior of the building or in accordance with local building codes if greater than 150mm is required. Maintain a minimum 50mm clearance between James Hardie™ external cladding and thermal break strip and roofs, decks, paths, steps and driveways.

Adjacent finished grade must slope away from the building in accordance with local building codes, typically a minimum slope of 50mm minimum over the first metre. Do not install external cladding and thermal break strip in such a way that it may remain in contact with standing water.

NOTE

Greater clearance may be required in order to comply with termite protection provisions, see below for more information.

Termite Protection

The NCC specifies the requirements for termite barriers. Where the exposed slab edge is used as part of the termite barrier system, a minimum of 75mm of the exposed slab edge must be visible to permit ready detection of termite entry.

Moisture Management

It is the responsibility of the designer or specifier to identify moisture related risks associated with any particular building design. Wall construction design must effectively manage moisture, accounting for both the interior and exterior environments of the building, particularly in buildings that have a higher risk of wind driven rain penetration or that are artificially heated or cooled.

In addition, all wall openings, penetrations, junctions, connections, window sills, heads and jambs must incorporate appropriate flashing and waterproofing. Materials, components and their installation that are used to manage moisture in framed wall construction must, at a minimum, comply with the requirements of relevant standards and the National Construction Code (NCC).

Weather Barrier

A suitable water control membrane must be installed under James Hardie™ cladding in accordance with the AS/NZS 4200.2 'Pliable building membranes and underlays – Installation' and National Construction Code (NCC) requirements.

James Hardie has tested and certified the use of HardieWrap™ weather barrier for climate zones 2-8 within Australia. HardieWrap™ weather barrier is a Class 4 vapour permeable membrane that delivers a triple-shield of protection to help against external weather penetration, internal condensation management and external heat penetration through its safe-glare reflective layer.

If using an alternate product in lieu of HardieWrap™ weather barrier or the project is located in a hot humid area (Climate Zone 1), the designer must ensure that the product is fit for purpose and it has the following classification in accordance with AS/NZS 4200.1:2017 'Pliable building membranes and underlays – Materials':

WEATHER BARRIER CLASSIFICATION		
Climate Zones	Water Barrier	Vapour Permeance
2-8	High	Vapour permeable (Class 3 or 4)
1		Vapour Barrier (Class 1 or 2)

Soft compressible insulation installed between the front of the wall studs and directly behind the external cladding can cause installation issues and is thus not recommended.

Flashing

All wall openings, penetrations, intersections, connections, window sills, heads and jambs must be flashed prior to cladding installation.

Bracing

As the James Hardie™ external cladding will not be in direct contact with the frame, the external cladding will not provide any bracing capacity. Consider HardieBrace™ sheets installed directly to frame behind the vapour permeable membrane for your walls.

Total R-values

HardieBreak™ thermal strip has been assessed with multiple James Hardie™ wall systems. For more information, refer to James Hardie's R-value Technical Supplement and/or the HardieWrap™ weather barrier datasheet.

Non-Combustible Applications

HardieBreak™ thermal strip is classified as a combustible material under AS 1530.1. It is not suitable for applications within the National Construction Code (NCC) requiring a non-combustible product including but not limited to Type A and B construction as described in C1.1 National Construction Code (NCC) Vol. 1.

Bushfire Prone Areas

HardieBreak™ thermal strip may be used in bushfire prone areas in accordance with the respective James Hardie™ cladding installation requirements and James Hardie's Bushfire Prone Areas Technical Guide.

Within the BAL zones, the designer must ensure the cavity and junctions are sealed such that HardieBreak™ thermal strip is not exposed.

Use in James Hardie™ Fire Wall Systems (FRL)

HardieBreak™ thermal strip is suitable for use with one way James Hardie™ Steel Fire Systems with an FRL of up to 90/90/90 as per CSIRO Assessment FCO 2937.

For more information, Ask James Hardie™ on 13 11 03.

FRAMING

Steel

Use of steel framing must be in accordance with AS 3623 - 'Domestic Metal Framing' and the framing manufacturers specifications. Framing members must have a base metal thickness (BMT) between 0.55 to 1.6mm. The steel framing must have the appropriate level of durability required to prevent corrosion.

Tolerances

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 cladding. A suggested maximum tolerance of between 3mm and 4mm in any 3000mm length of frame will give best results. HardieBreak™ thermal strip will not straighten excessively warped or distorted wall frames and any warping may still be visible after the cladding is applied.

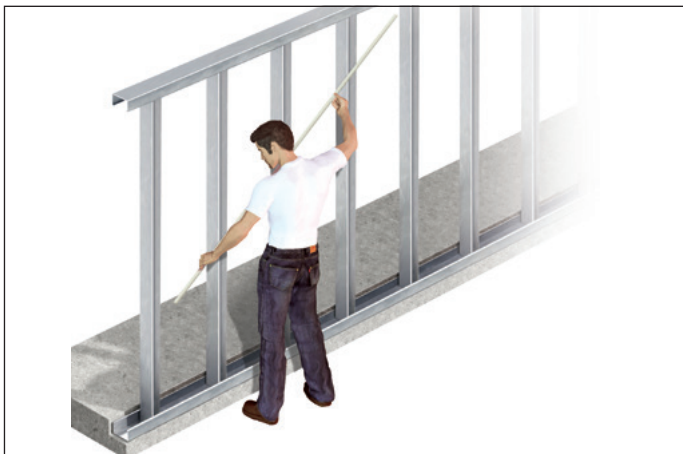


FIGURE 1 FRAME STRAIGHTNESS

4 OVERVIEW AND FASTENERS

GENERAL

HardieBreak™ thermal strip is installed using the following four steps as a guide. These steps outline how to install HardieBreak™ thermal strip over a vapour permeable membrane and steel wall framing members.

For external cladding guidelines outside of this installation guide, refer to the relevant and current James Hardie™ external cladding installation guide.

Step 1: Detail the building for a 12mm thick HardieBreak™ thermal strip.

Consideration must be made prior to installation of the HardieBreak™ thermal strip for the thickness of the strip including but not limited to external and internal corners, windows and internal sill and additional length of cladding needed at external corners. This will help avoid issues later during installation of the external cladding.

Step 2: Install a vapour permeable membrane to the steel wall frame.

A non compressive vapour permeable membrane is to be installed over the steel wall frame as per the manufacturer's recommendations. James Hardie recommends a vapour permeable membrane that has the following properties in accordance with AS/NZS 4200.1:

- Vapour barrier - low or medium
- Water barrier - high

The function of the vapour permeable membrane is to prevent moisture ingress by acting as a "drainage plane" whilst enabling water vapour build up from inside the frame to escape.

Step 3: Install the HardieBreak™ thermal strip.

Ensure the vapour permeable membrane surface is dry, clean and free of contaminants such as dirt, moisture and oil before installing the HardieBreak™ thermal strip to the vapour permeable membrane and directly over framing members.

Remove the protective peel on the rear of the HardieBreak™ thermal strip before installing the green side to the vapour permeable membrane over the steel wall frame members.

HardieBreak™ thermal strip can be cut using a retractable utility knife or large secateurs.

Ensure HardieBreak™ thermal strip is adhered smoothly and straight with no bumps that may cause aesthetic issues with the external cladding.

Before installing the external cladding, always check that the HardieBreak™ thermal strip is square and true. A recommended tolerance is 3mm over 3 metres in all directions.

Step 4: Install James Hardie™ external cladding.

Refer to the current relevant James Hardie™ external cladding installation guide for installation and maintenance instructions. The external cladding is recommended to be installed immediately as the adhesive on the back of the HardieBreak™ thermal strip is only temporary. The thermal break tape must be covered with external cladding within 1 month. If the HardieBreak™ thermal strip becomes loose prior to installing the cladding, the strip can be fixed back to the stud with a pan head screw.

Only use an adjustable clutch screw gun at a slow speed to screw fix the external cladding. This will help ensure minimal pressure is applied to the cladding and strip and help avoid unnecessary compression of the strip.

After the installation of every weatherboard or flat sheet, check that the external cladding product is fully engaged, flush and aesthetically acceptable.

Do not apply excessive force while screwing cladding to frame.

Do not overdrive fasteners, all fasteners must be finished flush with the weatherboards or flat sheet surface unless otherwise stated in the current relevant James Hardie™ product fixing manual.

NOTE

For EasyLap™ panels and Scyon™ Axon™ cladding, the HardieBreak™ thermal strip replaces the need for the 50mm foam back sealing tape behind all vertical sheet joints.

STEEL FRAME BMT	FASTENER REQUIRED
0.5 to 1.6mm	41mm HardieDrive™ Screw

NOTE

Do not overdrive fasteners. Ensure fastener head is flush with the sheet or weatherboard. Only use an adjustable clutch screw gun at a slow speed to screw fix the external cladding.

5 INSTALLATION

The layout of the HardieBreak™ thermal strip over the wall depends on the type of James Hardie™ external cladding that will be installed. Either:

- Weatherboard / Plank or
- Flat Sheet

When installing the external cladding do not overdrive fasteners and always ensure fasteners are fixed flush with an adjustable clutch screw gun.

After the immediate installation of each board or sheet, check that there are no aesthetic and installation issues.

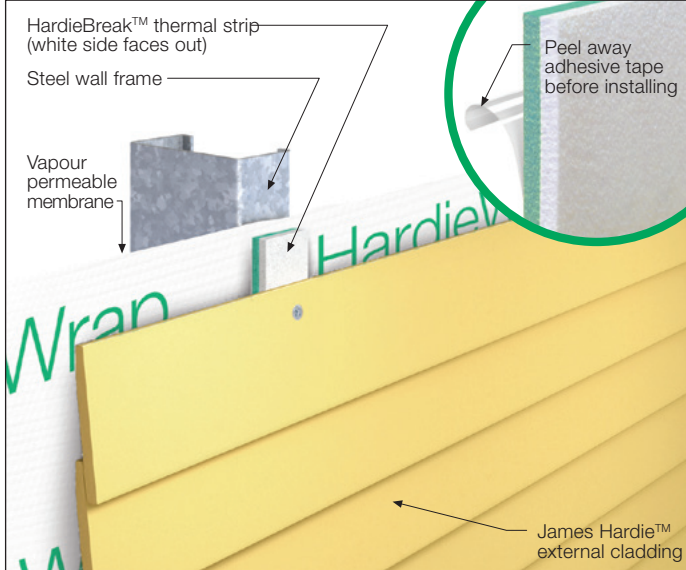


FIGURE 2 INSTALLATION OVERVIEW

WEATHERBOARDS AND PLANKS

When installing weatherboards and planks install the HardieBreak™ thermal strip as shown below.

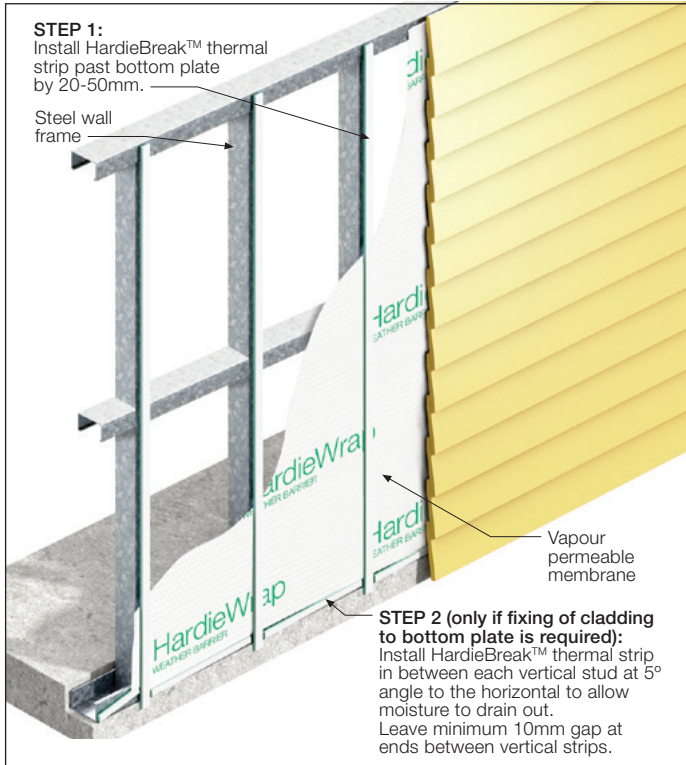


FIGURE 3 INSTALLATION OF HARDIEBREAK™ THERMAL STRIP FOR WEATHERBOARDS AND PLANKS DIRECT FIXED

FLAT SHEETS

When installing flat sheets install the HardieBreak™ thermal strip as shown below.

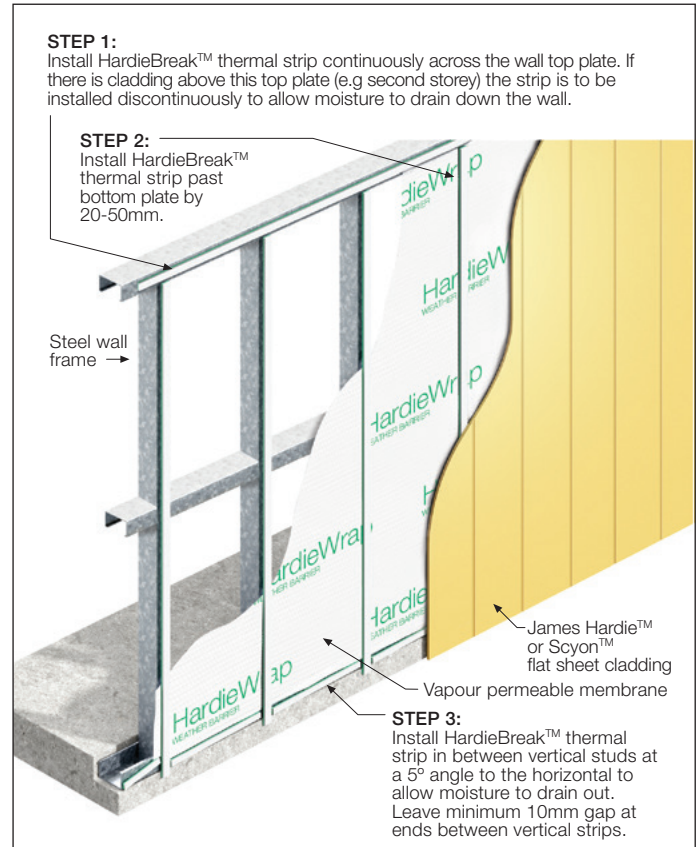


FIGURE 4 INSTALLATION OF HARDIEBREAK™ THERMAL STRIP FOR FLAT SHEET DIRECT FIX

For ExoTec® and ComTex® facade panel and fixing systems and Scyon™ Matrix™ cladding, the thermal break is installed behind the top hat or batten and in front of the vapour permeable membrane. Do not install HardieBreak™ thermal strip in front of the top hat or cavity trim. The length of the screw fixing the top hat or cavity trim must be increased by 10mm.

Figure 5 below outlines where the HardieBreak™ thermal strip is installed behind the ExoTec® facade panel and fixing system and Matrix™ panel.

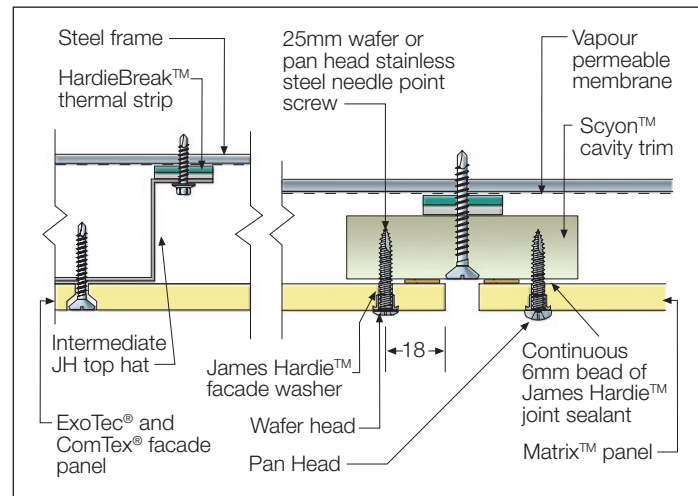


FIGURE 5 INSTALLATION OF HARDIEBREAK™ THERMAL STRIP BEHIND JAMES HARDIE™ TOP HATS AND CAVITY TRIM

6 OPENINGS

Detailing around openings need special consideration to the building's design, climate, window and having the external cladding installed over a thermal break.

There are two window options presented below:

1. Install HardieBreak™ thermal strip next to the window flanges. The window must suit both the thickness of HardieBreak™ thermal strip and cladding.
2. Install HardieBreak™ thermal strip behind the window flanges. The window must suit the installed cladding but will need a deeper internal window reveal.

NOTE

If fixing the window flanges through the HardieBreak™ thermal strip and into the wall frame, don't apply excessive pressure when screwing as the windows thin metal flange may buckle.

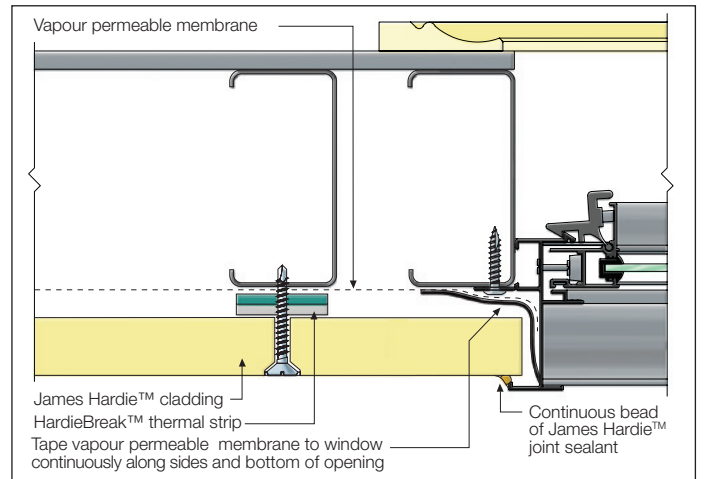


FIGURE 6A OPTION 1: WINDOW JAMB DETAIL TO WINDOWS

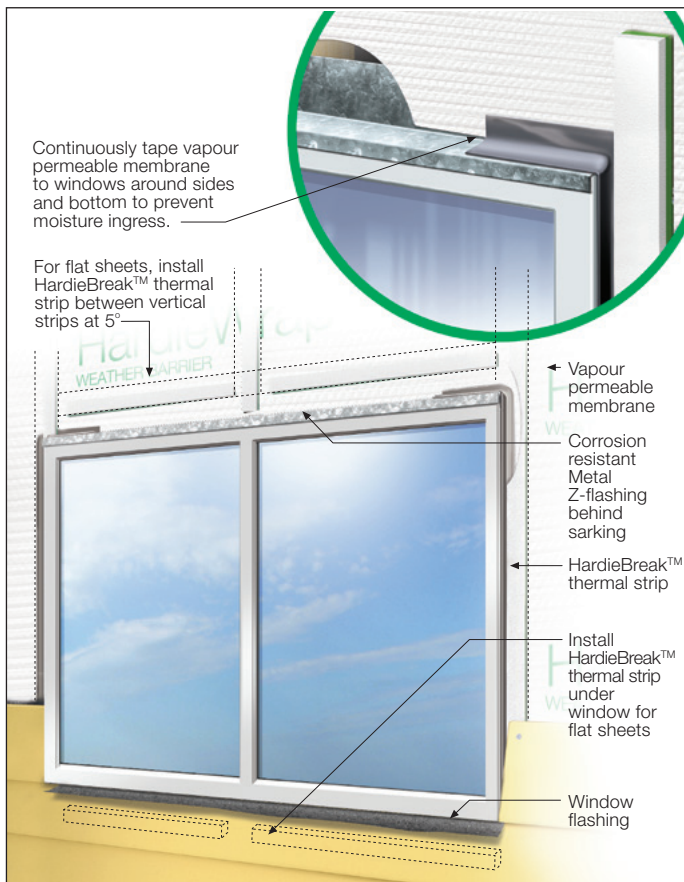


FIGURE 6 OPTION 1: HARDIEBREAK™ THERMAL STRIP NEXT TO WINDOW

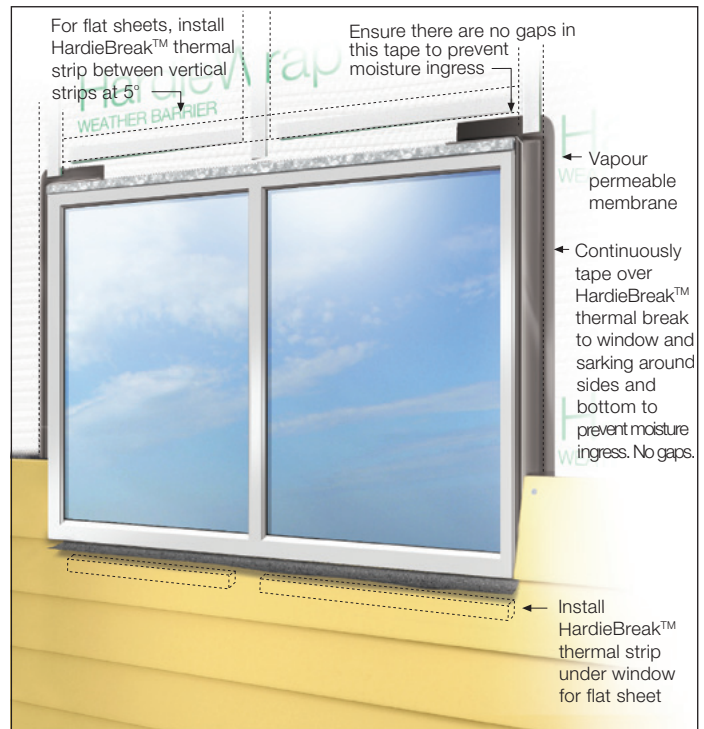


FIGURE 7 OPTION 2: HARDIEBREAK™ THERMAL STRIP BEHIND WINDOW FLANGE

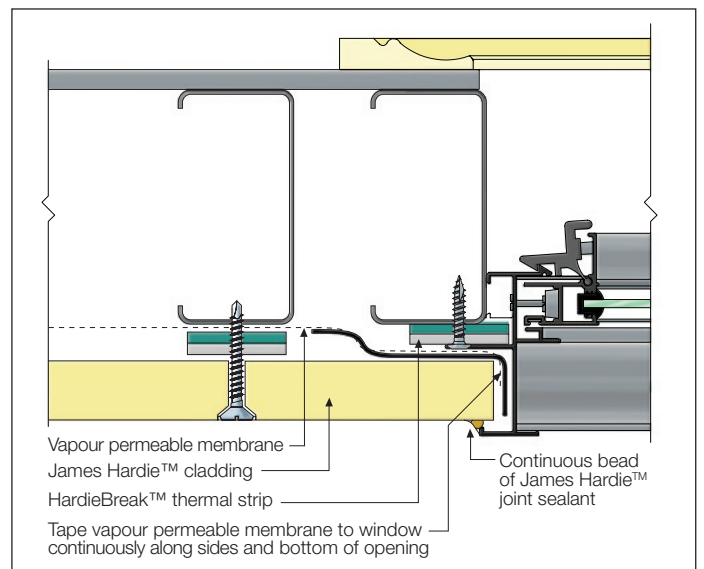


FIGURE 7A OPTION 2: WINDOW JAMB DETAIL TO WINDOWS

7 SLAB EDGE DETAILS

The following details outline three slab edge details. To minimise vermin entering the cavity and ensure moisture is flashed out, a corrosion resistant metal flashing is recommended at the slab junction as shown in figures 8, 9 & 10.

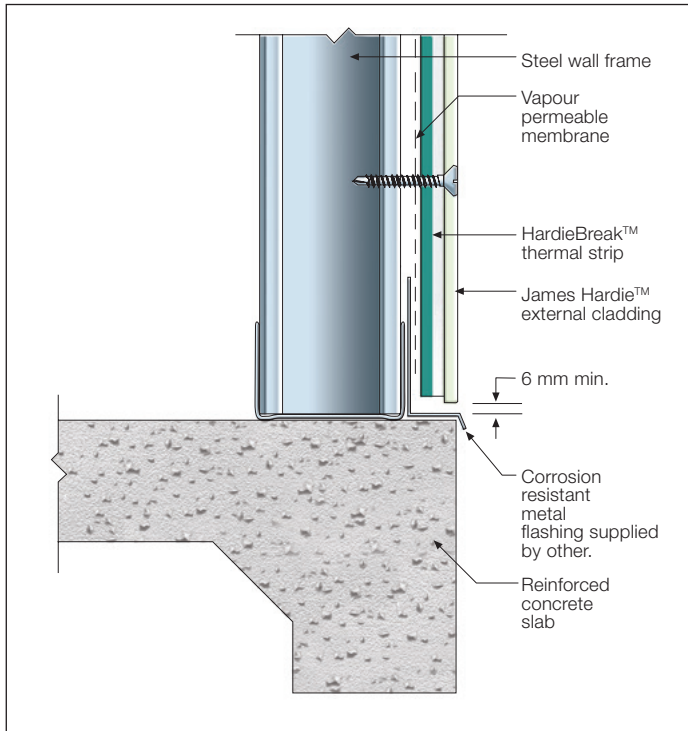


FIGURE 8 OPTION 1 FLUSH APPEARANCE

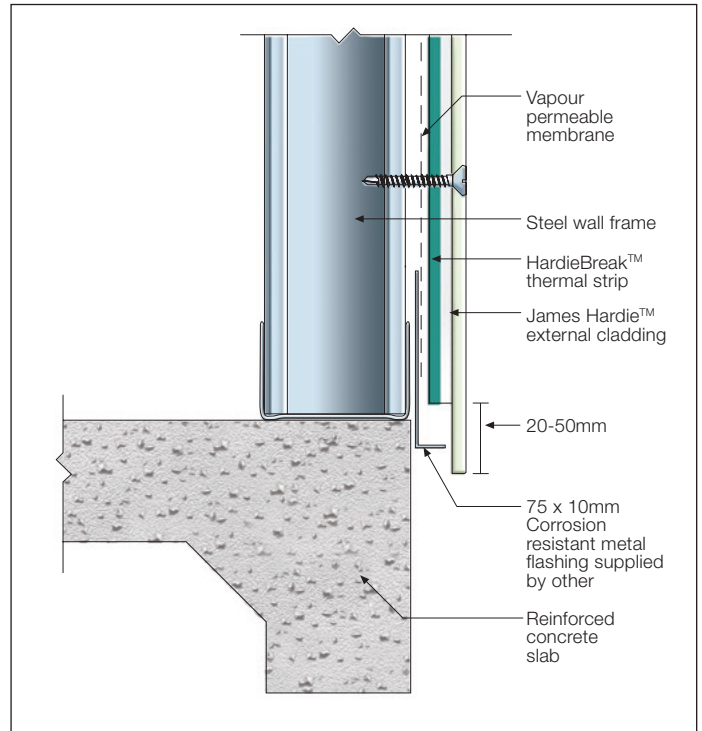


FIGURE 10 OPTION 3 CANTILEVER HARDIEBREAK™ AND BOARD

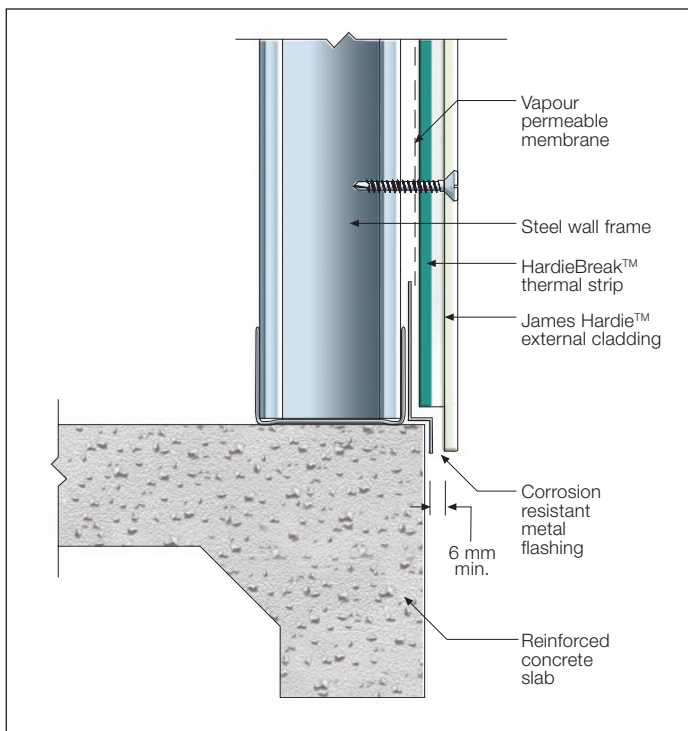


FIGURE 9 OPTION 2 CANTILEVER BOARD

8 MAINTENANCE

The extent and nature of maintenance will depend on the geographical location and exposure of the building. As a guide, it is recommended that basic normal maintenance tasks shall include but not be limited to:

- Washing down exterior surfaces every 6-12 months*
- Periodic inspections should be made to ensure fasteners are adequately securing the sheets to framing.
- Re-applying of exterior protective finishes*
- Maintaining the exterior envelope and connections including joints, penetrations, flashings and sealants that may provide a means of moisture entry beyond the exterior cladding.
- Cleaning out gutters, blocked pipes and overflows as required.
- Pruning back vegetation that is close to or touching the building.

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

NOTES

NOTES

**For information and advice
call 13 11 03 | jameshardie.com.au**

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