



Axon™ Panel EasyLap™ Panel Direct Fixed and Fixed to CLD™ Structural Cavity Batten

Technical Specification

February 2022 New Zealand



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**THIS TECHNICAL
SPECIFICATION
IS FOR
AXON™ PANEL/
EASYLAP™ PANEL
DIRECT FIXED AND
FIXED TO CLD™
STRUCTURAL
CAVITY BATTEN.**

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1 Application and Scope

1.1 Application

Axon™ Panel/EasyLap™ Panel is manufactured by James Hardie using an advanced lightweight cement composite. Base composition is portland cement, ground sand, cellulose fibre and water. Axon Panel™/EasyLap™ Panel It is classified as lightweight wall cladding suitable for residential and light commercial buildings using timber framing.

- Axon Panel/EasyLap Panel are primed on the face to take a suitable paint finish in any colour.
- Axon Panel 133 Smooth - the grooves on the face panel are nominal 10mm wide x 2.25mm deep and spaced at 133mm centres.
- Axon Panel 133 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 400 Smooth - the grooves on the face panel are nominal 10mm wide x 2.25mm deep and spaced at 400mm centres.
- EasyLap Panel provides a durable, shiplap vertical joint panel appearance for residential/commercial building façades. The panel is finished with a site applied roll on textured acrylic paint to create a rendered look with subtle vertical joint.

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, associated details and material selection provided by the designer. All of the 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.

1.2 Scope

The scope of this specification for the use of Axon Panel/EasyLap Panel is limited to buildings which fall within the scope limitations of 'Acceptable Solution E2/AS1 paragraph 1.1' of the New Zealand Building Code (NZBC).

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

This manual covers the use of Axon Panel/EasyLap Panel for both construction methods i.e. direct fixed to framing or cavity construction, used in external walls of timber framed buildings up to 2.5kPa(ULS).

Please refer to E2/AS1 for further information regarding the selection of construction methods to be used for fixing claddings.

1.3 Details

Various Axon Panel/EasyLap Panel figures are provided in the Details section of this document. This specification and details in dwg, dxf, jpg and pdf file format are also available for download at www.jameshardie.co.nz.

All dimensions shown are in millimetres unless noted otherwise.

1.4 Specific Design

For the use of Axon Panel/EasyLap Panel and CLD Structural Cavity Battens outside the scope of this specification, the designer, architect or engineer must ensure that the relevant clauses of the New Zealand Building Code (NZBC) have been considered and the intent of their design meets the requirements of the NZBC. Project-specific details are required to be developed if they are not covered in this literature.

2 Design

2.1 Compliance

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

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

2.2 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 the NZBC.

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

James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

2.3 Site and Foundation

The site on which the building is situated must comply with the NZBC Acceptable Solution E1/AS1 'Surface Water'.

Foundations design must comply with the requirements of the NZS 3604 'Timber-framed buildings' or be as per specific engineering design.

The grade of adjacent finished ground must slope away from the building to avoid any possibility of water accumulation in accordance with the NZBC requirements.

2.4 Surface Clearances

The clearance between the bottom edge of 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/EasyLap Panel must overhang the bottom plate on a concrete slab by a minimum of 50mm as required by NZS 3604.

Axon Panel/EasyLap Panel must have a minimum clearance of 100mm from paved ground, and 175mm from unpaved ground. On roofs and decks, the minimum clearance must be 50mm.

Do not install external cladding such that it may remain in contact with water or ground.

2.5 Moisture Management

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

Wall construction design must effectively manage moisture, considering both 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 and the NZBC.

For further guidance on designing for weathertightness refer to BRANZ Ltd, and the Ministry of Business Innovation and Employment (MBIE) updates on the following websites respectively, www.branz.co.nz and www.building.govt.nz

2.6 Structure

2.6.1 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 either 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.

2.6.2 Wind Loading

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

A specific design is required for all situations where the buildings falls outside the scope of the NZS 3604 and E2/AS1.

2.7 Bracing

Axon Panel/EasyLap Panel direct fixed can be used to achieve structural bracing when fixed with stainless steel Hardie™ Flex nails. For further information refer to the Bracing Design Manual by James Hardie.

Axon Panel/EasyLap Panel installed to CLD™ Structural Cavity Battens as per this specification cannot be used to achieve structural bracing. However, bracing can be achieved by using HomeRAB™ Pre-Cladding/RAB™ Board installed direct to framing instead of a flexible underlay or by using Villaboard™ Lining bracing system on the internal face.

2.8 Fire Rated Walls

Axon Panel/EasyLap Panel when direct fixed with Hardie™ Flex nails 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.

When using Axon Panel/EasyLap Panel fixed to CLD Structural Cavity Battens, a fire rating of up to 60 minutes can be achieved using RAB™ Board in conjunction with the fire rated system requirements as specified in the 'Fire and Acoustic Design Manual' by James Hardie. Ask James Hardie on 0800 808 868 for further information.

Axon Panel/EasyLap Panel are suitable for use where non-combustible materials are required on walls close to boundary.

2.9 Energy Efficiency

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

3 Framing

3.1 General

This Axon Panel/EasyLap Panel technical specification is only suitable for timber-framed buildings. Other framing materials are subject to a specific engineering design.

3.2 Timber Framing

3.2.1 Dimensions

A minimum 45mm wide stud is required.

3.2.2 Structural Grade

Minimum timber grade requirement is No. 1 framing grade or MSG6 as per the NZS 3604. The grading of timber must comply with the AS/NZS 1748 and NZS 3631 requirements.

3.2.3 Durability

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

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

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

3.2.4 Frame Construction

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

Timber framing sizes and its set-out must comply with NZS 3604 or specific engineering design requirements 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 comply with the minimum timber sizes stipulated for wall frames in Section 8 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 generated by loadings etc.

3.3 Steel Framing

Refer to Steel Frame Technical Supplement by James Hardie about the installation of Axon Panel/EasyLap Panel to steel frame.

3.4 Construction Methods

3.4.1 Direct Fixed

Buildings with a risk score of 1-6 calculated in accordance with the NZBC Solution 'E2/AS1' Table 2, Axon Panel/EasyLap Panel can be direct fixed. For direct fixed construction method the following framing is required:

- Studs at 600mm centres maximum
- A minimum 45mm stud width is required at vertical panel joints
- Nogs/dwangs are required at 1200mm centres maximum.

3.4.2 CLD Structural Cavity Batten

Buildings with a risk score of 7-20 calculated in accordance with the NZBC Solution 'E2/AS1' Table 2, Axon Panel/EasyLap Panel to be installed on a cavity. 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
- When studs are spaced at 400mm centres then the nogs/dwangs may be provided at 1200mm centres
- An extra stud is required in internal corners. Refer to Figure 28.

3.5 Tolerances

In order to achieve the required performance and an acceptable wall finish, it is imperative that framing is straight and true.

Framing tolerances must comply with the requirements of NZS 3604. All framing shall be made flush.

4 Preparation

4.1 Flexible Underlay or HomeRAB™ Pre-Cladding

Flexible underlay or HomeRAB™ Pre-Cladding must be provided as per the requirements of the NZBC Acceptable Solution E2/AS1 'External Moisture' and NZS 3604. The flexible underlay must comply with Table 23 of E2/AS1 and AS/NZS 4200.1. The flexible underlay must be fixed in accordance with E2/AS1, NZS 3604 and AS/NZS 4200.2 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. For attached garages, flexible underlays must be selected in accordance with the NZBC Acceptable Solution E2/AS1, paragraph 9.1 3.4. HomeRAB™ Pre-Cladding is suitable for use in these applications. It must be installed in accordance with the HomeRAB™ Pre-Cladding/RAB™ Board installation manual.

4.2 RAB™ Board or a Rigid Air Barrier

In EH wind zone or for specific design wind zone, a rigid air barrier ie RAB™ Board, must be used instead of flexible underlay. To achieve the temporary weathertightness using pre-cladding products from James Hardie, windows/doors must be installed with required flashing tapes and seals etc. Refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual for information regarding its installation and requirements to achieve temporary weathertightness. For other rigid air barriers please refer to that manufacturers technical specification.

4.3 Vent Strip

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

4.4 Flashing

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 underlay, HomeRAB™ Pre-Cladding or RAB™ Board must be appropriately taped around the penetrations and lapped/taped to flashings. Materials must be lapped in such a way that water tracks down to the exterior of a building. James Hardie will assume no responsibility for water infiltration within the wall due to poor installation of flashings or flexible underlays. The selected flashing materials must comply with the durability requirements of the NZBC. For information refer to Table 20 of clause E2 of the NZBC.

When using a HomeRAB™ Pre-Cladding/RAB™ Board the entire framing around window opening must be sealed with a flashing tape. The tape must be finished over the face of the HomeRAB™ Pre-Cladding or RAB™ Board. The flashing tapes like Thermaflash® Self Adhesive Window Flashing Tape by Thermakraft™, Super-Stick Building Tape® by Marshall Innovations or 3M™ All Weather Flashing Tape 8067 by 3M™ are recommended for use with HomeRAB™ Pre-Cladding/RAB™ Board. Refer to the tape manufacturer's literature for further information regarding their installation.

4.5 Junctions and Penetrations

Refer to Clause 2.5 of this specification for moisture management requirements. All windows and doors must be detailed as per the requirements of this specification. James Hardie has developed the window details for Axon Panel/EasyLap Panel which meet the requirements of E2 'External Moisture', an approved document of the NZBC. Refer to Figures 13 to 15 and 36 to 42.

5 Batten installation

Note: This specification is not for timber cavity battens. Refer to separate technical specification from James Hardie.

5.1 CLD Structural Cavity Battens

Buildings with a risk score of 7-20 calculated in accordance with Table 2 of Acceptable Solution E2/AS1 of the NZBC or buildings that are in 'EH' wind zone, require Axon Panel/EasyLap Panel to be installed on a cavity. CLD Structural Cavity Battens provide airspace between the frame and the panel and are used to fix cladding into them.

CLD Structural Cavity Battens are made of a low density fibre cement formulation which enables them to have extra strength and durability. CLD Structural Cavity Batten is sealed on all sides and is suitable to fix Axon Panel/EasyLap Panel installed as per this technical specification, and it can withstand the design wind pressures exerted on a cladding within the scope of the NZS 3604.

The CLD Structural Cavity Battens are made 2450mm long and 19mm thick. The battens are fully sealed on all sides.

5.2 Batten Layout

CLD Structural Cavity Battens must be fixed to the wall framing over flexible underlay or an E2/AS1 compliant rigid air barrier. The smoother face of batten should face towards the cladding.

CLD Structural Cavity Battens are suitable to withstand wind pressures up to 2.5kPa (ULS). For batten fixing, refer to section 5.4. Ensure the battens are straight and provide a flat surface to fix Axon Panel/EasyLap Panel to. Site cut ends of battens must be sealed on site with Dulux® Acraprime® 501/1 sealer or Resene® Quick Dry.

The battens are run continuously over the studs but they must not be run continuously over the floor joists. There must be a 15mm gap between the battens at floor joist level to allow for structural shrinkages and deflections. Refer to Figure 43.

CLD Structural Cavity Battens can be butt jointed over the studs within the floor height. The batten ends must be cut between 20° to 45° and be installed in a way that the butt joint deflects the moisture to the exterior. The ends must be sealed and jointed with the adhesive sealant before butting them together. Refer to Figure 34.

The designer must ensure that the CLD Structural Cavity Battens are not used in situations where design wind pressures are above 2.5kPa (ULS).

CLD Structural Cavity Battens must always be at least 300mm in length.

5.3 Intermediate Support

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

- 75mm galvanised mesh; or
- polypropylene tape at 300mm centres fixed horizontally and drawn taut.

No intermediate supports are required:

- when studs are spaced at 400mm centres; or
- when a rigid air barrier instead of flexible underlays are used.

5.4 Batten Fasteners

The CLD Structural Cavity Batten must be fixed to the framing as specified in Table 1. The fasteners must be driven at a minimum distance of 50mm from the batten ends.

Table 1

Batten fixing				
Fixing Type	Framing	Basic Wind Pressure kPa (ULS)	Batten centres max. (mm)	Fixings centres max. (mm)
65mm x 2.8mm RounDrive ring shank nail hot dip galv./ s.steel	Timber	Up to 1.5 (Up to and including VH wind zone)	600	250
		Up to 2.5 (>VH wind zone)	400	200
50mm x 9-10g Countersunk head steel screw class 3/4	*Steel 0.55 to 1.6mm BMT	Up to 1.5 (Up to and including VH wind zone)	600	250
		Up to 2.5 (>VH wind zone)	400	200

For fastener durability information, refer to Clause 6.2 of this document.

CLD Structural Cavity Battens less than 400mm in height must have fixings at maximum 150mm centres.

Battens must be fixed over studs.

6 Panel fixing

6.1 General

Axon Panel/EasyLap Panel must be kept dry and under cover whilst in storage or 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.
- Ensure the sheets are from the same batch.
- It is recommended to fix from the centre of the panel and work outwards.
- Do not overdrive fasteners.
- Fixings must be finished flush with the panel surface.
- Do not fix in the groove of Axon Panel.
- Minimum sheet width around window/door openings or corners etc. to be 200mm

6.2 Fastener Durability

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

Table 2

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

* Zone C areas where local knowledge dictates that increased durability is required, appropriate selection shall be made. Microclimate conditions as detailed in the 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.

6.3 Fastener – Type, Size and Layout

6.3.1 Direct Fix

Axon Panel/EasyLap Panel must be fixed to framing using the fixings as specified in Table 3 below and follow the edge distance required for nails as shown in the details. Refer to Figures 2 and 4.

Table 3

Panel fixing		
Direct fixed to frame using Hardie™ Flex nails over flexible underlay		
40 x 2.8mm Hardie™ Flex nails.	Fix at 200mm centres to all framing. Stud width 45mm min. required at vertical joint.	
Direct fixed to frame using brad nail over flexible underlay		
ND 50 stainless steel straight brad nail	Up to 1.5kPa (Up to and including VH wind zone)	Fix 150mm centres on panel edges and intermediate framing

Notes:

1. Brad nail fixing method is only suitable up to very high wind speed zones. Do not use this method for EH wind zones described in NZS 3604 or SED projects.
2. Nails must be finished flush with panel surface.
3. Special fixing arrangements are required for bracing and fire-resistance rated wall systems.

For more information Ask James Hardie on 0800 808 868.

When fixing the panels using nail guns, refer to the nail gun manufacturer for information about nails and the type of nail gun to be used.

Note: Do not use 'D' head nails.

6.3.2 CLD Structural Cavity Batten Method

This panel fixing method can be used up to 2.5kPa(ULS) wind pressure. Axon Panel/EasyLap Panel is only fixed into the CLD Structural Cavity Batten as per this method.

Adhesive Sealant

A polyurethane adhesive sealant Seal N' Flex™ -1 manufactured by Bostik® or SikaFlex® 11FC by Sika® are recommended for use in the installation of these products. Apply a 6mm continuous bead of this adhesive sealant over the face of the CLD Structural Cavity Batten before fixing the Axon Panel/EasyLap Panel. Refer to Figure 25 to 28.

When using external box corner flashing, use a 10mm thick bead of adhesive over the aluminium box corner flanges. Refer to Figure 29.

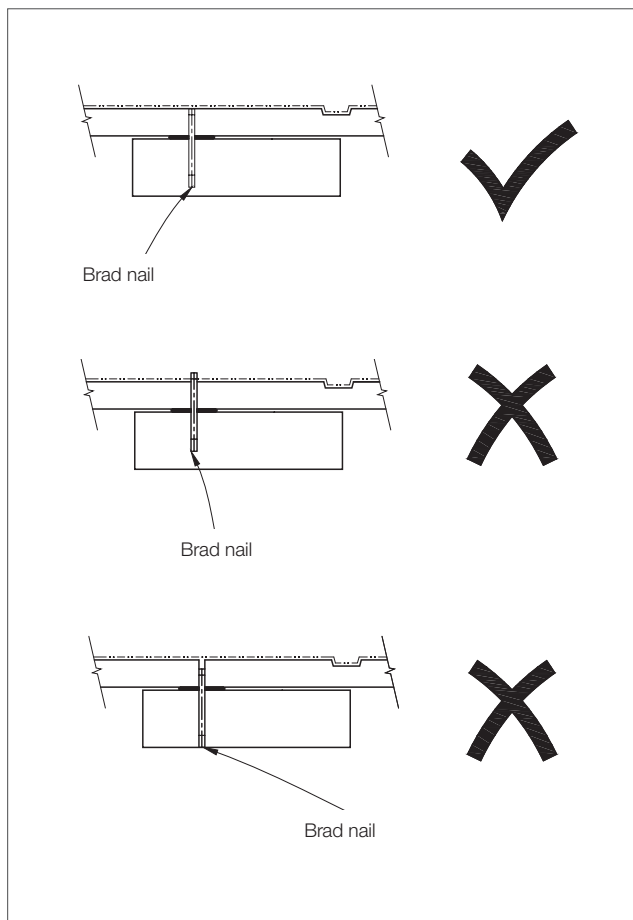
Note: Do not use excessive adhesive.

6.3.3 Cavity Construction using Timber Cavity Battens

When fixing Axon Panel/EasyLap Panel using timber cavity battens, these details are available at www.jameshardie.co.nz or Ask James Hardie on 0800 808 868.

6.4 Panel Layout

All panel edges must be supported by the framing. The shiplap joint must be formed vertically. The framing centers must be checked before the panel installation.



Fix Axon Panel/EasyLap Panel to CLD Structural Cavity Battens using one of the following fixings specified in Table 4. The edge distance at panel corner must be minimum 75mm vertically from panel corners. Refer to Figure 22.

Table 4

Axon Panel/EasyLap Panel Fixing		
Types of fixings to be used with adhesive sealants	Suitable up to Basic Wind Pressure kPa (ULS)	Fixing to CLD Structural Cavity Battens centres (mm)
C-25 straight 'T'- Head stainless steel brad nail	1.5 (Up to and including VH wind zone)	150
25 x 2.5mm annular threaded fibre cement nail	2.5 (> VH wind zone)	200
25mm x 10g counter sunk screw class 3/4 or stainless steel	2.5 (> VH wind zone)	200

Notes:

1. Brad nail fixing method is only suitable up to 1.5kPa.
2. Nails must be finished flush with panel surface.

6.4.1 T-Head Brad Nails

A combination of stainless steel straight T-head brad nail and Bostik® 'Seal N Flex™-1' or Sika® 'Sikaflex®-11FC' adhesive sealant provides a fast and efficient method of panel installation. It also minimises the preparation required before painting the panels. T-head brad nails are fixed using a brad nail gun.

This fixing method is only suitable for projects within the scope of NZS 3604.

Apply a 6mm thick continuous bead of Bostik® 'Seal N Flex™-1' or Sika® 'Sikaflex®-11FC' adhesive sealant to the face of the CLD Structural Cavity Batten first, then fix the panel with T-head brad nails, securing the panel in place while the adhesive cures. A good practice is to set the brad nail gun to fire nails 2-3mm proud of the panel surface, keeping a consistent pressure on the panel while fixing. Let the adhesive cure for approximately 1-2 hours, whilst continuing work on the next section. Come back later and hammer the nails flush with the panel surface. Use Paslode® C-25 304 stainless steel brad nails.

The edge distance required for fixing T-head brad nails is 18mm from the underlap edge and 16mm from the overlap edge. Refer to Figure 25.

Note: Do not use this fixing method in specific engineering design (SED) wind zones.

6.4.2 Fibre Cement Nails

Axon Panel/EasyLap Panel can be installed using 25 x 2.5mm annular threaded fibre cement nails. These nails must be driven flush with the panel surface. Apply a 6mm thick continuous bead of Bostik® 'Seal N Flex™-1' or Sika® 'Sikaflex®-11FC' adhesive sealant over the CLD Structural Cavity Batten before fixing the Axon Panel/EasyLap Panel. Refer to section 6.2 for the durability requirements.

Always ensure that the fibre cement nails are finished flush prior to finishing. Refer to section 8.

The edge distance required for fixing fibre cement nails is 18mm from the underlap edge and 16mm from the overlap edge.

6.4.3 Countersunk Screws

Axon Panel/EasyLap Panel must be pre-drilled on the ground before installation, using a James Hardie countersunk drill bit. A 25mm x 8-10g countersunk screw is suitable for this installation method. The screw head must be countersunk to a depth of 2mm maximum below the Axon Panel/EasyLap Panel surface. Apply a 6mm thick continuous bead of Bostik® 'Seal N Flex™-1' or Sika® 'Sikaflex®-11FC' adhesive sealant over the CLD Structural Cavity Batten before fixing the Axon Panel/EasyLap Panel.

The typical edge distance required for screw fixing is 18mm from the underlap edge and 16mm from the overlap edge.

Use a low torque setting on the drill to ensure that the screws are not over-driven into the CLD Structural Cavity Battens. The screws must be manually tightened prior to epoxy filling.

The countersunk screw holes must be flush finished with two part epoxy filler. Allow the epoxy to cure, sand the epoxy to a smooth finish with 60-80 grit sandpaper then prime over. Ensure the epoxy manufacturer's recommendations are followed.

7 Jointing

7.1 General

Axon Panels/EasyLap Panels are fixed to form a shiplap joint at vertical edges. The panels have factory-made edges to suit this jointing.

7.2 Vertical Joint

Direct fixed

Axon Panels/EasyLap Panels are shiplap jointed keeping a gap of 1-2mm between the panels. A 48mm wide 3259 Inseal® sealing tape is used under the joint over the face of the timber stud where direct fixed construction method is used. A flexible sealant must be applied to the full length of the shiplap joint before the panels are jointed. The edge distance for a Hardie™ Flex nail must be 18mm min. Refer to Figure 4. The edge distance for a brad nail must be 16mm and 18mm. Refer to Figure 19.

Cavity construction

Fix the CLD Structural Cavity Batten over the studs. Refer to Figures 21 and 22. The vertical shiplap joint is formed along the centre line of the batten. A bead of continuous sealant is applied to the vertical edge of the Axon Panel/EasyLap Panel to seal the shiplap joint before fixing the panels. Refer to Figure 25. The edge distance for a brad nail must be 16mm and 18mm. Refer to Figures 25.

7.3 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 panel aluminium horizontal 'h' mould is used to form a horizontal joint. Use the aluminium 'h' mould jointer to cover over the butt joint of 'h' mould. A purpose made metal 'Z' flashing could also be used to flash the horizontal joint. Refer to Figures 16, 17 and 43 to 47.

7.4 Horizontal Drainage Joint

The wall cavities must be drained every two floors to facilitate moisture drainage and ventilation. Refer to Figure 50.

7.5 External Corner

A Hardie™ 9mm panel aluminium box corner mould is used to form the external box corner. The site-cut sheet edges must be sealed before butting them into the box corner. Refer to Figure 7.

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 Figure 12.

For CLD Structural Cavity Batten external corner refer to Figure 46.

The bead of adhesive must be 10mm thick to accommodate for the thickness of the aluminium.

7.6 Internal Corner

Direct fixed internal corner is formed using a uPVC corner under flashing or an 80mm wide Inseal® sealing strip behind the panel edges. The joint is filled with the flexible sealant. Refer to Figure 6.

For CLD Structural Cavity Batten internal corner joint the CLD Structural Cavity Batten must go to bottom of sheet for sealant to be formed against. Refer to Figure 28.

7.7 Flashing Material Durability

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

8 Finishing

8.1 Preparation

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

Where panels are fixed with brad nails, the nail heads must be finished flush with panel surface. The nail gun should be set to nail "proud" of the panel surface and nail heads to be manually finished flush with surface. The nail heads can be skimmed over with an exterior grade 2 part builders fill if required. The skimmed area must be primed prior to site-applied finishing.

For site-applied finishes where brad nails are used. James Hardie recommends an undercoat and a minimum of two coats of acrylic paint. Follow the paint manufacturer's recommendations to prepare the surface and to adequately cover and conceal the panel fixings.

For best aesthetic results a low sheen paint is recommended.

8.2 Staining

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.

8.3 Roll on Texture

EasyLap Panel 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.

8.4 Trowel on Texture

EasyLap Panel is also suitable for trowel on sand finishes using flexible acrylic textures applied on site, which deliver a coloured render appearance. With trowel on texture, care must be taken to ensure that vertical joints are not filled with texture. Refer to acrylic texture coating supplier for further information.

8.5 Flexible Sealant

All sealants used must comply with the relevant requirements of the NZBC. Their 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 products.

8.6 Epoxy Fillers

All countersunk screw holes must be filled with a two part epoxy e.g. Allnex™ Fairing Cream or a similar epoxy filler. The screw and screw holes must be clean and dry before they are filled with epoxy. The epoxy filler must be sanded flush with the panel surface. Always refer to the epoxy manufacturer's recommendations before use.

9 Storage and Handling

When storing Axon Panel/EasyLap Panel and CLD Structural Cavity Battens, they must be laid flat on a smooth level surface. Edges and corners must be protected from chipping.

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

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

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/EasyLap Panel and the finished ground must always be maintained.

11 Product information

11.1 Manufacturing and Classification

Axon Panel/EasyLap Panel is an advanced lightweight cement composite building product. The basic composition is portland cement, ground sand, cellulose fibre and water. The panels are easily identified by the name 'Axon Panel' 'EasyLap Panel' printed at regular intervals on the back face of panel. Axon Panel/EasyLap Panel is sealed and primed on the face and back is clear sealed.

CLD Structural Cavity Battens are manufactured using a low density fibre cement formulation. The basic composition is Portland cement, ground sand, cellulose fibre and water and proprietary additives. The battens are sealed on all sides.

Axon Panel/EasyLap Panel is manufactured in Australia to the to 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 'Telarc' certified manufacturer.

Axon Panel/EasyLap Panel is classified Type A, Category 3 in accordance with AS/NZS 2908.2 "Cellulose-Cement Products".

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

11.2 Product Mass

Axon Panel is manufactured in 9.0mm thickness and has a mass of 12.1kg/m² at EMC.

EasyLap Panel is manufactured 9.0mm thickness and has a mass of 13kg/m² at EMC.

Axon Panel/EasyLap Panel cladding is defined as a Light Weight Wall Cladding (not exceeding 30kg/m²) as per the NZS 3604.

11.3 Durability

11.3.1 General

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

11.3.2 Resistance to Moisture/Rotting

Axon Panel/EasyLap 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).

11.3.3 Control of External Fire Spread

Axon Panel/EasyLap Panel and CLD Structural Cavity Batten has been assessed as per Appendix C C7.1.1 and is suitable for use where 'Non-Combustible Material' are specified for use in external wall cladding applications and complies with requirements of Paragraph 5.4 of the NZBC Acceptable Solutions C/AS1 and Paragraph 5.8.1 of Acceptable Solutions C/AS2 of the NZBC.

11.3.4 Alpine Regions

In regions subject to freeze/thaw conditions, Axon Panel/EasyLap 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/EasyLap Panel has been tested in accordance with AS/NZS 2908.2 Clause 8.2.3.

12 Safe Working Practices

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

Hardie™ fibre cement products contain sand, a source of respirable crystalline silica

May cause cancer if dust from product is inhaled. Causes damage to lungs and respiratory system through prolonged or repeated inhalation of dust from product.

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

When doing any of these activities in a manner that generates dust, follow James Hardie 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.

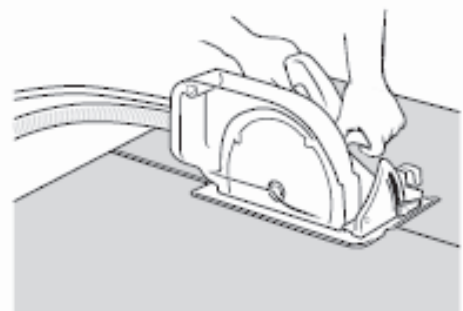
When cutting Axon Panels or EasyLap Panels:

- ✓ 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.



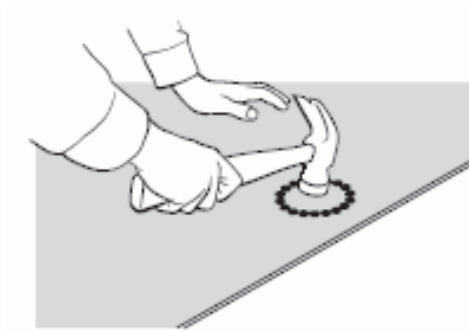
Hole-Forming

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



12.1 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

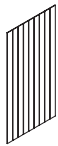
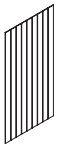

James Hardie is not responsible for damage due to improper storage and handling.

12.2 Tips for safe and easy handling of Axon Panels and EasyLap Panels

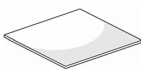
- ✗ Do not lift planked products flat and in the middle
- ✓ Carry the products on the edge
- ✓ If only one person is carrying the product, hold it in the middle and spread arms apart to better support the product
- ✓ If two people are carrying the plank, hold it near each end and on edge
- ✓ Exercise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

13 Product Sizes and Accessories

Table 5

Axon Panel information					
Product	Description	Thickness (mm)	Size		Product Code
			Length (mm)	Width (mm)	
	Axon Panel 133 Smooth 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
	Axon Panel 133 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	404512
	Axon Panel 400 Smooth 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

Note: The actual width of the panel is 1203mm. All dimensions and masses provided are approximate only and are subject to manufacturing tolerances.

EasyLap Panel information					
Product	Description	Thickness (mm)	Size		Product Code
			Length (mm)	Width (mm)	
	EasyLap Panel A shiplap edge panel for subtle vertical joints To be finished with site applied acrylic texture finishes.	9	2450	1200	404764
			3000	1200	404763

Note: The actual width of the panel is 1203mm. All dimensions and masses provided are approximate only and are subject to manufacturing tolerances.

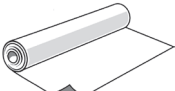
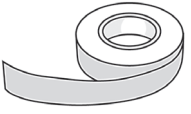

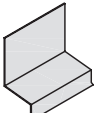
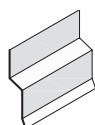




Table 6








Accessories/tools supplied by James Hardie			
Accessories	Description	Quantity/Size (approx)	Code
	CLD Structural Cavity Batten 19mm thick fibre cement cavity batten installed over RAB™ Board or a flexible underlay. Axon Panel/EasyLap Panel are fixed to the battens.	19 x 70mm, 2450mm long	403870
	Hardie™ 9mm Panel Aluminium External Box Corner A box corner mould to form the external joints. 9mm etch primed.	2450mm long 2750mm long 3000mm long 4000mm long	304509 304510 305150 305808
	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' Mould External Corner		305940
	uPVC Corner Under Flashing A 50 x 50mm corner under flashing for internal and external joints.	3000mm long	303745
	uPVC Vent Strip Used to provide protection from vermin entering cavity space.	3000mm long	302490
	Annular Threaded Nail 25 x 2.5mm nail.	500gm	300390
	Inseal® 3259 Tape Black 50mm tape to be used under the vertical shiplap joint. Black 80mm tape to be used at corners.	50m roll	300767 300769
	CLD Batten Corner Flashing Aluminium Used at internal corner sealant joints at floor joist level.		304652
Tools			
	Hardie™ Blade Saw Blade Diamond tip 184mm diameter fibre cement circular saw blade. Spacers not included.	Each	300660

Table 7

Accessories/tools not supplied by James Hardie

James Hardie recommends the following products for use in conjunction with Axon Panel/EasyLap 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
	<p>Flexible Underlay To comply with Table 23 of E2/AS1.</p>
	<p>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</p>
	<p>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</p>
	<p>Head Flashing Required over window heads to be supplied by window installer. Material must comply with Table 20 and 21 of E2/AS1.</p>
	<p>Flashing Material as per Table 20, 'E2/AS1'</p>
	<p>Hardie™ Flex Hot Dip Galv and Stainless Steel 316 nails For fixing panels direct to framing. 40 x 2.8mm</p>
	<p>C-25 Stainless Steel Brad Nails 304SS brad nails used to install Axon Panel/EasyLap Panel to the CLD Structural Cavity Battens used in a straight bradder. Paslode®: (09) 477 3000</p>
	<p>ND 50 Stainless Steel Brad Nails Used to install Axon Panel/EasyLap Panel direct fix to timber framing. Used in a straight bradder.</p>
	<p>65 x 2.87mm RoundDrive Ring Shank Nail For fixing CLD Structural Cavity Battens to the framing. Paslode®: (09) 477 3000</p>

	<p>Bostik® Seal N Flex™-1 'Seal N Flex™-1' Polyurethane adhesive sealant manufactured by Bostik® for applying between the panels and battens, Refer to section 5 for more information. Bostik®: ALK: (09) 579 6253, WGTN: (04) 567 5119, CHCH: (03) 366 2583.</p>
	<p>Sika® Sikaflex® 11FC Sika®: 0800 SIKA NZ (0800 745 269)</p>
	<p>200mm wide Polypropylene DPC Product used over flexible underlay at external and internal corners. ie. Super Course 500</p>
	<p>Epoxy Flush Sealing (2 Part) Countersunk head screws are flush sealed using Allnex™ Fairing cream or similar epoxy.</p>
	<p>Dulux® Acrasand or Dulux® Sedona acrylic texture 0800 800 424</p>
	<p>Countersunk Screw 25mm x 8-10g countersunk screws (Class 3/4 or stainless steel) for fixing of Axon Panel/EasyLap Panel to CLD Structural Cavity Battens. EDL stainless steel 304 screw square drive CODE: 03S101T17US. Black Fasteners stainless steel 304 Code: WSSFSSQ08M.</p>
	<p>Countersunk Screw 40mm x 9-10g Class 3/4 for fixing CLD Structural Cavity Batten to steel framing.</p>

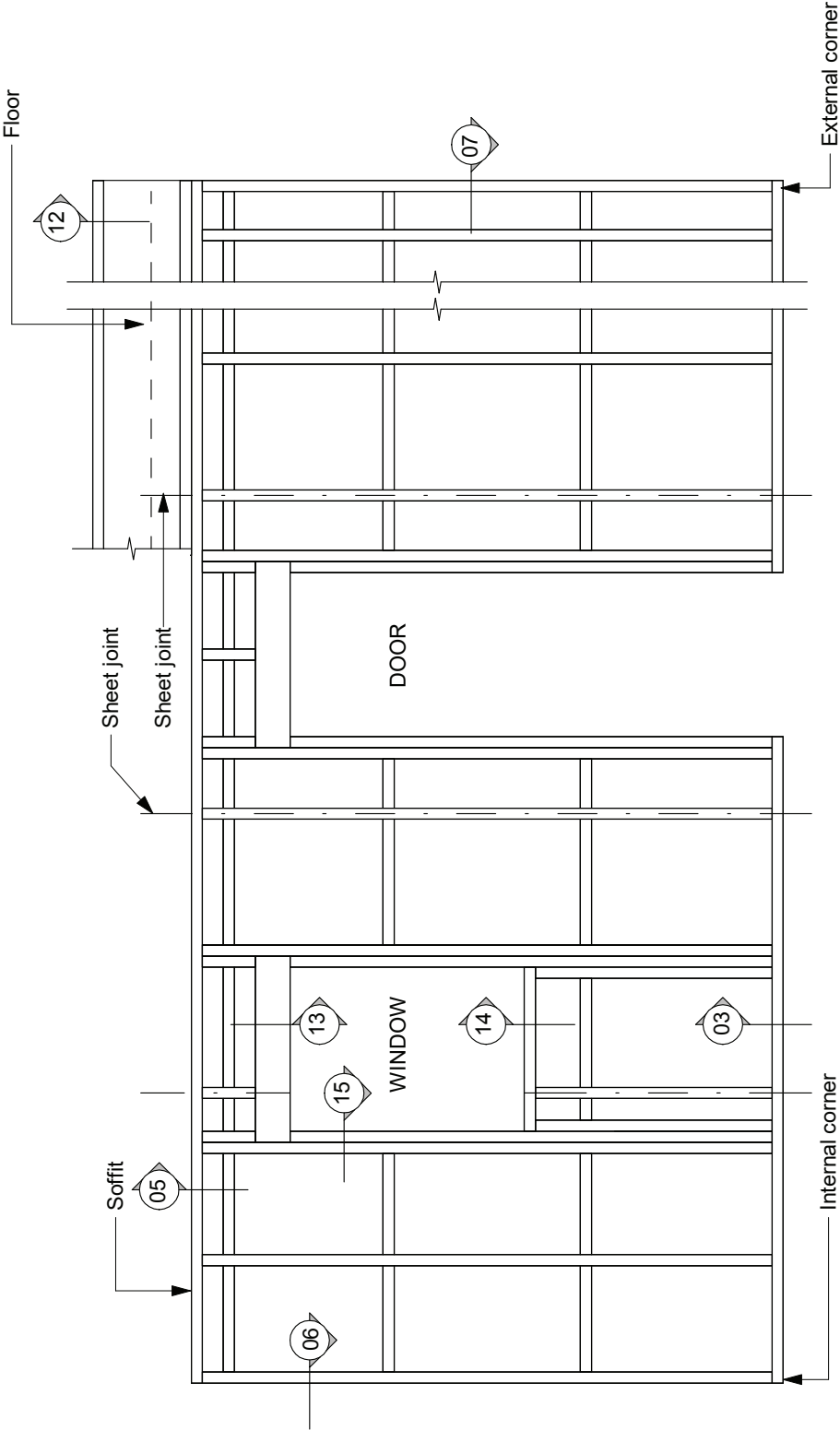
14 Details

The following generic details have been provided in this document for both direct fixed and cavity construction methods.

Table 8

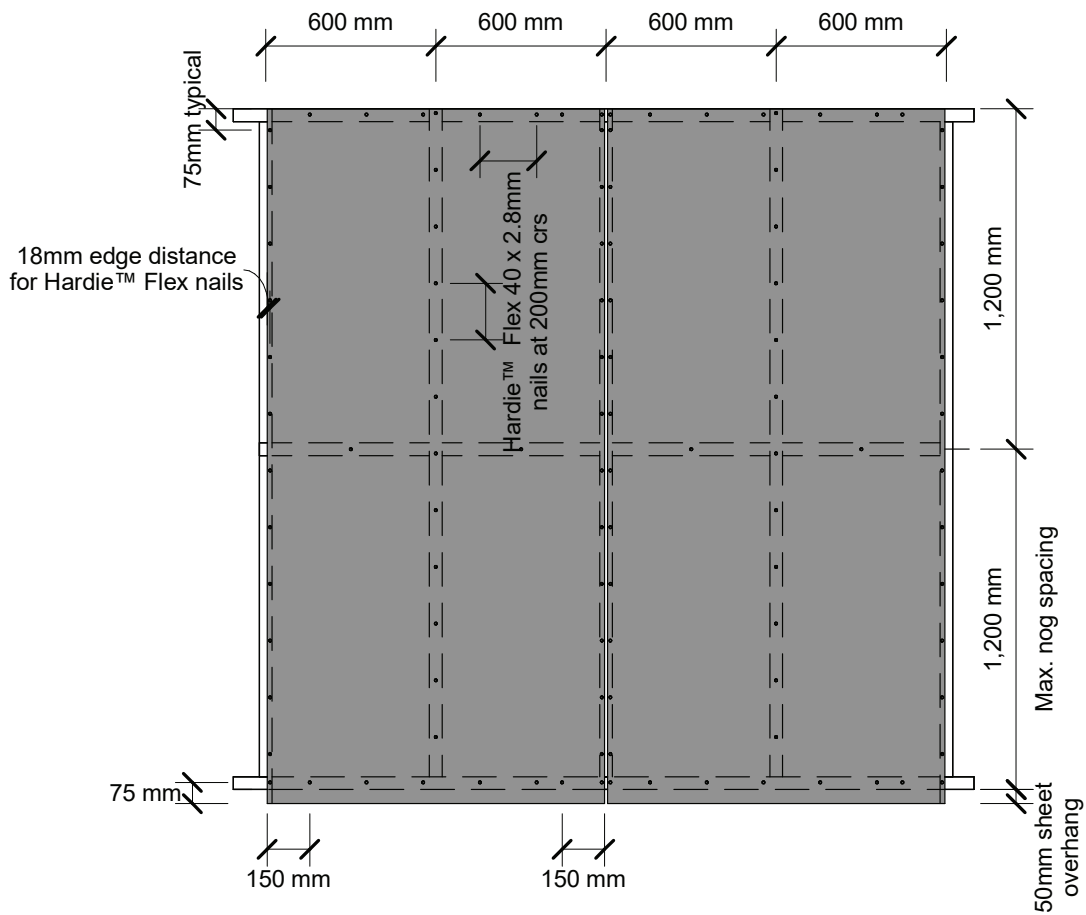
Description	Direct Fixed		Old Structural Cavity Batten Construction	
	Figure No.	Page No.	Figure No.	Page No.
Typical framing setout	Figure 1	28	Figure 20	47
Typical panel nail fixing setout	Figure 2	29	Figure 22	49
	Figure 18	45		
Foundation detail	Figure 3	30	Figure 23	50
Axon Panel vertical shiplap joint	Figure 4	31	Figure 25	52
	Figure 19	46		
EasyLap Panel vertical joint	Figure 5	32	Figure 26	53
Internal corner detail	Figure 6	33	Figure 28	55
External corner detail	Figure 7	34	Figure 22	31
Axent Trim at joint	Figure 8	35	Figure 30	57
Axent Trim at non joint	Figure 9	36	Figure 31	58
Axent Trim at internal corner	Figure 10	37	Figure 32	59
Axent Trim at external corner	Figure 11	38	Figure 33	60
Soffit detail	Figure 12	39	Figure 35	62
Window head	Figure 13	40	Figure 36	63
Section at sill	Figure 14	41	Figure 37	64
Window jamb	Figure 15	42	Figure 38	65
Window head with facings			Figure 40	67
Window jamb with facings			Figure 42	69
Window sill with planted sill			Figure 41	68
Horizontal joint detail	Figure 16	43	Figure 43	70
			Figure 44	71
External corner at 'h' mould joint detail	Figure 17	44	Figure 46	73
Batten fixing setout			Figure 21	48
Enclosed deck			Figure 24	51
Intermediate stud fixing			Figure 27	54
Jointing of CLD Structural Cavity Batten			Figure 34	61
Window jamb with scribe			Figure 39	66
Cavity pipe penetration			Figure 48	75
Internal corner			Figure 47	74
Aluminium at 'h' mould joint detail			Figure 45	72
'h' mould joint at window head			Figure 49	76
One piece apron flashing joint			Figure 51	78
Drained flashing joint at floor joist			Figure 50	77
Enclosed deck balustrade to wall junction			Figure 52	79
Enclosed deck balustrade to wall junction			Figure 53	80
Parapet flashing			Figure 54	81
Garage door jamb			Figure 55	82
Garage door head			Figure 56	73
Junction between Panel and fascia board			Figure 57	84
Enclosed roof to wall intersection			Figure 58	85

Figure 1: Direct fixed typical framing setout



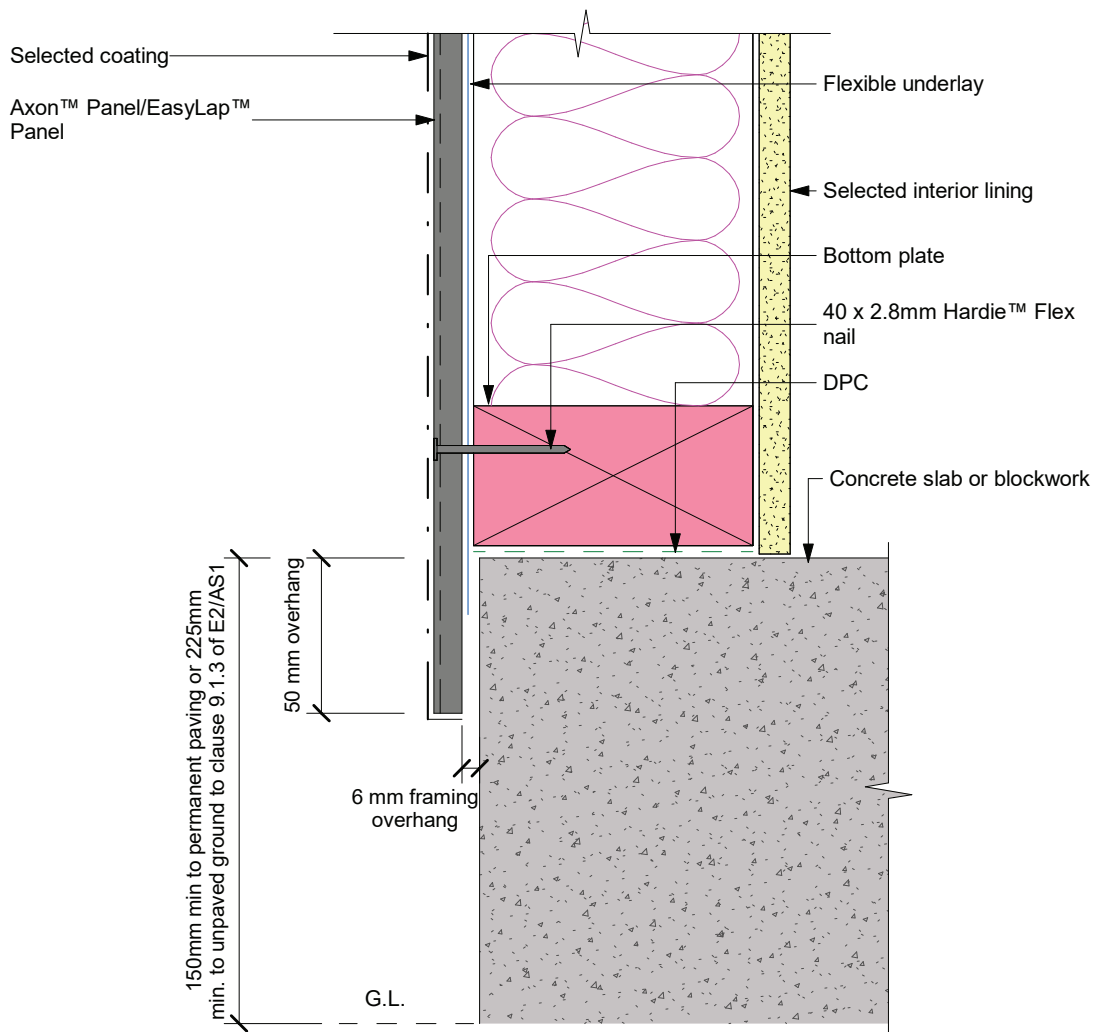
Note:
 * Maximum stud spacing 600mm centres
 * Check that the risk matrix score is 6 or less

Figure 2: Direct fixed typical panel Hardie™ Flex nail fixing setout



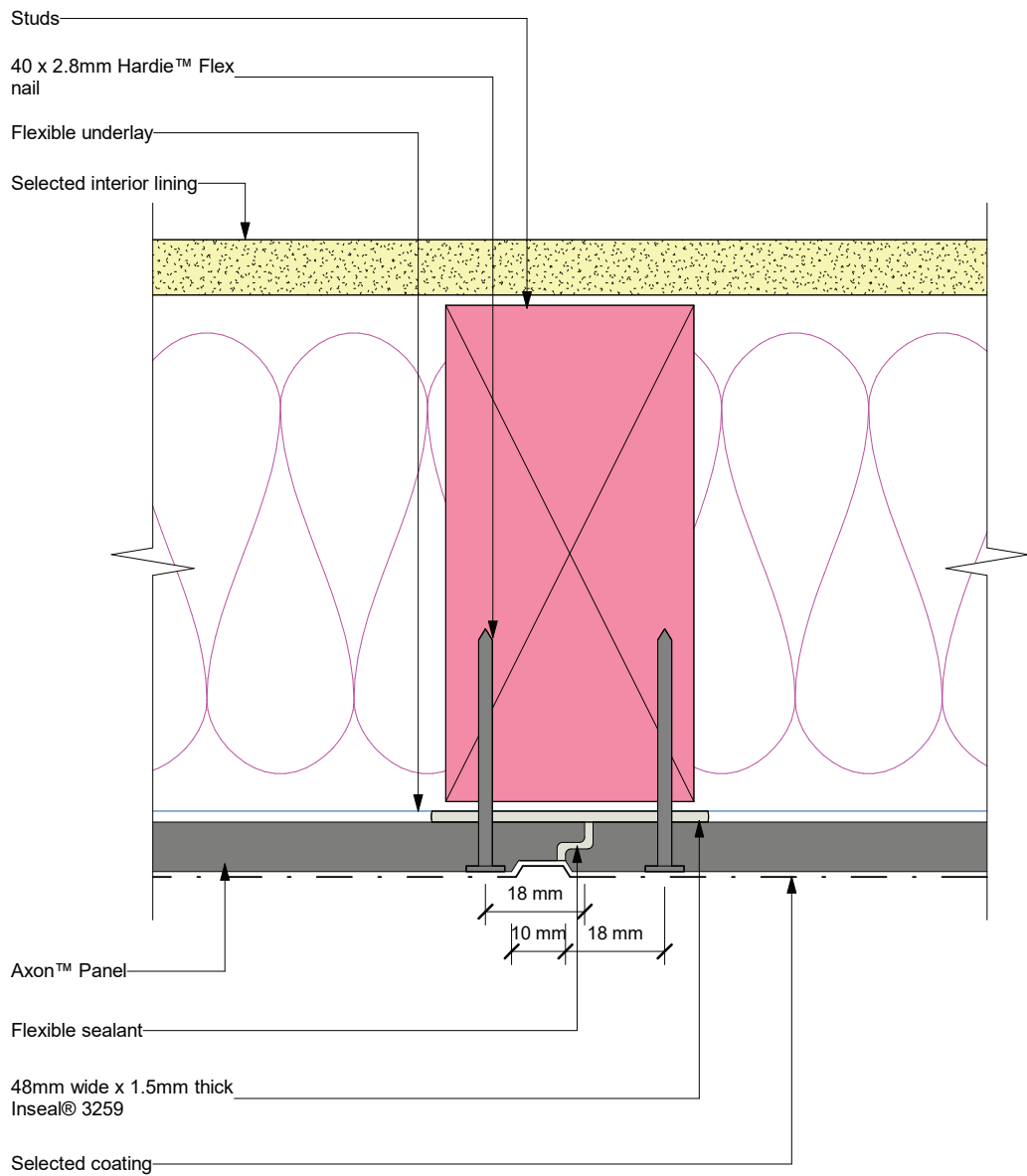
Note: When studs spaced at 400mm centres using Axon™ Panel 400, the nail fixings to intermediate studs to be offset 5mm from the groove in Panel.

Figure 3: Direct fixed foundation detail



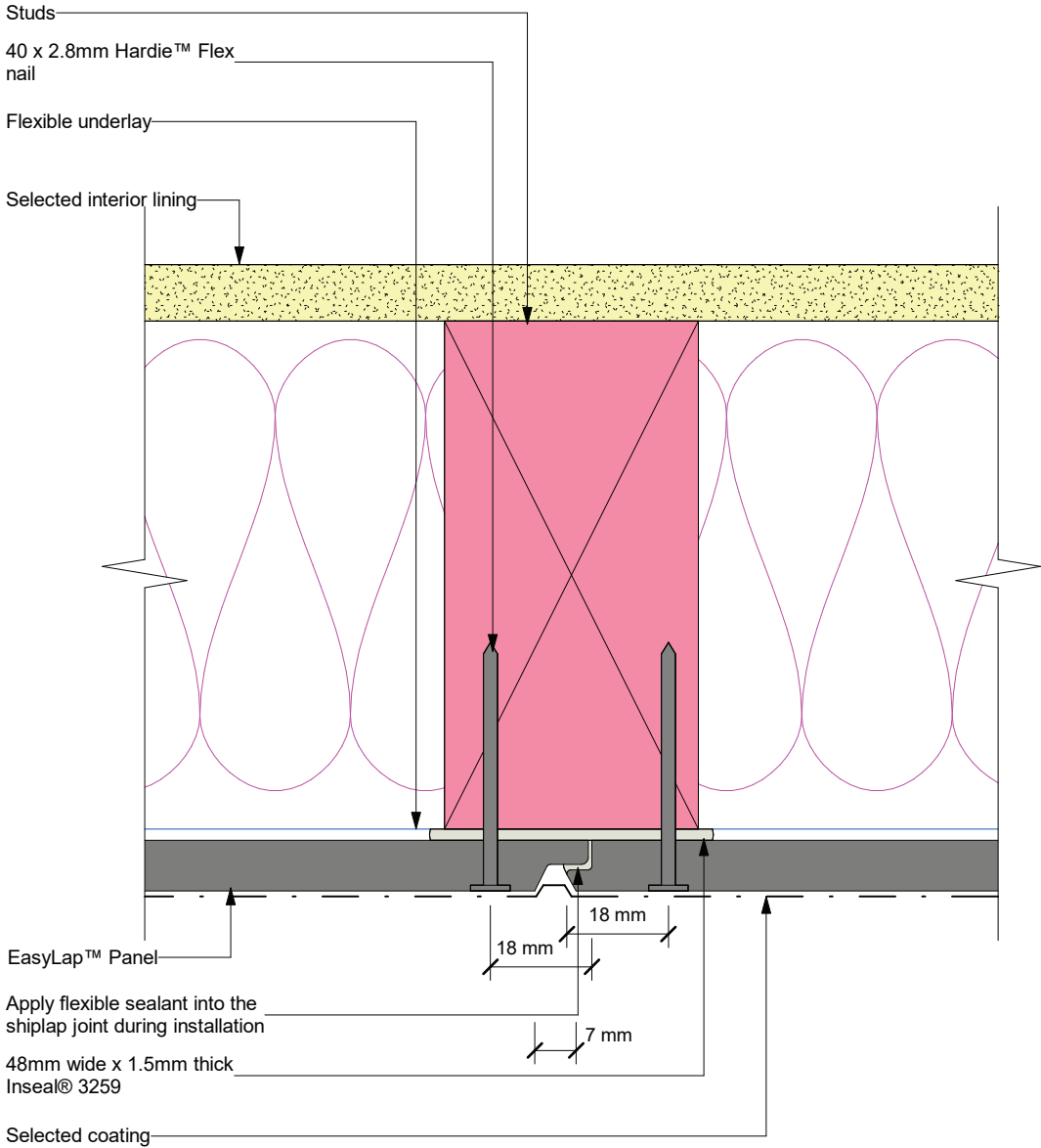
Note: Refer to Section 2.4 for further information

Figure 4: Axon Panel vertical shiplap joint — Hardie™ Flex nail



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

Figure 5: EasyLap Panel vertical shiplap joint - Hardie™ Flex nail



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

Figure 6: Internal corner detail

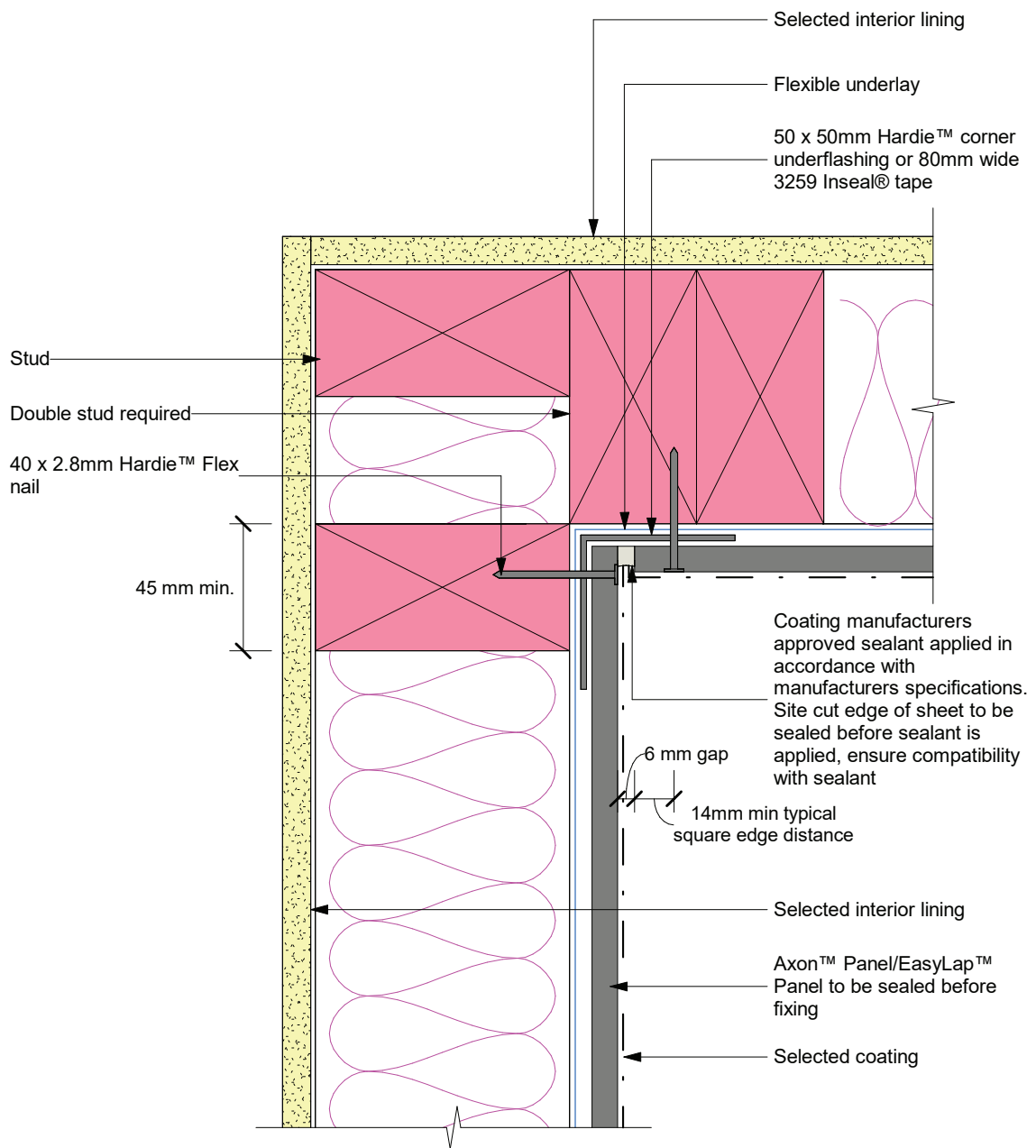
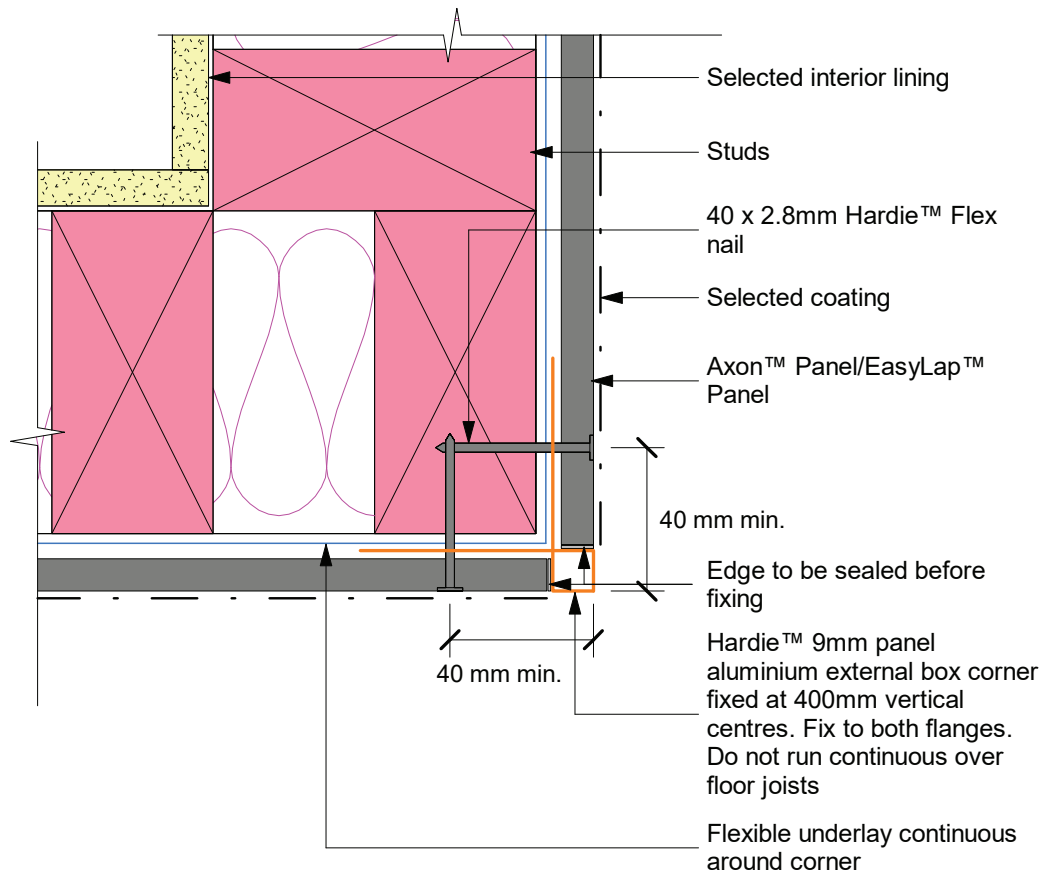
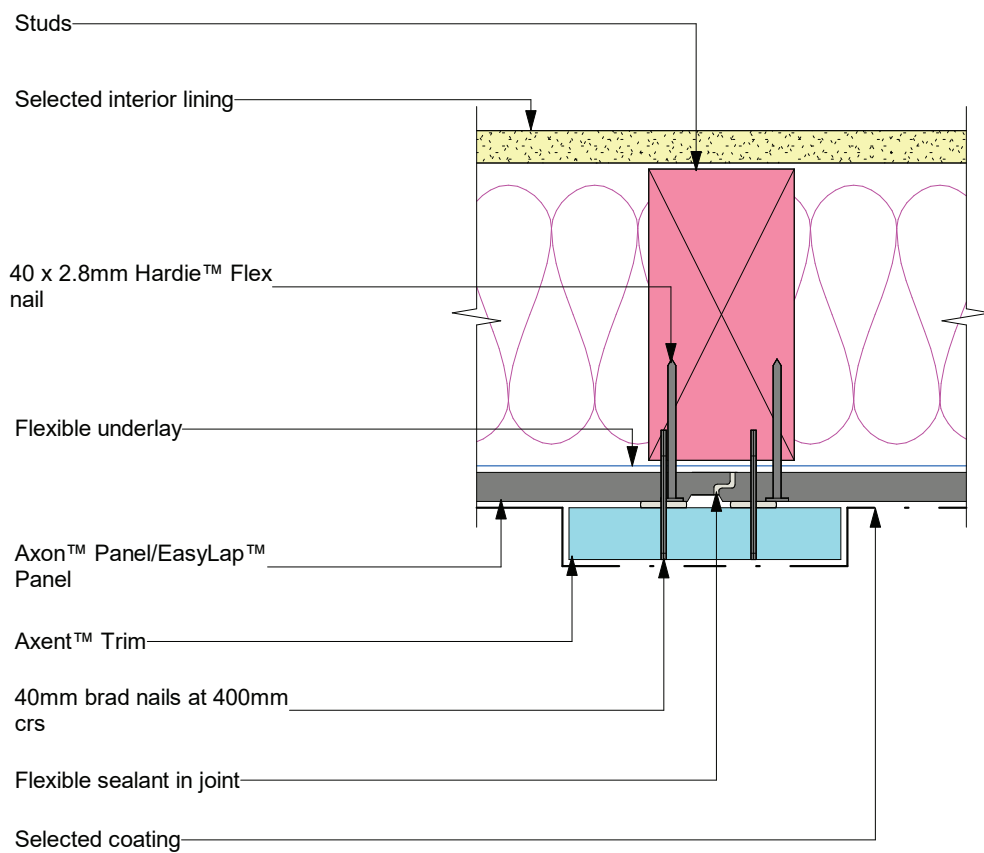


Figure 7: External corner detail



- Note:
- Do not run continuous over floor joists.

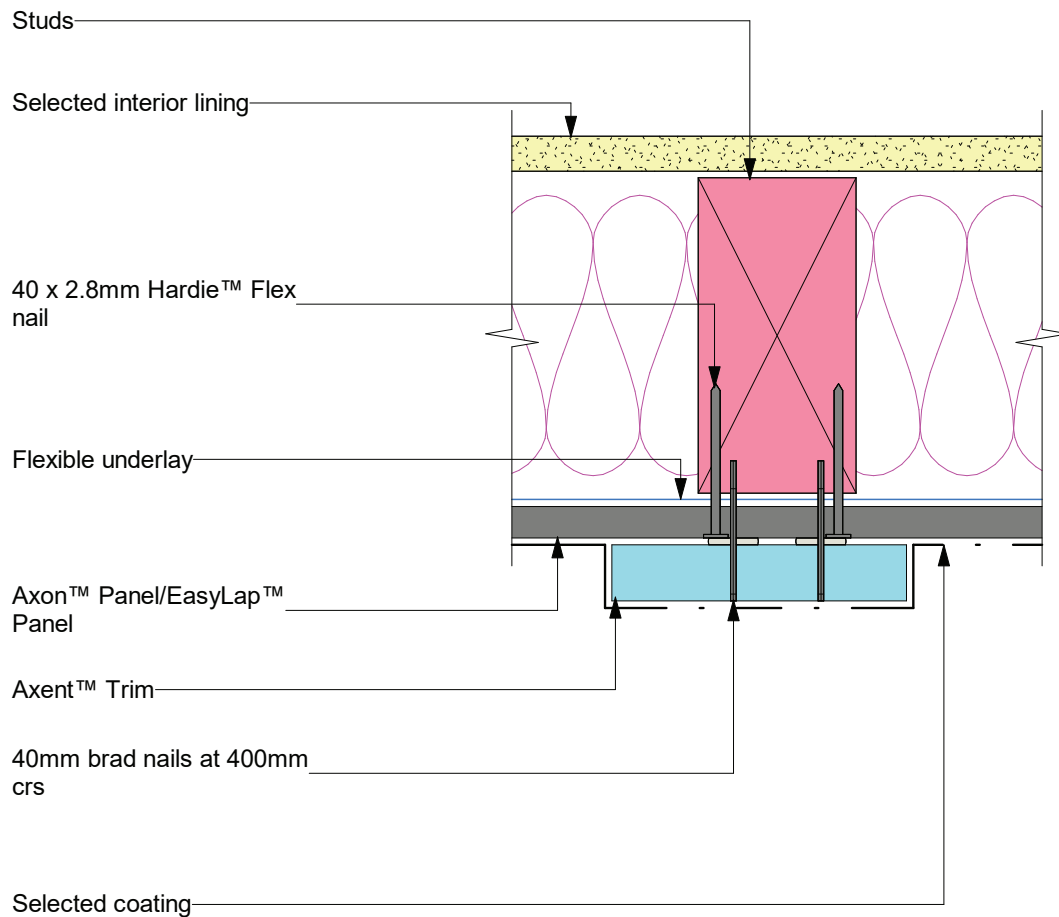
Figure 8: Vertical joint with facing



Note: Notes:

- * Ensure that a continuous 6mm bead of adhesive sealant is applied between CLD™ Structural Cavity Batten and Axon™ Panel.
- * Ensure that the required edge distance is maintained when fixing.
- * Seal cut edges with a primer compatible with final coatings.

Figure 9: Intermediate stud fixing detail with facing



Note: Notes:

- * Ensure that a continuous 6mm bead of adhesive sealant is applied between CLD™ Structural Cavity Batten and Axon™ Panel/EasyLap™ Panel.
- * Ensure that the required edge distance is maintained when fixing.
- * Seal cut edges with a primer compatible with final coatings.

Figure 10: Internal corner detail with facing

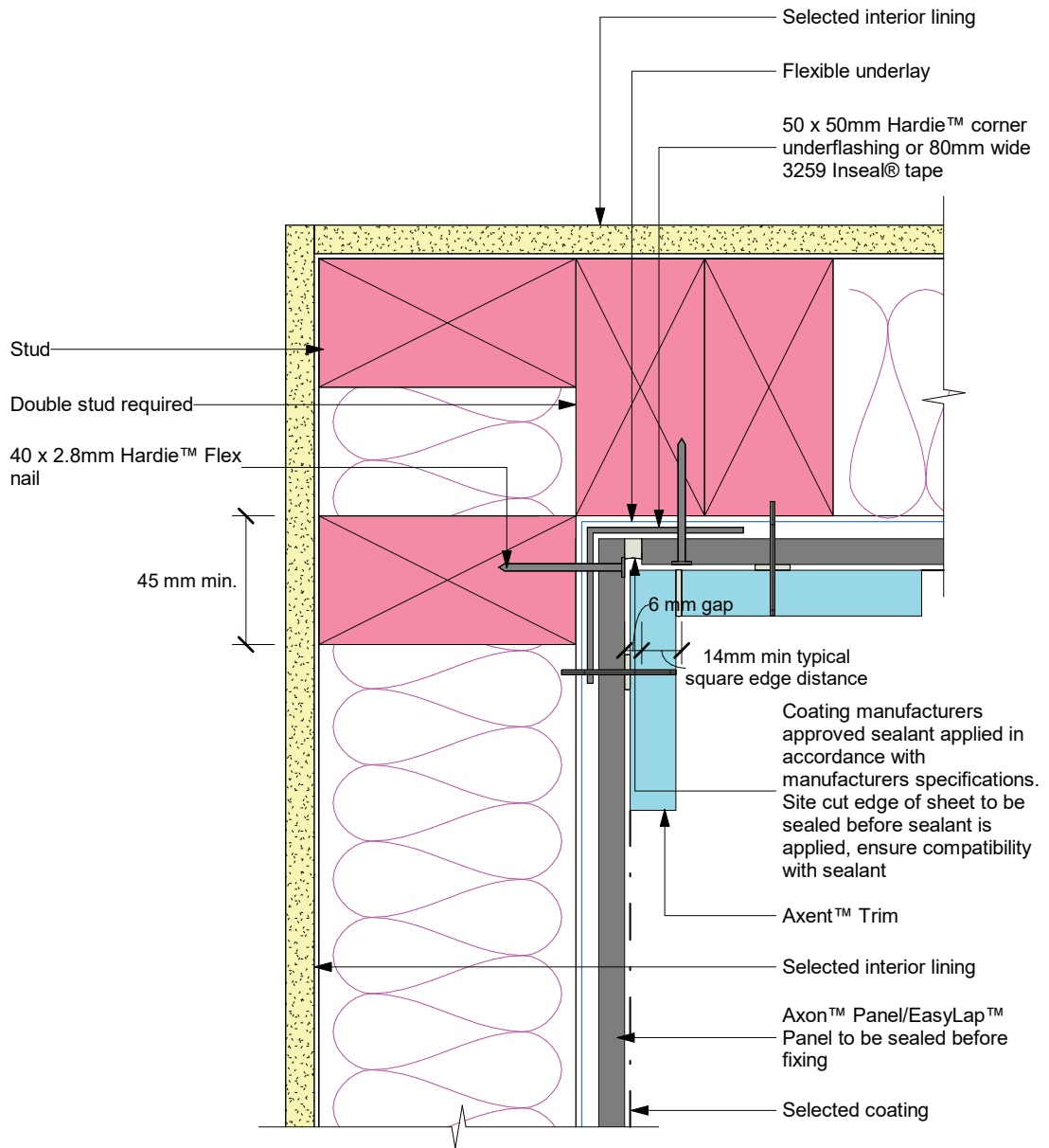
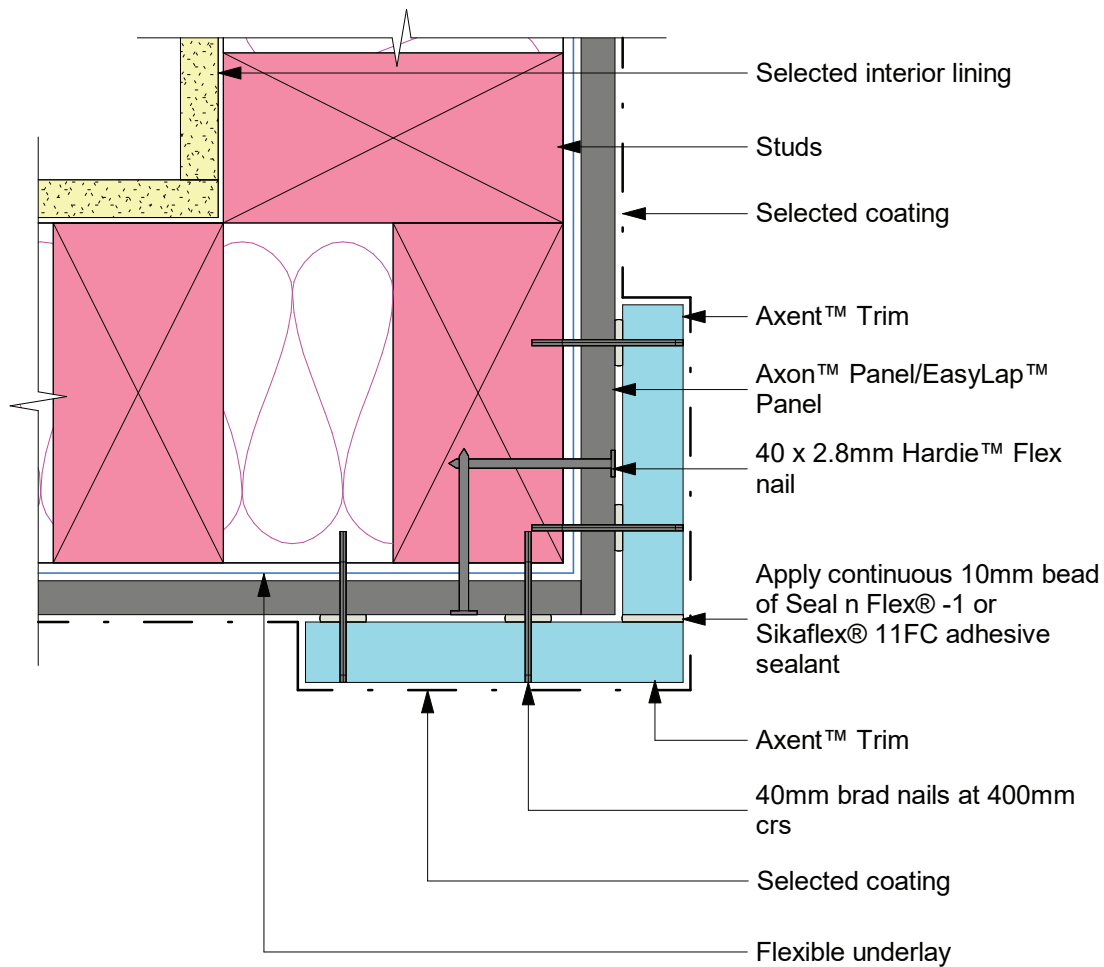


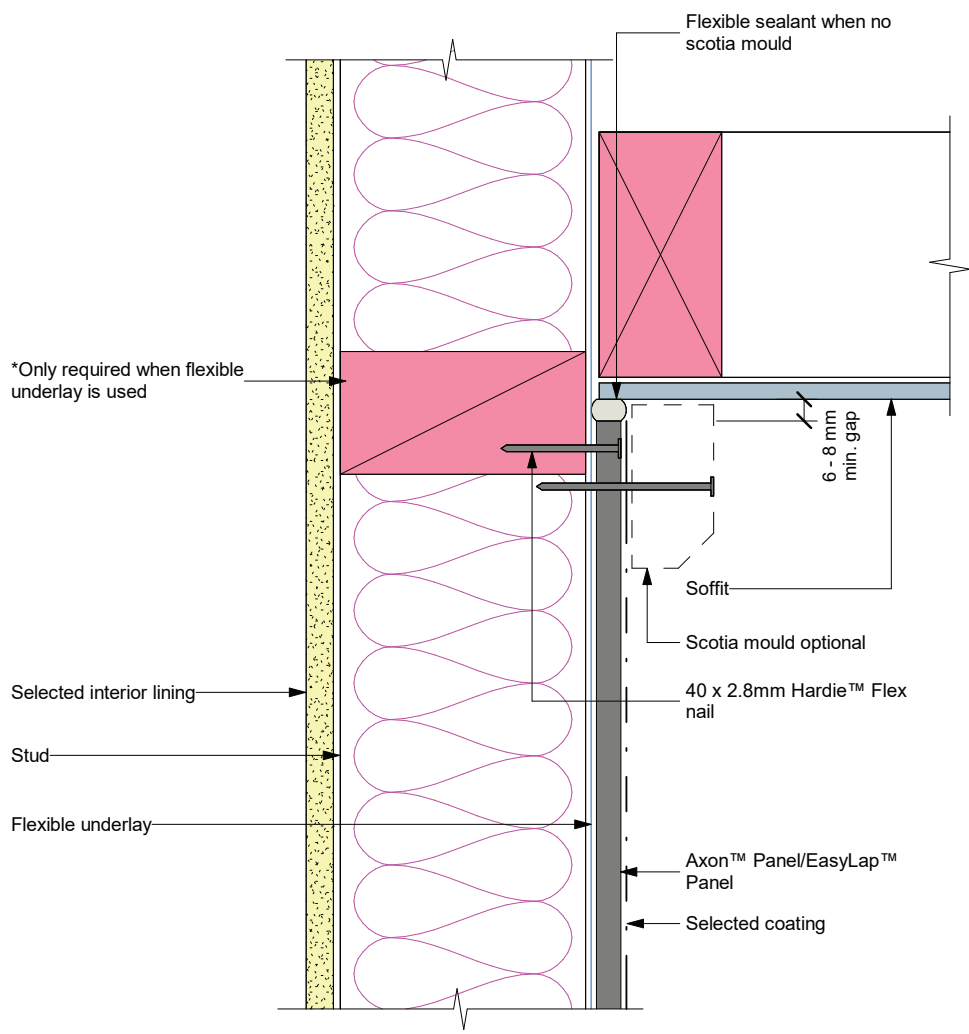
Figure 11: External corner detail with facing



Note:

- Refer to Figure 12 for jointing with 'h' mould.
- Do not run continuous over floor joists.

Figure 12: Soffit detail



Note: Site cut edges to be primed

Figure 13: Window head

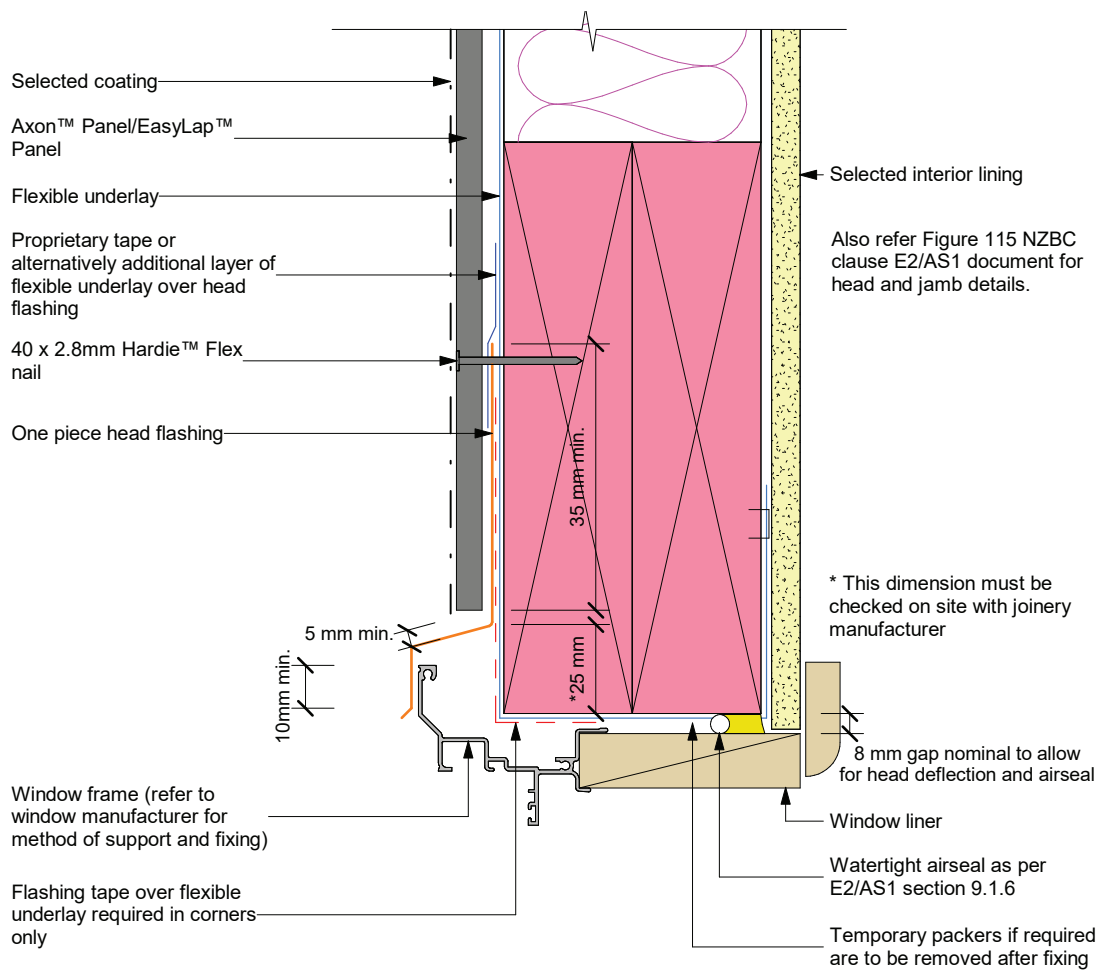
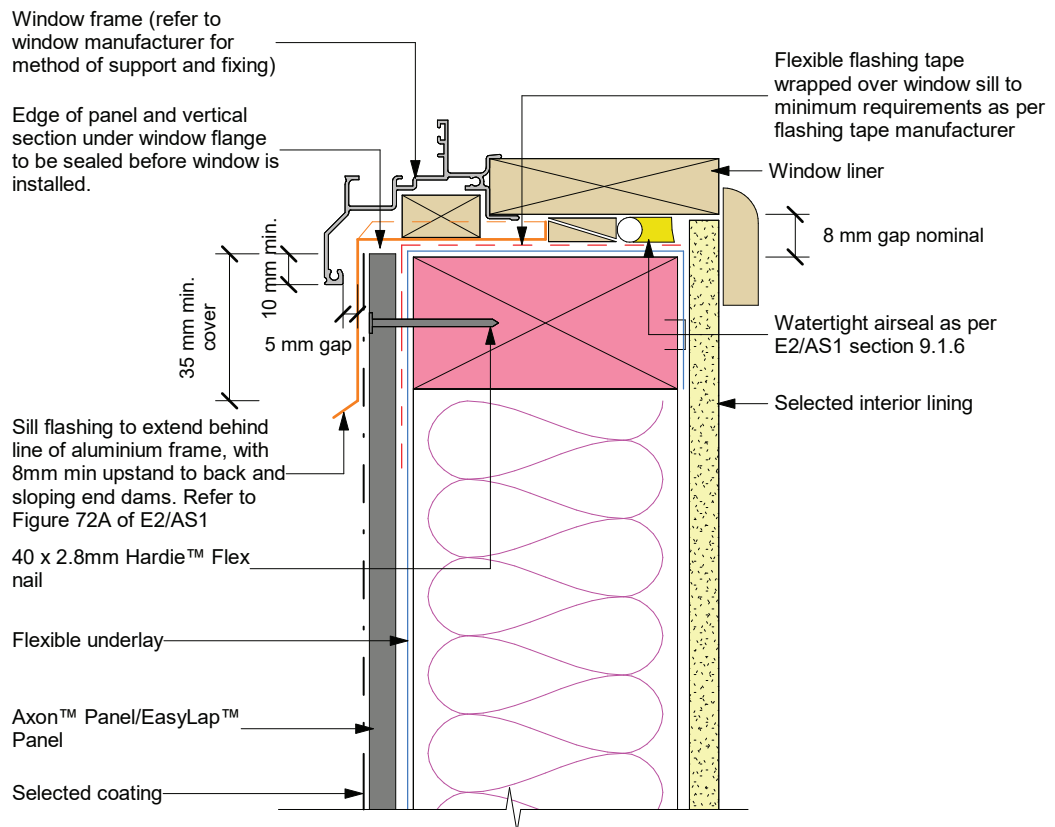


Figure 14: Window sill



General notes for materials selection

- * Flashing materials must be selected based on environmental exposure, refer to the NZS 3604 and Table 20 of the NZBC E2/AS1.
- * Flexible underlay must comply with acceptable solution E2/AS.
- * Flashing tape must have proven compatibility with the selected flexible underlay and other materials with which it comes into contact.

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

Figure 15: Window jamb

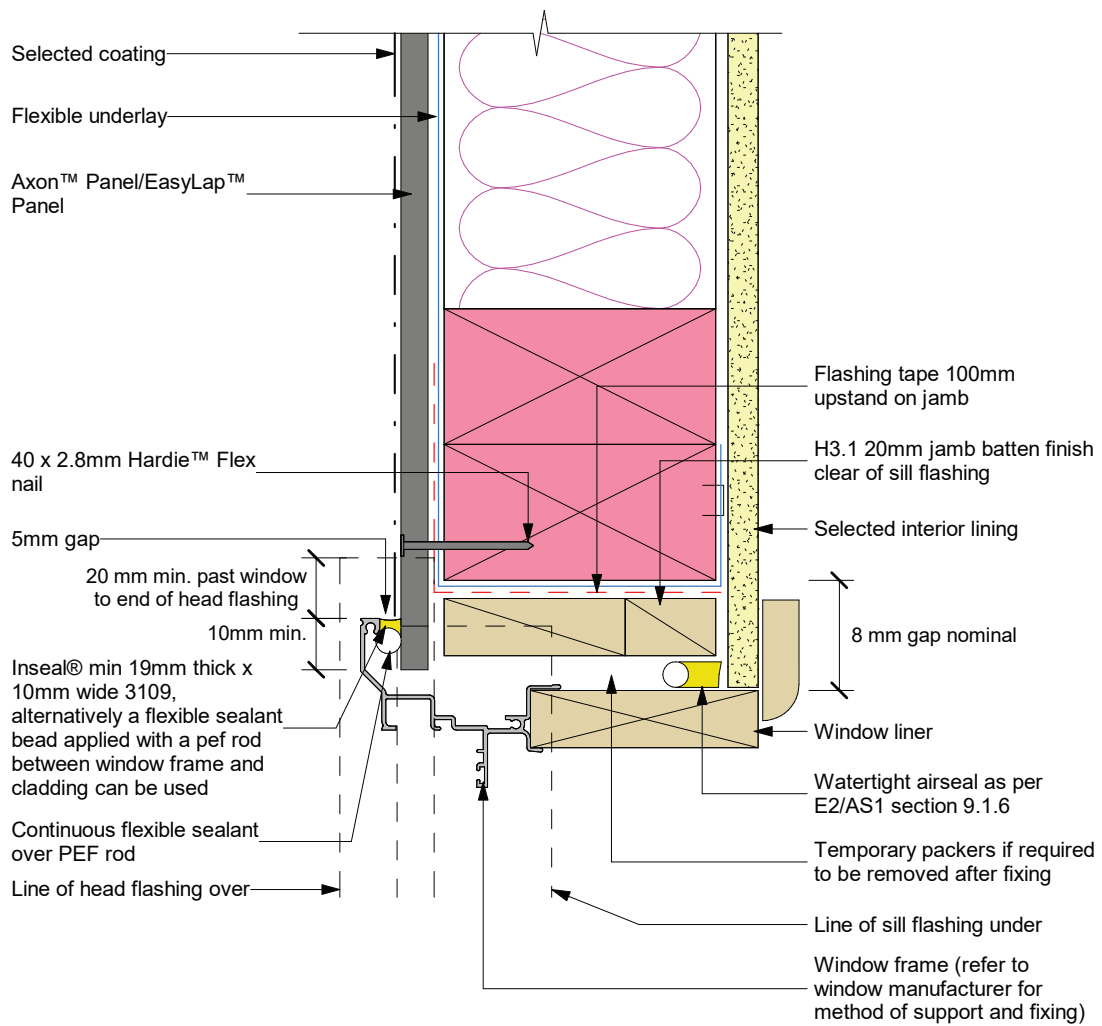
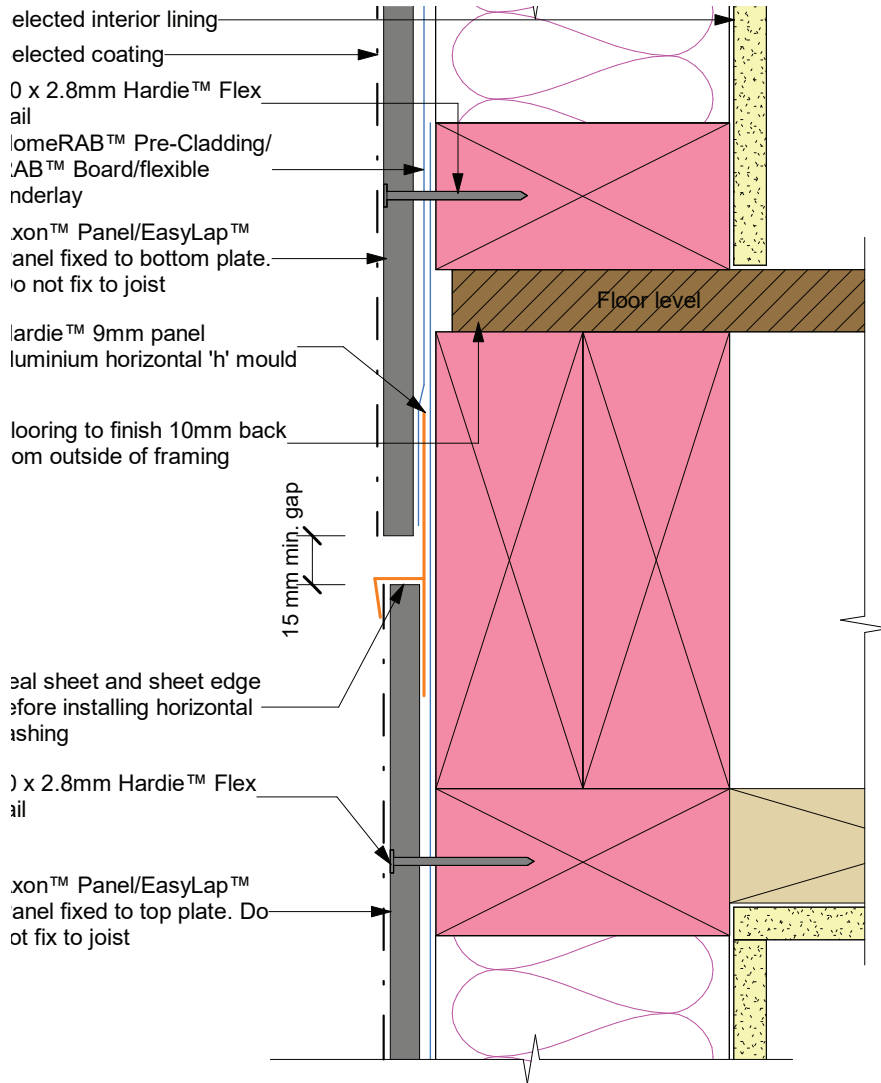


Figure 16: Horizontal joint detail



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

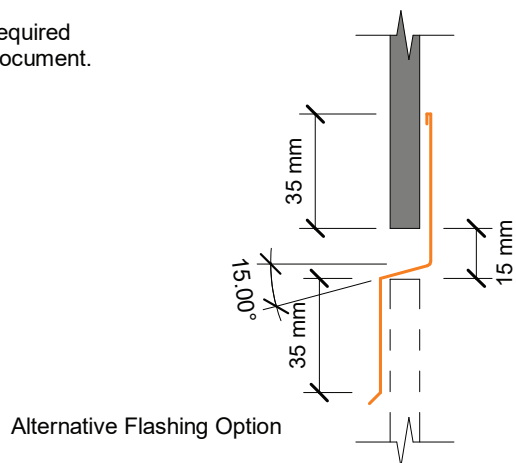


Figure 17: Corner at 'h' mould joint detail

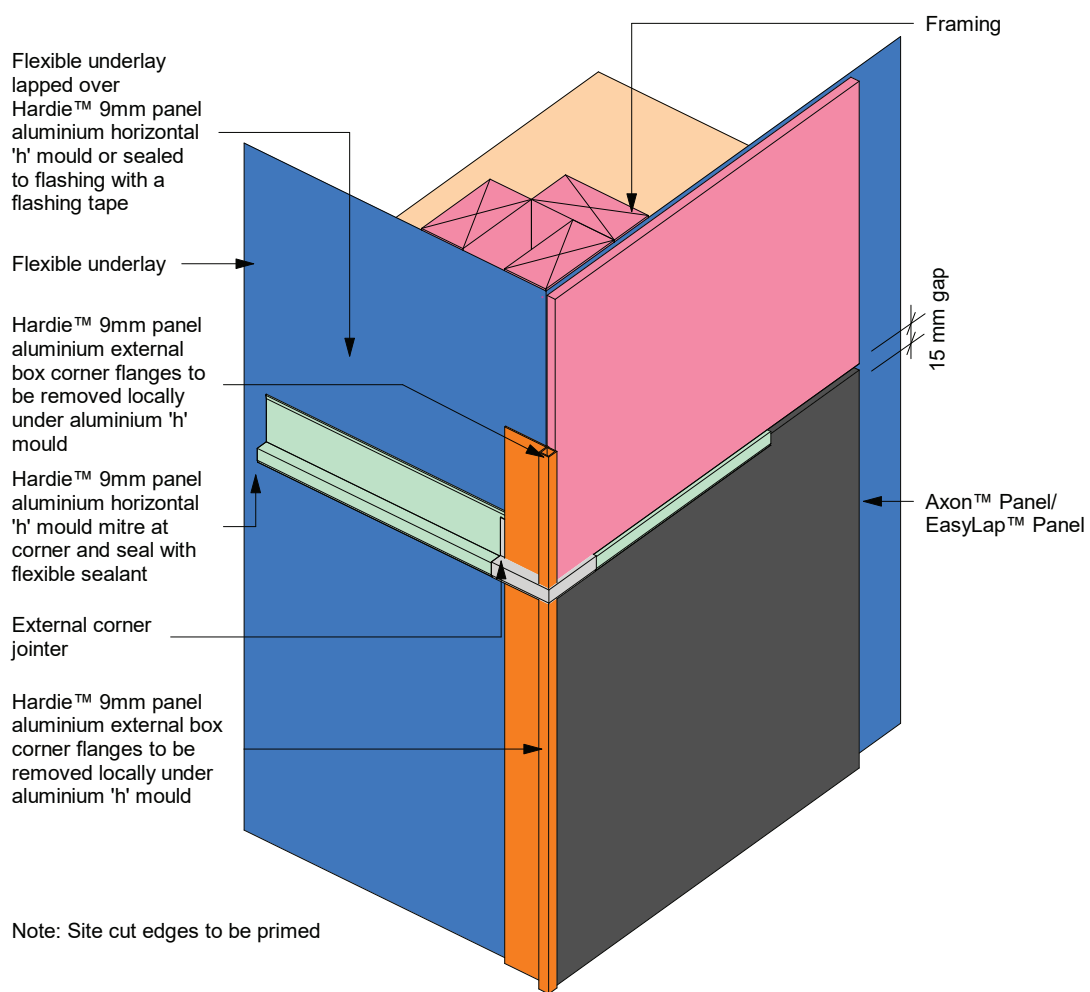
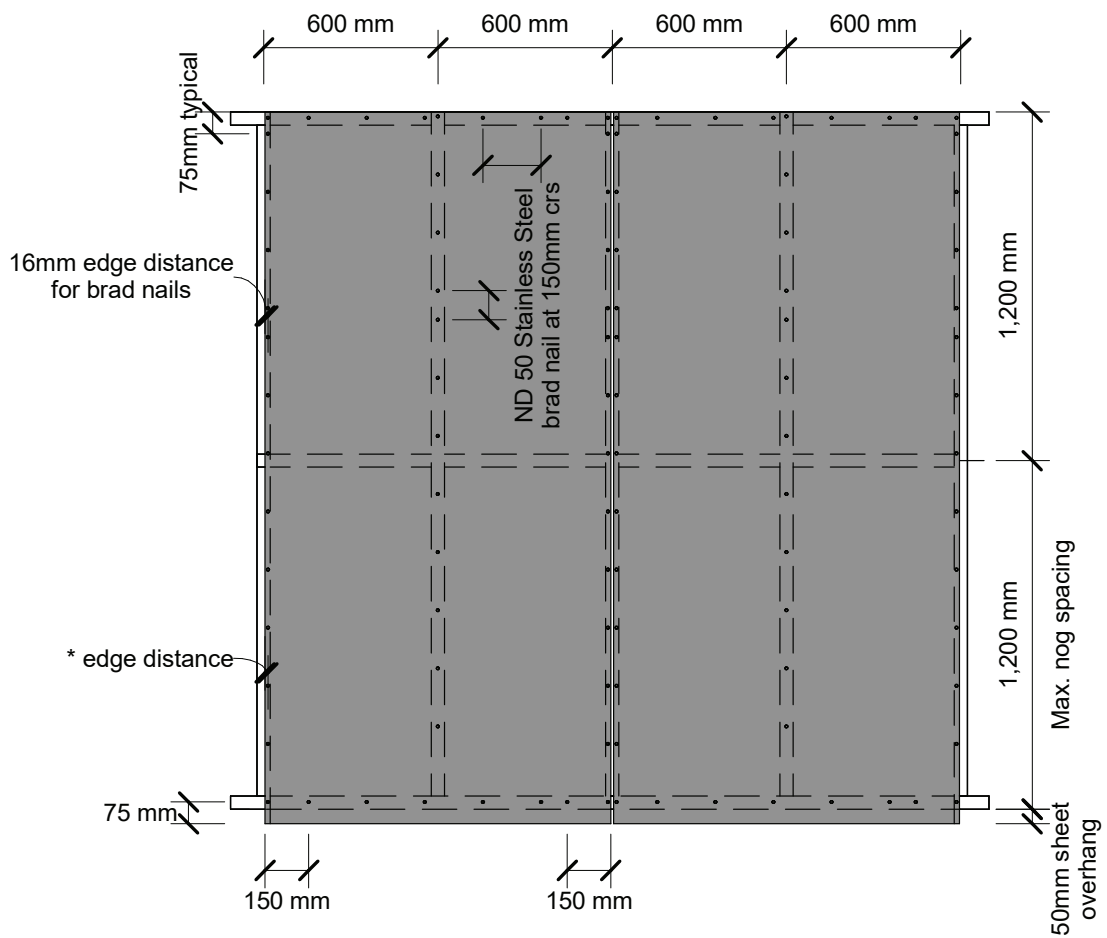


Figure 18: Direct fixed typical panel brad nail fixing setout



Note: When studs spaced at 400mm centres using Axon™ Panel 400, the nail fixings to intermediate studs to be offset 5mm from the groove in Panel.

Figure 19: Shiplap joint - brad nail

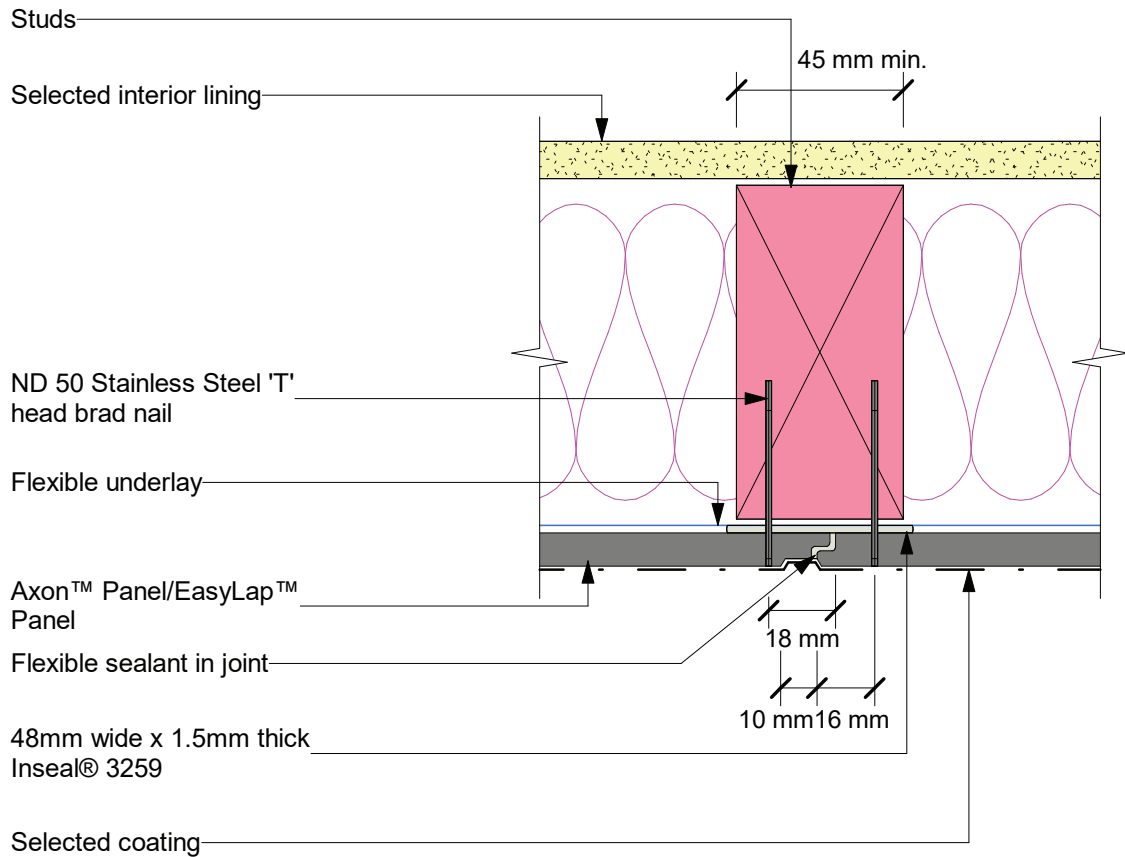
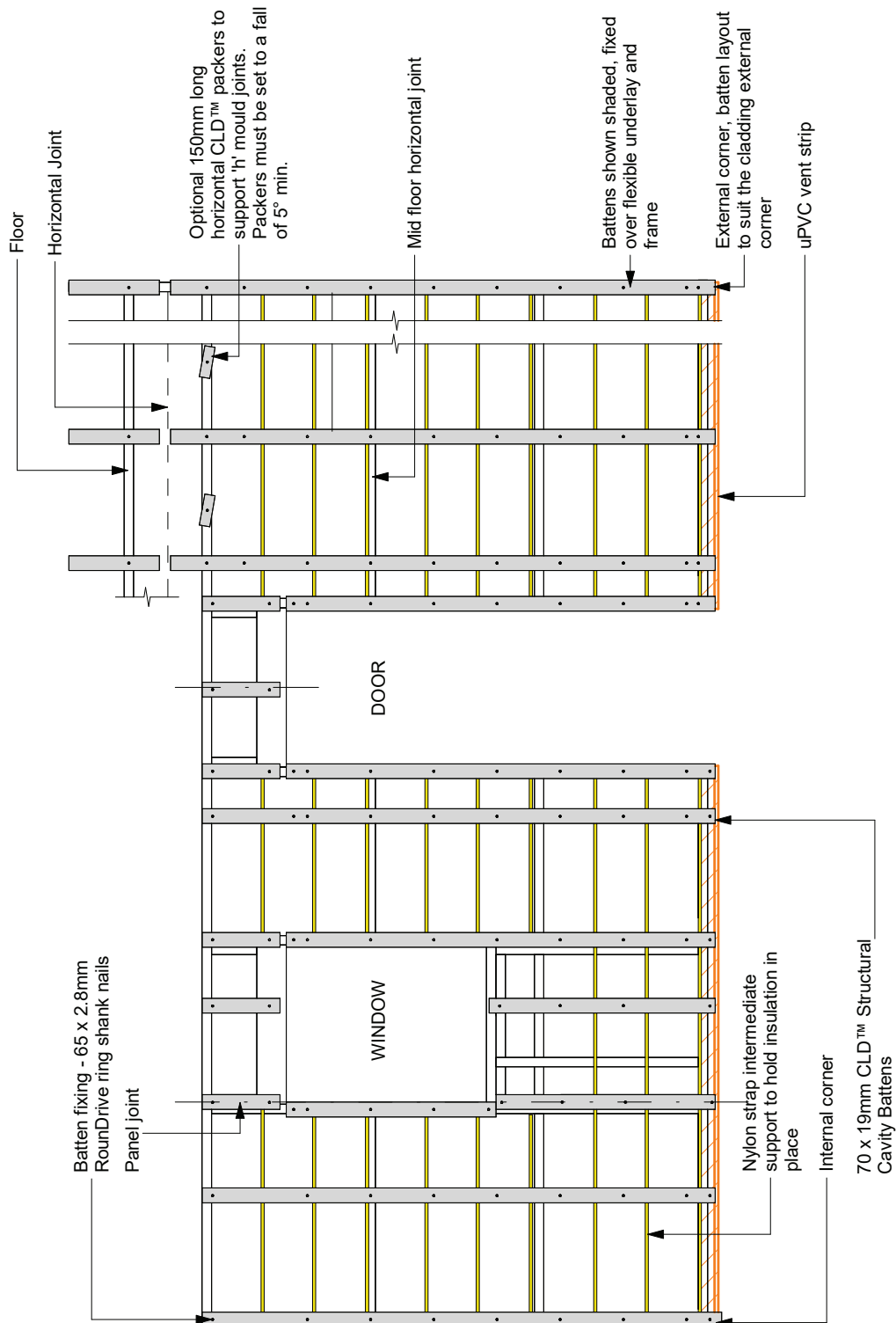


Figure 20: Framing setout



- Note:
- Maximum stud spacing 600mm centres
 - Cavity must not vent into roof space

Figure 21: Batten fixing setout

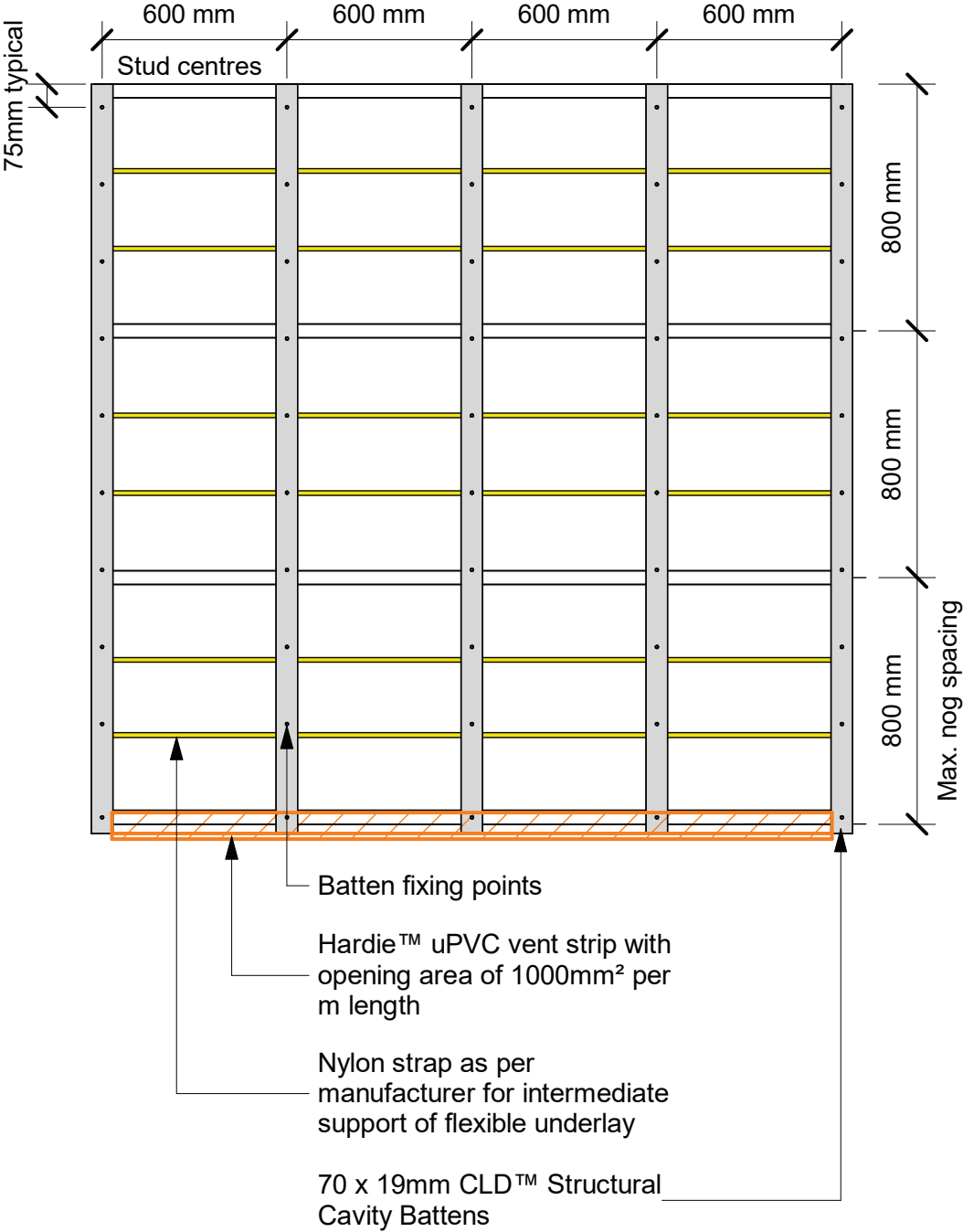
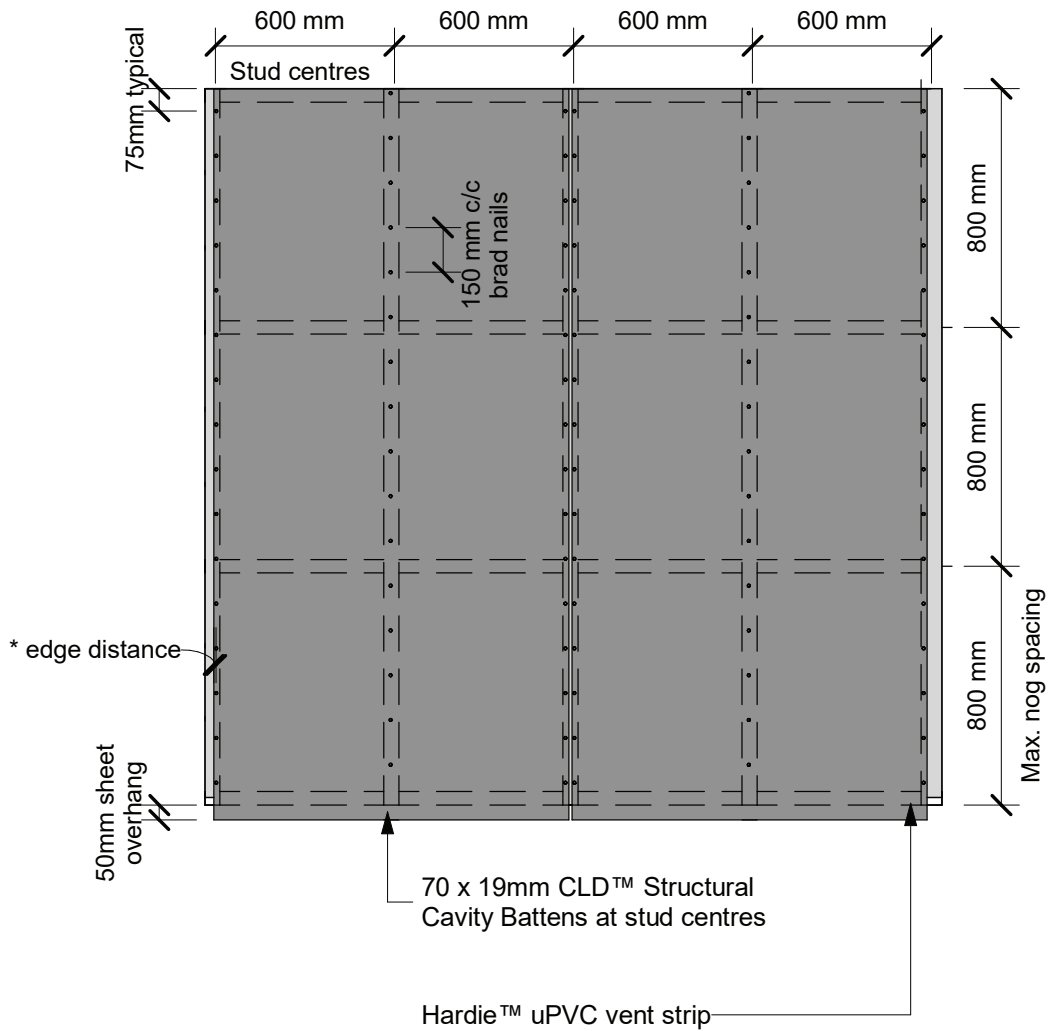


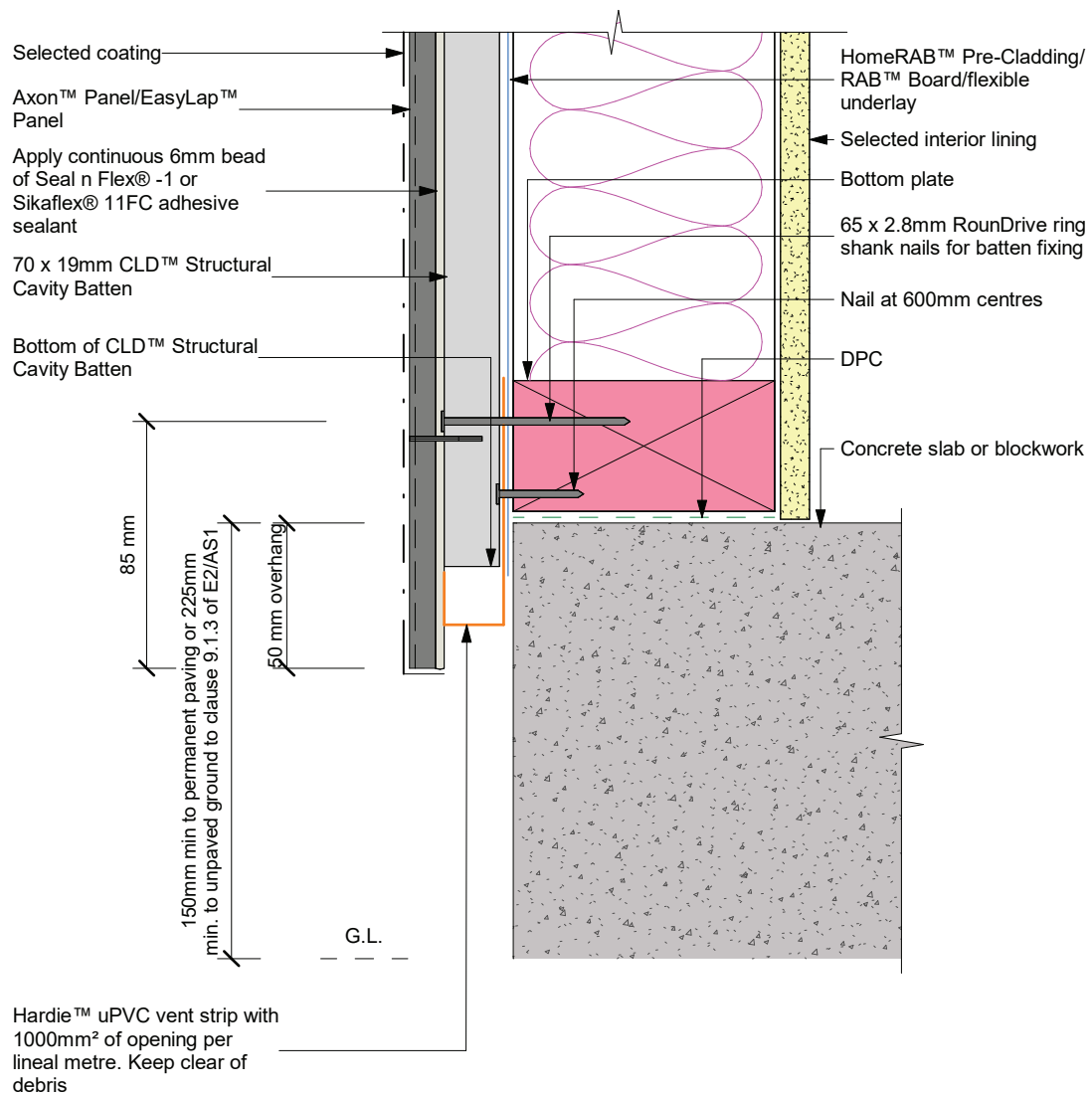
Figure 22: Sheet fixing setout



* Follow edge distance as per figure 19

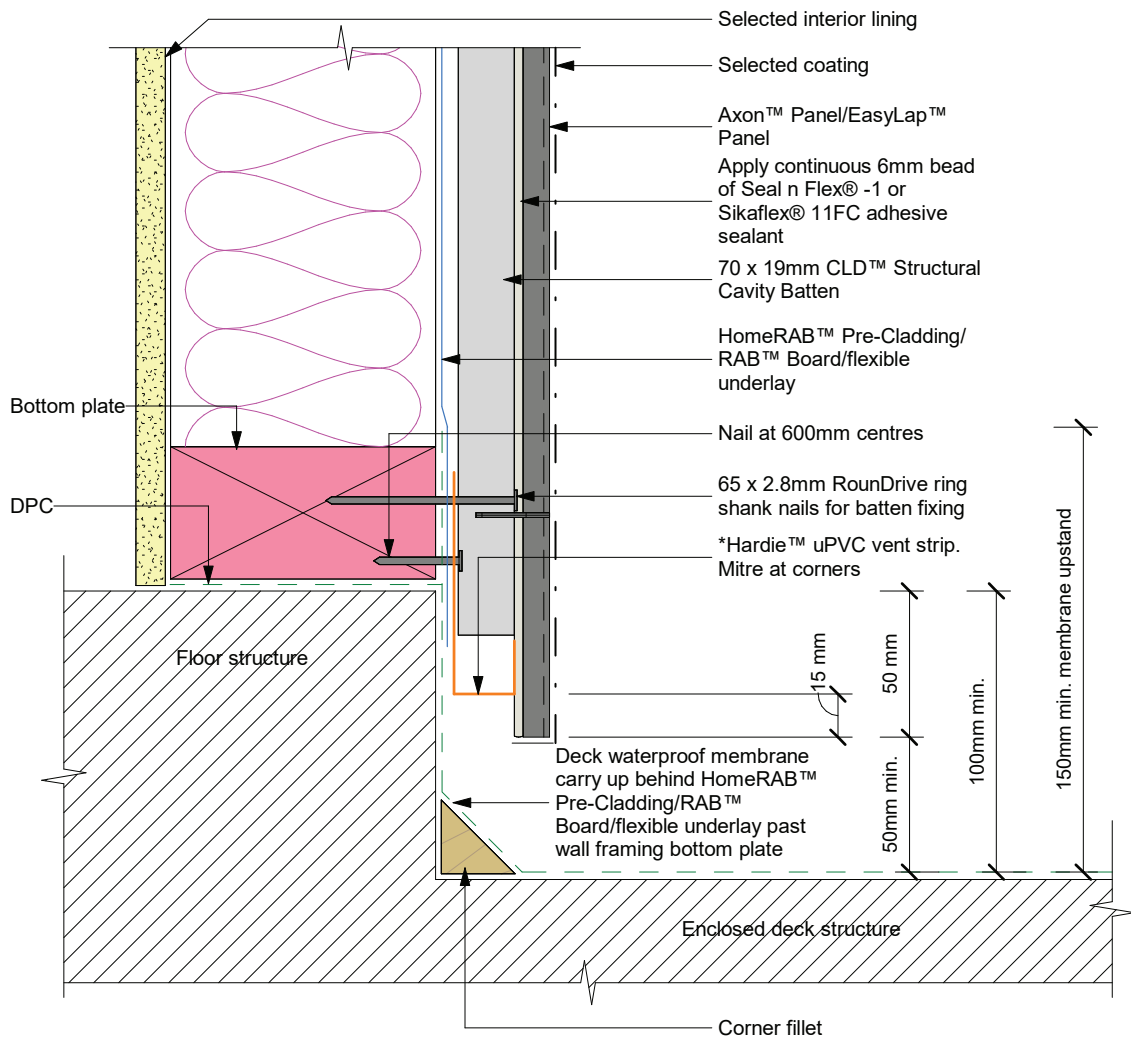
Note: When studs spaced at 400mm centres using Axon™ Panel 400, the nail fixings to intermediate studs to be offset 5mm from the groove in Panel.

Figure 23: Foundation detail



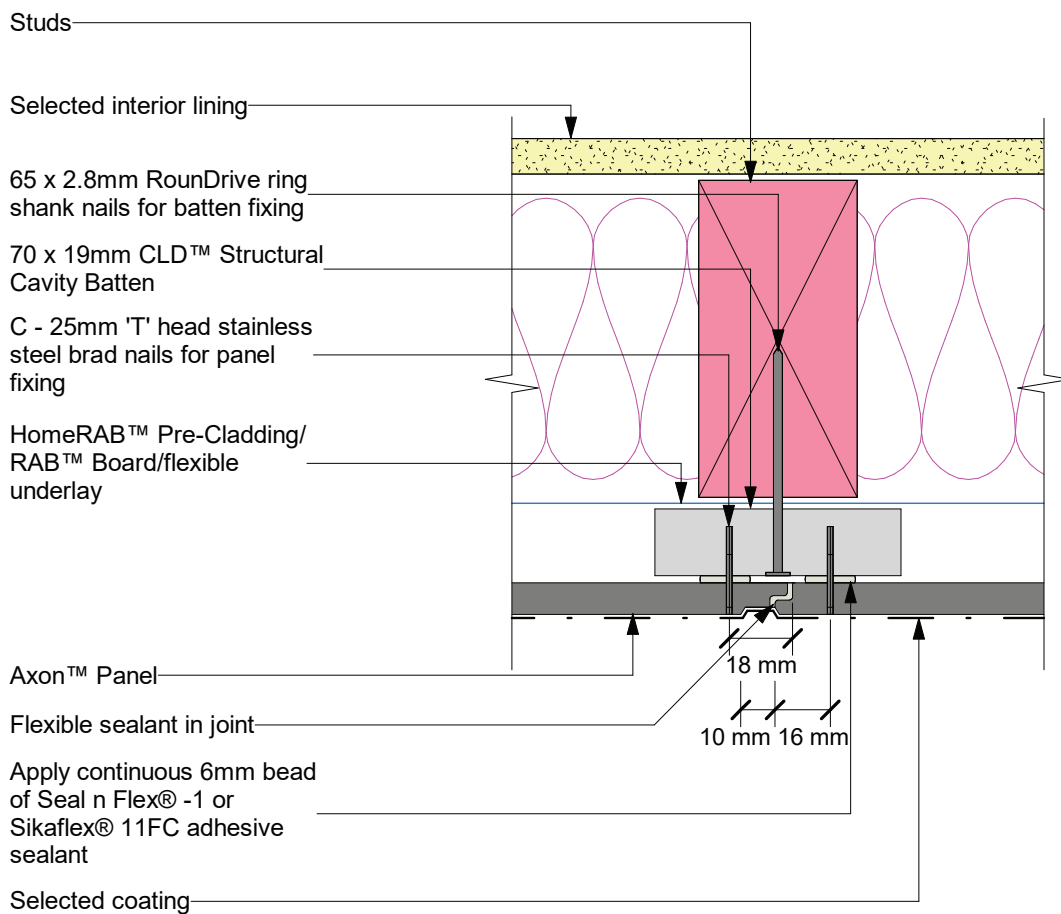
Note: Site cut edges to be primed

Figure 24: Enclosed deck



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

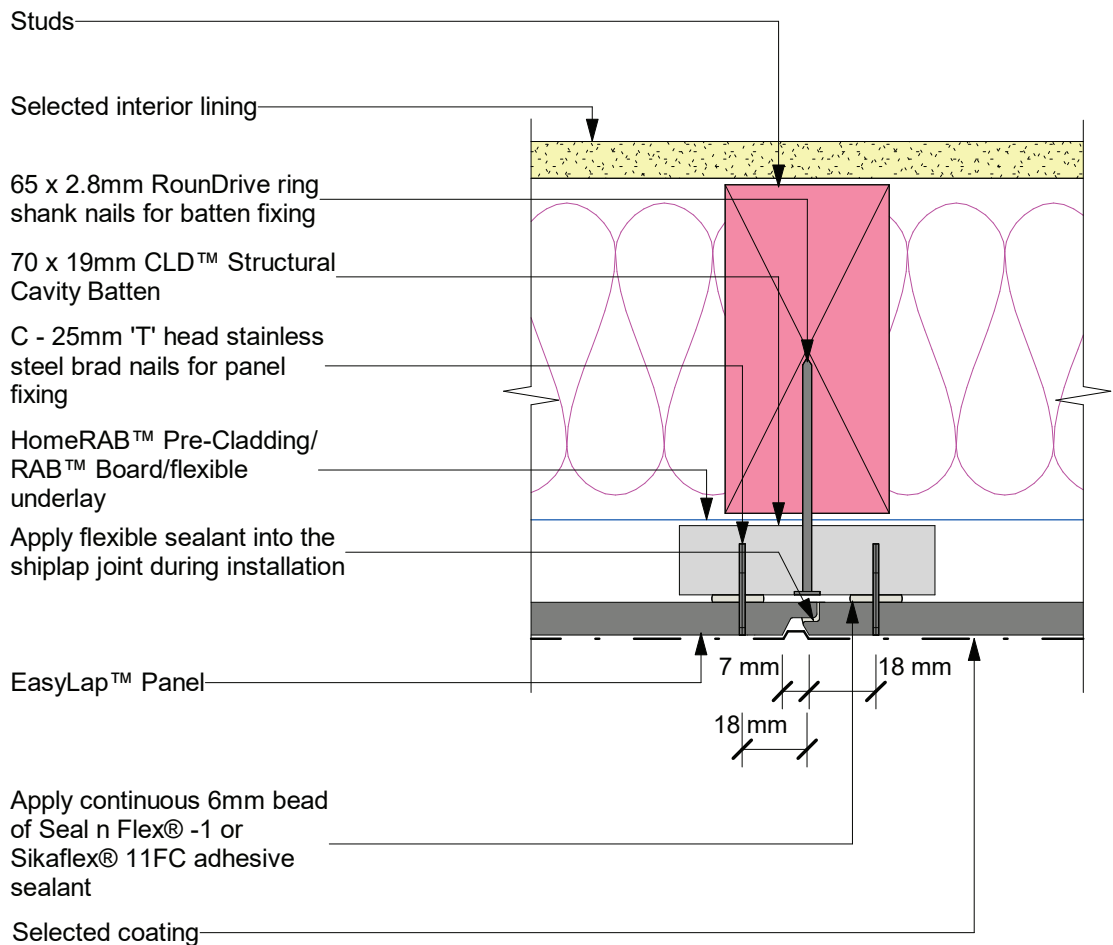
Figure 25: Axon Panel vertical shiplap joint



Note:

- * Ensure that a continuous 6mm bead of adhesive sealant is applied between CLD™ Structural Cavity Batten and Axon™ Panel.
- * Ensure that the required edge distance is maintained when fixing.
- * Seal cut edges with a primer compatible with final coatings.

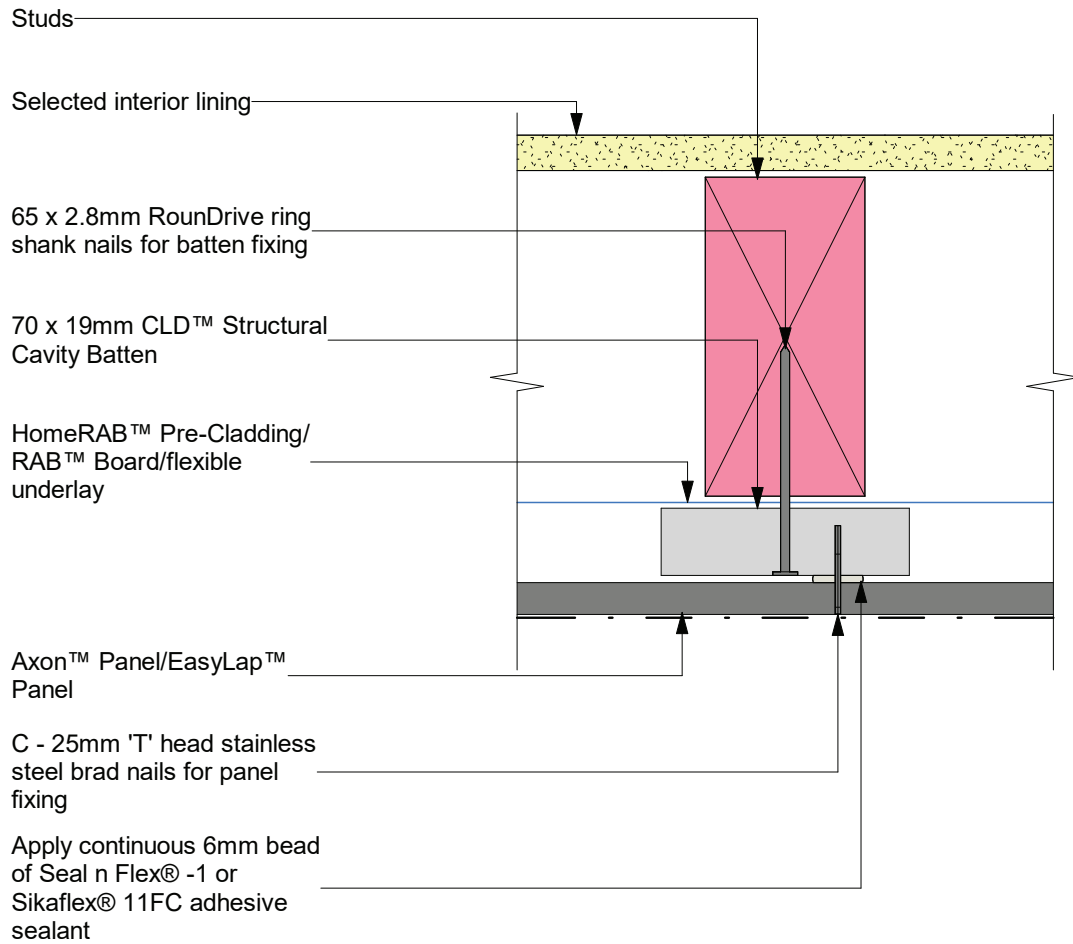
Figure 26: EasyLap Panel vertical shiplap joint



Note: Notes:

- * Ensure that a continuous 6mm bead of adhesive sealant is applied between CLD™ Structural Cavity Batten and EasyLap™ Panel.
- * Ensure that the required edge distance is maintained when fixing.
- * Seal cut edges with a primer compatible with final coatings.

Figure 27: Intermediate stud fixing



Note:

* Fix panel from the middle of the panel outwards.

Figure 28: Internal corner

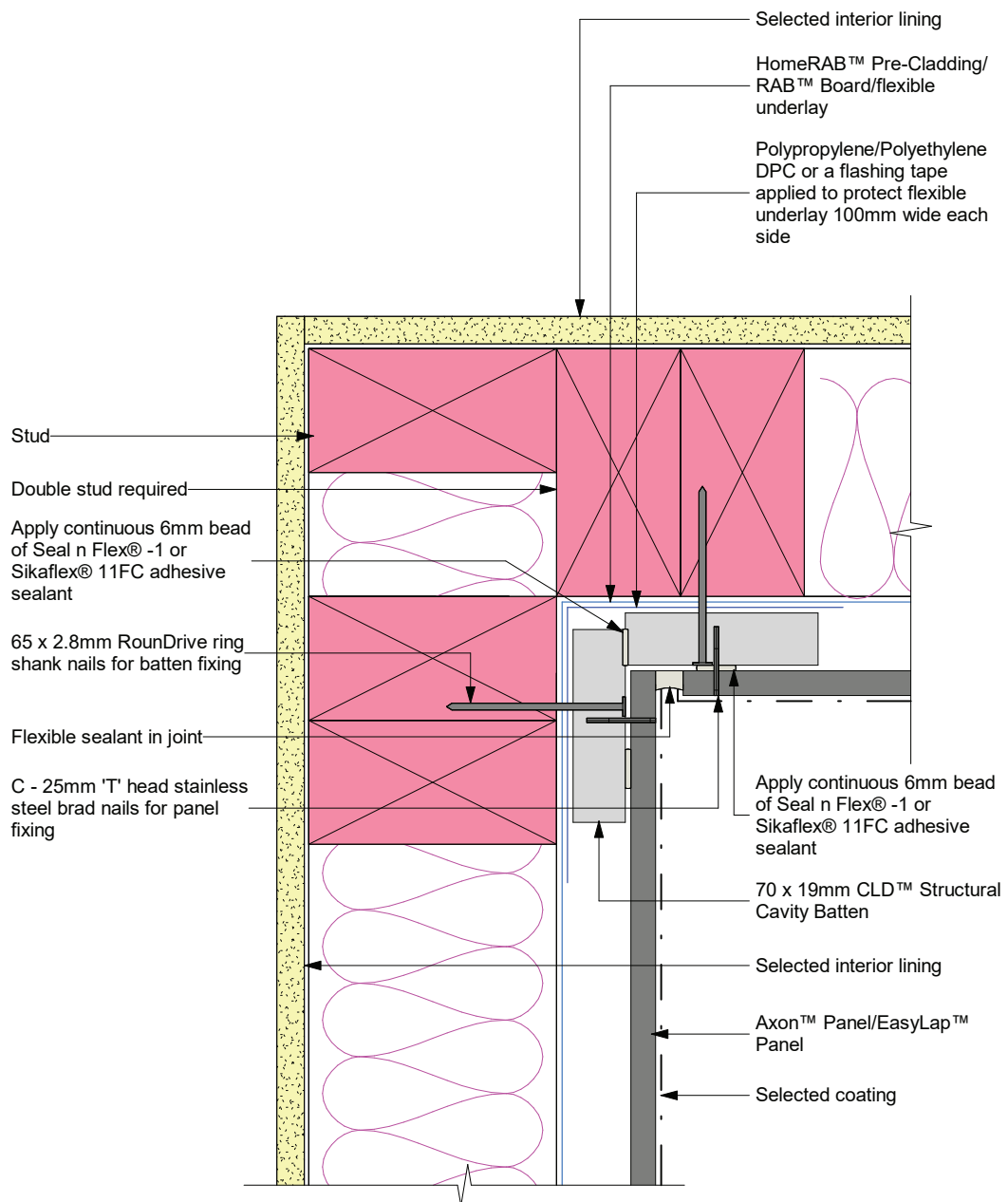


Figure 29: External aluminium corner

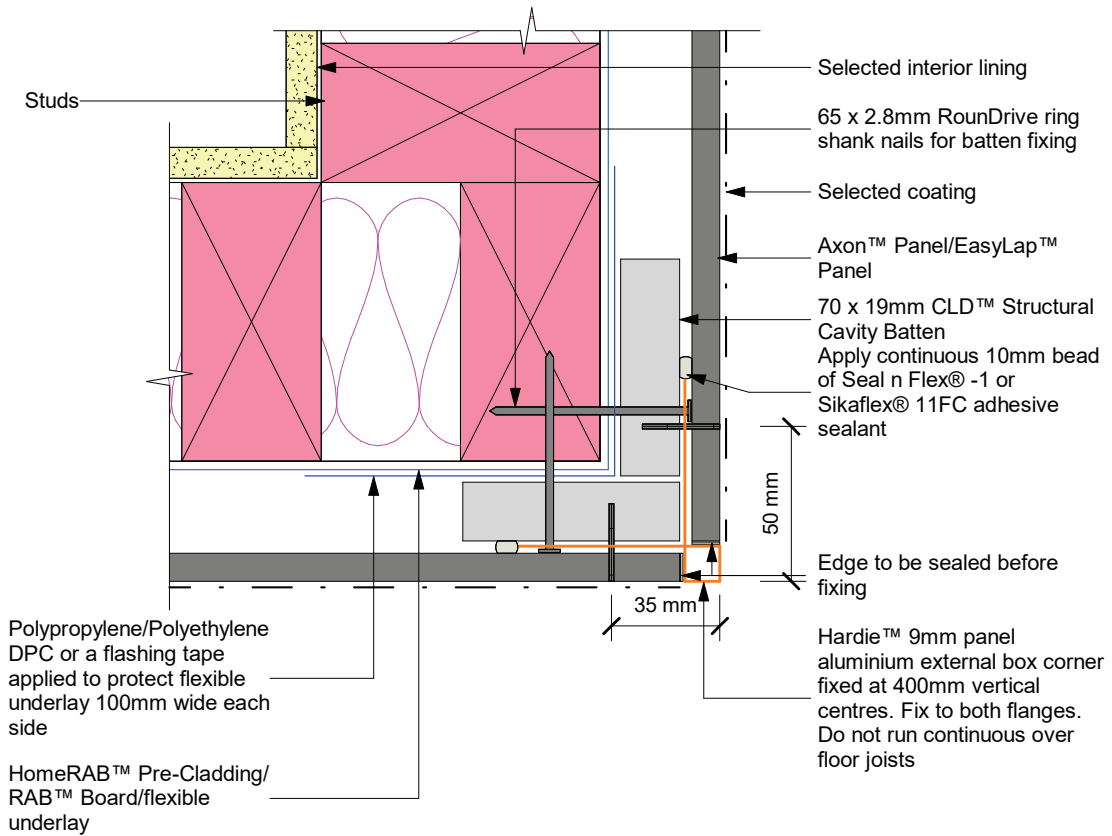
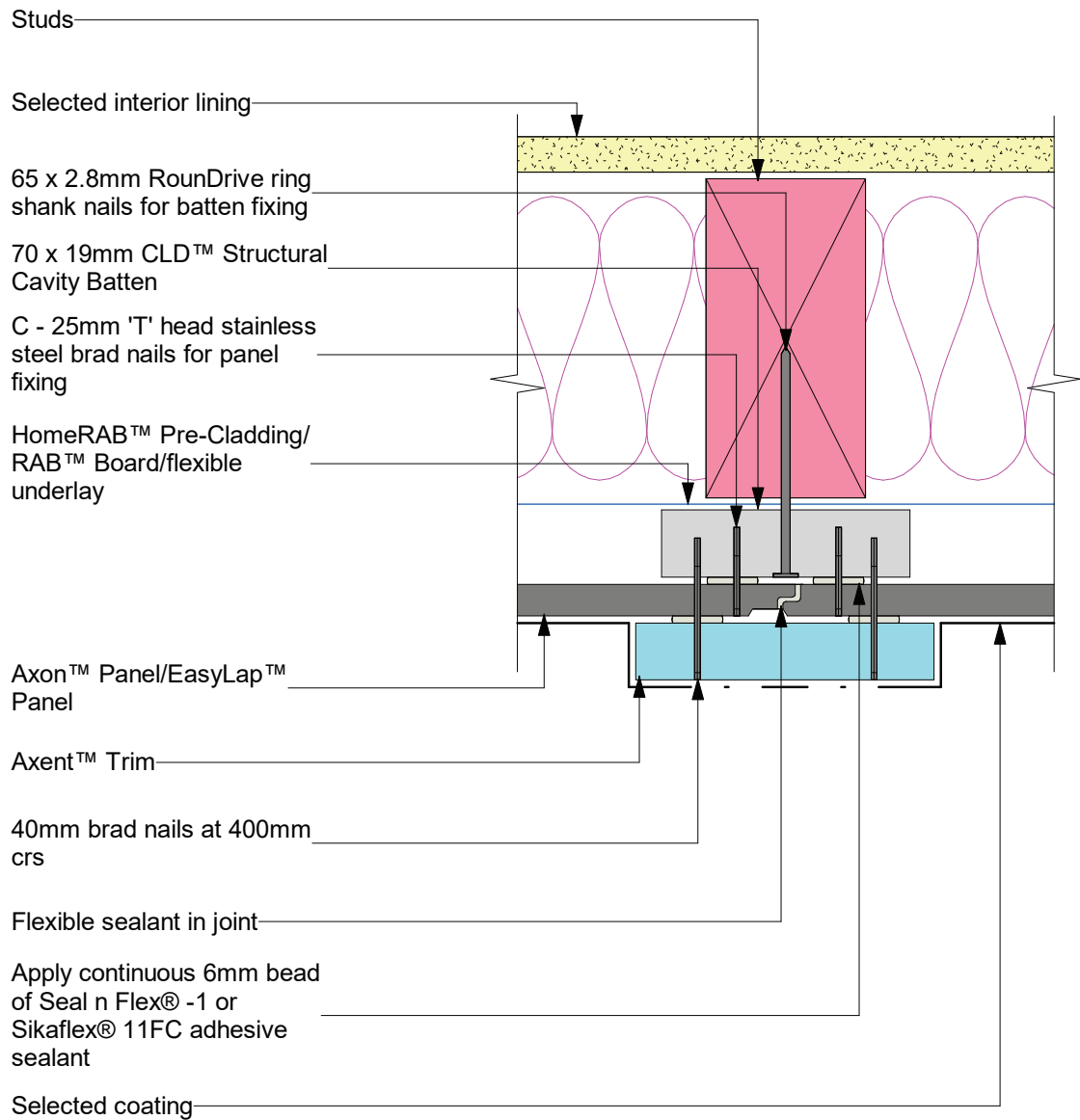


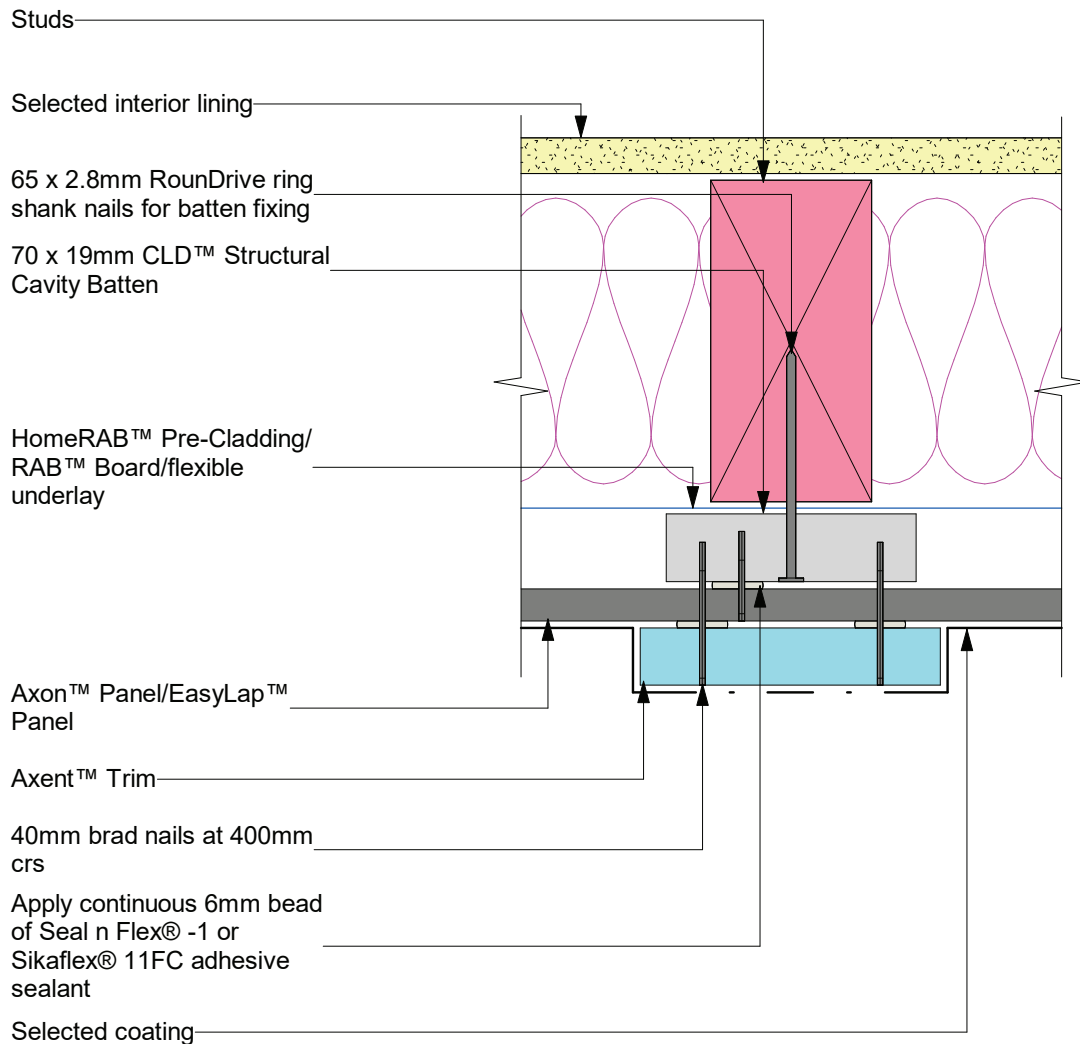
Figure 30: Vertical shiplap joint with facing



Note:

- * Ensure that a continuous 6mm bead of adhesive sealant is applied between CLD™ Structural Cavity Batten and Axon™ Panel/EasyLap™ Panel.
- * Ensure that the required edge distance is maintained when fixing.
- * Seal cut edges with a primer compatible with final coatings.

Figure 31: Intermediate stud fixing with facing



Note:

- * Ensure that a continuous 6mm bead of adhesive sealant is applied between CLD™ Structural Cavity Batten and Axon™ Panel/EasyLap™ Panel.
- * Ensure that the required edge distance is maintained when fixing.
- * Seal cut edges with a primer compatible with final coatings.

Figure 32: Internal Corner with facing

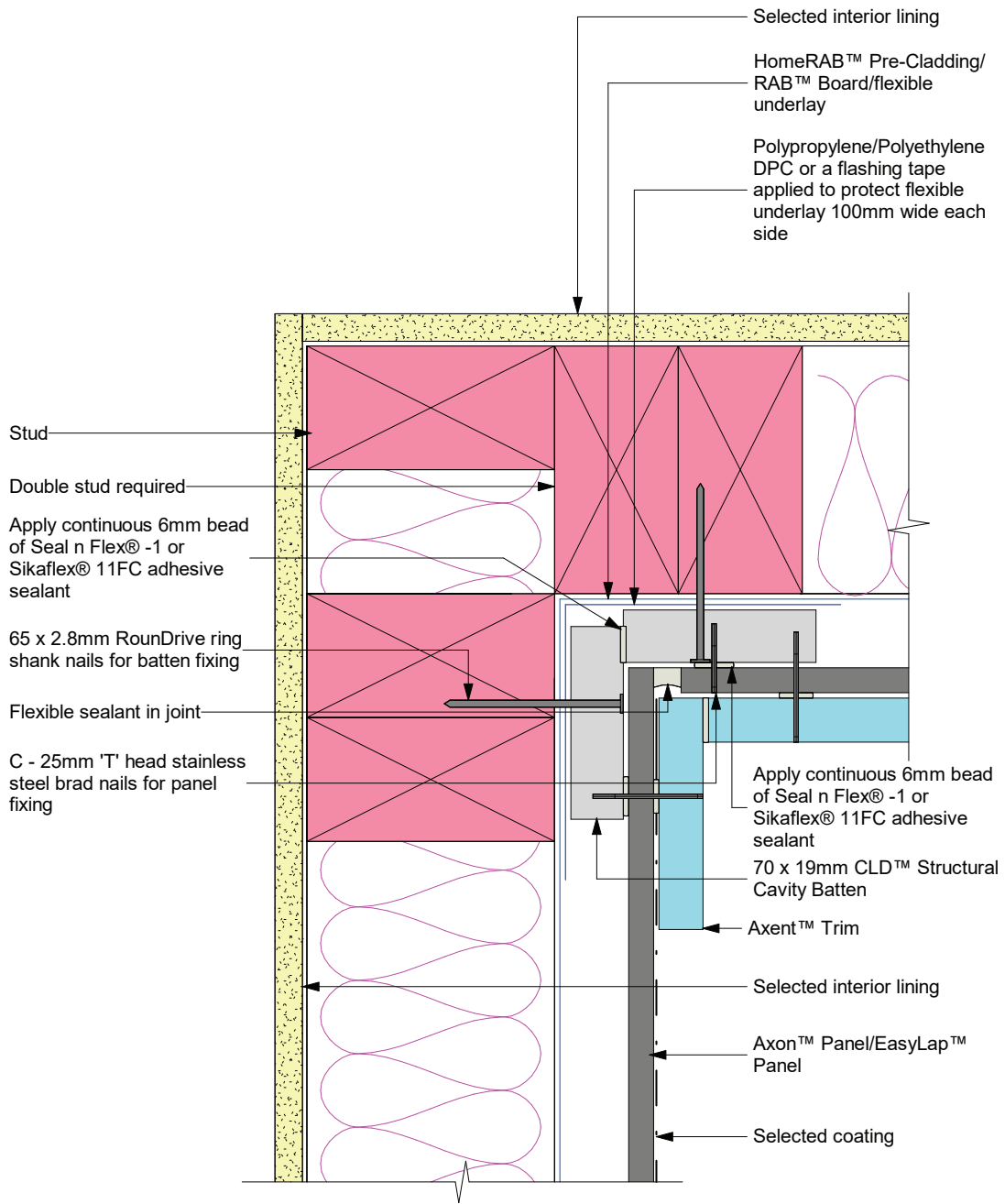


Figure 33: External corner with facing

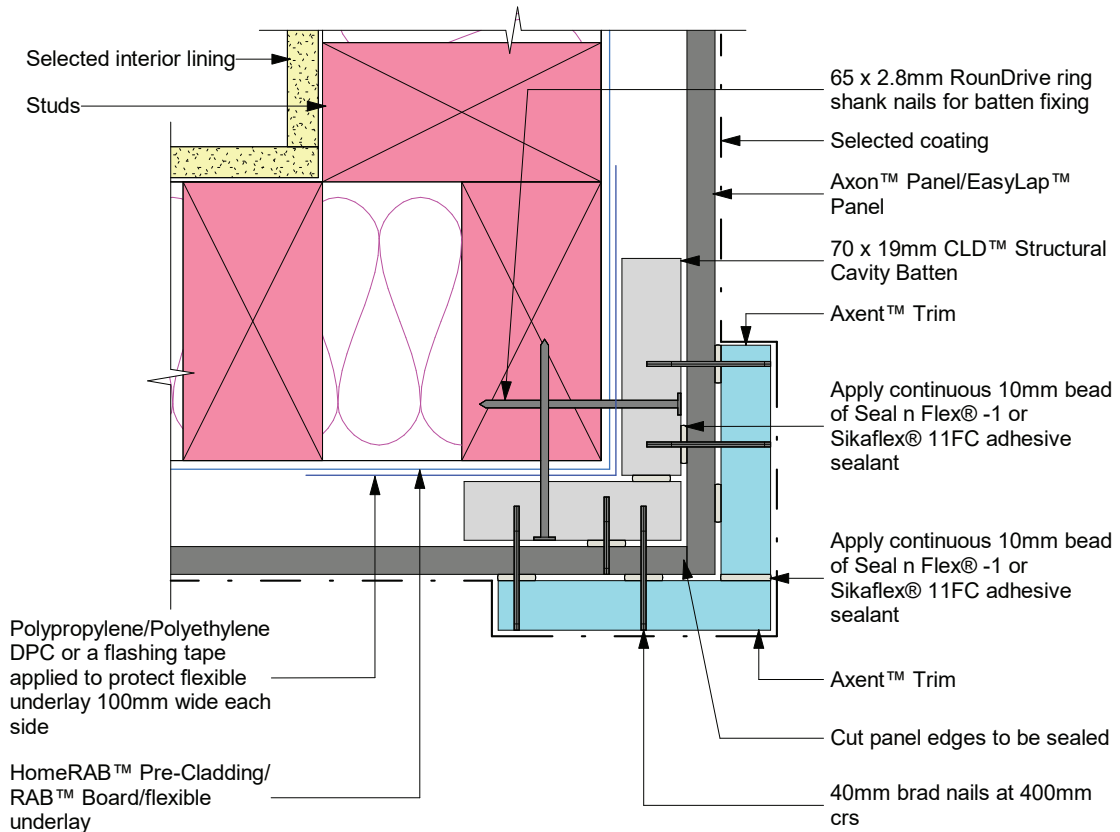


Figure 34: Jointing of CLD Structural Cavity Batten

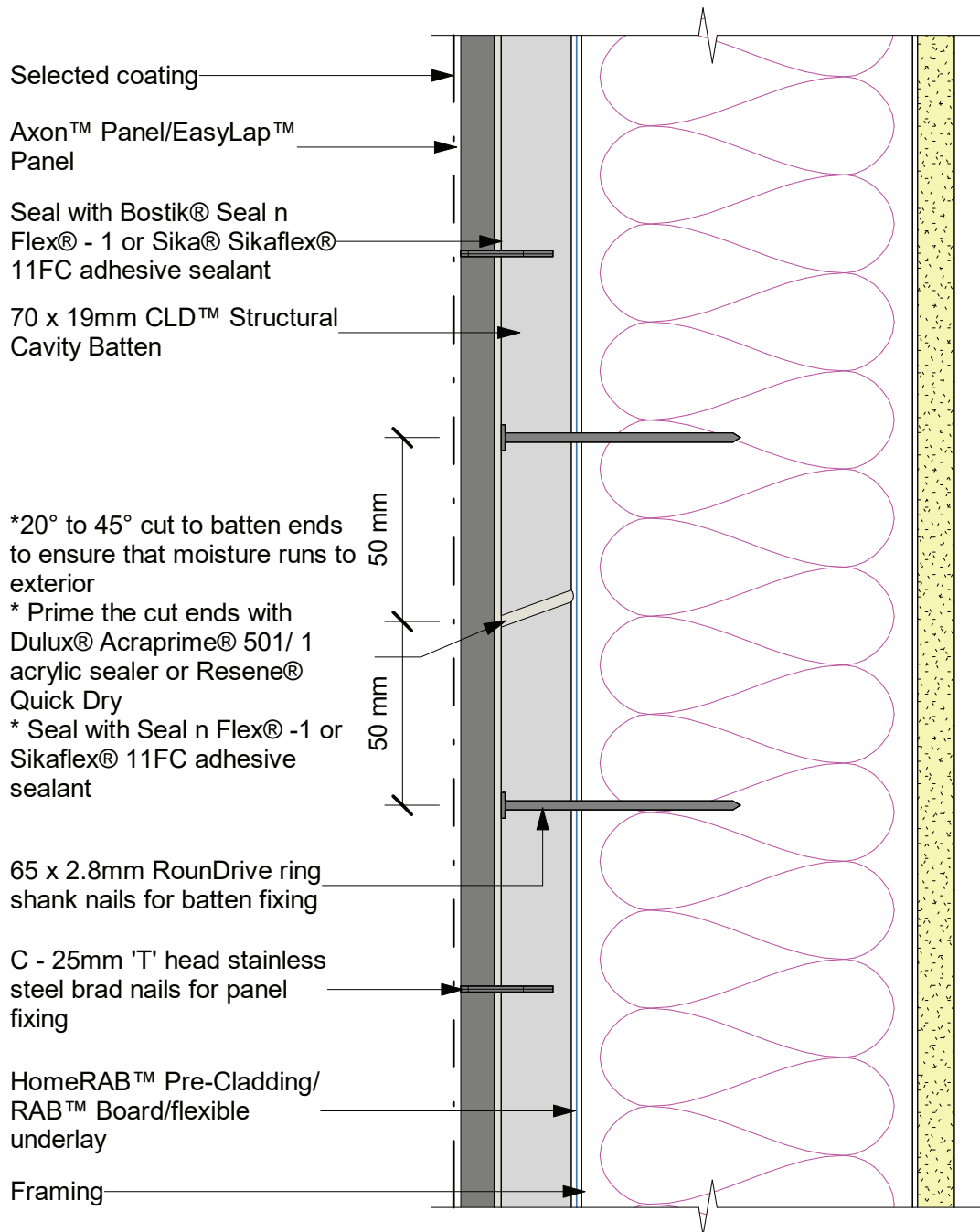
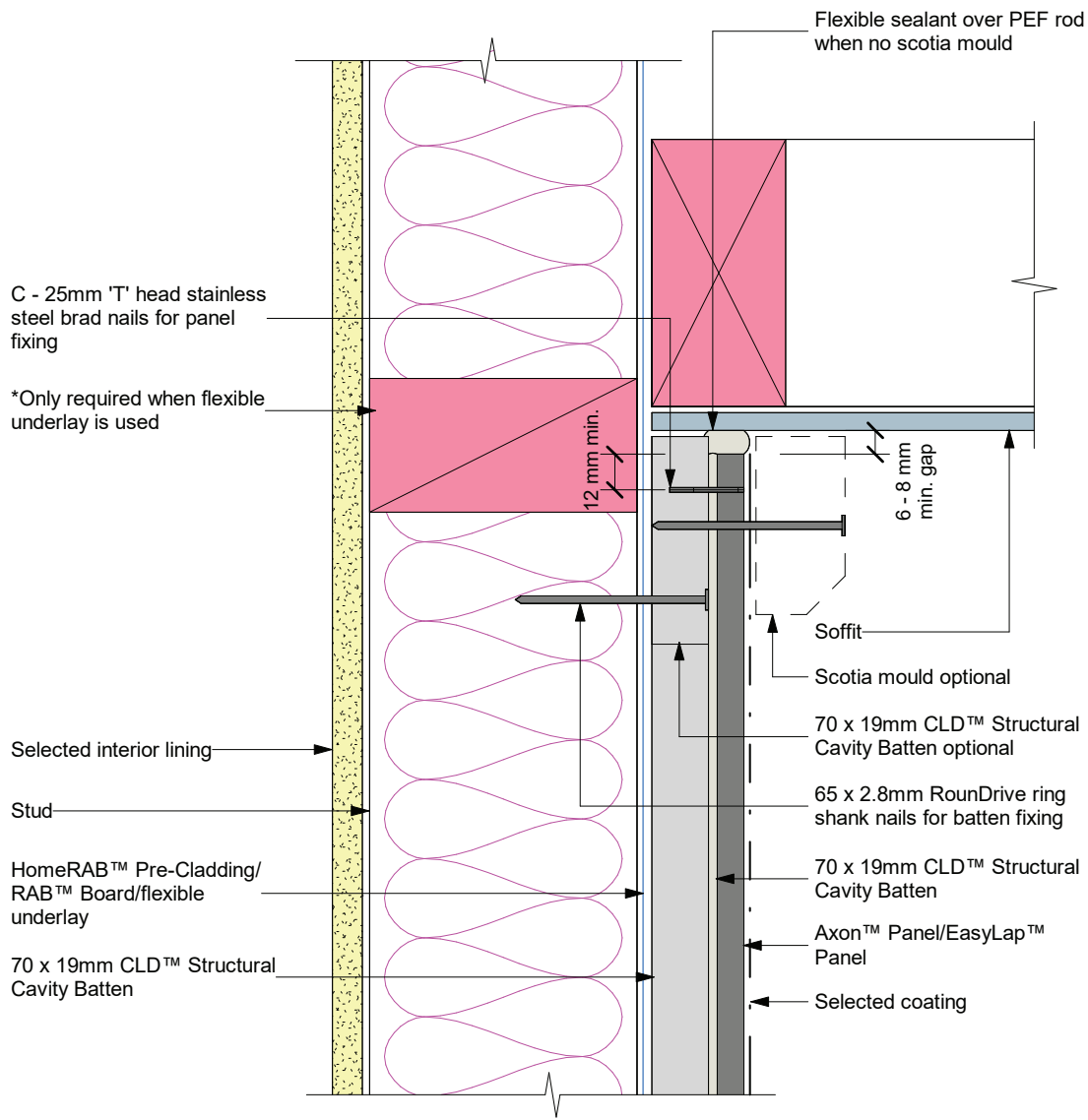
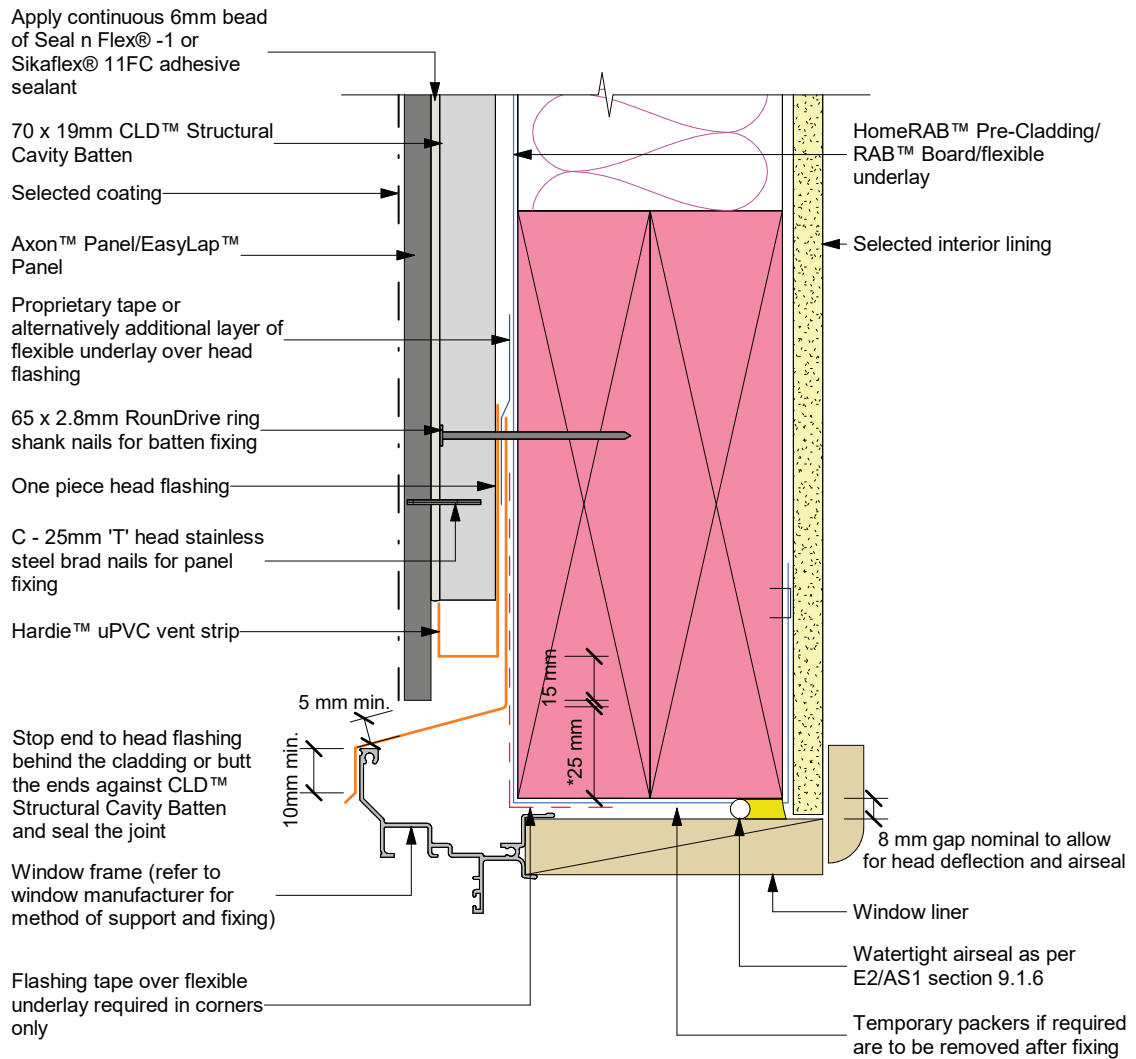


Figure 35: Soffit detail



Note: Site cut edges to be primed

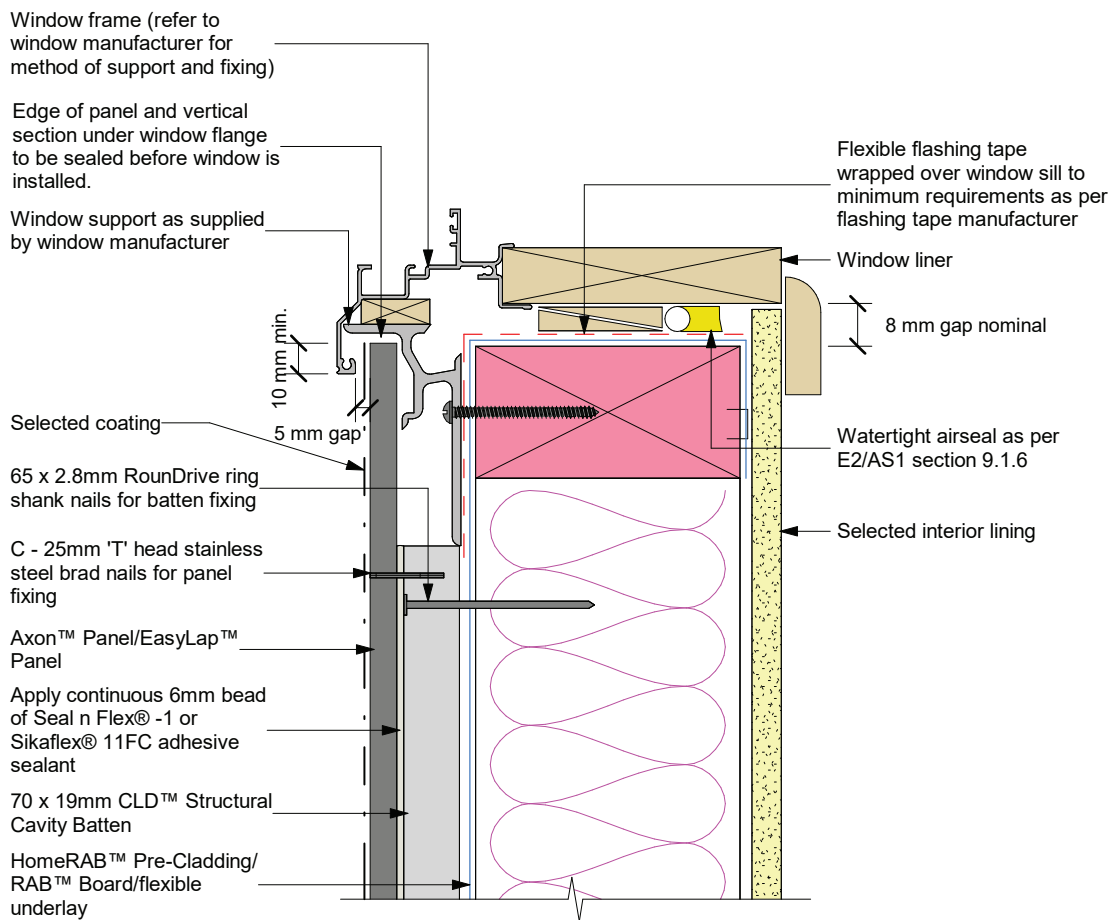
Figure 36: Window head



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

Figure 37: Window sill



General notes for materials selection

- * Flexible underlay must comply with acceptable solution E2/AS.
- * Flashing tape must have proven compatibility with the selected flexible underlay and other materials with which it comes into contact.

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

Figure 38: Window jamb

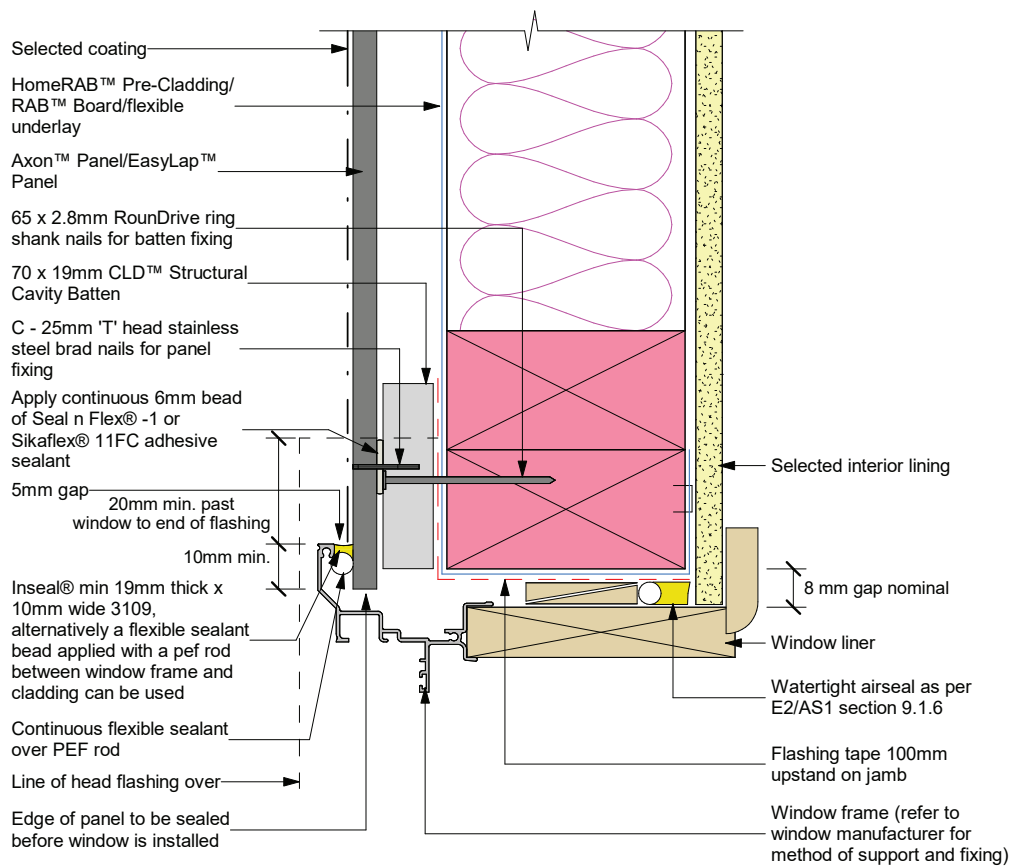
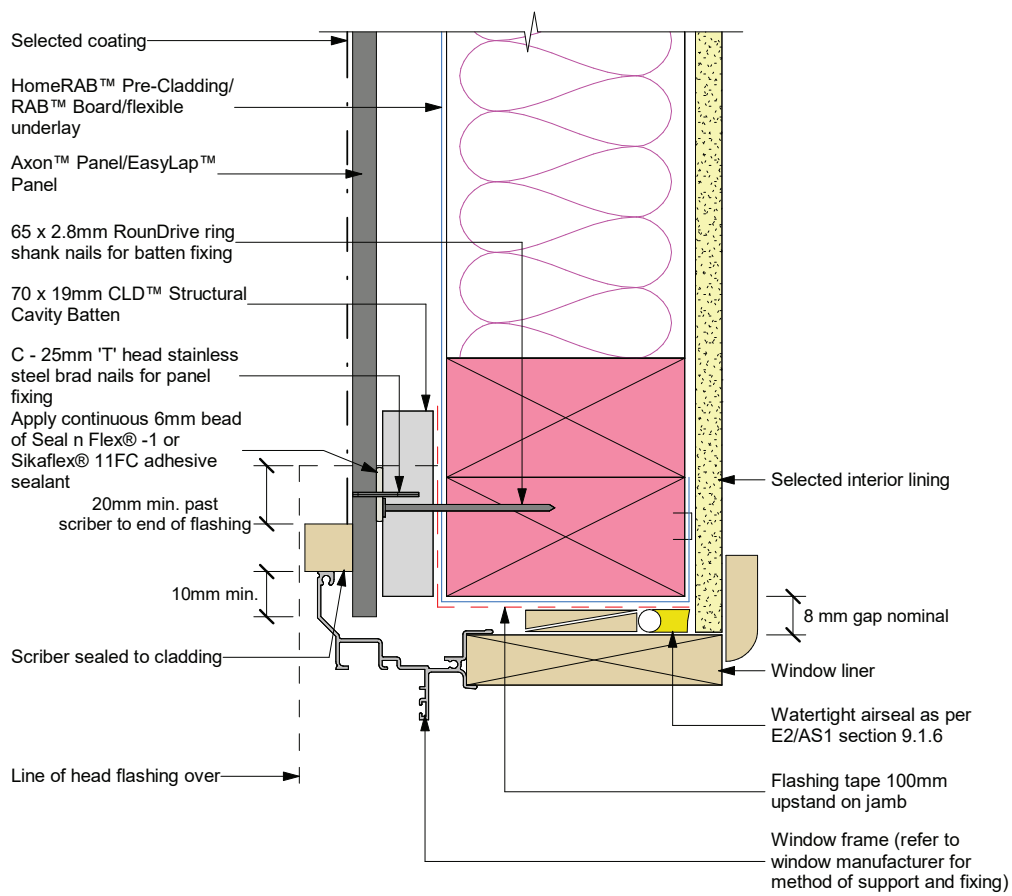


Figure 39: Window jamb with scribe



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

Figure 40: Window head with facing

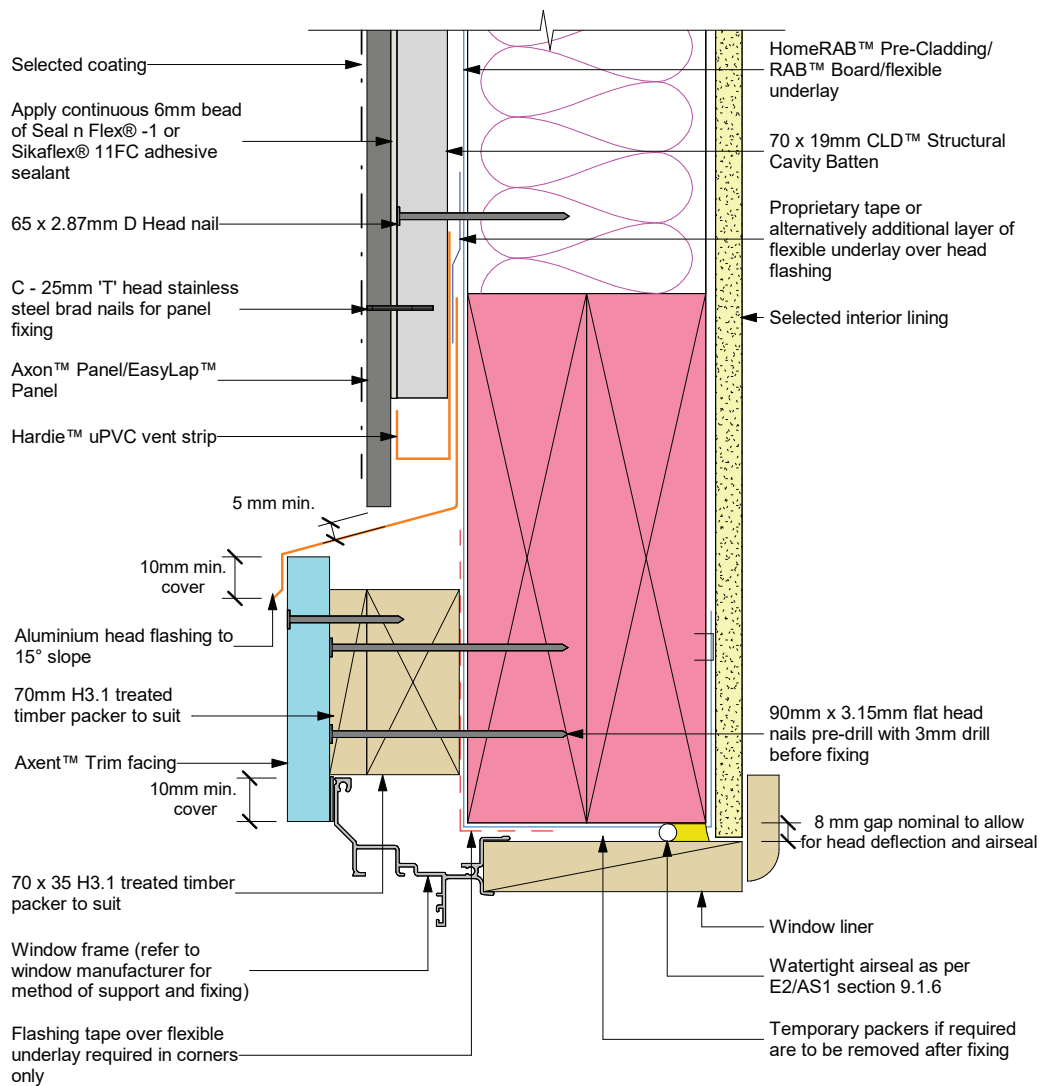
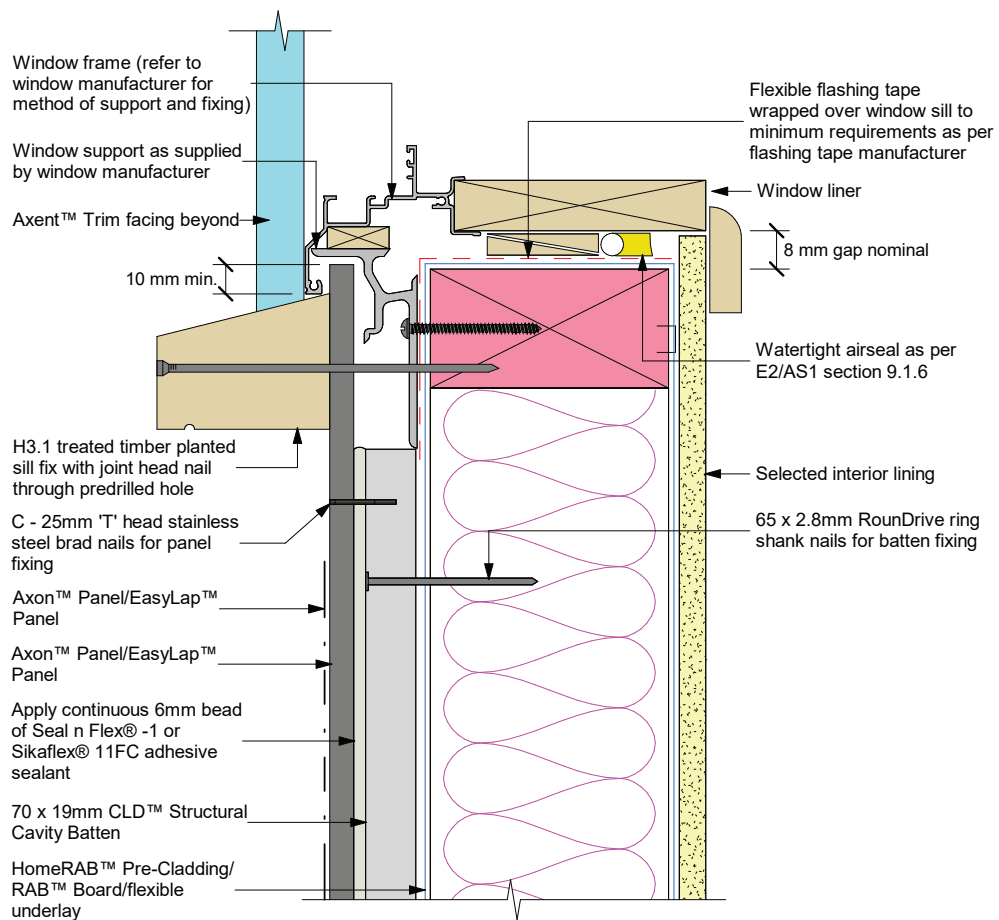


Figure 41: Window sill with planted sill

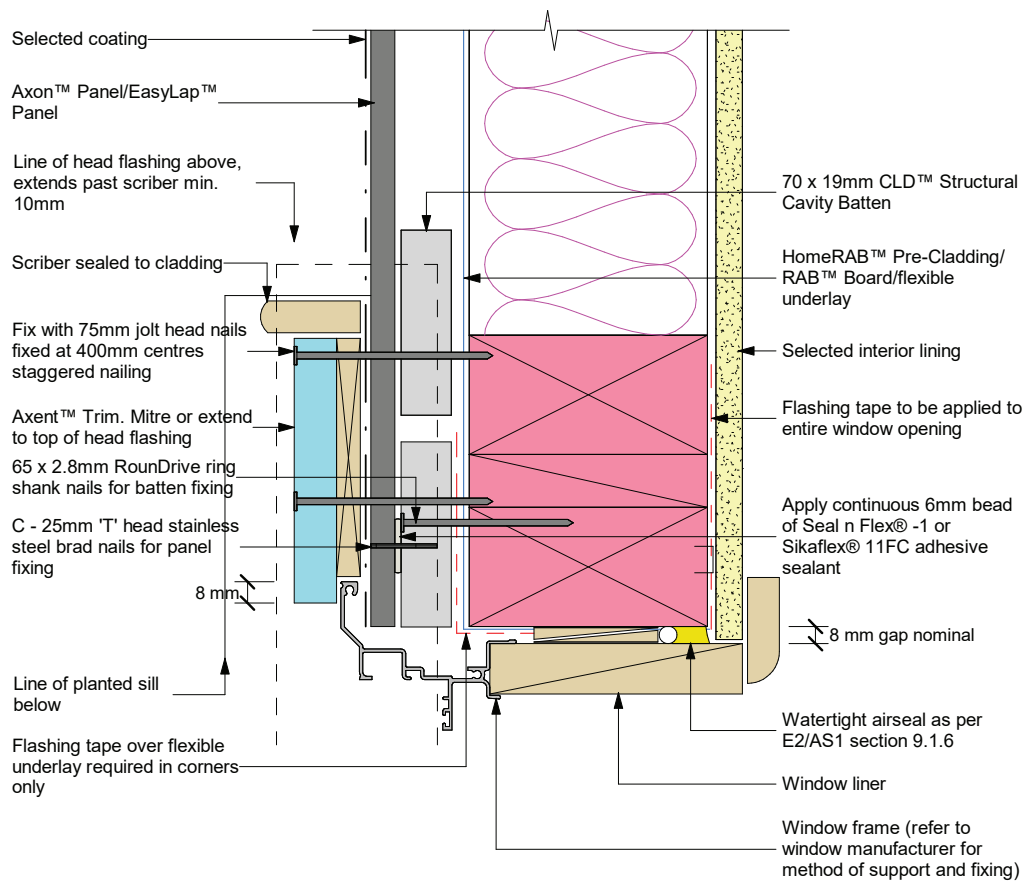


General notes for materials selection

- * 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.

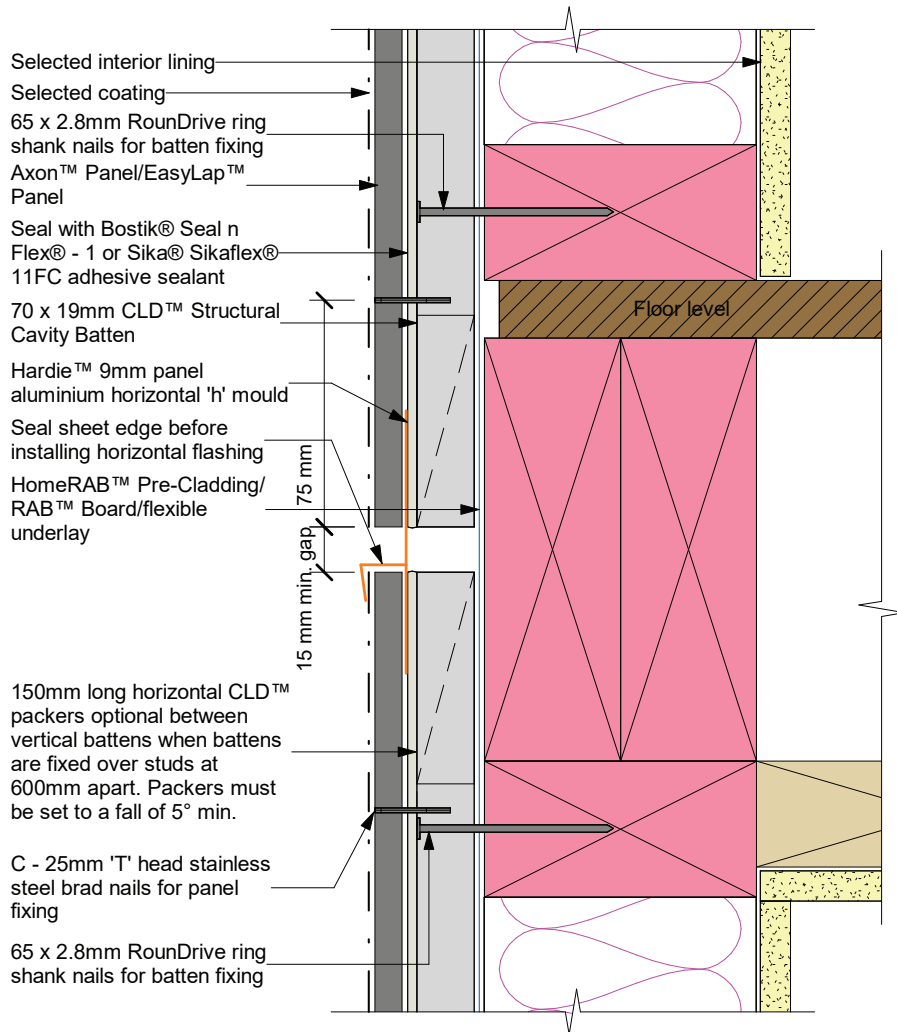
Refer to the manufacturer or supplier for technical information for these materials.

Figure 42: 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 43: Horizontal joint at floor joist



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

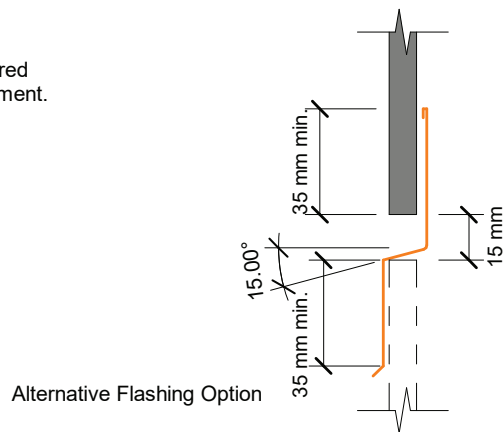


Figure 44: Horizontal joint in tall wall

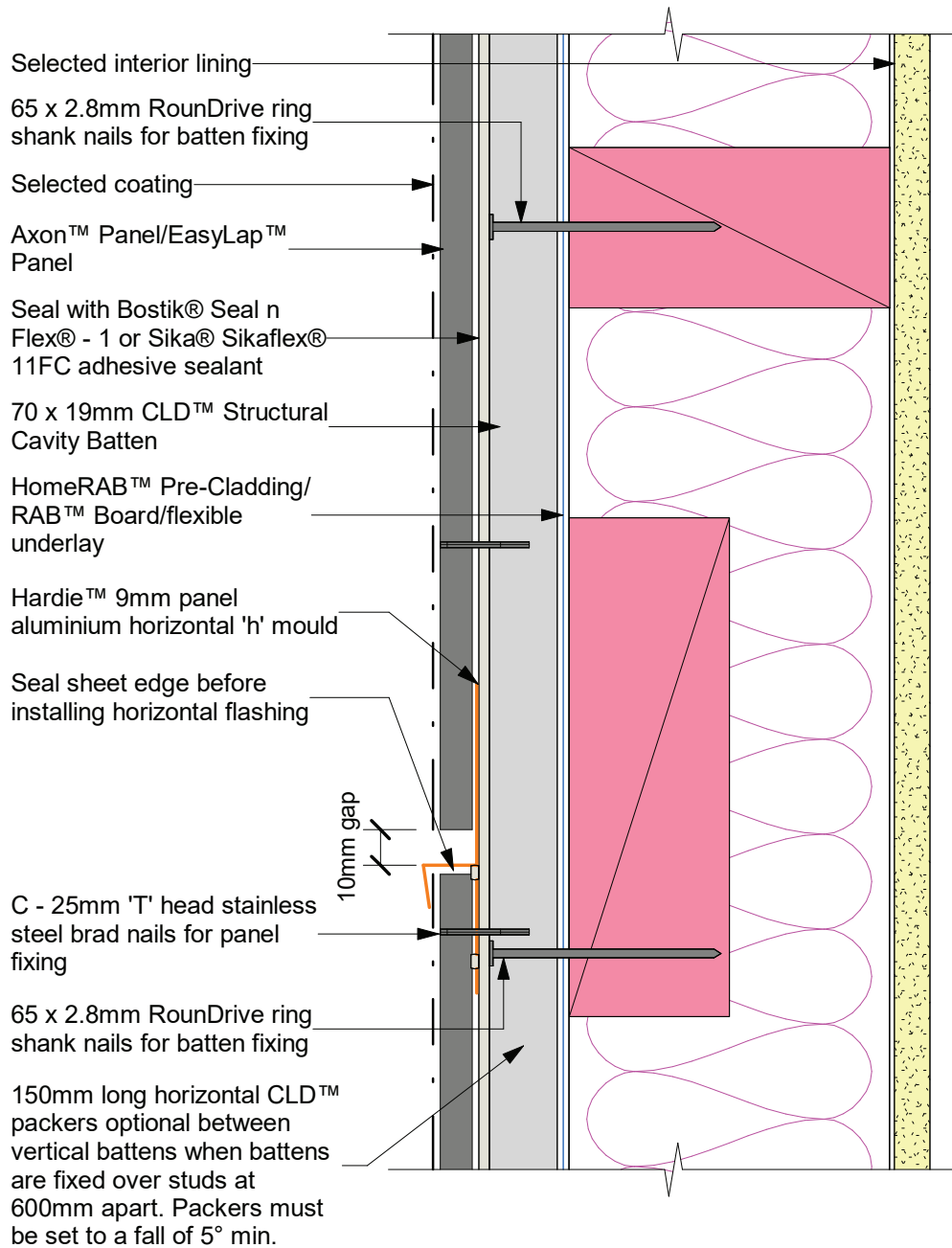


Figure 45: Aluminium 'h' mould joiner

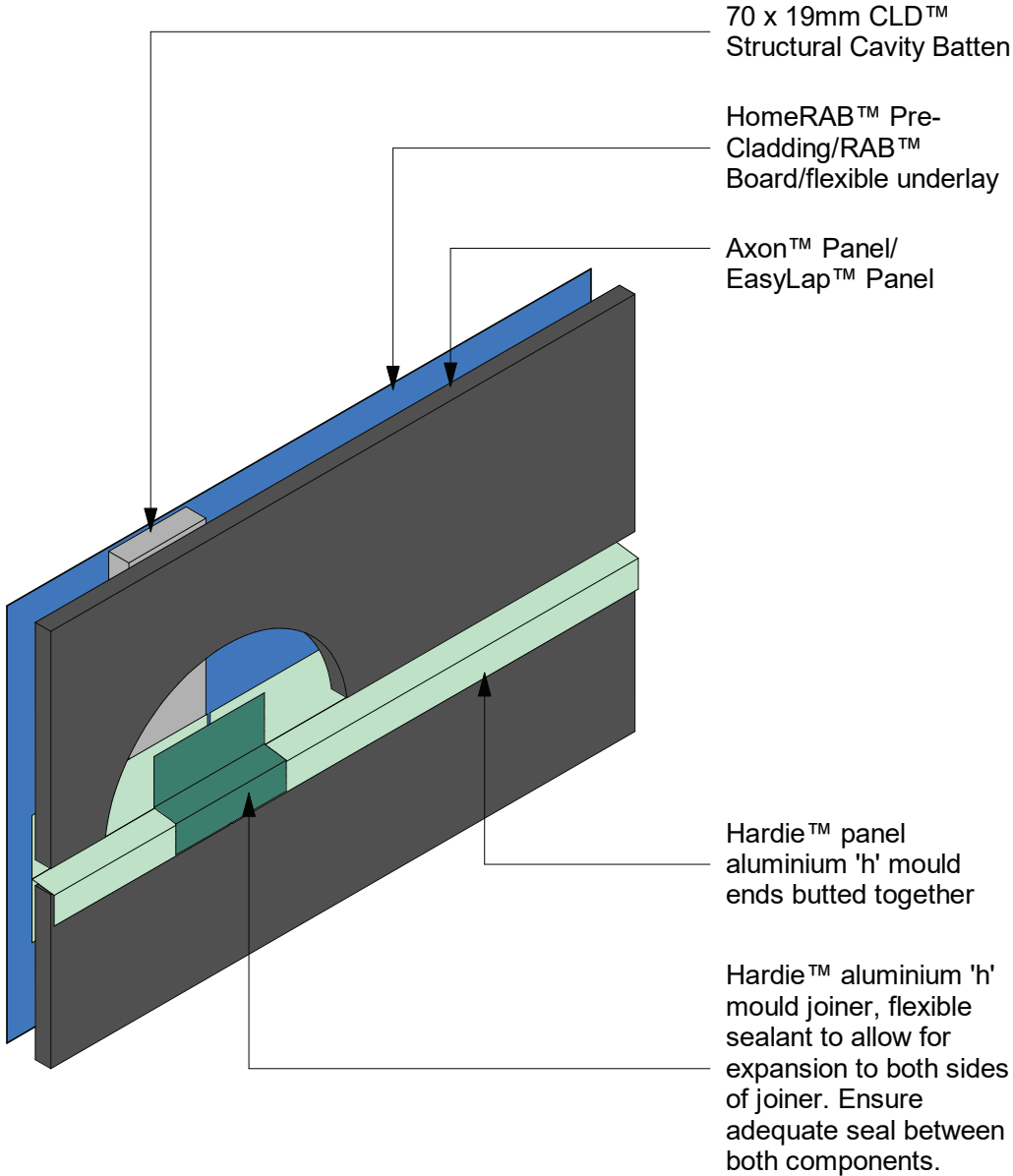
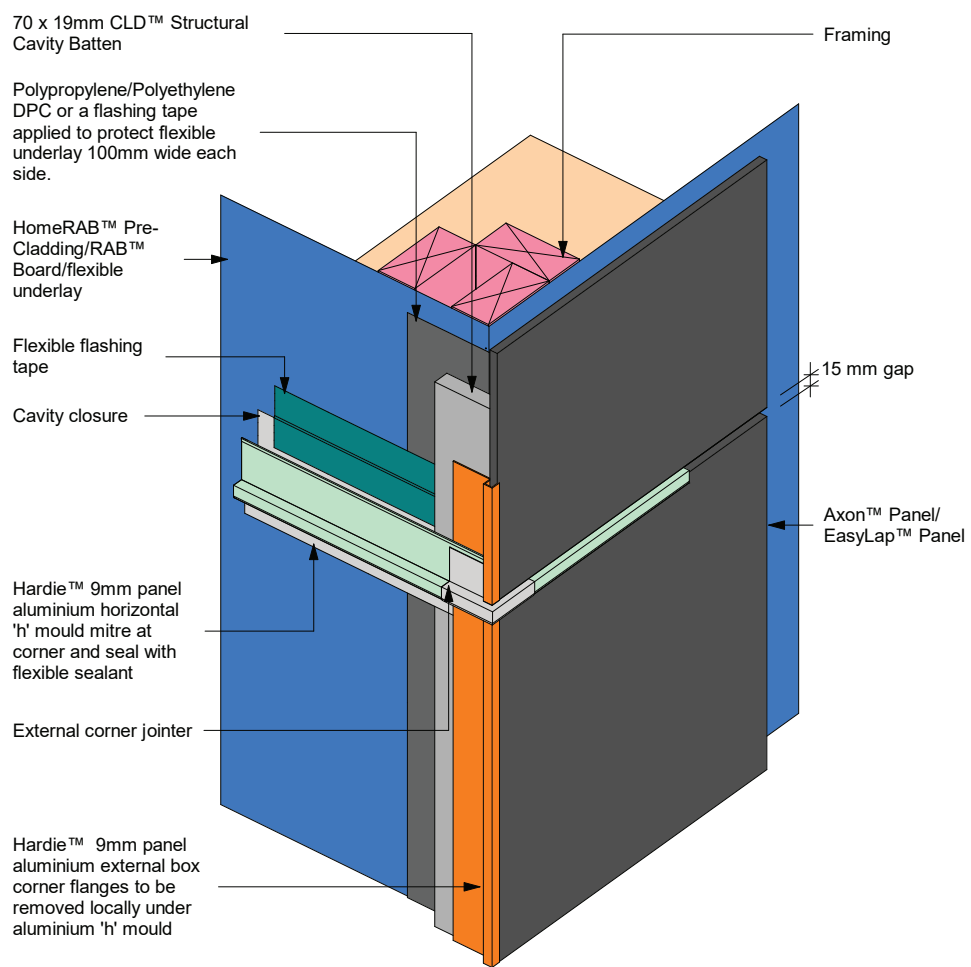


Figure 46: External corner at 'h' mould joint detail



Note: Site cut edges to be primed

Figure 47: Internal corner at 'h' mould joint detail

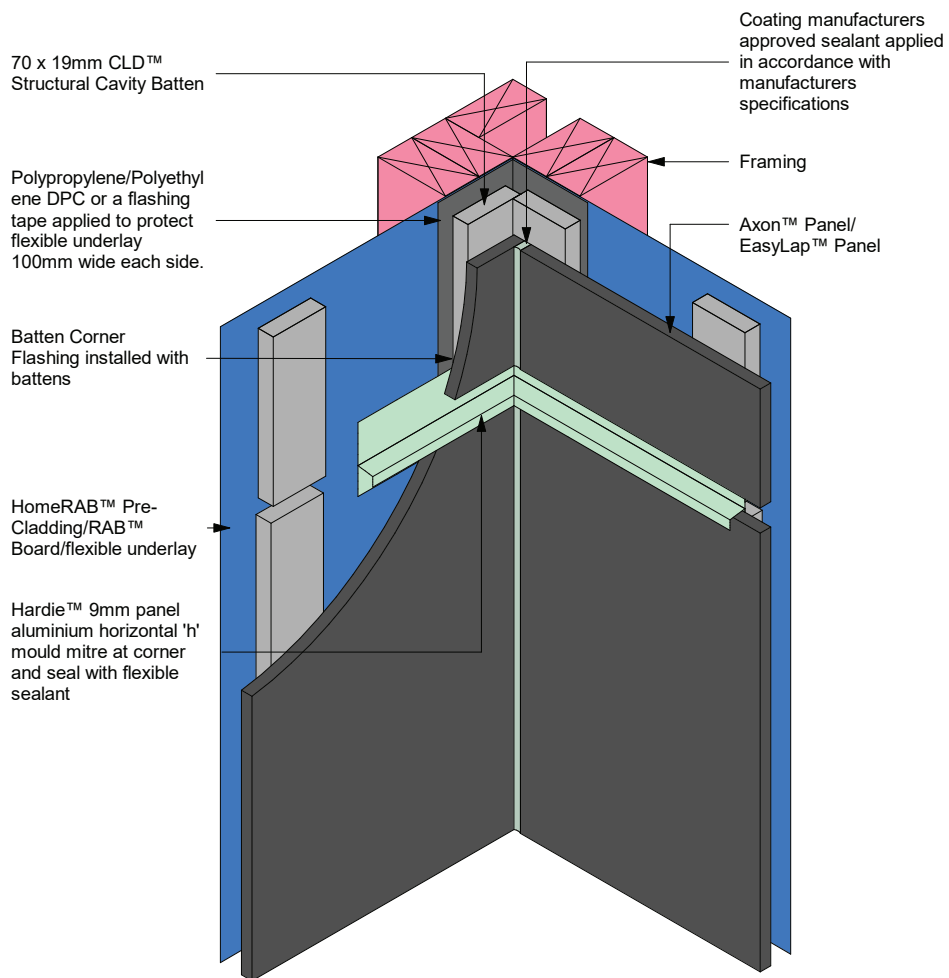
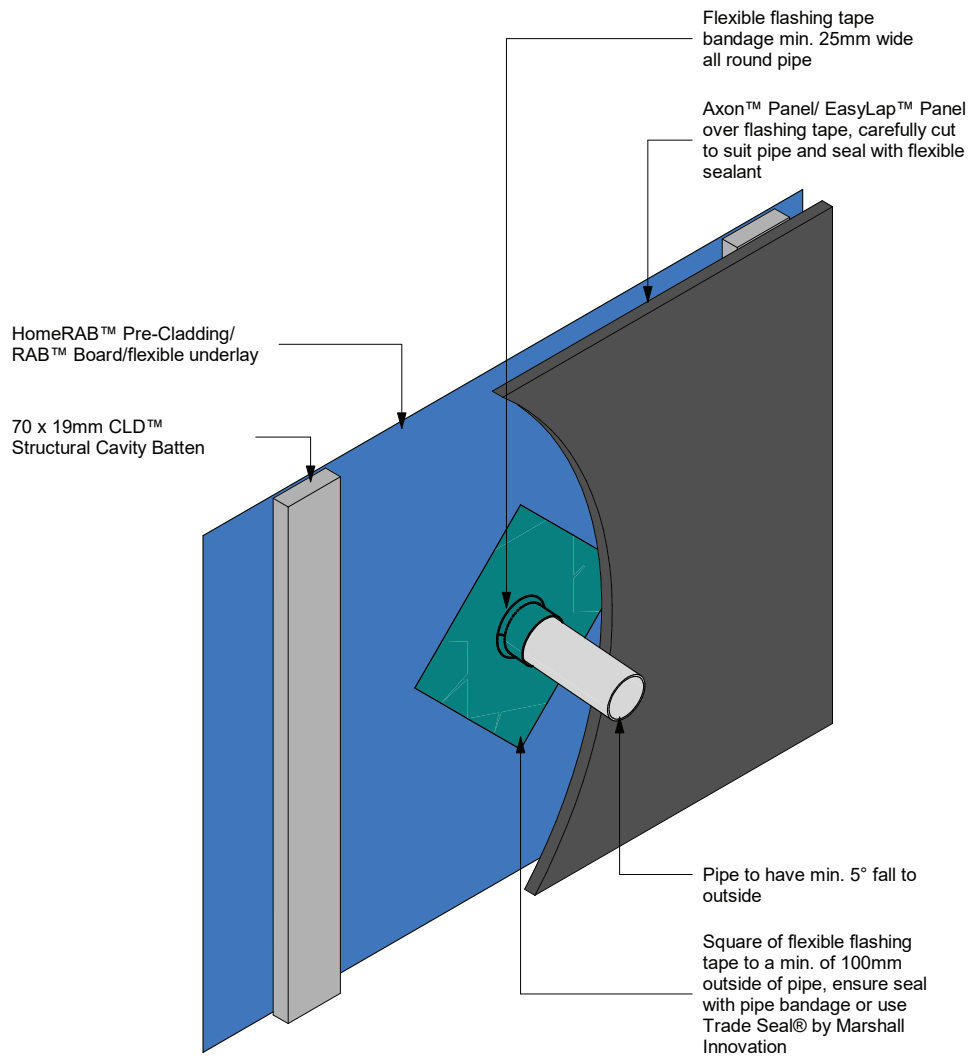


Figure 48: Cavity pipe penetration



Note: Site cut edges to be primed

Figure 49: 'h' mould joint at window head

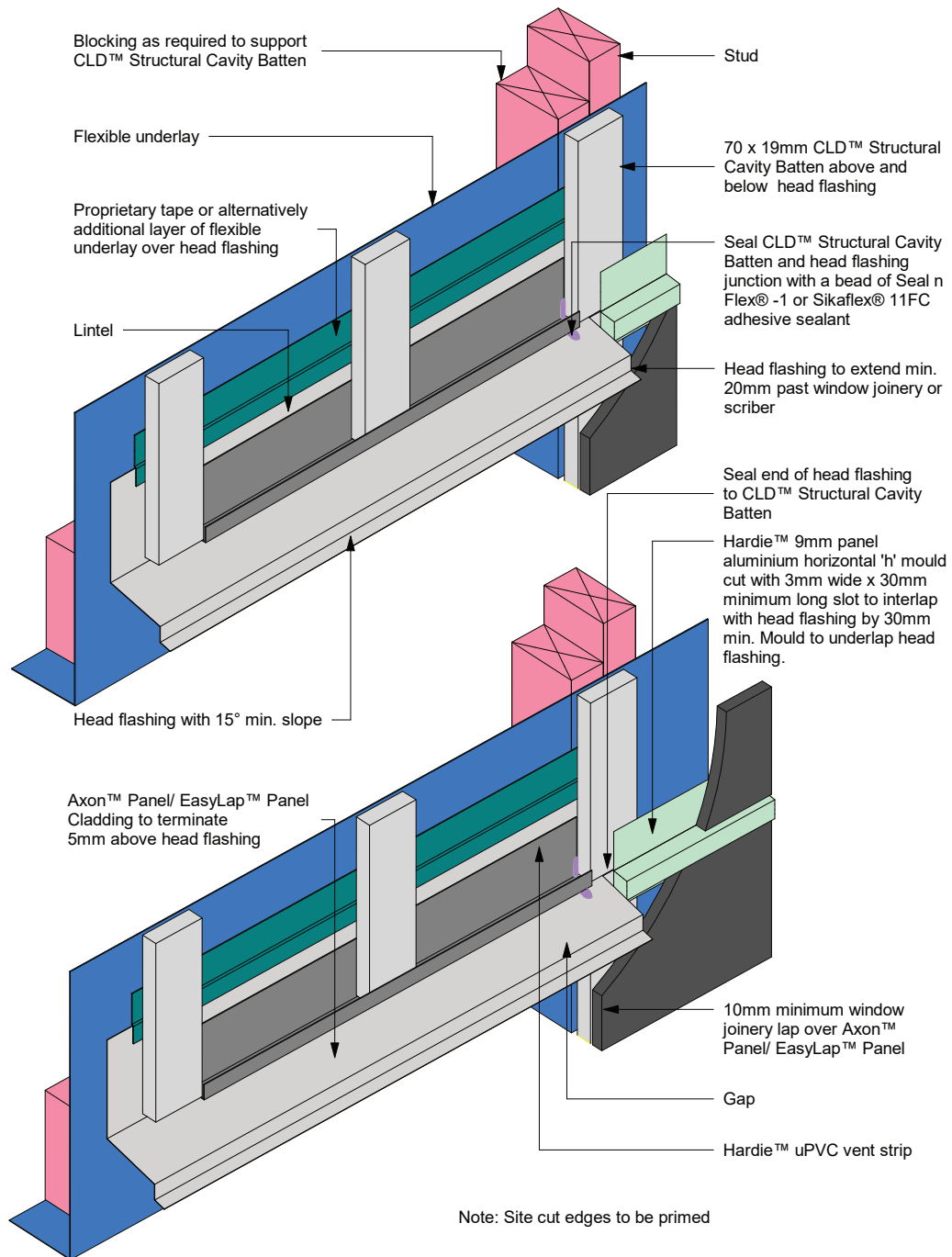
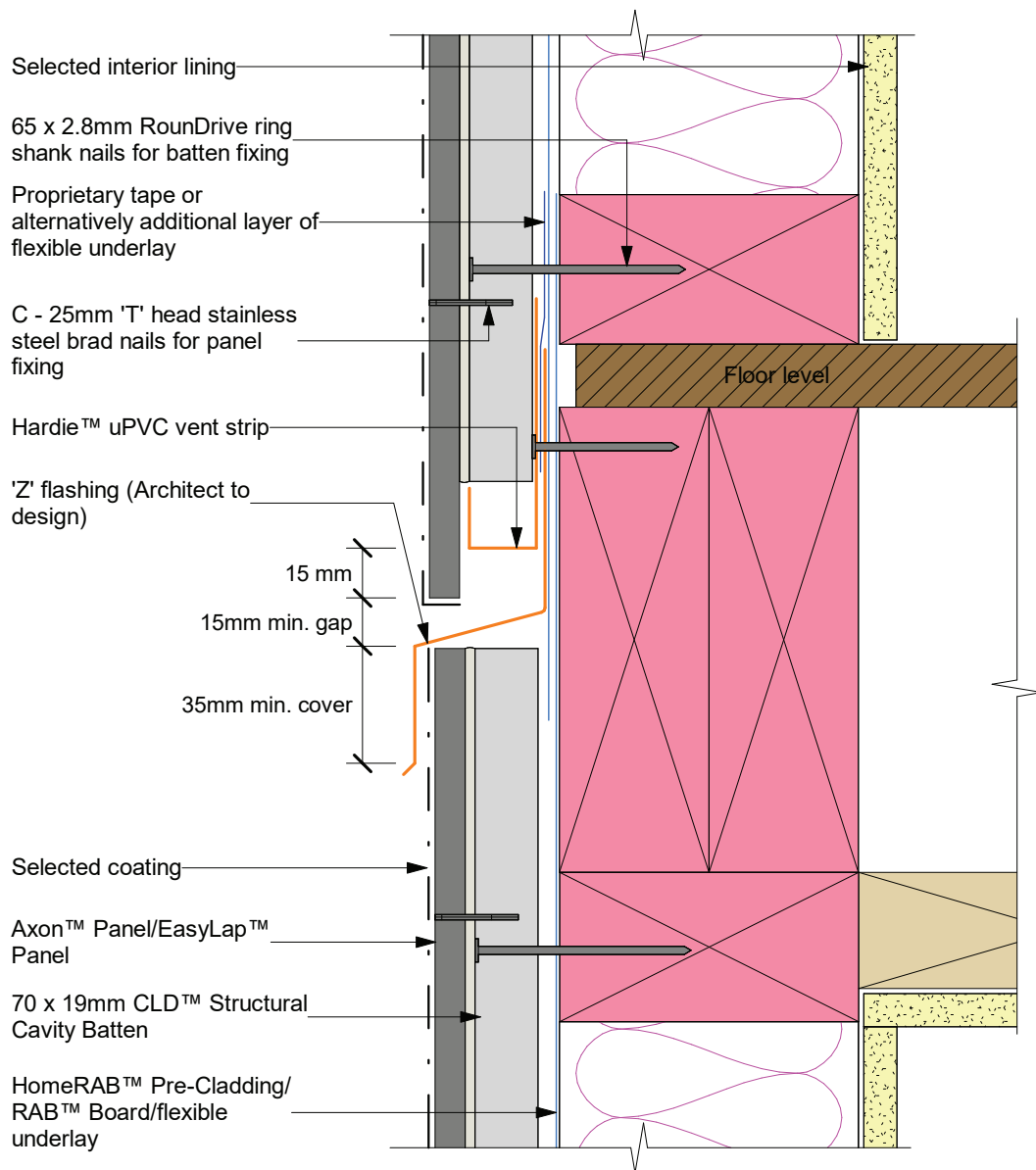


Figure 50: Drained flashing joint at floor joist



Note:

- * Check architect's plans for the type of flashing to be used.
- * 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 CLD™ Structural Cavity Battens or panels into floor joists.

Figure 51: One piece apron flashing joint

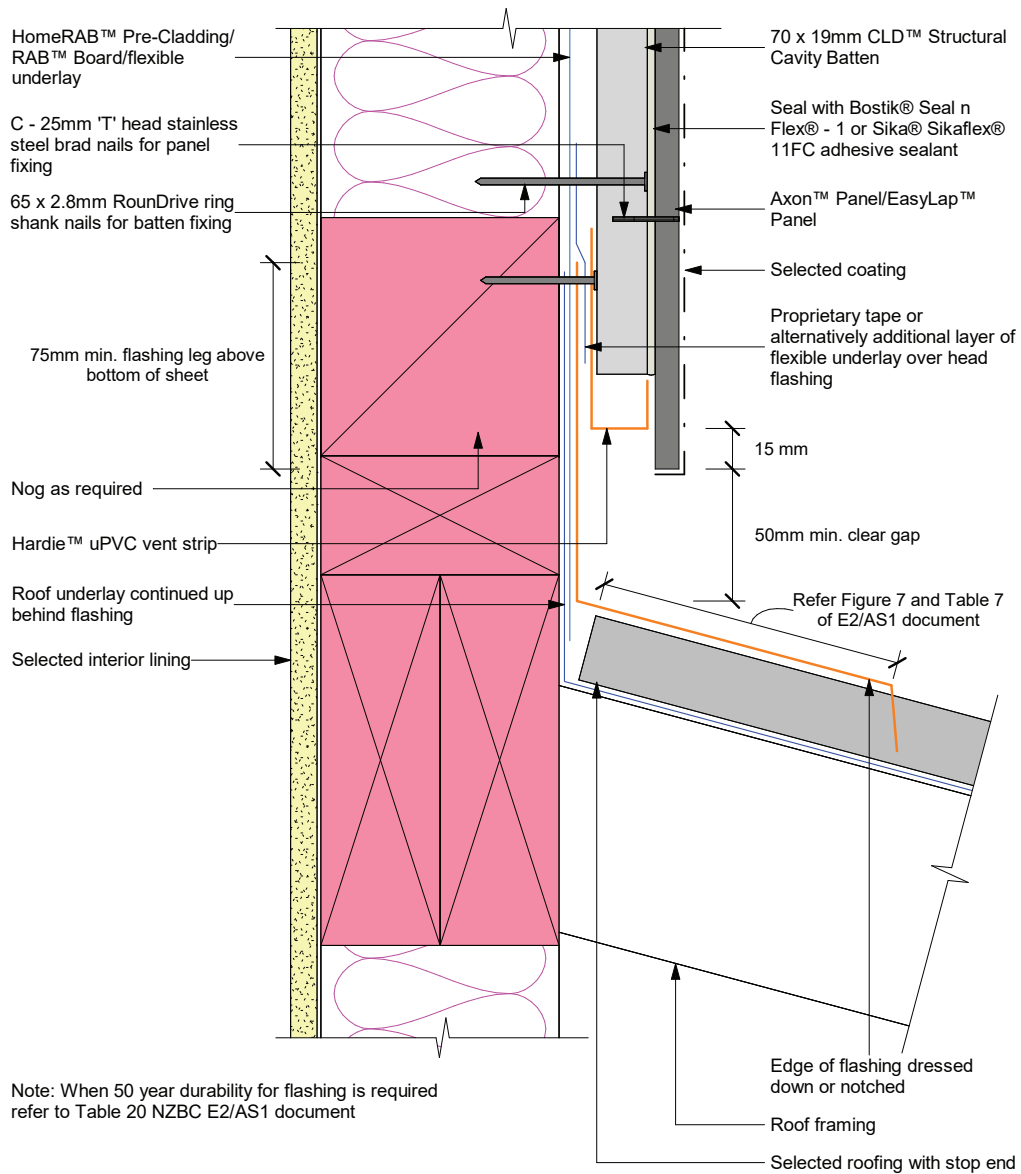


Figure 52: Enclosed deck balustrade to wall junction

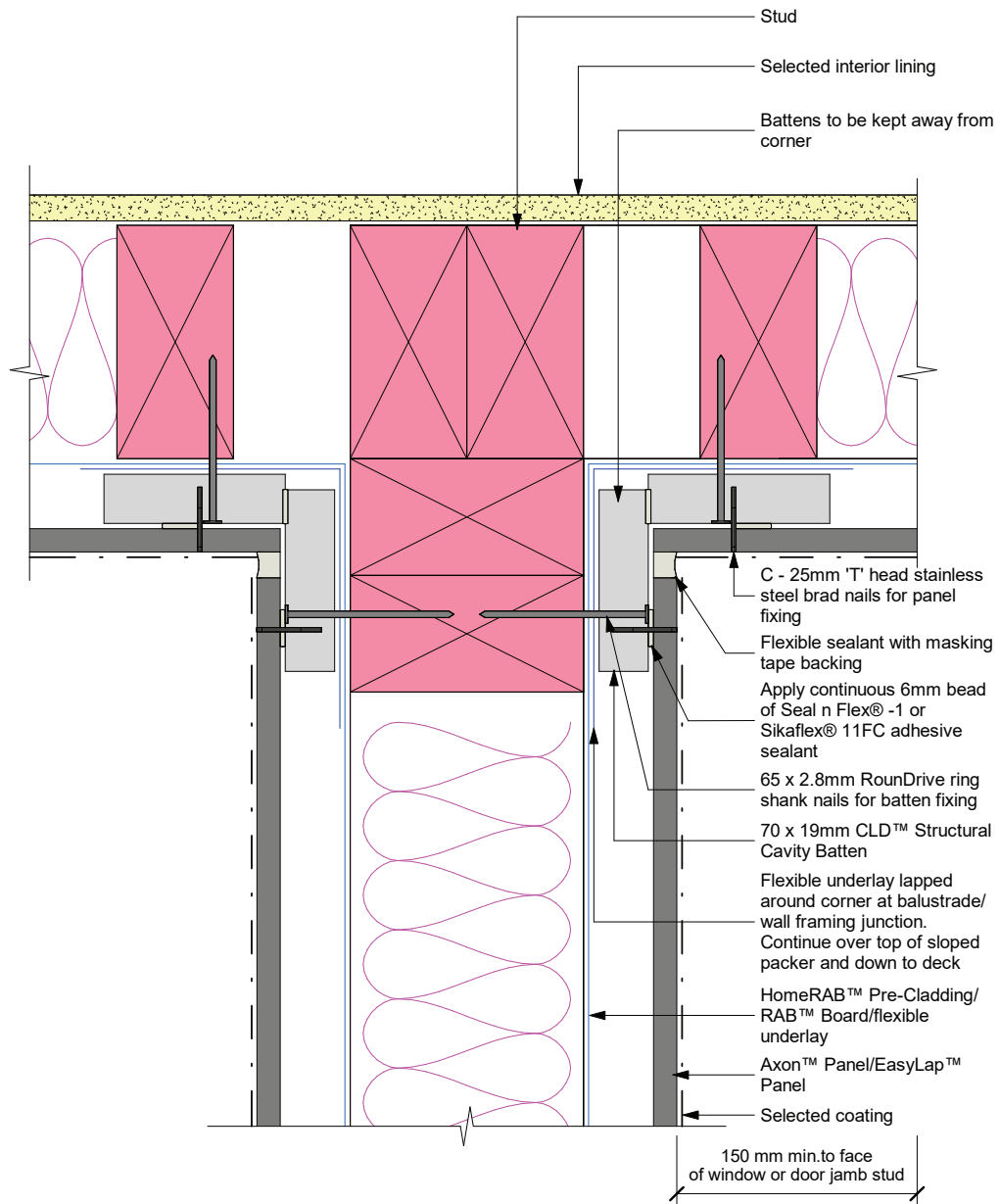


Figure 53: Enclosed deck ballustrade to wall junction

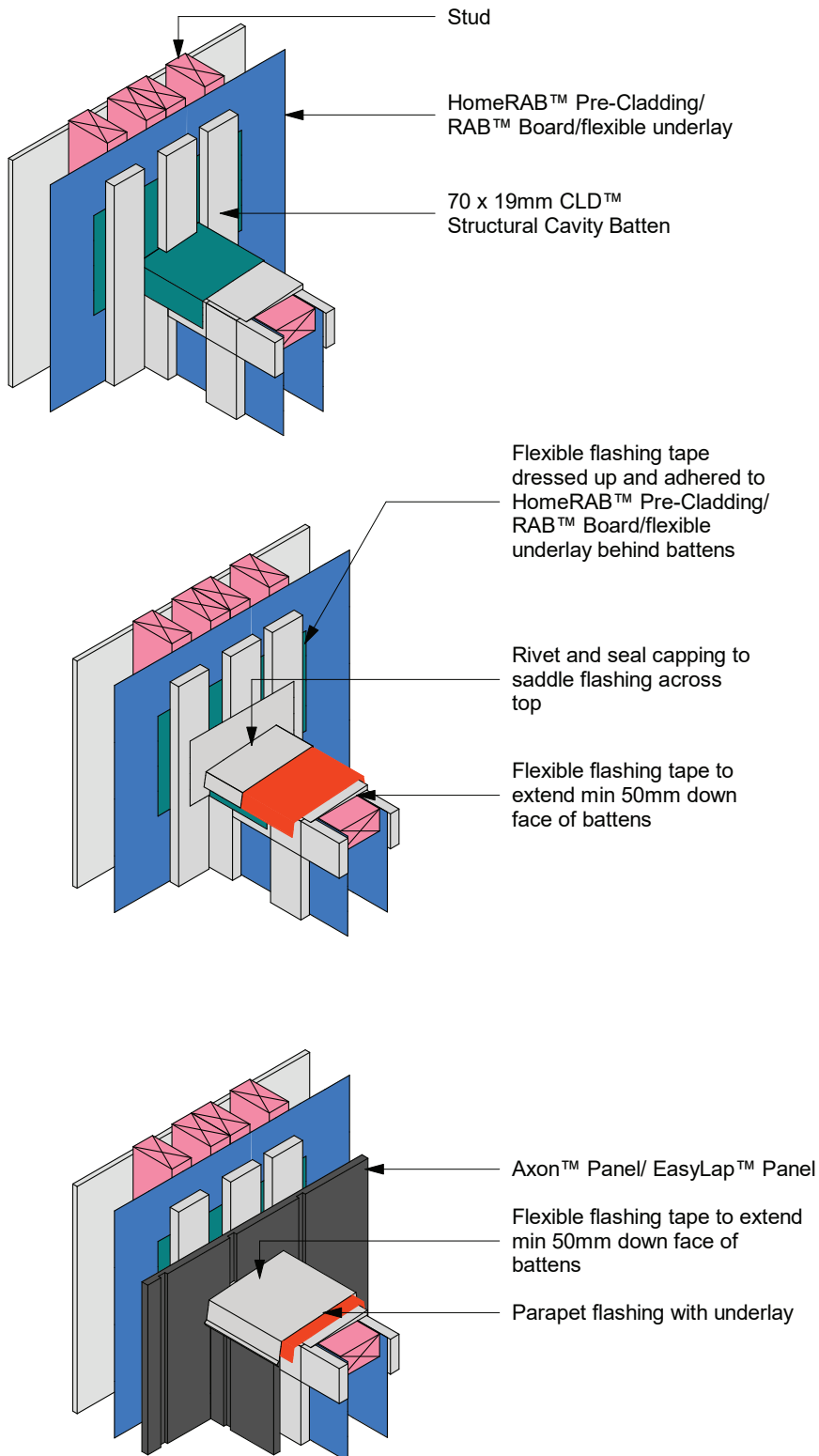


Figure 54: Parapet flashing

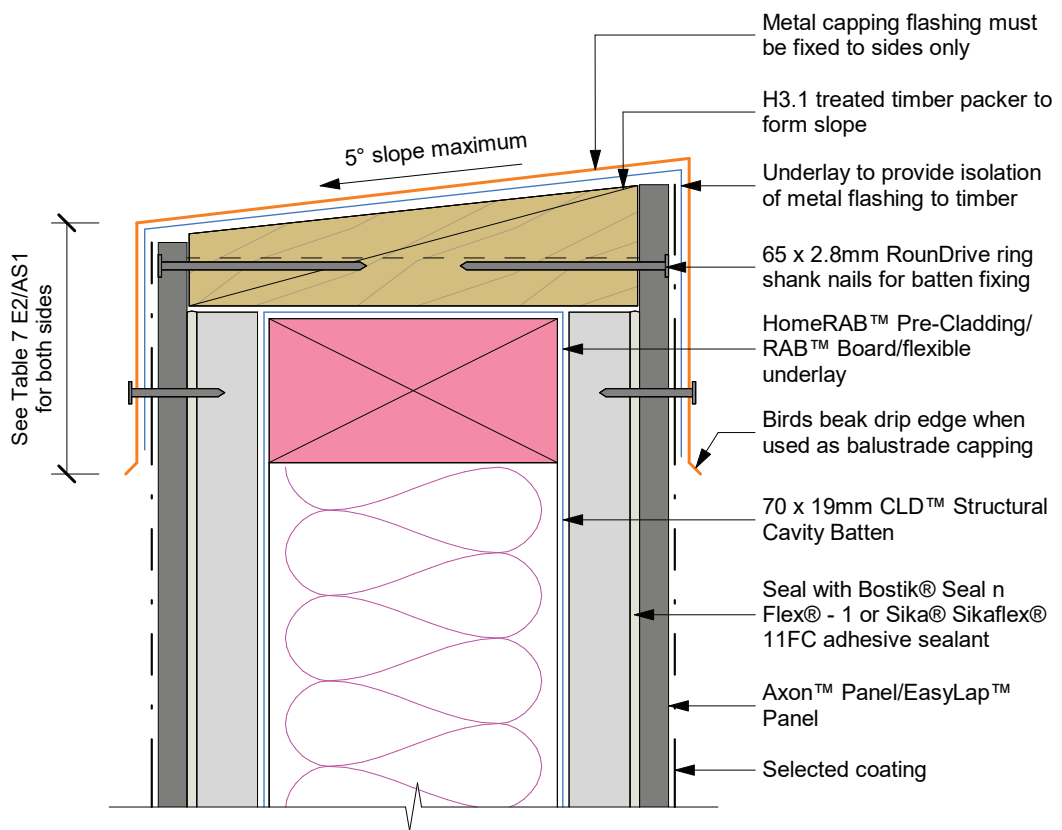


Figure 55: Garage jamb

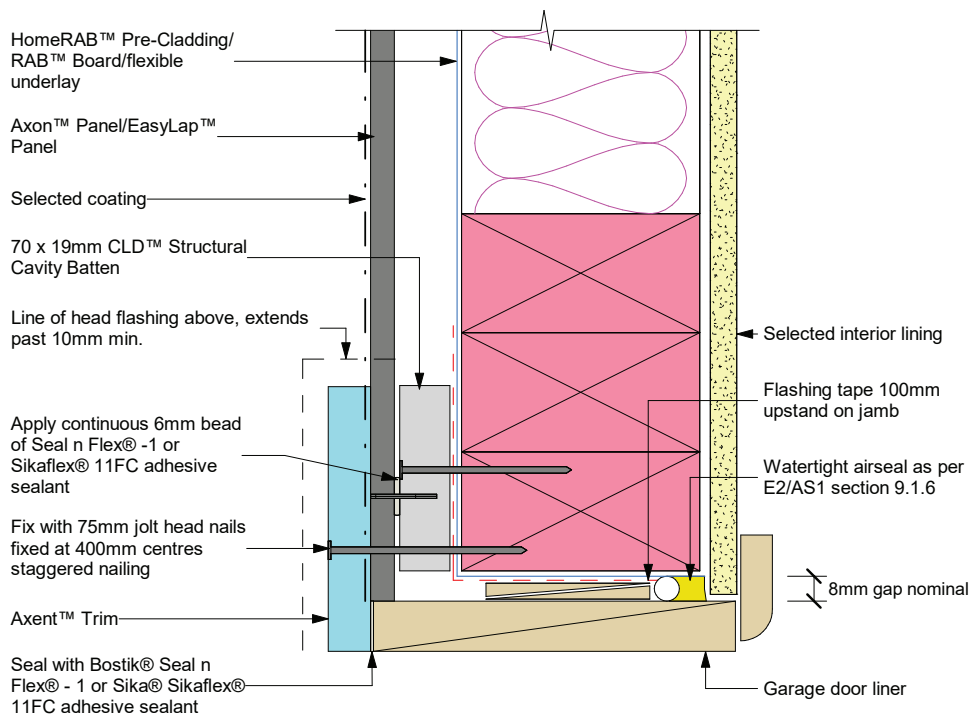
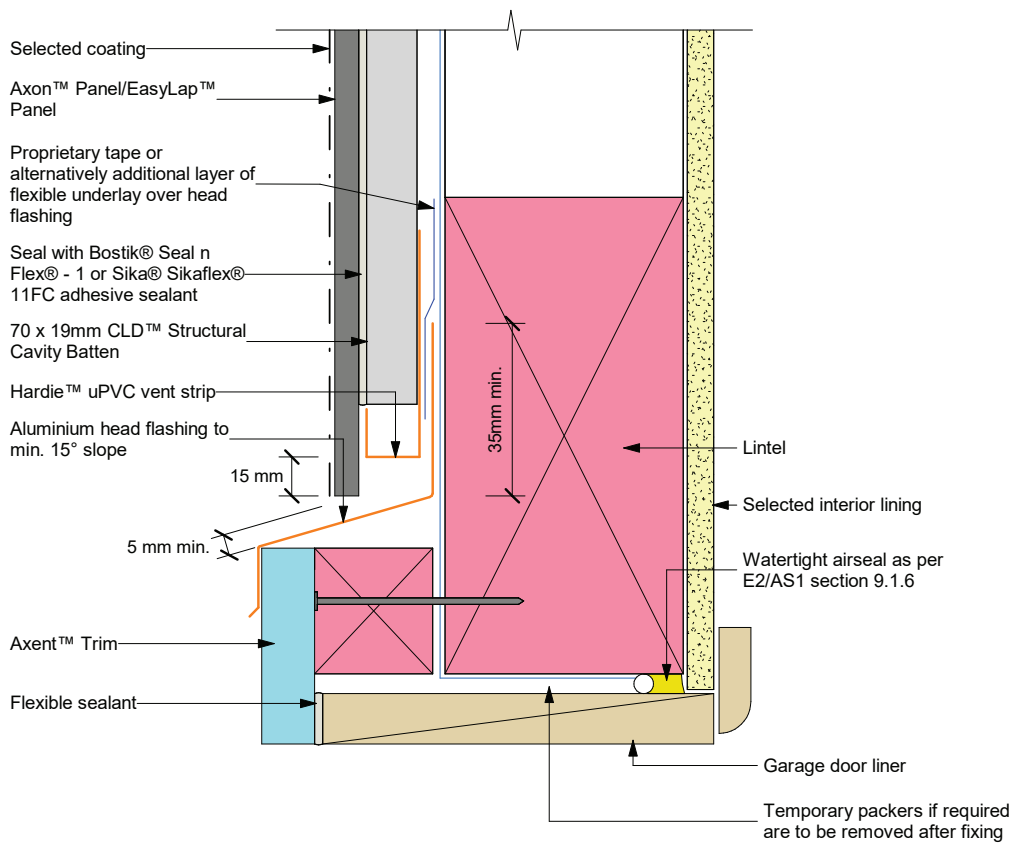
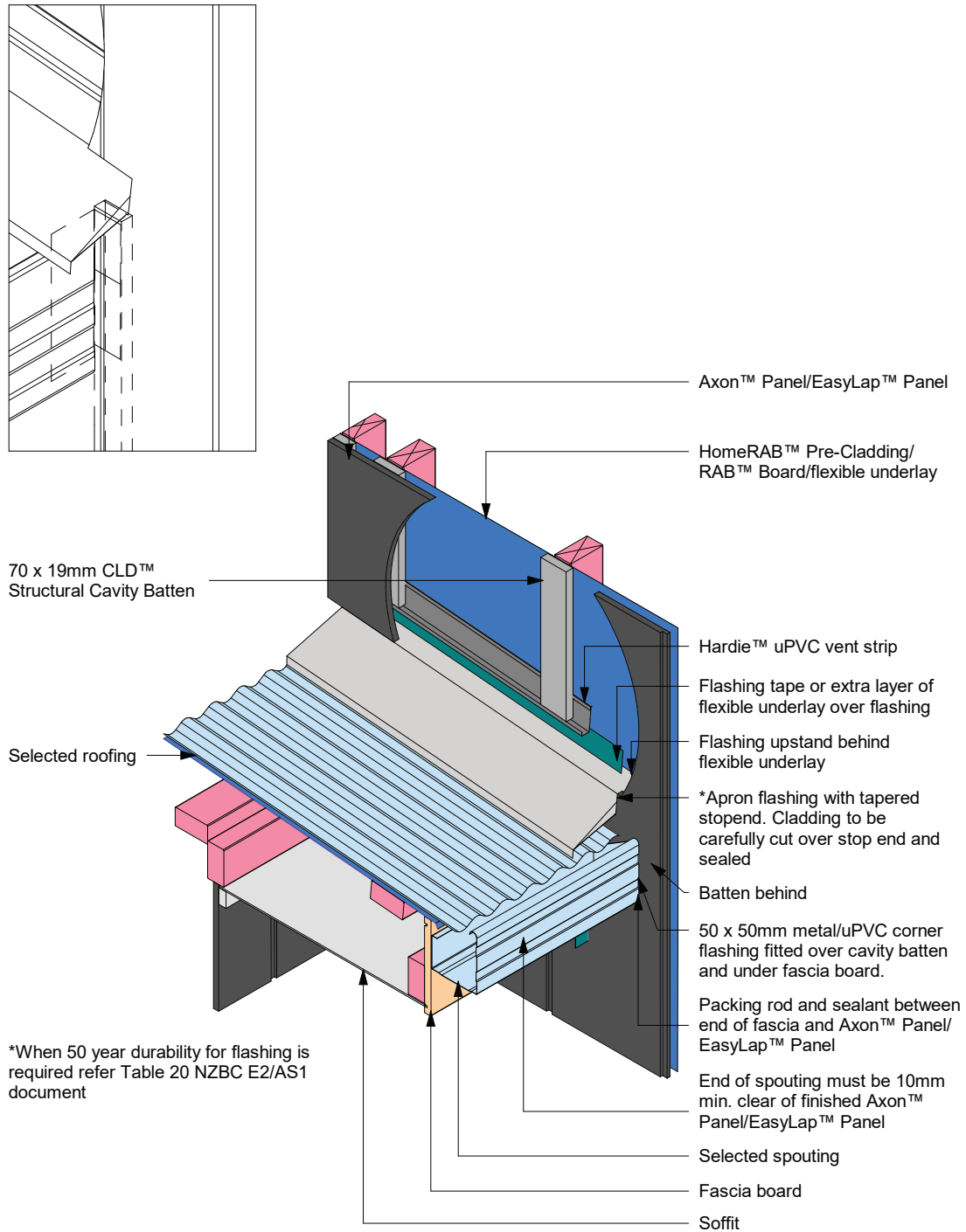


Figure 56: Garage head



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

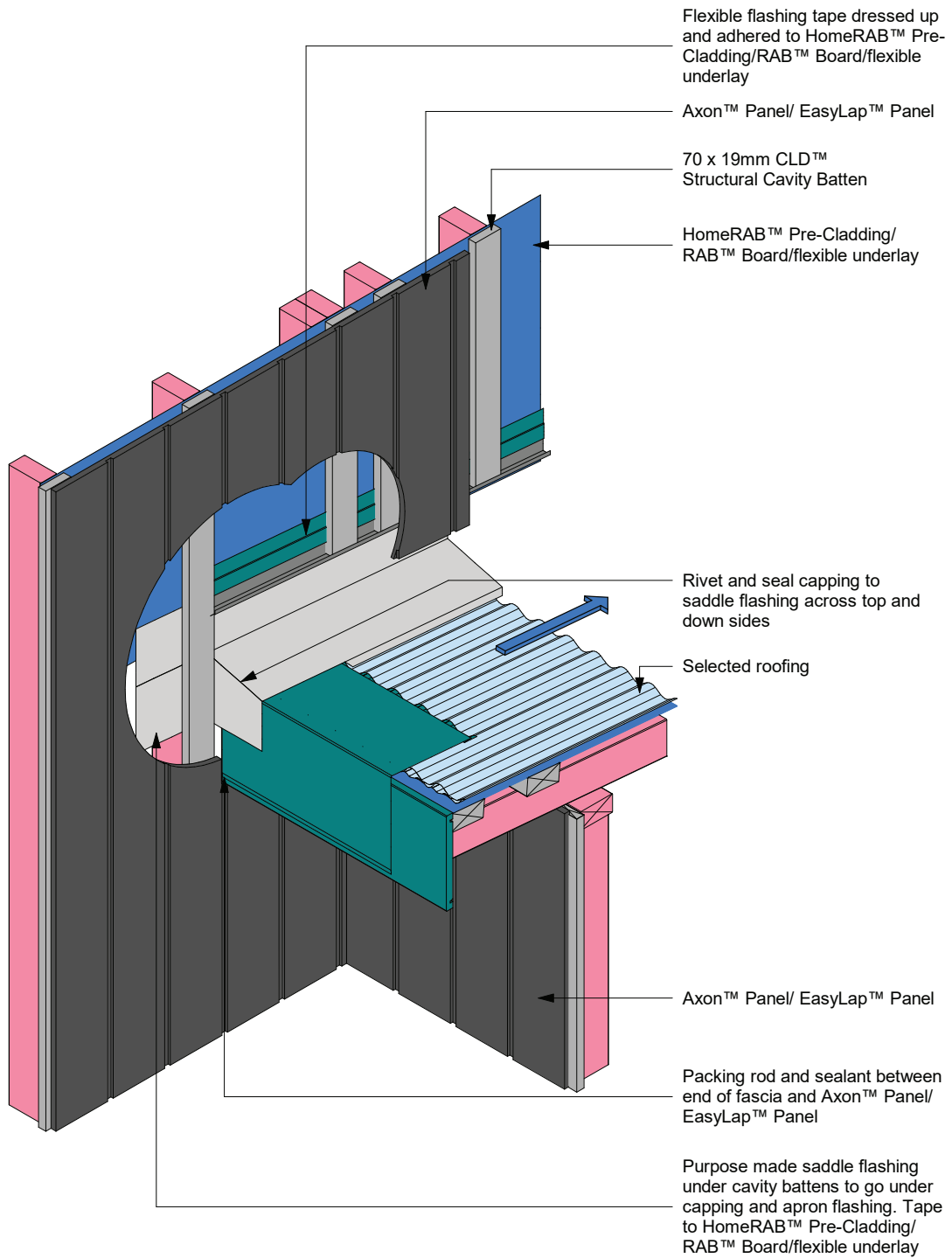
Figure 57: Junction between panel and fascia board



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

Note: Site cut edges to be primed

Figure 58: 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 EasyLap™ 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 EasyLap™ Panel when installed in accordance with the EasyLap™ 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.

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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.

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- 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.
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- 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 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.

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