



Timber Cavity Batten Technical Specification

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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

1 Application and scope

1.1 APPLICATION

Stria™ Cladding installed as per this specification gives a panelised plastered masonry appearance on building facades. Stria Cladding can be fixed to either timber or lightweight steel-framed external walls. A wide range of colours can be used varying from light to dark. Stria Cladding is available in a 405mm width in 2700 and 4200mm lengths and is 14mm thick.

If you are a specifier

Or other responsible party for a project ensure that the information in this document 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 principles, associated figures and material selection provided by the designer and this James Hardie Technical Specification. All the details provided in this document must be read in conjunction with the project specification.

Make sure your information is up to date

When specifying or installing James Hardie 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.

1.2 SCOPE

This specification covers the installation of Stria Cladding fixed over timber cavity battens on buildings that fall within the scope limitation of NZS 3604 and E2/AS1 of the New Zealand Building Code (NZBC).

This specification also covers the installation of Stria Cladding on projects, which are subject to specific engineering design (SED) up to a wind pressure of 2.5kPa (ULS).

Note: Refer to Stria Cladding CLD Structural Cavity Batten technical specification when fixing to CLD Structural Cavity Battens.

1.3 DETAILS

Various typical Stria Cladding construction details are provided in the Details section of this document. These details are available in dwg, dxf, jpg and pdf file format and can be downloaded from our website at www.jameshardie.co.nz.

All dimensions shown are in millimetres unless noted otherwise.

1.4 SPECIFIC DESIGN

For use of the Stria Cladding on specific design projects, the designer, architect or engineer must ensure that all clauses of NZBC have been considered and a specific design has been undertaken for the areas which fall outside the scope of this literature.

2 Design

2.1 COMPLIANCE

Stria Cladding installed in accordance with this specification has been tested as per E2/VM1 and complies with External Moisture - E2 Clause of the NZBC. The cladding has also been tested and complies with the requirements of Structure - B1, Durability - B2, Energy Efficiency - H1 and Hazardous Building Material - F2 Clauses of the NZBC.

2.2 RESPONSIBILITY

The specifier or other party responsible for the project must ensure that the information and 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 technical specification. For applications outside the scope of this literature and details, which are not provided herein, the architect, designer or engineer must undertake specific design and it should be ensured that the intent of their design meets the requirements of the NZBC.

All New Zealand Standards referenced in this manual are current editions and must be complied with.

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 aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

2.3 SITE AND FOUNDATION

The site on which the building is situated must comply with E1/AS1 Surface Water Clause of NZBC.

Foundations design must comply with relevant regulations, standards and meet the requirements of NZBC.

The grade of adjacent finished ground must slope away from the building to avoid any possibility of water accumulation.

2.4 SURFACE CLEARANCES

The clearance between the bottom edge and paved/unpaved ground of cladding must comply with section 9.1.3 of E2/AS1. The finished floor must also comply with these requirements. These clearances must be maintained throughout the life of the building.

Stria Cladding must overhang the bottom plate by a minimum of 50mm as required by E2/AS1.

Stria Cladding must maintain a minimum clearance of 100mm from paved ground, and 175mm from unpaved ground. On roofs and decks, the minimum clearance must be 50mm.

Do not install external cladding such that it may remain in contact with water or ground. Refer Figures 4 and 5.

2.5 MOISTURE MANAGEMENT

It is the responsibility of the specifier to identify moisture related risks associated with any particular building design.

Wall construction design must effectively manage moisture, considering both interior and exterior environments of the building, particularly in buildings that have a higher risk of wind driven rain penetration. The buildings should also be ventilated sufficiently to control moisture accumulation due to condensation especially in artificially cooled/heated buildings.

Walls shall include those provisions as required by External Moisture Clause E2/AS1 of NZBC. In addition, all wall openings, penetrations, junctions, connections, window sills, heads and jambs must incorporate appropriate flashings for waterproofing. The other materials, components and installation methods used to manage moisture in external walls, must comply with the requirements of relevant standards and the NZBC. For further guidance on designing for weather tightness, refer to BRANZ Ltd. and the Department of Building and Housing updates on the following websites respectively, www.branz.co.nz and www.dbh.govt.nz.

In addition, the following issues must also be considered:

- Sealant must be installed where detailed in this literature.
- Where the walls are higher than two storeys, it is necessary to provide a horizontal flashing at the second floor level to drain the cavity.
- The installation of smoke chimneys, pipe penetrations and other fixtures etc. must not track moisture into the wall or restrict the drainage of moisture to the exterior.

2.6 STRUCTURE

2.6.1 Timber Framing

Timber-framed buildings must either be in accordance with NZS 3604 (Timber Framed Buildings) or designed as per specific engineering design. For a building requiring a specific engineering design, the framing stiffness must be equivalent to or more than the stiffness requirements of NZS 3604.

For specific design projects, the timber framing must be designed in accordance with the requirements of NZS 3603 and AS/NZS 1170.

For timber frame walls longer than 12m, it is best practice to allow for construction joints to accommodate movements generated due to timber shrinkage or deflections etc.

2.6.2 Steel Framing

Steel-framed buildings must comply with the requirements of AS/NZS 3404 'Steel Structures Standard' or specific engineering design requirements. Also refer to NASH 3405 steel framed buildings guidance document published by 'National Association of Steel Housing' (NASH).

2.6.3 Wind Pressures

Stria Cladding is suitable for use in all wind zones in New Zealand up to and including EH as defined in NZS 3604.

Stria Cladding is also suitable in specific design projects up to wind pressures of 2.5kPa ULS.

2.7 FIRE RATED WALLS

Stria Cladding when fixed over timber cavity battens to external walls can achieve fire ratings up to 60/60/60 to comply with Clause C/AS1 of the NZBC when the walls are constructed in accordance with the current James Hardie 'Fire and Acoustic' Design Manual.

Stria Cladding is classified as a 'non-combustible' material suitable for use on walls close to a boundary.

2.8 STRUCTURAL BRACING

Stria Cladding installed as per this specification cannot be used to achieve any structural bracing. However, bracing can be achieved by using James Hardie rigid air barrier installed direct to framing instead of a building underlay or by using Villaboard™ Lining bracing system on the internal face.

2.9 ENERGY EFFICIENCY

External walls constructed as per this technical specification using Stria Cladding and bulk insulation, where the area of glazing is 30% or less of the total wall area, tcomplies with the insulation requirements for walls in NZBC Acceptable Solution H1/AS1 (Energy Efficiency Clause H1), Replacement Table 1. To meet thermal insulation requirements for the construction, the bulk insulation as specified in Table 1 must be used. This insulation may be substituted with insulations having higher R-values. The thermal insulation of a wall changes when the size or spacing of timber framing is increased or decreased. The calculation used in Table 1 is based on a timber framing size 90 x 45mm and using an internal lining material such as James Hardie Villaboard Lining or a 10mm plasterboard.

Table 1

Insulation capability		
Climate Zone*	R-Value Requirement*	Cavity Insulation Infill Requirement
1 and 2	1.9 m ² °C/W	#R2.0
3	2.0 m ² °C/W	#R2.2
<p>Total construction R-Value depends on the insulation material used and the framing ratio. The insulation material R-Values specified in this table are for studs spaced at 600mm c/c and nogs spaced at 800mm c/c.</p> <p># To achieve higher R-Values of construction the wall insulation material must be replaced with an insulation material having higher R-Values to suit the requirements.</p> <p>For further guidance on insulation requirement refer to the current edition of 'House Insulation Guide' published by BRANZ.</p>		

3 Framing

3.1 GENERAL

Stria Cladding can be fixed either to a timber-frame or steel-frame.

For fixing into steel frame Ask James Hardie on 0800 808 868 for specific requirements.

- Studs must be provided at 600mm centres maximum.
- Nogs must be provided at 800mm centres maximum.

Note: For fixing Stria Cladding, fastener spacing is provided in Section 5.

3.2 TIMBER FRAMING

3.2.1 Dimensions

A 45 x 90mm minimum framing size is required.

A minimum 70mm wide stud is required at vertical joint flashing joints.

3.2.2 Structural Grade

Timber grade used must be in accordance with timber grades specified in NZS 3604.

3.2.3 Durability

The external framing timber must be treated to a minimum H1.2 treatment. Higher treatment levels may be used but check for the compatibility of treatment chemicals with other materials. Refer to NZBC Acceptable Solution B2/AS1 Durability for further information about the durability requirements.

For timber treatment and allowable moisture content information refer to NZS 3602 (Timber and Wood-Based Products for use in Buildings) and NZS 3640 (Chemical Preservation of Round Sawn Timber) for minimum timber treatment selection and treatment requirements.

Also refer to framing manufacturer's literature for further guidance on timber selection. Framing must be protected from moisture at sites in accordance with the framing manufacturer recommendations.

Note: Refer to NZS 3602 for information about the allowable moisture content in timber framing.

3.2.4 Frame Construction

Use of timber framing must be in accordance with NZS 3604 and the framing manufacturer's specifications. The framing must be rigid and not rely on the cladding for stability. Timber framing sizes and its set-out must comply with NZS 3604 and as specified in this technical specification.

The following framing is required:

- Studs must be provided at 600mm centres maximum.
- Nogs must be provided at 800mm centres maximum.
- When studs are spaced at 400mm centres then the nogs / dwangs may be provided at 1200mm centres
- An extra stud is required in internal corners
- For specific design projects exposed to wind speeds higher than 50m/sec, the stud spacing must be closed to 400mm c/c.

In case of gable and trusses sitting on top plates of external wall frame, the frame size must comply with the minimum timber sizes stipulated for wall frames in section 8 of the NZS 3604.

3.3 STEEL FRAMING

Refer to James Hardie Steel Frame technical specification about the installation of Stria Cladding to steel frame.

3.4 SPECIAL FRAMING REQUIREMENTS

The following are special framing requirements for both timber and steel framing:

- Double studs are required at internal corners, refer Figure 15.
- Extra packers maybe required at external corners.

3.5 TOLERANCES

In order to achieve the required performance and an acceptable wall finish, it is imperative that framing is straight and true. Framing tolerances shall comply with Table 2.1 of NZS 3604 and the manufacturer's specifications. All framing shall be made flush.

4 Preparation

4.1 FLEXIBLE UNDERLAY / HOMERAB PRE-CLADDING

Flexible underlay / HomeRAB™ Pre-Cladding must be provided as per the requirements of External Moisture Clause E2 of NZBC. The flexible underlay selected for use must comply with Table 23 of E2/AS1.

The flexible underlay must be fixed in accordance with section 9.1.7 E2/AS1 and underlay manufacturer's recommendations.

Walls which are not lined on the inside face e.g. garage walls or gable ends must include a rigid sheathing or an air barrier behind the cladding which complies with Table 23 of E2/AS1. HomeRAB Pre-Cladding complies with these requirements and is suitable for use in this situation. It must be installed in accordance with James Hardie Rigid Air Barriers installation manual.

4.2 RAB BOARD

General building underlay or HomeRAB Pre-Cladding is suitable for use up to very high wind speed zone (50m/sec).

When an EH windzone or for specific design projects where the wind pressure is higher than 1.5kPa, RAB™ Board must be used instead of building underlay.

To achieve the temporary weathertightness using James Hardie rigid air barriers, windows/doors need to be temporarily installed. Refer to James Hardie Rigid Air Barriers installation manual for information regarding its installation.

4.3 CAVITY CLOSURE / VENT STRIP

The James Hardie Stria Aluminium Cavity Closure or uPVC cavity vent strip must be installed at the bottom of all walls and above all openings constructed using the drained and ventilated cavity construction method. It is important that the openings in the cavity closure/vent strip are kept clear and unobstructed to allow free drainage and ventilation of cavities. James Hardie cavity closure / vent strip has an opening area of 1000mm²/m length.

4.4 CAVITY BATTENS

Stria Cladding to be installed on a cavity. The battens provide ventilation and drainage between the frame and the panel and are considered a “packer” only in this specification.

The timber cavity battens must be minimum H3.1 treated in accordance with NZS 3640 (Chemical preservation of rough and sawn timber) to comply with the durability requirements of B2/AS1.

Cavity battens must comply with E2/AS1 and:

- be minimum 18mm thick
- be as wide as the width of studs
- fixed vertically to studs
- must be fixed by the cladding fixings to the main framing over the building underlay. Therefore until claddings are fixed the battens only need to be tacked to framing by 40 x 2.8mm or longer nails at 800mm c/c.

4.5 INTERMEDIATE SUPPORT

Where studs are at 600mm centres an intermediate means of restraining the building underlay and insulation from bulging into the cavity shall be installed. An acceptable method to achieve this is using one of the following options:

- intermediate cavity batten between the studs; or
- 75mm galvanised mesh; or
- polypropylene tape at 300mm centres fixed horizontally and drawn taut

No intermediate supports are required:

- when studs are spaced at 400mm centres; or
- when rigid air barriers instead of building underlays are used.

4.6 FLASHINGS

All wall openings, penetrations, intersections, connections, window sills, heads and jambs must be flashed prior to Stria Cladding installation. Refer to moisture management requirements in Clause 2.5. The building underlay/rigid air barrier must be appropriately incorporated with penetration and junction flashings using flashing tapes. Materials must be lapped in such a way that water tracks down to the exterior on the face of building underlay or rigid air barrier. James Hardie will assume no responsibility for water infiltration within the wall due to poor installation of flashings or building underlay.

The selected flashing materials must comply with the durability

requirements of NZBC. For information refer to Table 20 of E2/AS1.

When using James Hardie rigid air barriers the entire framing around openings must be sealed with a flashing tape. The tape must be finished over the face of the rigid air barrier. Refer to James Hardie Rigid Air Barriers installation manual for further information.

4.7 JUNCTIONS AND PENETRATIONS

Refer to Clause 2.5 of this specification for moisture management requirements. All windows and doors must be detailed as per the requirements of this specification. James Hardie has developed the window details for Stria Cladding which meet the requirements of E2 External Moisture, an approved document of the NZBC. Refer to Figures 17 to 19.

5 Stria Cladding installation

5.1 GENERAL

Stria Cladding is installed horizontally using the cavity construction method as per the details and information published in this document. Stria Cladding panels are 405mm wide and are installed with a 25mm nominal lap over the next panel. Considering the installation and machining variations, the effective cover for Stria Cladding can vary between 380-382mm.

Stria Cladding must be kept under cover whilst in storage or at sites and they must be dry at the time of their installation. All site cut panel edges must be sealed with Dulux 1 Step, Resene Quick Dry, Taubmans Underproof Acrylic Primer Undercoat or similar sealer compatible with the finish coat before installation.

Stria Cladding must be fully supported and fixed through timber cavity battens. Ensure that cladding is hard against the battens to avoid drumminess before fixing.

To achieve best aesthetic results it is recommended to position vertical jointer by the corner of openings or coinciding with the centre line of openings. Refer to Figure 3

This technical specification only covers the horizontal installation of Stria Cladding. For vertical installation refer to the Stria Cladding vertical installation technical specification.

5.2 FASTENER DURABILITY

Fasteners must meet the minimum durability requirements of the NZBC. NZS 3604 specifies the requirements for fixing material to be used in relation to exposure conditions and are summarised in Table 2.

6 Joints

Table 2

Exposure conditions and nail selection prescribed by NZS 3604		
NAIL MATERIAL		
Zone D	Zone C outside sea spray zone and Zone B and geothermal hot spots	Bracing - all zones
Grade 316 Stainless	Hot-dipped galvanised or 316 Stainless	Grade 316 Stainless

*(Zone C areas where local knowledge dictates that increased durability is required, appropriate selection shall be made). Microclimate conditions as detailed in NZS 3604, Paragraph 4.2.4 require SED.

Also refer to the NZBC Acceptable Solution E2/AS1' Table 20 and 21 for information regarding the selection of suitable fixing materials and their compatibility with other materials.

5.3 FASTENER – SIZE AND LAYOUT

Stria Cladding must be fixed to framing using the fixings as specified in Table 3 below and follow the edge distance required for nails as shown in the details. Refer to Figure 7.

When using rigid air barrier like HomeRAB Pre-Cladding or RAB Board, the cladding fixing nails must be increased in length equal to the thickness of the rigid air barrier.

Table 3

Panel fixing up to and including VH wind zone	
Cavity construction over flexible underlay	
65x2.87mm D head or 60x2.87mm RounDrive nails	Fix nails at 100mm from top edge and 100mm from bottom edge/per board/per stud. Refer to Figure 12
Panel fixing up to and including VH wind zone cavity construction over HomeRAB Pre-Cladding / RAB Board	
75x3.06mm D head or 75x3.15mm RounDrive nails	Fix nails at 100mm from top edge and 100mm from bottom edge/per board/per stud. Refer to Figure 12
Panel fixing EH wind zone and SED projects cavity construction over RAB Board	
75x3.06mm D head or 75x3.15mm RounDrive nails	Fix nails at 100mm from top edge and 100mm from bottom edge/per board/per stud. Refer to Figure 12

For other fixing options Ask James Hardie on 0800 808 868.

- When fixing the panels using nail guns, refer to the nail gun manufacturer for information about nails and the type of nail gun to be used.
- Stud width of 70mm min required when using a vertical joint flashing. Refer Figure 9.
- D head nails - finish nails 2mm below panel surface.
- RounDrive nails - finish nails flush with panel surface.

6.1 VERTICAL JOINT

Stria Cladding can be jointed using vertical joint flashing, trimline joint flashing or a butt joint. Refer to Figures 7 to 11.

A single stud is required when using trimline joint flashing. Refer to Figure 7. Double studs are required when using vertical joint flashing. Refer Figure 9.

6.2 HORIZONTAL JOINT

Stria Cladding panels are lapped over each other as per Figure 12. There is a minimum 25mm lap between the two panels. Ensure that Stria Cladding panels are securely interlocked before nailing. Stria Cladding can run continuous over floor joists without any horizontal joint when LVL timber floor joists are used. Refer to Figure 28.

When an engineered joist or LVL joist is not used, a horizontal joint or a movement joint must be formed at floor joist, refer to Figures 25 and 26.

6.3 DRAINAGE JOINT

After every two floors a horizontal drainage joint flashing is required, refer to Figure 26.

6.4 EXTERNAL CORNER JOINT

An external box corner flashing is used to fix the external corners, refer to Figure 13 and 14.

6.5 INTERNAL CORNER JOINT

An internal corner flashing is to be used to form an internal corner joint, refer to Figure 15. Alternatively an internal mitre corner, refer to Figure 16.

An extra stud is required in internal corners.

Note: All joint mouldings to be fixed at 400mm centres both sides.

7 Finishes

7.1 PREPARATION

The D head nail heads must be finished 2mm below the panel surface. The nail holes must be filled with an exterior grade two part builders fill, ie. CRC Builders Fill or similar two part external grade filler. The RounDrive nail heads must finish flush with panel surface.

7.2 PAINTING

Stria Cladding is pre-primed and is suitable for site applied acrylic paints.

In order to seal cut edges or sanded patches, Dulux 1 Step, Resene Quick Dry, Taubmans Underproof Acrylic Primer Undercoat or a similar product should be applied. The primer should be compatible with the paint to be used.

Painting of Stria Cladding is mandatory to meet the durability requirements of NZBC and 15 year James Hardie product warranty. Stria Cladding must be dry and free of any dust or grime before painting. The panels must be painted within 90 days of their installation. There is no restriction on the LRV of paint to be applied on the Stria Cladding.

10 Product information

James Hardie recommends a minimum of two coats of exterior grade acrylic paint. Follow the paint manufacturer's recommendations to prepare the surface and to adequately cover and conceal the panel fixings.

7.3 FLEXIBLE SEALANT

Sealant used must comply with the relevant requirements of the NZBC. Their application and usage must be in accordance with the manufacturer's instructions. Check with the sealant manufacturer prior to coating over sealant. Some sealant manufacturers do not recommend coating over their product.

8 Storage and handling

Stria Cladding must be laid flat on a smooth level surface. Edges and corners must be protected from chipping.

To ensure optimum performance, store panels under cover and keep dry prior to fixing. If the panels become wet, allow them to dry thoroughly before fixing.

Do not carry panels on the flat, carry in the vertical position to avoid excessive bending.

9 Maintenance

The extent and nature of maintenance required will depend on the geographical location and exposure of the building. It is the responsibility of the specifier to determine normal maintenance requirements to maintain the effectiveness of the cladding.

As a guide, it is recommended that the basic normal maintenance tasks shall include, but not be limited to:

- Washing down exterior surfaces every 6-12 months*
- Re-coating exterior protective finishes**
- Regular inspection and repair if necessary of the cladding, sealants, etc.
- Cleaning out gutters, down pipes and overflow pipes as required.
- Pruning back vegetation which is close to or touching the building as well as ensuring the NZBC ground clearance requirements are maintained especially where gardens are concerned.
- The clearance between the bottom edge of the Stria Cladding and the finished/unfinished ground must always be maintained.

**Do not use a water blaster to wash down the cladding.*

**In extreme coastal conditions or sea spray zones, wash every 3-4 months.*

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

10.1 MANUFACTURING AND CLASSIFICATION

Stria Cladding is an advanced lightweight cement composite cladding manufactured using James Hardie formulation. Basic composition is Portland cement, ground sand, cellulose fibre and water.

Stria Cladding is manufactured to Australian / New Zealand Standard AS/NZS 2908.2 'Cellulose-Cement Products' (ISO 8336 'Fibre-Cement Flat Sheet').

Stria Cladding is classified Type A, Category 2 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.

10.2 PRODUCT MASS

Stria Cladding is manufactured in 14.0mm thickness and has a mass of 13.8kg/m² at EMC.

Stria Cladding is defined as a Light Weight Wall Cladding (not exceeding 30kg/m²) as per NZS 3604.

10.3 DURABILITY

Stria Cladding and James Hardie rigid air barrier installed and maintained as per this technical specification will meet the durability requirement for cladding as per Durability B2 clause of the NZBC.

10.3.1 Resistance to Moisture/Rotting

Stria Cladding has tested to check its resistance to permanent moisture induced deterioration (rotting) by passing 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).

10.3.2 Resistance to fire

Stria Cladding is classified as 'Non-Combustible Material' which is suitable for use as external wall cladding and complies with Performance C3.7 of the NZBC Clause C3 Fire Affecting Areas Beyond the Fire Source.

10.3.3 Alpine Regions

In regions subject to freeze/thaw conditions, Stria Cladding and James Hardie rigid air barrier must not be in direct contact with snow or ice build up for extended periods, e.g. external walls in alpine regions must be protected where snowdrifts over winter are expected.

These products have been tested in accordance with AS/NZS 2908.2 Clause 8.2.3.

11 Safe working practices

STAY HEALTHY WHEN WORKING WITH BUILDING PRODUCTS CONTAINING CRYSTALLINE SILICA

Crystalline Silica

What is it? Why and when is it a health hazard?

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).

FAILURE TO ADHERE TO OUR WARNINGS, SAFETY DATA SHEETS AND INSTALLATION INSTRUCTIONS WHEN WORKING WITH JAMES HARDIE PRODUCTS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

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 extractor unit as a minimum and always hose down with water/wet wipe for clean up
- 👎 NEVER use grinders
- 👍 ALWAYS use a circular sawblade specifically designed to minimise dust creation when cutting fibre cement – preferably a sawblade that carries the HardieBlade™ logo or one with at least equivalent performance.
- 👍 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 an approved properly-fitted, approved dust mask (P1 or P2) or respirator

Use one of the following methods based on the required cutting rate:

BEST

- Score and snap knife
- Hand guillotine
- Fibreshear

BETTER

- Dust reducing circular saw equipped with HardieBlade™ Saw Blade and M Class extractor unit.

GOOD

- Dust reducing circular saw with HardieBlade™ Saw Blade

Working 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 'Score or snap' knife or fibre cement shears or, when not feasible, use a HardieBlade™ Saw Blade (or equivalent) and a dust-reducing circular saw attached to a M Class extractor unit
- 👍 When sawing, sanding, rebating, drilling or machining fibre cement products, always:
 - Wear your P1 or P2 mask (correctly fitted in accordance with manufacturers' instructions) and when others are close by, ask them to do the same
 - 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.

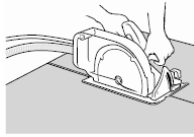
Working indoors

- 👎 Never cut using a circular saw indoors
- 👍 Position cutting station in a well ventilated area
- 👍 Cut ONLY using a score and snap 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 extractor unit

IF CONCERN STILL EXISTS ABOUT EXPOSURE LEVELS OR YOU DO NOT COMPLY WITH THE ABOVE PRACTICES, YOU SHOULD ALWAYS CONSULT A QUALIFIED INDUSTRIAL HYGIENIST.

Working Instructions

- Refer to Recommended Safe Working Practices before starting any cutting or machining of product.



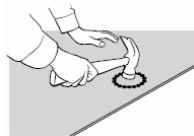
HardieBlade™ Saw Blade

The HardieBlade™ Saw Blade used with a dust-reducing saw is ideal for fast, clean cutting of James Hardie fibre cement products. A dust-reducing saw uses a dust deflector or a dust collector 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 that the sheet edges are properly supported.

STORAGE & DELIVERY

Keeping products and people safe

Off loading

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

Storage

James Hardie products should be stored:

- 👍 in their original packaging
- 👍 under cover where possible or otherwise protected with a waterproof covering to keep products dry
- 👍 off the ground – either on a pallet or adequately supported on timber or other spacers
- 👍 flat so as to minimise bending

James Hardie products must not be stored:

- 👎 directly on the ground
- 👎 in the open air exposed to the elements

JAMES HARDIE IS NOT RESPONSIBLE FOR DAMAGE DUE TO IMPROPER STORAGE AND HANDLING.

TIPS FOR SAFE AND EASY HANDLING

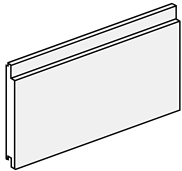
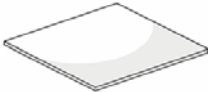
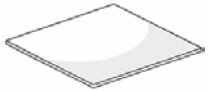
Weatherboard products

- 👍 Do not lift planked products flat and in the middle
- 👍 Carry the products on the edge
- 👍 If only one person is carrying the product, hold it in the middle and spread arms apart to better support the product
- 👍 If two people are carrying the plank, hold it near each end and on edge
- 👍 Exercise care when handling weatherboard products to avoid damaging the edges/corners












Sheet products

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

12 Product and accessories

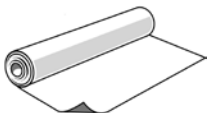
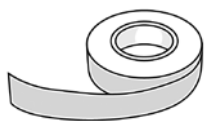
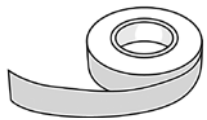

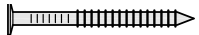


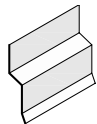
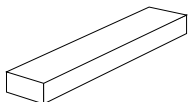
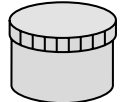
Stria Cladding information					
Product	Description	Size (mm)			Code
		Thickness	Length	Width	
	Stria Cladding A 14mm profiled panel for expressed jointed residential facades. Factory sealed on all six sides. Each panel has a manila white colour primer applied on its face, which accepts a wide range of paint finishes.	14	4200	405	404263
		14	2700	405	405109
	James Hardie rigid air barrier Used as a rigid air barrier. It has green colour sealer applied over one face. Installed with green side facing out.	6	2450	1200	402980
		6	3000	1200	402981
	HomeRAB Pre-Cladding Used as a rigid air barrier. It has green colour sealer applied over one face. Installed with green side facing out.	4.5	2450	1200	404766
		4.5	2750	1200	404768

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

Accessories/tools supplied by James Hardie			
Accessories	Description	Size/Quantity	Code
	Vertical Joint Flashing Aluminium extrusion used behind cladding at vertical joints.	3000mm long	305507
	Stria Trimline Joint Flashing Aluminium extrusion used behind cladding at vertical joints.	3000mm long	305827
	Internal Corner Flashing Anodised aluminium extrusion used to create internal corners.	3000mm long	304871
	Stria External Box Corner Anodised aluminium extrusion used to create external corners.	2700mm long 4000mm long	305824 305823
	Aluminium Window Jamb Flashing Aluminium moulding used beside window opening to end butt the Stria Cladding.	3000mm long	305430
	Stria Aluminium Cavity Closure Aluminium moulding used as vermin proofing.	3000mm long	305431
	JH 9mm Panel Aluminium External Box Corner A box corner mould to form the external joints. 9mm etch primed.	2450mm long 2750mm long 3000mm long 4000mm long	304509 304510 305150 305808
	uPVC Vent Strip PVC moulding used as vermin proofing.	3000mm long	302490
Tools			
	HardieBlade™ Saw Blade Diamond tip 184mm diameter fibre cement circular saw blade. Spacers not included.	Each	300660
	HardieFlex™ Stainless Steel 316 Nails For fixing panels through cavity battens. 60 x 3.15mm	5kg box	302782
	HardieFlex™ Hot Dip Galv. Nails For fixing panels through cavity battens. 60 x 3.15mm	5kg box	302784

Accessories/tools not supplied by James Hardie

James Hardie recommends the following products for use in conjunction with Stria Cladding and James Hardie rigid air barrier. James Hardie does not supply these products and does not provide a warranty for their use. Please contact component manufacturer for information on their warranties and further information on their products.

Product	Description
	<p>Building underlay Must comply with Table 23 of E2/AS1.</p>
	<p>Flexible Window Opening Flashing Tape A flexible self-adhesive tape used in preparation of a window. Refer to the window installation section in this manual for more information. e.g. Protecto or Super Stick by Protecto Wrap or 3M™ All Weather Flashing Tape 8067 by 3M™ Protecto: 0800 776 9727 3M™ 0800 474 787</p>
	<p>James Hardie rigid air barrier Vertical Joint Sealing Tape The tape to be used to seal James Hardie rigid air barrier vertical joints. Super Stick by Protecto Wrap or 3M™ All Weather Flashing Tape 8067 by 3M™ Protecto: 0800 776 9727 3M™ 0800 474 787</p>
	<p>Flexible Sealant Required to seal the vertical joints. Bostik Seal N Flex-1, Sikaflex AT Facade, Sikaflex MS or similar.</p>
	<p>65 x 2.87mm 'D' head nail or 60 x 2.87 RounDrive nail (hot dipped galvanised/stainless steel) For fixing Stria Cladding.</p>
	<p>40 x 2.8mm or longer HardieFlex™ nail. For fixing timber cavity battens and aluminium flashings.</p>
	<p>Meter Box Refer Electrical Suppliers.</p>
	<p>Head flashing Required over window heads to be supplied by window installer. Material must comply with Table 20 and 21 of E2/AS1.</p>
	<p>Timber cavity batten H3.1 minimum treated Timber cavity batten the cladding is fixed over.</p>
	<p>Exterior grade filler CRC Builders Fill or similar two part filler to fill over nail holes</p>

13 Details

The following generic details have been provided in this document for cavity construction methods.

Table 5

Details		
Description	Cavity Construction	
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Stria cutting around head	Figure 21	27
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Window head	Figure 24	29
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Meter box at head	Figure 37	39
Enclosed deck	Figure 38	39
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Figure 1: Framing set out

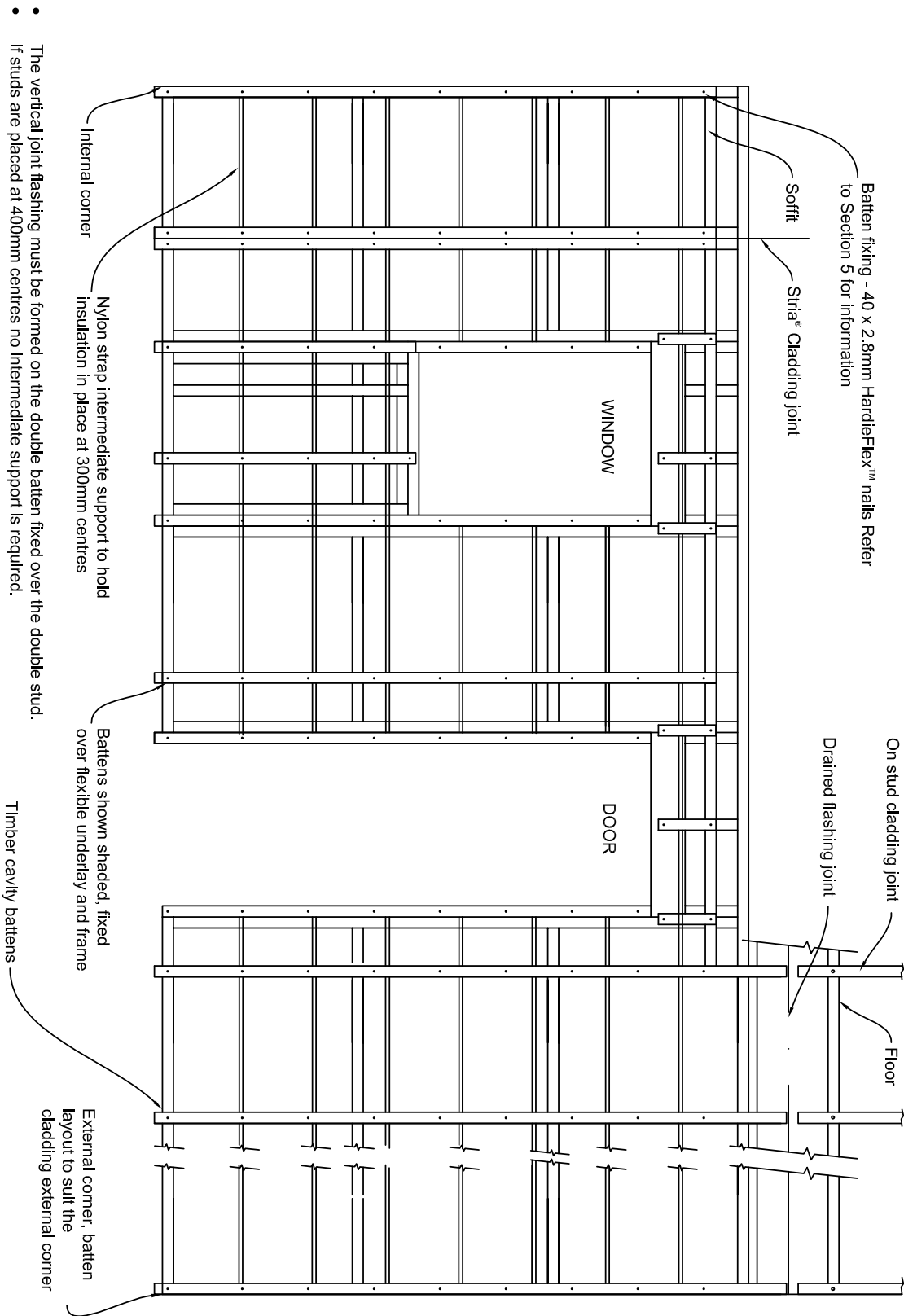


Figure 2: Batten fixing set out

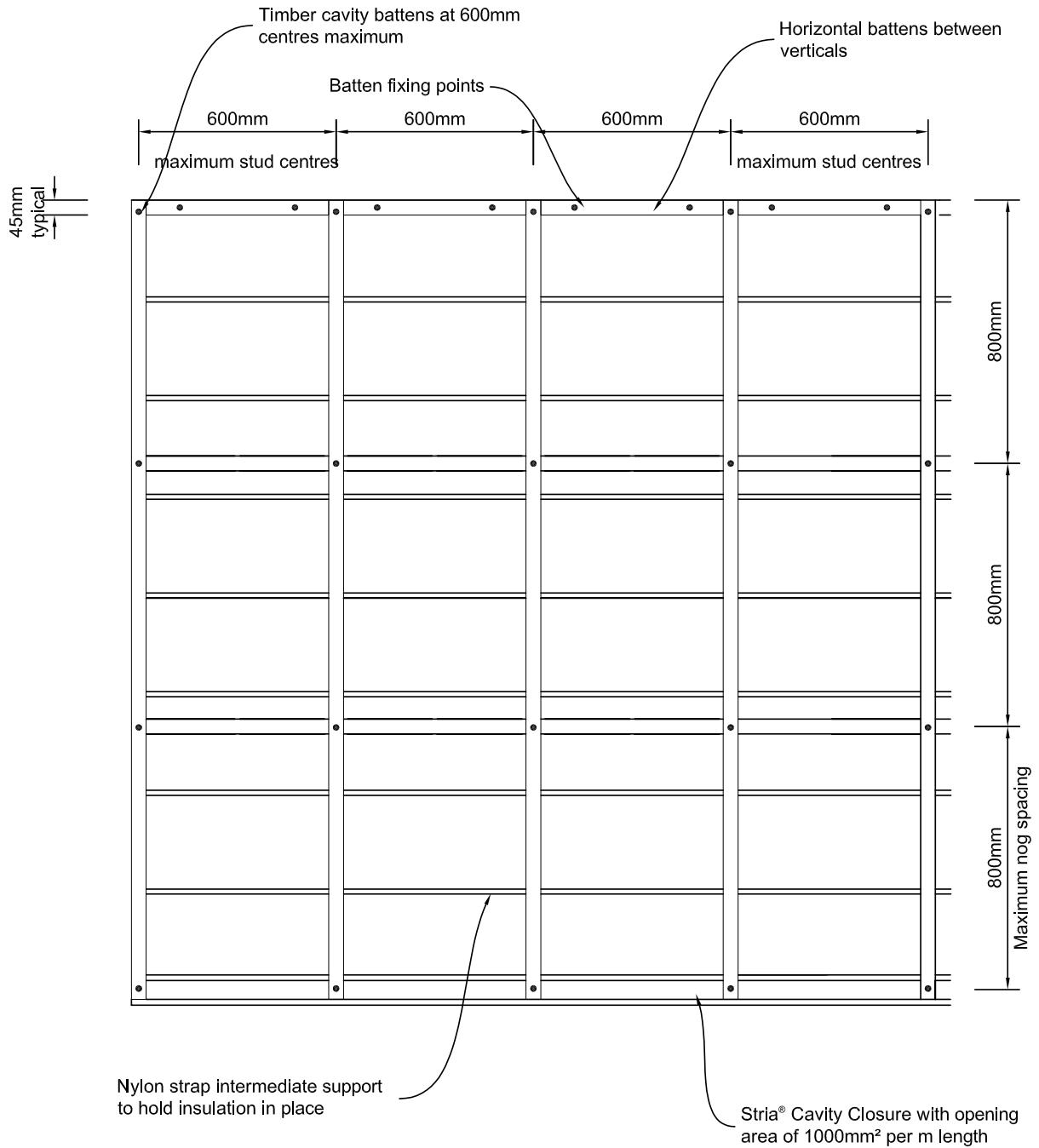
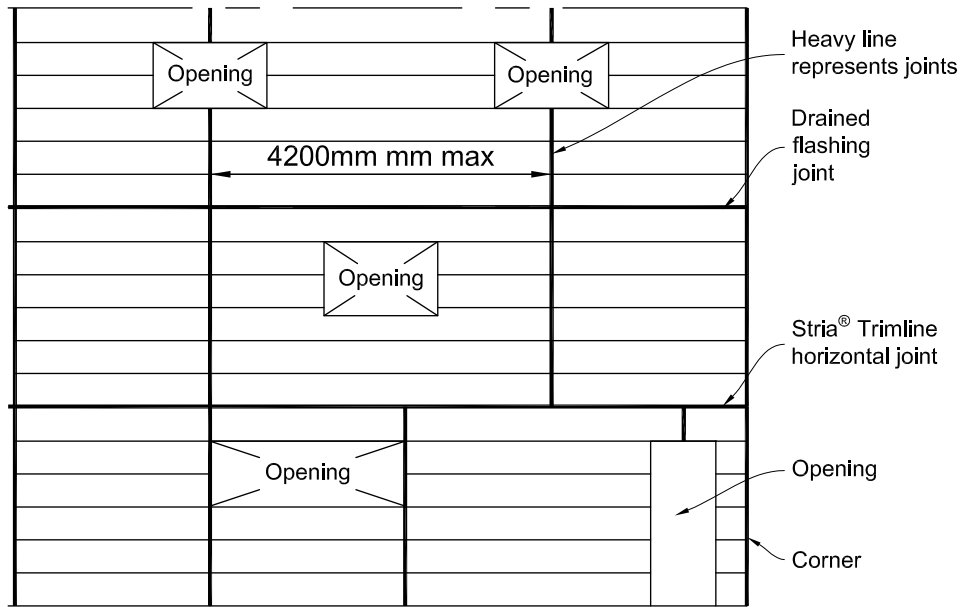


Figure 3: Stria Cladding layout



Typical Storey Layout

Figure 4: Foundation detail – option 1

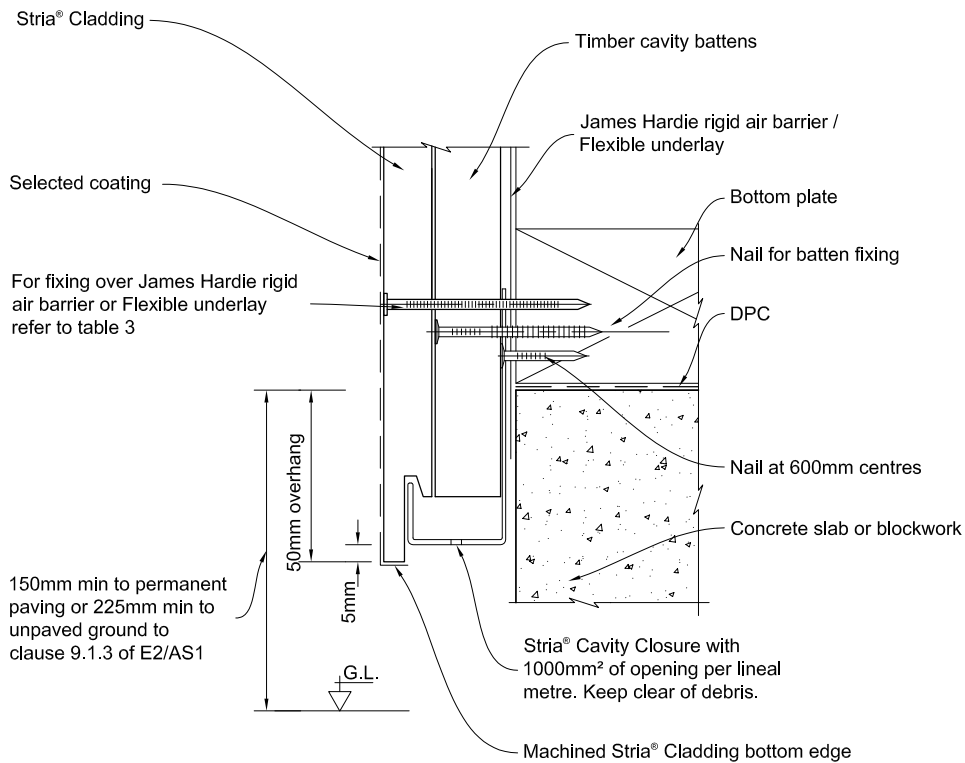


Figure 5: Foundation detail – option 2

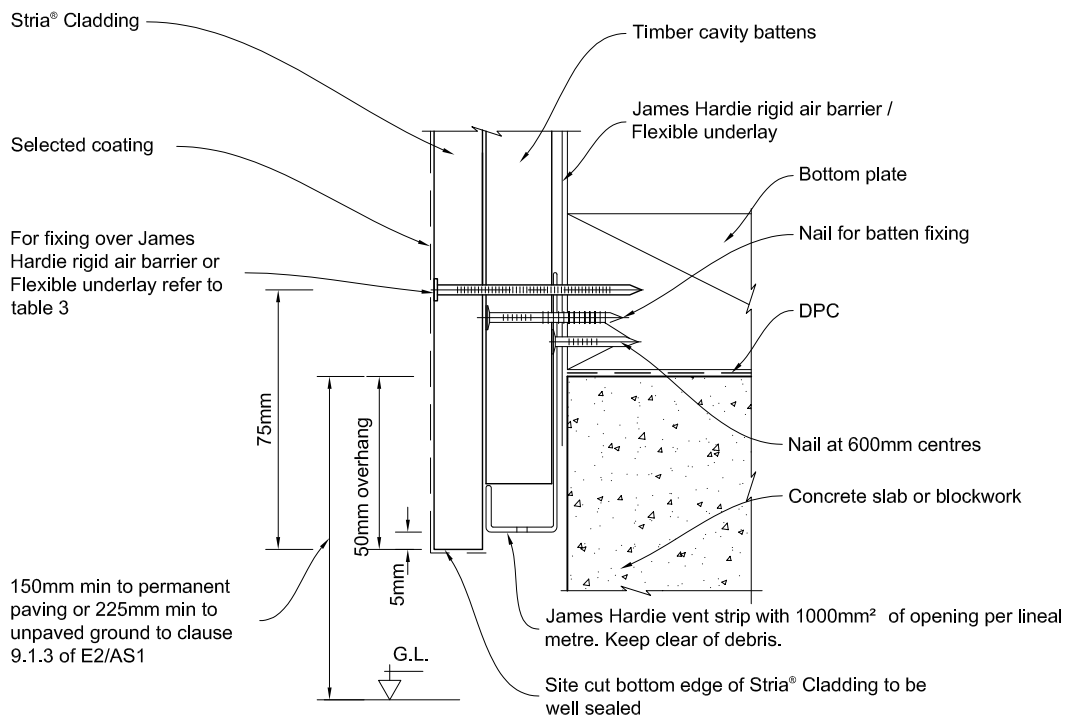


Figure 6: Soffit detail

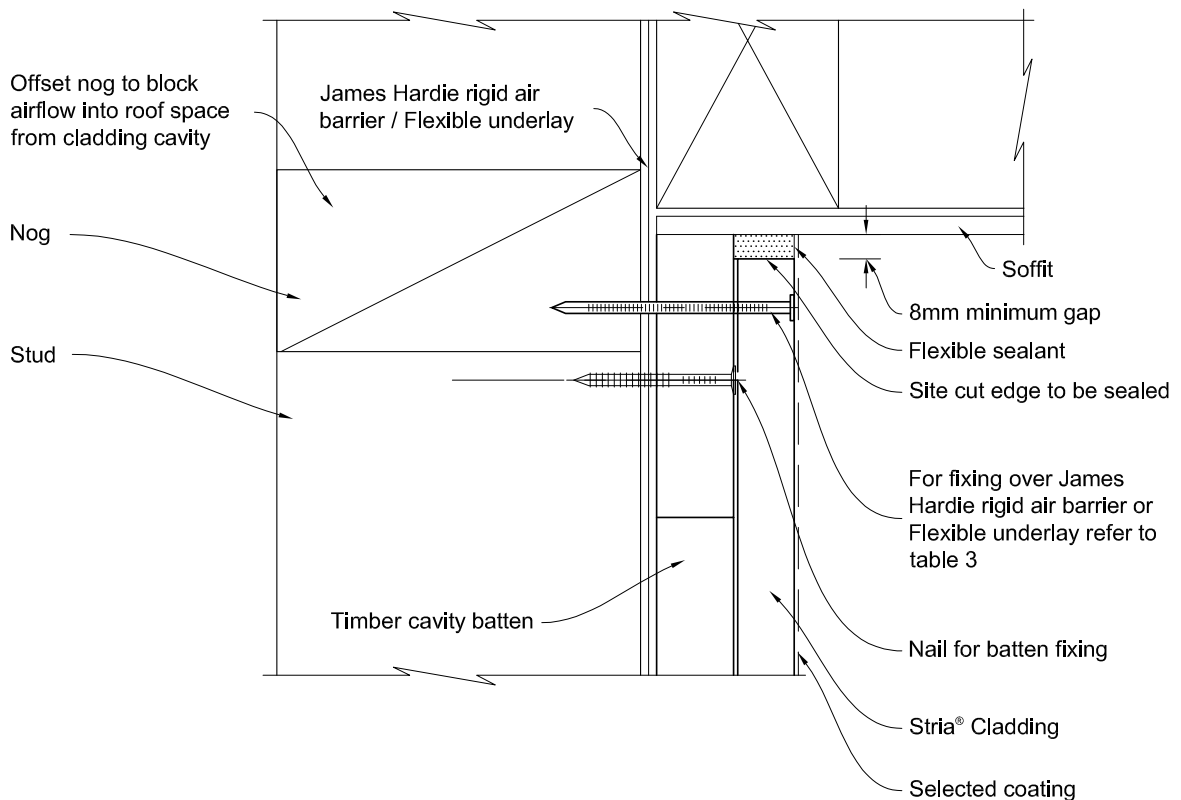
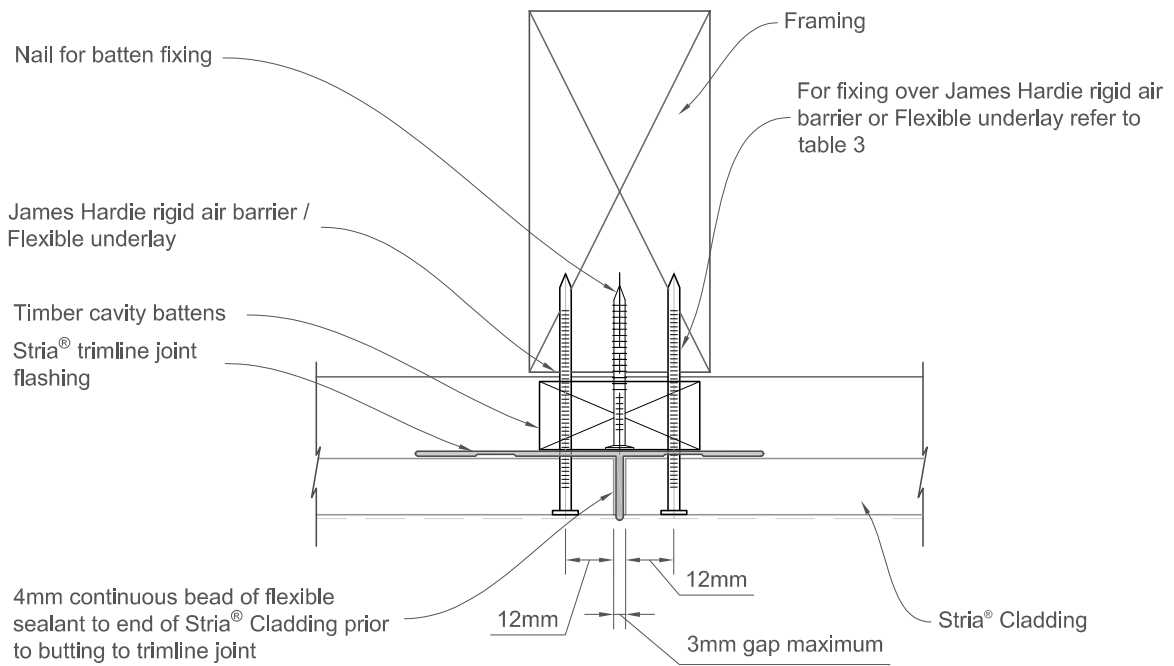


Figure 7: Vertical trimline joint flashing option



Note: All site cut edges to be sealed

Figure 8: Vertical trimline joint flashing option

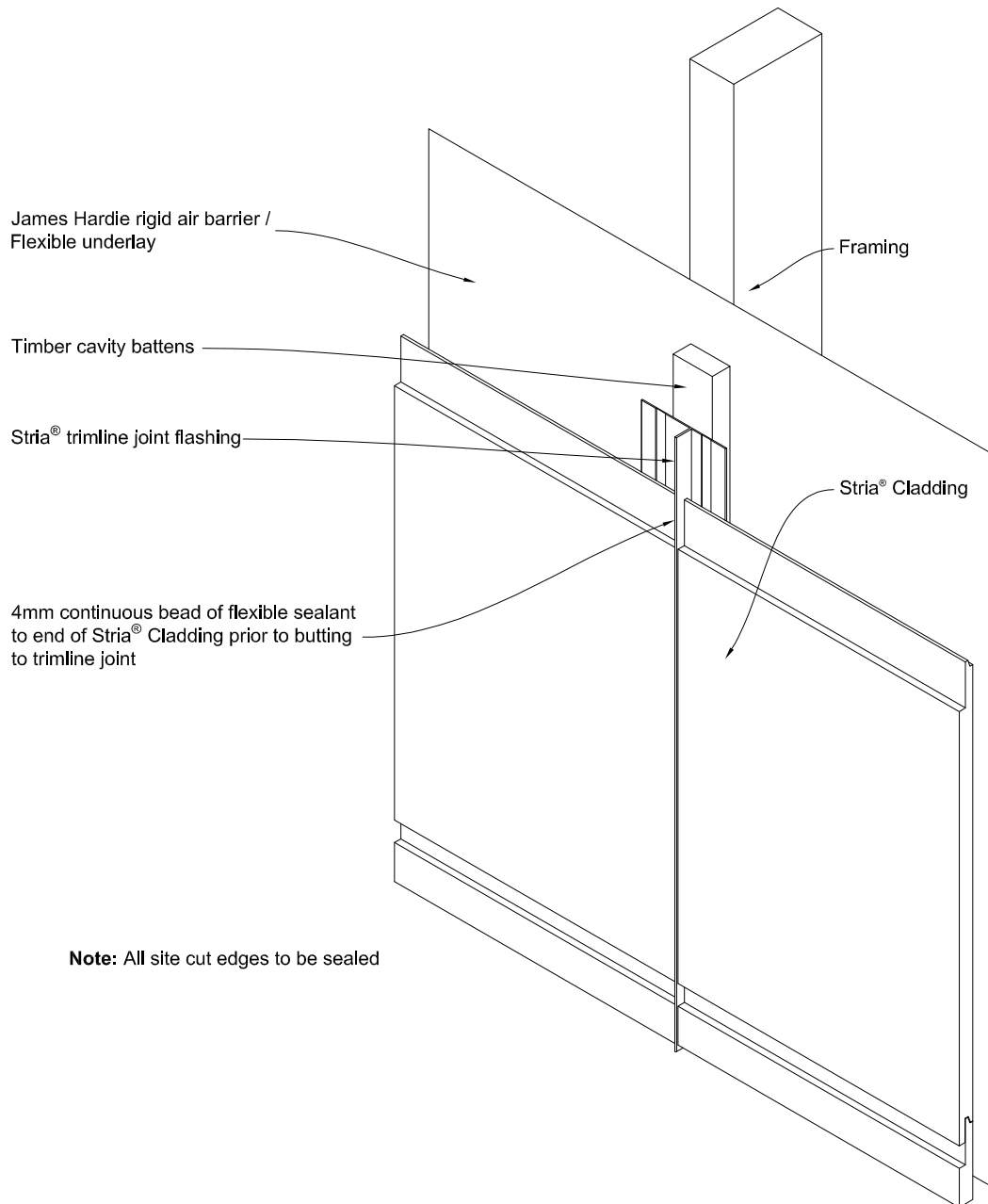


Figure 9: Vertical joint flashing option

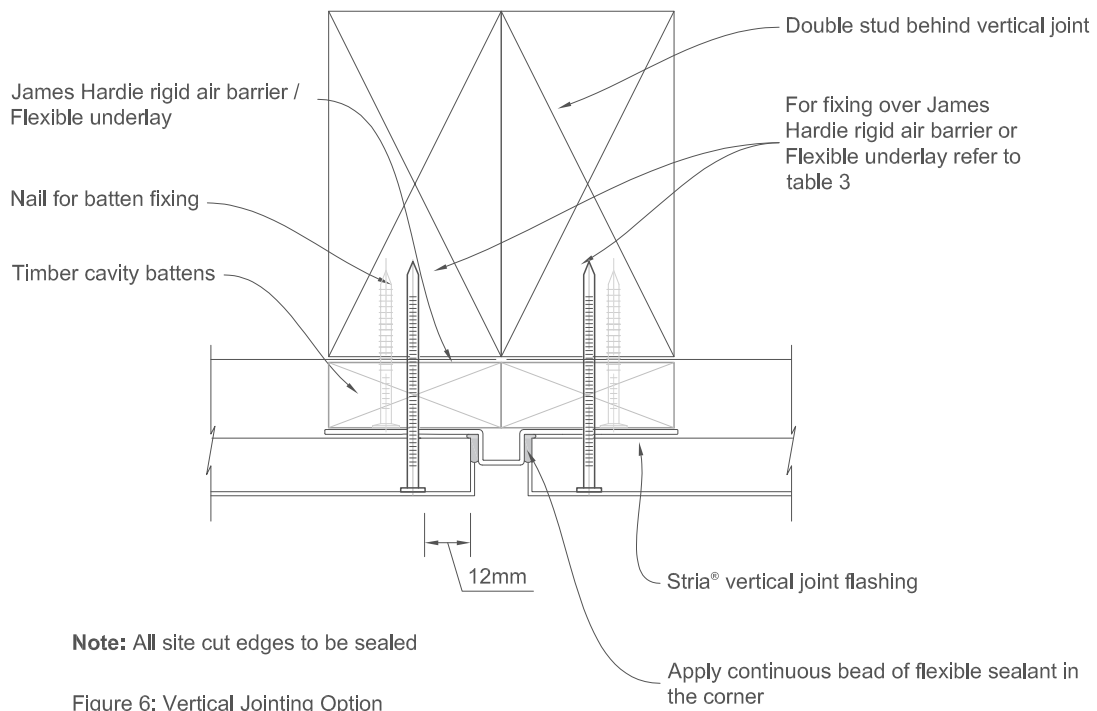
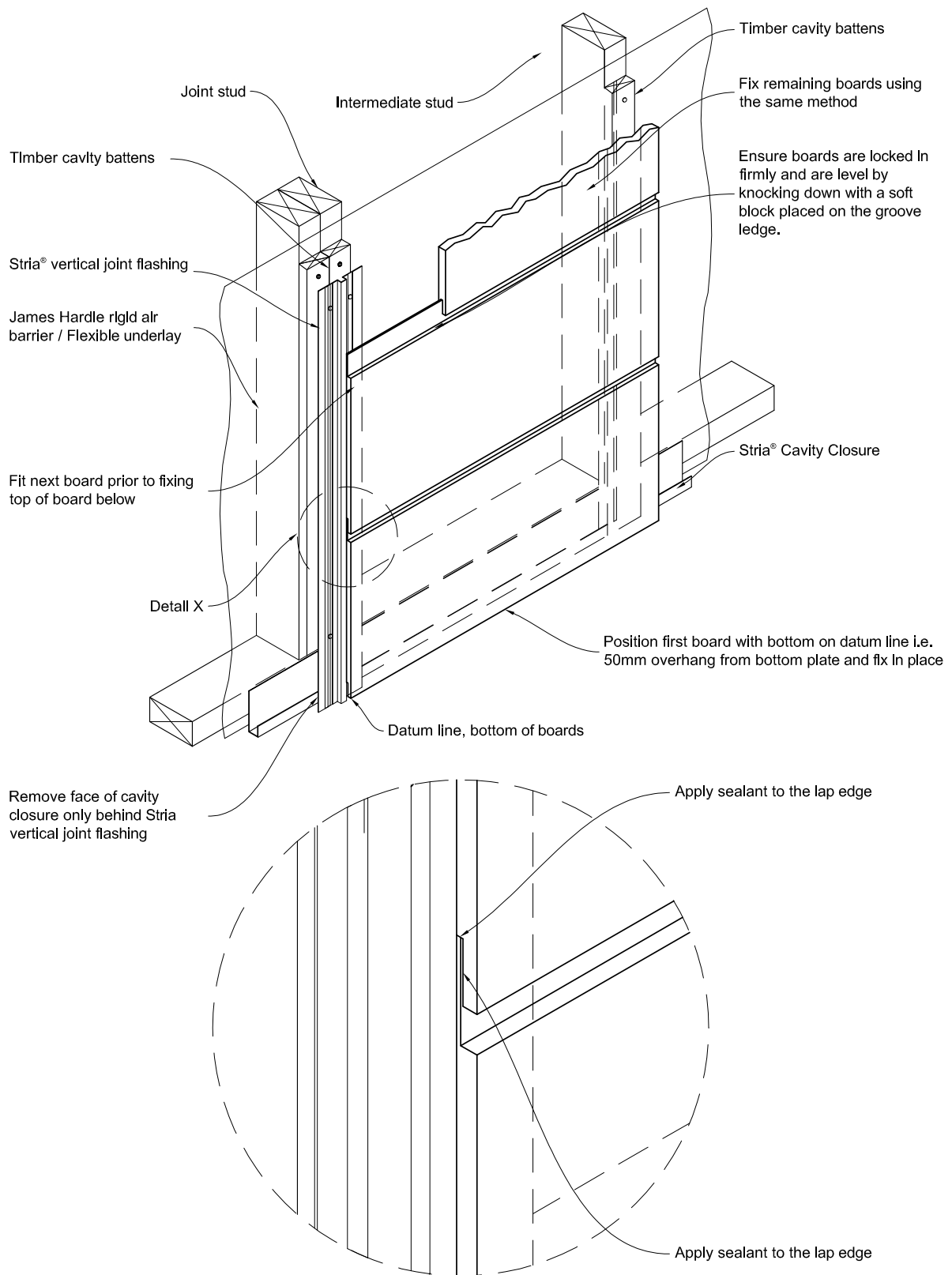


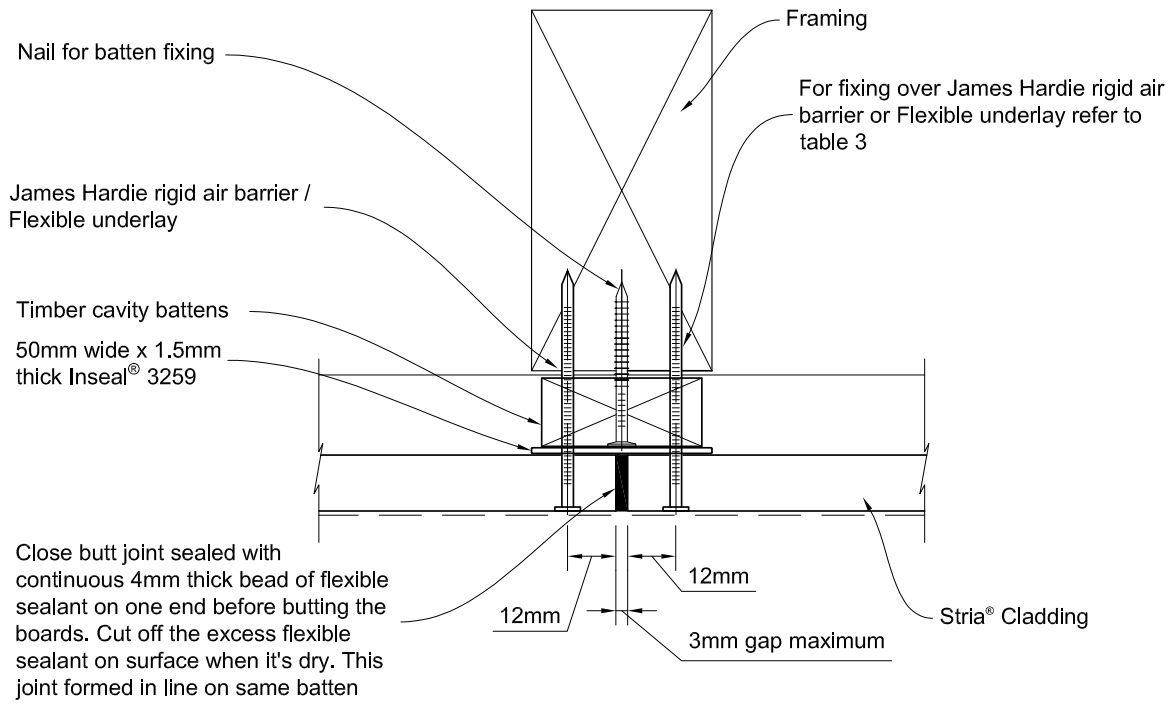
Figure 6: Vertical Jointing Option

Figure 10: Vertical joint flashing option



Enlarged Detail X
 Note: All site cut edges to be sealed

Figure 11: Vertical butt joint option



Note: All site cut edges to be sealed

Figure 12: Fixing detail

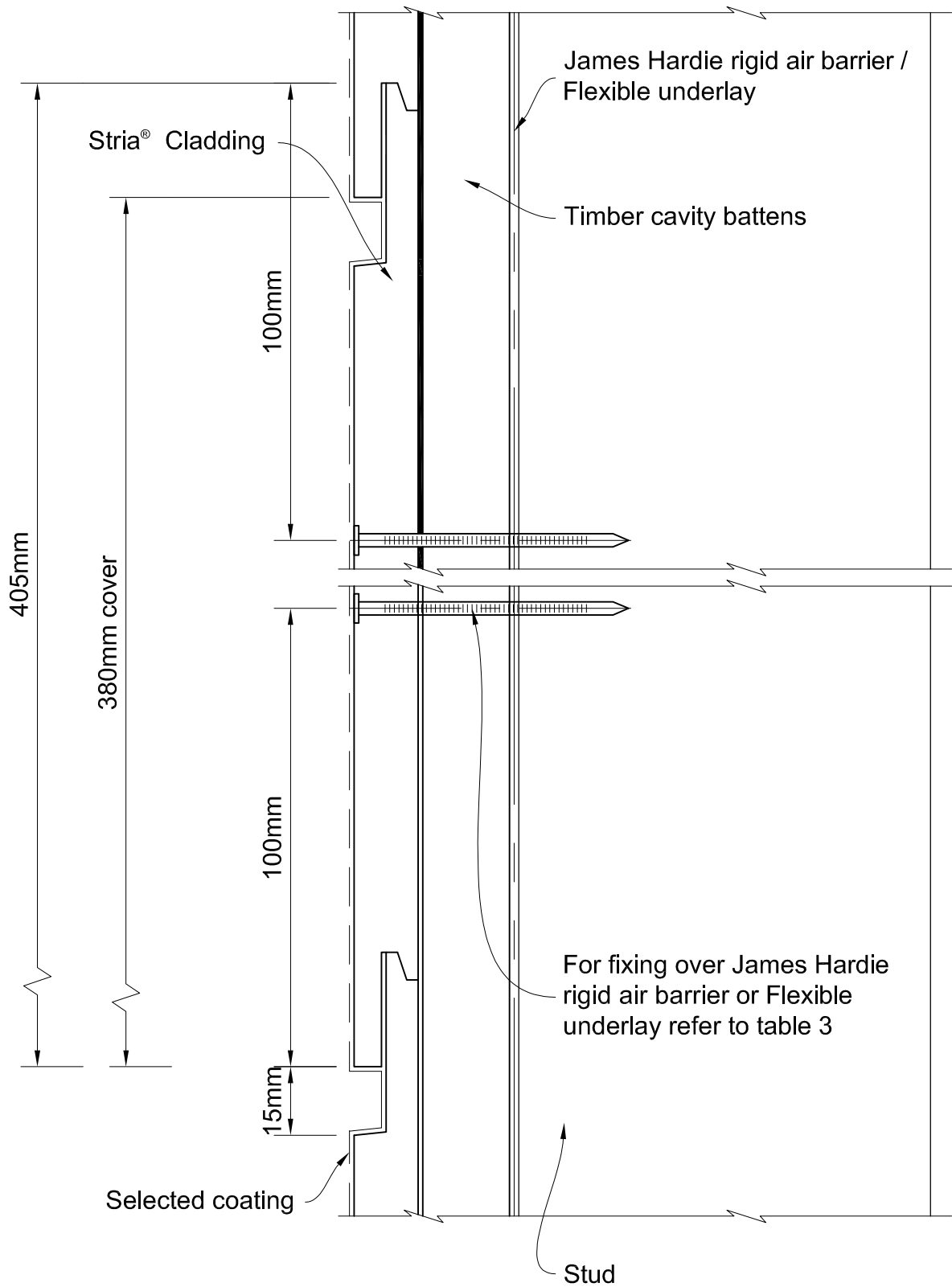


Figure 13: External aluminium box corner

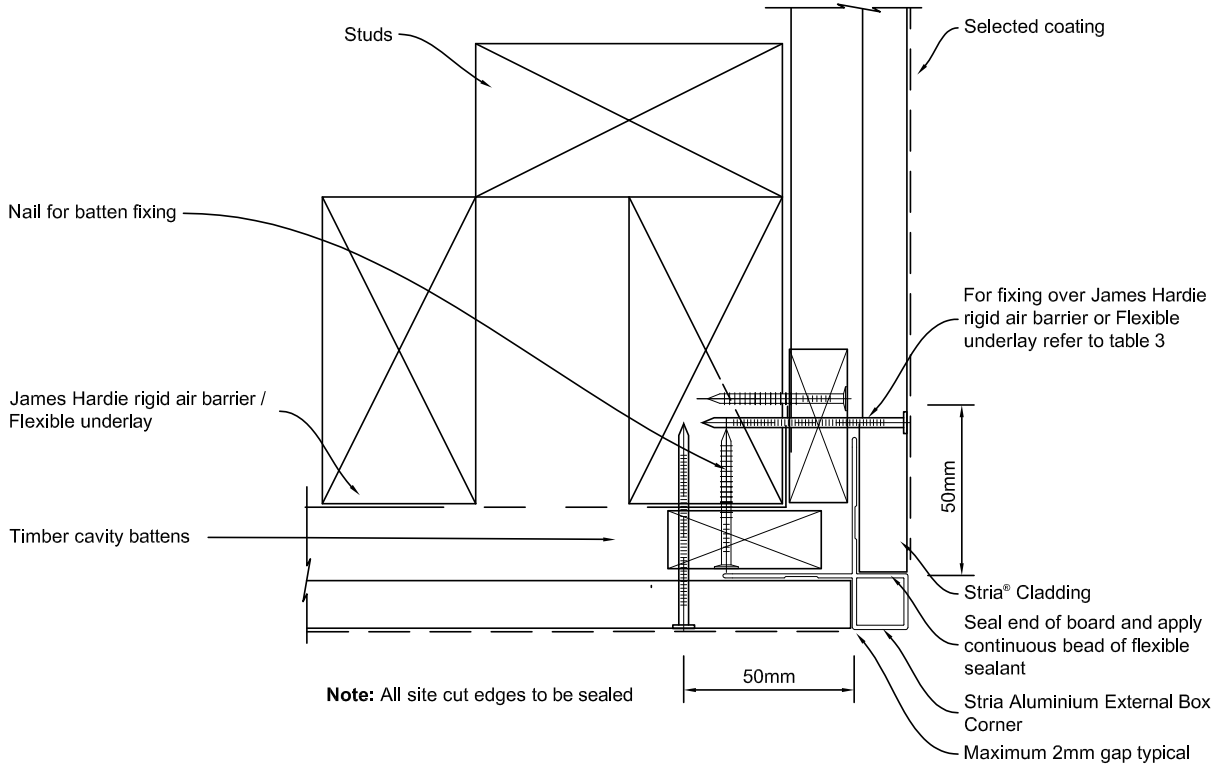


Figure 14: External aluminium box corner (Alternative)

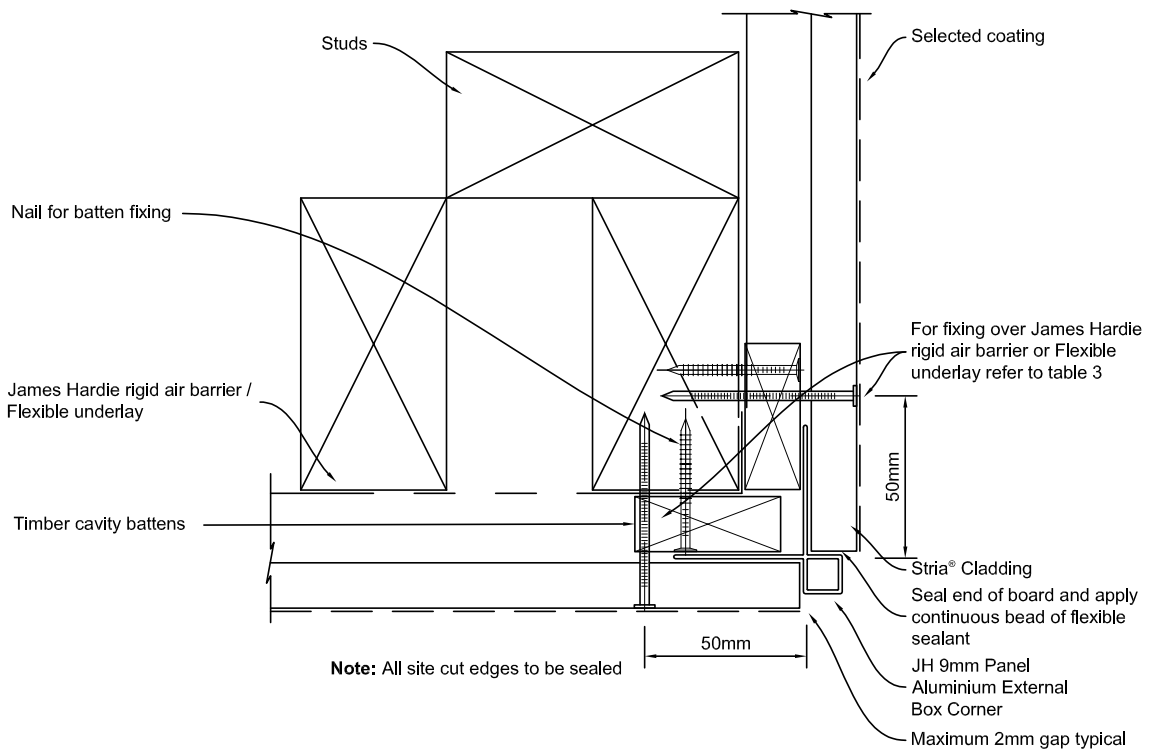


Figure 15: Internal aluminium corner

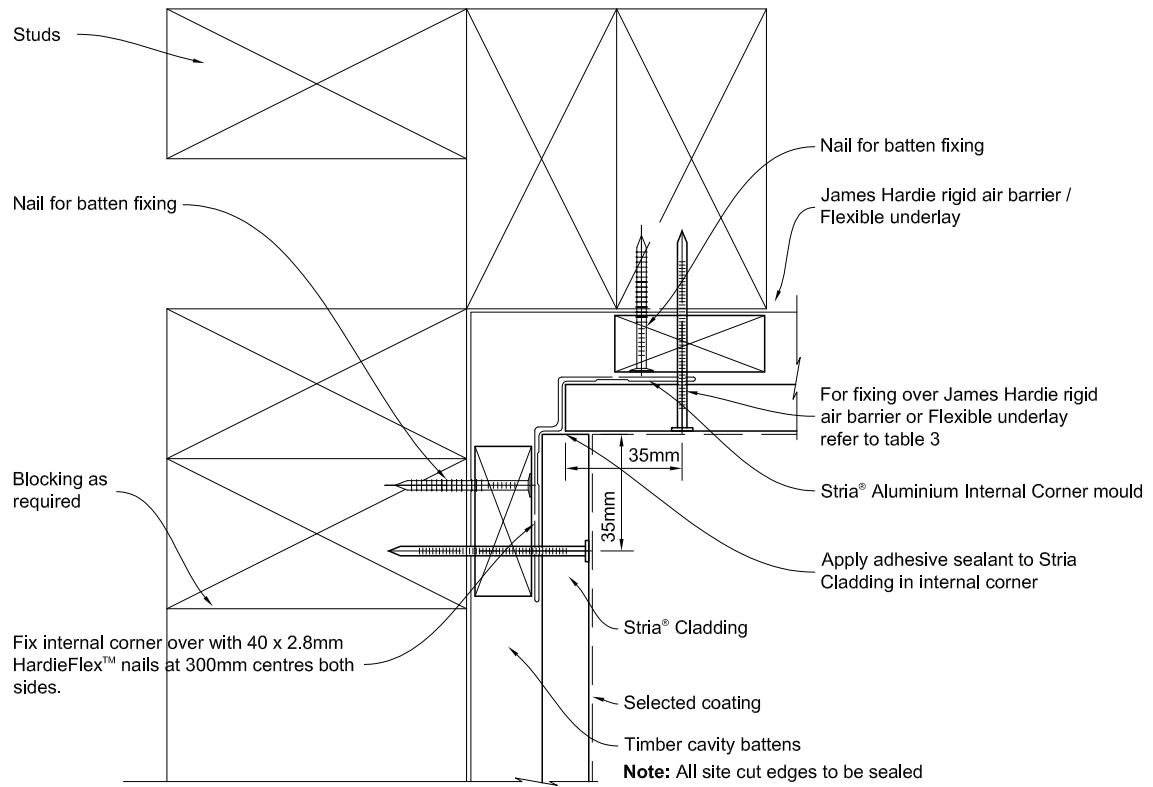


Figure 16: Internal mitred corner

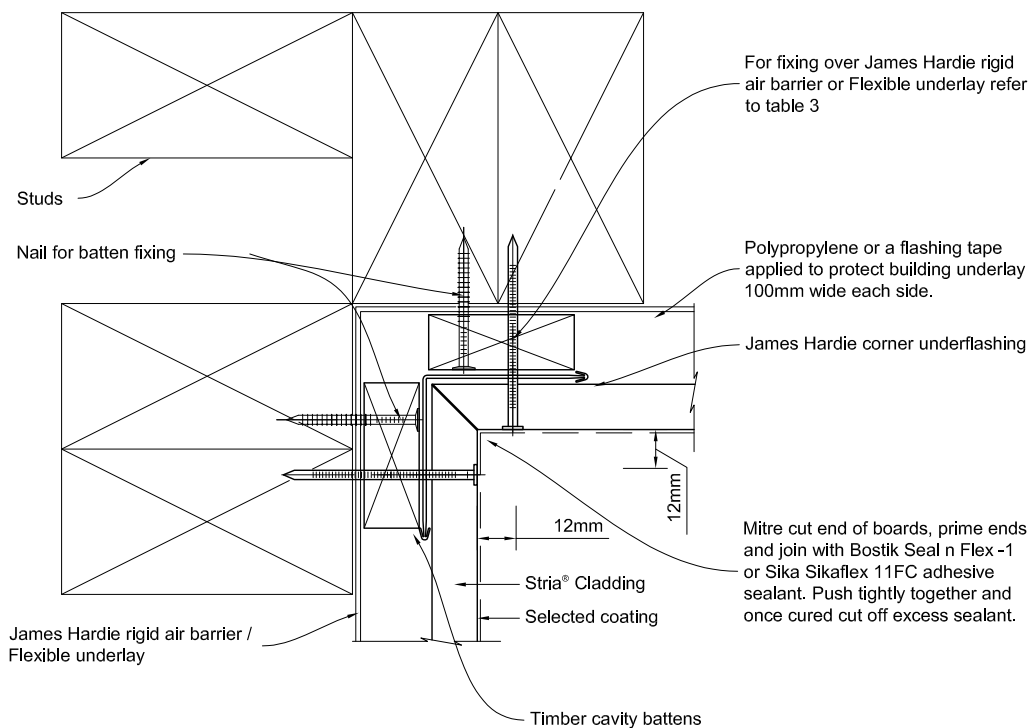
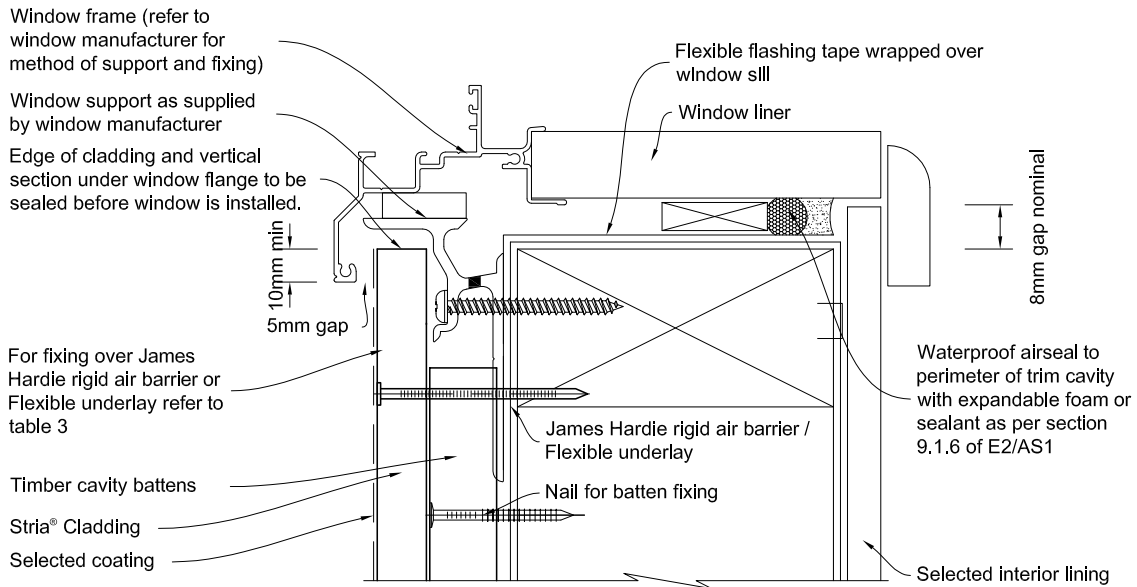


Figure 17: Window sill



General notes for materials selection

1. Flashing materials must be selected based on environmental exposure, refer to NZS 3604 and Table 20 of NZBC E2/AS1.
 2. Flexible underlay must comply with acceptable solution E2/AS1.
 3. Flashing tape must have proven compatibility with the selected flexible underlay and other materials with which it comes into contact.
 4. When James Hardie rigid air barriers are used flashing tape to be applied to the entire opening.
- Refer to the manufacturer or supplier for technical information for these materials.

Figure 18: Window jamb

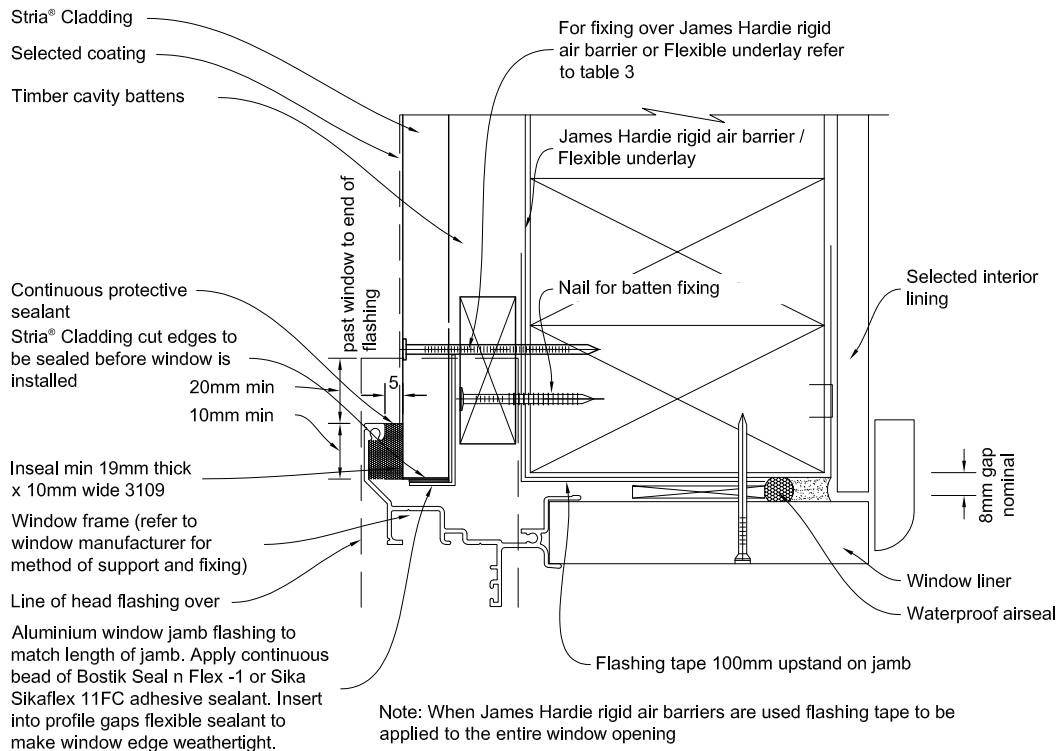


Figure 19: Window head

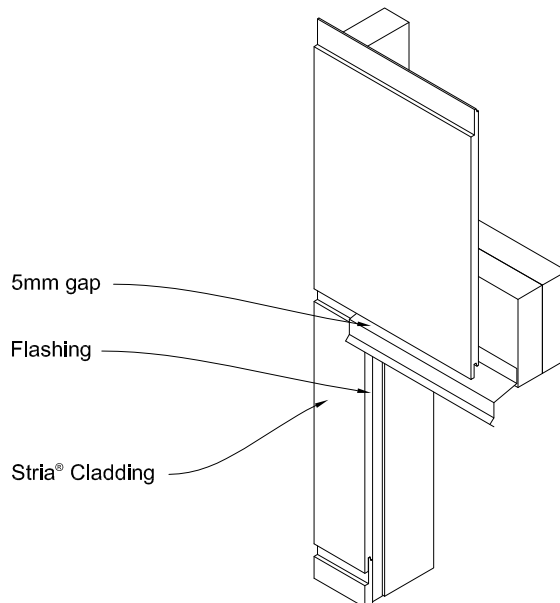
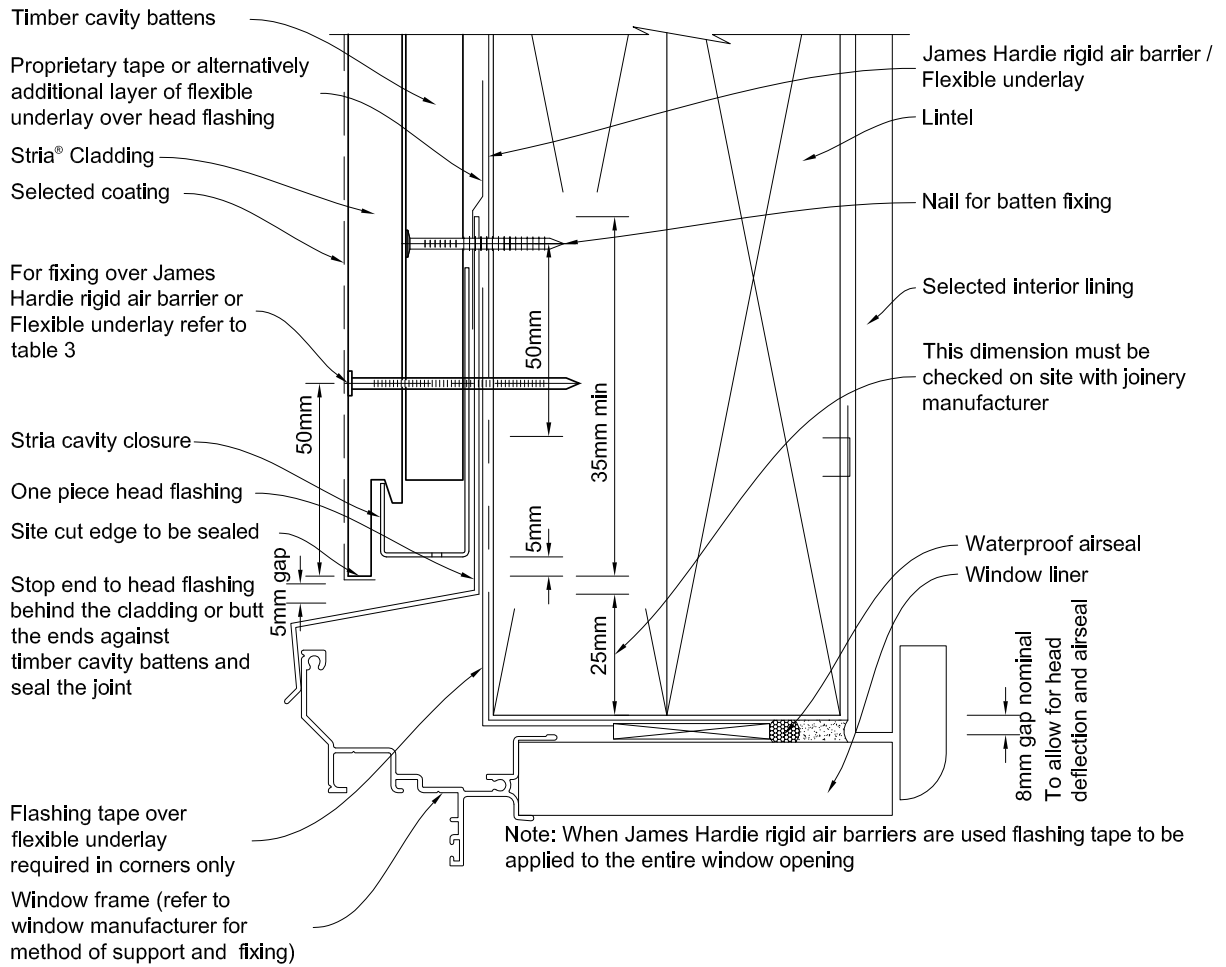


Figure 20: Stria cutting around sill

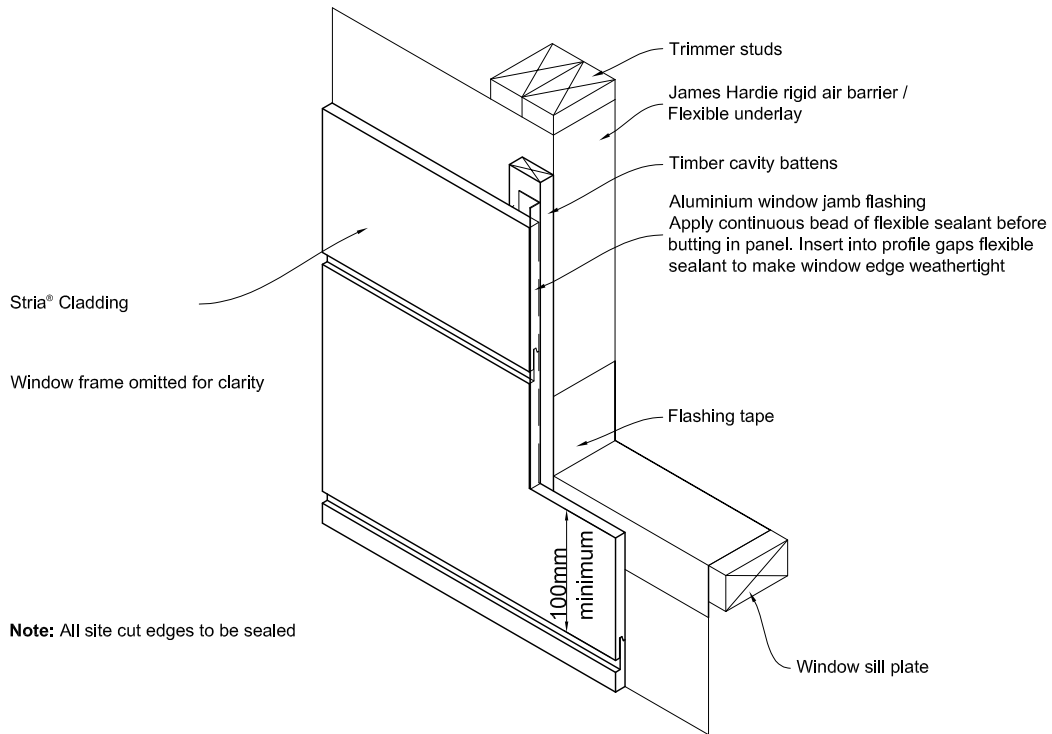


Figure 21: Stria cutting around head

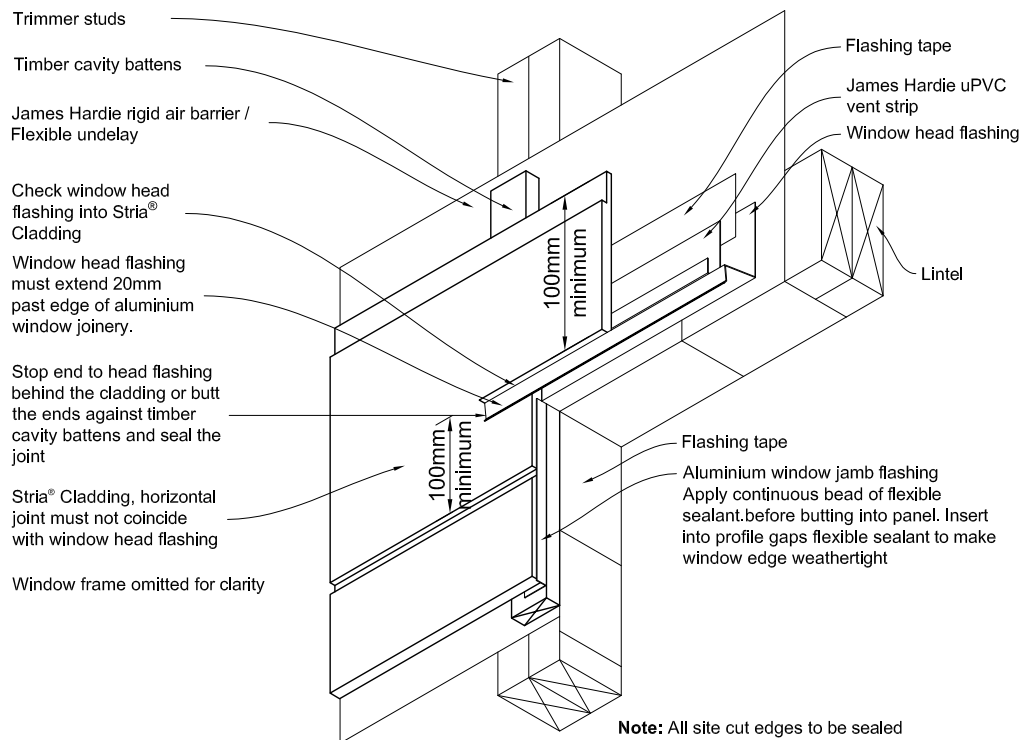


Figure 22: Window head

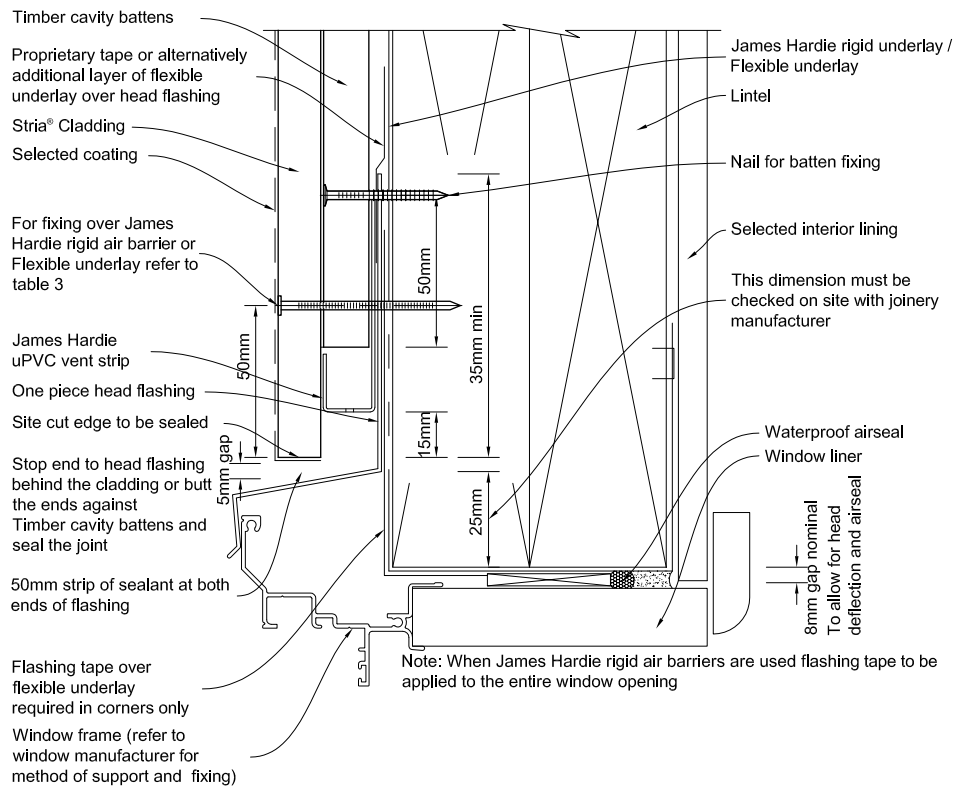


Figure 23: Window head to Stria Cladding cut board

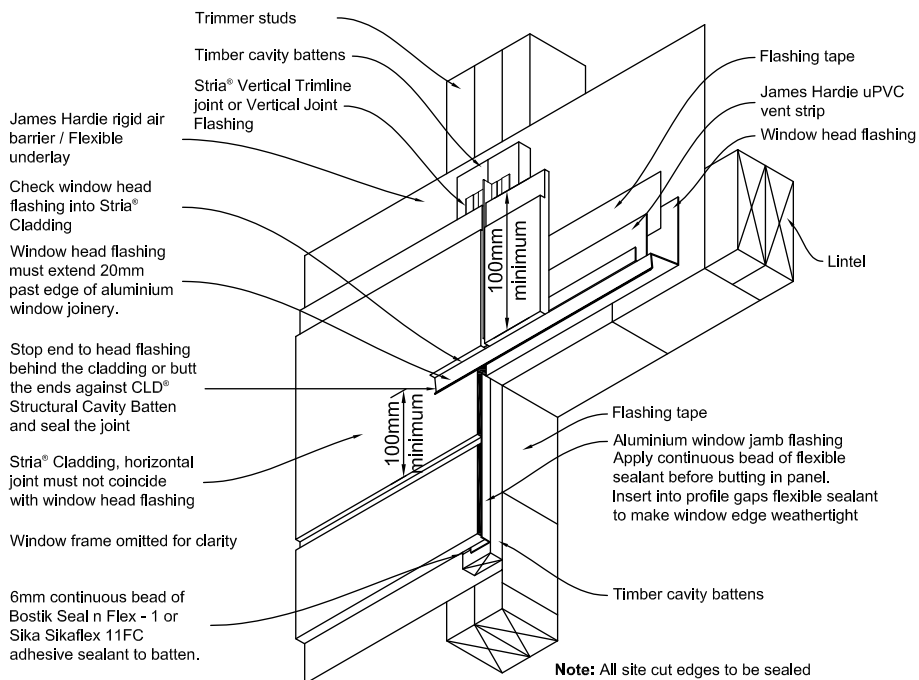


Figure 24: Window head

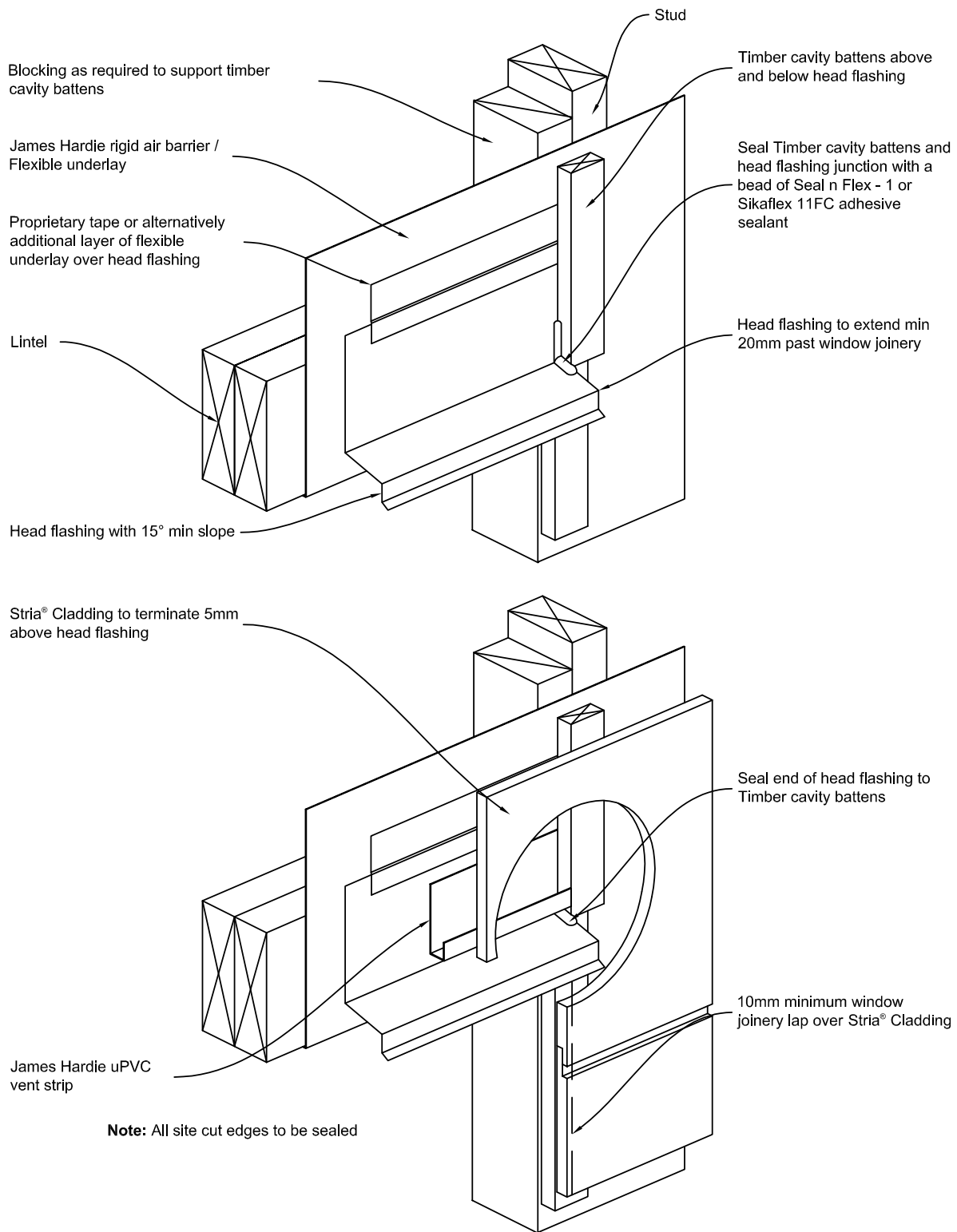
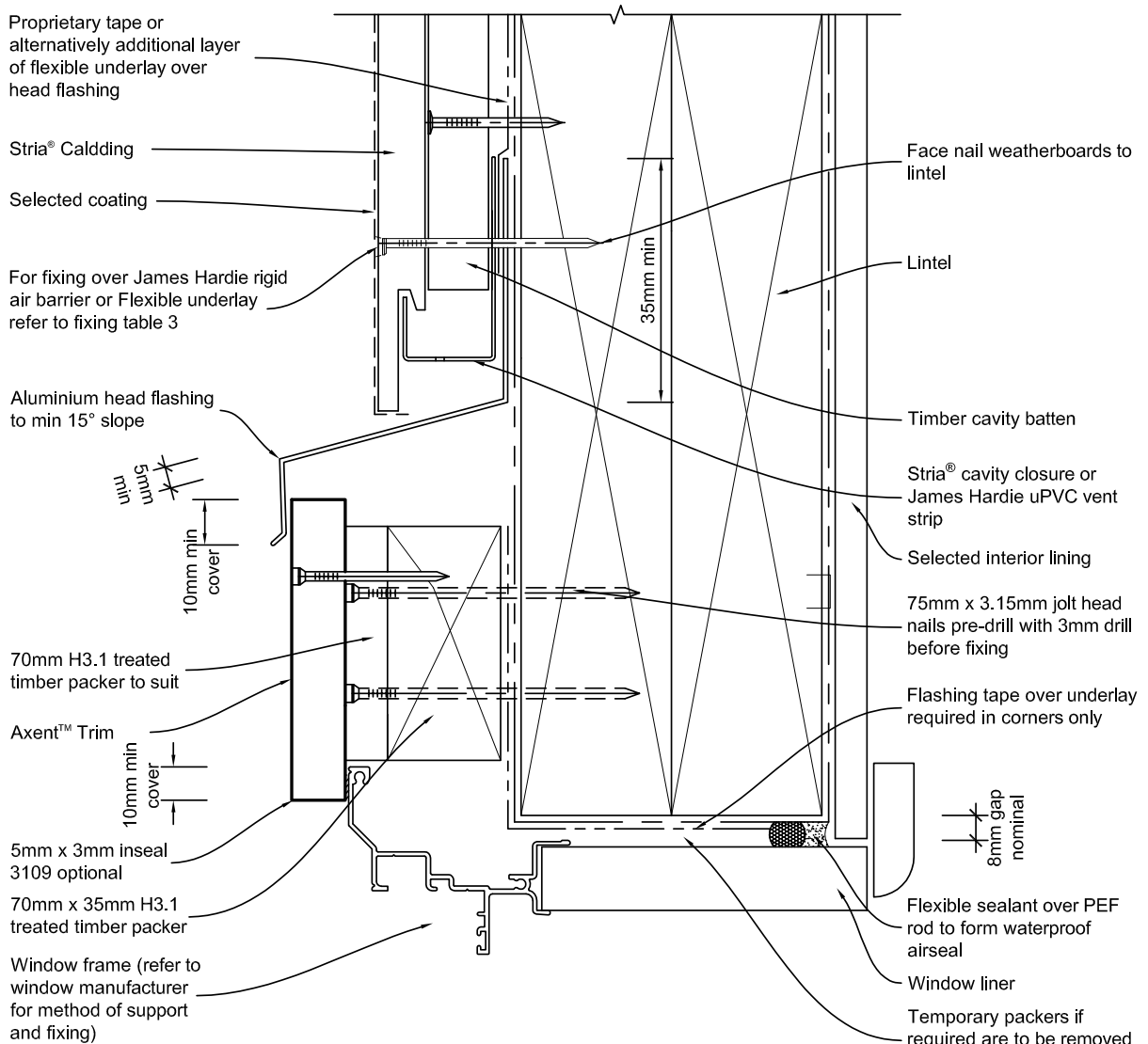


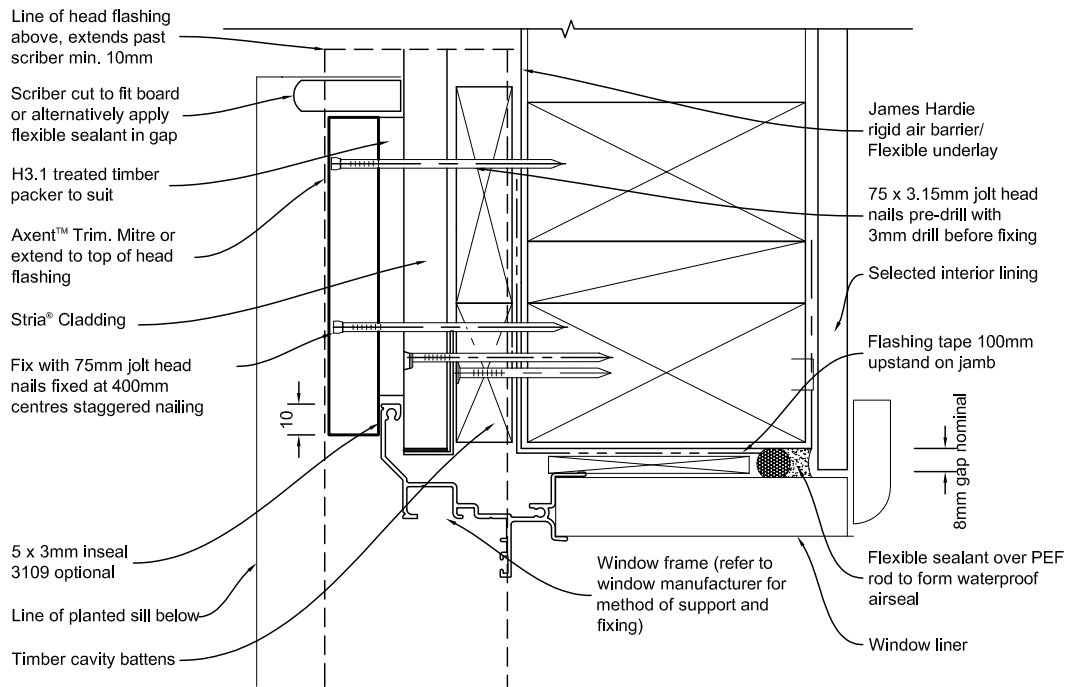
Figure 25: Window Head with facings



Note:

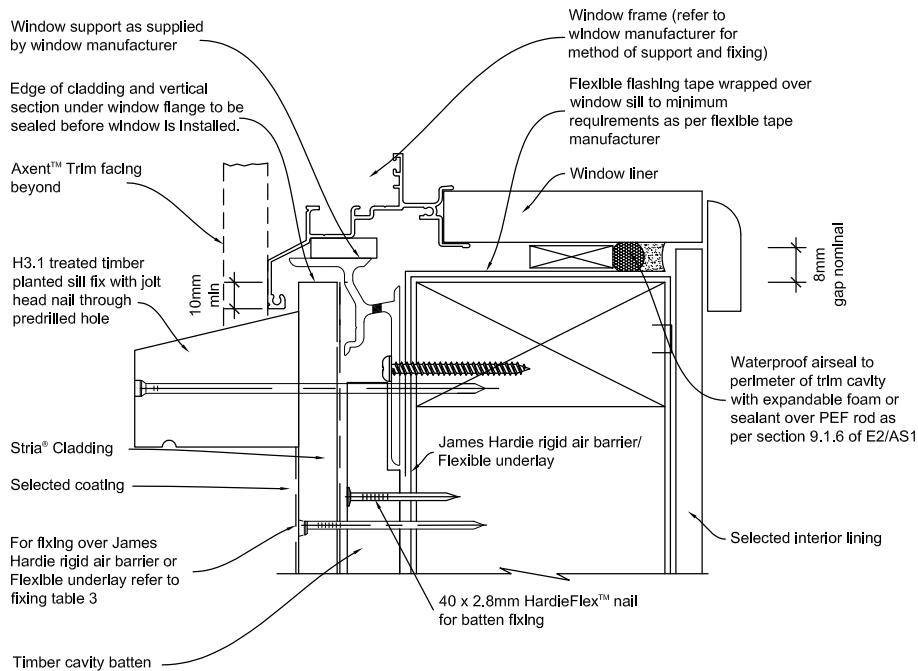
- When James Hardie rigid air barrier is used flashing tape to be applied to the entire window opening.
- Sealant must be installed between head flashing and Axent™ Trim and Axent™ Trim and window flange in VH and EH wind zones and SED pressures.
- Alternatively, the head flashings can be formed with stop ends as per E2/AS1.

Figure 26: Window jamb with facings



Note: When James Hardie rigid air barrier is used flashing tape to be applied to the entire window opening.

Figure 27: Window sill with planted sill

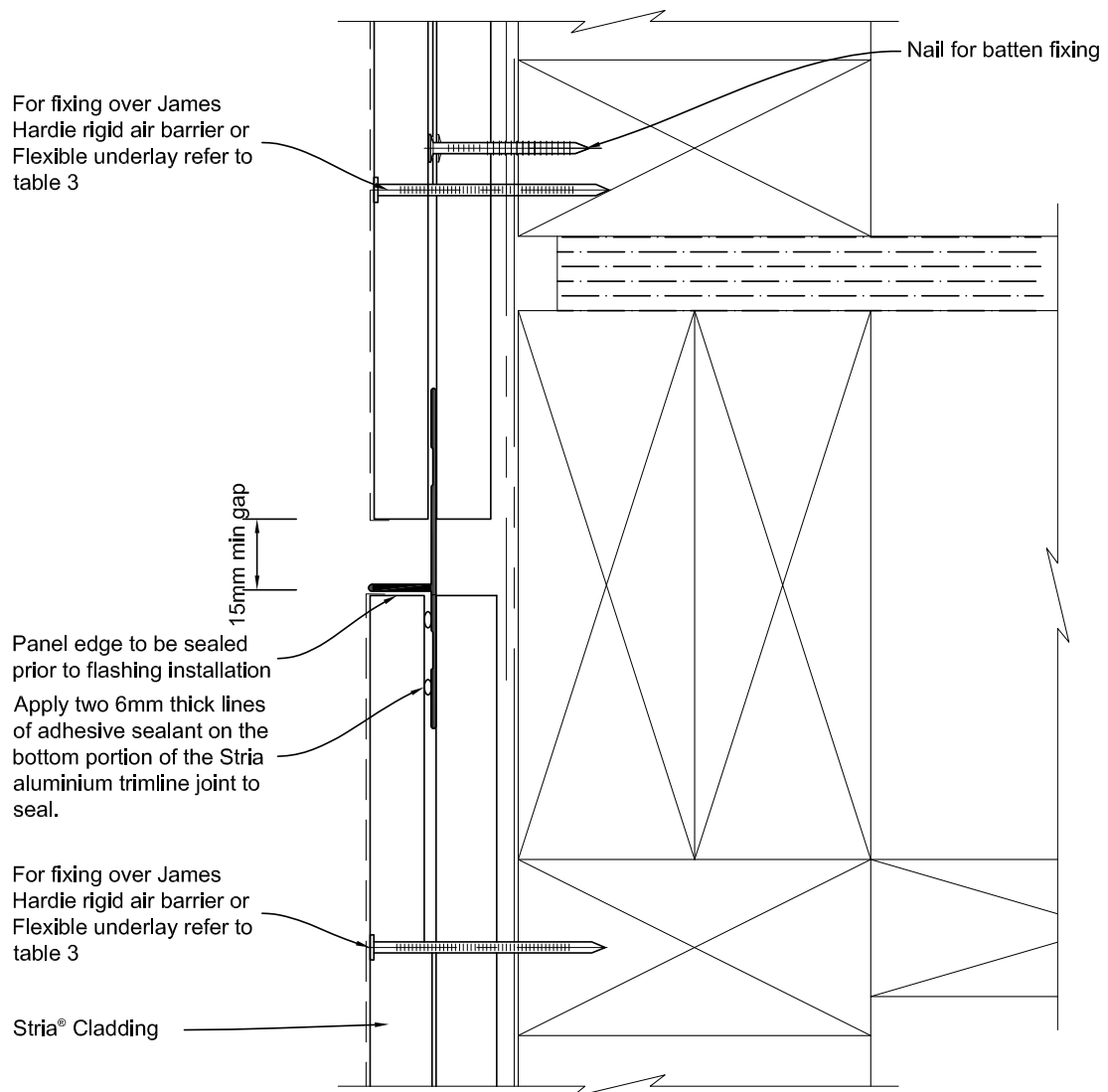


General notes for materials selection

1. Flashing materials must be selected based on environmental exposure, refer to NZS 3604 and Table 20 of NZBC E2/AS1.
2. Flexible underlay must comply with acceptable solution E2/AS1.
3. Flashing tape must have proven compatibility with the selected flexible underlay and other materials with which it comes into contact.
4. When James Hardie rigid air barriers are used flashing tape to be applied to the entire opening.

Refer to the manufacturer or supplier for technical information for these materials.

Figure 28: Trimline horizontal joint at floor joists



STEP 1

- Check architects plans for the type of flashing to be used.

STEP 2

- Check fixing centres and edge distances.

STEP 3

- When 50 year durability is required refer Table 20 E2/AS1.

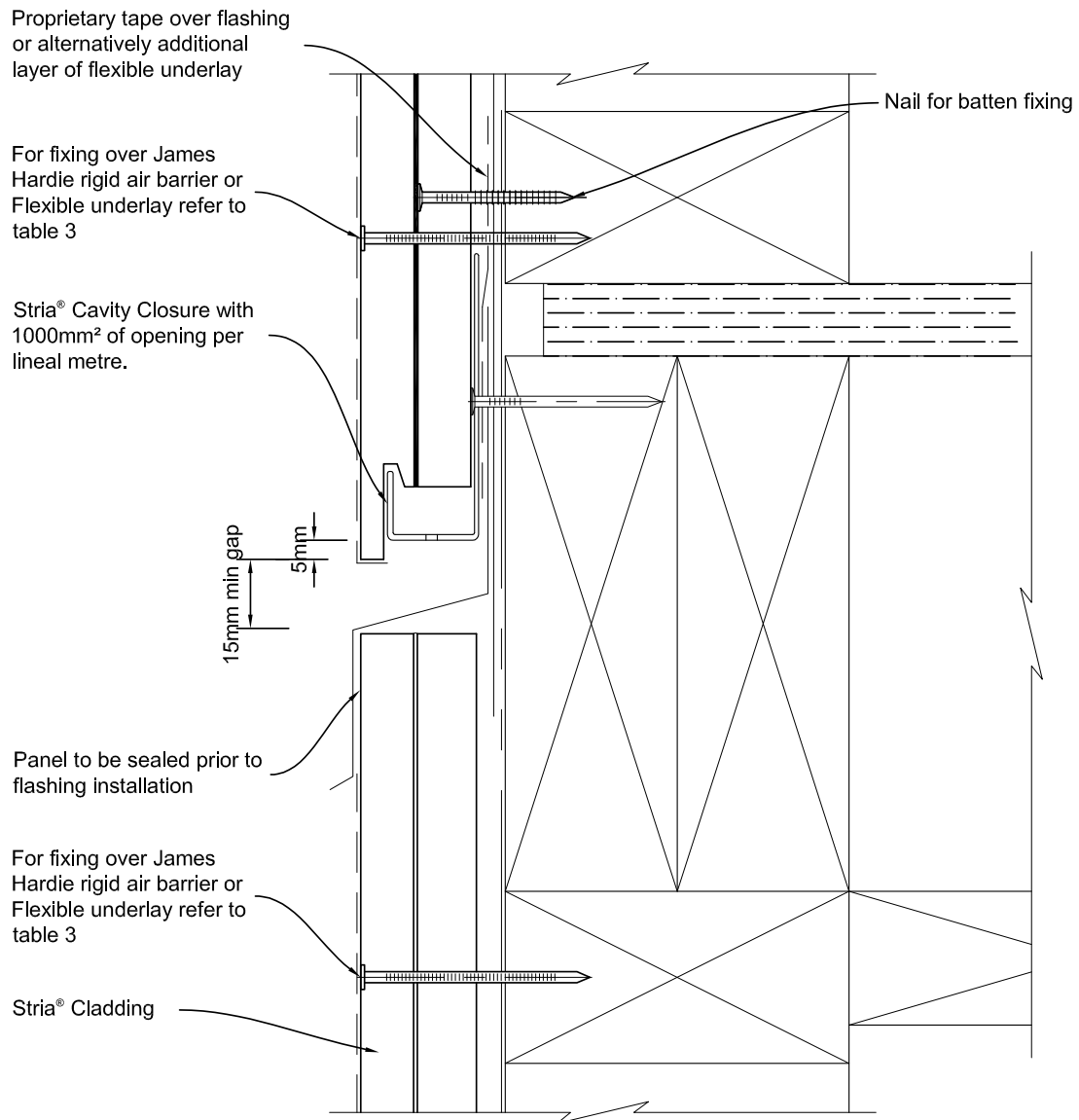
STEP 4

- The flashing to be placed in the centre of the floor joists. Do not fix timber cavity battens or cladding into floor joists.

Notes:

- Stria aluminium trimline joint, take care to ensure continuous seal is formed between panel and the trimline joint.
- A purpose made 100mm long x 16mm deep x 0.7mm thick 'L' shaped flashing will be required over the butt joint of the Stria aluminium trimline joint.

Figure 29: Drained flashing joint at floor level



STEP 1

- Check architects plans for the type of flashing to be used.

STEP 2

- Check fixing centres and edge distances.
- If top fixings are to be hidden by the Z flashing they will need to be fixed and sealed before the Z flashing is installed.

STEP 3

- When 50 year durability is required refer Table 20 E2/AS1.

STEP 4

- The flashing to be placed in the centre of the floor joists. Do not fix timber cavity battens or cladding into floor joists.

Note: This detail is required to limit cavities to a maximum of 2 stories or 7 metres. Refer to E2/AS1 clause 9.1.9.4

Figure 30: Drained flashing joint at floor joist

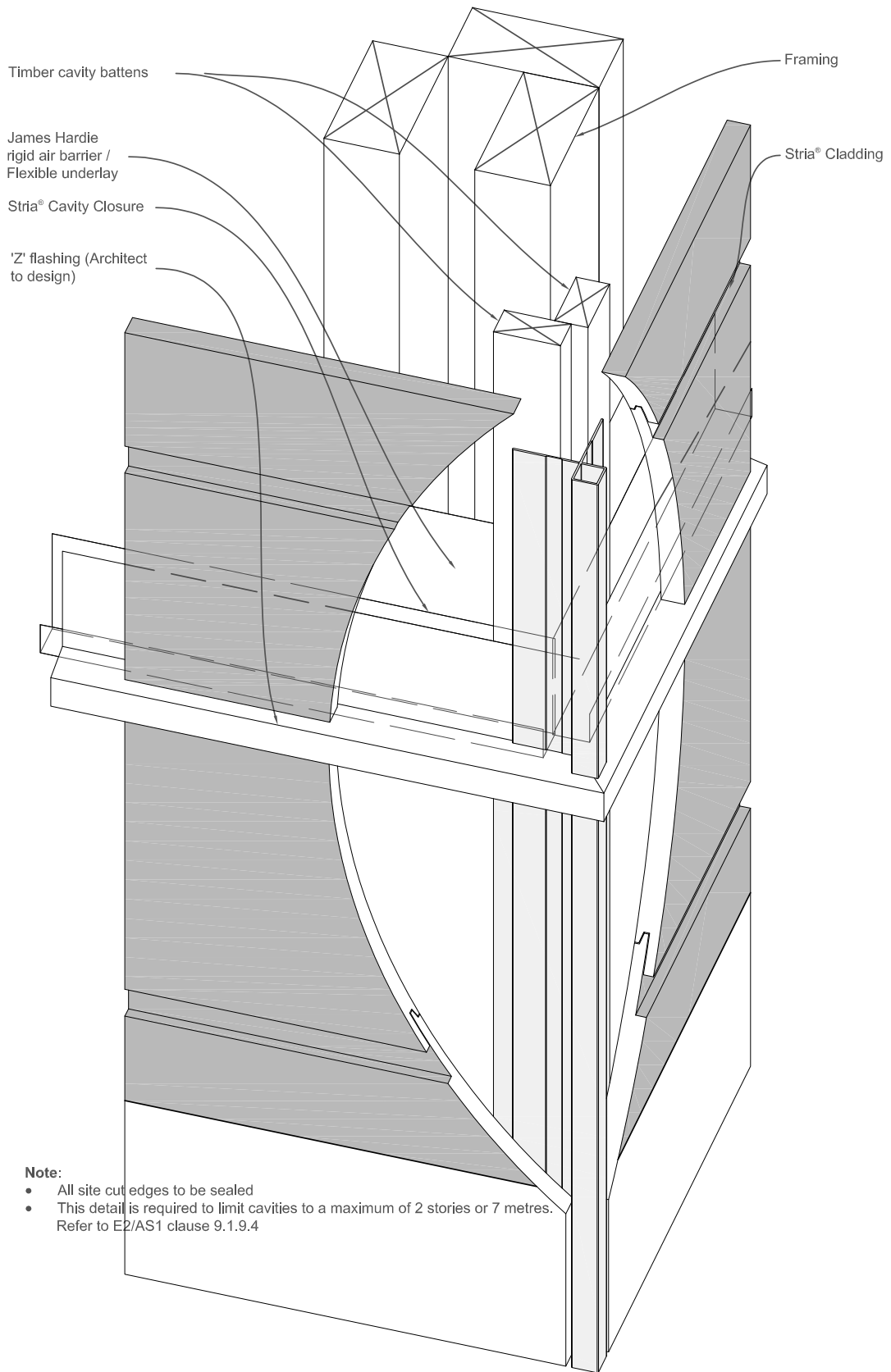


Figure 31: Engineered floor joist

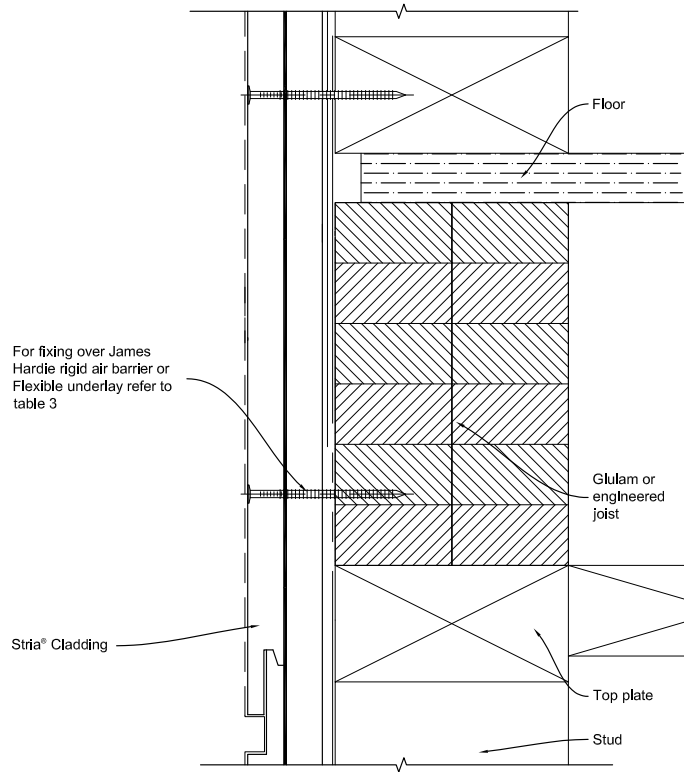


Figure 32: Apron flashing detail

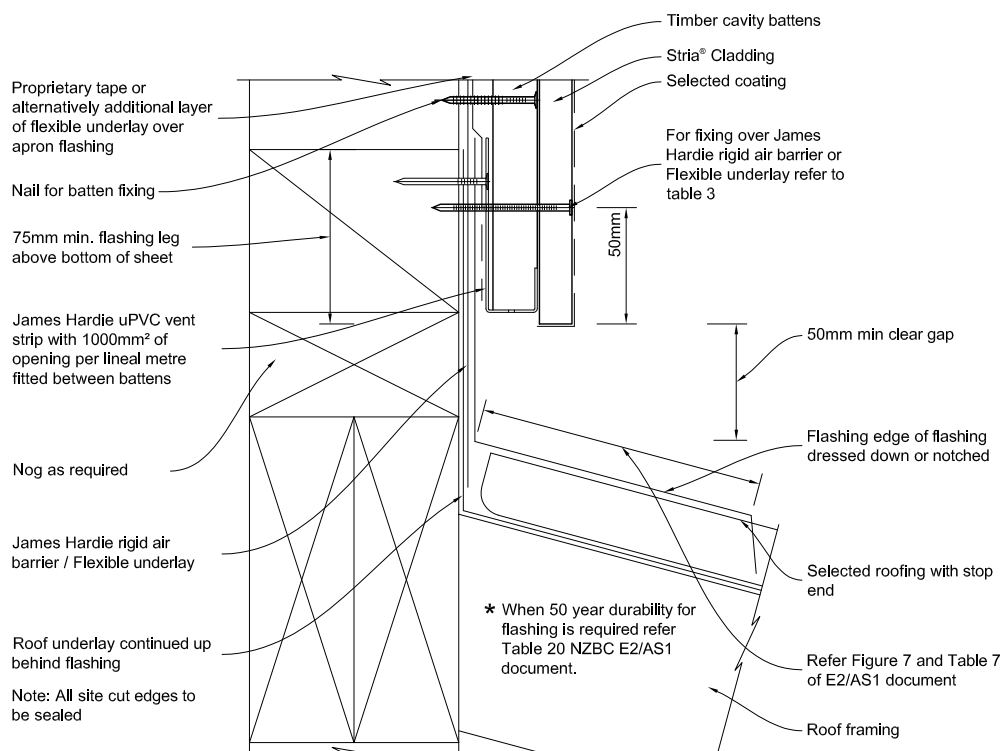


Figure 33: Parapet flashing

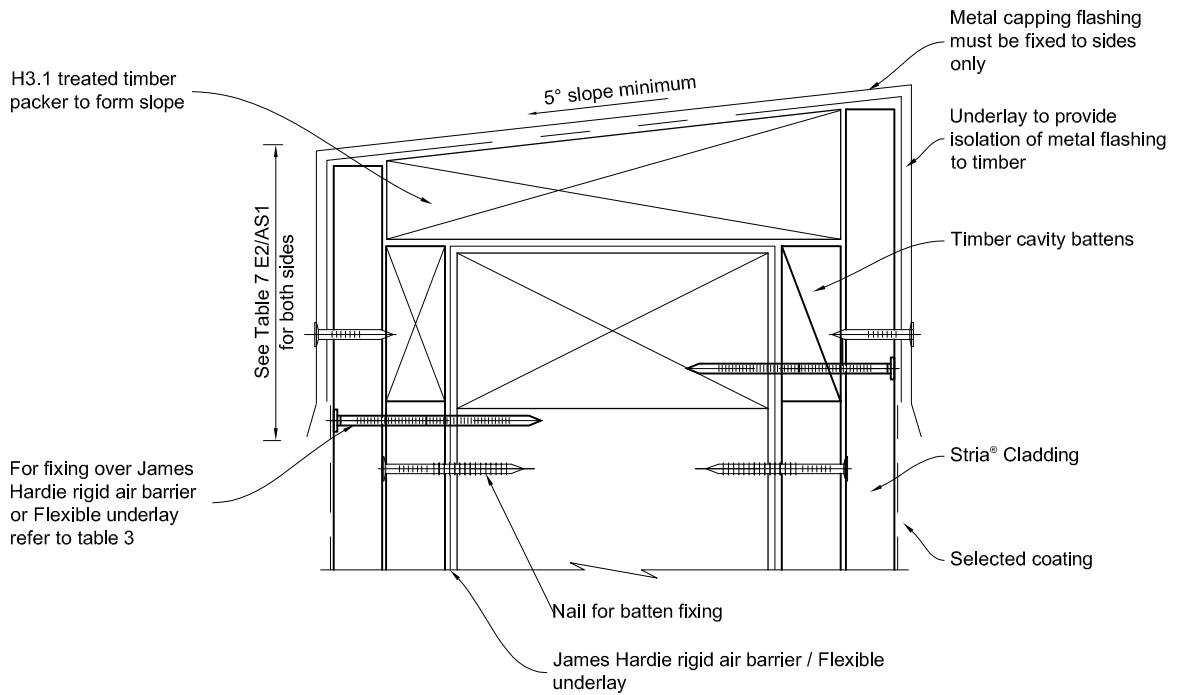


Figure 34: Roof to wall junction detail

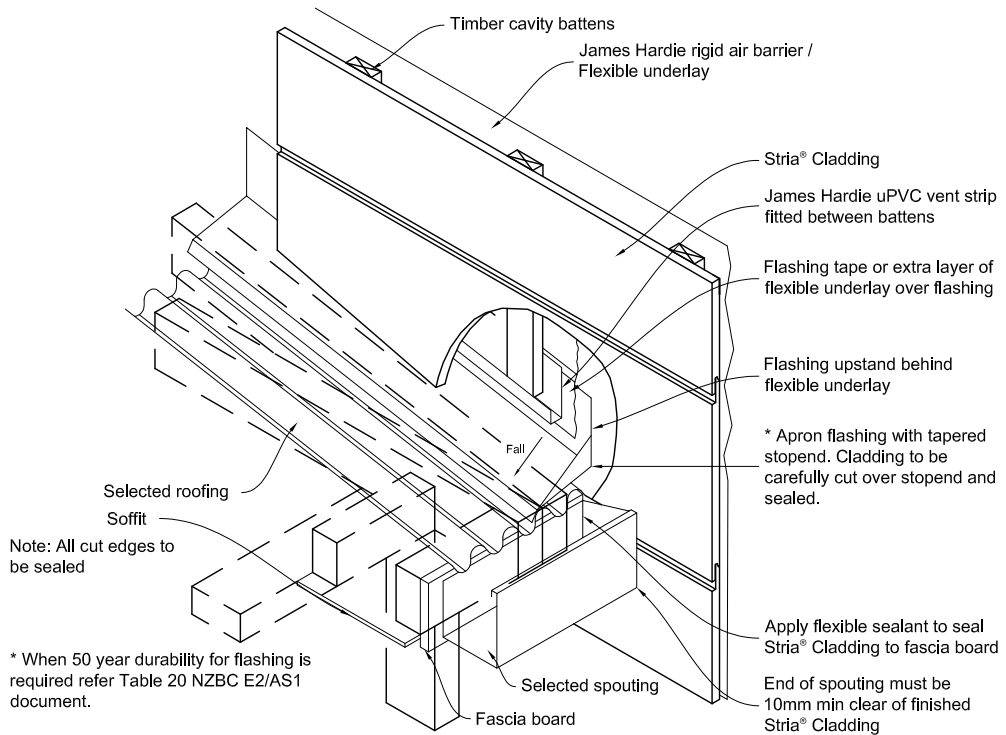


Figure 35: Meter box at sill

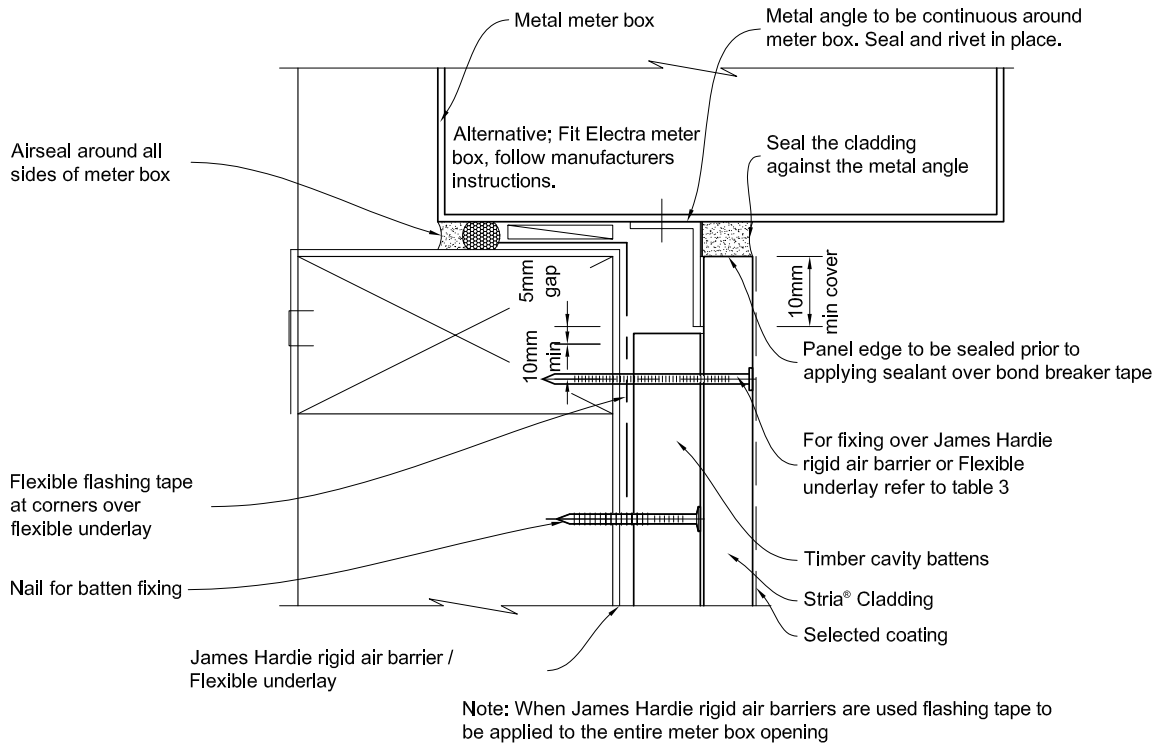


Figure 36: Meter box at jamb

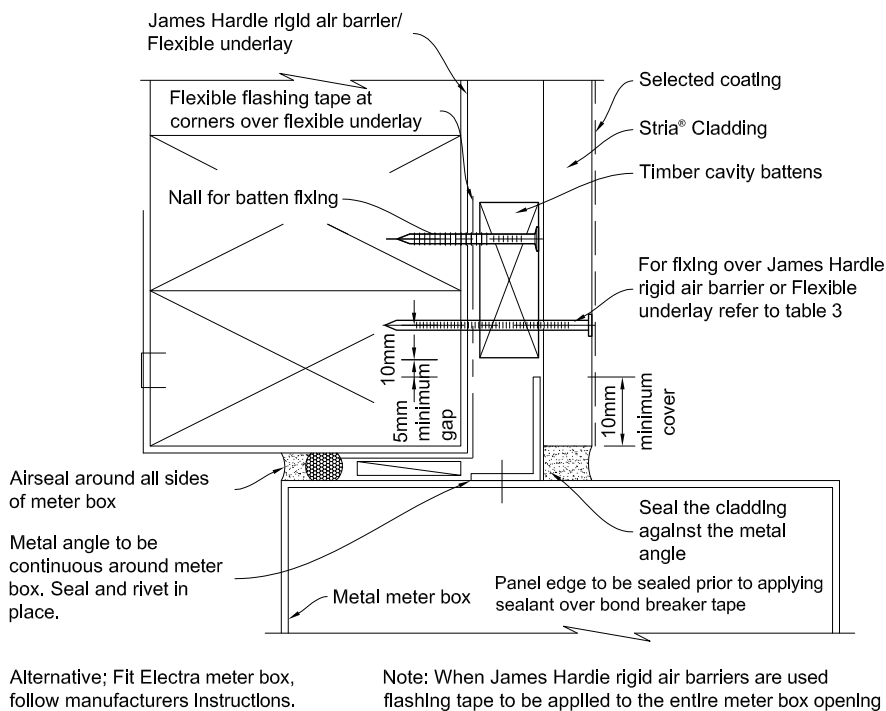


Figure 37: Meter box at head

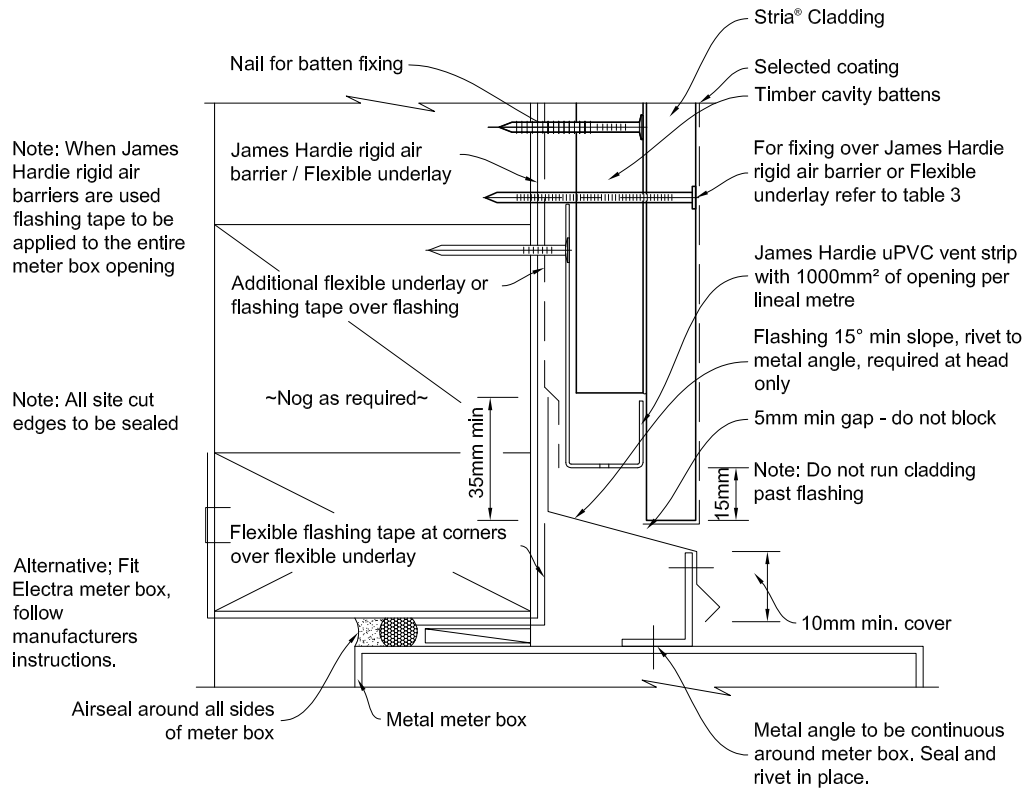


Figure 38: Enclosed deck

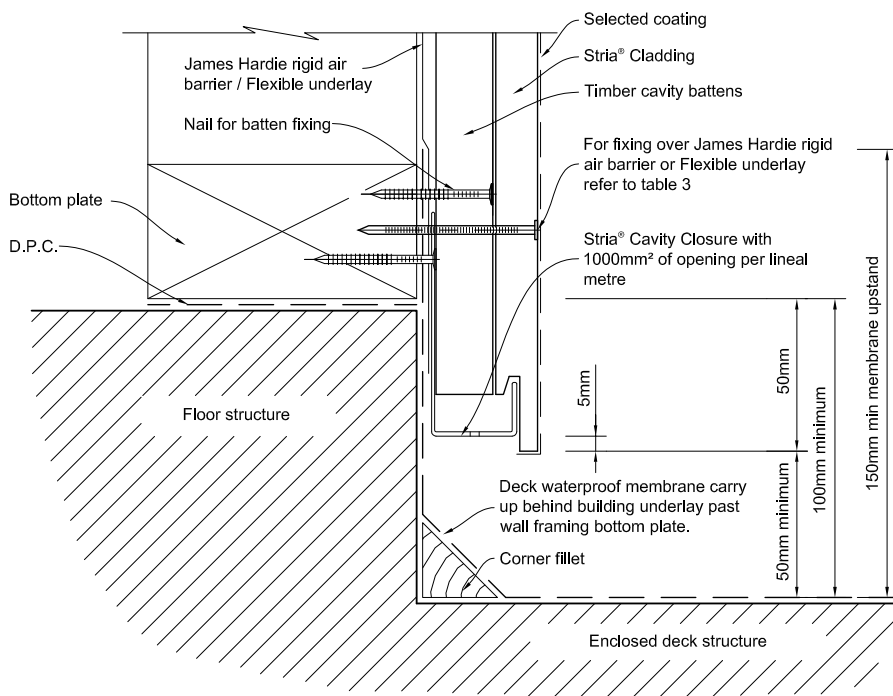
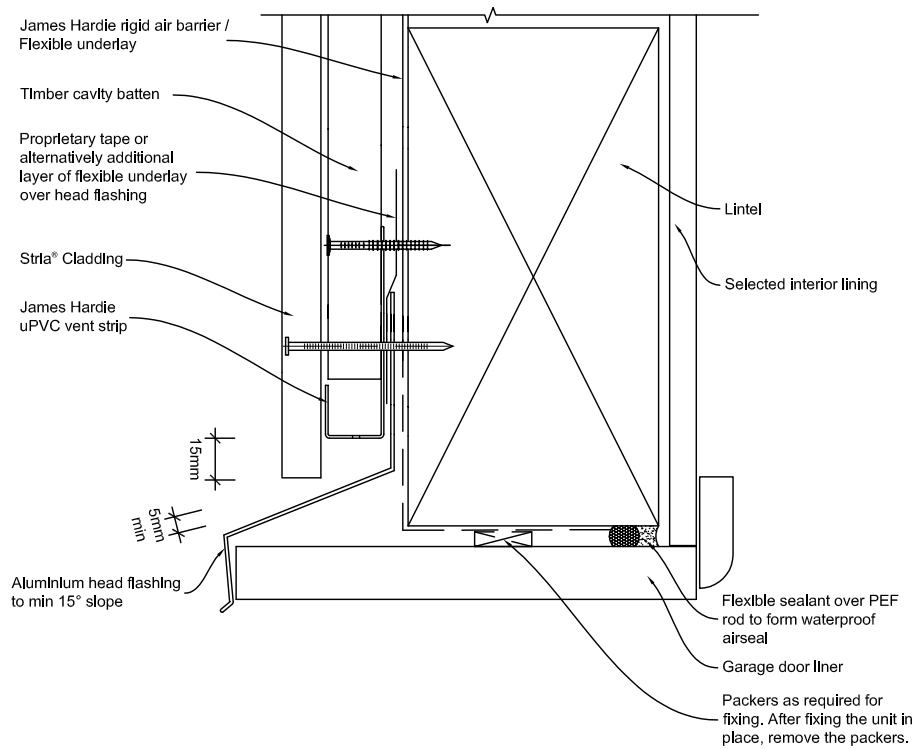
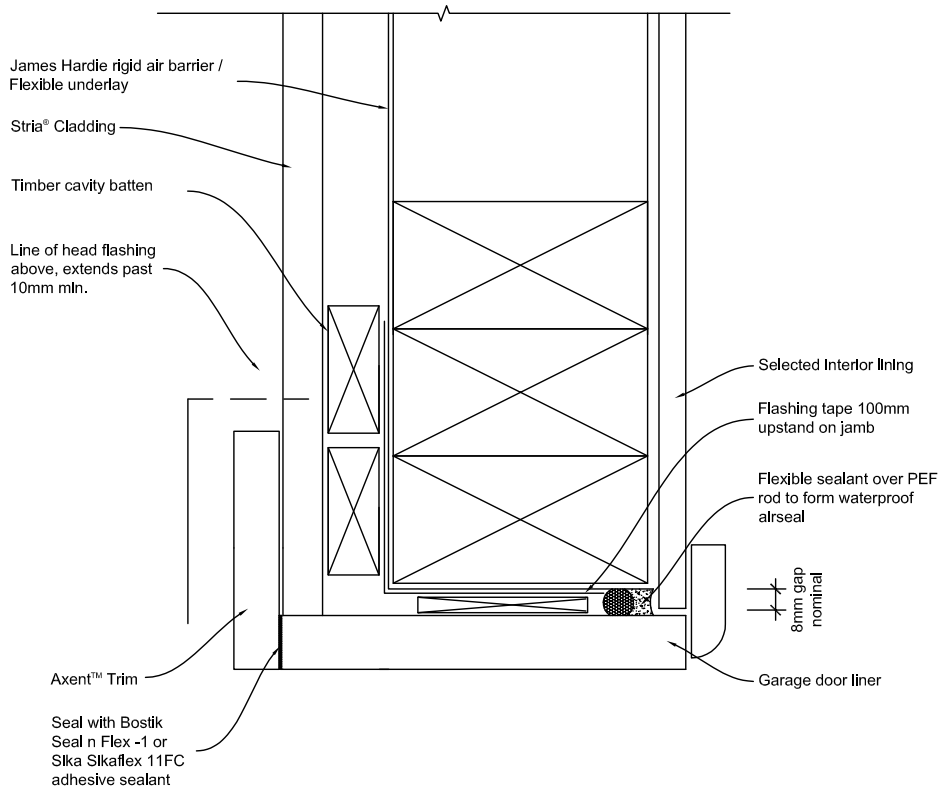


Figure 39: Garage door jamb



Sealant must be applied between head flashing and trim in VH and EH wind zones and SED wind pressures.

Figure 40: Garage door head



Product Warranty



James Hardie New Zealand Limited ("James Hardie") warrants for a period of 15 years from the date of purchase that the Stria® Cladding (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 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. Further, all other products, including coating and jointing systems, applied to or used in conjunction with the Product must be applied or installed and maintained strictly in accordance with the relevant manufacturer's instructions and good trade practice;
- d) the project must be designed and constructed in strict compliance with all relevant provisions of the current New Zealand Building Code ("NZBC"), regulations and standards;
- e) the claimant's sole remedy for breach of warranty is (at James Hardie's option) that James Hardie will either supply replacement product, rectify the affected product or pay for the cost of the replacement or rectification of the affected product;
- f) James Hardie will not be liable for any losses or damages (whether direct or indirect) including property damage or personal injury, consequential loss, economic loss or loss of profits, arising in contract or negligence or howsoever arising. Without limiting the foregoing James Hardie will not be liable for any claims, damages or defects arising from or in any way attributable to poor workmanship, poor design or detailing, settlement or structural movement and/or movement of materials to which the Product is attached, incorrect design of the structure, acts of God including but not limited to earthquakes, cyclones, floods or other severe weather conditions or unusual climatic conditions, efflorescence or performance of paint/coatings applied to the Product, normal wear and tear, growth of mould, mildew, fungi, bacteria, or any organism on any Product surface or Product (whether on the exposed or unexposed surfaces);
- g) all warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extent allowed by law;
- h) if meeting a claim under this warranty involves re-coating of Products, there may be slight colour differences between the original and replacement Products due to the effects of weathering and variations in materials over time.

Disclaimer: The recommendations in James Hardie's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to conditions (c), (d), (f) and (g) above. James Hardie has tested / assessed the performance of the Stria™ Cladding when installed in accordance with the Stria™ Cladding Timber Cavity Batten technical specification, 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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