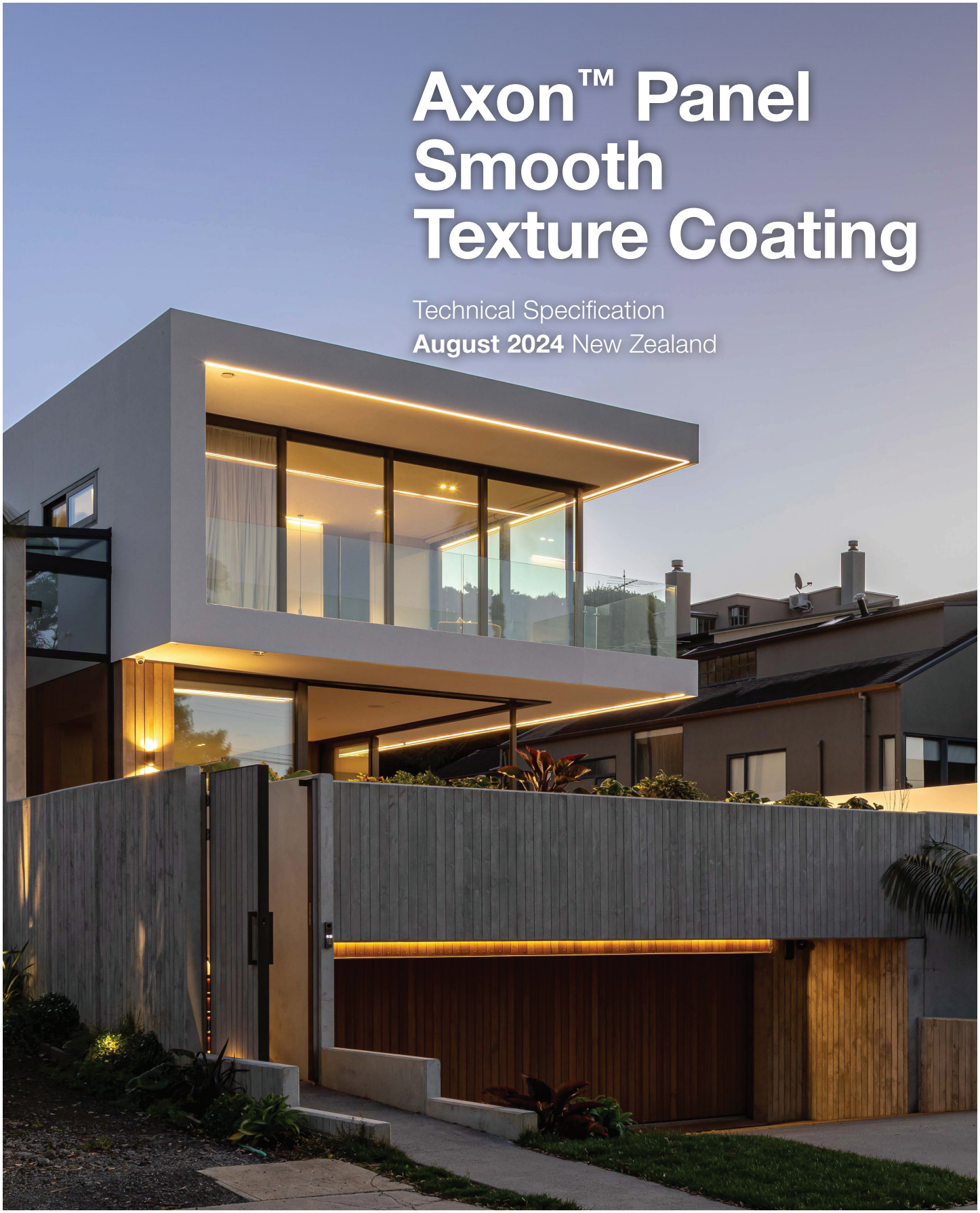
JamesHardie™

jameshardie.co.nz

Axon™ Panel Smooth Texture Coating

Technical Specification

August 2024 New Zealand



We value your feedback!

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

Ask James Hardie™
literaturefeedback@jameshardie.co.nz

Make sure your information is up to date

When specifying or installing Hardie™ fibre cement products, ensure that you have the current manual. Additional installation information, warranties and warnings are available at **www.jameshardie.co.nz** or **Ask James Hardie™ on 0800 808 868.**

Contents

1 Application and Scope

1.1 Application

Axon™ Panel Smooth (formerly known as EasyLap™ Panel) are manufactured by James Hardie from fibre cement which is a composition of Portland cement, ground sand, cellulose fibre, water and proprietary additives. Axon™ Panel Smooth is a suitable cladding material to achieve monolithic looks on external walls. Axon™ Panel Smooth are readily identified by the name printed on the reverse of the sheet. Axon™ Panel Smooth are manufactured in 9mm thickness and are face and edge sealed.

Specifier

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.

Installer

If you are an installer ensure that you follow the design, moisture management and associated details and material selection provided by the designer. All the details provided in this document must be read in conjunction with the specifier's specification.

Make sure your information is up to date

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

1.2 Scope

The scope of this specification is for the use of Axon™ Panel Smooth for buildings which fall within the scope of the New Zealand Building Code (NZBC) Acceptable Solution 'E2/AS1'. Refer to 'E2/AS1' for further information.

This specification also covers the use of Axon™ Panel Smooth in cavity construction when buildings subject to specific design wind pressure of 2.5kPa (ULS). This document is intended for use by architects, designers and specifiers who are involved in specifying Axon™ Panel Smooth cladding.

The external wall structure must comply with the NZBC for an existing building or new building where the designer and/or installer has established that the external wall frame is suitable for the cladding installation

1.3 Details

Various Axon™ Panel Smooth details are provided in the Details section of this document. This specification and details in CAD file are also available to download from our website at www.jameshardie.co.nz.

1.4 Specific Design

For use of Axon™ Panel Smooth outside the scope of this document, the architect, designer or engineer must undertake specific design. For advice on designs outside the scope of this specification, Ask James Hardie on 0800 808 868.

2 Design

2.1 Compliance

Axon™ Panel Smooth complies with section 9.7.2 of 'E2/AS1'. Information contained in this document is aligned with the requirements of the NZBC Acceptable Solution 'E2/AS1'.

Axon™ Panel Smooth for texture coating has also been BRANZ appraised. BRANZ Appraisal No 466 (2020) can be viewed at www.branz.co.nz or www.jameshardie.co.nz. All design and construction must comply with the requirements of the NZBC regulations and standards.

2.2 Responsibility

The designer must ensure that the information and details published 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. The designers should ensure that the intent of their design meets the requirements of the NZBC. All dimensions shown are in millimetres unless noted otherwise. All New Zealand Standards referenced in this document are current edition 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 Clearances

The clearance between the bottom edge of cladding and paved/unpaved ground must comply with the NZBC Acceptable Solution 'E2 /AS1', paragraph 9.1.3.

The finished floor level must also comply with these requirements. These clearances must be maintained throughout the life of the building.

Axon™ Panel Smooth must overhang the bottom plate on a concrete slab by a minimum of 50mm as required by E2/AS1.

Axon™ Panel Smooth must have a minimum clearance of 100mm from paved ground and 175mm from unpaved ground.

On the 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.

2.4 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 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.

Walls shall include those provisions as required by the NZBC Acceptable Solution 'E2/AS1' 'External Moisture'. 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 information in relation to designing for weathertightness, refer to BRANZ Ltd and the Ministry of Business, Innovation and Employment updates on the following websites, respectively www.branz.co.nz and www.building.govt.nz.

2.5 Structure

Timber framing must comply with the NZS 3604 for buildings or parts of buildings within the scope limitations of the NZS 3604. Buildings or parts of buildings outside the scope of the NZS 3604 must be as per specific design in accordance with the NZS 3603 and AS/NZS 1170. Studs must be at maximum 600mm centres for buildings designed to the NZS 3604 up to VH wind zones and at maximum 400mm centres for EH wind zone and specifically designed buildings.

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 Wind Loading

Axon™ Panel Smooth is suitable for use in all New Zealand wind zones up to and including Extra High (EH) as defined in the NZS 3604.

Axon™ Panel Smooth is suitable for use in specific engineering design (SED) projects subject to maximum wind pressure of up to 2.5kPa (ULS).

2.7 Structural Bracing

Axon™ Panel Smooth installed as per this specification cannot be used to achieve structural bracing. However, bracing can be achieved by using HomeRAB™ Pre-Cladding or RAB™ Board fixed direct to the framing or by using internal linings such as Villaboard™ Lining or plasterboard bracing systems have been independently tested and assessed by Scion. Refer to the Bracing Design Manual by James Hardie for details.

2.8 Fire Rated Walls

Axon™ Panel Smooth clad walls using a cavity construction method can achieve fire ratings up to 60/60/60 when the walls are constructed in accordance with this specification and include the fire rated system requirements as specified in Fire and Acoustic Design Manual by James Hardie. Refer to Fire and Acoustic design manual for further information on fire rated systems, and refer to coating manufacturer regarding its compliance.

2.9 Energy Efficiency

External walls constructed as per this technical specification, using Axon™ Panel Smooth must use suitable bulk insulation to meet the minimum thermal insulation requirements as per Clause H1/AS1 'Energy Efficiency' of the NZBC.

3 Framing

3.1 General

This Axon™ Panel Smooth technical specification is only suitable for timber-framed buildings. Other framing materials are outside the scope of this specification.

3.2 Dimensions

A 45mm (nominal) minimum stud width is required.

3.3 Timber Grade

Minimum timber stress grades to be used as per the requirements of NZS 3604.

3.4 Durability

To comply with the NZBC requirements the external framing must be treated to a minimum H1.2 treatment. Refer to the NZBC Acceptable Solution B2/AS1 'Durability' for further information about the durability requirements.

For timber treatment and allowable moisture content information refer to the NZS 3602 (Timber and Wood-Based Products for use in Buildings) and NZS 3640 (Chemical Preservation of Round and 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 recommendations of framing manufacturers.

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

3.5 Frame Construction

The framing must fully support all sheet edges. The framing must be rigid and not rely on the cladding sheet for stability.

All timber framing sizes and set-out must comply with NZS 3604 and as specified in this specification. Use of timber framing must be in accordance with framing manufacturer's specifications.

- Double studs required at vertical joints
- When studs are spaced at 600mm centres maximum then the nogs/dwangs must be provided at 800mm centres maximum
- When studs are spaced at 400mm centres then the nogs/dwangs may be provided at 1200mm centres maximum
- An extra stud is required in internal corners
- For EH wind zone, specific engineering design projects or wind pressures above 1.5kPa, studs must be spaced at 400mm centres maximum
- For SED projects framing is to be designed/verified by project structural engineer

3.6 Tolerances

In order to achieve an acceptable wall finish, it is imperative that framing is straight and true. Framing tolerances must comply with the requirements of the NZS 3604. All framing shall be made flush.

4 Preparation

4.1 Flexible Underlay or HomeRAB™ Pre-Cladding

Flexible underlay or a rigid air barrier such as HomeRAB™ Pre-Cladding must be provided as per the requirements of External Moisture Clause E2 of the 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 the requirements of the NZBC Acceptable Solution 'E2/AS1'. HomeRAB™ Pre-Cladding/RAB™ Board are suitable for use in these applications. It must be installed in accordance with HomeRAB™ Pre-Cladding and RAB™ Board installation manual.

4.2 EH/SED Wind Zone

With EH wind zone or for specific design wind pressures, a rigid air barrier must be used instead of flexible underlay as per E2/AS1 clause 9.1.7.2 e.g. RAB™ Board.

To achieve the temporary weathertightness using HomeRAB™ Pre-Cladding and RAB™ Board, windows/doors must be installed. Refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual for information regarding its installation and requirements to achieve temporary weathertightness.

4.3 Vent Strip

The Hardie™ uPVC cavity vent strip must be installed at the bottom of all walls constructed using the drained and ventilated cavity construction method. It is important that the openings in the vent strip are kept clear and unobstructed to allow free drainage and ventilation of cavities. Hardie™ uPVC vent strip has an opening area of 1000mm^2/m length.

4.4 Cavity Battens

In accordance with the NZBC Acceptable Solution 'E2/AS1' Table 2, Axon™ Panel Smooth to be installed on a cavity.

The cavity battens provide airspace between the frame and the sheet and are considered a 'packer' only in this specification.

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

Cavity battens must comply with following requirements

- be minimum 18mm thick
- be minimum as wide as the width of studs
- be fixed by the cladding fixings to the main framing through the flexible underlay

Battens to be fixed with 40 x 2.8mm nails at 800mm centres maximum.

Note: Batten fixing is required temporarily to keep them straight on the wall during construction.

4.5 Intermediate Support

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

- Intermediate cavity batten between the studs as per E2/AS1; or
- 75mm galvanised mesh; or
- Polypropylene tape at 300mm centres fixed horizontally and drawn taut as per flexible underlay supplier.

No intermediate supports are required:

- Where studs are at maximum 400mm centres; or,
- When RAB™ Board or a rigid air barrier is used instead of flexible underlays.

4.6 Flashings

All wall openings, penetrations, intersections, connections, window sills, heads and jambs must be flashed prior to sheet installation. Please refer to moisture management requirements in clause 2.5.

The flexible underlay must be appropriately incorporated with penetration and junction flashings. Materials must be lapped in such a way that water tracks down to the exterior on the face of flexible underlay. James Hardie will assume no responsibility for water infiltration within the wall due to poor installation of flashing or flexible underlay. The selected flashing materials must comply with the durability requirements of Table 20 of the NZBC Acceptable Solution 'E2/AS1'.

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 Axon™ Panel Smooth which meet the requirements of E2 'External Moisture', an approved document of the NZBC, refer to Figures 12 to 15.

5 Fixing

5.1 General

Axon™ Panel Smooth must be kept dry and under cover whilst in storage or during the installation. Framing moisture contents must not exceed the maximum limit specified in NZS 3602 prior to sheet installation. Every endeavour must be made to keep framing dry once sheet fixing commences. Site cut sheet edges must be sealed prior to installation. The site cut sheets edges around window/door openings and other penetrations, e.g. meter boxes etc. are also required to be sealed.

Use acyrlic sealers such as Dulux® Acraprime® 501/1 or Dulux® 1 Step® or similar. Check compatibility with texture coat systems.

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 the exposure conditions and are summarised in Table 1.

Table 1

Exposure conditions and nail selection prescribed by NZS 3604		
Zone	**Application**	**Nail material**
D (Sea Spray) * and Geothermal hot spots	General	Stainless steel 304/316
	Fire	
	Bracing	
C and B	General	Hot dip galvanised**
	Fire	
	Bracing	

*Where local knowledge dictates that increased durability is required use stainless steel nails

** Hot dip galvanised must comply with AS/NZS 4680

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

Axon™ Panel Smooth must be fixed to framing using the fixings as specified in Table 2 and in accordance with the following requirements:

- Nails must have a minimum clearance of 18mm from sheet edges and a minimum of 75mm vertically from sheet corners
- Refer Figure 4
- Nails must finish flush with the sheet surface

Table 2

Sheet fixing		
Up to and including VH wind zones over flexible underlay		**Studs Spacing maximum**
60 x 3.15mm Hardie™ Flex nails	Fix sheet at 200mm centres to all studs. Fix sheet at 150mm centres at top plate and bottom plate.	600mm maximum
On buildings with EH wind zone or with ULS design wind pressure of up to 2.5kPa over rigid air barrier		
75 x 3.15mm Hardie™ Flex nails	Fix sheet at 150mm centres at all sheet edges as well as all intermediate framing.	400mm centres

Note: Special fixing arrangements are required for bracing and fire-resistance rated wall systems. For more information refer to the Bracing and Fire & Acoustic Design Manuals by James Hardie.

5.4 Gun Nailing

Axon™ Panel Smooth can be fixed using nail guns. The gun nails used must have a full round head to provide the required holding power. The length and gauge of nails must be a minimum as specified in this document. Check with nail gun manufacturer for more information.

Note: Do not use D Head nails.

5.5 Sheet Layout

The framing layout must be checked to facilitate the construction of control joints prior to sheet installation.

- All sheet edges must be supported by the framing
- All sheets must be fixed vertically

6 Jointing

6.1 General

The Axon™ Panel Smooth are supplied with shiplap edges. It is recommended to start the panel installation from one corner of building to the other edge/corner. The control joints are formed with square cut sheet edges. Minimum sheet width for installation must be 200mm.

6.2 Vertical Panel Joints

Axon™ Panel Smooth are jointed using shiplap panel edges, refer to Figure 7.

- Axon™ Panel Smooth must be finished using a proprietary plaster system tested to EM4 requirements as per E2/AS1 of the NZBC.
- Vertical panel shiplap joints must never be located on the corners of openings or at other high stress locations. Vertical joint must be off set from the corners of opening by 200mm minimum. Refer to Figure 1.
- At floor joist locations, a horizontal joint must be formed. Refer to Figure 16.

6.3 Control Joints

The control joints are formed by cutting the panel edges square and installing with a gap of 8mm maximum. Refer to Figure 8. Control joints are required as described in Table 4. Control joints are necessary to accommodate the differential movements between framing and panels due to normal cyclic changes in the environment and structural behaviour.

Table 3

Control joints	
Vertical	**Horizontal**
5400mm centres max and at all internal corners (standard detail is a control joint)	At all floor joist locations (standard details are control joints) and 5400mm centres max. (Full height,continuous studs nogged at joint)
Refer Figure 1 for further information on control joint locations.	

Vertical control joints must be provided at a maximum spacing of 5400mm from other control joints, the edge of the cladding, expansion joints or internal and external corners.

Vertical control joints may occur at the edge of window or door openings. Vertical control joints may be staggered across horizontal control joints.

At floor joist level, horizontal control joints are required to accommodate the movement resulting from timber joist shrinkage and deflection. Horizontal control joints must be provided at all floor joists and wall frame to truss connections. For the high stud walls the horizontal control joints are required at a maximum spacing of 5400mm where the studs are running continuous to full height.

Proprietary flashing systems supplied by the texture coating supplier/applicator are acceptable installed as per their technical specifications.

6.3.1 Gable Ends

Where the truss is sitting over the wall frame a horizontal control joint must be provided above the top plate. Additional framing may need to be provided in the gable frame to support Axon™ Panel Smooth installation as required under Section 3 Framing.

6.4 Construction Joint

Construction joints are provided to accommodate structural movement i.e. expansion/contraction experienced in larger buildings, and such buildings are outside the scope of this literature. Appropriate joint design shall be undertaken for this application.

6.5 Openings

All openings in the cladding must be adequately flashed to prevent moisture ingress into the wall. Horizontal and vertical joints must not be located along the sides of windows and doors. These must be located a minimum of 200mm from the corner of an opening or change in the height of the wall when required.

7 Finishing

7.1 Preparation

Protective texture coating of Axon™ Panel Smooth is required in order to meet the durability requirements of the NZBC. The Axon™ Panel Smooth must be dry and free from dirt before jointing and texture coating. Axon™ Panel Smooth must be texture coated within 90 days of installation.

7.2 Sealants

The application and usage of sealants must be in accordance with manufacturer's instructions and be compatible with texture coating. Check with sealant manufacturer prior to coating over sealants. Some sealant manufacturers do not recommend coating over their product.

7.3 Jointing and Texture Coating

A full mesh jointing and texture coating systems must comply with EM4 requirements of the NZBC Acceptable Solutions 'E2/AS1'. The Light Reflectance Value (LRV) for coatings to be used with Axon™ Panel Smooth cladding must be minimum 40% or higher.

Proprietary flashing systems supplied by the texture coating supplier/applicator are acceptable when installed as per their technical specifications.

8 Care and Maintenance

The extent and nature of maintenance will depend on the geographical location and exposure of the building. It is the responsibility of the specifier to determine normal maintenance requirements to comply with the NZBC Acceptable Solution B2/AS1. As a guide, it is recommended that basic normal maintenance tasks shall include but not be limited to:

- The texture coated surface must be washed/maintained in accordance with the texture coating manufacture's maintenance requirements. Do not use a water blaster to wash down the cladding.
- Re-application of exterior protective finishes if necessary. Always refer to your texture coating manufacturer for re-coating requirements.
- 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.
- The clearances between the bottom edge of Axon™ Panel Smooth and the finished/unfinished ground must always be maintained.

9 Product Information

9.1 Manufacturing and Classification

Axon™ Panel Smooth are a cellulose fibre reinforced cement building product. The basic composition is Portland cement, ground sand, cellulose fibre, water and proprietary additives. The sheets are easily identified by the name Axon™ Panel printed at regular intervals on the back face of sheet.

Axon™ Panel Smooth is manufactured in Australia to AS/NZS 2908.2 'Cellulose-Cement Products Part 2: Flat Sheets' (ISO 8336 'Fibre Cement Flat Sheets'). James Hardie is an ISO 9001 certified manufacturer.

Axon™ Panel Smooth are classified Type A, Category 3 in accordance with AS/NZS 2908.2 'Cellulose-Cement Products'.

For Safety Data Sheets (SDS) visit www.jameshardie.co.nz or Ask James Hardie on 0800 808 868.

9.2 Product Mass

Axon™ Panel Smooth are 9mm thick and have a mass of 14kg/m^2 at EMC.

Axon™ Panel Smooth finished with a texture coating system are classified as a Light Weight Wall Cladding (not exceeding 30kg/m^2) in accordance with the NZS 3604.

9.3 Sheet Sizes

Nominal sizes of Axon™ Panel Smooth are specified in Table 4.

Table 4

Axon™ Panel Smooth sizes — 9mm		
Length (mm)	**Width (mm)**	**Code**
2450	1200	**404764**
3000	1200	**404763**

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

9.4 Durability

Axon™ Panel Smooth, when installed and maintained as per the technical specification, will meet the durability requirements for claddings as required in the NZBC Approved Document B2 'Durability'.

9.4.1 Resistance to moisture/rotting

Axon™ Panel Smooth demonstrates resistance to permanent moisture induced deterioration (rotting) and has passed the following tests in accordance with AS/NZS 2908.2:

- Heat Rain (Clause 6.5)
- Water Permeability (Clause 8.2.2)
- Warm Water (Clause 8.2.4)
- Soak Dry (Clause 8.2.5)

9.4.2 Control of External Fire Spread

External spread of fire (clause C3.5 and C3.7) apply where:

- Building height is greater than 10m and upper floors have sleeping uses or are different property (C3.5), or
- Where the building is located within 1m of a relevant boundary (C3.7)

Refer to the NZBC Acceptable Solutions C/AS1 and C/AS2 and Verification Method C/VM2 for fire resistance rating and control of external fire spread requirements for external walls.

Axon™ Panel Smooth achieves a Type A classification suitable for use on external walls in accordance with the NZBC Acceptable Solutions C/AS1 Table 5.3.1..1 and C/AS2 Section 5.8.

9.4.3 Alpine regions

In regions subject to freeze/thaw conditions, Axon™ Panel Smooth 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 snow drifts over winter is expected.

The Axon™ Panel Smooth has been tested in accordance with AS/NZS 2908.2 Clause 8.2.3.

10 Safe Working Practices

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

Hardie™ fibre cement products contain sand, a source of respirable crystalline silica. May cause cancer if dust from product is inhaled. Causes damage to lungs and respiratory system through prolonged or repeated inhalation of dust from product

Intact fibre cement products are not expected to result in any adverse toxic effects. The hazard associated with fibre cement arises from the respirable crystalline silica present in dust generated by activities such as cutting, rebating, drilling, routing, sawing, crushing, or otherwise abrading fibre cement, and when cleaning up, disposing of or moving dust.

When doing any of these activities in a manner that generates dust, follow James Hardie's instructions and best practices to reduce or limit the release of dust.

If using a dust mask or respirator, use an AS/NZS 1716 P1 filter and refer to Australian/New Zealand Standard 1715:2009 Selection, Use and Maintenance of Respiratory Protective Equipment for more extensive guidance and more options for selecting respirators for workplaces. For further information, refer to our installation instructions and Safety Data Sheets available at www.jameshardie.co.nz.

FAILURE TO ADHERE TO OUR WARNINGS, SAFETY DATA SHEETS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

Crystalline Silica is

- Commonly known as sand or quartz
- Found in many building products e.g. concrete, bricks, grout, wallboard, ceramic tiles, and all fibre cement materials

Why is Crystalline Silica a health hazard?

- Silica can be breathed deep into the lungs when present in the air as a very fine (respirable) dust
- Exposure to silica dust without taking the appropriate safety measures to minimise the amount being breathed in, can lead to a potentially fatal lung disease – silicosis – and has also been linked with other diseases including cancer. Some studies suggest that smoking may increase these risks
- The most hazardous dust is the dust you cannot see!

When is Crystalline Silica a health hazard?

- It's dangerous to health if safety protocols to control dust are not followed when cutting, drilling or rebating a product containing crystalline silica
- Products containing silica are harmless if intact (e.g. an un-cut sheet of wall board)

Avoid breathing in crystalline silica dust

Safe working practices

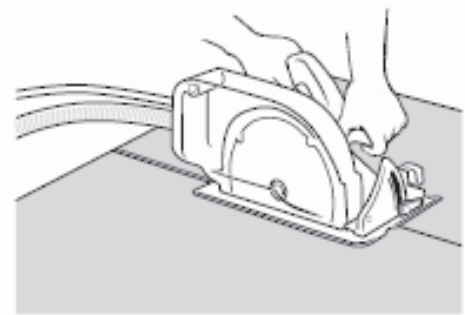
- ✗ NEVER use a power saw indoors or in a poorly ventilated area
- ✗ NEVER dry sweep
- ✓ ALWAYS use M Class or higher vacuum or damp down dust before sweeping up
- ✗ NEVER use grinders
- ✓ ALWAYS use a dust reducing circular saw equipped with a sawblade specifically designed to minimise dust creation when cutting fibre cement – preferably a sawblade that carries the Hardie™ Blade logo or one with at least equivalent performance – connected to an M Class or higher vacuum
- ✓ Before cutting warn others in the area to avoid dust
- ✓ ALWAYS follow tool manufacturers' safety recommendations
- ✓ ALWAYS expose only the minimum required depth of blade for the thickness of fibre cement to be cut
- ✓ ALWAYS wear a properly-fitted, approved dust mask or respirator P1 or higher in accordance with applicable government regulations and manufacturer instructions
- ✓ Consider rotating personnel across cutting tasks to further limit respirable silica exposures.

When cutting Axon™ Panel Smooth

- ✓ Work outdoors only
- ✓ 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
- ✓ Rotate employees across cutting task over duration of shift
- ✓ Cut products with a Hardie™ Blade Saw Blade (or equivalent) and a dust reducing circular saw connected to a M Class or higher vacuum
- ✓ When sawing, sanding, rebating, drilling or machining fibre cement products, always:
  - Wear your P1 or higher (correctly fitted in accordance with manufacturers' instructions), ask others to do the same.
  - Keep persons on site at least 2 metres and as far as practicable away from the cutting station while the saw is in operation.
  - If you are not clean shaven, then use a powered air respirator with a loose fitting head top
  - Wear safety glasses
  - Wear hearing protection
  - When others are close by, ask them to do the same
- ✓ Make sure you clean up BUT never dry sweep. Always hose down with water/wet wipe or use an M Class or higher vacuum

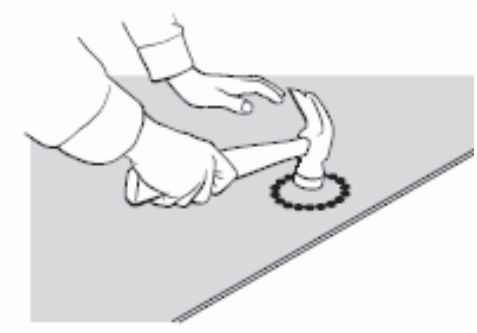
Working instructions

Hardie™ Blade Saw Blade



The Hardie™ Blade 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 collector connected to a M Class or higher vacuum. When sawing, clamp a straight edge to the sheet as a guide and run the saw base plate along the straight edge when making the cut.

Hole forming



For smooth clean cut circular holes:

- Mark the centre of the hole on the sheet
- Pre-drill a 'pilot' hole
- Using the pilot hole as a guide, cut the hole to the appropriate diameter with a hole saw fitted to a heavy duty electric drilll

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

10.1 Storage and Delivery

Keeping products and people safe

Off loading

✓ Hardie™ fibre cement products should be off-loaded carefully by hand or by forklift

✓ Hardie™ fibre cement products should not be rolled or dumped off a truck during the delivery to the jobsite

Storage

Hardie™ fibre cement products should be stored:

✓ In their original packaging

✓ Under cover where possible or otherwise protected with a waterproof covering to keep products dry

✓ Off the ground – either on a pallet or adequately supported on timber or other spacers

✓ Flat so as to minimise bending

Hardie™ fibre cement products must not be stored:

✗ Directly on the ground

✗ In the open air exposed to the elements

James Hardie is not responsible for damage due to improper storage and handling.

10.2 Tips for safe and easy handling of Axon™ Panel Smooth

✓ Carry with two people

✓ Hold near each end and on edge

✓ Exercise care when handling sheet products to avoid damaging the edges/corners

11 Accessories

Table 5

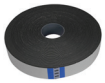
Accessories supplied by James Hardie				
	Accessory	**Size (mm)**	**Material**	**Code**
	Inseal® 3259 1.5mm thick 48mm 80mm	 50m roll 50m roll	Black compressible foam	 **300767** **300769**
	Hardie™ Flex nail — 5kg	60 x 3.15mm	316 Stainless Steel	**302782**
	Hardie™ Flex nail — 5kg	60 x 3.15mm	Hot Dip Galvanised	**302784**
	Hardie™ Flex nail	75 x 3.15mm	316 Stainless Steel	**304253**
	Hardie™ Flex nail	75 x 3.15mm	Hot Dip Galvanised	**304251**
	Hardie™ 9mm Panel Aluminium Horizontal ‘h’ Mould	3000 long	Aluminium	**304508**
	Horizontal 180° Flashing Jointer aluminium	100 long	Aluminium	**304512**
	Hardie™ 9mm Alum ‘h’ Mould External Corner	50 x 50	Aluminium	**305940**
	Hardie™ 9mm Aluminium Internal Corner	2750mm long 4000mm long	Aluminium	**306218** **306219**
	Vent Strip	3000 long	uPVC	**302490**
	Corner Underflashing 50 x 50mm	3000 long	uPVC	**303745**
	Hardie™ Blade Saw Blade	4 tooth - 184mm	Diamond Tipped	**300660**

Table 6

Accessories not supplied by James Hardie			
James Hardie recommends the following products for use in conjunction with its Axon™ Panel Smooth. James Hardie does not supply these products. Please contact component manufacturer for information on their warranties and further information on their products.			
	Accessory	**Size (mm)**	**Material/ appearance**
	Hardie™ Flex nail	40 x 2.8mm	316 Stainless Steel
	Hardie™ Flex nail	40 x 2.8mm	Hot Dip Galvanised
	Flexible sealant as per jointing and texture coating for compatibility	Tube	Cured Ruberised compound
	PEF rod or expandable foam	Polyethylene foam	Plastic/foam
	Flashing tape Tyvek®, Protecto® wrap or similar	Proprietary tape to adhere to flexible underlay	Synthetic paper
	Flashing to Table 20 ‘E2/AS1’	Refer Figure 14	
	Inseal 3109 Sealing Strip	19 x 10	Black compressible foam
	Full mesh texture coating system e.g. STO®, or Resene® Construction Systems Texture coating system		

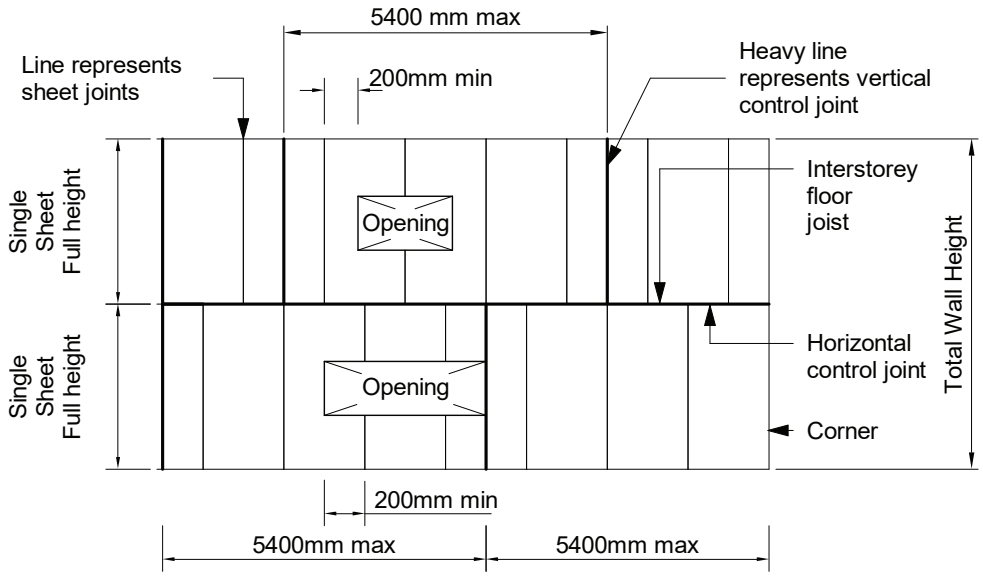
12 Details

Various details outlined in the following table are available on pages 13 to 34.

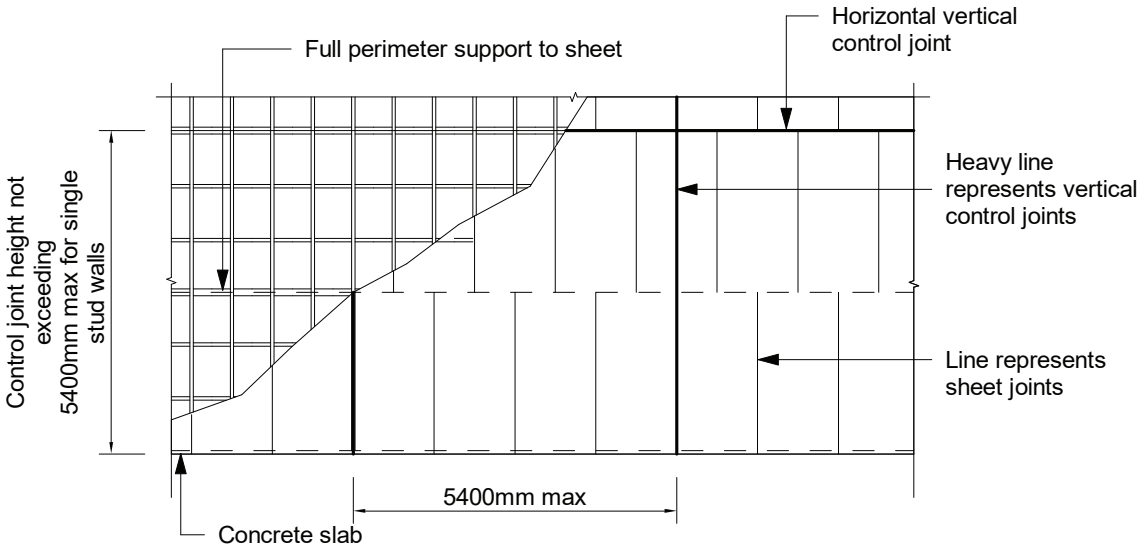
Table 7

Description	Page
Figure 1: Control joint setout	22
Figure 2: Cavity framing and batten setout	23
Figure 3: Cavity batten fixing	24
Figure 4: Cavity sheet fixing setout	25
Figure 5: Cavity concrete footing	26
Figure 6: Cavity at enclosed deck	27
Figure 7: Cavity vertical joint setout	28
Figure 8: Cavity vertical control joint setout	28
Figure 9: Cavity external corner	29
Figure 10: Cavity internal corner	29
Figure 11: Cavity soffit detail	30
Figure 12: Cavity window sill	30
Figure 13: Cavity window head	31
Figure 14: Cavity window jamb	31
Figure 15: Cavity head flashing termination	32
Figure 16: Cavity horizontal control joint detail - Option 1	33
Figure 17: Cavity horizontal control joint detail - Option 2	34
Figure 18: Cavity ‘h’ mould corner	35
Figure 19: Cavity ‘h’ mould joiner	36
Figure 20: Cavity stopped horizontal joint	37
Figure 21: Cavity one piece apron flashing joint	38
Figure 22: Cavity enclosed balustrade to wall	39
Figure 23: Cavity parapet flashing	40
Figure 24: Enclosed Deck Balustrade To Wall Junction	41
Figure 25: Cavity one piece gutter/wall junction	42
Figure 26: Cavity pipe penetration	43
Figure 27: Cavity drained flashing joint	44

Figure 1: Control joint setout

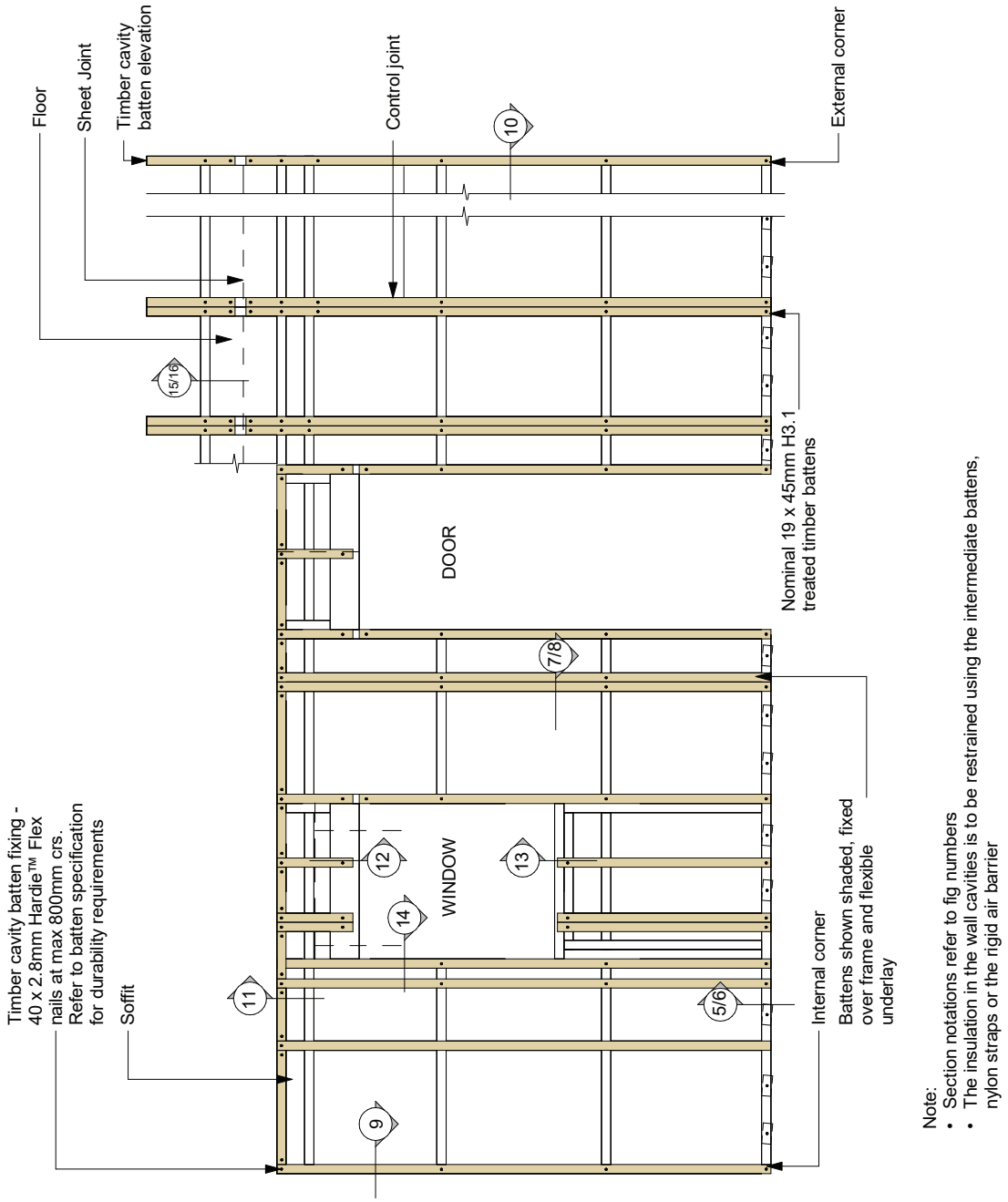


Typical Two Story Control Joint Layout



Typical High Stud Wall Control Joint Layout

Figure 2: Cavity framing and batten setout



Note:
- Section notations refer to fig numbers
- The insulation in the wall cavities is to be restrained using the intermediate battens, nylon straps or the rigid air barrier

Figure 3: Cavity batten fixing

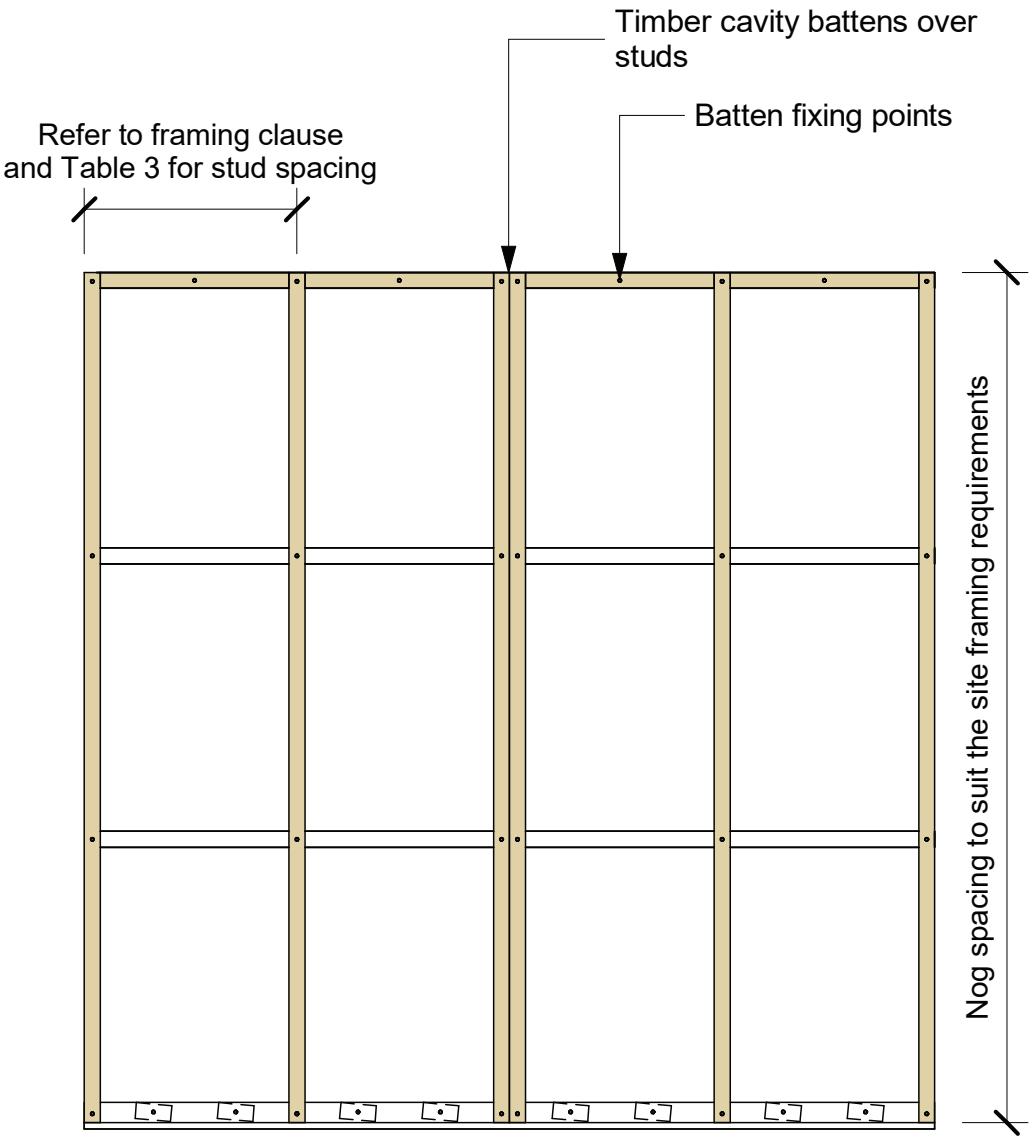
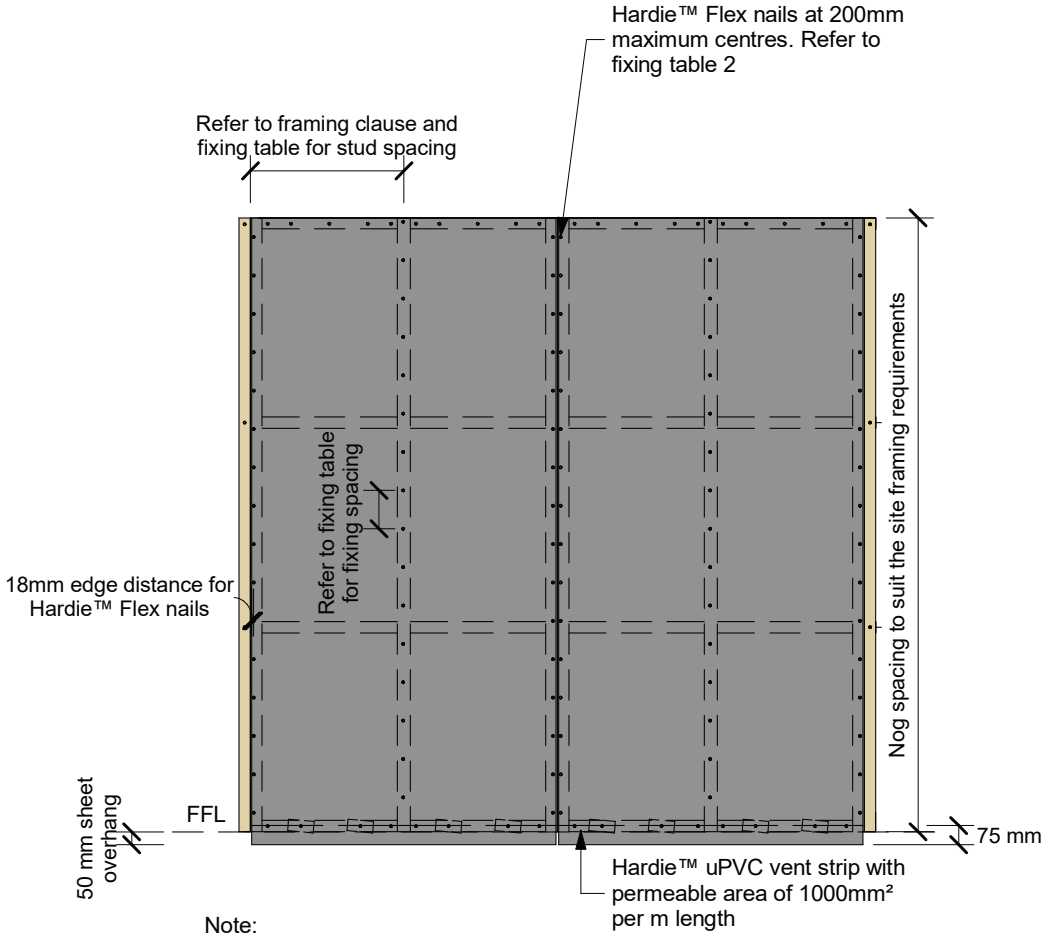


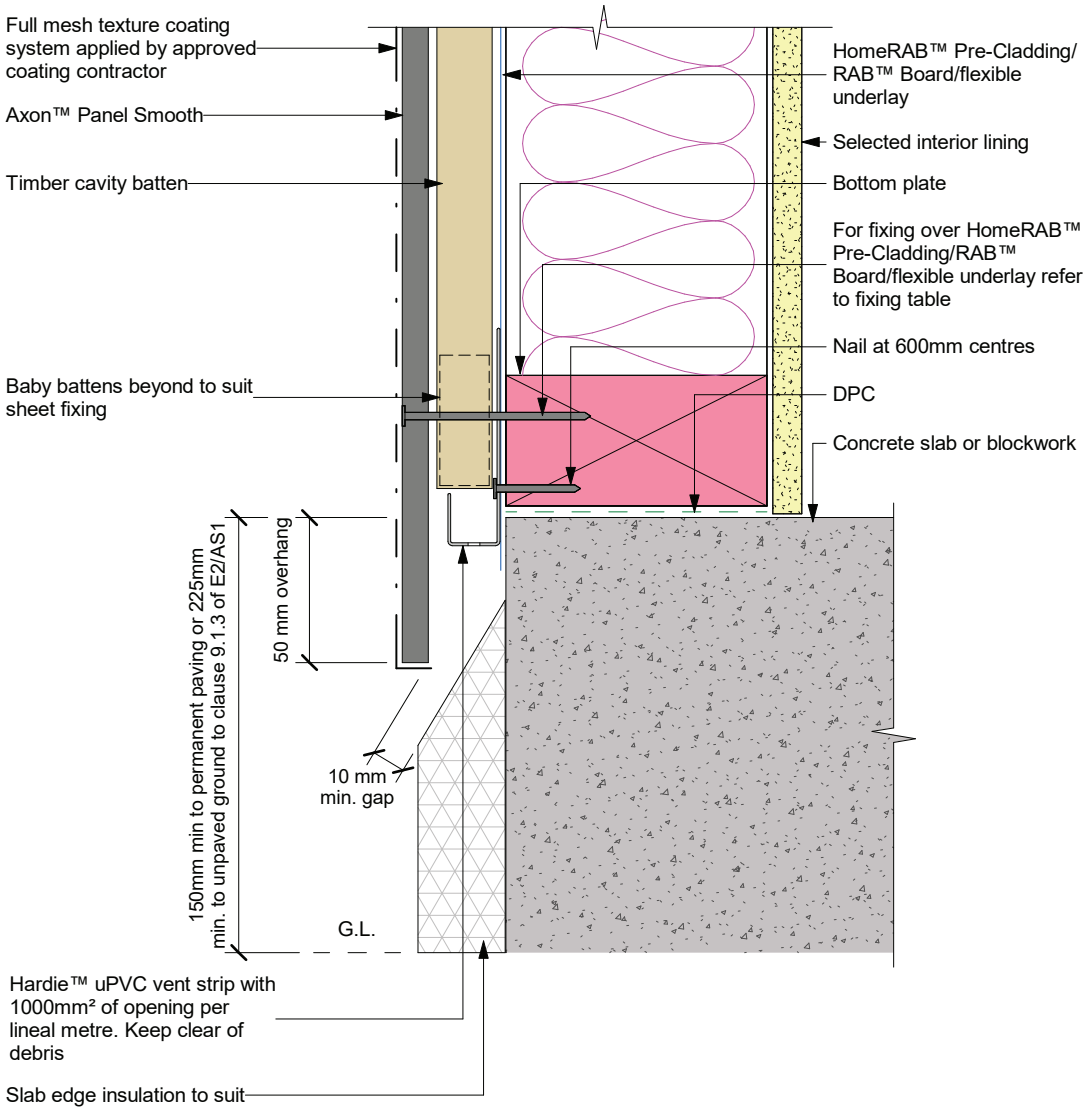
Figure 4: Cavity sheet fixing setout



Note:

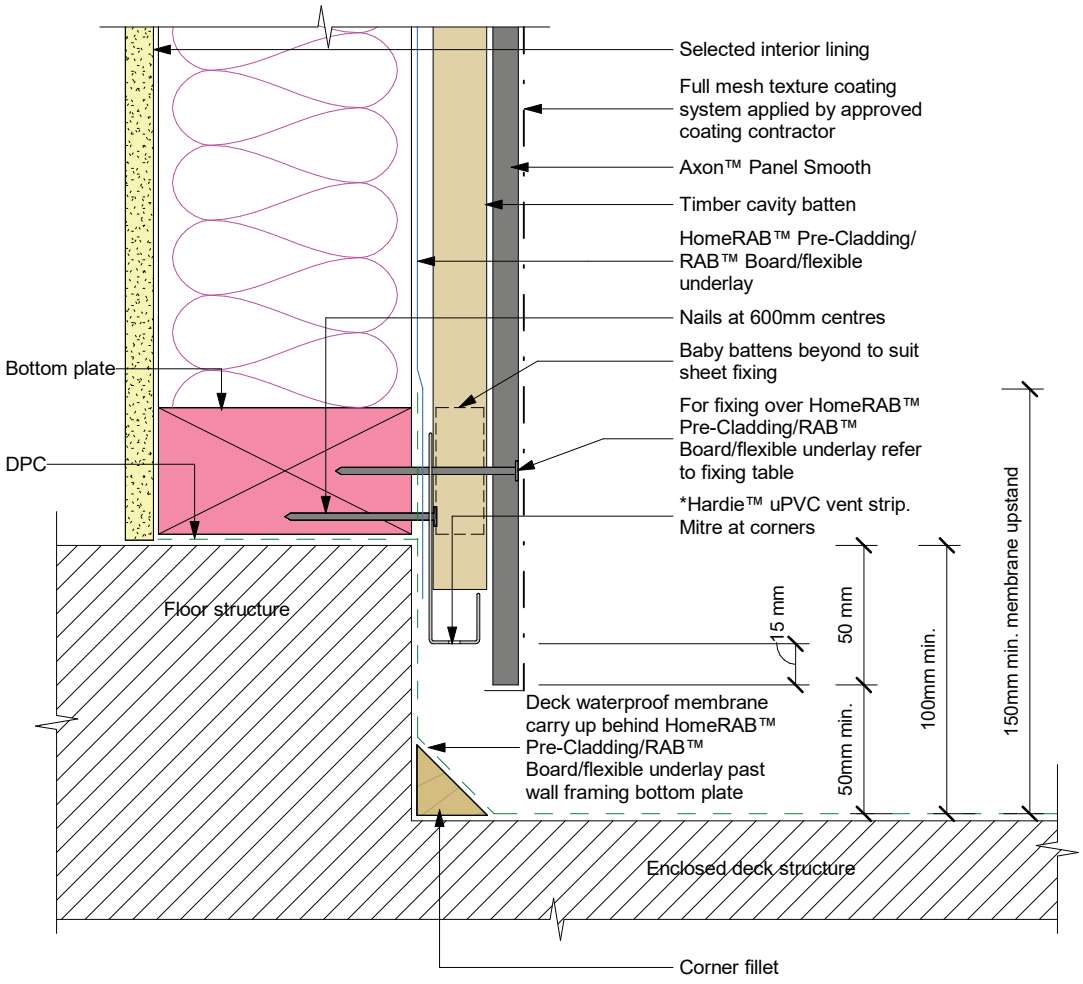
- For fire rated wall systems by James Hardie nog spacing must be 800mm centres maximum
- For fire resistance rated wall systems, Axon™ Panel Smooth must be fixed at 150mm centres to the entire frame. Therefore top/bottom plate and nogs require suitable 150mm sloped cavity packers for the panel fixings
- Axon™ Panel Smooth must be fixed vertically

Figure 5: Cavity concrete footing



Note:
- Site cut edges to be primed
- For uninsulated slab refer to jameshardie.co.nz
- Refer to section Surface Clearances for further information

Figure 6: Cavity at enclosed deck



*Drain holes in Hardie™ uPVC vent strip to achieve the required ventilation openings of 1000mm² per lineal metre

Figure 7: Cavity vertical joint setout

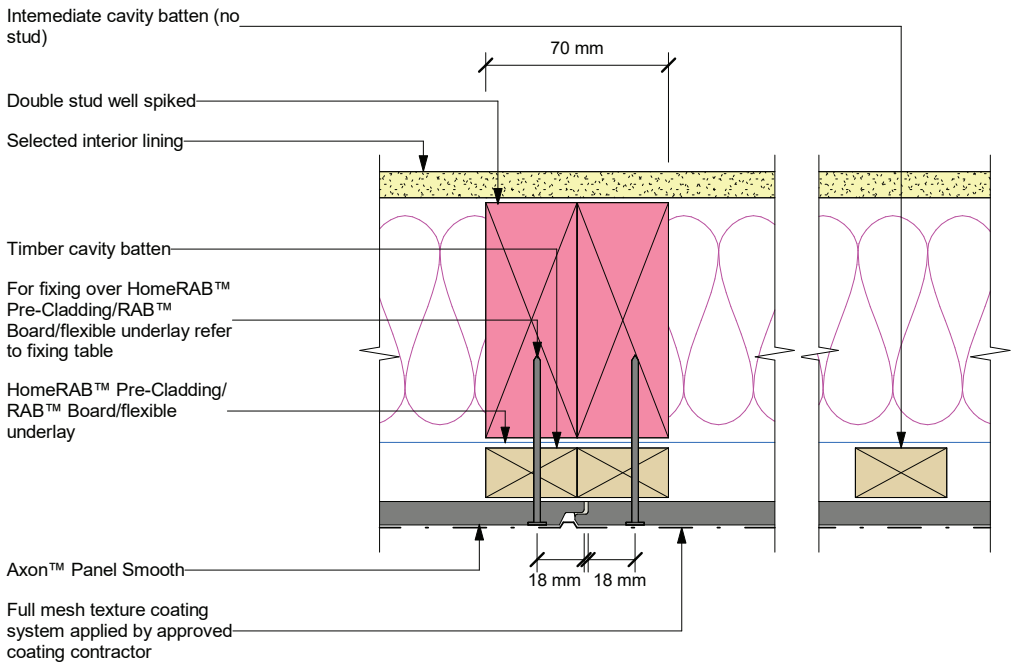


Figure 8: Cavity vertical control joint setout

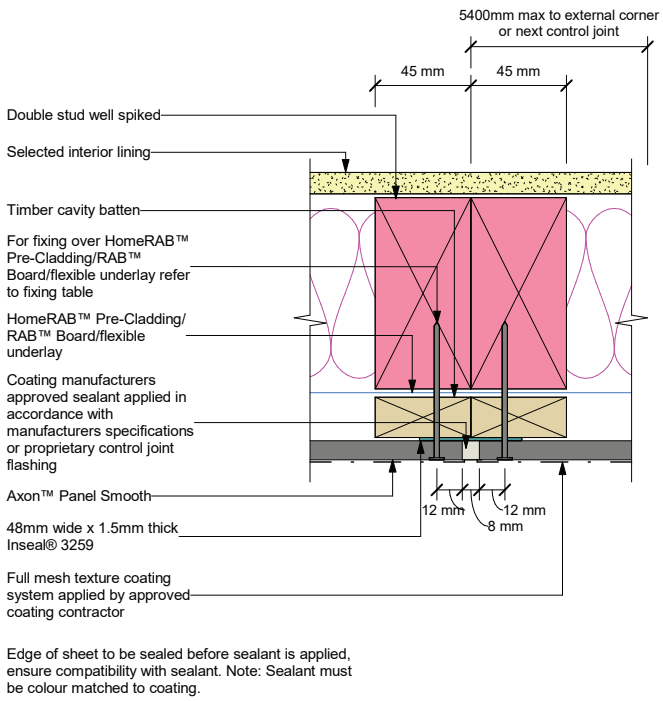
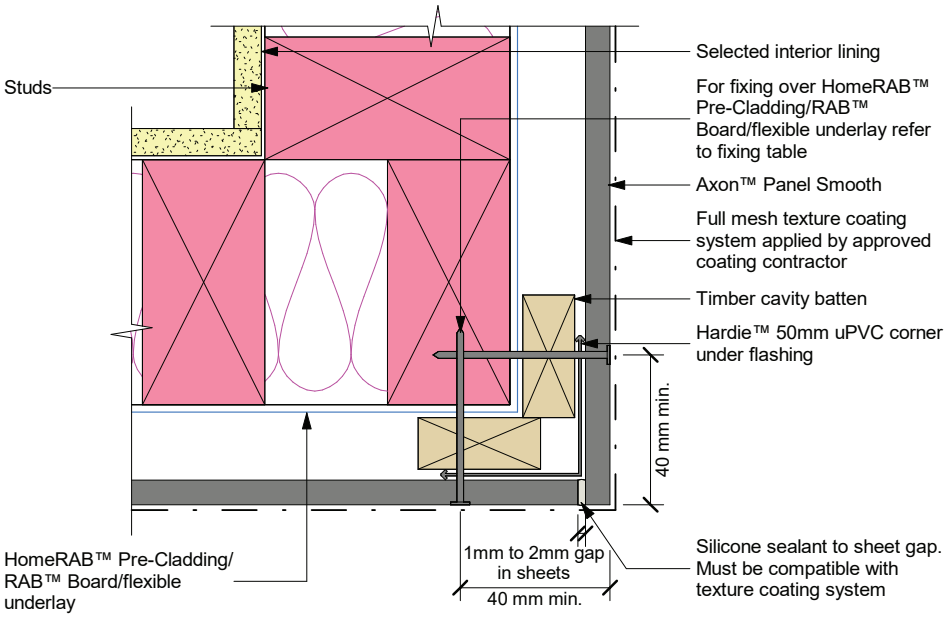


Figure 9: Cavity external corner



Note:
- Proprietary systems corner - refer to texture coating system manufacturers' recommendations

Figure 10: Cavity internal corner

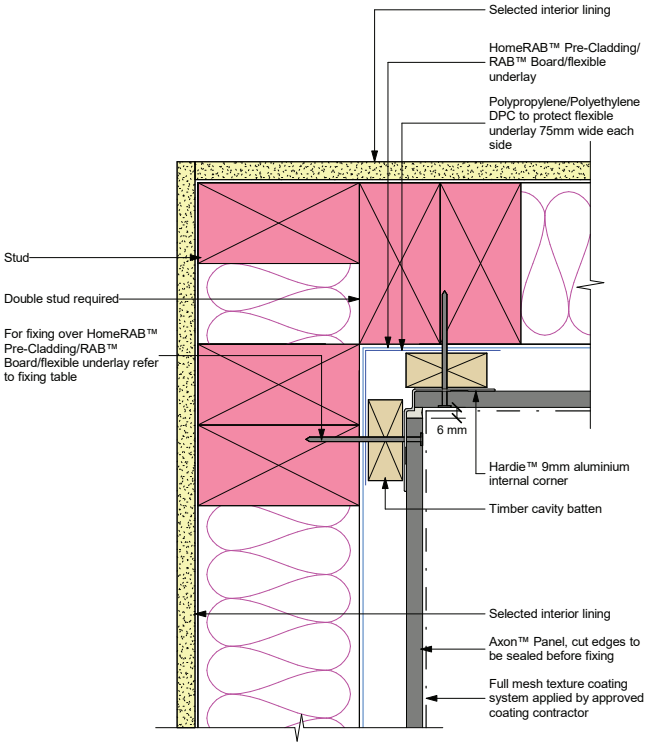
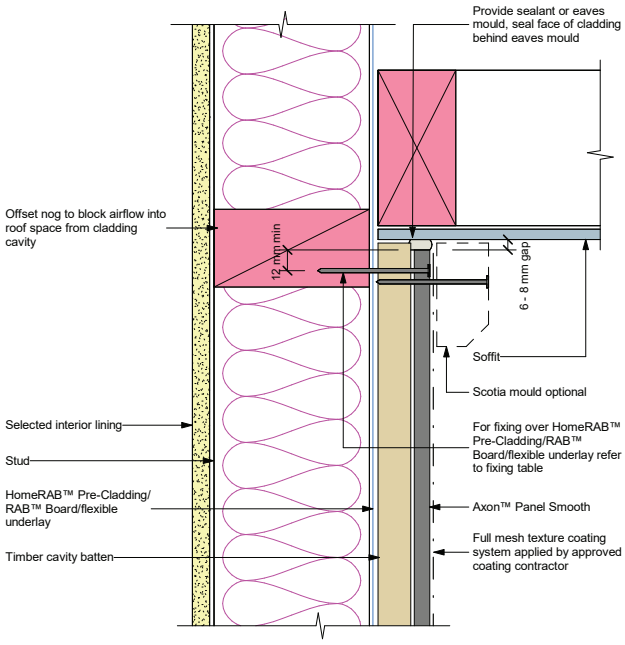
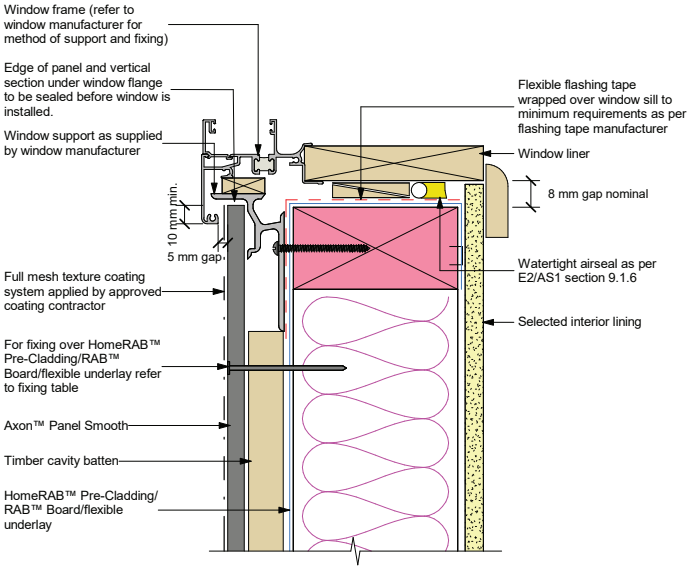


Figure 11: Cavity soffit detail



Note: Site cut edges to be primed. Ensure cavity does not vent into roof space. Refer to E2/AS1 clause 9.1.8.2

Figure 12: Cavity window sill

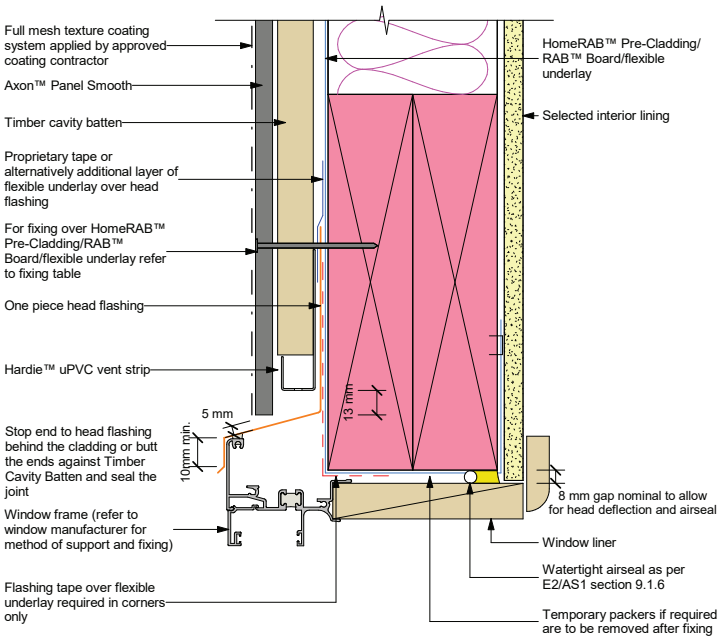


General notes for materials selection

* Flexible underlay must comply with acceptable solution E2/AS1.
* Flashing tape must have proven compatibility with the selected flexible underlay and other materials with which it comes into contact.
* When HomeRAB™ Pre-Cladding/ RAB™ Board are used flashing tape to be applied to the entire opening.

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

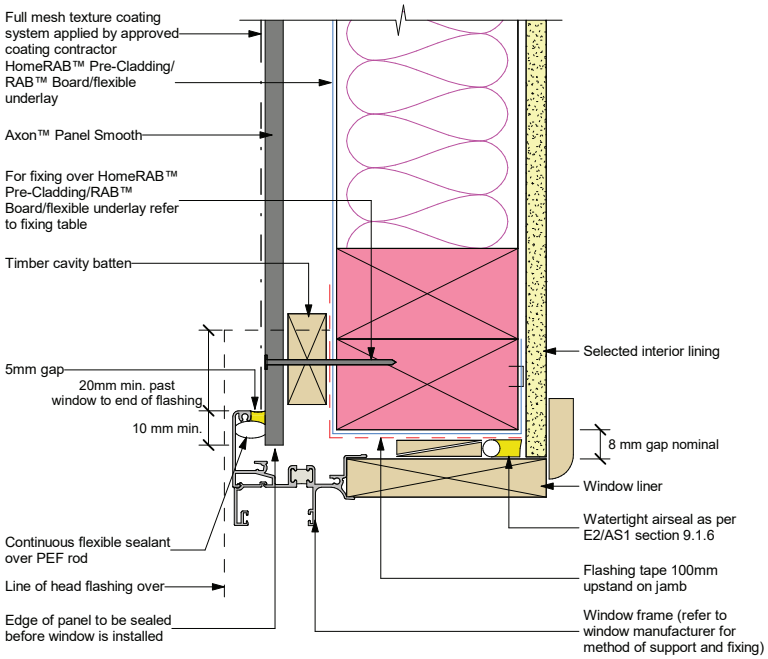
Figure 13: Cavity window head



Note:

* When HomeRAB™ Pre-Cladding/RAB™ Board is used flashing tape to be applied to the entire window opening.
* Refer to Figure 116 NZBC clause E2/AS1 for head and jamb details

Figure 14: Cavity window jamb



Note: When HomeRAB™ Pre-Cladding/RAB™ Board is used flashing tape to be applied to the entire window opening.

Figure 15: Cavity head flashing termination

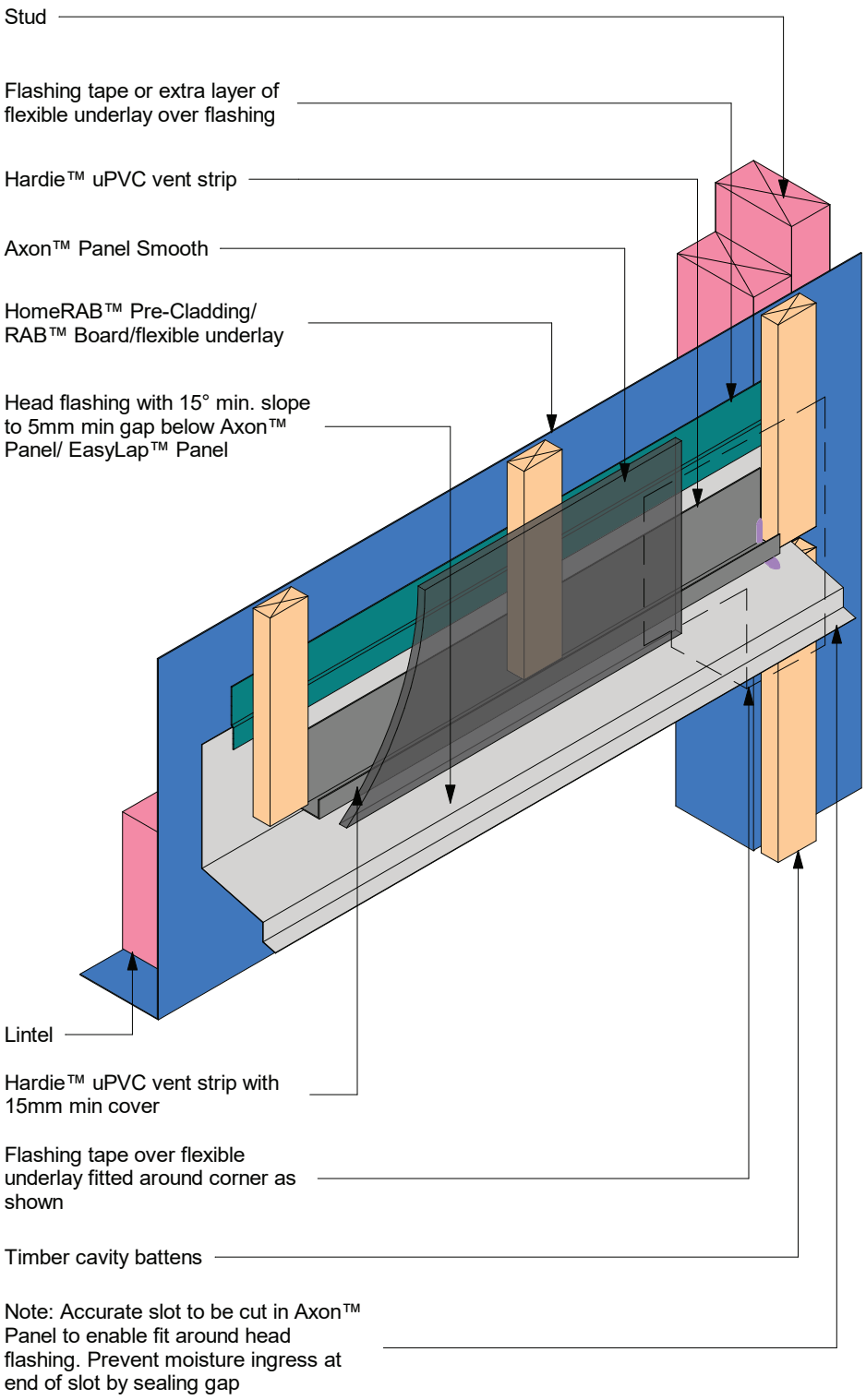
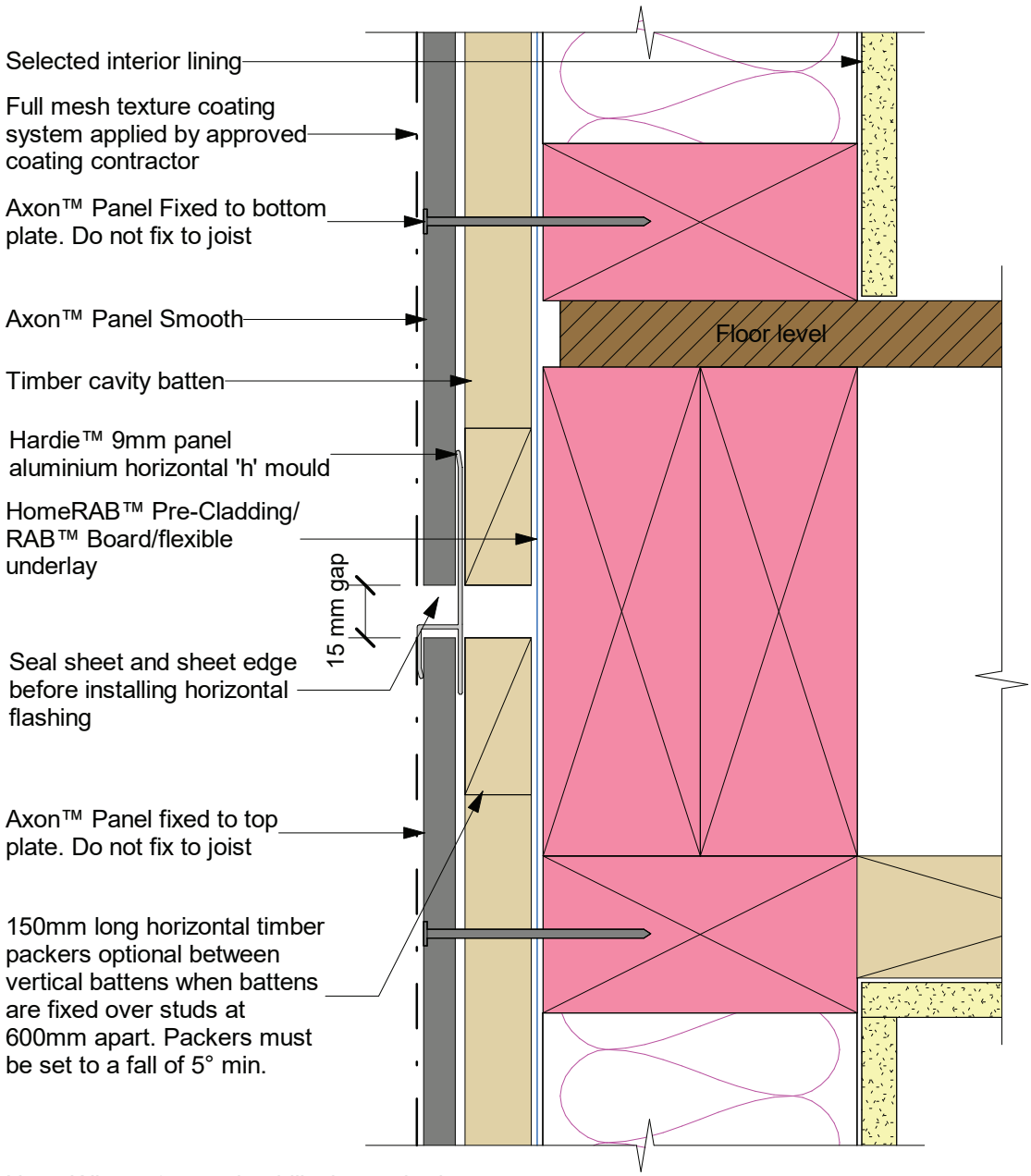
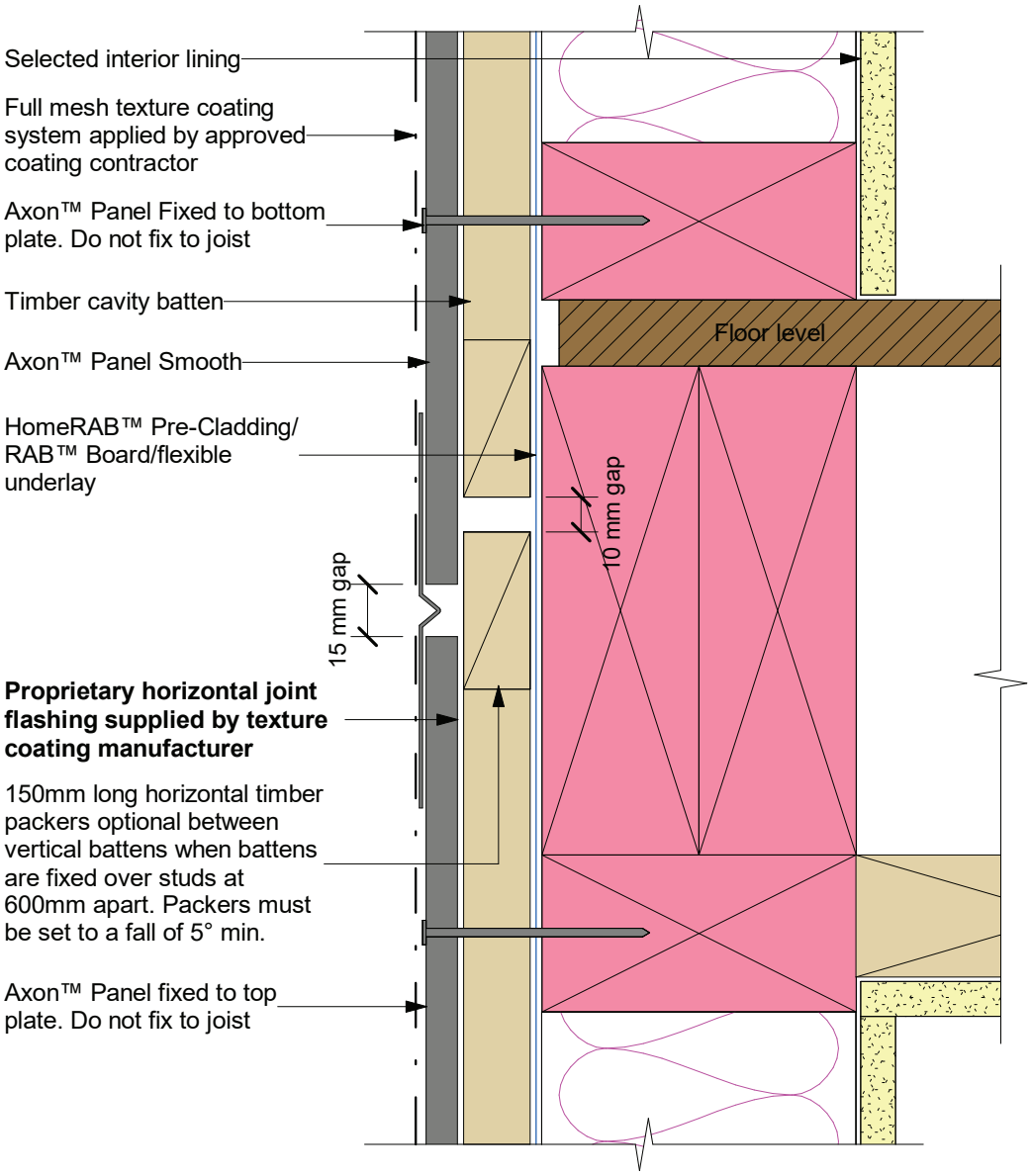


Figure 16: Cavity horizontal control joint detail - Option 1



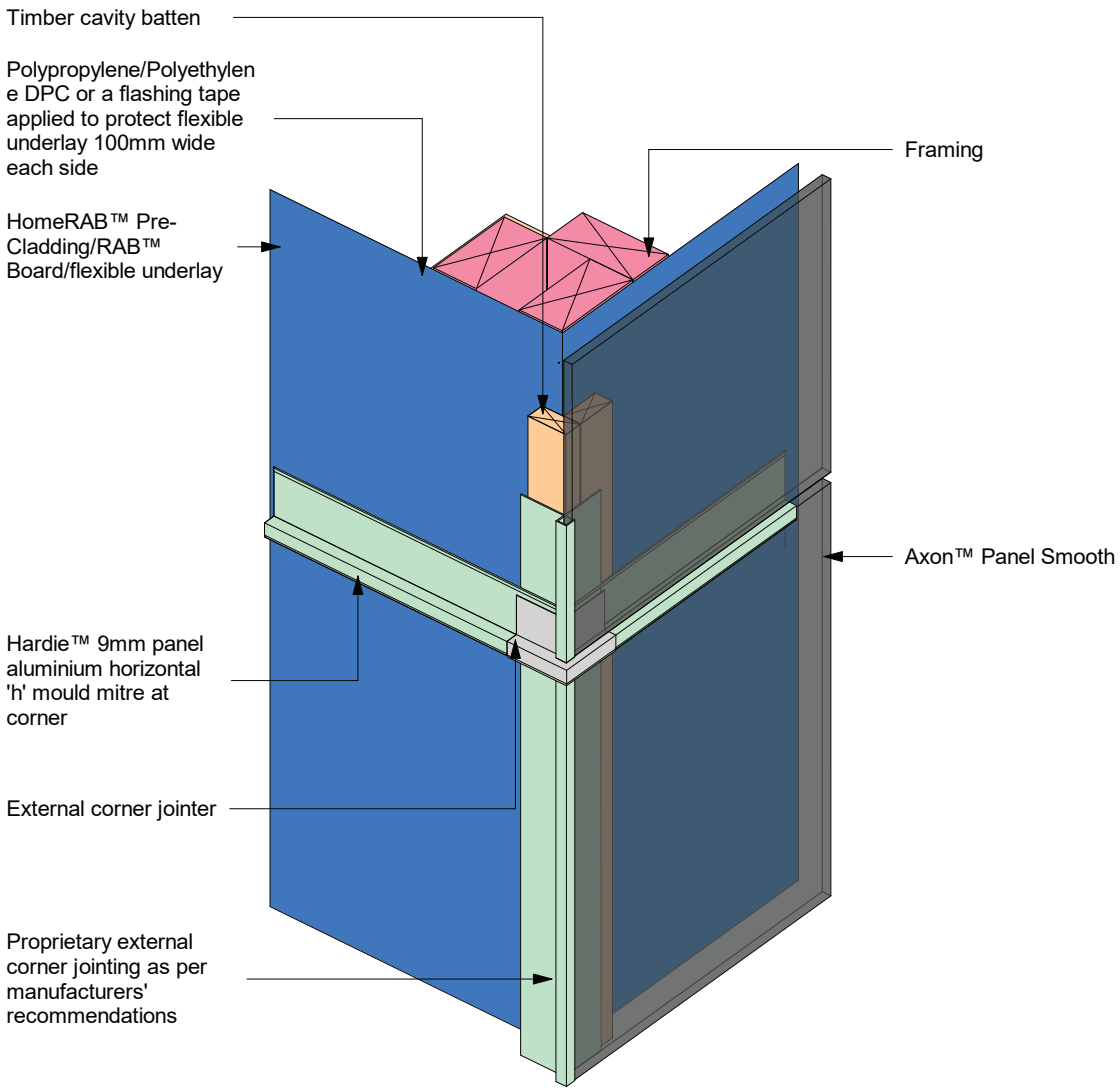
Note: When 50 year durability is required refer Table 20 of NZBC E2/AS1 document.

Figure 17: Cavity horizontal control joint detail - Option 2



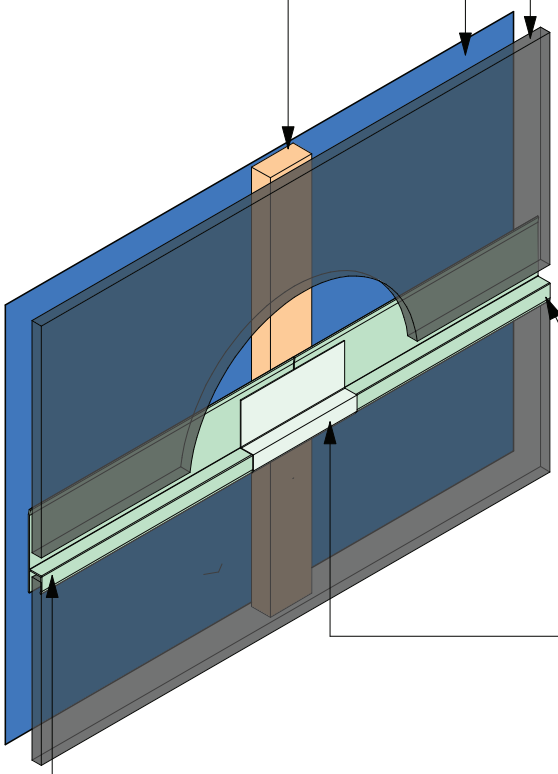
Note: When 50 year durability is required refer Table 20 of NZBC E2/AS1 document.

Figure 18: Cavity ‘h’ mould corner



Note: Site cut edges to be primed

Figure 19: Cavity ‘h’ mould joiner



Timber cavity batten

HomeRAB™ Pre-Cladding/RAB™ Board/flexible underlay

Axon™ Panel Smooth

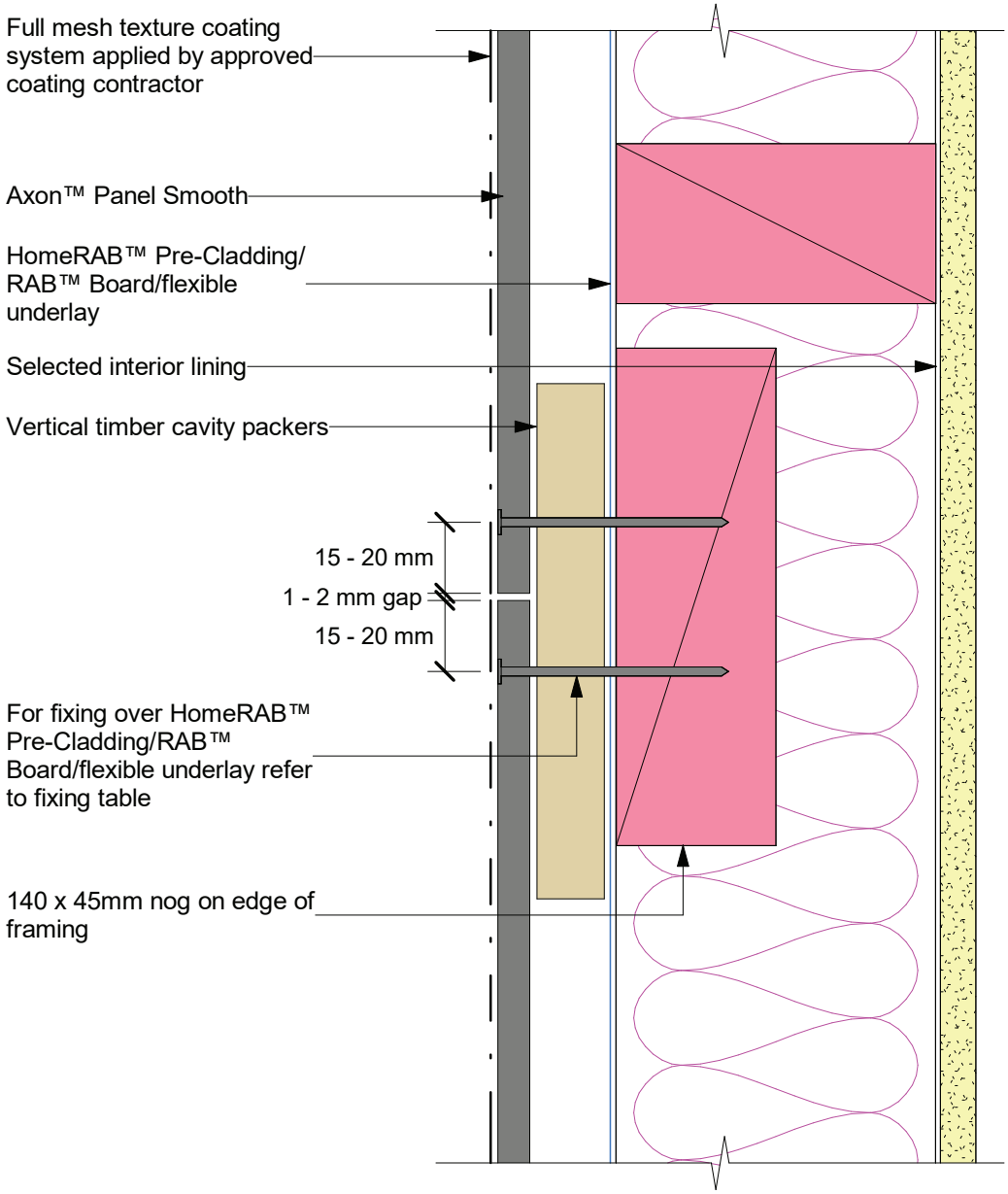
Hardie™ 9mm panel aluminium 'h' mould ends butted together

Hardie™ aluminium 'h' mould joiner, flexible sealant to allow for expansion to both sides of joiner. Ensure adequate seal between both components.

Where end of 'h' mould abuts control joint apply sealant for a min distance of 20mm.

Note:
Do not continue 'h' mould across control joints. Alternatively, The horizontal jointer detail as per the texture coating company can also be used.

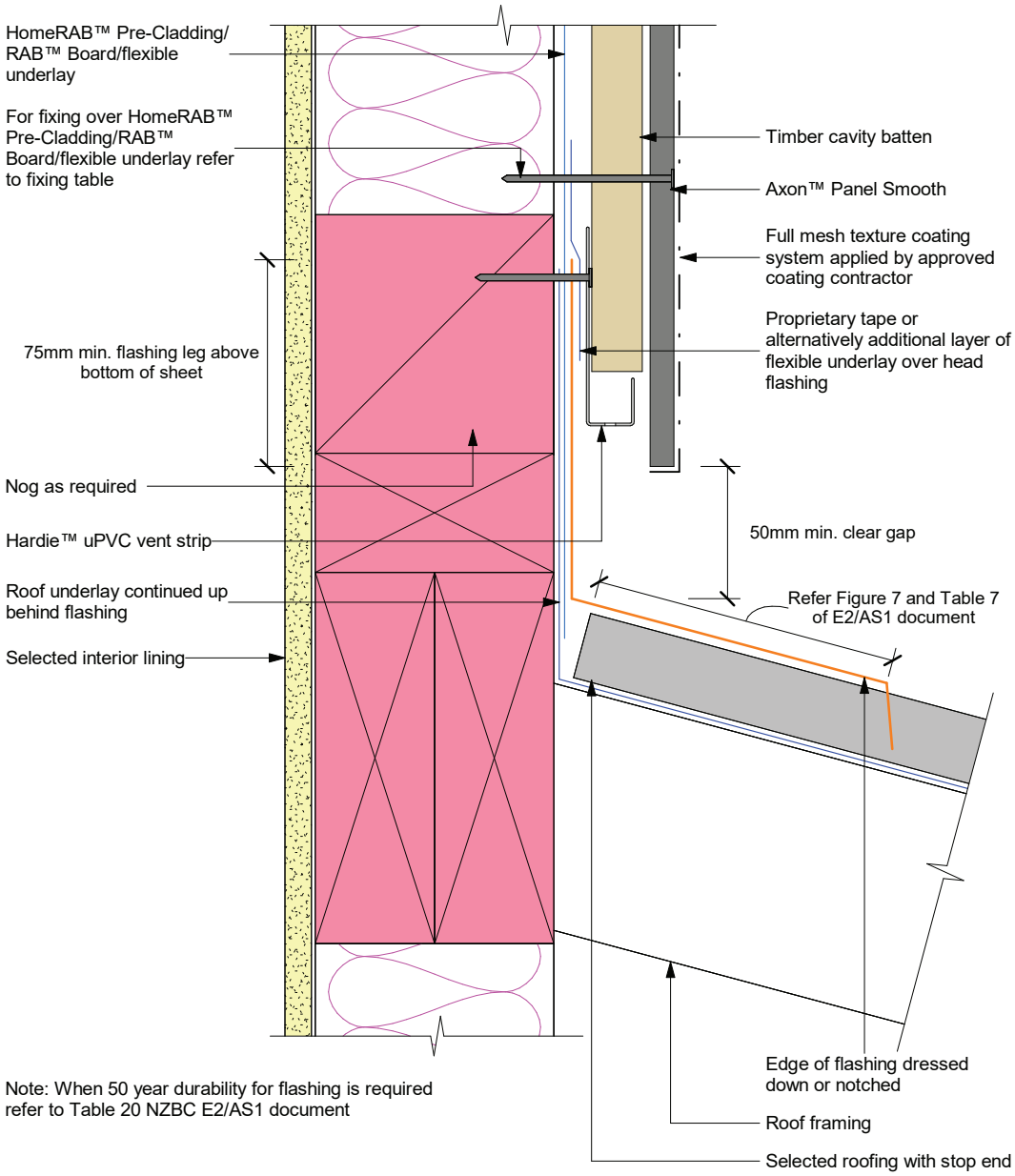
Figure 20: Cavity stopped horizontal joint



Notes:

- This method is used to install full height sheets where the wall height is taller than the standard sheet height
- This jointing method **must not** be used at floor joists or gable ends as a control joint

Figure 21: Cavity one piece apron flashing joint



Note: When 50 year durability for flashing is required refer to Table 20 NZBC E2/AS1 document

Figure 22: Cavity enclosed balustrade to wall

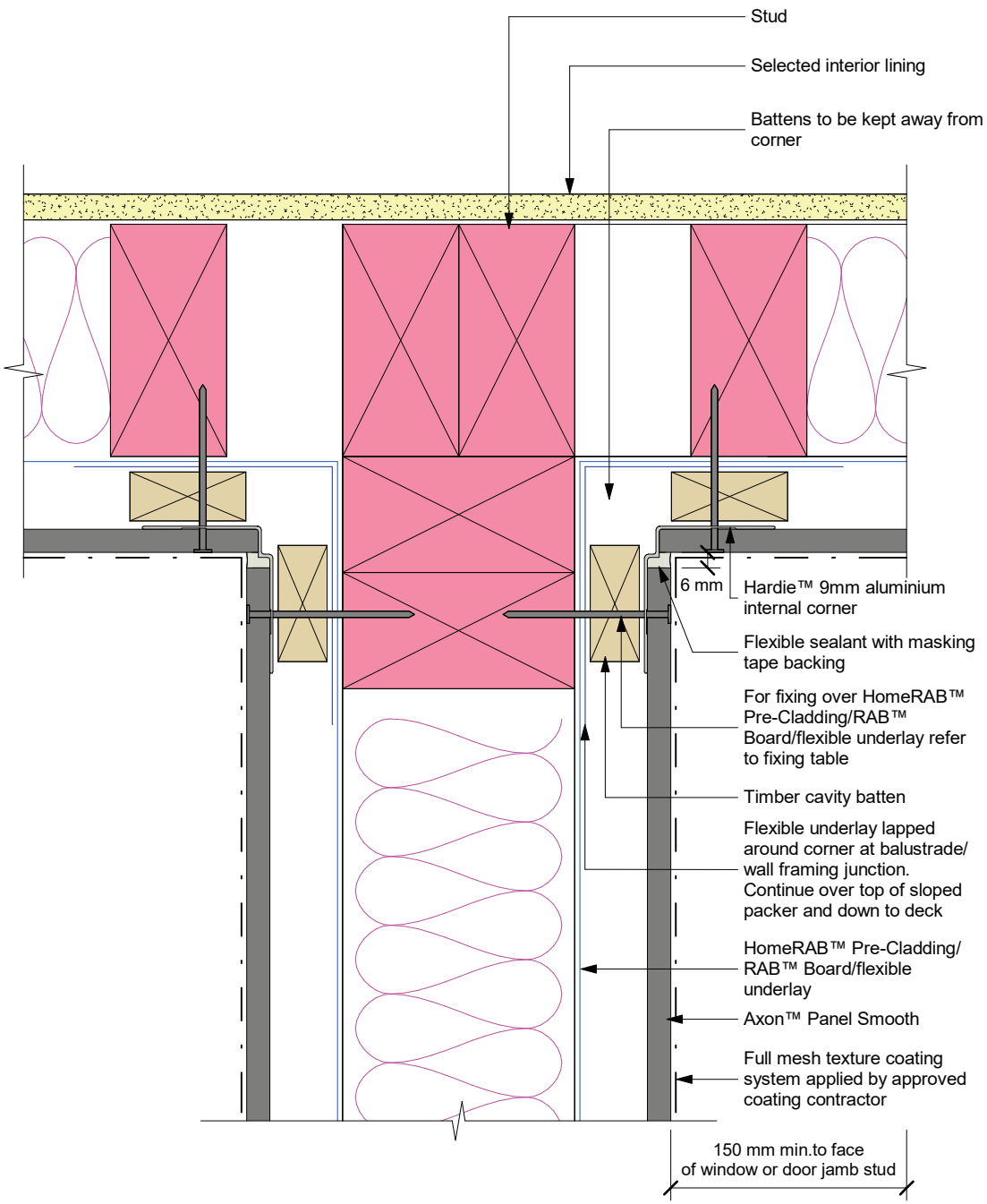


Figure 23: Cavity parapet flashing

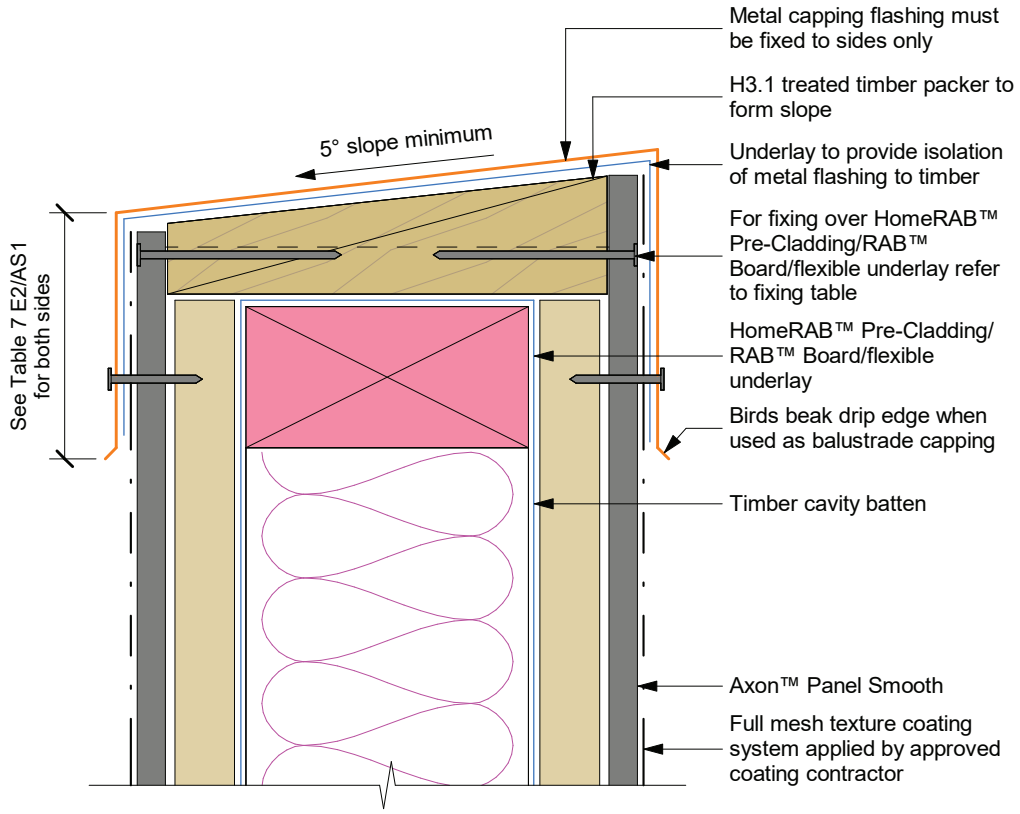
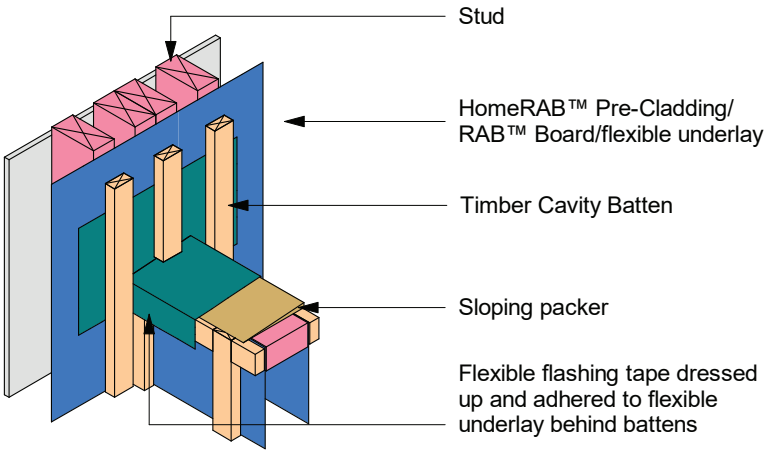
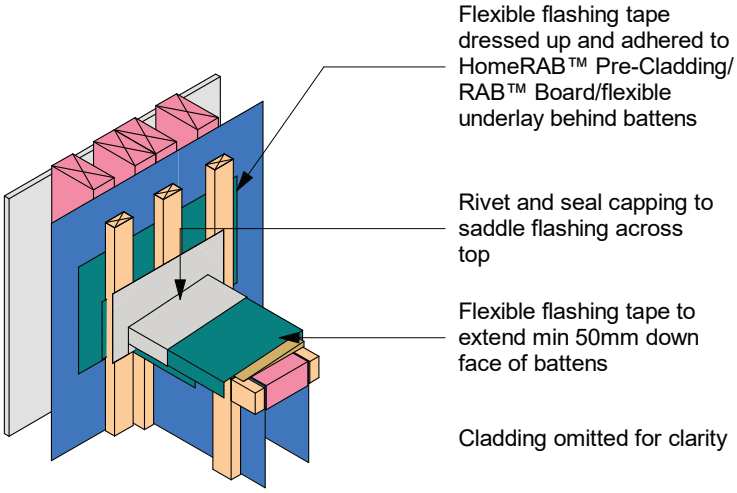


Figure 24: Enclosed Deck Balustrade To Wall Junction



Batten and Flashing Tape Application Prior to Metal Flashing Fixing



Saddle Flashing Application Prior to Cladding and Cap Flashing Fixing

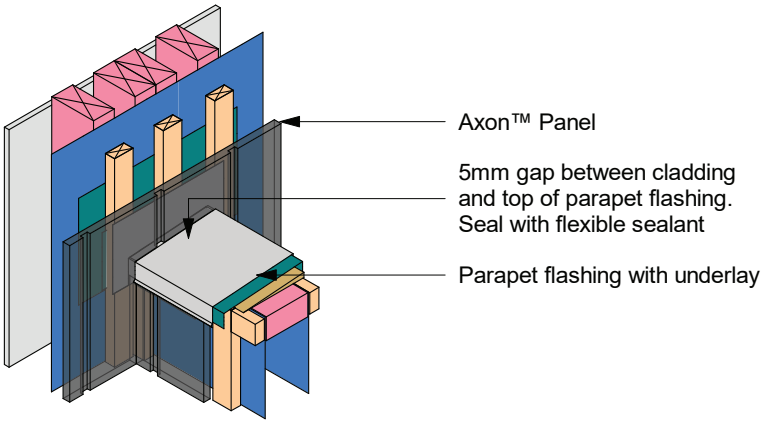
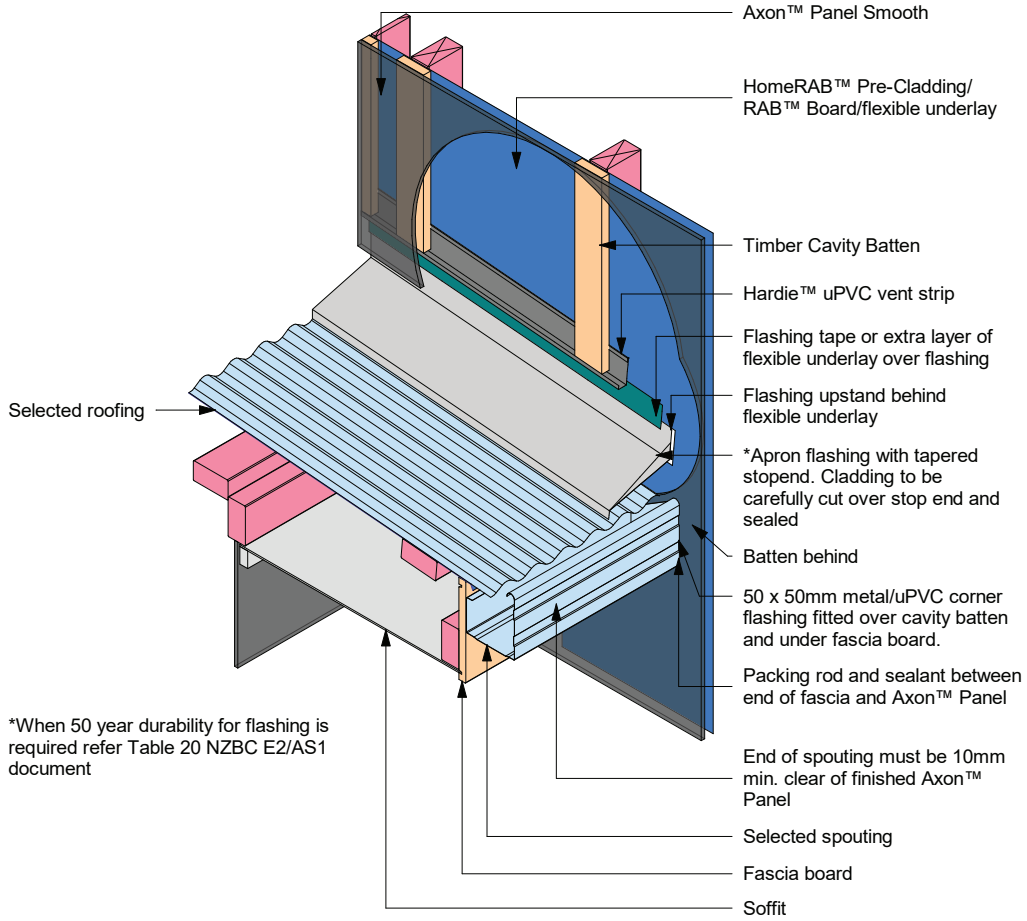


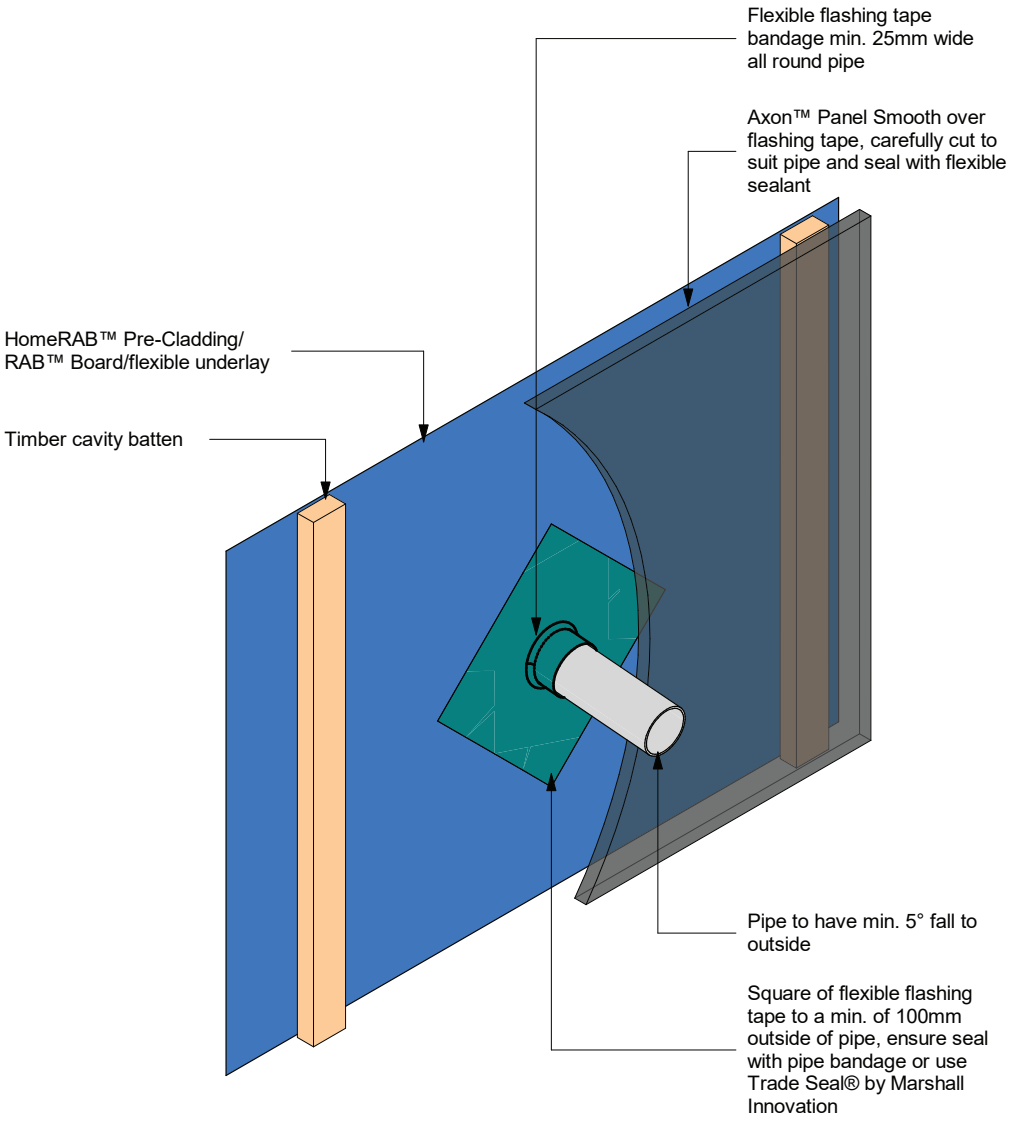
Figure 25: Cavity one piece gutter/wall junction



*When 50 year durability for flashing is required refer Table 20 NZBC E2/AS1 document

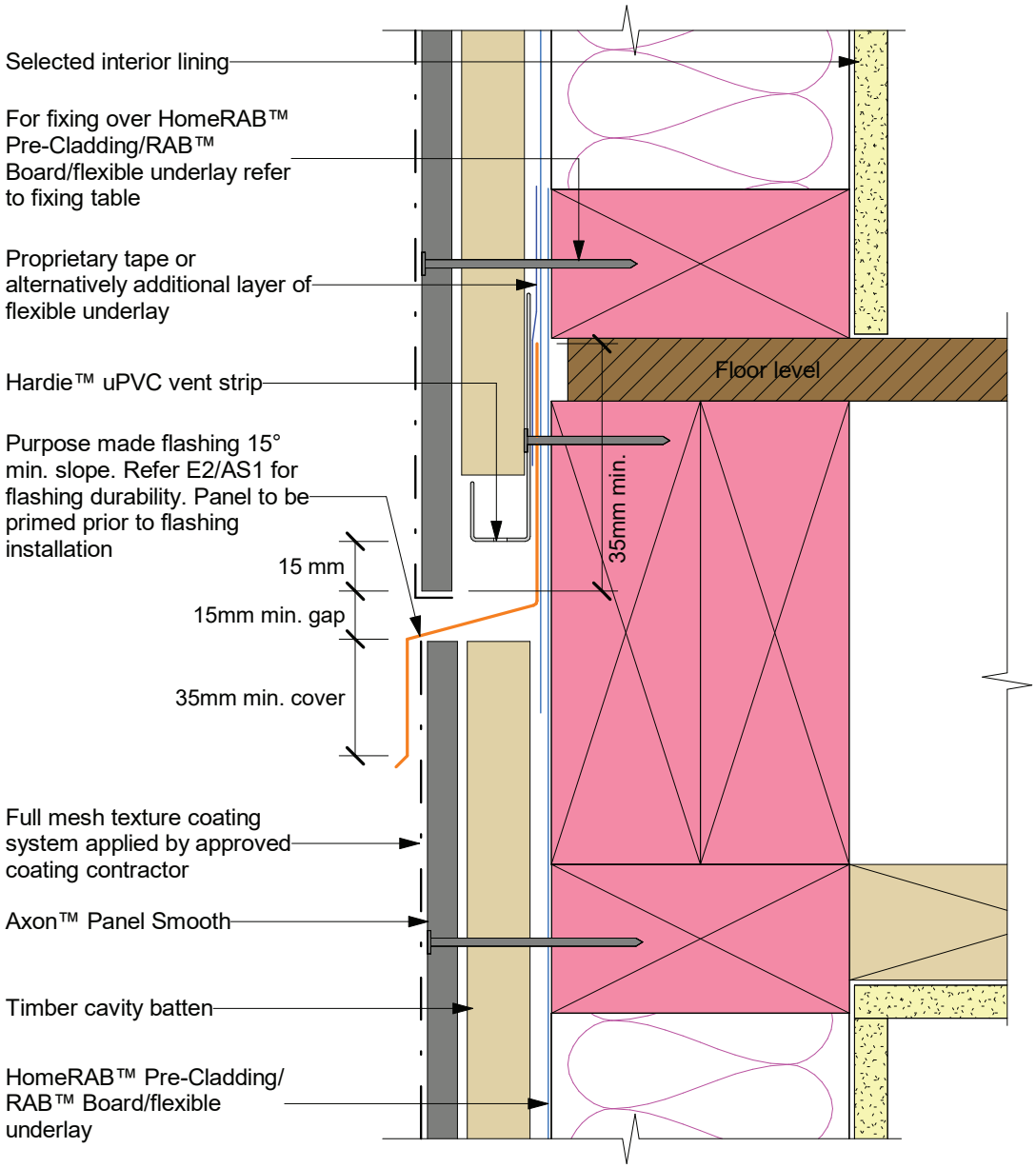
Note: Site cut edges to be primed

Figure 26: Cavity pipe penetration



Note: Site cut edges to be primed

Figure 27: Cavity drained flashing joint



Note:

* Cut edges need to be primed with sealer compatible with coating system
* Do not fix Cavity Battens or panels into floor joists
* This detail is required at the second storey joist level. Refer Table 20 E2/AS1 clause 9.1.9.4

Notes

Product Warranty

NEW ZEALAND I Effective August 2024

This warranty is given by James Hardie New Zealand Limited ("James Hardie", "we", "its" and "us").

In this warranty:

- ***"Consumer"*** has the meaning given to it in the Consumer Guarantees Act; ;
- ***"Product"*** refers to the item listed below:

Axon™ Panel

- ***"Technical Literature"*** means the product specific installation guide published by James Hardie at the time of installation of the product (copies of the current installation instructions are available at jameshardie.co.nz or by calling Ask James Hardie™ on 0800 808 868); and
- ***"Warranty Period"*** means fifteen (15) years.

Warranty

1. Subject to the conditions and limitations set out below, we warrant that for the Warranty Period from the date of purchase, the Product will be free from defects due to defective factory workmanship or materials.
2. James Hardie further warrants that for a period of 15 years from the date of purchase of the Product that any associated accessories supplied by us will be free from defects due to defective factory workmanship or materials.
3. James Hardie warrants that at the time of manufacture the Product will comply with AS/NZS 2908.2:2000 Cellulose-cement products - Flat sheet.
4. This warranty is not transferable and is only provided to and may only be relied upon by:
   (a) the first purchaser of the Product or accessory from James Hardie; and
   (b) the last purchaser of the Product or accessory prior to installation.
5. If a breach of this warranty occurs, we will (at our option) either: supply replacement Product or accessory; rectify the affected Product or accessory; or pay for the reasonable and substantiated cost of the replacement or rectification of the affected Product or accessory.

Warranty Conditions

6. You may only claim under this warranty if:
   (a) the Product was installed and maintained strictly in accordance with the Technical Literature including the components or products specified or recommended in the Technical Literature; and
   (b) other products applied to or used in conjunction with the Product are applied or installed and maintained strictly in accordance with the relevant manufacturer's instructions and good trade practice; and
   (c) the Product is used in an application designed and constructed in strict compliance with all relevant provisions of the New Zealand Building Code (**"NZBC"**), applicable laws, regulations and standards; and
   (d) we are given reasonable opportunity to inspect the Product **before** any attempt is made to repair or remove the Product once it has been installed; and
   (e) the requirements for bringing a claim under the warranty as set out in clause 8 are complied with.
7. Subject to clauses 10 and 11:
   (a) to the fullest extent permitted by law, we exclude all:
      (i) other warranties, conditions, liabilities and obligations which may otherwise apply in respect of the purchase or use of the Product and/or its Technical Literature, other than those specified in this warranty; and
      (ii) liability for any loss or damage (whether direct or indirect) including property damage or personal injury, consequential loss, economic loss or loss of profits, the purchase or use of the Product and/or its Technical Literature whether arising in contract, tort (including negligence), statute or equity.
   (b) if or to the extent that it is not permitted by law to so limit our liability as set out in clause 7(a), then to the fullest extent permitted by law, we limit our liability at our option to:
      (i) the replacement of the Product or accessory or the supply of equivalent Product or accessory;
      (ii) the repair of the Product or accessory;
      (iii) the payment of the cost of replacing the Product or accessory, or of acquiring equivalent Product or accessory; or
      (iv) the payment of the reasonable and substantiated cost of having the Product or accessory repaired;
   (c) this warranty does not cover defects which are not due to defective factory workmanship or materials, including but not limited to damage or defects caused by or arising from or attributable to:
      (i) use of the Product in applications not recommended by us or in accordance with the Technical Literature;
      (ii) the Product being subjected to abnormal treatment including impact, abrasion or mechanical action;
      (iii) surface marking, scratches or stains arising during or after the installation of the Product;
      (iv) poor workmanship or installation, poor design or detailing, settlement or structural movement and/or movement of materials to which the Product is attached;
      (v) incorrect design of the structure;
      (vi) acts of God including but not limited to earthquakes, fire, cyclones, floods or other severe weather conditions or unusual climatic conditions;
      (vii) efflorescence, normal wear and tear, growth of mould, mildew, fungi, bacteria, or any organism on any Product surfaces or Product (whether on the exposed or unexposed surfaces);

(viii) contact with chemicals such as solvents, detergents and pollutants, or exposure to a harsh chemical environment or an excessively salty environment;

(ix) use of adhesive tapes, sealants or mastics on the Product, or recoating of the surface of the Product outside of the recommended maintenance guidelines in the Technical Literature; or

(x) failure of third party coating systems, including but not limited to sealers and paints; and

(xi) **this warranty does not cover** any variation in the look of the Product including but not limited to: any variation in colour or surface pattern; any variation between different batches of the Product; or any variation against any sample material provided. The architect/builder/installer must ensure **prior to specification** that variation in look between items of Product is acceptable and ensure that each item of Product meets all aesthetic requirements **prior to installation.** Subject to the terms of this warranty, after installation of the Product, **we are not liable** for claims arising from aesthetic variations or defects if such variations or defects were, or would upon reasonable inspection have been, **apparent prior to installation.**

Making a Claim Under Warranty

If you are the property owner and did not purchase the product yourself, and you believe you have any issue with James Hardie product installed at your home, in the first instance you should contact the builder who purchased and installed the product. If you purchased the product yourself, you can make a claim under this warranty as detailed below.

8. In order to make a claim under this warranty, you must provide the following information in writing to us using the contact details below within 30 days after the alleged 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:

   (a) proof of purchase;

   (b) description of the defect and the issue;

   (c) photographs of the defect; and

   (d) your contact details.

9. Subject to New Zealand Consumer Law, you must bear any expenses you incur as a result of claiming under this warranty, except where you are entitled to recover such expenses under the New Zealand Consumer Law, in which case we will bear or otherwise reasonably compensate you for such expenses. All claims for such expenses are to be notified to us in writing within 21 days from the later of: when you make a claim under this warranty; or when we notify you that we, acting reasonably, accept responsibility for these expenses.

New Zealand Consumer Law

10. If you acquire the Product or accessories manufactured or supplied by us as a Consumer, that Product or accessories may come with guarantees that cannot be excluded under the Consumer Guarantees Act. If so, and we are a supplier, you are entitled to a replacement or refund for a failure of a substantial character or a failure that cannot be remedied, 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 or fail to meet some other guarantee and can be remedied and the failure is not of a substantial character. Where we or a related entity are the manufacturer, then you will have the rights set out in the Consumer Guarantees Act if the goods do not comply with this warranty or the consumer guarantees under the Consumer Guarantees Act.

11. Other than as lawfully excluded or limited by the other terms of this warranty, 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 warranty shall exclude or modify any legal rights a purchaser and/or Consumer may have under the Consumer Guarantees Act, Fair Trading Act or otherwise which cannot be excluded or modified at law.

Disclaimer

The recommendations in James Hardie's literature are based on good building practice but are not an exhaustive statement of all relevant information. 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 made in that Technical Literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the NZBC, laws, regulations and standards. It is the responsibility of the building designer to ensure that the details and recommendations provided in the relevant James Hardie Technical Literature are suitable for the intended project and that specific design is conducted where appropriate.

Our Contact Details

James Hardie New Zealand Limited

Address: 1 O'Rorke Road, Penrose, Auckland, 1061

Postal address: PO Box 12070, Penrose, Auckland 1642

Telephone: "Ask James Hardie™" on 0800 808 868

Website: www.jameshardie.co.nz

Email: info@jameshardie.co.nz

JamesHardie™

Ask James Hardie™ | Call 0800 808 868 | jameshardie.co.nz