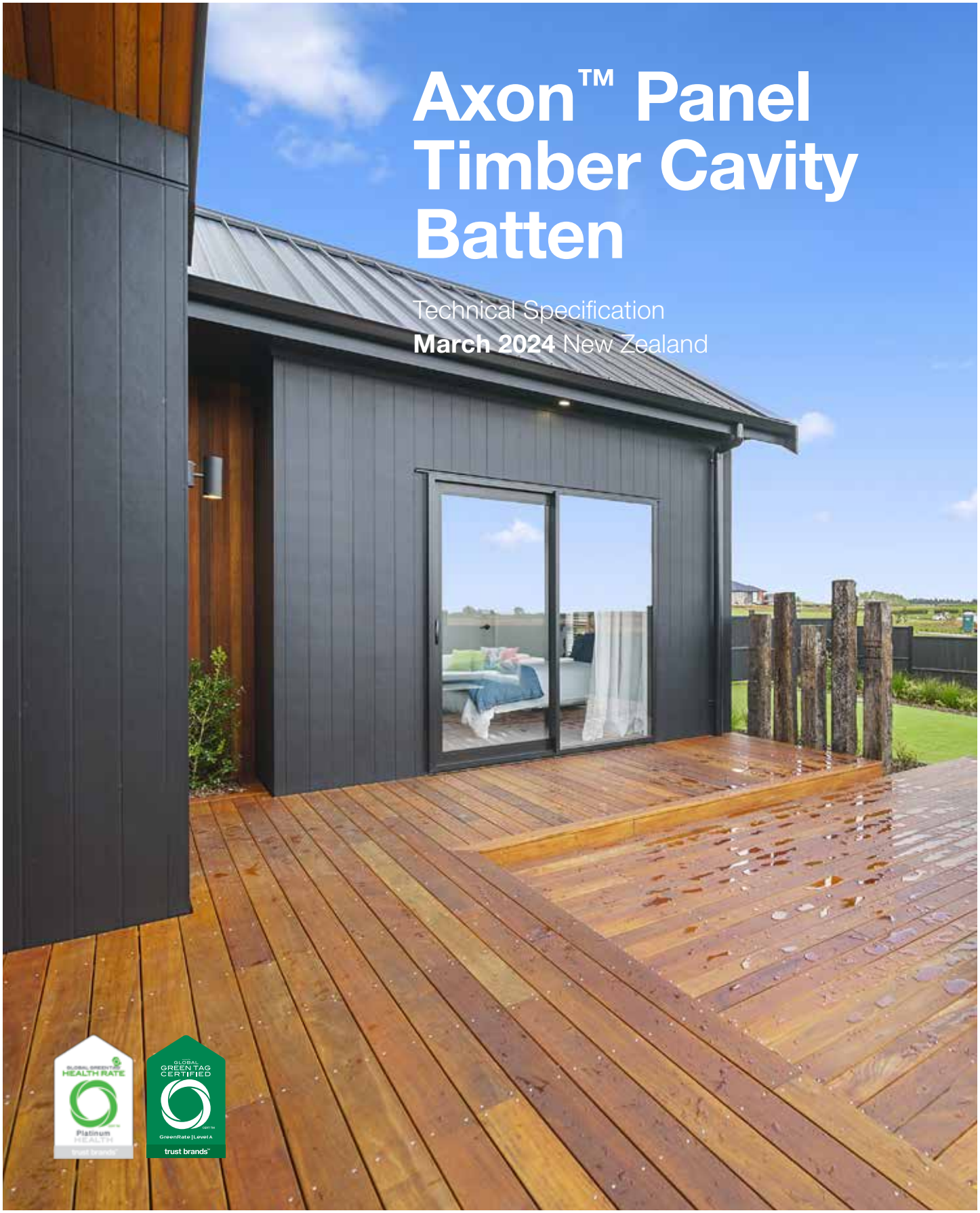
E2 Cladding

JamesHardie™

jameshardie.co.nz



Axon™ Panel Timber Cavity Batten

Technical Specification

March 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.**

THIS TECHNICAL SPECIFICATION IS FOR AXON™ PANEL OVER TIMBER CAVITY BATTEN.

Contents

1 Product Information

Grooved

Axon™ Panel 133mm Grooved

The grooves on the face panel are nominal 10mm wide x 2.25mm deep and spaced at 133mm centres.

Axon™ Panel 133mm Grooved Grained

The grooves on the face panel are nominal 10mm wide x 2.25mm deep and spaced at 133mm centres. Between the grooves is a look of traditional wood-grain texture.

Axon™ Panel 400mm Grooved

The grooves on the face panel are nominal 10mm wide x 2.25mm deep and spaced at 400mm centres.

Textured

Axon™ Panel Smooth

Formerly known as EasyLap™ Panel

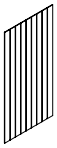
Provides a durable, shiplap vertical joint panel appearance for residential/ commercial building façades. The panel is finished with either a site applied roll on textured acrylic paint to create a rendered look with subtle vertical joint or a full mesh texture coating system.

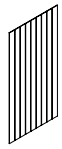
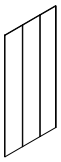
Axon™ Brushed Concrete must be installed with the Hardie™ CLD™ Structural Cavity Batten. Refer to the Axon™ Panel Hardie™ CLD™ technical specification when installing the Axon Panel Brushed Concrete texture.

1.1 Product Sizes and Accessories

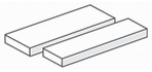
Table 1

Note: Axon™ Panel cladding is defined as a Light Weight Wall Cladding (not exceeding 30kg/m^2) as per the NZS 3604.

Axon™ Panel Grooved					
Product	Description	Thickness (mm)	Size		Product Code
			Length (mm)	Width (mm)	
	**Axon™ Panel 133mm Grooved** Is a shiplap jointed panel to hide the panel joints. The panel is face primed. The panel has grooves at 133mm centres. The panel must be installed vertically. Nom. Panel Mass: 12.1kg/m^2	9	2450	1200	**403780**
			2750	1200	**403781**
			3000	1200	**403782**
			3600	1200	**404979**

Axon™ Panel Grooved					
Product	**Description**	**Thickness (mm)**	**Size**		**Product Code**
	**Axon™ Panel 133mm Grooved Grained** Is a shiplap jointed panel to hide the panel joints. The panel is face primed. The panel has grooves at 133mm centres. The panel must be installed vertically. Nom. Panel Mass: 12.1kg/m^2	9	3000	1200	**404979**
	**Axon™ Panel 400mm Grooved** Is a shiplap jointed panel to hide the panel joints. The panel is face primed. The panel has grooves at 400mm centres. The panel must be installed vertically. Nom. Panel Mass: 12.1kg/m^2	9	2450	1200	**404414**
			2750	1200	**404415**
			3000	1200	**404416**

Axon Panel Textured					
Product	**Description**	**Thickness (mm)**	**Size**		**Product Code**
			Length (mm)	**Width (mm)**	
	**Axon™ Panel Smooth** *Formerly known as EasyLap™ Panel* A shiplap edge panel for subtle vertical joints Nom. Panel Mass: 12.1kg/m^2	9	2450	1200	**404764**
			3000	1200	**404763**

Hardie™ Axent™ Trim information					
Product	**Description**	**Thickness (mm)**	**Size**		**Product Code**
			Length (mm)	**Width (mm)**	
	For box corners and facings	19	3000	45	**405260**
			3000	70	**405257**
			3000	89	**405258**

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

1.2 Components and Accessories

Table 2

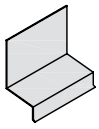
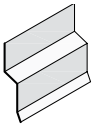
Accessories/tools supplied by James Hardie			
Accessories	**Description**	**Quantity/Size (approx)**	**Code**
	**Hardie™ Aluminium Radius External Box Corner** A box corner mould to form the external joints. 9mm etch primed.	2750mm long 3000mm long 4000mm long	**306215** **306216** **306217**
	**Hardie™ Aluminium Invert External Box Corner** A corner mould to form the invert external joints. 9mm etch primed.	2750mm long 4000mm long	**306213** **306214**
	**Hardie™ 9mm Panel Aluminium Horizontal 'h' Mould** A horizontal flashing to flash the horizontal joints. 9mm etch primed.	3000mm long	**304508**
	**Aluminium 'h' Mould Jointer** A jointer to cover the butt joint of 'h' mould.	100mm long	**304512**
	**Hardie™ 9mm Panel Aluminium h External Corner Jointer** 'h' mould external corner		**305940**
	**Hardie™ 9mm Aluminium Angle T Socket** A horizontal T flashing to flash the horizontal joints. 9mm etch primed.	3000mm long	**306210**
	**Hardie™ Angle T Horizontal Jointer** A jointer to cover the butt joint of T mould	100mm long	**306221**
	**Hardie™ Angle T External Corner Jointer** T mould external corner		**306222**
	**Hardie™ 9mm Aluminium Internal Corner** to join two 9mm panels at an internal corner	2750mm long 4000mm long	**306218** **306219**
	**uPVC Vent Strip** Used to provide protection from vermin entering cavity space.	3000mm long	**302490**
Tools			
	**Hardie™ Blade Saw Blade** Diamond tip 184mm diameter fibre cement circular saw blade. Spacers not included.	Each	**300660**
	**Hardie™ Flex Stainless Steel 316 Nails** For fixing panels through cavity battens. 60 x 3.15mm	5kg	**302782**
	**Hardie™ Flex Hot Dip Galv. Nails** For fixing panels through cavity battens. 60 x 3.15mm	5kg	**302784**

	**Hardie™ Flex Stainless Steel 316 Nails** For fixing panels through cavity battens. 75 x 3.15mm	5kg	**304253**
	**Hardie™ Flex Hot Dip Galv. Nails** For fixing panels through cavity battens. 75 x 3.15mm	5kg	**304251**

Table 3

Accessories/tools not supplied by James Hardie

James Hardie recommends the following products for use in conjunction with Axon™ Panel. 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.

Accessories	Description
	**Flexible Underlay** To comply with Table 23 of E2/AS1.
	**Flexible 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. Super-Stick Building Tape® by Marshall Innovations or 3M™ All Weather Flashing Tape 8067 by 3M™ Marshall Innovations: 0800 776 9727 3M™: 0800 474 787
	**200mm wide Polypropylene DPC** Product used over flexible underlay at internal corners. ie. Super Course 500
	**Joint Sealant** Paintable flexible sealants are recommended for filling the joints. Refer to Section 7.2 for information. e.g. Sika® Sikaflex® MS, Sika® AT Facade, Bostik® Seal N Flex™-1 or similar
	**Head Flashing** Required over window heads to be supplied by window installer. Material must comply with Table 20 and 21 of E2/AS1.
	**Flashing** Material as per Table 20, 'E2/AS1'
	**65 x 2.87mm RounDrive Ring Shank Nail** For fixing Axon™ Panel to the framing. Paslode®: (09) 477 3000
	**Sika® Sikaflex® 11FC** Sika®: 0800 SIKA NZ (0800 745 269)
	**CRC® ADOS® Builders Fill** Two part exterior grade fill to skim coat finish over brad nails.

	**Dulux® Acrasand or Dulux® Sedona acrylic texture** 0800 800 424
	Full mesh texture coating system e.g. STO®, or Resene® Construction Systems Texture coating system
	**Stain** Timbakote®, suitable for Axon™ Panel 133mm Grooved Grained Tel: 0800 846 225

1.2 Manufacturing and Classification

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

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

Axon™ Panel 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.

2 Application and Scope

2.1 Application

Axon™ Panel installed as per this technical specification will meet the durability requirements for claddings as required under clause 'B2-Durability' of the NZBC.

Axon™ Panel are classified as lightweight wall claddings suitable for residential and light commercial buildings using timber framing. Axon™ Panel are pre-sealed on the face to take a suitable paint finish in any colour.

This document is intended for use by architects, designers and specifiers who may be involved with the specification of Axon™ Panel.

Axon™ Panel is classified as light weight wall cladding suitable for residential and light commercial buildings using timber framed buildings.

- Axon™ Panel is primed on the face to take a suitable paint finish in any colour.

For use of Axon™ Panel outside the published scope, 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.

2.2 Scope

The scope of this specification covers the use of Axon™ Panel fixed with timber cavity battens to buildings which fall within the scope limitations of 'Acceptable Solution E2/AS1 paragraph 1.1' of the New Zealand Building Code (NZBC) or the buildings covered by a specific engineering design (SED) up to design wind pressures of 2.5kPa (uls).

This document is intended for use by architects, designers and specifiers who may be involved with the specification of Axon™ Panel.

This specification covers the use of Axon™ Panel within the following scope:

- The Axon™ Panel must be installed vertically.
- An external wall structure that complies 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 this cladding installation.

Note: Refer to Axon™ Panel Direct Fix technical specification for direct fixed or Axon™ Panel Hardie™ CLD™ Structural Cavity Batten technical specification for the installation of Axon Panel/Axon Panel Brushed Concrete.

2.3 Limitations

- Axon™ Panel must not be used on curved wall applications
- Axon™ Panel must not be installed horizontally or angled
- The minimum ground clearances specified must be maintained
- Timber window joinery/recessed openings is subject to an alternative design by the designer
- Axon Panel must not be used for buildings over 10m height with timber cavity battens

2.4 Details

Various Axon™ Panel fixed to timber cavity batten figures are provided at the rear of this document. All dimensions shown are in millimetres unless noted otherwise. This specification and details in CAD file are also available for download at www.jameshardie.co.nz.

3 Compliance

3.1 Compliance

Axon™ Panel complies with E2 of the NZBC as an alternate solution.

Axon™ Panel claddings have been independently tested/assessed and meet the performance requirements of the NZBC. Axon™ Panel installed as per the details and information published in this technical specification are BRANZ Appraised. Refer to BRANZ Appraisal 1211(2022).

BRANZ Appraised
Appraisal No.1211 [2022]

CodeMark
CMNZ30165

4 Design

4.1 Responsibility

The specifier or other party responsible for the project must run through a risk matrix analysis to determine which construction method is to be used. The designer must also ensure that the figures 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 NZBC.

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

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 principles, and associated details and material selection provided by the designer. All details provided in this document must be read in conjunction with this 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.

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.

4.2 Surface Clearances

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

Axon™ Panel must overhang the bottom plate on a concrete slab by a minimum of 50mm, as required by NZS 3604.

Axon™ Panel must have a minimum clearance of 100mm 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.

4.3 Structure

4.3.1 Timber Framing

Timber framed buildings must be designed in accordance with the NZS 3604 (Timber-framed buildings). When the framing is provided as per the specific engineering design, the framing stiffness must be equivalent to, or more than, the stiffness requirements of the NZS 3604.

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.

4.3.2 Wind Loading

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

A specific design is required for all situations where the buildings fall in a specific engineering design (SED) wind zone.

4.4 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 must 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, manufactures specifications and the NZBC.

4.5 Energy Efficiency

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

4.6 Bracing

Axon™ Panel installed to timber cavity batten cannot be used to achieve structural bracing. However bracing can be achieved by using HomeRAB™ Pre-Cladding or RAB™ Board installed direct to framing instead of a flexible underlay or by using Villaboard™ Lining bracing system on the internal face. Refer to the Bracing Design Manual by James Hardie for further information.

4.7 Control of External Fire Spread

Axon™ Panel is suitable for use in external wall cladding applications where 'Non-Combustible Materials' are specified and complies with the requirements of Section 5.4 of C/AS1 and 5.8.1 (b) of C/AS2 of the NZBC.

Refer to Fire and Acoustic Design Manual by James Hardie for construction details.

4.8 Resistance to Moisture/Rotting

Axon™ Panel has demonstrated 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).

4.9 Fire Rated Walls

Axon™ Panel when fixed to timber cavity battens to external walls can achieve fire ratings up to 60/60/60 to comply with C/AS1 of the NZBC, when the walls are constructed in accordance with the current Fire and Acoustic Design Manual by James Hardie.

Axon™ Panel 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 are suitable for use where 'non-combustible' materials are required on walls close to a boundary.

4.10 Alpine Regions

In regions subject to freeze/thaw conditions, Axon™ Panel 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 are expected.

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

4.11 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.

4.12 Cavity Construction

Buildings with a risk score of 7-20 calculated in accordance with Table 3 of Acceptable Solution E2/AS1 of the NZBC, require Axon™ Panel to be installed on a cavity. The battens provide airspace between the frame and the panel and are considered a “packer” only in this specification.

5 Safe Working Practices

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

Hardie™ fibre cement products 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 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 and when cleaning up
- 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 name 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.

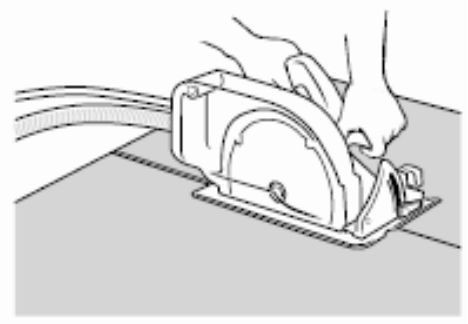
When cutting Axon™ Panels:

- ✓ 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
- ✓ 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

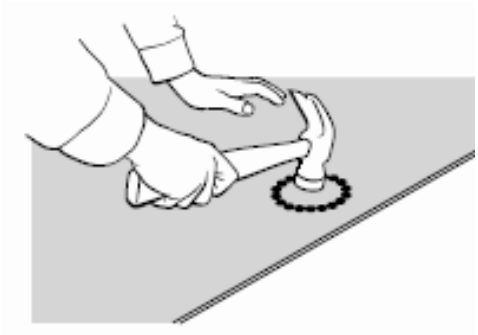
The Hardie™ Blade Saw Blade used with a dust-reducing saw is ideal for fast, clean cutting of Hardie™ fibre cement products. A dust-reducing saw uses a dust collector connected to a M Class or higher vacuum. When sawing, clamp a straight edge to the sheet as a guide and run the saw base plate along the 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 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

5.1 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.

5.2 Tips for Safe and Easy Handling of Axon™ Panel

✓ Carry with two people

✓ Hold near each end and on edge

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

6 Framing

6.1 General

Axon™ Panels can be installed to timber-framed or steel-framed structures. Fixing to any other framing material is subject to a specific engineering design.

- Stud spacing must not exceed 600mm centres.
- Nog/dwang spacing must not exceed 800mm centres when studs are at 600mm centres.

6.2 Timber Framing

6.2.1 Dimensions

A 90 x 45mm minimum framing size is required.

A minimum 70mm wide stud is required at panel edges for cavity construction using Hardie™ Flex nails.

6.2.2 Structural Grade

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

6.2.3 Durability

The external framing must be treated to a minimum H1.2 treatment. 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 site in accordance with the recommendation of framing manufacturer's.

Note: Refer to NZS 3602 for the allowable moisture contents in timber.

6.2.4 Frame Construction

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

All timber framing sizes and set-out must comply with the NZS 3604 and as specified in this specification.

In case of gable end trusses sitting on top plates of the external wall frame, the frame size must be in accordance with truss design and specification supplied by the frame and truss manufacturer/supplier supported by independent design producer statement.

6.3 Steel Framing

Steel framing must either be in accordance with NASH 'Light Steel Framed Buildings' standard or as per SED.

6.4 Cavity Construction Method

For cavity construction method the following framing is required:

- When studs are spaced at 600mm centres maximum, the nogs/dwangs must be provided at 800mm centres maximum.

- A minimum 70mm wide or 2 x 90 x 45mm stud is required at vertical panel joint.
- When studs are spaced at 400mm centres then the nogs/dwangs may be provided at 1200mm centres.

6.5 Special Framing Requirements

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

- Double studs are required at internal corners, refer to Figure 8.
- Double studs are required at each shiplap vertical joint. Refer to Figures 6 and 7.

7 Installation

7.1 Flexible Underlay or HomeRAB™ Pre-Cladding

Flexible underlay must be provided as per the requirements of the NZBC Acceptable Solution E2/AS1 'External Moisture' Table 23. The flexible underlay must be fixed in accordance with E2/AS1 and the 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 Table 23. HomeRAB™ Pre-Cladding is suitable for use in these applications. It must be installed in accordance with HomeRAB™ Pre-Cladding and RAB™ Board installation manual.

7.2 RAB™ Board or a Rigid Air Barrier

In EH wind zone or for specific design wind zone and building height up to 10m, a rigid air barrier ie, RAB™ Board, must be used instead of flexible underlay. RAB™ Board is suitable to withstand wind pressures up to 4.5kPa.

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

7.3 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.

7.4 Cavity Battens

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

- Be provided at 300mm centres where studs are fixed at 600mm centres or alternatively refer to clause 4.5.
- Be fixed by the cladding fixings to the main framing over the flexible underlay. Therefore until claddings are fixed the battens only need to be fixed to framing by 40 x 2.8mm nails at 800mm centres.

7.5 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 galvanized mesh; or
- Polypropylene tape at 300mm centres fixed horizontally and drawn taut

No intermediate supports/battens are required:

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

7.6 Flashings

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

The flexible underlays 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.

The selected flashing materials must comply with the durability requirements of the NZBC. For information refer to Table 20 of E2/AS1.

7.7 Board and Batten Look

In order to achieve a board and batten look, Hardie™ Axent™ Trim can be fixed vertically over the panel surface.

The trims can be placed to suit the project's aesthetic requirements. However, we recommend a spacing of minimum 200mm centres is maintained between the trims.

Refer to Figures 11 - 15 for information.

8 Panel Fixing

8.1 General

Axon™ Panel must be kept dry and under cover whilst in storage or prior to/during the installation. Every endeavour must be made to keep framing dry once panel fixing commences. All site cut panel edges must be sealed prior to installation.

The shiplap jointing of panels is only suitable for vertical fixing of panels. Do not fix in the groove of Axon™ Panel. Minimum sheet width around window/door openings or corners etc. to be 200mm.

This specifications covers the fixing of Axon™ Panel to timber cavity battens fixed over timber frame. When fixing to a steel frame, Ask James Hardie 0800 808 868.

8.2 Fastener Durability

Fasteners must meet the minimum durability requirements of the NZBC. Refer to Table 1 for fixing materials requirements to be used in relation to the exposure conditions.

Table 4

Exposure conditions and nail selection prescribed by NZS 3604		
Zone	**Application**	
D (sea spray) and geothermal hot spots	General	Stainless steel 304/316
	Fire	
*C and B	General	Hot dip galvanised**
	Fire	

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

8.3 Fastener – Size and Layout

Axon™ Panel must be fixed to framing using the fixings as specified in Table 2 below and follow the edge distance required for nails as shown in the details. Fixings must be finished flush with the panel surface. Refer to Figures 6 and 7.

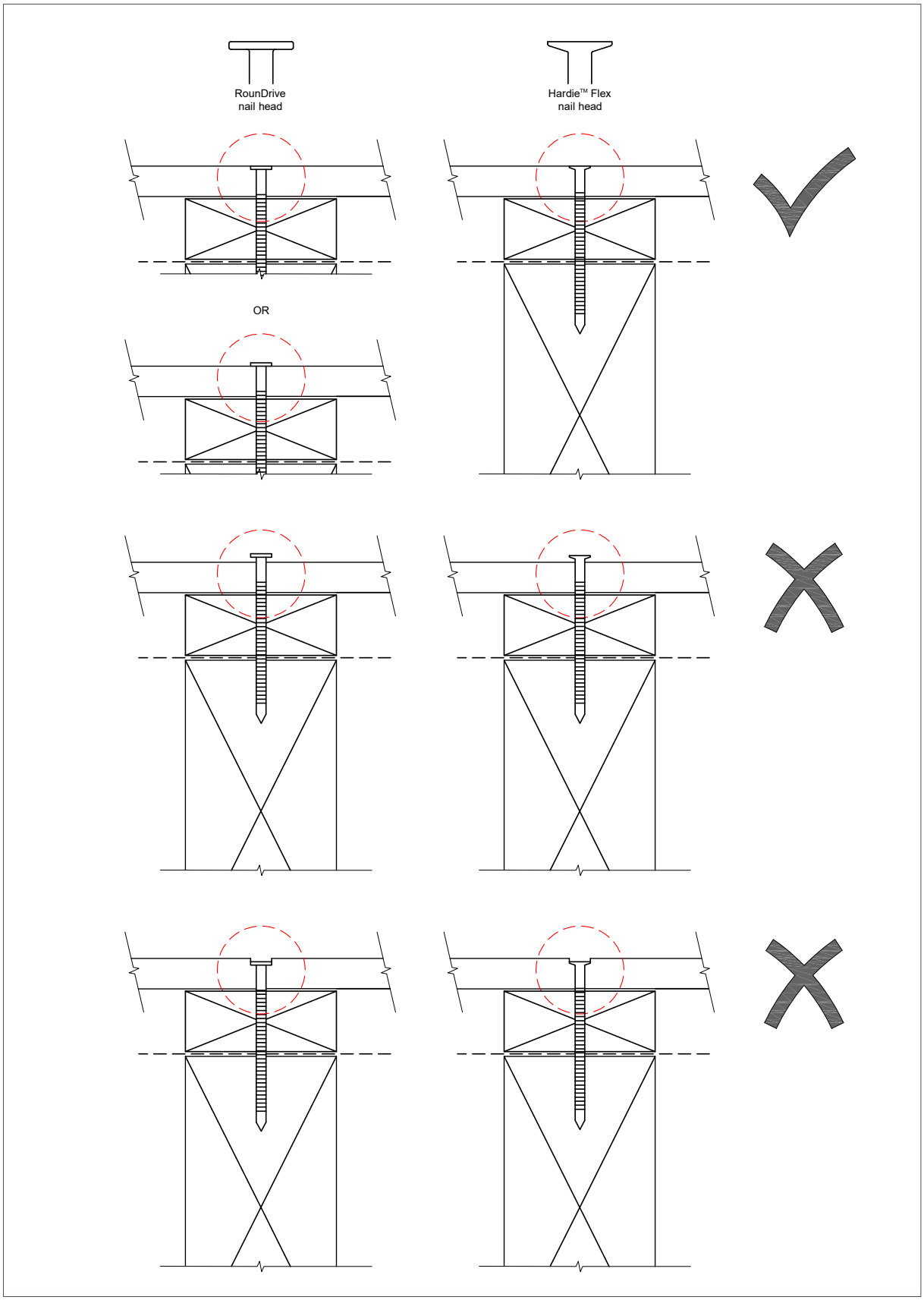
Table 5

Panel fixing	
Cavity construction over flexible underlay	
60 x 3.15mm Hardie™ Flex nails.	Fix at 200mm centres to all vertical framing. Stud width 70mm min required at vertical joint.
Cavity construction over HomeRAB™ Pre-Cladding or RAB™ Board	
75 x 3.15mm Hardie™ Flex nails.	Fix at 200mm centres to all vertical framing. Stud width 70mm min required at vertical joint.

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

- Special fixing arrangements are required for fire-resistance rated wall systems. Fixings are 150 around the perimeter and to nogs and studs, therefore small battens are required on nogs and plates. For more information Ask James Hardie on 0800 808 868.
- When studs spaced at 400mm centres using Axon™ Panel 400mm Grooved, the nail fixings to intermediate studs to be offset 5mm from the groove in Panel.
- 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.

Note: Do not use 'D' head nails.



8.4 Panel Layout

All panel edges must be supported by the framing. The shiplap joint must be formed vertically. The framing centres must be checked before the panel installation. Refer to Figure 3.

8.9 Jointing

Axon™ Panel are fixed to form a shiplap joint at vertical edges. The panels have factory made edges to suit this jointing.

8.9.1 Vertical Joint

Axon™ Panels are shiplap jointed keeping a gap of 1-2mm between the panels. A 50mm wide 3259 Inseal sealing tape is used under the joint. A flexible sealant must be applied to the full length of the joint before the panels are jointed. The edge distance for a Hardie™ Flex nail must be 18mm min. Refer to Figures 6 and 7.

8.9.2 Horizontal Joint

At floor joist levels a horizontal joint must be provided to accommodate the movement resulting from timber joist shrinkage and settlement. A Hardie™ 9mm aluminium horizontal ‘h’ mould or a Hardie™ 9mm aluminium angle 't' socket is used to form a horizontal joint. Use the respective aluminium ‘h’ mould jointer or 't' socket jointer to cover over the butt joint of flashings. A purpose made metal ‘Z’ flashing could also be used to flash the horizontal joint. Refer to Figure 43.

8.9.3 External Corner

An aluminium radius or invert box corner flashing is used to form the external box corner. The site cut sheet edges are sealed before butting them into the box corner.

On a two storey construction the aluminium box corner is finished under the aluminium ‘h’ mould. A Hardie™ 9mm aluminium 'h' mould external corner must be used over the corner when in this situation. Refer to Figures 9 and 30.

8.9.4 Internal Corner

The internal corner is formed using the Hardie™ 9mm aluminium internal corner behind the panel. Refer to Figure 8.

8.9.5 Flashing Material Durability

Please refer to Table 20 of E2/AS1 of the NZBC regarding the durability requirements of various flashing materials.

9 Finishing

9.1 Preparation

Painting of Axon™ Panel is mandatory to meet the durability requirements of the NZBC and 15 year James Hardie product warranties. Axon™ Panel 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 Axon™ Panel.

Dark paints can be used when using the aluminium flashings.

Panels are pre-primed and are suitable for site applied acrylic paints. Pre-finished panels can also be installed using exposed head fasteners.

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.

For best aesthetic results a low sheen paint is recommended.

9.2 Coating

9.3.1 Paint

Axon™ Panel are supplied pre-primed. Panels must be painted within 90 days of installation. Use only quality exterior paints complying with AS 3730. Manufacturer's specification for the selected paint must be followed.

9.2.1 Staining - Only for Axon™ Panel 133mm Grooved Grained

Stains containing linseed oil are specifically designed for wood and may not be suitable for fibre cement cladding products, primed or unprimed. Semi-transparent stains can vary in uniformity of appearance depending on method of application and conditions, requiring a high level of skill and craftsmanship to achieve a uniform appearance. Clear coats have not proven durable in exterior exposure and James Hardie considers them a maintenance item that may require application of a refurbishing sealer at regular intervals. James Hardie does not warrant the appearance and durability of the use of semi-transparent stains and clear coats.

For further information contact the stain manufacturers. Refer to Section 13 for stain manufacturer details.

9.2.3 Roll on Texture - Only for Axon™ Panel Smooth

Axon™ Panel Smooth can be finished with rolled on texture acrylic texture coatings. Panels are supplied pre-primed and are ready for acrylic textures to be applied directly to it. Acrylic texture products are available in a range of textures that vary from fine finish to rough texture for a fast application on site. Refer to Dulux® or other similar texture coating suppliers for further information.

9.3 Sealants

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

10 Care and Maintenance

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

- Washing down exterior surfaces every 6-12 months using low pressure water and a brush, and every 3-4 months in extreme coastal conditions or sea spray zones. Refer to your paint manufacturer for wash down requirements and do not use a water blaster to wash down the cladding.
- Re-applying of exterior protective finishes if necessary. Always refer to your paint 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 clearance between the bottom edge of Axon™ Panel and the finished ground must always be maintained.

11 Details

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

Table 6

Figure 1: Cavity fixed typical framing setout

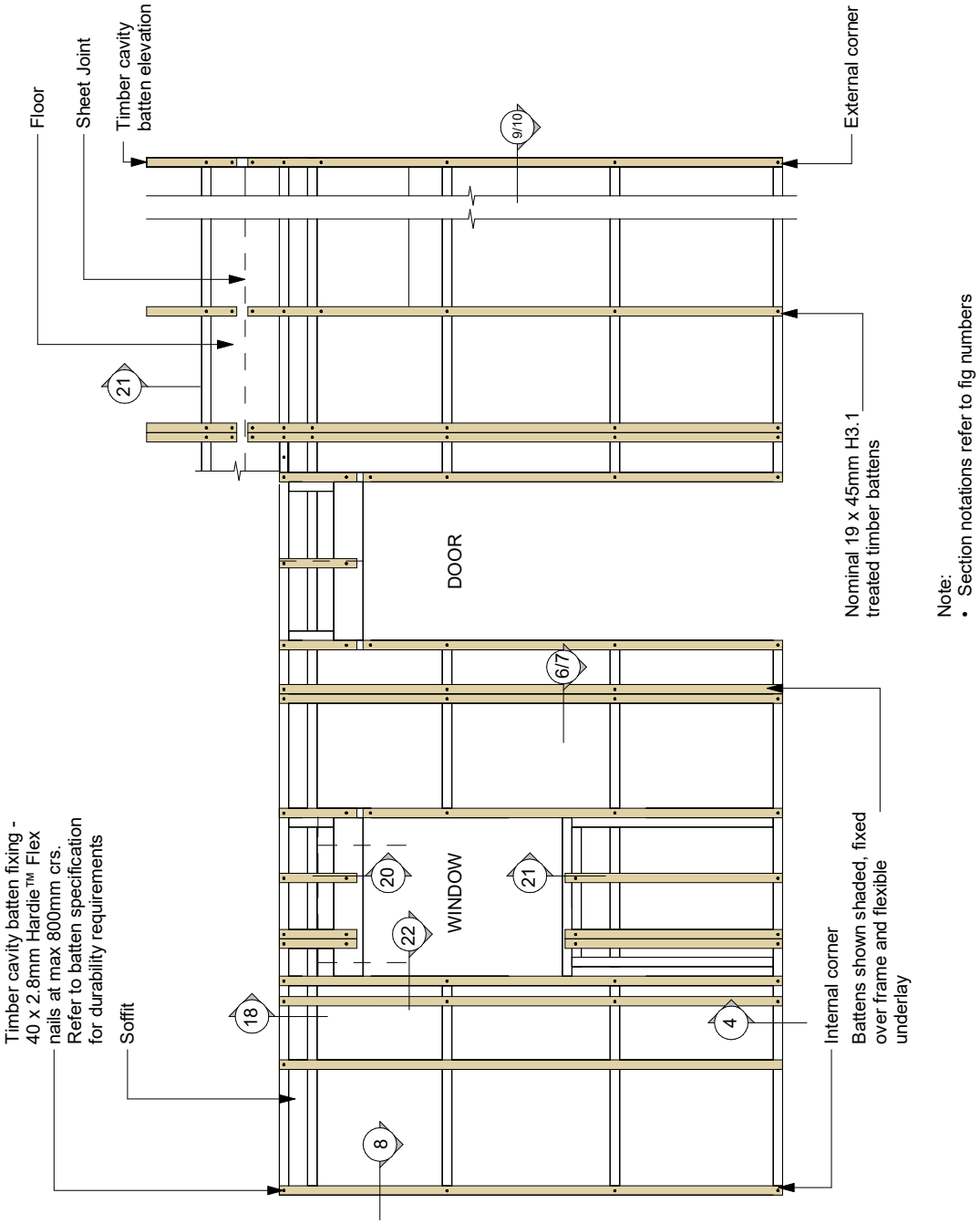
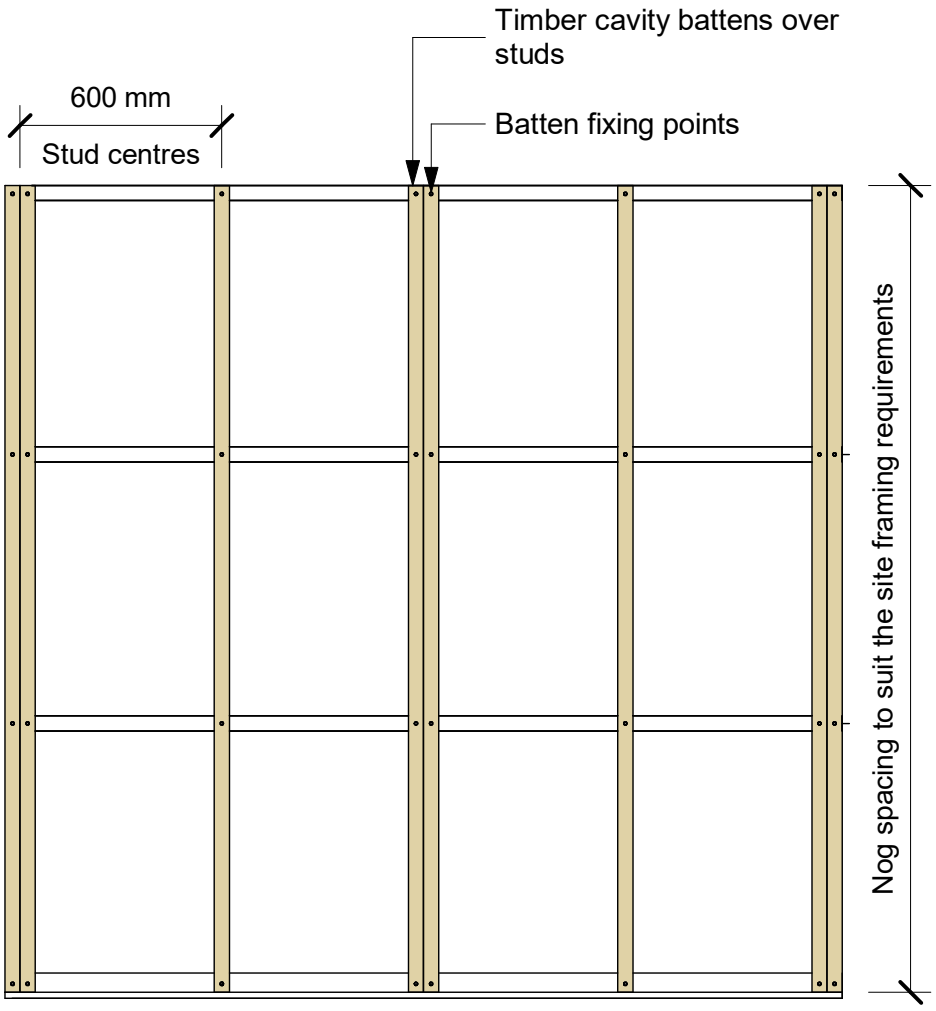


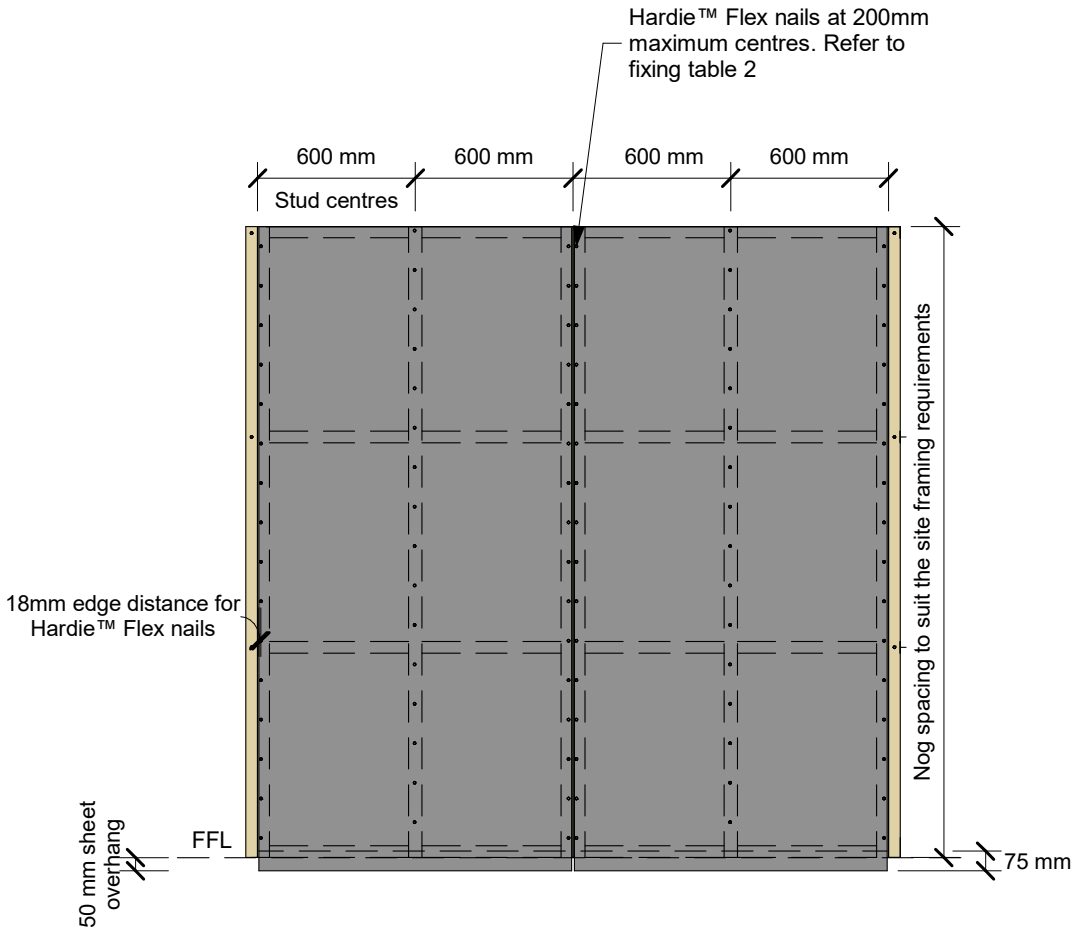
Figure 2: Cavity batten fixing setout



Note:

- Check Figure 6 and 7 for framing and batten requirements for vertical joint
- For fire rated wall systems by James Hardie nog spacing must be 800mm centres maximum
- For fire resistance rated wall systems, Axon™ Panel 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

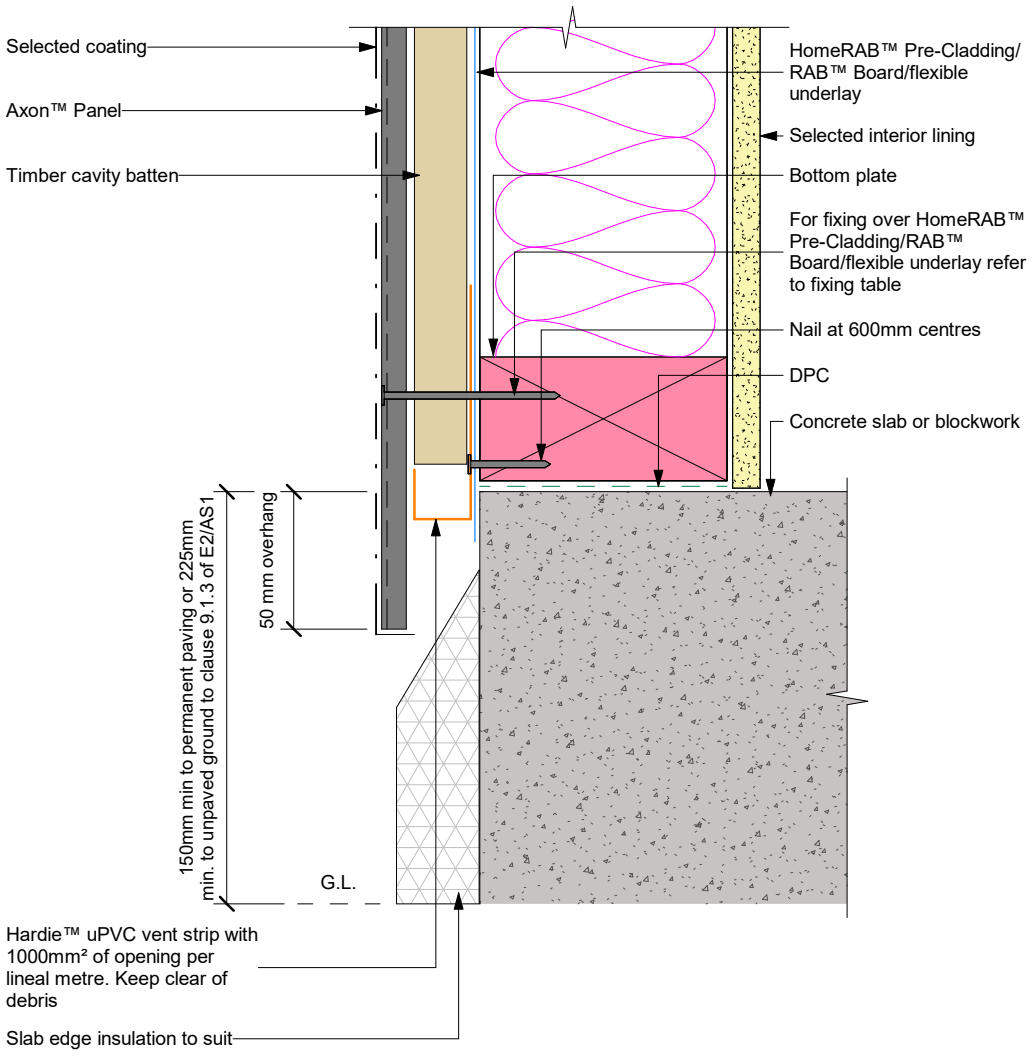
Figure 3: Cavity fixed typical panel fixing setout



Note:

- When studs spaced at 400mm centres using Axon™ Panel Grooved 400, the nail fixings to intermediate studs to be offset 5mm from the groove in Panel.
- For fire rated wall systems by James Hardie nog spacing must be 800mm centres maximum
- For fire resistance rated wall systems, Axon™ Panel 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

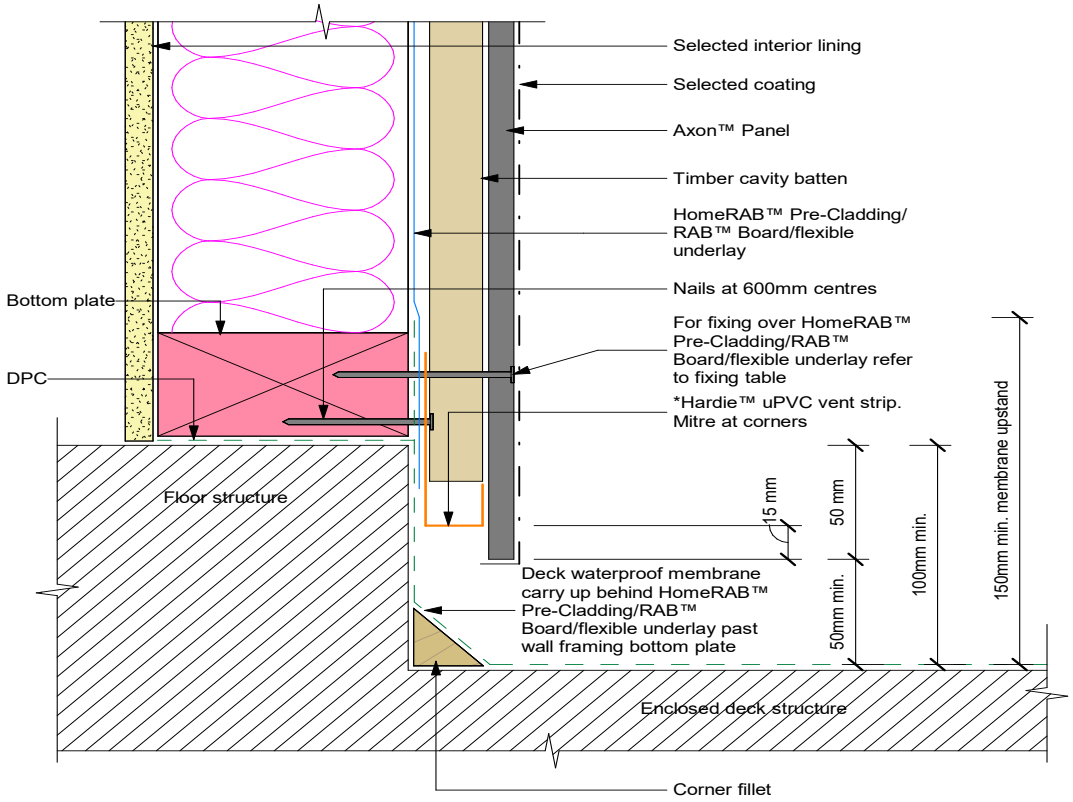
Figure 4: Cavity fixed foundation detail



Note:

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

Figure 5: Cavity fixed enclosed deck detail



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

Figure 6: Axon™ Panel cavity shiplap joint

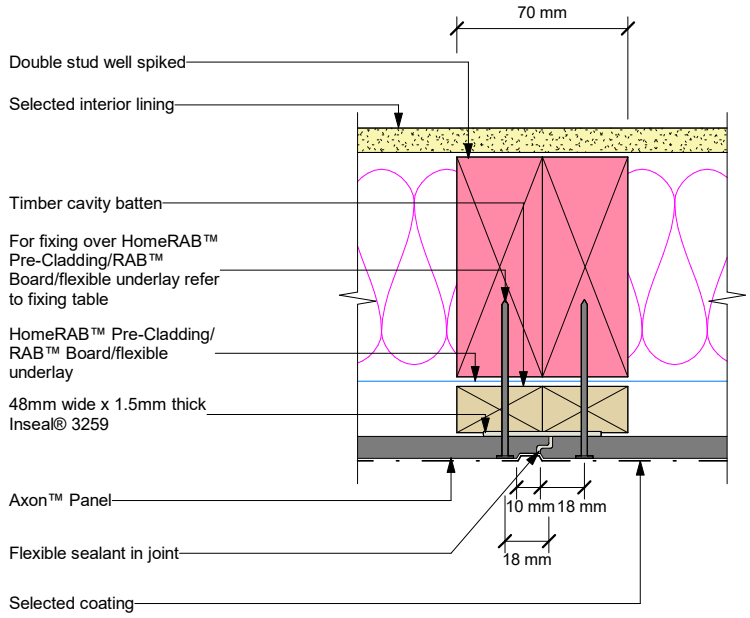


Figure 7: Axon™ Panel cavity shiplap joint

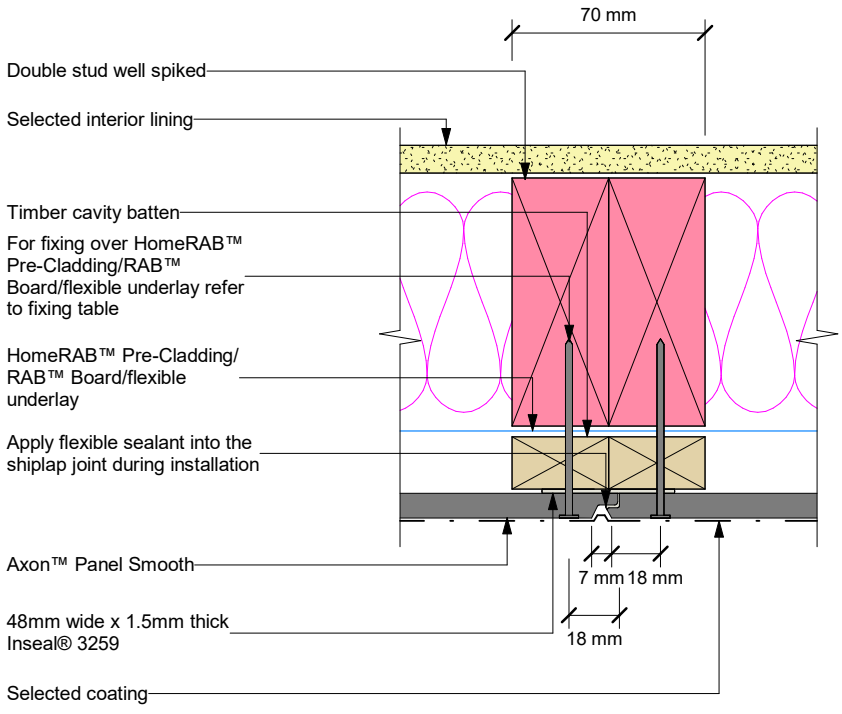


Figure 8: Cavity internal corner detail

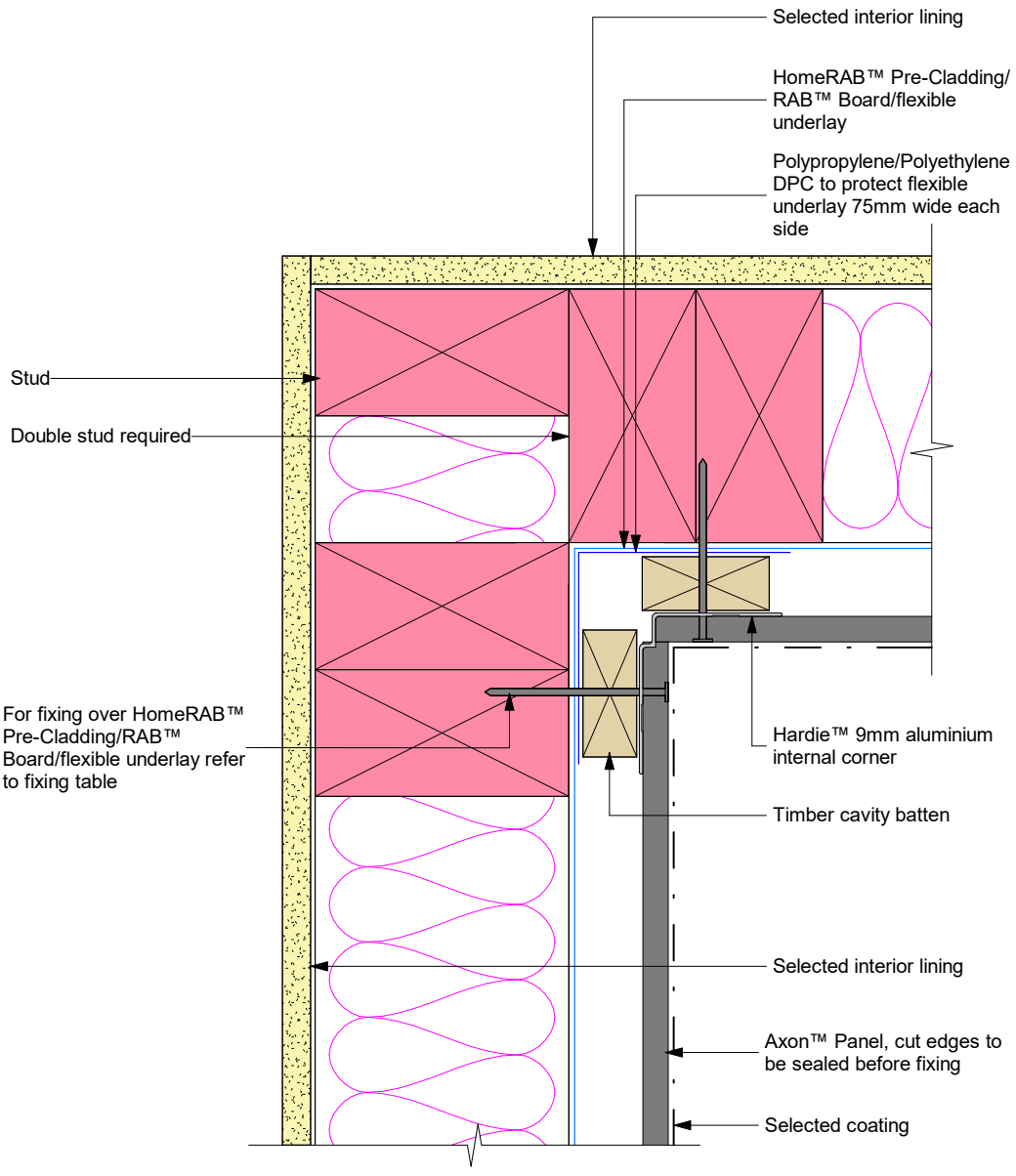
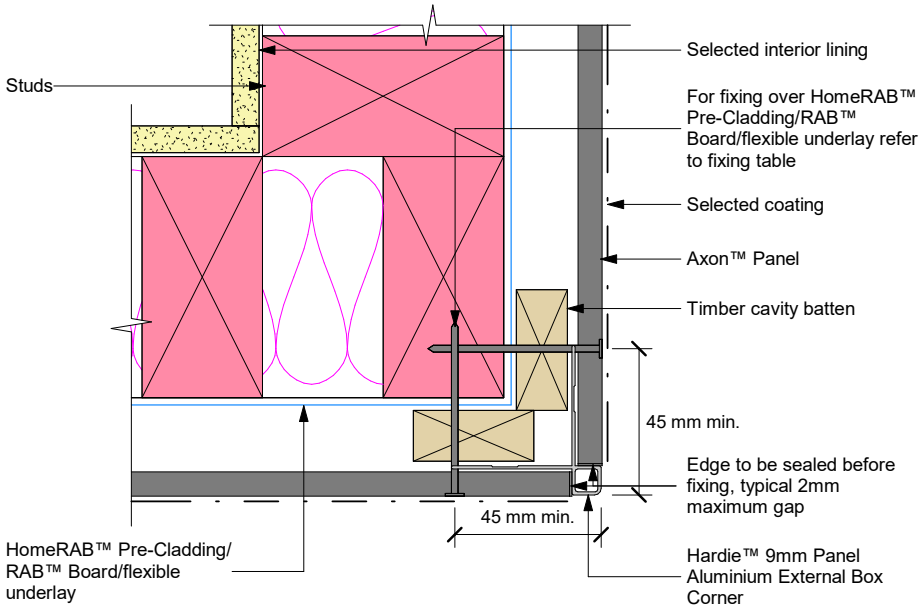


Figure 9: Cavity external corner



Note:
- Refer to Figure 30 for jointing with 'h' mould

Figure 10: Hardie™ Axent™ Trim™ at internal corner

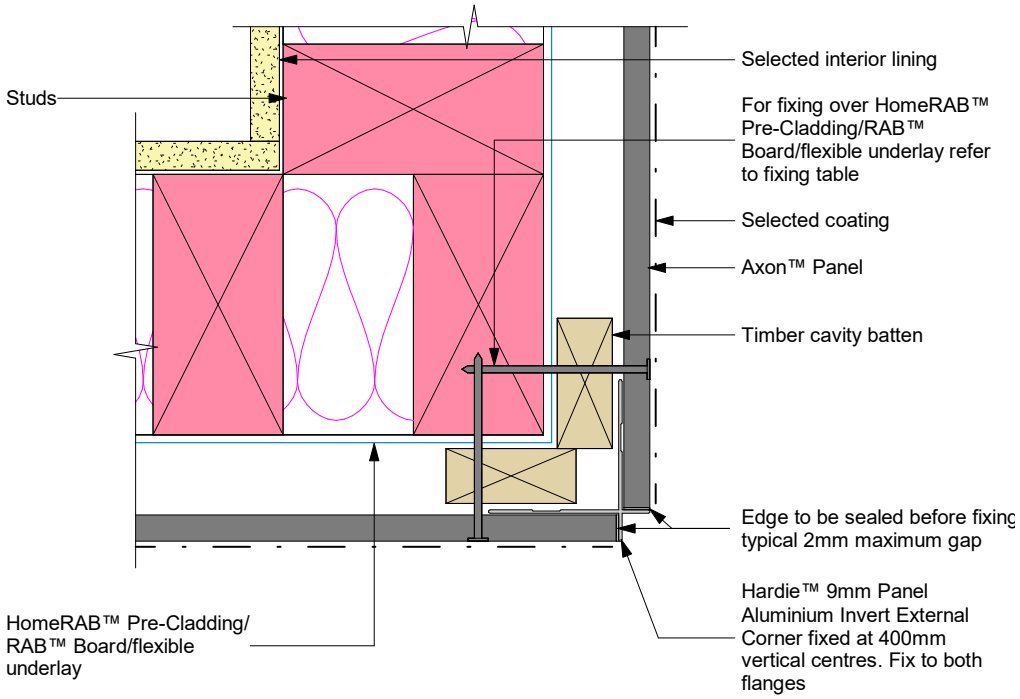


Figure 11: Axent™ Trim™ at external corner

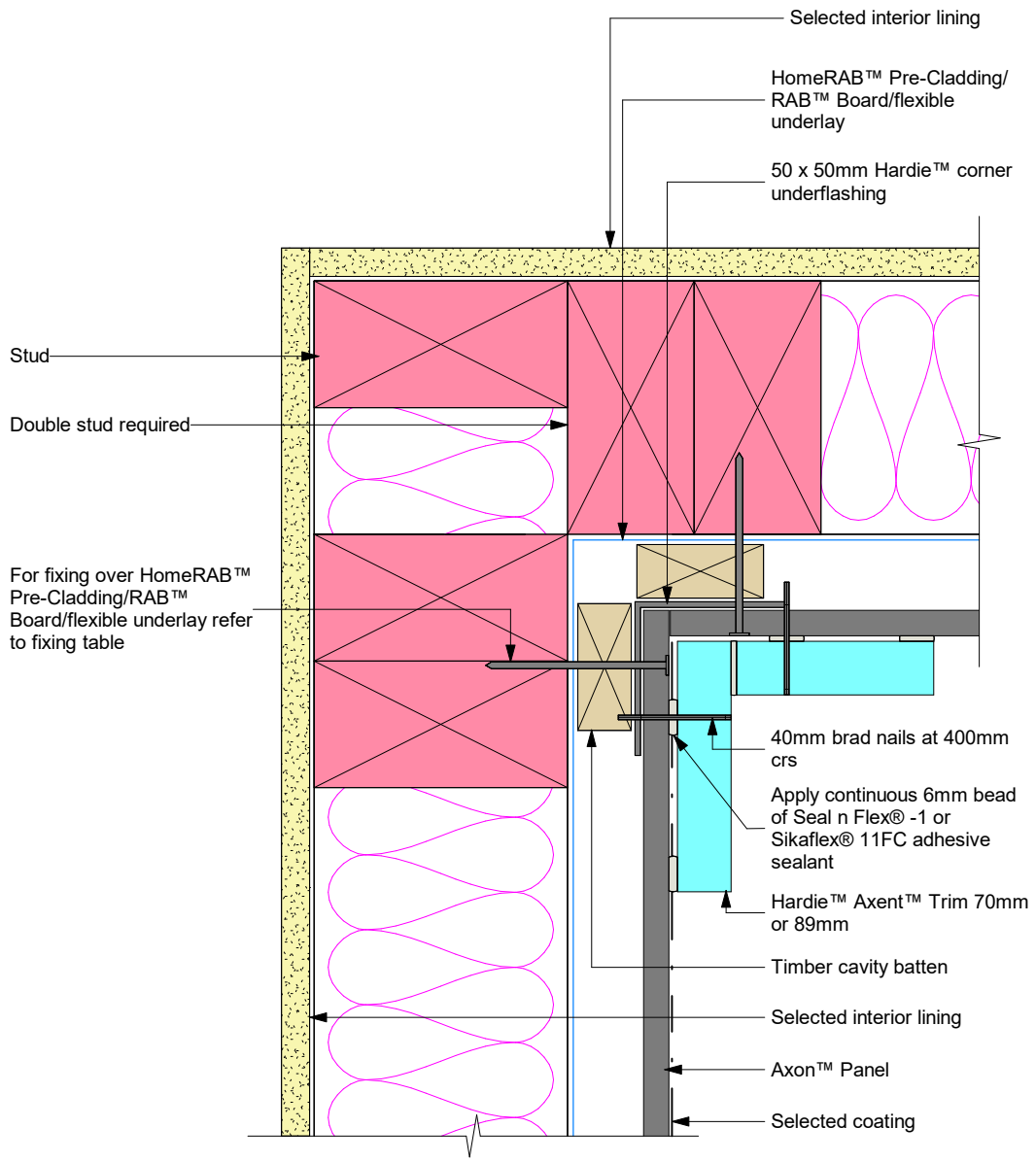


Figure 12: Hardie™ Axent™ Trim to Axon™ Panel at joint

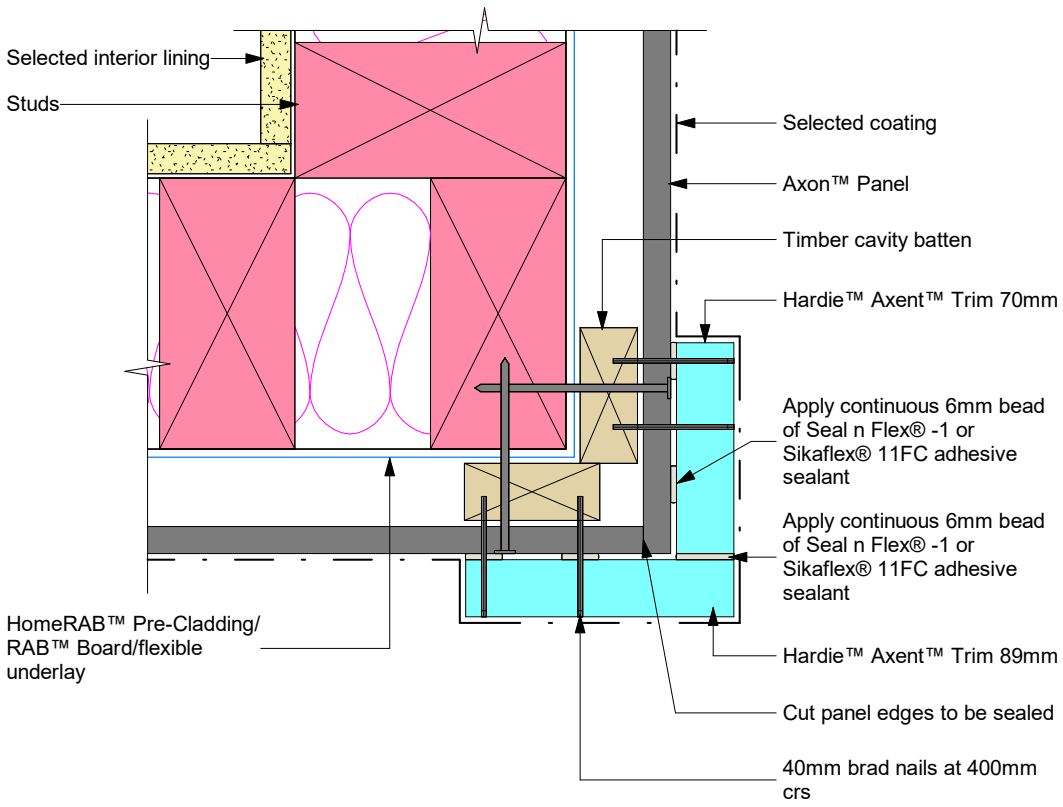


Figure 13: Hardie™ Axent™ Trim to Axon™ Panel at non joint

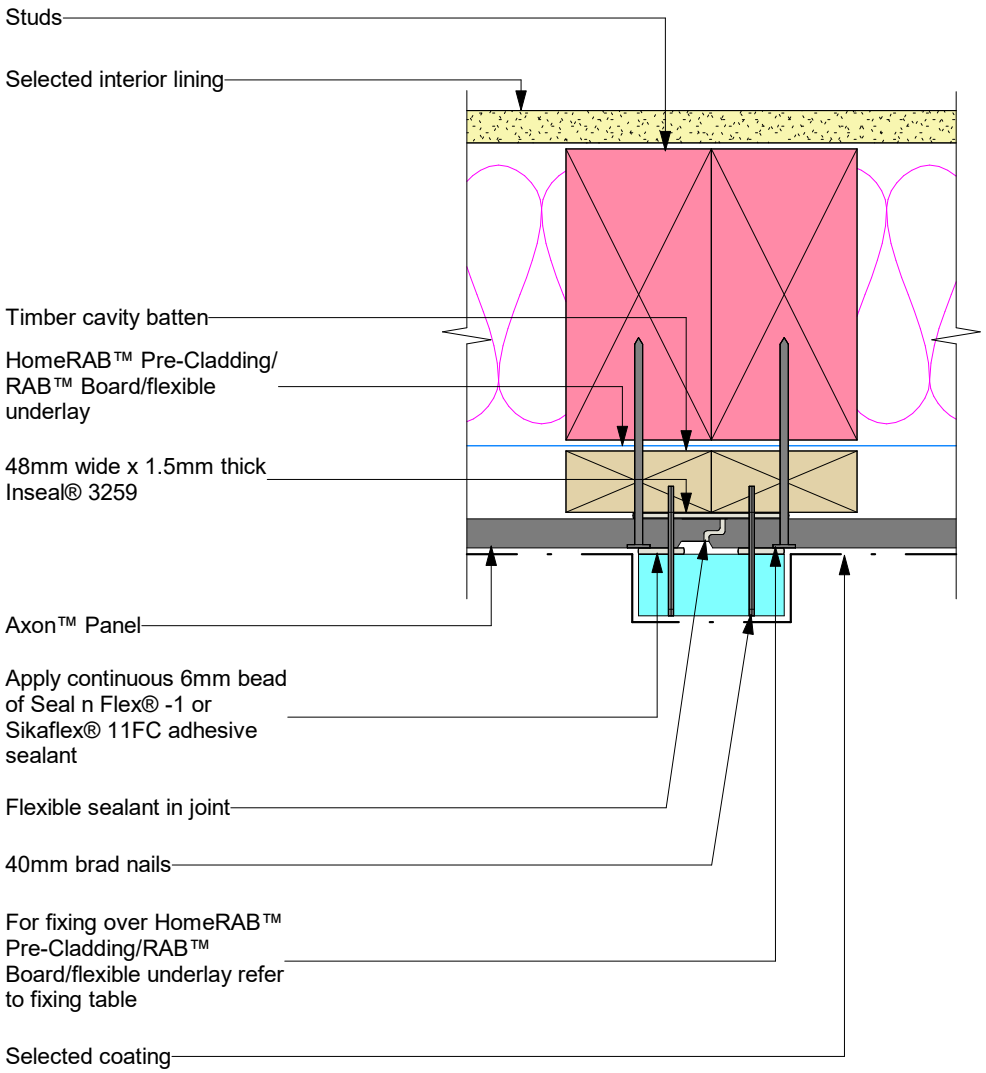
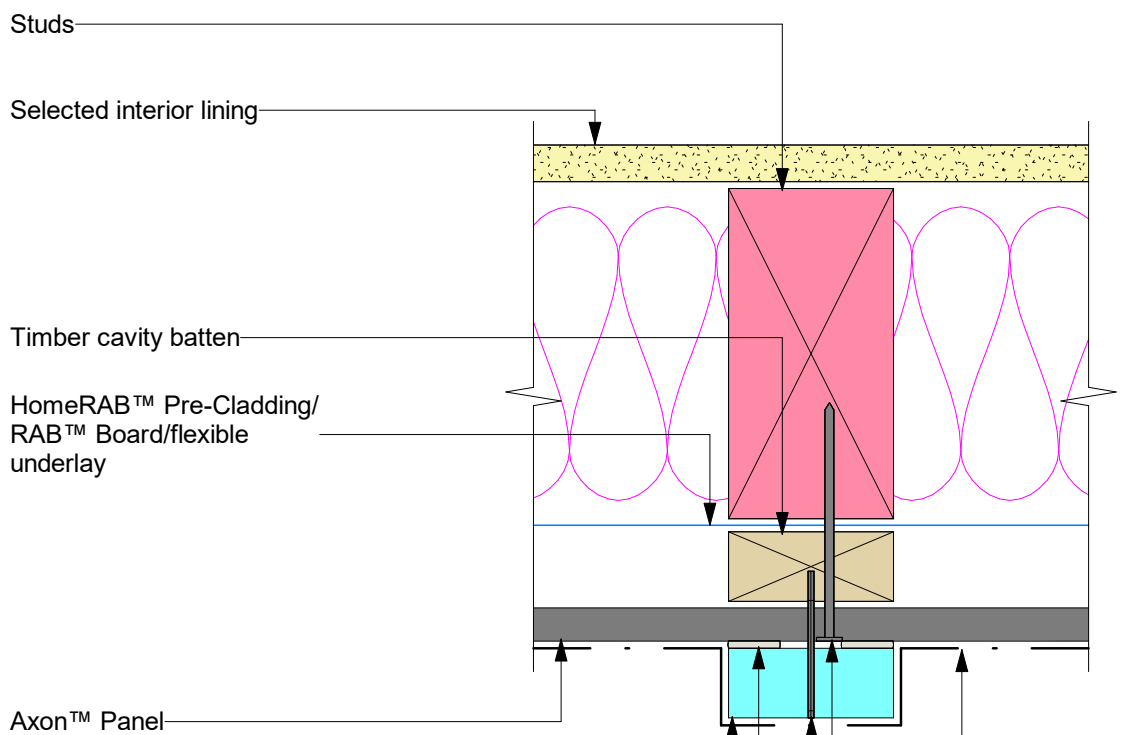
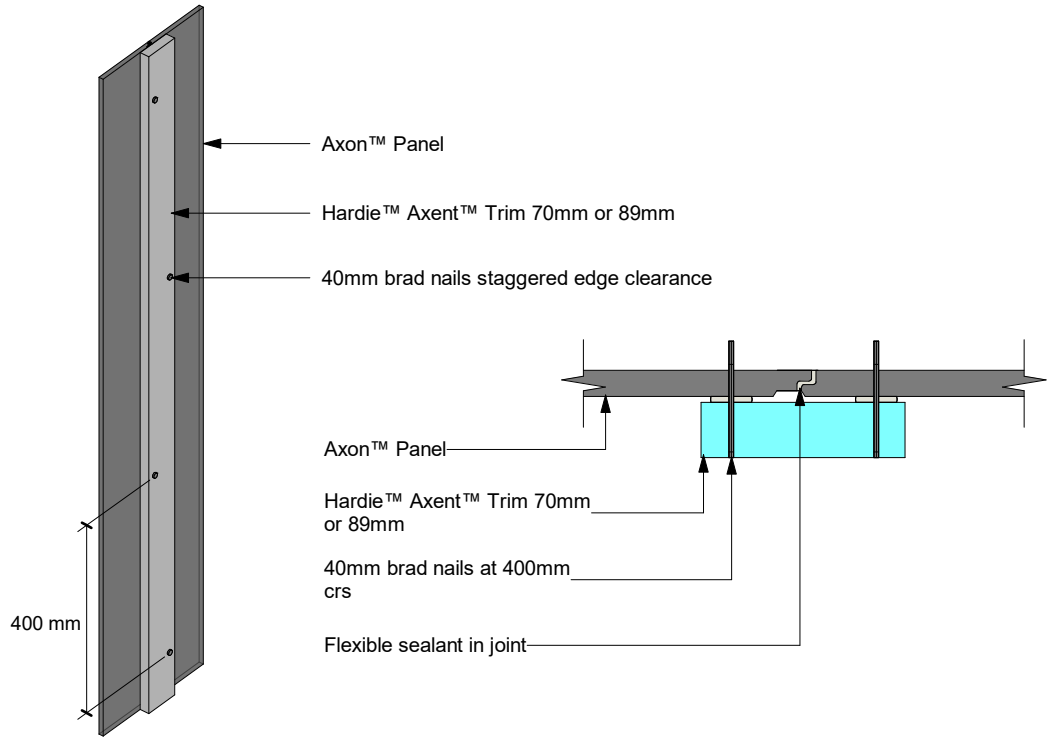


Figure 14: Hardie™ Axent™ Trim to Axon™ Panel at non joint



Note:
* Ensure that the required edge distance is maintained when fixing.
* Seal cut edges with a primer compatible with final coatings.

Figure 15: Hardie™ Axent™ Trim fixing



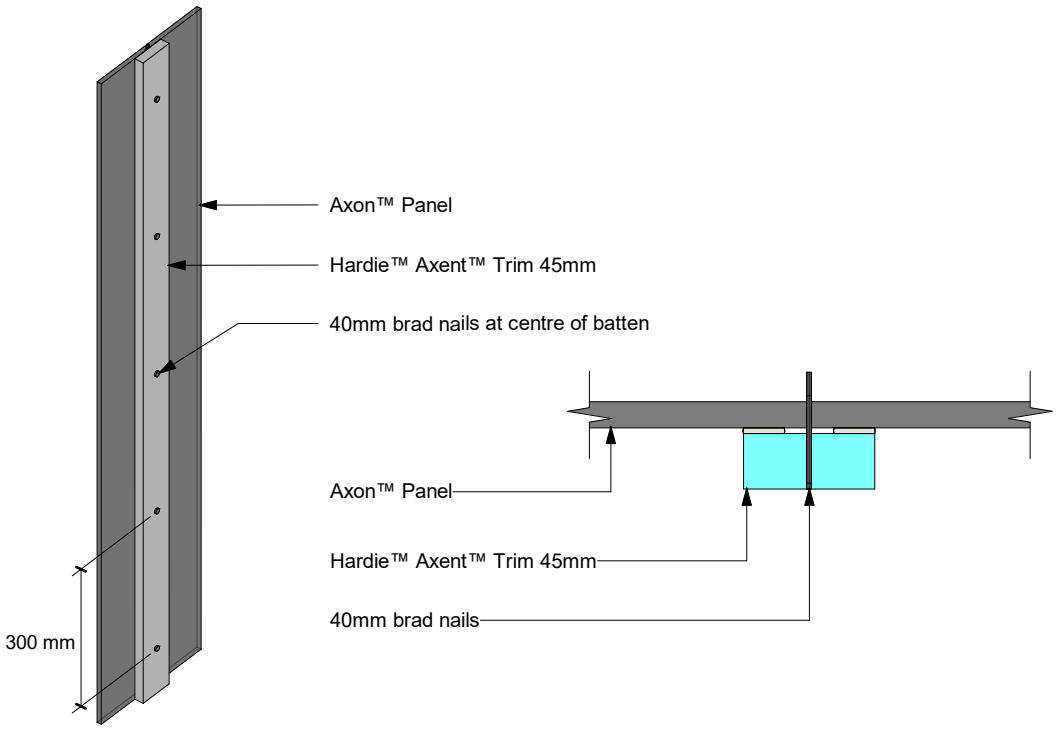
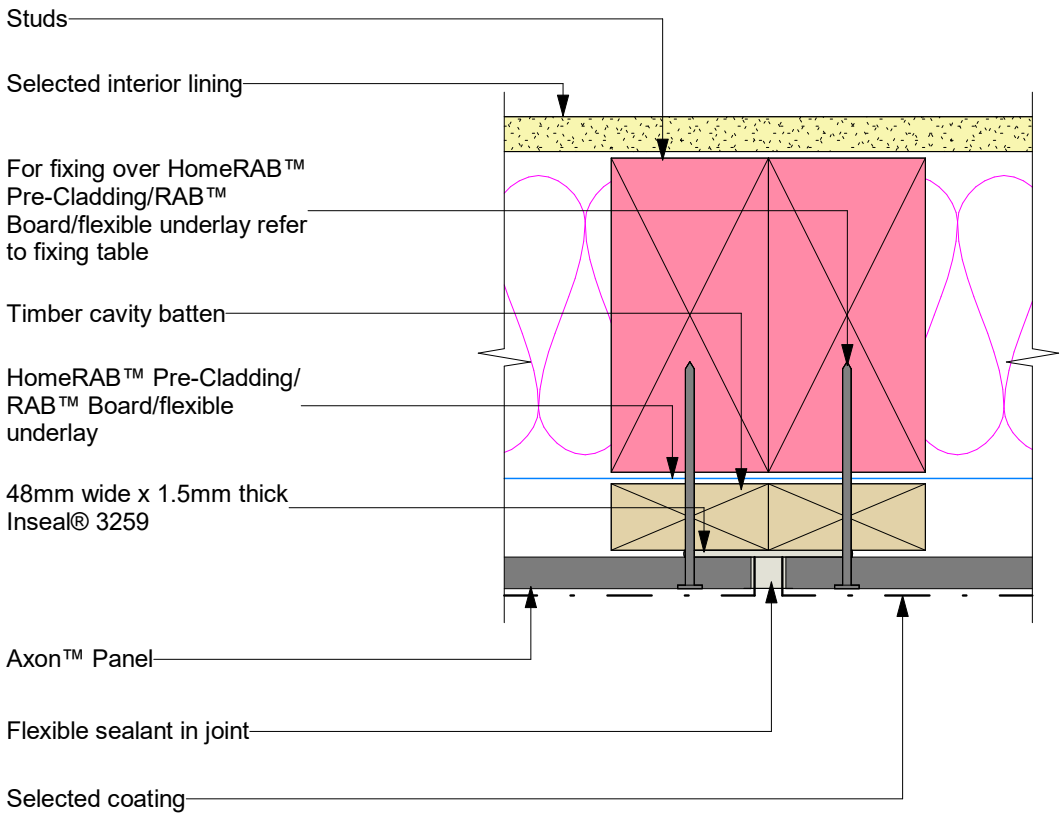


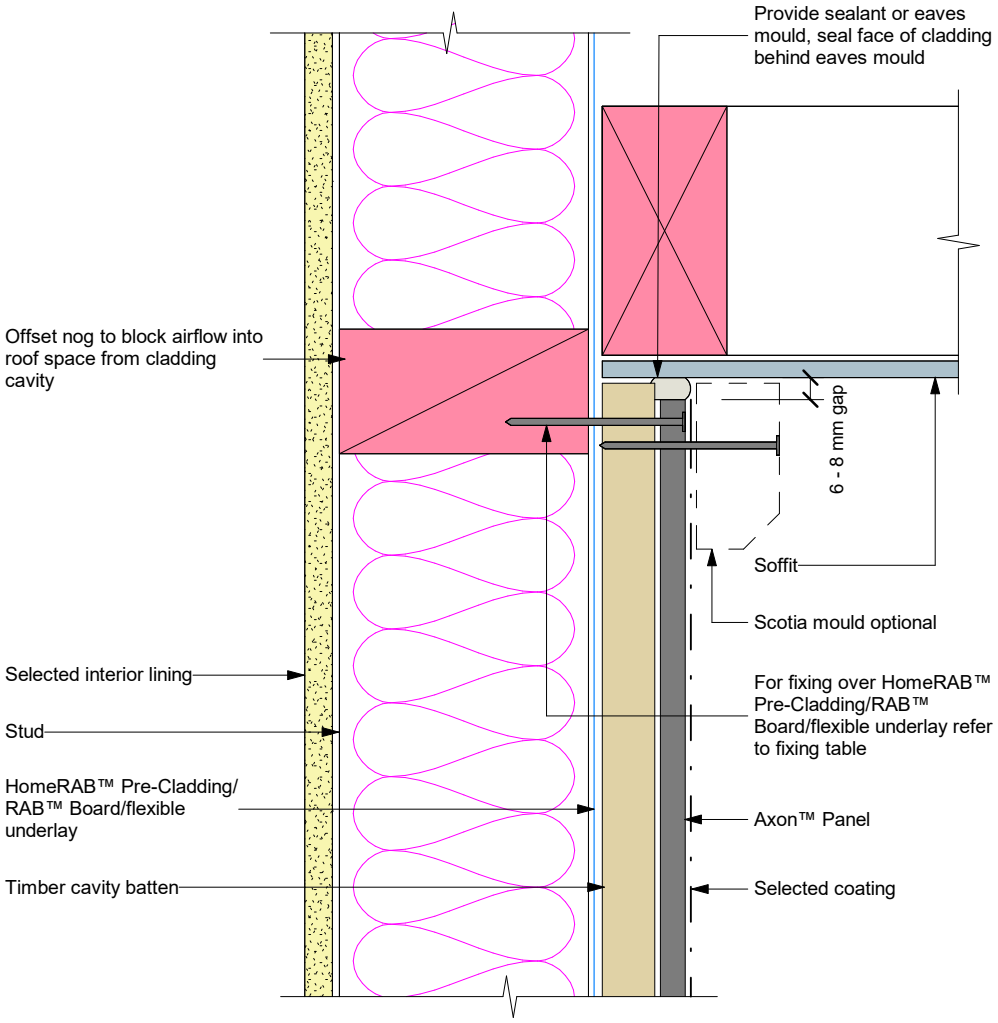
Figure 16: Vertical sealant joint



Note:
* Ensure that the required edge distance is maintained when fixing.
* Seal cut edges with a primer compatible with final coatings.

For use ONLY where manufactured edge jointing not possible for build ie small window in full sheet

Figure 17: 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 18: Nil soffit detail

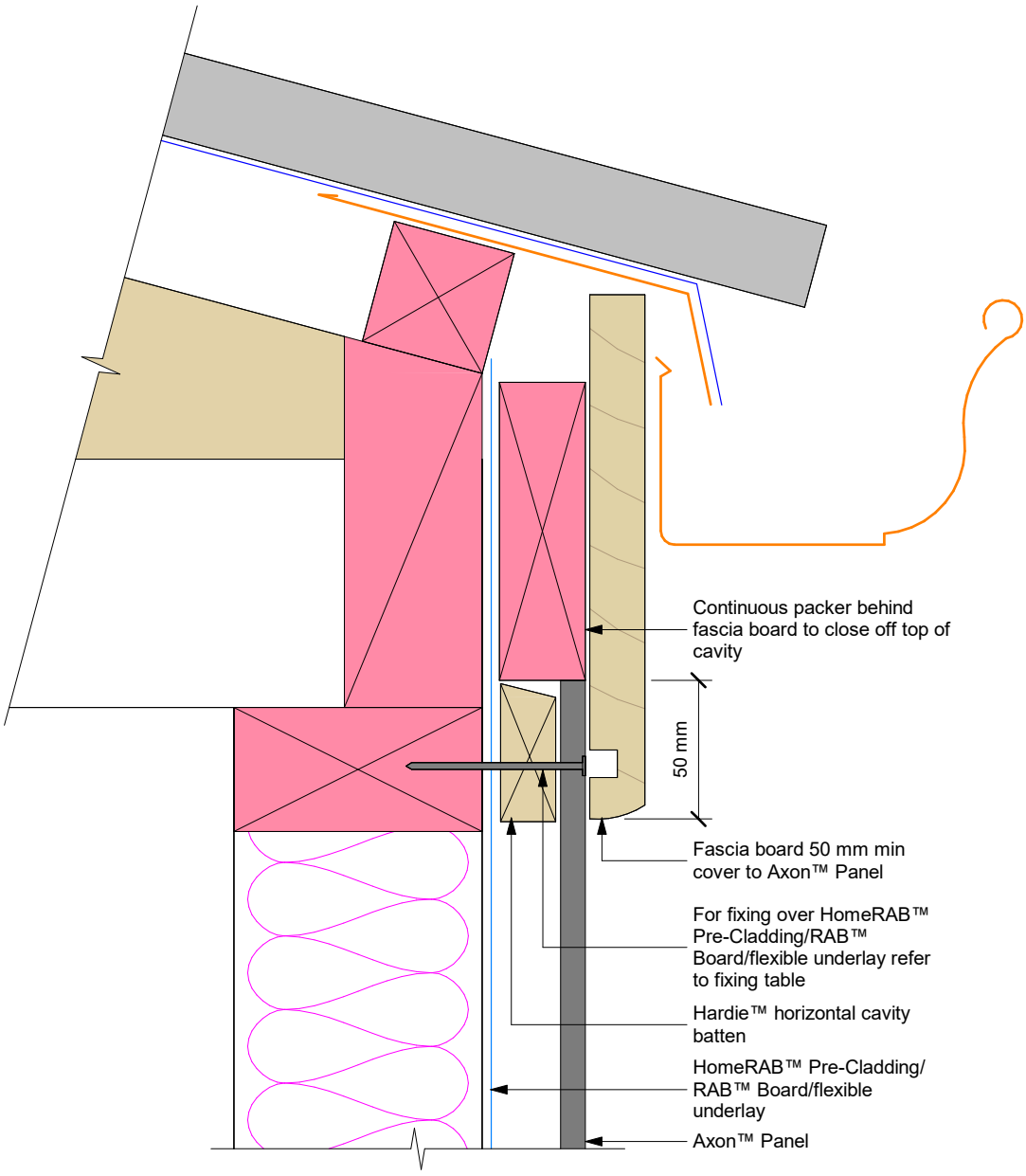
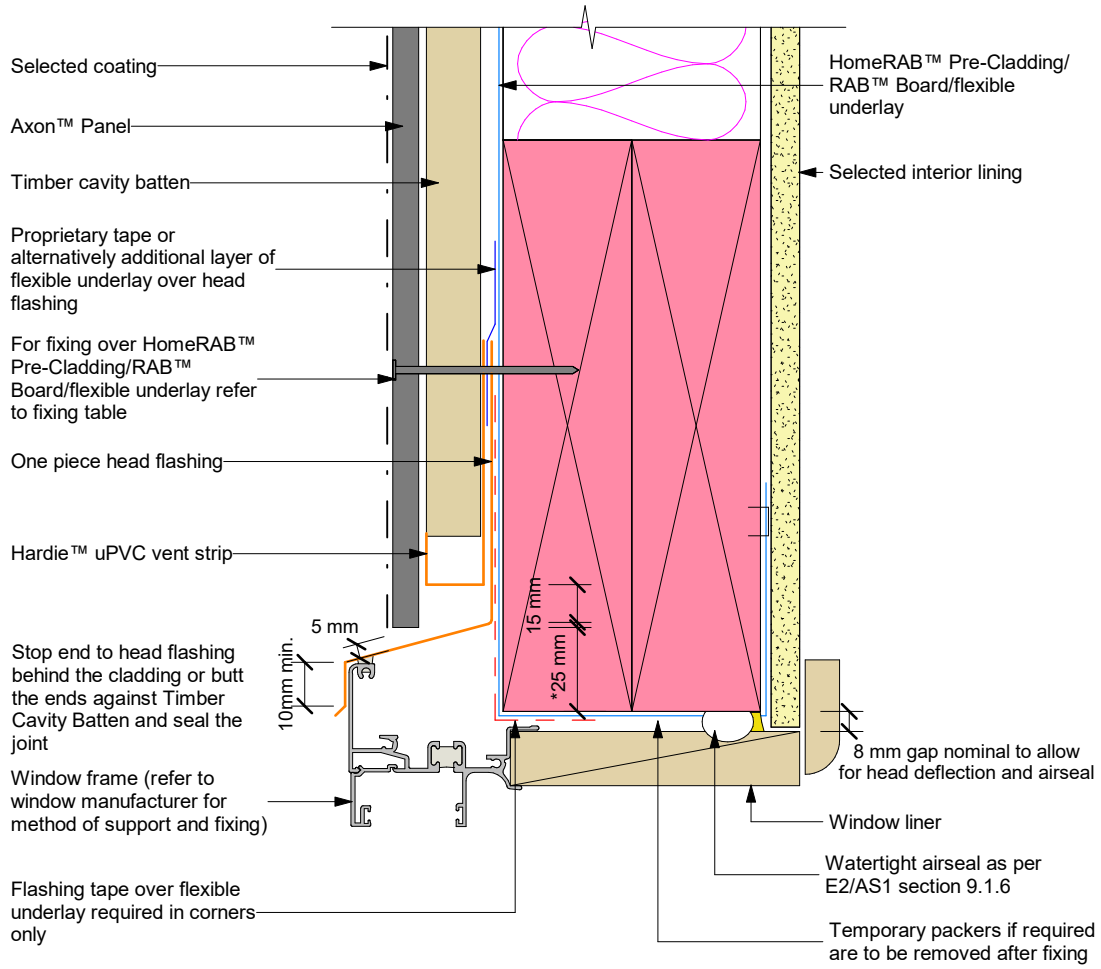


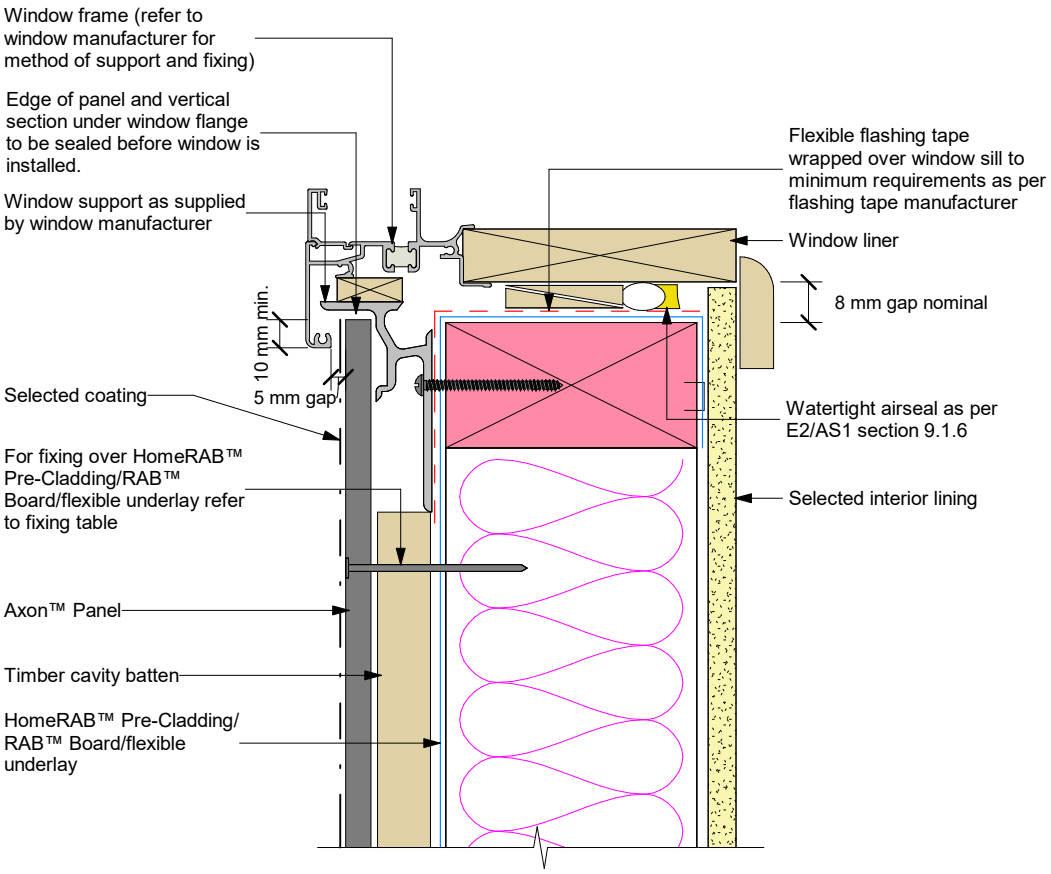
Figure 19: Window head



Note:

* When HomeRAB™ Pre-Cladding/RAB™ Board is used flashing tape to be applied to the entire window opening.
* Also refer to Figure 116 NZBC clause E2/AS1 for head and jamb details
* Sealant must be applied between head flashing and window flange VH and EH wind zones and SED wind pressures
* Alternatively, the head flashing can be formed with stop ends as per E2/AS1

Figure 20: Window sill

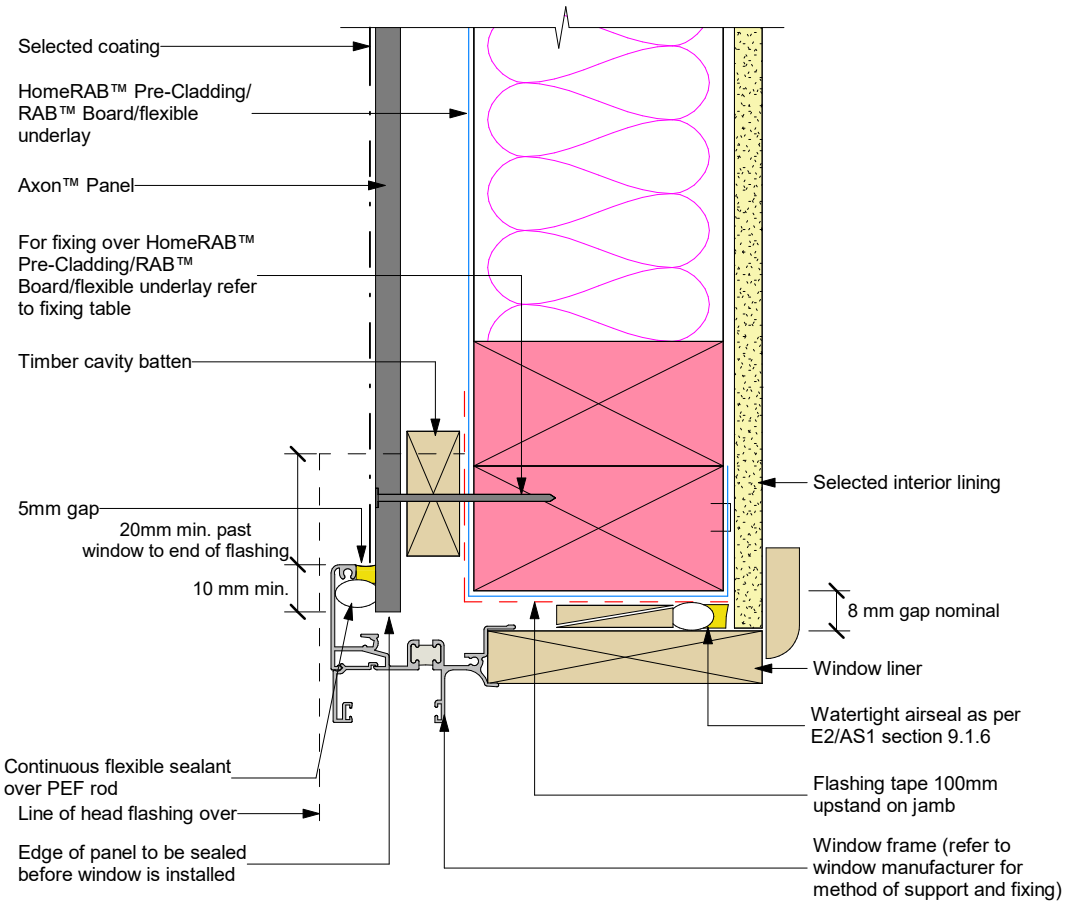


General notes for materials selection

* 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.

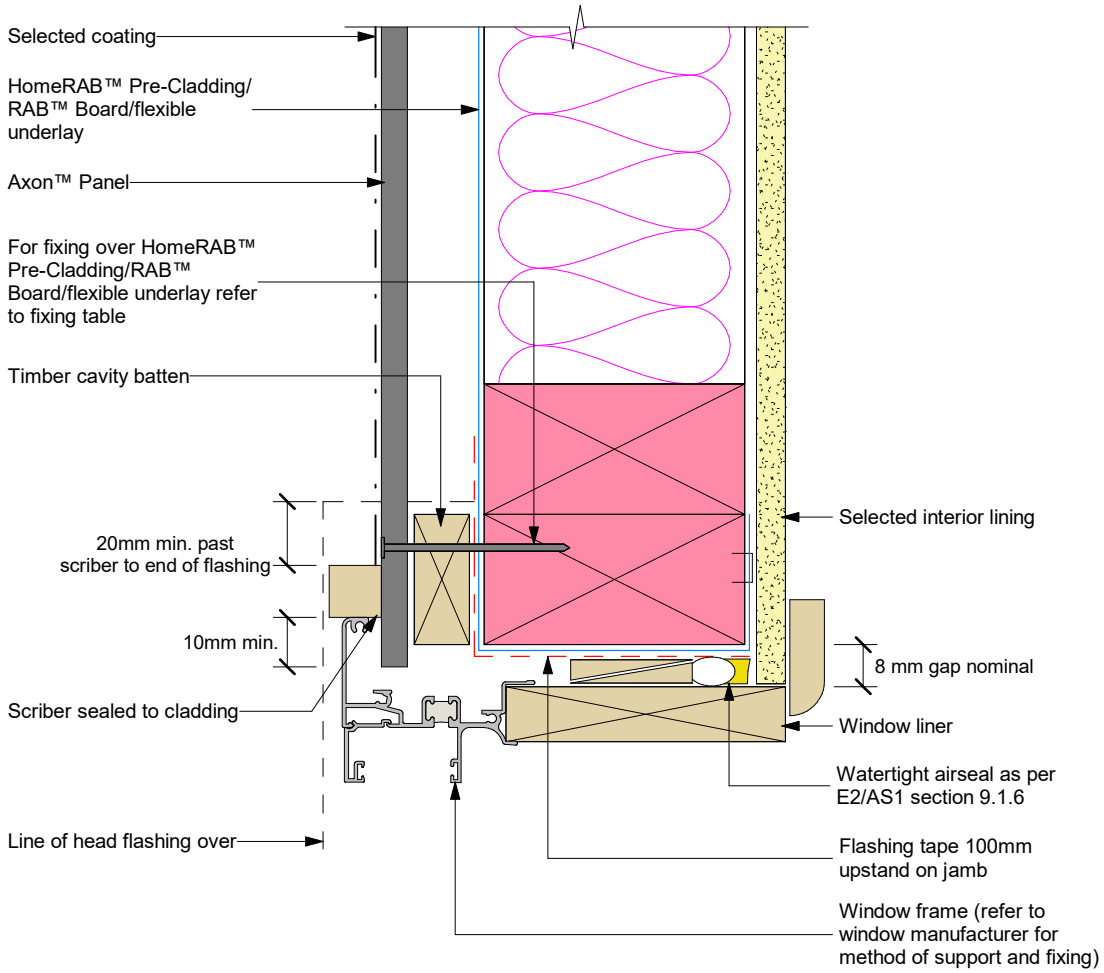
Refer to the manufacturer or supplier for technical information for these materials.

Figure 21: Window jamb



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

Figure 22: Window jamb with scriber



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

Figure 23: Cavity alternative head flashing termination against batten

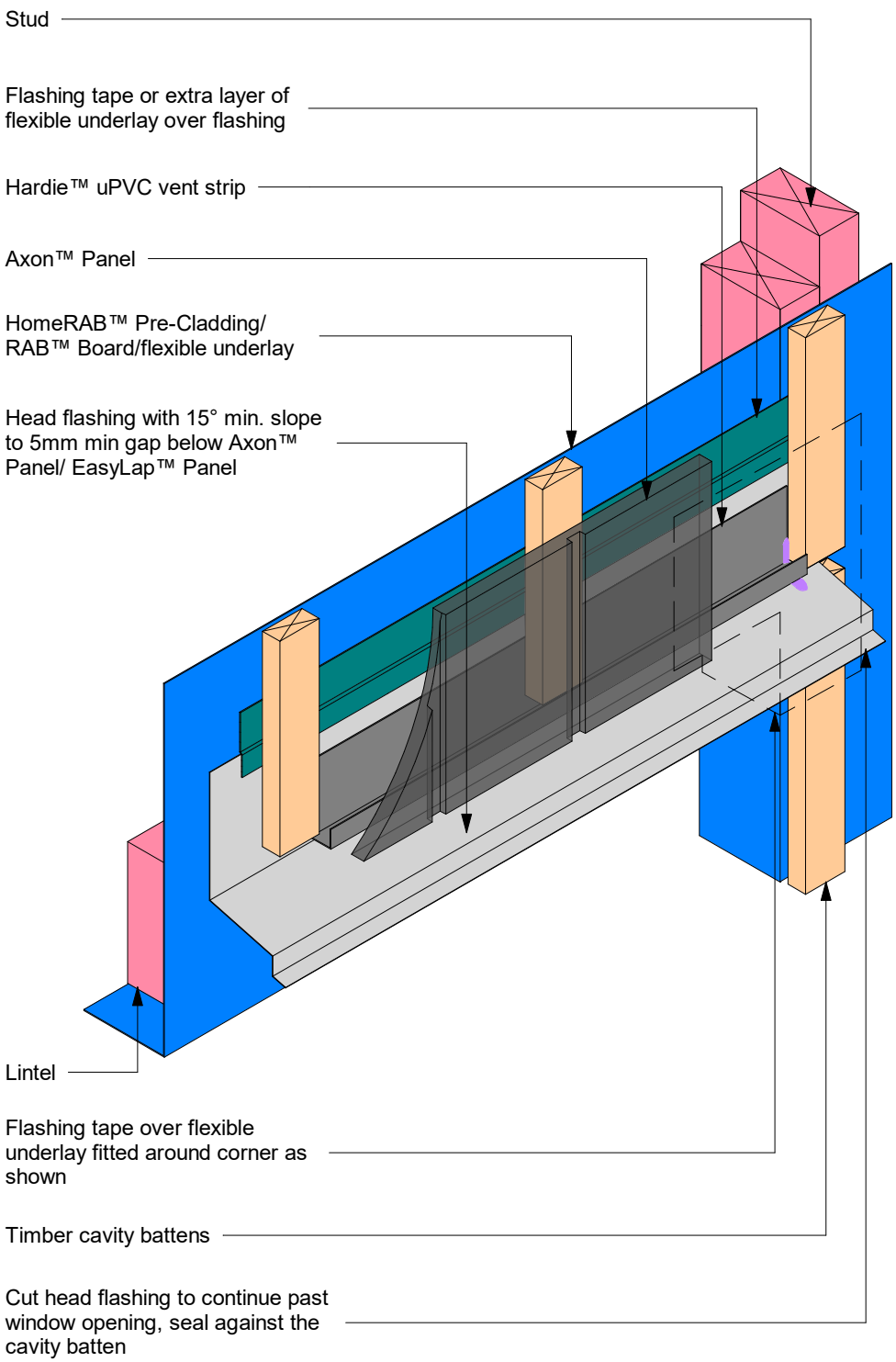
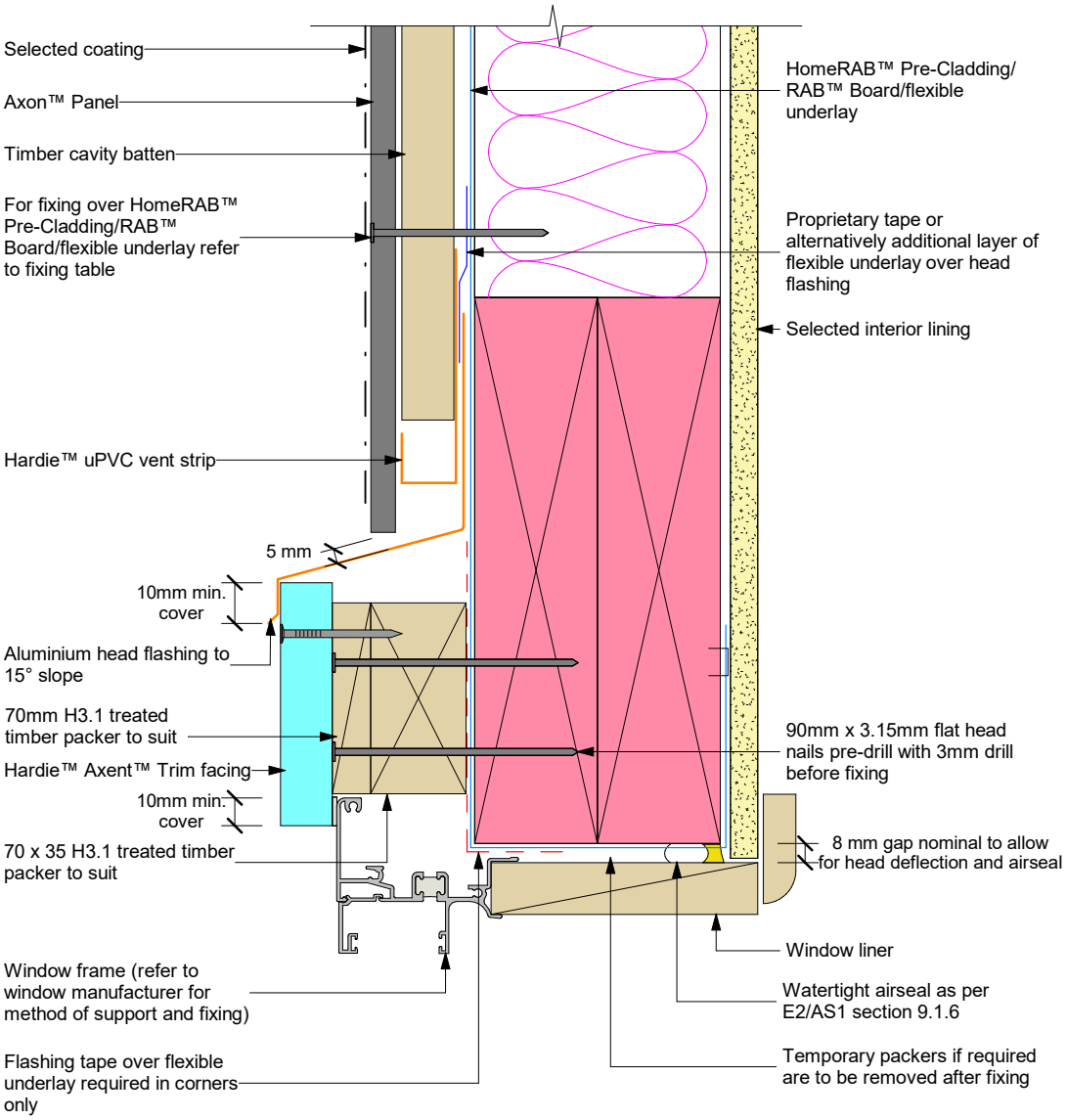


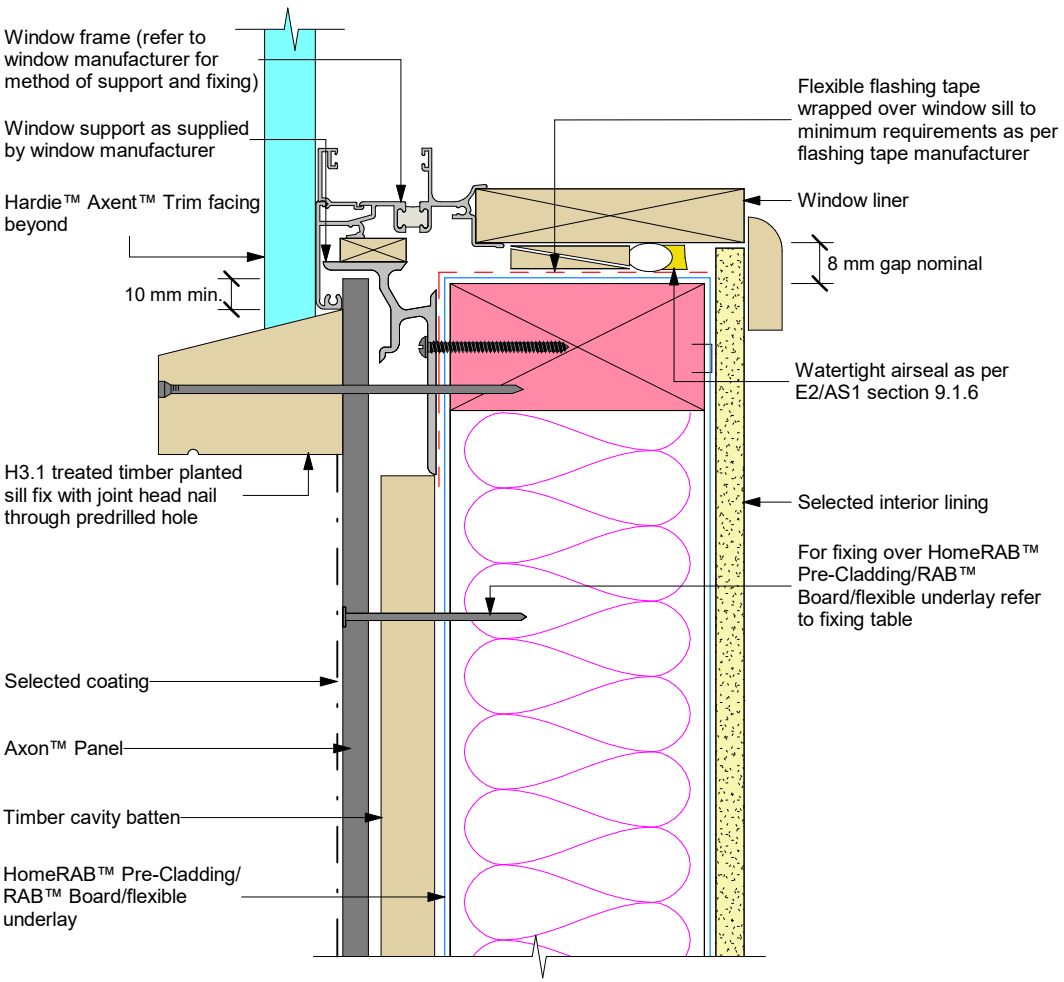
Figure 24: Window head with facing



Note:

- When HomeRAB™ Pre-Cladding/ RAB™ Board is used flashing tape to be applied to the entire window opening
- Sealant must be installed between Hardie™ Axent™ Trim and window flange in VH and EH wind zones and SED projects
- Alternatively, the head flashing can be formed with stop ends as per E2/AS1

Figure 25: Window sill with planted sill

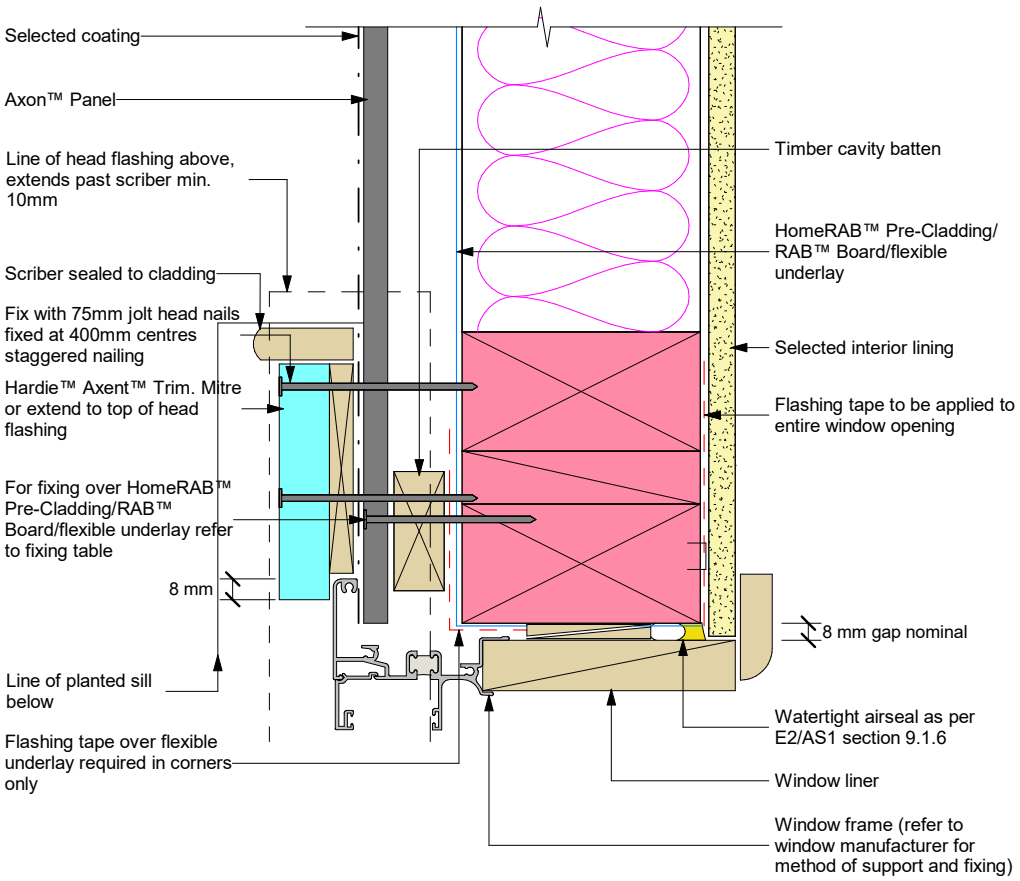


General notes for materials selection

* 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.

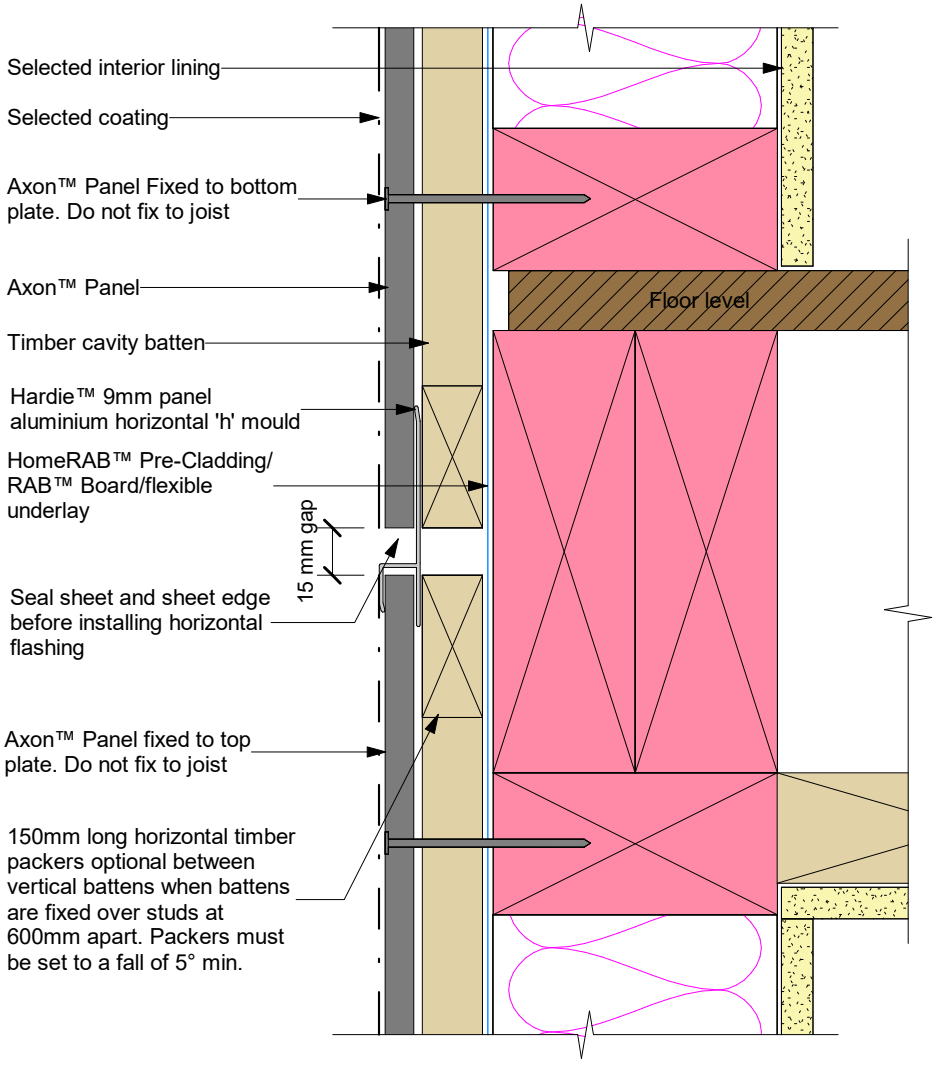
Refer to the manufacturer or supplier for technical information for these materials.

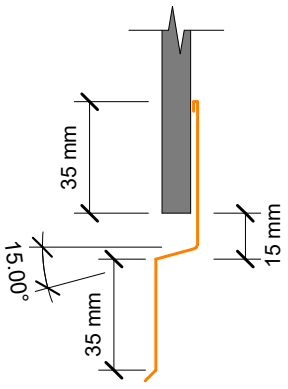
Figure 26: Window and door jamb with facing



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

Figure 27: Cavity horizontal joint detail





Alternative Flashing Option

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

Figure 28: Horizontal joint in tall wall

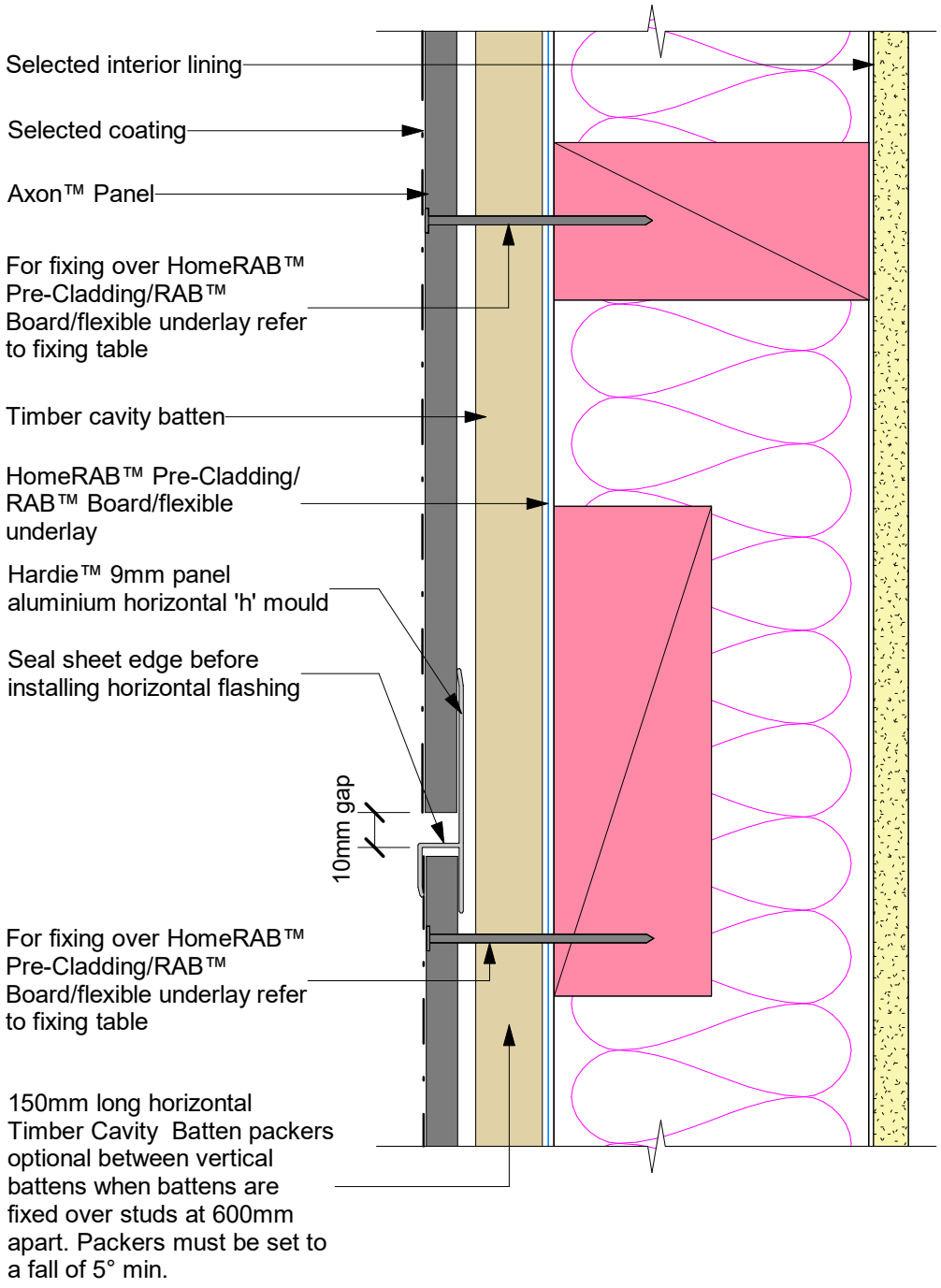


Figure 29: Cavity aluminium 'H' mould jointer

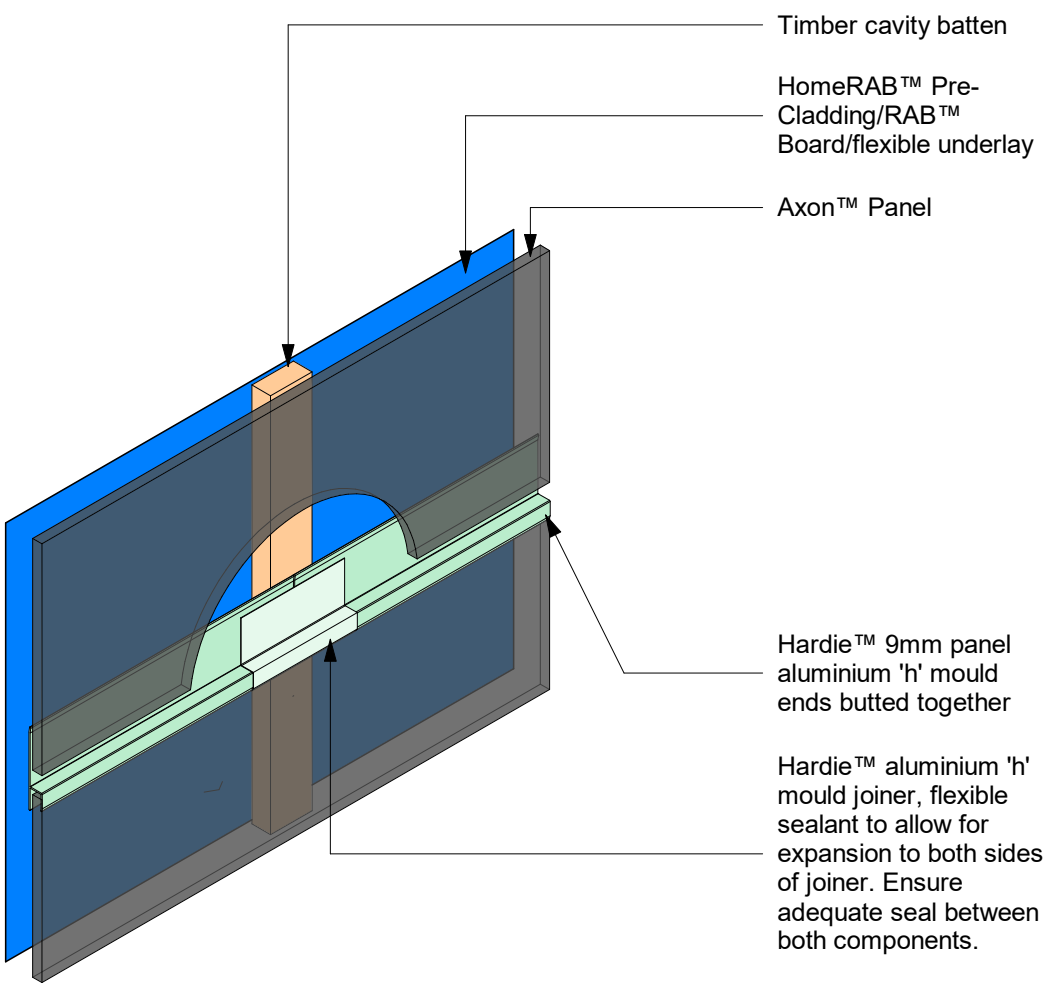
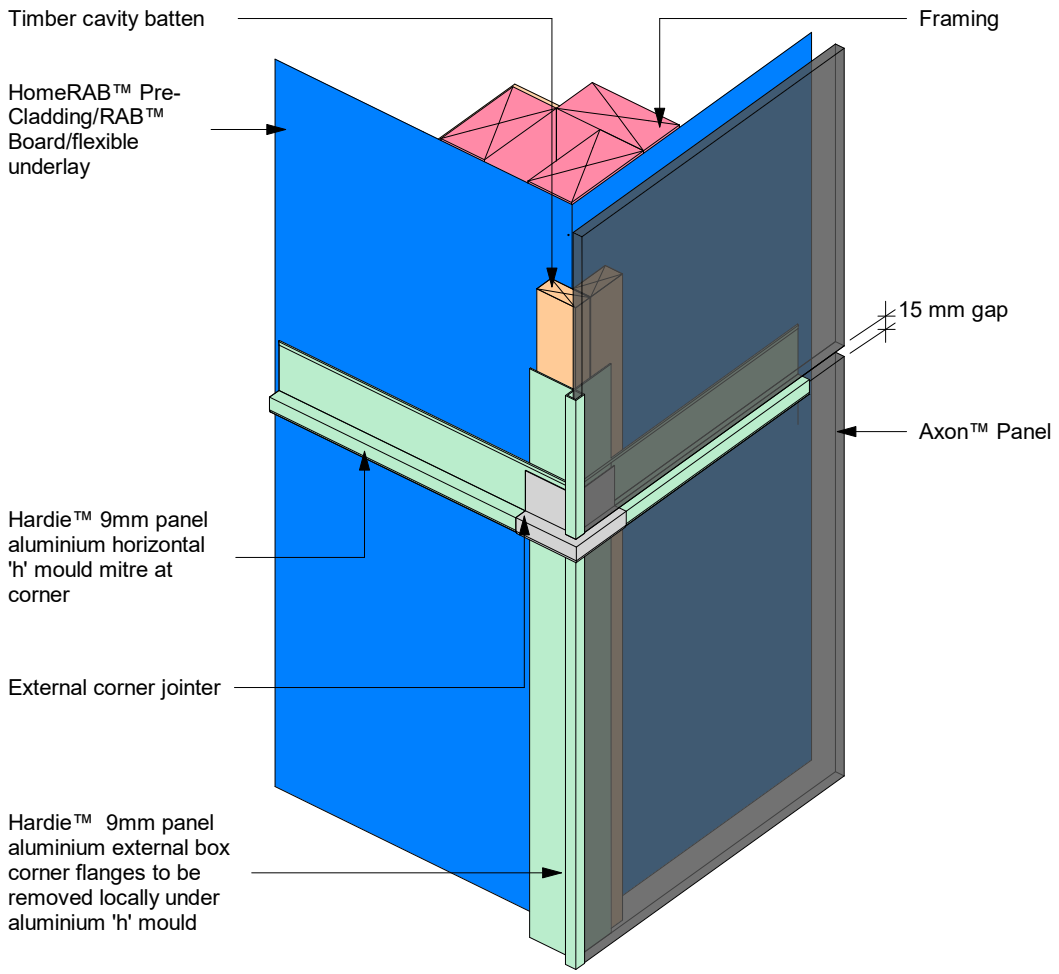


Figure 30: Cavity corner at 'H' mould joint detail



Note: Site cut edges to be primed

Figure 31: Internal corner at 'H' mould joint detail

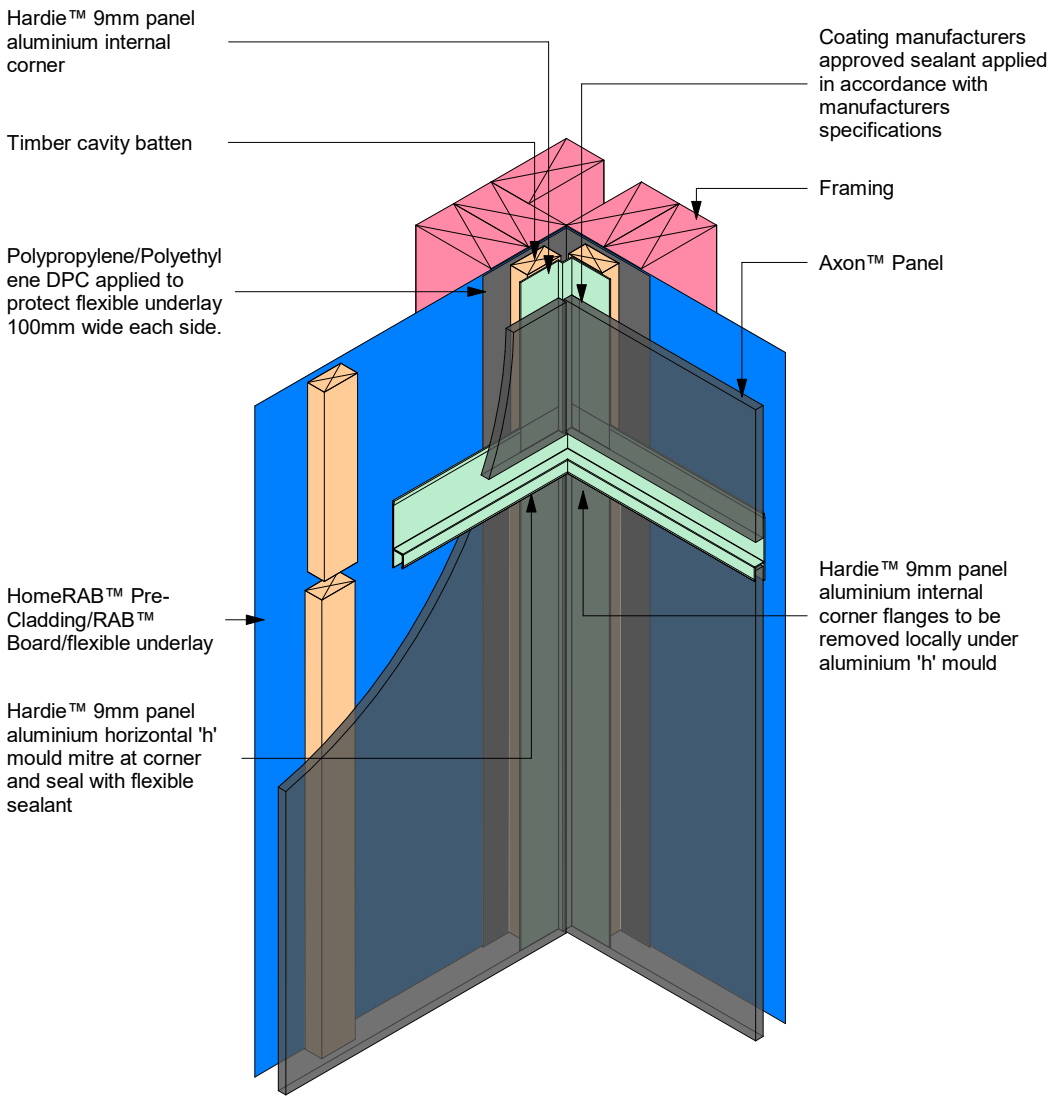
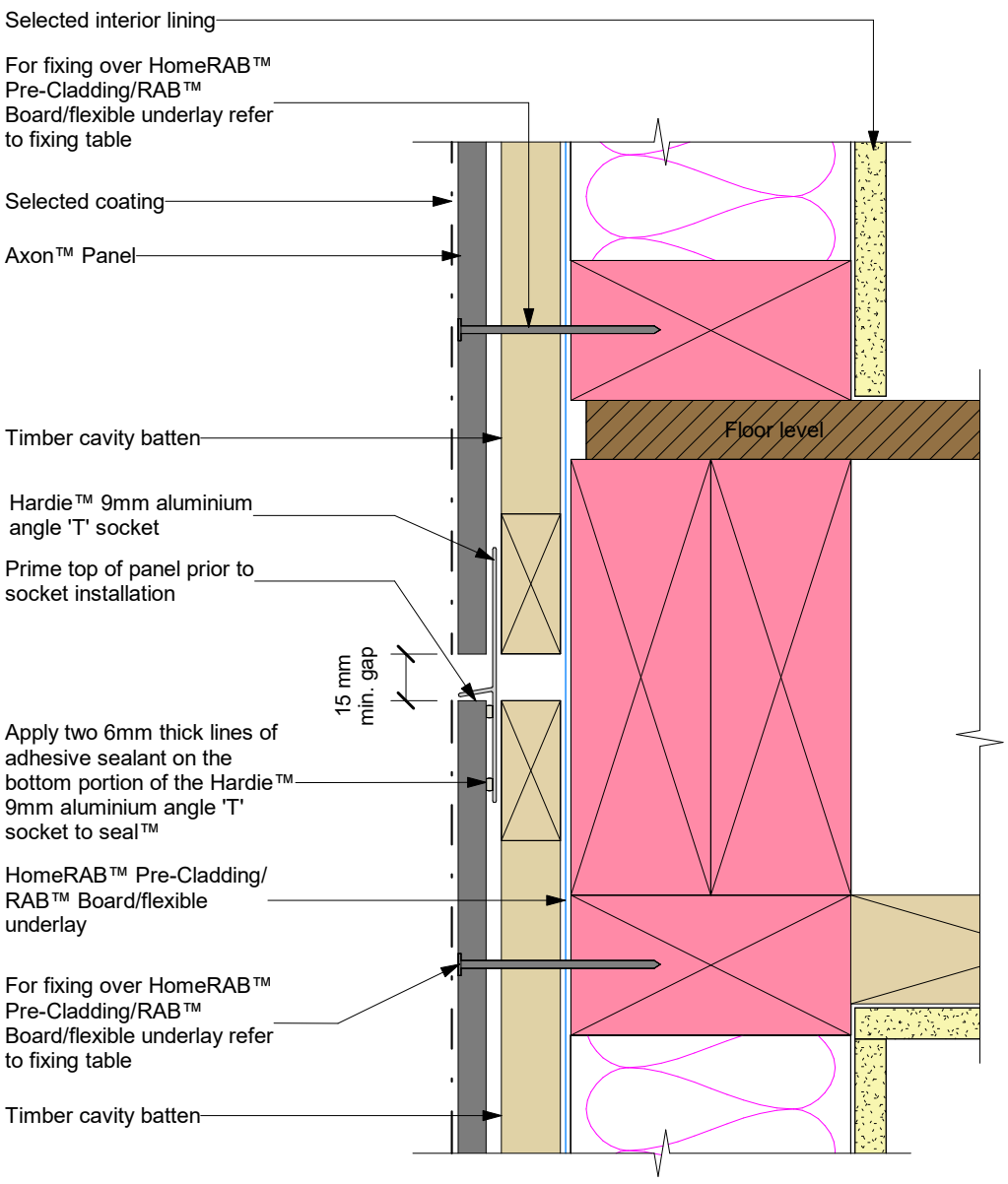


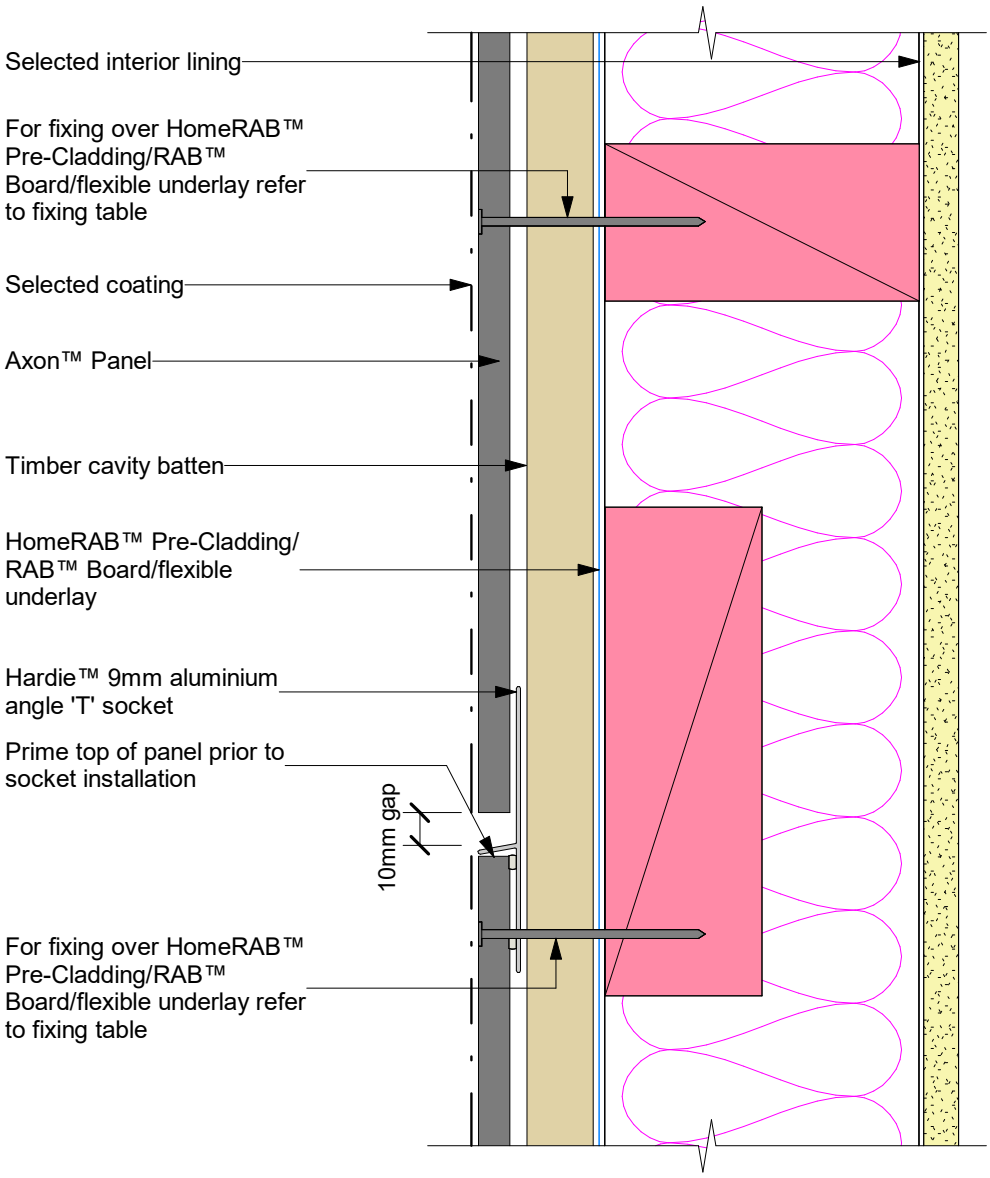
Figure 32: Angle 'T' socket joint at floor joist



Notes:

- When 50 year durability is required refer Table 20 of NZBC E2/AS1 document
- The flashing to be placed in the centre of the floor joists. Do not fix cavity battens or cladding into floor joists
- Hardie™ 9mm aluminium angle 'T' socket, take care to ensure continuous seal is formed between panel and the angle 'T' socket
- Hardie™ angle 'T' horizontal jointer will be required over the butt joint of the Hardie™ 9mm aluminium angle 'T' socket
- Site cut edges to be primed

Figure 33: Horizontal joint in tall wall



Notes:

- Hardie™ 9mm aluminium angle 't' socket, take care to ensure continuous seal is formed between panel and the angle 't' socket
- Hardie™ angle 'T' horizontal jointer will be required over the butt joint of the Hardie™ 9mm aluminium angle 't' socket
- Site cut edges to be primed

Figure 34: Angle 'T' horizontal jointer

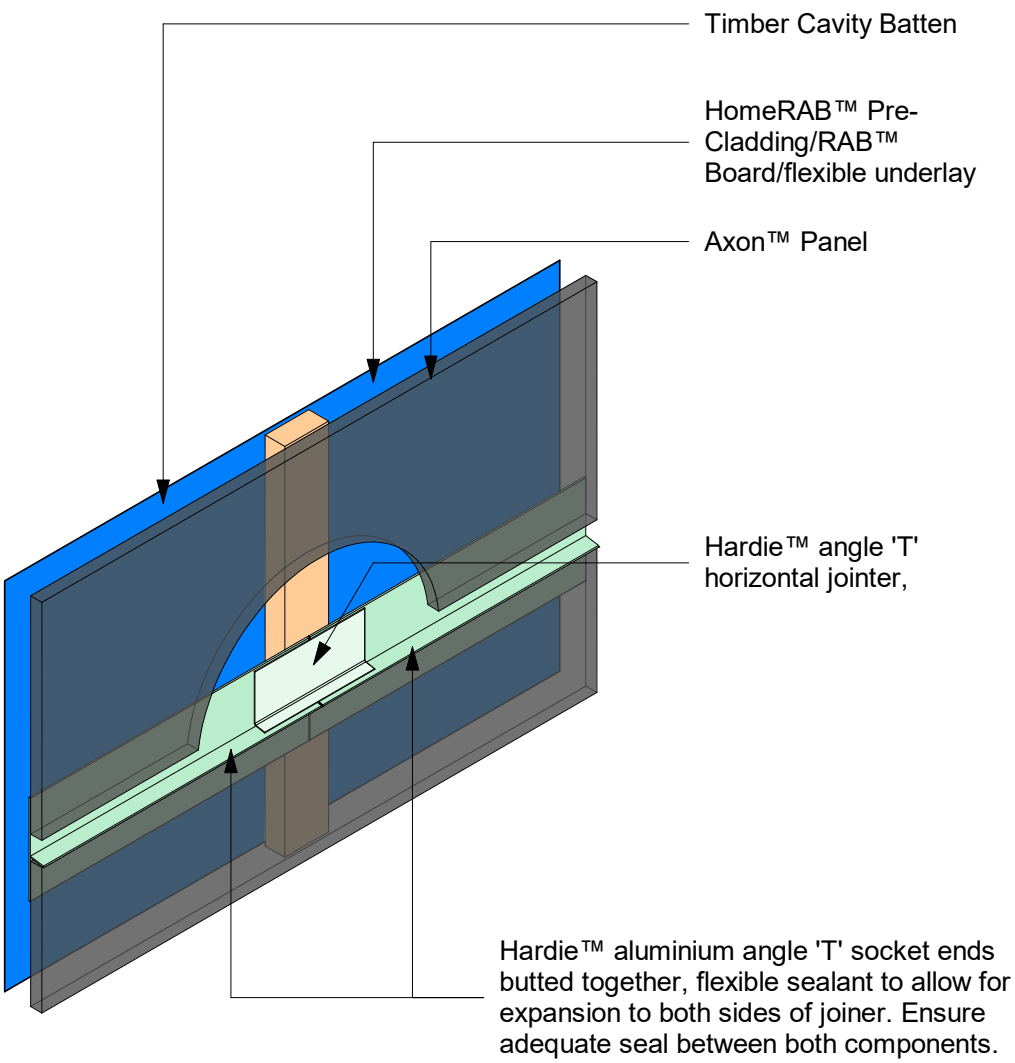
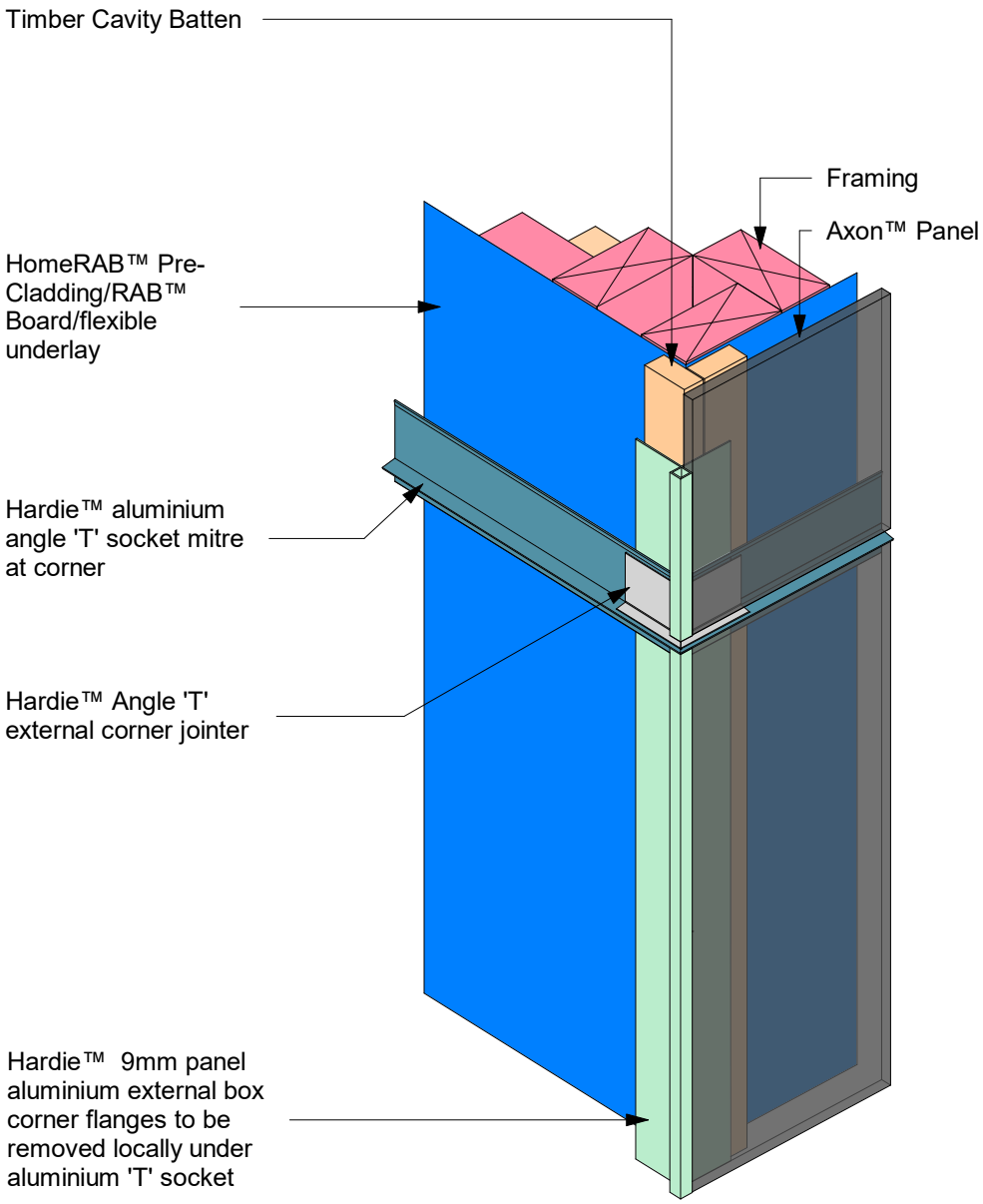


Figure 35: Angle 'T' external corner at 'T' mould joint



Note: Site cut edges to be primed

Figure 36: Internal corner at angle 'T' socket joint detail

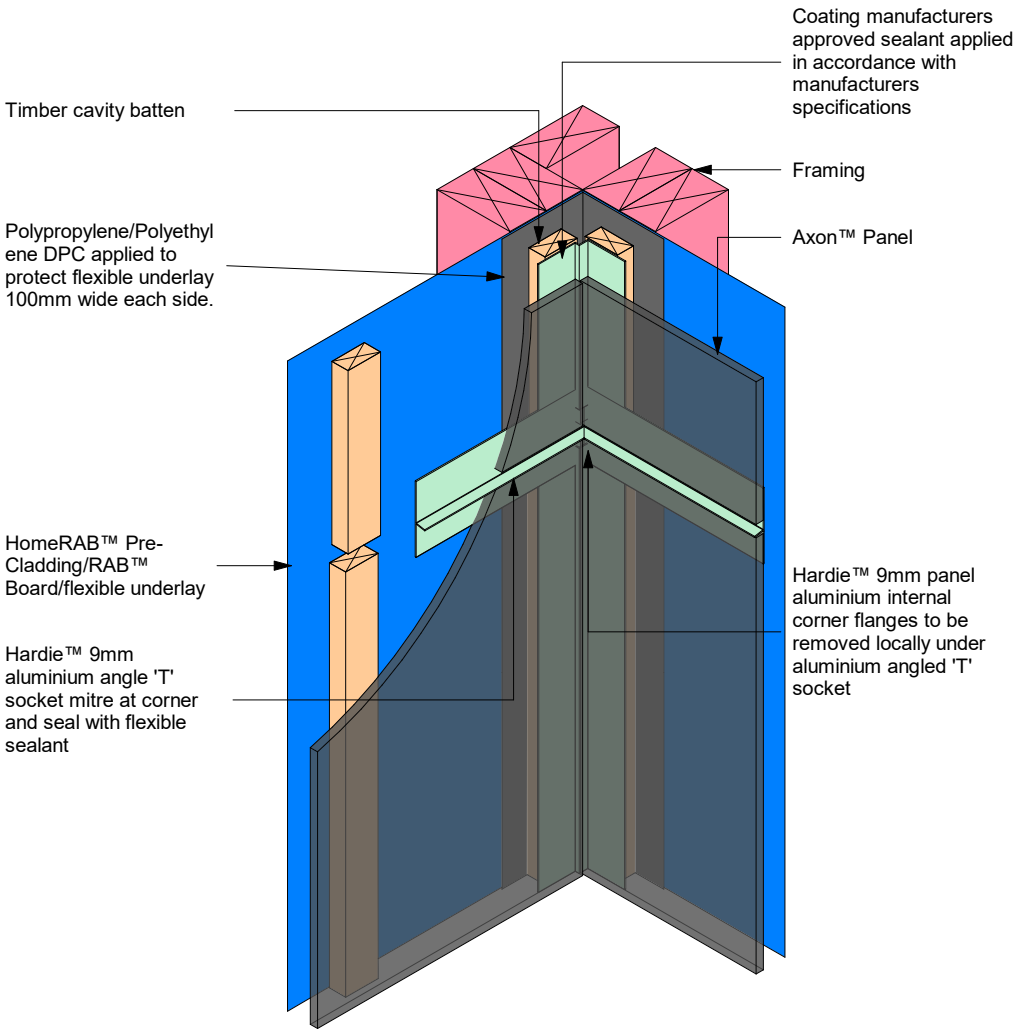
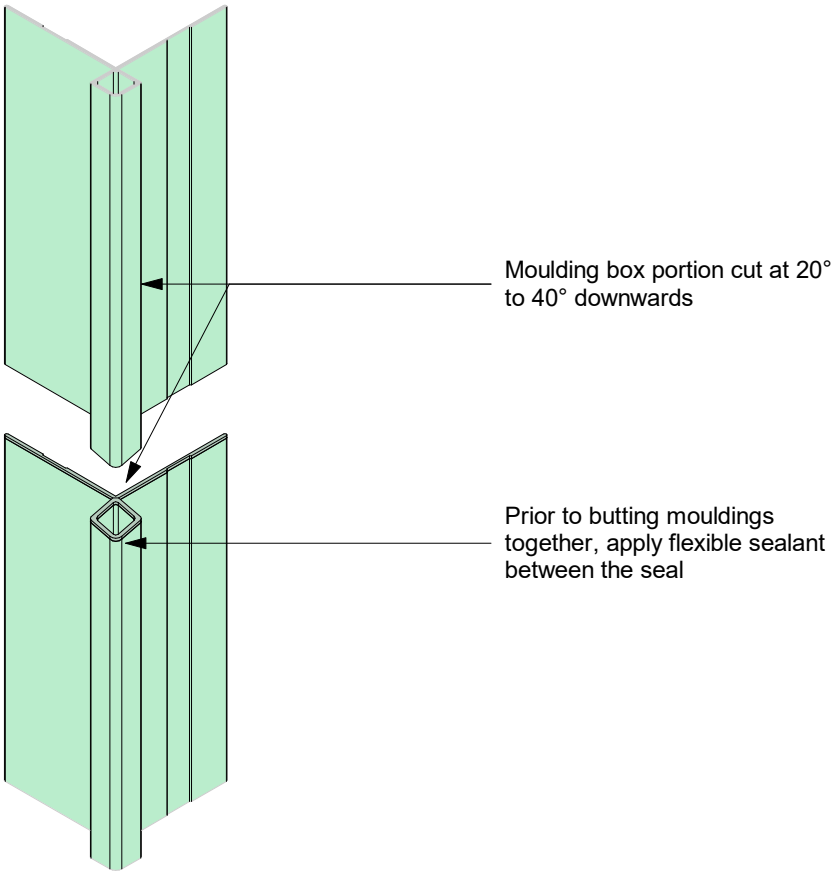


Figure 37: Joining moulding



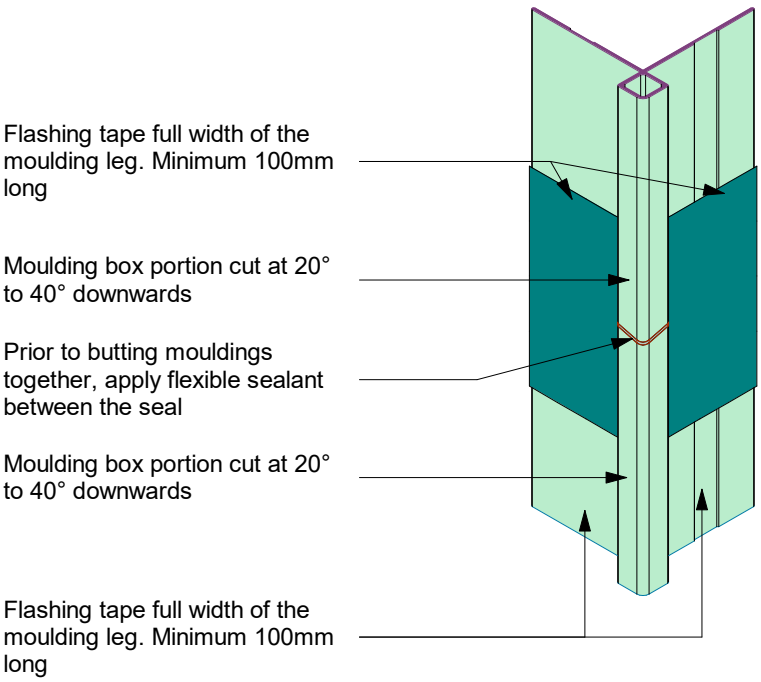
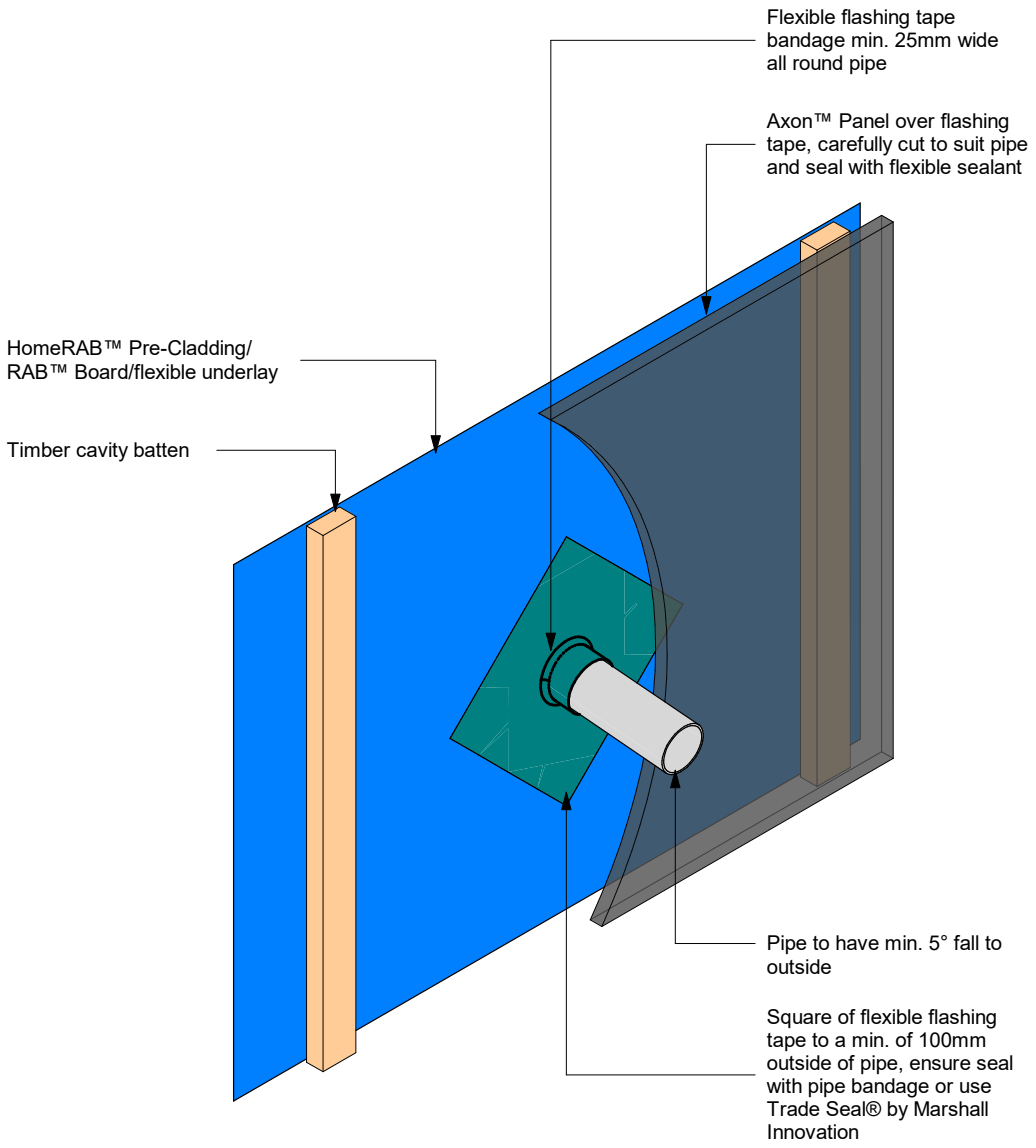


Figure 38: Cavity pipe penetration



Note: Site cut edges to be primed

Figure 39: h' mould joint at window head

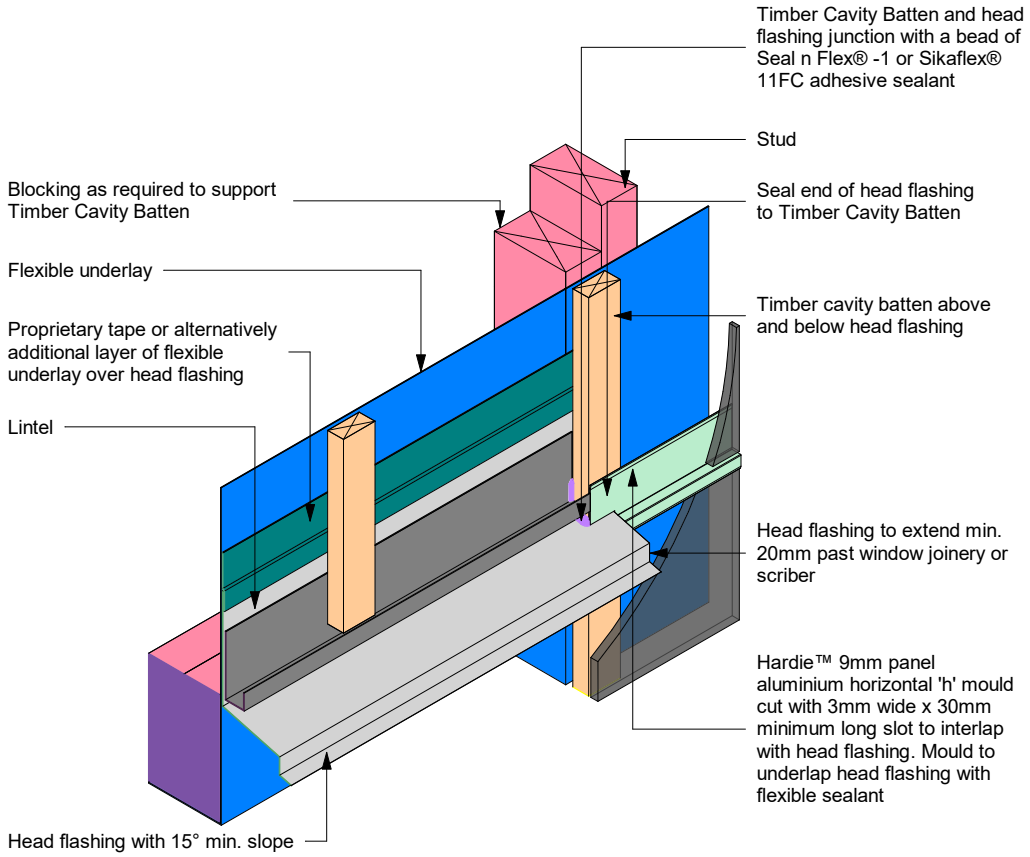


Figure 40: Angle 'T' socket at window head

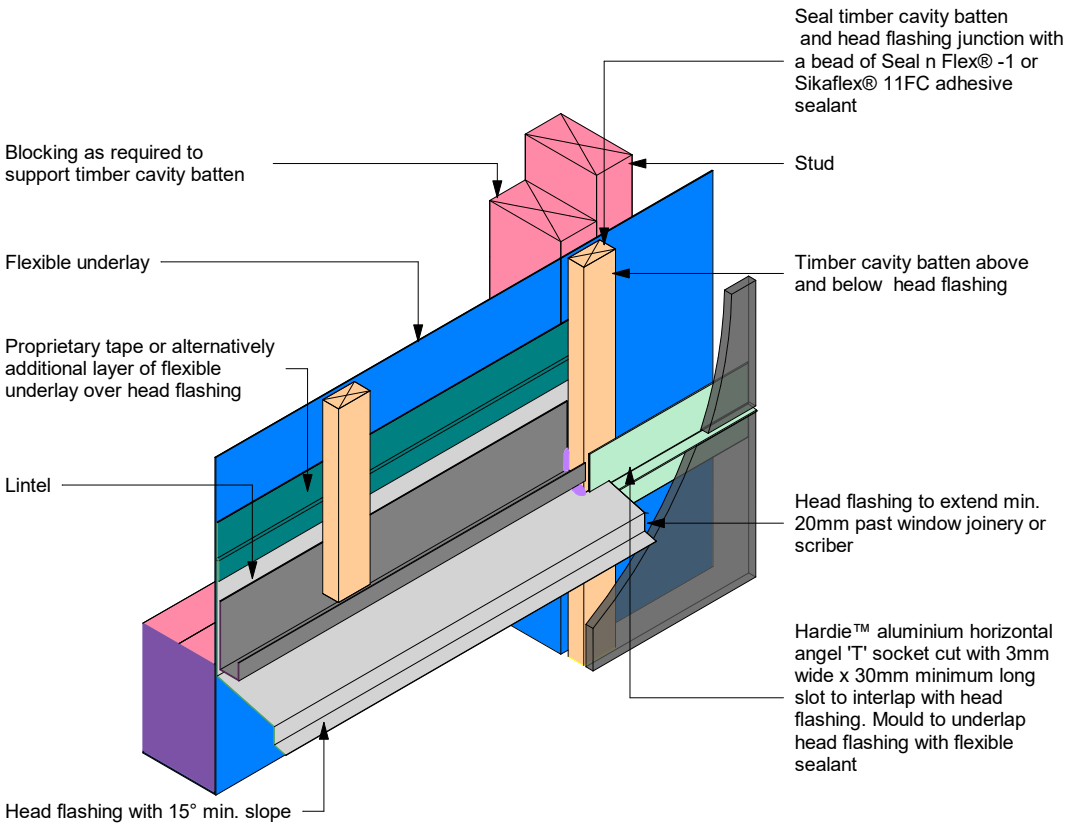


Figure 41: Horizontal flashing at window jamb

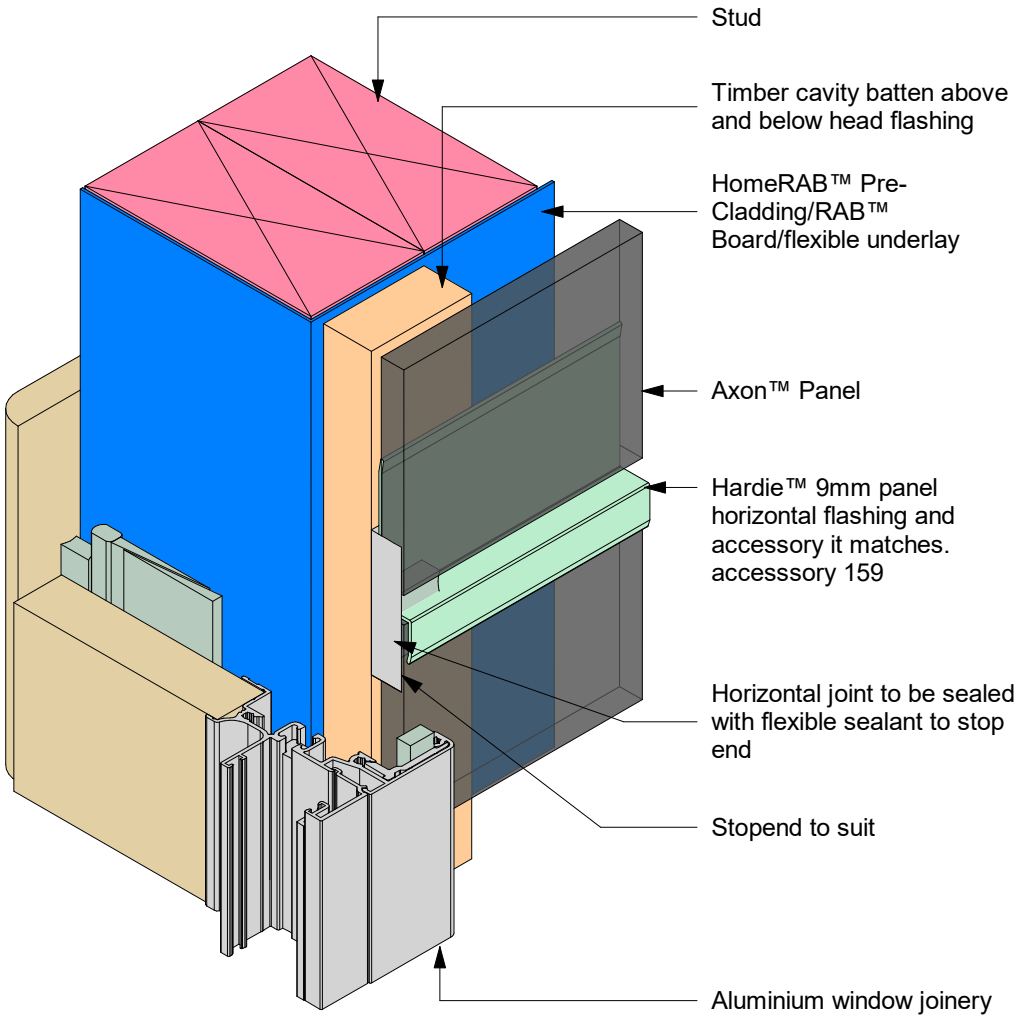


Figure 42: Angle 'T' socket butting window jamb

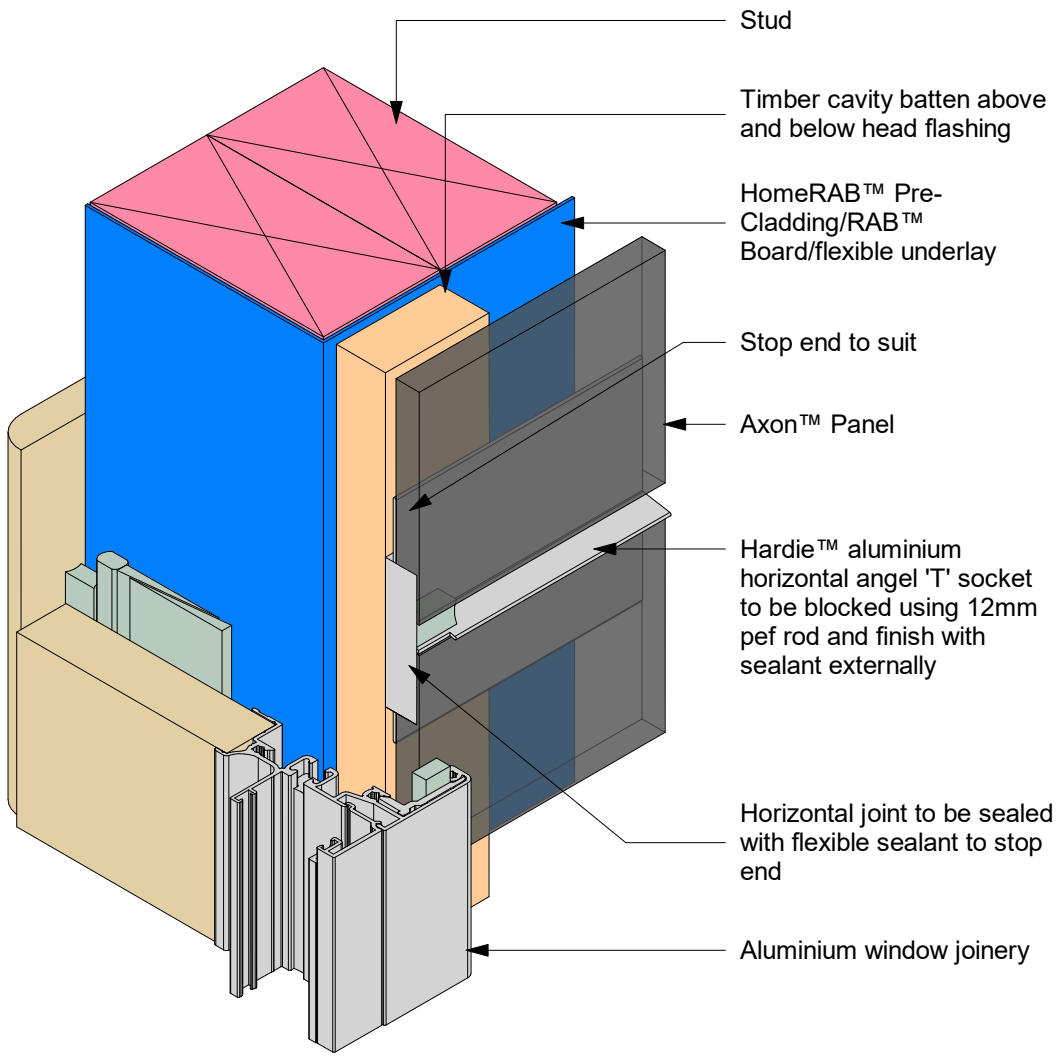
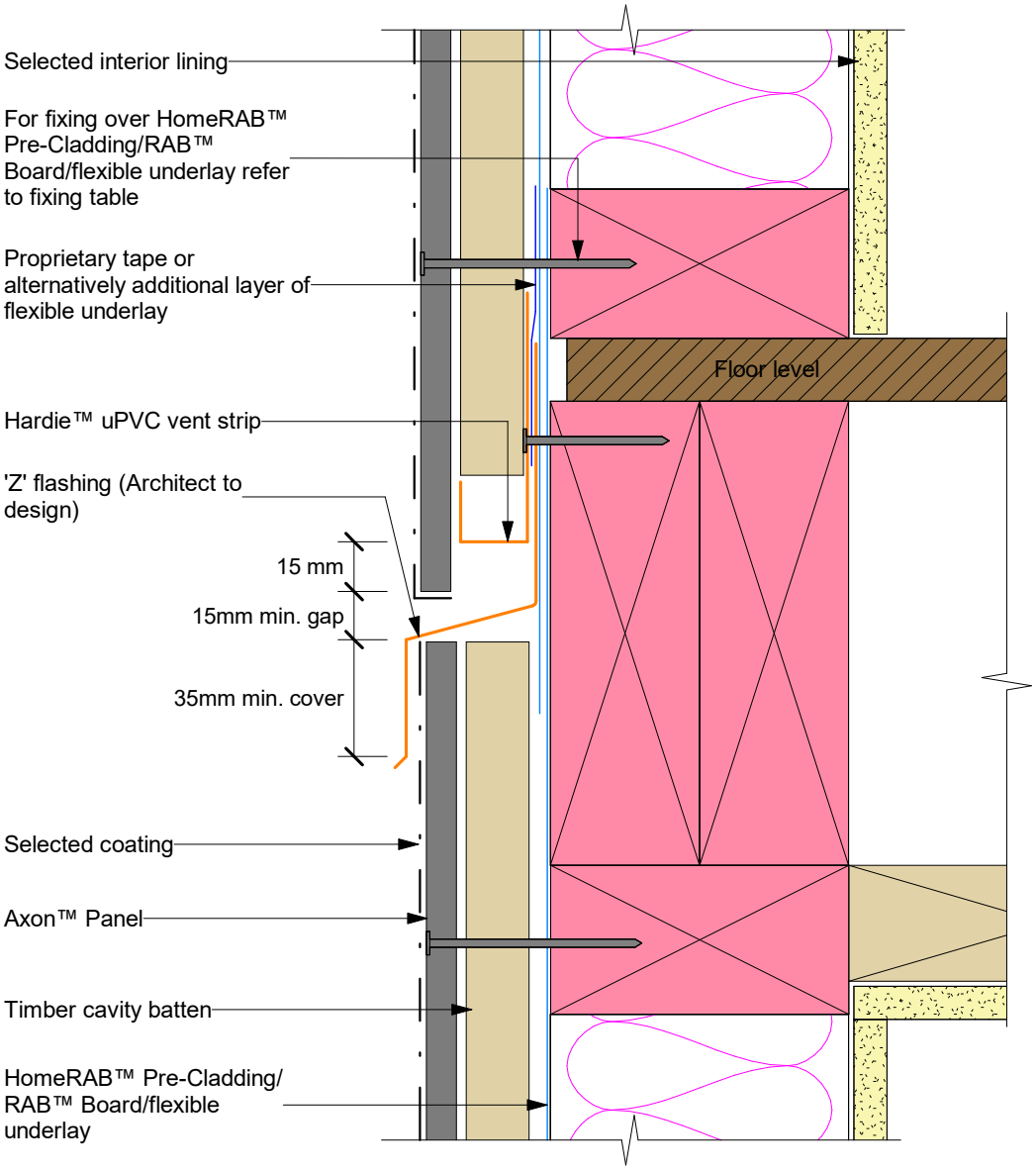


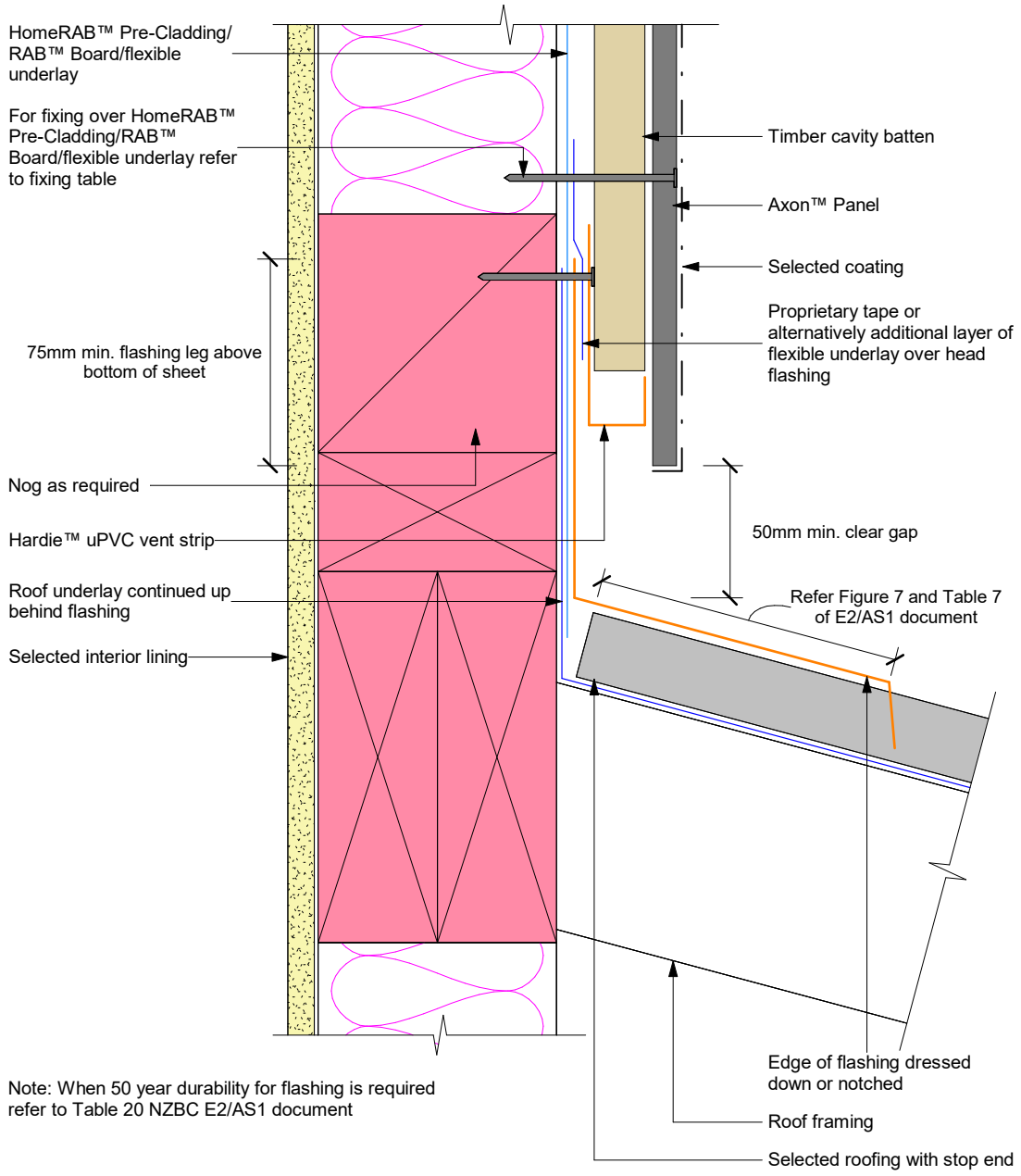
Figure 43: Drained flashing joint at floor joist



Note:

* Check architect's plans for the type of flashing to be used.
* Check fixing centres and edge distances.
* Cut edges need to be primed with sealer.
* When 50 year durability is required refer Table 20 E2/AS1.
* The flashing to be placed in the centre of the floor joists. Do not fix Cavity Battens or panels into floor joists.

Figure 44: One piece apron flashing joint



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

Figure 45: Enclosed deck balustrade to wall junction sluminium internal corner

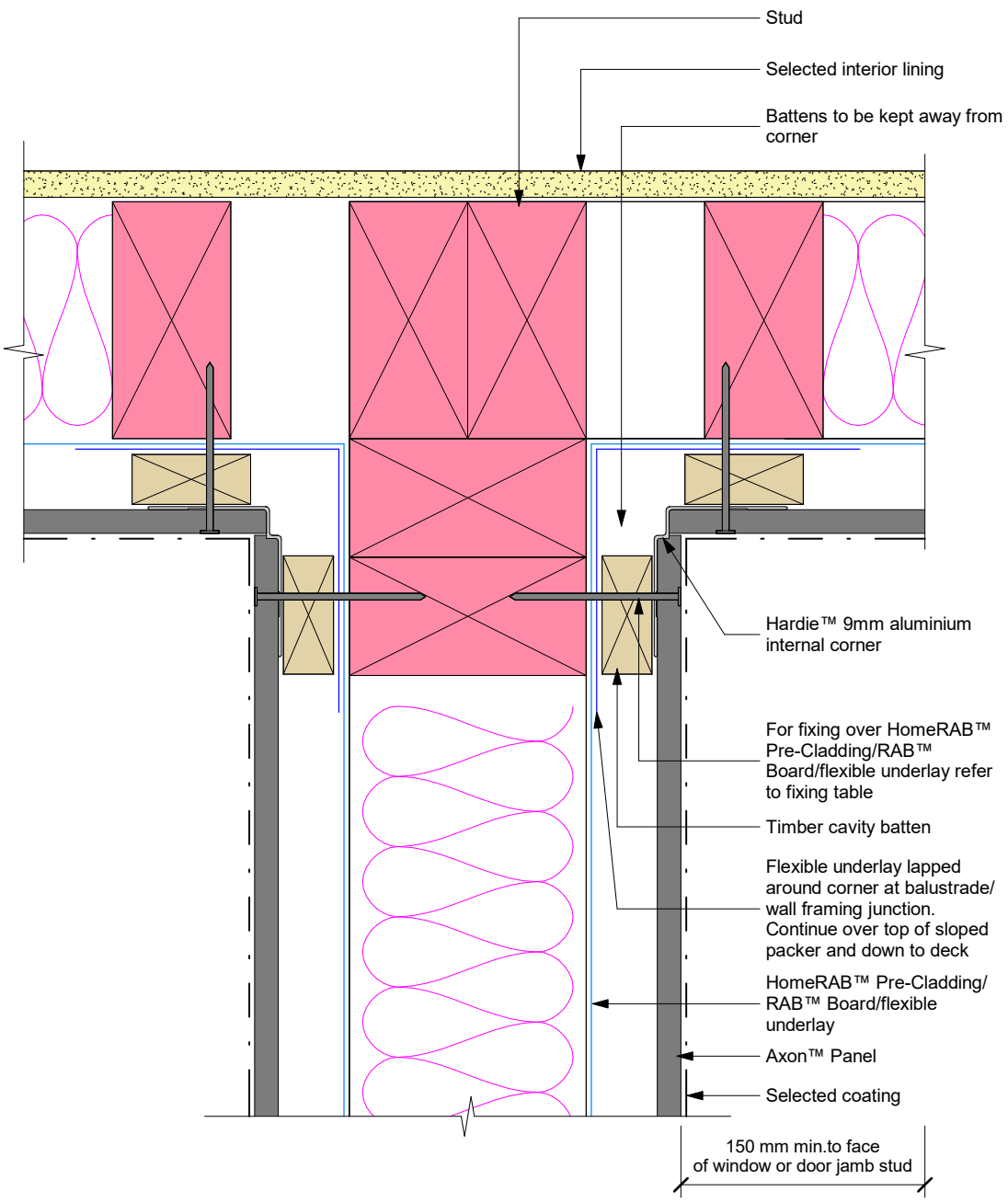
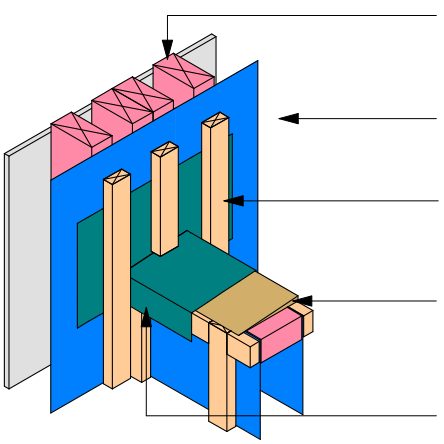
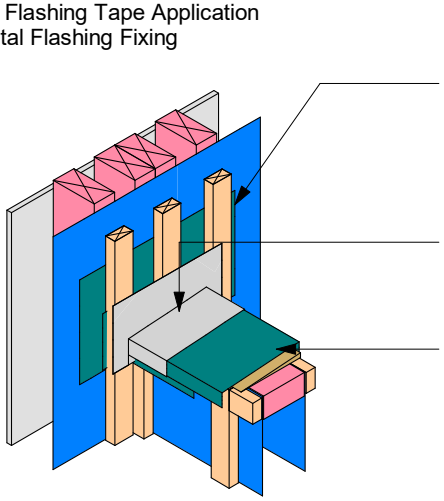


Figure 46: Enclosed deck balustrade to wall junction



Batten and Flashing Tape Application
Prior to Metal Flashing Fixing



Saddle Flashing Application Prior to
Cladding and Cap Flashing Fixing

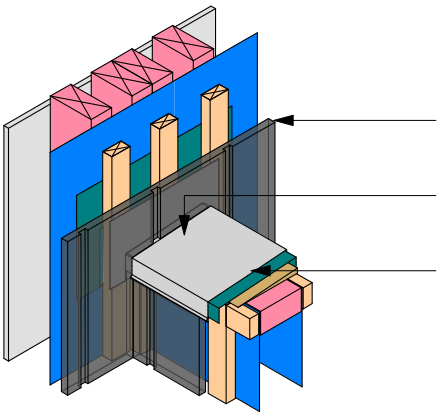


Figure 47: Parapet flashing

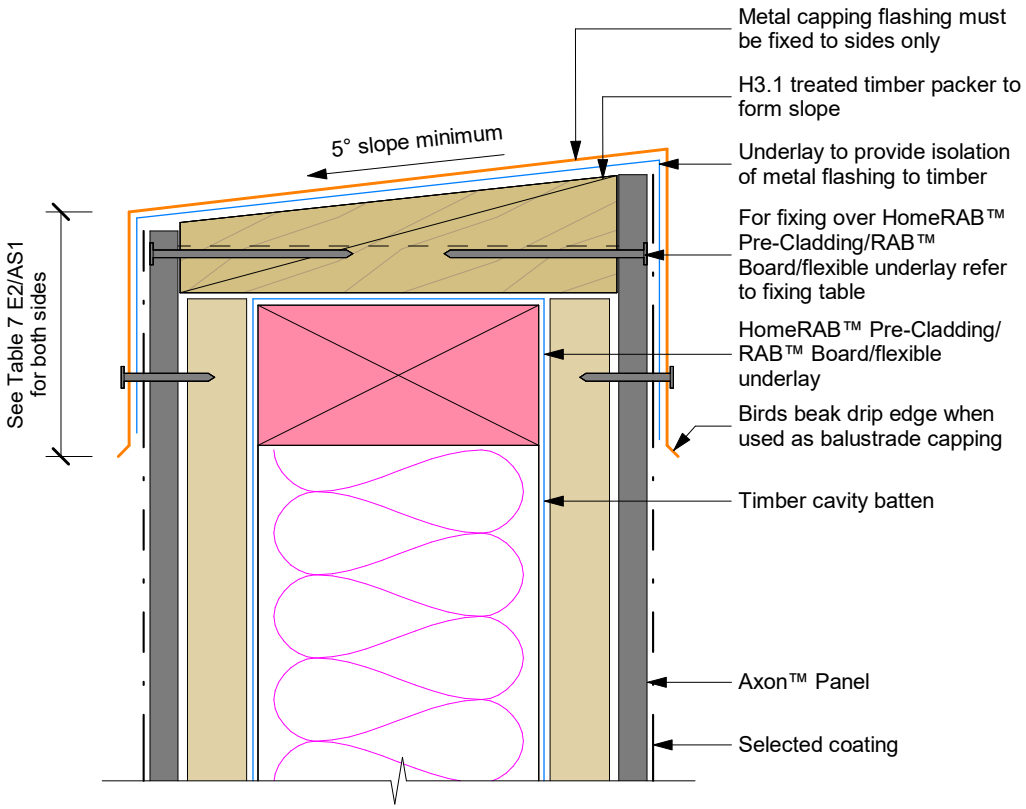


Figure 48: Garage jamb

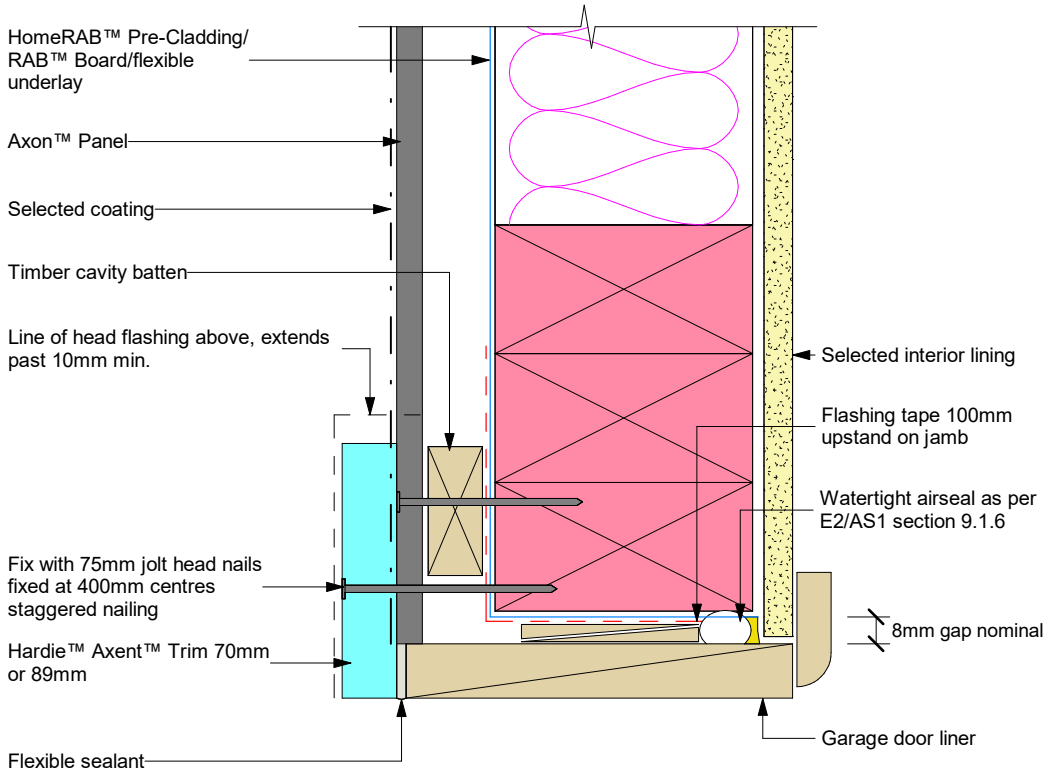
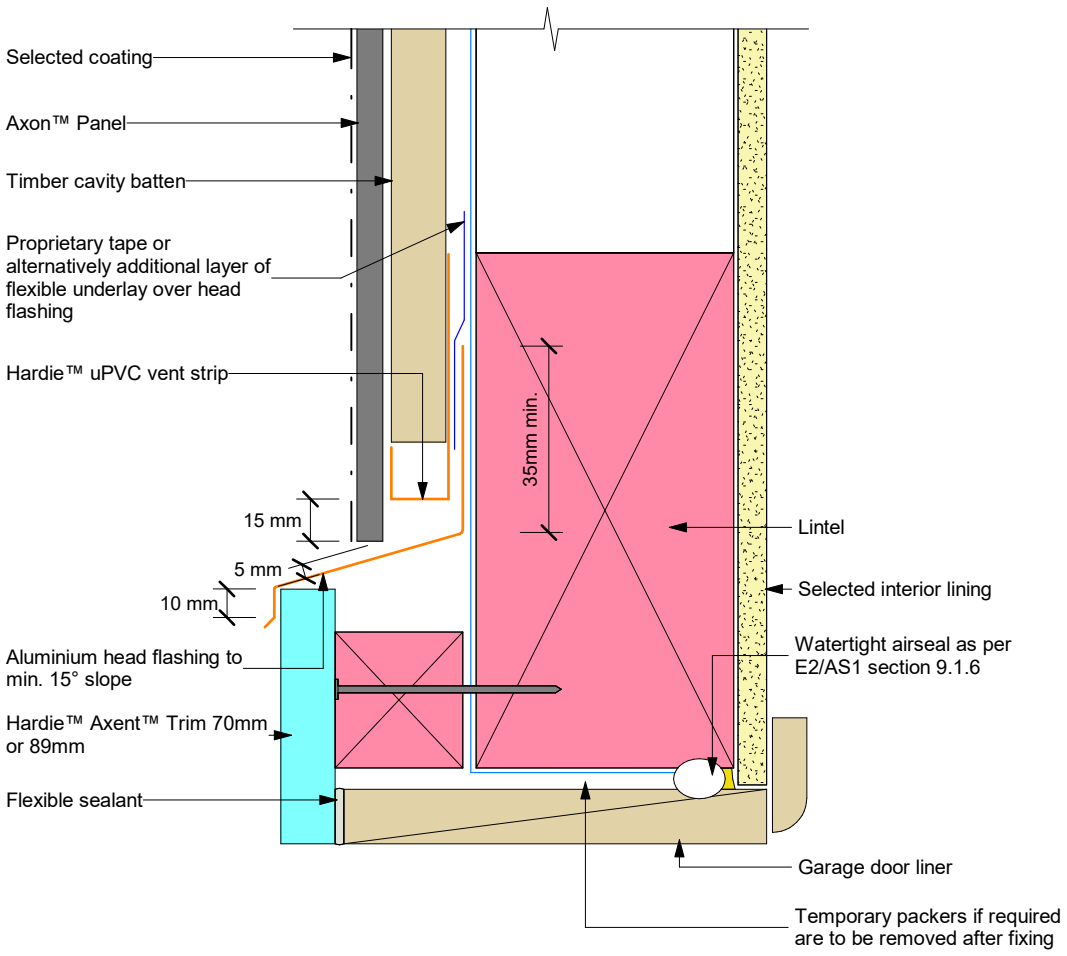
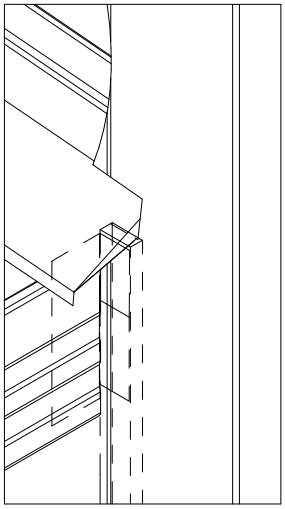


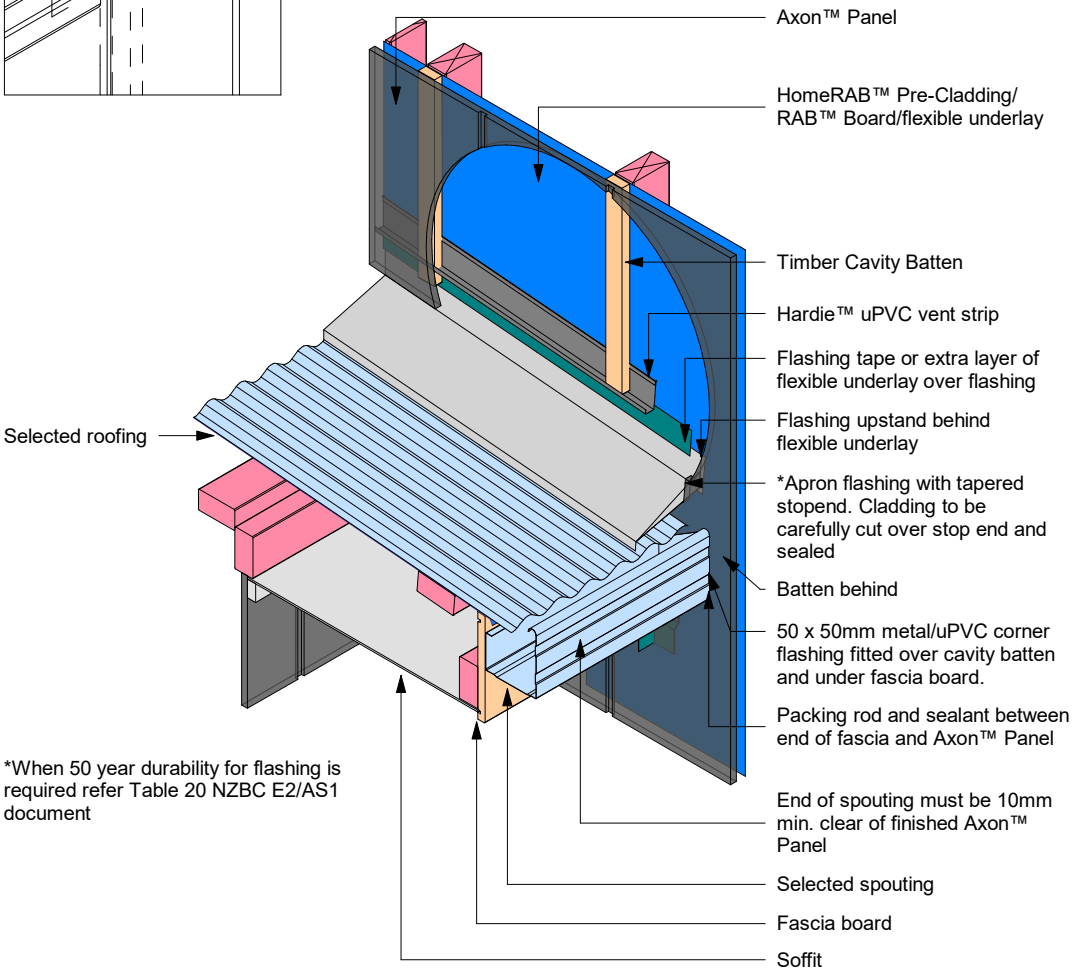
Figure 49: Garage head



- Sealant must be applied between head flashing and Hardie™ Axent™ Trim in VH and EH wind zones
- Site cut edges to be primed

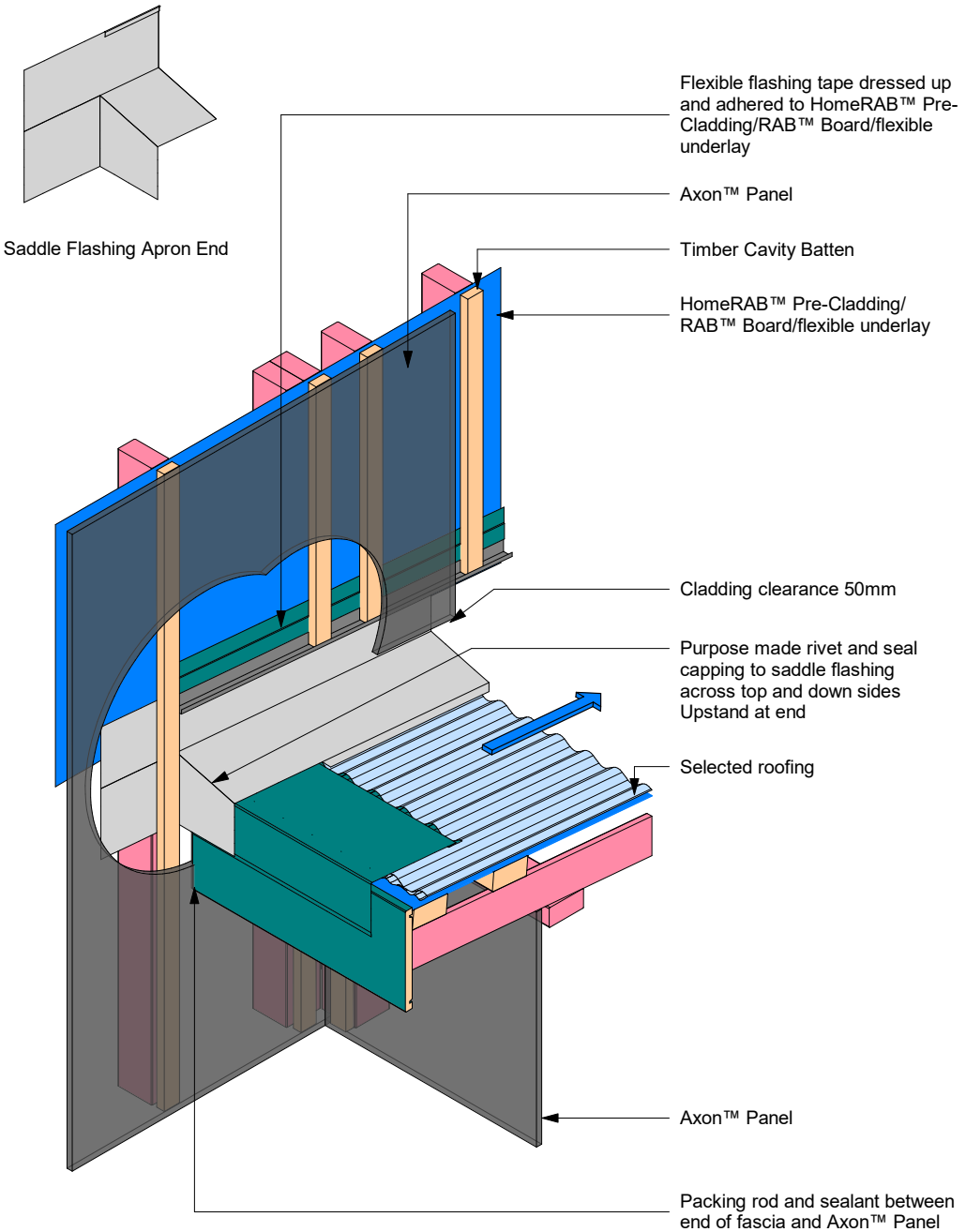
Figure 50: junction between panel and fascia board





Note: Site cut edges to be primed

Figure 51: Enclosed roof to wall intersection



Product Warranty

James Hardie New Zealand Limited ("James Hardie") warrants for a period of 15 years from the date of purchase that the Axon™ Panel (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 Axon™ Panel when installed in accordance with the relevant Axon™ Panel 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.

JamesHardie™

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

BRANZ Appraised
Appraisal No. 611 [2020]

JAMES HARDIE RIGID AIR BARRIERS

Appraisal No. 611 (2020)

This Appraisal replaces BRANZ Appraisal No. 611 (2011)

Amended 07 December 2020

BRANZ Appraisals

Technical Assessments of products for building and construction.

James Hardie New Zealand Limited
PO Box 12 070
Penrose
Auckland
Tel: 0800 808 868
Web: www.jameshardie.co.nz

BRANZ
1222 Moonshine Rd,
RD1, Porirua 5381
Private Bag 50 908
Porirua 5240,
New Zealand
Tel: 04 237 1170
branz.co.nz

Product

1.1 James Hardie Rigid Air Barriers are a range of rigid wall underlay materials including RAB™ Board and HomeRAB™ Pre-Cladding. They are sealed fibre cement sheets designed for use as rigid wall underlay behind wall cladding systems. HomeRAB™ Pre-Cladding and RAB™ Board are manufactured using a medium density fibre cement formulation.

Scope

2.1 HomeRAB™ Pre-Cladding has been appraised for use as a rigid wall underlay and temporary weather-protecting sheathing on timber-framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- with absorbent wall claddings directly fixed to framing; and,
- with non-absorbent wall claddings directly fixed to framing with a flexible wall underlay over the HomeRAB™ Pre-Cladding; and,
- with absorbent and non-absorbent wall claddings installed over a nominal 20 mm drained cavity; and,
- with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1; and,
- situated in NZS 3604 Wind Zones up to, and including, Very High.

2.2 RAB™ Board has been appraised for use as a rigid wall underlay and temporary weather-protecting sheathing on timber-framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- constructed with timber framing, or timber frame infill complying with the NZBC; and,
- with absorbent wall claddings directly fixed to framing; and,
- with non-absorbent wall claddings directly fixed to framing with a flexible wall underlay over the RAB™ Board; and,
- with absorbent and non-absorbent wall claddings installed over an nominal 20 mm drained cavity; and,
- with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1; and,
- when used in conjunction with wall cladding systems suitable for use with maximum wind pressures for structural and weathertightness design of 1 kPa Serviceability Limit State (SLS) and 1.5 kPa Ultimate Limit State (ULS) where studs are at maximum 600 mm centres, and 3 kPa SLS and 4.5 kPa ULS where studs are at maximum 400 mm centres.

(Note: James Hardie Rigid Air Barriers can be used to provide structural bracing. RAB™ Board can also be used in fire resistance rated construction. These aspects have not been assessed by this Appraisal and are outside its scope.)

2.3 RAB™ Board has also been appraised for use as a rigid wall underlay and temporary weather-protecting sheathing on timber-framed buildings within the following scope:

- buildings with a building height not exceeding 25 m; and,
- constructed with timber framing complying with the NZBC; and,
- with inter-storey deflections designed for up to height/180 of horizontal in-plane movement during seismic SLS events [based on a 3 m inter-storey height]; and,
- with absorbent and non-absorbent wall claddings installed over a nominal 20 mm drained cavity; and,
- when used in conjunction with either James Hardie or other cladding systems suitable for use with maximum wind pressures for structural and weathertightness design of 1 kPa SLS and 1.5 kPa ULS where studs are at maximum 600 mm centres, and 3 kPa SLS and 4.5 kPa ULS where studs are at maximum 400 mm centres.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, James Hardie Rigid Air Barriers, if used, designed, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet, or contribute to meeting the following provisions of the NZBC:**

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. James Hardie Rigid Air Barriers meet the requirements for loads arising from earthquake and wind [i.e. B1.3.3 (f) and (h)]. See Paragraphs 8.1-8.7.

Clause B2 DURABILITY: Performance B2.3.1 (a), not less than 50 years, B2.3.1 (b), 15 years and B2.3.2. James Hardie Rigid Air Barriers meet these requirements. See Paragraphs 9.1-9.3.

Clause C3 FIRE AFFECTING AREAS BEYOND THE SOURCE: Performance C3.5 and C3.7. When used as part of an external wall system, James Hardie Rigid Air Barriers will contribute to meeting these requirements. See Paragraphs 12.1-12.3.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the cladding system, James Hardie Rigid Air Barriers will contribute to meeting this requirement. See Paragraphs 13.1-13.3.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. James Hardie Rigid Air Barriers meet this requirement.

Technical Specification

4.1 System components and accessories for James Hardie Rigid Air Barriers, which are supplied by James Hardie New Zealand Limited are:

- **HomeRAB™ Pre-Cladding** is a 4.5 mm thick fibre cement sheet, manufactured from a cellulose fibre cement formulation. It is produced in sheet material form with 'HomeRAB' printed on the front face. The sheets are formed, cut to length, and then cured by high pressure autoclaving. The sheet is coated on the front face and four edges with a green tinted water repellent sealer. HomeRAB™ Pre-Cladding is available in sizes of 1,200 mm wide and 2,450, 2,750 and 3,000 mm long. It is manufactured to conform to the requirements of AS/NZS 2908.2.
- **RAB™ Board** are 6 mm or 9 mm thick fibre cement sheets, manufactured from a cellulose fibre cement formulation. It is produced in sheet material form. The sheets are formed, cut to length, and then cured by high pressure autoclaving. The sheet is coated on the front face and four edges with a green tinted water repellent sealer. RAB™ Board is available in sizes of 1,200 mm wide and 2,450, 2,750 and 3,000 mm long. It is manufactured to conform to the requirements of AS/NZS 2908.2 and is classified as a Type A, Category 2 fibre cement product.

Accessories

- **HomeRAB™ Pre-Cladding and RAB™ Board horizontal flashings** - uPVC, available in 3,000 mm lengths.

4.2 System components and accessories for James Hardie Rigid Air Barriers, which are supplied by the building contractor are:

- **Joint sealing tape and flexible sill and jamb flashing tape system** - 3M™ All Weather Flashing Tape 8067 [3M New Zealand Ltd], SUPER-STICK Flexible Flashing Tape [Marshall Innovations Ltd], Thermakraft Premium Jointing Tape [Thermakraft NZ Ltd] and Thermaflash [Thermakraft NZ Ltd].
- **HomeRAB™ Pre-Cladding and RAB™ Board 6 mm sheet fixing** – gun-driven 40 mm or 50 x 2.8 mm hot-dip galvanised or ring shank stainless steel round head nails, or hand-driven 40 x 2.8 mm hot-dip galvanised or ring shank stainless steel HardieFlex™ nails.
- **RAB™ Board 9 mm sheet fixing** – 50 x 2.8 mm hot-dip galvanised or stainless steel round drive nails.

[Note: Hot-dip galvanising must comply with AS/NZS 4680 and stainless steel must be Grade 304 or 316.]

- **Horizontal Z Flashing** - uPVC, galvanised steel or aluminium.

Handling and Storage

5.1 Handling and storage of all materials supplied by James Hardie New Zealand Limited or the building contractor, whether on-site or off-site, is under the control of the building contractor. James Hardie Rigid Air Barriers must be stacked flat, off the ground and supported on a level platform. They must be kept dry at all times either by storing under cover or providing waterproof covers to the stack. Care must be taken to avoid damage to edges, ends and surfaces. The sheathing must always be carried on edge. uPVC flashings and jointers must be protected from direct sunlight and physical damage, and should be stored flat and under cover.

5.2 Other accessories must be stored so they are kept clean, dry and undamaged.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for James Hardie Rigid Air Barriers. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

Framing

Timber Treatment

7.1 Timber wall framing behind James Hardie Rigid Air Barriers must be treated as required by NZBC Acceptable Solution B2/AS1.

Timber Framing

7.2 For HomeRAB™ Pre-Cladding installations, timber framing must comply with NZS 3604 for buildings or parts of buildings within the scope limitations of NZS 3604. Buildings or parts of buildings outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170. Where specific design is required, the framing must be of at least equivalent stiffness to the framing provisions of NZS 3604. In all cases studs must be at maximum 600 mm centres. Dwangs must be fitted flush between the studs at maximum 1,200 mm centres. *[Note: The timber framing must also be suitable for the selected wall cladding. Refer to the selected cladding system's Technical Literature for specific framing requirements.]*

7.3 For RAB™ Board installations, timber framing must comply with NZS 3604 for buildings or parts of buildings within the scope limitations of NZS 3604. Buildings or parts of buildings outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170 considering local factors. In all cases studs must be at maximum 600 mm centres for buildings situated in wind pressures up to 1.5 kPa ULS, and at maximum 400 mm centres for buildings situated in wind pressures greater than 1.5 kPa ULS up to 4.5 kPa ULS. Dwangs must be fitted flush between the studs at maximum 1,200 mm centres. *[Note: The timber framing must also be suitable for the selected wall cladding. Refer to the selected cladding system's Technical Literature for specific framing requirements.]*

7.4 Timber wall framing where James Hardie Rigid Air Barriers are joined must be 45 mm minimum finished width.

James Hardie Rigid Air Barrier Set Out

7.5 James Hardie Rigid Air Barriers must be installed vertically. At the base of the wall, the sheet must hang below the bottom plate a minimum of 15 mm. Sheet overhang where used with timber floors must hang below timber subfloor members a minimum of 15 mm, up to a maximum of 40 mm.

7.6 In all cases, HomeRAB™ Pre-Cladding and RAB™ Board sheet edges must be supported and fixed to the wall framing.

General

7.7 James Hardie Rigid Air Barriers are intended for use as rigid wall underlays fixed over timber-framed walls in order to support wind pressures, and to act as a secondary barrier to wind-driven rain.

Temporary Weather Protection

7.8 Commencing from installation, James Hardie Rigid Air Barriers must not be exposed to the weather for more than 180 days.

7.9 James Hardie Rigid Air Barriers may be used as a temporary weather protecting sheathing to allow the insulation and internal lining of the building to proceed before the wall cladding is installed. To achieve temporary weathertightness, all joints, internal and external corners of the James Hardie Rigid Air Barriers must be sealed, the roof cladding and soffit linings must be installed, the flexible sill and jamb flashing tape system must be installed around the window and door openings, and the window and door joinery must be installed complete with head flashings and air seals. The timber wall framing moisture content must not exceed that specified by the internal lining system supplier at the time of the insulation installation and internal lining application.

7.10 James Hardie Rigid Air Barriers are suitable for use under wall claddings as a rigid wall underlay as called up in NZBC Acceptable Solution E2/AS1, Table 23, except that non-absorbent claddings must not be installed directly over the James Hardie Rigid Air Barriers.

Table 1: NZBC E2/AS1 Table 23 Requirements

NZBC E2/AS1 Table 23 Rigid Wall Underlay Properties	Property Performance Requirement	James Hardie Rigid Air Barriers Actual Property Performance
Vapour Resistance	< 7 MN s/g	0.6 MN s/g
Water Resistance	> 20 mm	Pass

Structure

Mass

8.1 The mass of HomeRAB™ Pre-Cladding is approximately 6.5 kg/m^2 at equilibrium moisture content. The mass of 6 mm RAB™ Board is approximately 8.6 kg/m^2 at equilibrium moisture content. The mass of 9 mm RAB™ Board is approximately 13 kg/m^2 at equilibrium moisture content. This mass must be added to the selected wall cladding system mass when determining the overall wall cladding mass in terms of NZS 3604.

Wind Zones

8.2 HomeRAB™ Pre-Cladding is suitable for use in all Wind Zones of NZS 3604, up to, and including, Very High. The sheets must be fixed at centres as specified in Table 2. The fixings must be positioned a minimum of 12 mm from all sheet edges, and a minimum of 50 mm horizontally and 75 mm vertically from sheet corners. The fastener heads must finish flush with the sheet surface.

Table 2: HomeRAB™

NZS 3604 Wind Zone	Framing Set Out	HomeRAB™ Pre-Cladding Nailing Centres to Studs, Plates and Dwangs
Low, Medium and High	Studs at 600 mm centres maximum and dwangs at 800 mm centres	200 mm
Very High	Studs at 400 mm centres maximum and dwangs at 800 mm centres	200 mm

8.3 RAB™ Board is suitable for use in design wind pressures up to and including 4.5 kPa ULS when used in conjunction with wall cladding systems able to resist the same face load pressures. The sheets must be fixed at centres as specified in Table 3. The fixings must be positioned a minimum of 12 mm from all sheet edges, and a minimum of 50 mm horizontally and 75 mm vertically from sheet corners. The fastener heads must finish flush with the sheet surface.

Table 3: RAB™ Board Fixing Centres

Wind Pressure	Framing Set Out	RAB™ Board Nailing Centres to Studs, Plates and Dwangs
≤ 1.5 kPa ULS (NZS 3604 Wind Zone Medium)	Studs at 600 mm centres and dwangs at 1,200 mm	200 mm
> 1.5 kPa ULS and ≤ 4.5 kPa ULS (NZS 3604 Wind Zone High to Extra High)	Studs at 400 mm centres and dwangs at 1,200 mm	200 mm

Top Plate Hold Down Connections

8.4 James Hardie Rigid Air Barriers can be used as an alternative to wire dog connectors to achieve a top plate connection capacity of 4.7 kN in accordance with Fixing Type B of NZS 3604 Table 8.18. To achieve the connection strength, the HomeRAB™ Pre-Cladding and RAB™ Board sheets must be fixed along the top edge into the top plate with 50 x 2.8 mm hot-dip galvanised or ring shank stainless steel round head nails, or hand-driven 40 x 2.8 mm hot-dip galvanised or ring shank stainless steel HardieFlex™ nails at 75 mm centres. The fixings must be positioned a minimum of 20 mm from the sheet edge. The fastener heads must finish flush with the sheet surface. The remainder of the sheet is fixed in accordance with Table 2 or Table 3.

Wall Cladding Fixing

8.5 The length of the selected wall cladding fixing must be increased by a minimum of the thickness of the James Hardie Rigid Air Barrier to maintain the face load strength of the wall cladding system.

Bracing

8.6 HomeRAB™ Pre-Cladding and RAB™ Board can be used to provide structural bracing. This has not been assessed by this Appraisal and is outside its scope.

Inter-storey Deflection

8.7 RAB™ Board is suitable to accommodate inter-storey deflections. When installed in accordance with the detail contained in the Technical Literature, RAB™ Board is capable to withstanding SLS deflections up to height/180. For structures where greater inter-storey deflections are expected, a deflection head should be incorporated into design as detailed in the Technical Literature in conjunction with specific engineering design.

Durability

9.1 James Hardie Rigid Air Barriers meet code compliance with NZBC Clause B2.3.1 (a), not less than 50 years when used where the cladding durability requirement or expected serviceable life is not less than 50 years, e.g. behind masonry veneer, and code compliance with NZBC Clause B2.3.1 (b), 15 years where the cladding durability requirement is 15 years.

Serviceable Life

9.2 Provided they are not exposed to the weather or ultraviolet (UV) light for a total of more than 180 days, and provided the exterior cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather resistant, James Hardie Rigid Air Barriers are expected to have a serviceable life of at least 50 years.

9.3 Areas of geothermal activity and coastal locations can be very corrosive to fasteners, especially coastal locations within distances of up to 500 metres of the sea including harbours, or 100 metres from tidal estuaries and sheltered inlets in some instances. These coastal locations are defined in NZS 3604 as Zone D. For the James Hardie Rigid Air Barriers when used as a rigid sheathing in Zone D they must be fixed with stainless steel fasteners. Fasteners outside Zone D may be hot-dip galvanised steel.

Maintenance

10.1 James Hardie Rigid Air Barriers will not normally require maintenance. However, if damage occurs to the cladding or lining protecting the sheathing or to the sheathing itself, the repairs or replacement must be carried out to ensure the integrity of the rigid wall underlay.

Prevention of Fire Occurring

11.1 James Hardie Rigid Air Barrier Sheets are considered a non-combustible material and need not be separated from heat sources such as fireplaces, heating appliances, flues and chimneys. However, when used in conjunction with, or attached to heat sensitive materials, the heat sensitive material must be separated from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Acceptable Solution C/AS1, C/AS2 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

External Vertical Fire Spread

12.1 James Hardie RAB™ Board has been tested to NFPA 285 and can be used to meet the requirements of NZBC Clause C3.5 and C3.7 with regard to external vertical fire spread when external walls are constructed to the following specifications:

- 6 or 9 mm RAB™ Board installed in accordance with the technical literature; and,
- A cladding system comprised entirely of non-combustible components over James Hardie CLD fibre cement cavity battens; and,
- Pink Batts R2.2 Glasswool or insulation as specified by James Hardie fitted within the framing cavity throughout the external façade.

(Note: NZBC Clause C3.5 applies only to buildings where the building height exceeds 10 m. In these instances, the compliance of the selected cladding system with all aspects of the Building Code must be addressed by the designer.)

(Note: Alternative insulation types specified by James Hardie have not been assessed by BRANZ and is outside the scope of this Appraisal.)

12.2 James Hardie RAB™ Board with 20 x 40 mm timber cavity battens and James Hardie Axon Panel cladding system has been tested to NFPA 285 and is suitable to meet the requirements of NZBC Clause C3.5 with regard to external vertical fire spread.

- [Note: James Hardie Axon Panel cladding system has not been assessed by BRANZ and is outside the scope of this Appraisal.]

12.3 James Hardie RAB™ Board with 20 x 40 mm timber cavity battens and James Hardie Axon Panel cladding system has been tested to NFPA 285 and is therefore considered by NZBC Acceptable Solution C/AS2 to meet the requirements of NZBC Clause C3.7 with regard to external fire spread.

- [Note: James Hardie Axon Panel cladding system has not been assessed by BRANZ and is outside the scope of this Appraisal.]

External Moisture

13.1 James Hardie Rigid Air Barriers must be used behind claddings that meet the performance requirements of NZBC Clause E2.

13.2 James Hardie Rigid Air Barriers meet the performance requirements for a rigid wall underlay as specified in NZBC Acceptable Solution E2/AS1, Table 23, except that non-absorbent claddings must not be installed directly over the James Hardie Rigid Air Barriers.

13.3 James Hardie Rigid Air Barriers, when installed in accordance with the Technical Literature and this Appraisal, will assist in the total cladding system's compliance with NZBC Clause E2.

Installation Information

Installation Skill Level Requirements

14.1 All design and building work must be carried out in accordance with the James Hardie Rigid Air Barriers Technical Literature and this Appraisal by competent and experienced tradespersons conversant with rigid air barriers. Where the work involves Restricted Building Work (RBW) this must be completed by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant License class.

System Installation

15.1 James Hardie Rigid Air Barriers may be cut by scoring and snapping, hand guillotine, hand or power saw. Holes and cut-outs may be formed by drilling a number of holes around the perimeter of the opening required and tapping out the centre with a hammer, or by using a hole saw.

15.2 Sheets must be dry prior to installation. Cut edges that are left exposed must be sealed prior to installation.

15.3 Prior to fixing James Hardie Rigid Air Barriers, a check must be made to ensure all sheet edges will be supported by framing. At the base of the wall, the sheet must hang below the bottom plate by a minimum of 15 mm.

15.4 James Hardie Rigid Air Barriers must be fixed to the timber framing with 40 mm or 50 x 2.8 mm hot-dip galvanised or ring shank stainless steel round head nails, or hand-driven 40 x 2.8 mm hot-dip galvanised or ring shank stainless steel HardieFlex™ nails. Refer to Table 2, Table 3 and Paragraph 8.4 for fixing centres and Paragraph 9.3 for material selection.

15.5 At vertical joints, James Hardie Rigid Air Barriers must be installed with a 2-3 mm gap between the sheet edges and must be supported over vertical framing. At horizontal joints between floor levels, James Hardie Rigid Air Barriers must be installed with a minimum 6 mm gap between the sheet edges and must be supported over horizontal framing. At inter-storey floor levels, James Hardie Rigid Air Barriers must not be fixed to inter-storey joists or blocking and must have a minimum 15 mm gap between the sheet edges at this point to allow for shrinkage of the framing. All horizontal joints must be flashed with a uPVC flashing.

15.6 Any damaged areas, such as holes or gaps around service penetrations, must be repaired. Damaged areas can be repaired by covering with joint sealing tape.

Joint Sealing Tape Installation

15.7 All vertical sheet joints, internal and external corners must be covered with 3M™ All Weather Flashing Tape 8067, SUPER-STICK flexible flashing tape or Thermakraft Premium Jointing Tape. The manufacturer's instructions regarding the application temperatures for the joint sealing tapes, and the requirements for the use of adhesive primer must be followed.

15.8 James Hardie Rigid Air Barriers must be cleaned of dust and other surface contaminants prior to the application of the joint sealing tape to ensure adequate adhesion is achieved.

Flexible Sill and Jamb Tape Installation

15.9 The selected flexible sill and jamb tape flashing system must be installed in accordance with the tape manufacturer's instructions, except where varied by the James Hardie Rigid Air Barriers Technical Literature. Particular attention must be paid to the installation of the sill and jamb tapes around window and door joinery openings to ensure all exposed timber wall framing in the opening is protected.

Inspections

15.10 The Technical Literature must be referred to during the inspection of James Hardie Rigid Air Barriers installations. When the construction sequence is followed in accordance with the Technical Literature, the Building Consent Authority (BCA) inspections for pre-cladding and pre-lining may be combined.

Health and Safety

16.1 Cutting of James Hardie Rigid Air Barriers must be carried out in well ventilated areas, and a dust mask and eye protection must be worn.

16.2 When power tools are used for cutting, grinding or forming holes, health and safety measures as set out in the Technical Literature must be undertaken because of the amount of dust generated.

16.3 Safe use and handling procedures for James Hardie Rigid Air Barriers and the components that make up the cladding system are provided in the relevant manufacturer's Technical Literature.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

17.1 Testing has been carried out by James Hardie Building Products to determine the face load pressure resistance of HomeRAB™ Pre-Cladding. Testing has also been carried out by James Hardie Building Products to determine the face load pressure resistance of RAB™ Board in conjunction with Titan Facade Panels. The testing was completed in a National Association of Testing Authorities (NATA) Accredited laboratory and was observed by BRANZ. The test method and results have been reviewed by BRANZ and found to be satisfactory.

17.2 The resistance of James Hardie Rigid Air Barriers to water vapour transmission in accordance with AS/NZS 4200.1 and resistance to water penetration in accordance with AS/NZS 4201.4 has been completed by BRANZ.

17.3 Testing of specimens assembled containing James Hardie Rigid Air Barriers has been carried out to NFPA 285 by Intertek Group plc.

Other Investigations

18.1 Structural and durability opinions were given by BRANZ technical experts.

18.2 BRANZ expert opinion on NZBC E2 code compliance for James Hardie Rigid Air Barriers was based on evaluation of all details within the scope and as stated within this Appraisal. The details contained within the Technical Literature have been reviewed, and an opinion has been given by BRANZ technical experts that the system will meet the performance levels of Acceptable Solution E2/AS1 for rigid wall underlays.

18.3 BRANZ expert opinion on NZBC External Fire Spread compliance for James Hardie Rigid Air Barriers was based on evaluation of cladding types referenced in this Appraisal against the results of NFPA 285 testing

18.4 The non-combustibility of James Hardie Rigid Air Barriers have been assessed by BRANZ technical experts.

18.5 The Technical Literature for James Hardie Rigid Air Barriers has been examined by BRANZ and found to be satisfactory.

Quality

19.1 The manufacture of James Hardie Rigid Air Barriers has been examined by BRANZ, including methods adopted for quality control. Details regarding the composition of the materials used were obtained by BRANZ and found to be satisfactory.

19.2 The quality of materials, components and accessories supplied by James Hardie New Zealand Limited is the responsibility of James Hardie New Zealand Limited. The quality control system of James Hardie New Zealand Limited has been assessed and registered as meeting the requirements of ISO 9001: 2015.

19.3 Quality of installation on site of components and accessories supplied by James Hardie New Zealand Limited and the building contractor is the responsibility of the installer.

19.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing systems, uPVC flashings, joint seal tapes and flexible sill and jamb tape systems in accordance with the instructions of James Hardie New Zealand Limited.

Sources of Information

- AS/NZS 1170: 2002 Structural design action - General principles.
- AS/NZS 2908.2: 2000 Cellulose-cement products - Flat sheet.
- AS/NZS 4200.1: 1994 Pliable building membranes and underlays - materials.
- AS/NZS 4201.4: 1994 Pliable building membranes and underlays - Methods of test - Resistance to water penetration.
- NFPA 285: 2012 Standard method of test for the evaluation of flammability characteristics of exterior non-loadbearing wall assemblies containing components using the intermediate scale, multi-storey test apparatus.
- NZS 3602: 2003 Timber and wood-based products for use in building.
- NZS 3603: 1993 Timber Structures Standard.
- NZS 3604: 2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of amendments – Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No.1, dated 07 December 2020

This Appraisal has been amended to add Thermaflash and Thermakraft Premium Jointing Tape.

In the opinion of BRANZ, James Hardie Rigid Air Barriers are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to James Hardie New Zealand Limited, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
   a) relates only to the product as described herein;
   b) must be read, considered and used in full together with the Technical Literature;
   c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
   d) is copyright of BRANZ.
2. James Hardie New Zealand Limited:
   a) continues to have the product reviewed by BRANZ;
   b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
   c) abides by the BRANZ Appraisals Services Terms and Conditions;
   d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
   a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
   b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
   c) any guarantee or warranty offered by James Hardie New Zealand Limited.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to James Hardie New Zealand Limited or any third party.

For BRANZ

Chelydra Percy
Chief Executive

Date of Issue:
XX Month 2020

Supporting Doc/Other

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK

I MARIUS DURKIN carried out/supervised the following design work that is restricted building work

PRIMARY STRUCTURE

Design work that is restricted building work	Description of restricted building work	Carried out or supervised	Reference to plans and specifications
Tick ✓	If appropriate, provide details of the restricted building work	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Foundations and subfloor framing ○		○ Carried out ○ Supervised	
Walls ○		○ Carried out ○ Supervised	
Roof ○		○ Carried out ○ Supervised	
Columns and beams ○		○ Carried out ○ Supervised	
Bracing ○		○ Carried out ○ Supervised	
Other ○		○ Carried out ○ Supervised	

Memorandum from licensed building practitioner: Certificate of design work

Section 45 and section 30c, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING

Street address: 51 SEFTON STREET	
Suburb: BELFAST	
Town/City: CH.CH	Postcode:

THE OWNER(S)

Name(s): BARBARA WEAR & TOM MURPHY	
Mailing address: AS ABOVE	
Suburb:	PO Box/Private Bag:
Town/City:	Postcode:
Phone number:	Email address:

FIRE SAFETY SYSTEMS

Design work that is restricted building work	Description of restricted building work	Carried out or supervised	Reference to plans and specifications
Tick ✓ if appropriate	If appropriate, provide details of the restricted building work	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Emergency warning systems ✓		✓ Carried out ○ Supervised	

WAIVERS AND MODIFICATIONS

Waivers or modifications of the Building Code are required. ○ Yes ⊘ No

If Yes, provide details of the waivers or modifications below:

Clause	Waiver/modification required
List relevant clause numbers of building code	Specify nature of waiver or modification of building code required

ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work.

Name: MARCUS DURKIN	LBP or Registration number: 115740
The practitioner is a: ⊘ Design LBP ○ Registered architect ○ Chartered professional engineer	
Mailing address (if different from below):	
Street address/Registered office: 28 LIFFEY SPRINGS DRIVE	
Suburb: LINCOLN	Town/City:
PO Box/Private Bag:	Postcode: 7608
Phone number:	Mobile: 021 170 8368
After hours:	Fax:
Email address: lyandmarcus@hotmail.com	Website:

DECLARATION

I Marcus Durkin certify that the design work that is restricted building work identified on this form:

- Complies with the building code, or
- Complies with the building code subject to any waiver or modification of the building code recorded on this form

Signature: _____

Date: 3/4/25

EXTERNAL MOISTURE MANAGEMENT SYSTEMS

Design work that is restricted building work	Description of restricted building work	Carried out or supervised	Reference to plans and specifications
Tick ⊘	If appropriate, provide details of the restricted building work	Tick ⊘ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Damp proofing ○		○ Carried out ○ Supervised	
Roof cladding or roof cladding system ⊘		⊘ Carried out ○ Supervised	
Ventilation system (for example, subfloor or cavity) ○		○ Carried out ○ Supervised	
Wall cladding or wall cladding system ⊘		⊘ Carried out ○ Supervised	
Waterproofing ○		○ Carried out ○ Supervised	
Other ○		○ Carried out ○ Supervised	