

Technical Specification

CLD™
STRUCTURAL
CAVITY BATTEN

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

Ask James Hardie™
literaturefeedback@jameshardie.co.nz

1 Application and scope

1.1 APPLICATION

The EasyLap™ Panel installed as per this specification 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. EasyLap Panel cladding can be fixed over either timber frame or lightweight construction steel-framed walls. A wide range of colours can be used over EasyLap Panels.

If you are a specifier

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

If you are an installer

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

Make sure your information is up to date

When specifying or installing James Hardie 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

This specification covers the use of EasyLap Panel on buildings, where the maximum wind pressure exerted on the building façade is up to 2.5kPa (ULS).

This specification is intended for use by architects or designers/specifiers and installers who may be involved with the specification of EasyLap Panel, CLD™ Structural Cavity Battens and their installation. The specification must be read in conjunction with the figures provided at the rear of this document and project-specific drawings/specifications.

1.3 DETAILS

Various typical EasyLap Panel construction details are provided in the Details section of this document. All dimensions shown are in millimetres unless noted otherwise. These details are also available in CAD file format and can be downloaded from our website at www.jameshardie.co.nz.

2 Design

2.1 SPECIFIC DESIGN

For the use of 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.

2.2 COMPLIANCE

EasyLap Panel and CLD Structural Cavity Battens installed as per this technical specification have been tested/assessed in a NATA accredited testing laboratory and complies with the requirements of Structure – B1, Durability – B2 and External Moisture – E2 Clauses of the NZBC.

2.3 RESPONSIBILITY

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

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

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

2.4 SITE AND FOUNDATION

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

Foundation design must comply with the requirements of 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 to comply with the NZBC requirements.

2.5 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.

EasyLap Panels must overhang the bottom plate on a concrete slab by a minimum of 50mm.

EasyLap Panel must always maintain a clearance of 100mm from paved grounds and 175mm from unpaved grounds. On roofs and decks etc. a minimum clearance of 50mm must be maintained.

Do not install EasyLap Panel such that it may remain in contact with standing water.

2.6 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 environment of buildings, particularly in buildings that have a higher risk of wind driven rain penetration or that are artificially heated or cooled.

Walls shall include those provisions as required by the NZBC Acceptable Solution 'E2/AS1-External Moisture'. In addition, all wall openings, penetrations, junctions, connections, window sills, heads and jambs must incorporate appropriate flashings for waterproofing. The other materials, components and installation methods used to manage moisture in external walls, must comply with requirements of the NZBC and any other regulations or standards applicable.

2.7 STRUCTURE

2.7.1 Timber Framing

For residential buildings the timber-framing must be provided in accordance with 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 minimum stiffness requirements of 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.

2.7.2 Steel Framing

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

2.7.3 Wind Loading

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

EasyLap Panel can be used for specific design projects up to wind pressures of 2.5kPa (ULS).

2.8 BRACING

EasyLap Panels installed as per this specification are not suitable to achieve structural bracing. However, bracing can be achieved by using a James Hardie rigid air barrier product fixed direct to the framing or by using internal linings such as Villaboard™ Lining or plasterboard.

2.9 FIRE RATED WALLS

A fire rating of up to 60 minutes can be achieved when using a RAB Board in lieu of a flexible underlay and installing EasyLap Panel as per this specification. Refer to the James Hardie Fire and Acoustic Design Manual for further guidance on achieving fire ratings.

2.10 ENERGY EFFICIENCY

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

Table 1

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

3 Framing

3.1 GENERAL

EasyLap Panel can be installed to timber-framed or steel-framed structures. For fixing into steel frame Ask James Hardie on 0800 808 868 for specific requirements.

- Stud must be provided at 600mm centres maximum.
- Nog/dwang must be provided at 800mm centres maximum.

Note: EasyLap Panel fastener spacings is provided in Section 6.

3.2 TIMBER FRAMING

3.2.1 Dimensions

A 45 x 90mm minimum frame size is required.

3.2.2 Structural Grade

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

3.2.3 Durability

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

For timber treatment and allowable moisture content information refer to NZS 3602 (Timber and Wood-Based Products for use in Buildings) and NZS 3640 (Chemical Preservation of Round Sawn Timber). Also refer to the framing manufacturer's literature for further guidance on timber selection. Framing must be protected from moisture at the site in accordance with the recommendations of the framing manufacturers.

3.2.4 Frame Construction

The framing must be rigid and must not rely on the panel for stability.

All timber framing sizes and 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.

Note: It is recommended that the CLD Structural Cavity Battens be installed prior to plumbing, electrical and other services within the frame. This will prevent these services from being damaged by fasteners used to install the battens.

3.3 STEEL FRAMING

3.3.1 Dimensions and Gauge

A 38mm minimum stud width is required. Framing members must be 0.55mm minimum to 1.6mm maximum BMT (Base Metal Thickness).

3.3.2 Durability

The steel framing must have the appropriate level of coating to prevent corrosion and to comply with the durability requirements of the NZBC.

3.3.3 Frame Construction

Steel framing must comply with NASH handbook/guidelines. Stud and batten spacing must not exceed what has been specified in

this specification. Refer to the framing manufacturer's specifications or NASH guidelines for further information on steel frame installation.

3.4 SPECIAL FRAMING REQUIREMENTS

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

- Double studs are required at internal corners, refer to Figure 7.
- 10mm thick HDP (High Density Polystyrene) thermal break is required over steel frames before installing CLD Structural Cavity Battens

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 relevant codes, manufacturer's specifications and design requirements. All framing shall be made flush.

4 Preparation

4.1 FLEXIBLE UNDERLAY/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 NZBC Acceptable Solution E2/AS1 Table 23. HomeRAB Pre-Cladding is suitable for use in these applications. It must be installed in accordance with the James Hardie Rigid Air Barriers installation manual.

4.2 RAB BOARD

For EH wind zone or specific engineering design projects where the wind pressures are higher than 1.5kPa (ULS), RAB Board (6mm) must be used. Refer to the James Hardie Rigid Air Barriers installation manual for information regarding its installation.

4.3 VENT STRIP

The James 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 of obstructions to allow free drainage and ventilation of cavities. James 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 2.6. The flexible underlay 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 the 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 James Hardie rigid air barriers the entire framing around a window opening must be sealed with a flashing tape. The tape must be finished over the face of James Hardie rigid air barriers. The flashing tapes like SUPER-STICK Building Tape® by Marshall Waterproofing or All weather flashing tape 8067 by 3M™ are recommended for use with James Hardie rigid air barriers. Refer to the tape manufacturer's literature for further information regarding their installation.

4.5 JUNCTIONS AND PENETRATIONS

Refer to Clause 2.6 of this specification for moisture management requirements. All windows and doors must be detailed as per the requirements of this specification. Refer to Figures 10 – 12 for an example of window details for EasyLap Panel which meet the requirements of E2 'External Moisture', an approved document of the NZBC.

5 Batten installation

5.1 CLD STRUCTURAL CAVITY BATTEN

The CLD Structural Cavity Batten is suitable for the fixing of EasyLap Panels. The battens are 2450mm long, 70mm wide and 19mm thick. The battens are fully sealed on all faces. Refer to the following details for information about installation.

5.2 BATTEN LAYOUT

CLD Structural Cavity Battens must be fixed to the wall framing over flexible underlay or James Hardie rigid air barrier boards. The smoother face of the 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 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 13.

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 9.

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

A nylon strap or galvanised wire must be at 300mm centres fixed horizontally and drawn taut to restrain the insulation from bulging into the cavity, where the studs are spaced at 600mm centres. When James Hardie rigid air barrier boards are used or the studs are spaced at maximum 400mm centres, no intermediate support is required.

5.4 BATTEN FASTENERS

The CLD Structural Cavity Batten must be fixed to the framing as specified in Table 2. The fasteners must be driven at a minimum distance of 50mm from the batten ends.

Table 2

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

*When fixing CLD Structural Cavity Batten over a steel frame, provide a 10mm thick HDP batten under the underlay or James Hardie rigid air barrier boards to achieve a thermal break.

*Ensure a minimum 15mm penetration of screw into steel frame.

When using a rigid air barrier like RAB Board, the batten fixing nails must be increased in length equal to the thickness of the rigid air barrier board.

For fastener durability information, refer to Clause 6.3 of this document.

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

6 Panel installation

6.1 GENERAL

EasyLap Panel and CLD Structural Cavity Battens must be kept under cover whilst in storage or at sites and they must be dry at the time of their installation. All site-cut panel edges must be sealed with Dulux Acraprime 501/1, Resene Quick Dry, Taubmans Underproof Acrylic Primer undercoat or a similar sealer compatible with the finish coat, before installation. It is recommended to fix from the centre of the panel and work outwards. The timber framing must be straight to achieve a flat panel surface. Ensure that the panels are hard against the battens to avoid drumminess.

Apply a continuous 6mm thick bead of Bostik® 'Seal N Flex -1' or Sika® 'Sikaflex-11FC' adhesive sealant to the face of the CLD Structural Cavity Batten to adhere the EasyLap Panel to it. The EasyLap Panel must be pushed hard against the CLD Structural Cavity Batten when fixing.

Always consider panel layout carefully to minimise site wastage. It is best practice to panelise around the window/door openings by aligning the shiplap vertical joint with jambs or window/door heads/sills.

6.2 EASYLAP PANEL INSTALLATION

The EasyLap Panels are fixed to the CLD Structural Cavity Battens using one of the following fixings specified in Table 3:

Table 3

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 c/c (mm)
C-25 '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 8-10g countersunk screw class 3/4 or stainless steel	2.5 (>VH wind zone)	200

6.2.1 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 5.

NOTE:

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

6.2.2 Fibre Cement Nails

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 EasyLap Panels. Refer to section 6.3 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.

6.2.3 Countersunk Screws

EasyLap Panels 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 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 EasyLap Panels.

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 Joints

6.3 FASTENER DURABILITY

Fasteners must comply with the minimum durability requirements of the NZBC. The NZS 3604 specifies the requirements for fixing materials to be used in relation to exposure zones and are summarised in Table 4.

Fasteners must be fully compatible with the other materials that they are to be in contact with, to ensure the durability of the complete assembly.

For steel framing, ensure that the fasteners used are compatible with steel framing.

Contact fastener manufacturers for more information.

Table 4

Exposure conditions and nail selection prescribed by NZS 3604		
Nail material		
Zones D	Zone C outside sea spray zone and Zone B and Geothermal hot spots	Bracing — All Zones
Grade 316 Stainless	Hot-dipped galvanised or 316 stainless	Grade 316 Stainless

* (Zone C areas where local knowledge dictates that increased durability is required, appropriate selection shall be made)

Microclimate conditions as detailed in NZS 3604, paragraph 4.2.4 require SED.

Also refer to the NZBC Acceptable Solution 'E2/AS1' Table 20 and 22 for information regarding the selection of suitable fixing materials and their compatibility with other materials.

6.4 ADHESIVE SEALANT

A polyurethane adhesive sealant 'Seal 'N' Flex-1' manufactured by Bostik or 'Sikflex-11FC' by Sika are recommended to be used as per this specification. Apply a 6mm continuous bead of this adhesive sealant over the face of the CLD Structural Cavity Batten before fixing the EasyLap Panel.

NOTE:

Do not use excessive adhesive sealant.

7.1 GENERAL

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

7.2 VERTICAL JOINT

Fix the CLD Structural Cavity Batten over the studs and ensure that it runs continuously behind the entire length of the shiplap joint. The vertical shiplap joint is formed along the centre line of the batten. A bead of sealant is applied to the vertical edge of the EasyLap Panel to seal the shiplap joint before fixing the panels. The edge distance for a brad nail must be 16mm and 18mm. Refer to Figure 5.

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 JH 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 or a James Hardie uPVC flashing could also be used to flash the horizontal joint. Refer to Figures 14 and 19.

7.4 HORIZONTAL DRAINAGE JOINT

The wall cavities must be drained every two floors to facilitate moisture drainage and ventilation. Refer Figure 21.

7.5 EXTERNAL CORNER

An aluminium box corner flashing 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 8.

Do not run the box corner flashing continuously over the floor joist. On a two storey construction the aluminium box corner is finished under the aluminium 'h' mould. A uPVC corner under flashing must be used under the box corner when in this situation. Refer to Figure 17.

For CLD Structural Cavity Batten external corner refer to Figure 8.

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

7.6 INTERNAL CORNER

For CLD Structural Cavity Batten internal corner joint detail refer to Figure 7.

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

Painting of EasyLap Panel is mandatory to meet the durability requirements of the NZBC and 15 years James Hardie product warranties. EasyLap Panels must be dry and free of any dust or grime before painting. The panels must be finished within 90 days of their installation. There is no restriction on the LRV values of finishes that can be applied on EasyLap Panels.

All site-cut panel edges must be primed with Dulux Acraprime 501/1, 1 Step or similar primers.

Following are the types of finishes that can be applied on EasyLap Panel.

8.1 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.

8.2 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.

8.3 ACRYLIC PAINT

EasyLap Panels can also be finished using a standard acrylic paint that is suitable for application over cementitious substrates.

8.4 FLEXIBLE SEALANT

Sealant used must comply with the relevant requirements of the NZBC. Application and use of sealants must comply with the manufacturer's instructions. Check with the sealant manufacturer prior to coating over sealant.

8.5 EPOXY FILLERS

All countersunk screw holes must be filled with a two part epoxy e.g. Nuplex 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 EasyLap Panel, CLD Structural Cavity Batten and James Hardie rigid air barrier boards, 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 sheets become wet, allow them to dry thoroughly before fixing. Do not carry sheets or CLD Structural Cavity Battens on the flat, carry in the vertical position to avoid excessive bending.

10 Maintenance

The extent and nature of maintenance required will depend on the geographical location and exposure of the building. It is the responsibility of the specifier to determine normal maintenance requirements to maintain the effectiveness of the cladding. As a guide, it is recommended that the basic normal maintenance tasks shall include, but not be limited to:

- Washing down exterior surfaces every 6-12 months*
- Re-applying of exterior protective finishes if necessary**
- 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 EasyLap Panel and the finished/unfinished ground must always be maintained.

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

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

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

11 Product information

11.1 MATERIAL

EasyLap Panel is a high quality autoclaved medium density fibre cement product manufactured by James Hardie. The basic composition is Portland cement, ground sand, cellulose fibre and water. The product is easily identified by the name EasyLap Panel written on the rear face. 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, water and proprietary additives. The battens are factory sealed on all sides.

EasyLap Panels and CLD Structural Cavity Battens are manufactured to AS/NZS 2908.2 'Cellulose-Cement Products' Part 2 (ISO 8336 'Fibre-Cement Flat Sheet'). James Hardie is an ISO 9001 certified manufacturer. EasyLap Panel and CLD Structural Cavity Battens are classified Type A, Category 3 in accordance with AS/NZS 2908.2 'Cellulose-Cement Products' standard.

The approximate mass of 9mm EasyLap Panel is 13kg/m². For panel sizes see Table 6.

11.2 DURABILITY

EasyLap Panel and CLD Structural Cavity Batten installed and maintained as per this technical specification will meet the durability requirement for claddings as per 'B2 – Durability' clause of the NZBC.

11.2.1 Resistance to Moisture/Rotting

The material that EasyLap Panel and CLD Structural Cavity Batten is comprised of 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)

11.2.2 Resistance to fire

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

11.2.3 Alpine Regions

In regions subject to freeze/thaw conditions, EasyLap Panel and CLD Structural Cavity Battens must not be in direct contact with snow and/or ice build up for extended periods, e.g. external walls in alpine regions be cleared from snowdrifts over winter. The material these products is comprised of has been tested for resistance to frost 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

James Hardie 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
- 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 HardieBlade™ logo or one with at least equivalent performance – connected to an M Class or higher vacuum
- ✓ Before cutting warn others in the area to avoid dust
- ✓ ALWAYS follow tool manufacturers' safety recommendations
- ✓ ALWAYS expose only the minimum required depth of blade for the thickness of fibre cement to be cut
- ✓ ALWAYS wear a properly-fitted, approved dust mask or respirator P1 or higher in accordance with applicable government regulations and manufacturer instructions
- ✓ Consider rotating personnel across cutting tasks to further limit respirable silica exposures.

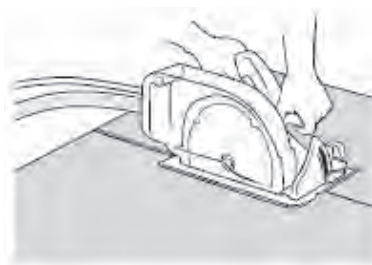
When cutting EasyLap Panel:

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

Working instructions

HardieBlade™ Saw Blade

The HardieBlade Saw Blade used with a dust-reducing saw is ideal for fast, clean cutting of James Hardie fibre cement products. A dust-reducing saw uses a dust 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

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

Storage

James Hardie products should be stored:

- ✓ In their original packaging
- ✓ Under cover where possible or otherwise protected with a waterproof covering to keep products dry
- ✓ Off the ground – either on a pallet or adequately supported on timber or other spacers
- ✓ Flat so as to minimise bending

James Hardie products must not be stored:

- ✗ Directly on the ground
- ✗ In the open air exposed to the elements

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

12.2 TIPS FOR SAFE AND EASY HANDLING OF EASYLAP PANEL

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








13 Product and accessories

Table 6

EasyLap Panel information					
Product	Description	Size			
	EasyLap Panel A shiplap edge panel for subtle vertical joints To be finished with site applied acrylic texture finishes.	Thickness (mm)	Length (mm)	Width (mm)	Product Code
		9	2450	1200	404764
		9	2750	1200	404765
		9	3000	1200	404763

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






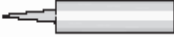






Table 7

Accessories/tools supplied by James Hardie			
Accessories	Description	Quantity/Size (approx)	Code
	CLD Structural Cavity Batten 19mm thick fibre cement cavity batten installed over James Hardie rigid air barrier board or a flexible underlay. EasyLap Panels are fixed to the battens.	19 x 70mm, 2450mm long	403870
	JH 9mm Panel Aluminium External Box Corner A box corner mould to form the external joints. 9mm etch primed.	2450mm long 2750mm long 3000mm long 4000mm long	304509 304510 305150 305808
	JH 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
	uPVC Vent Strip Used to provide protection from vermin entering cavity space.	3000mm long	302490
	CLD Batten Corner Flashing Aluminium Used at internal corner sealant joints at floor joist level.		304652
Tools			
	HardieBlade™ Saw Blade Diamond tip 184mm diameter fibre cement circular saw blade. Spacers not included.	Each	300660

NOTE: uPVC 'h' mould and jointer accessories are also available from James Hardie.

Accessories/tools not supplied By James Hardie

James Hardie recommends the following products for use in conjunction with EasyLap Panel, RAB Board and CLD Structural Cavity Batten. James Hardie does not supply these products and does not provide a warranty for their use. Please contact component manufacturer for information on their warranties and further information on their products.

Product	Description
	Flexible Underlay Must comply with Table 23 of E2/AS1
	Flexible Window Opening Flashing Tape A flexible self-adhesive tape used in preparation of a window. Refer to the window installation section in this manual for more information. e.g. 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
	Polypropylene Tape 200mm wide
	Epoxy Flush Sealing (2 Part) Countersunk head screws are flush sealed using Nuplex Fairing cream or similar epoxy.
	Adhesive Sealant Sikaflex-11FC Polyurethane adhesive sealant manufactured by Sika for applying between the panels and battens. Refer to section 7 for more information. SIKA 0800 SIKANZ. 'Seal N Flex-1' Polyurethane adhesive sealant manufactured by BOSTIK for applying between the panels and battens. Refer to section 7 for more information. BOSTIK: AKL: (09) 579 6253, WGTN: (04) 567 5119, CHCH: (03) 366 2583.
	Flexible Sealant Required to seal the vertical joints. Bostik Seal N Flex-1, Sikaflex AT-Façade or similar.
	Dulux Acrasand or Dulux Sedona acrylic texture 0800 800 424
Fasteners	
	C-25 Stainless Steel Brad Nails 304SS brad nails used to install EasyLap Panels to the CLD Structural Cavity Battens using a straight bradder. Paslode: (09) 477 3000
	Countersunk Screw 25mm x 8-10g countersunk screws (Class 3/4 or stainless steel) for fixing of EasyLap Panels to CLD Structural Cavity Battens. EDL stainless steel 304 screw square drive CODE: 03S101T17US. Black Fasteners stainless steel 304 Code: WSSFSSQ08M.
	65 x 2.87mm RoundDrive Ring Shank Nail For fixing CLD Structural Cavity Battens to the framing. Paslode: (09) 477 3000
	Countersunk Screw 40mm x 9-10g Class 3/4 for fixing CLD Structural Cavity Batten to steel framing.
	HardieFlex™ Hot Dipped Galvanised and Stainless Steel 316 Nail 40 x 2.8mm For fixing James Hardie rigid air barrier.

14 Details

Various details outlined in the following table are available on Pages 15 to 33

Details		
Description	Figure	Page
Framing setout	Figure 1	16
Batten fixing setout	Figure 2	16
Panel fixing setout	Figure 3	17
Foundation detail	Figure 4	18
Vertical shiplap joint	Figure 5	19
Intermediate stud fixing	Figure 6	19
Internal corner	Figure 7	20
External corner	Figure 8	20
Jointing of CLD™ Structural Cavity Battens	Figure 9	21
Window sill	Figure 10	22
Window jamb	Figure 11	22
Window head	Figure 12	23
Horizontal joint at floor joist	Figure 13	23
Horizontal joint in tall wall	Figure 14	24
Soffit detail	Figure 15	25
Cavity pipe penetration	Figure 16	25
External corner at 'h' mould joint detail	Figure 17	26
Internal corner at 'h' mould joint detail	Figure 18	27
Aluminium 'h' mould joiner	Figure 19	28
One piece apron flashing joint	Figure 20	29
Drained flashing joint at floor joist	Figure 21	30
Meter box at sill	Figure 22	31
Meter box at jamb	Figure 23	31
Meter box at head	Figure 24	32
Junction between EasyLap™ Panel and fascia board	Figure 25	33
Enclosed roof to wall intersection	Figure 26	34

Figure 1: Framing setout

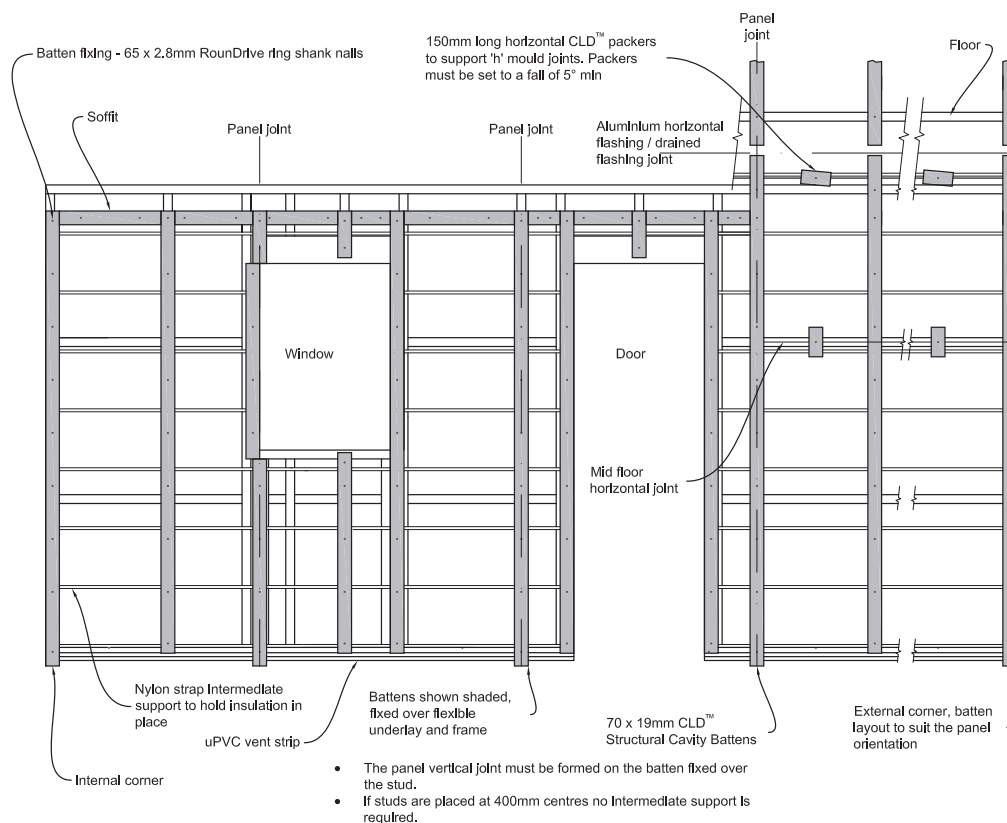


Figure 2: Batten fixing setout

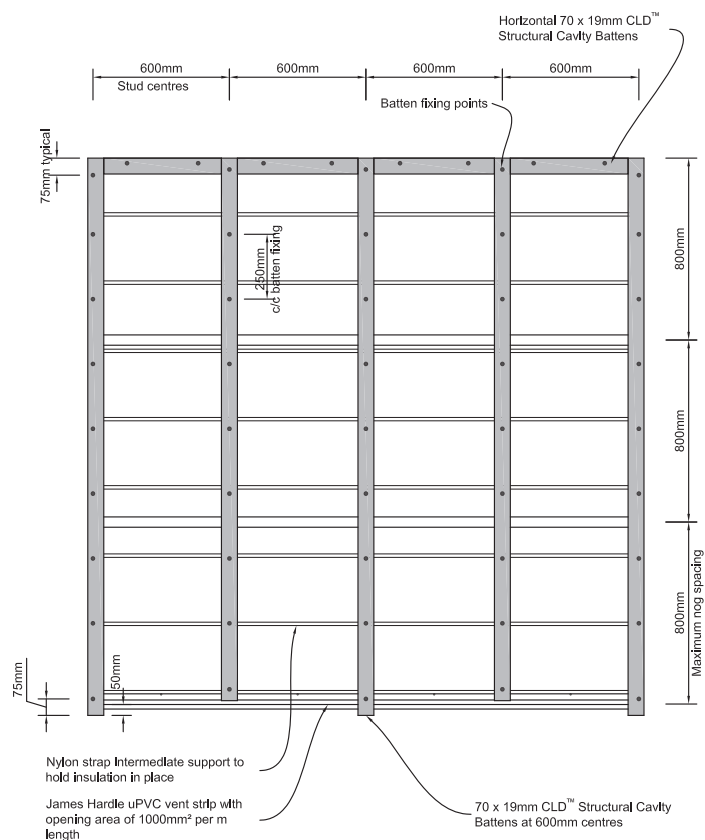


Figure 3: Panel fixing setout

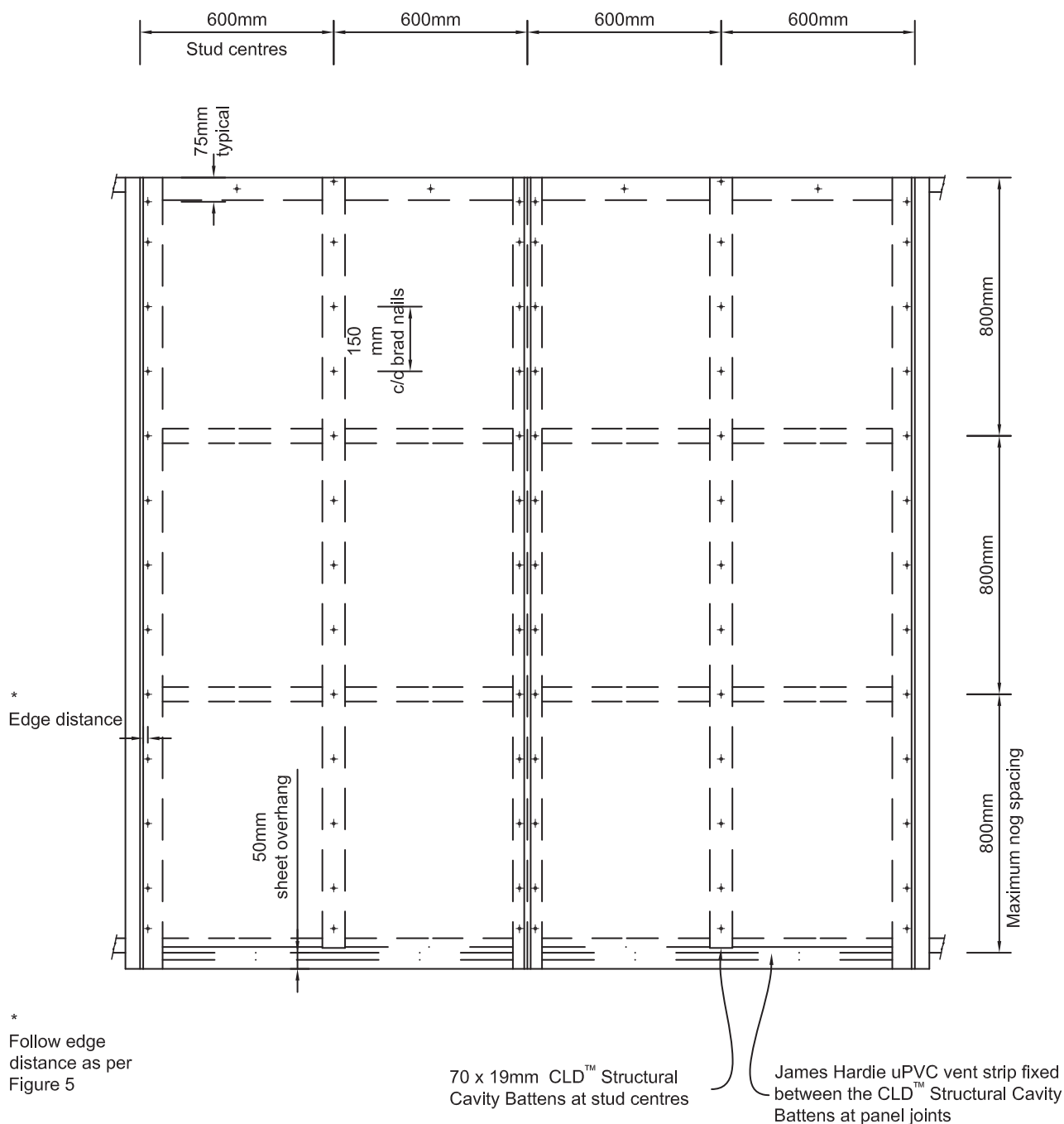
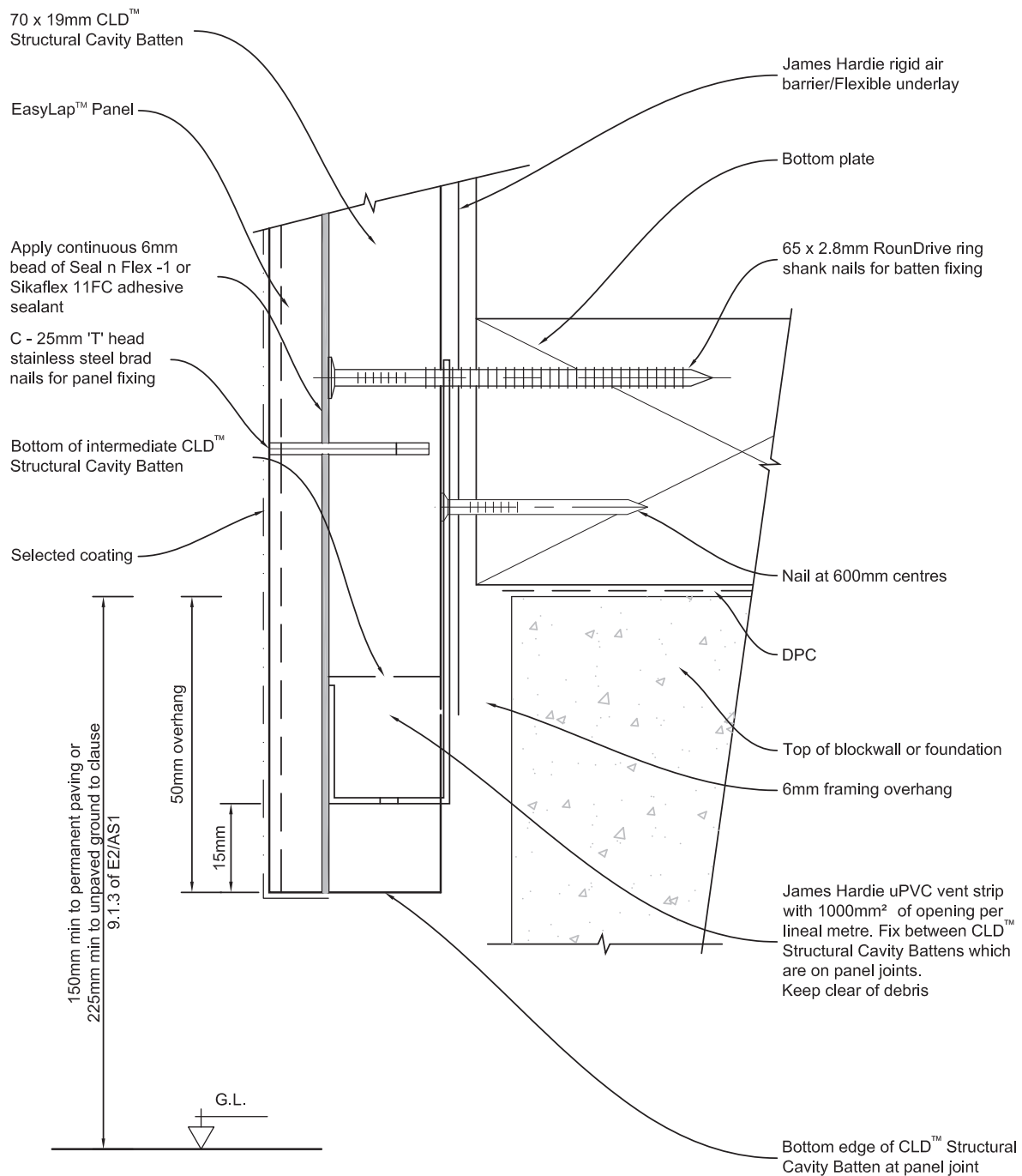


Figure 4: Foundation detail



Notes:

- Check panel extends past bottom plate as specified in Architects specification (50mm min).
- uPVC Vent strip must remain level and secure during construction. Cut and fix uPVC vent strip between CLD™ Structural Cavity Battens fixed under the panel joints.
- Check vent strip is free from site debris.

Figure 5: Vertical shiplap joint

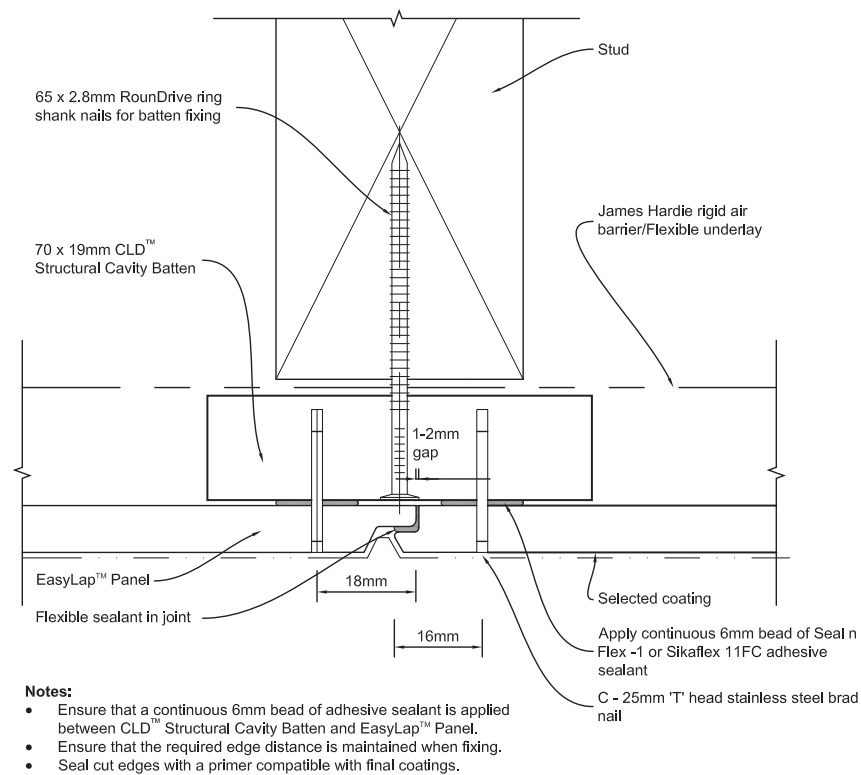


Figure 6: Intermediate stud fixing

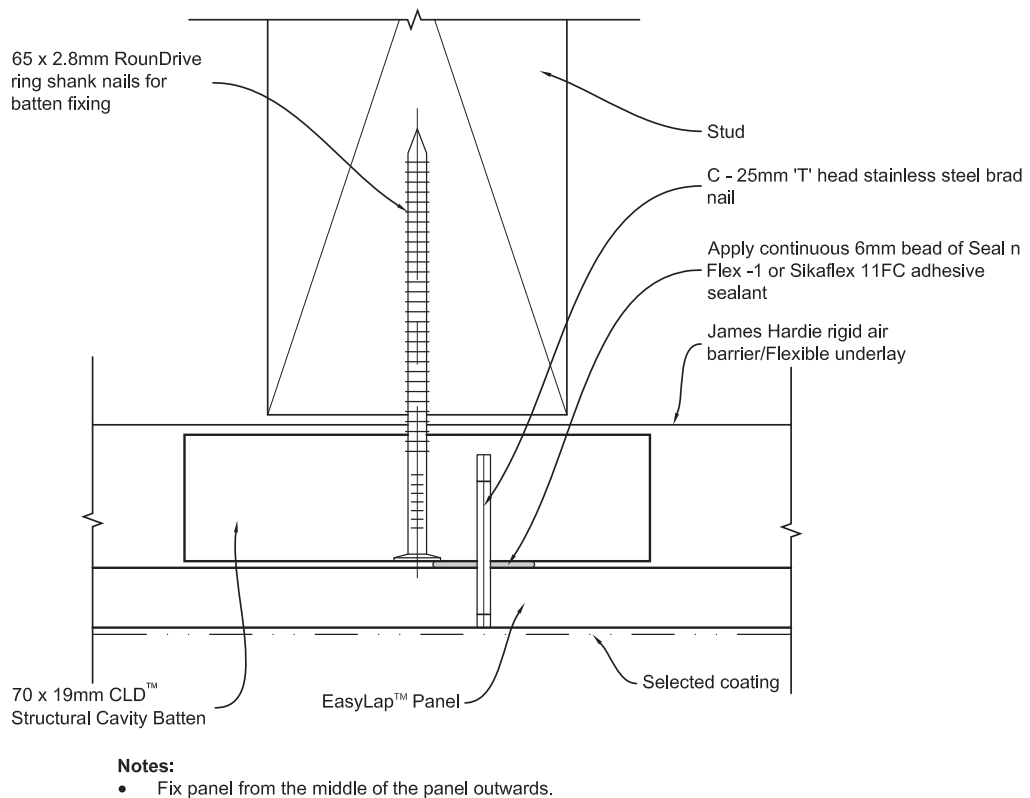


Figure 7: Internal corner

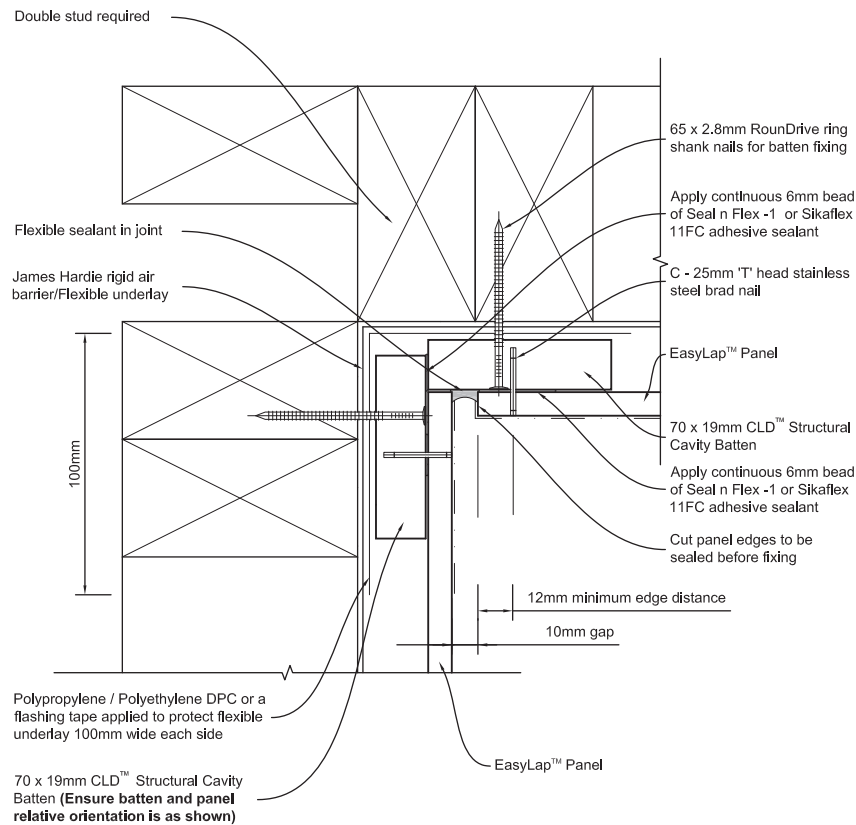


Figure 8: External corner

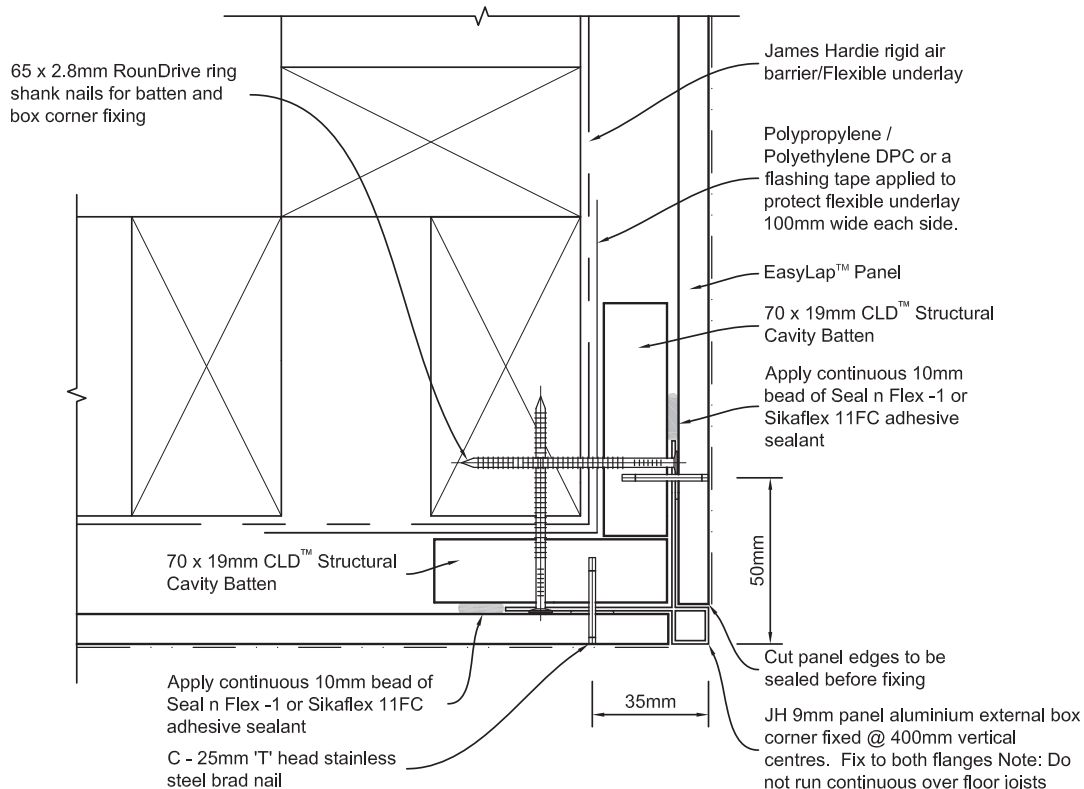


Figure 9: Jointing of CLD™ Structural Cavity Battens

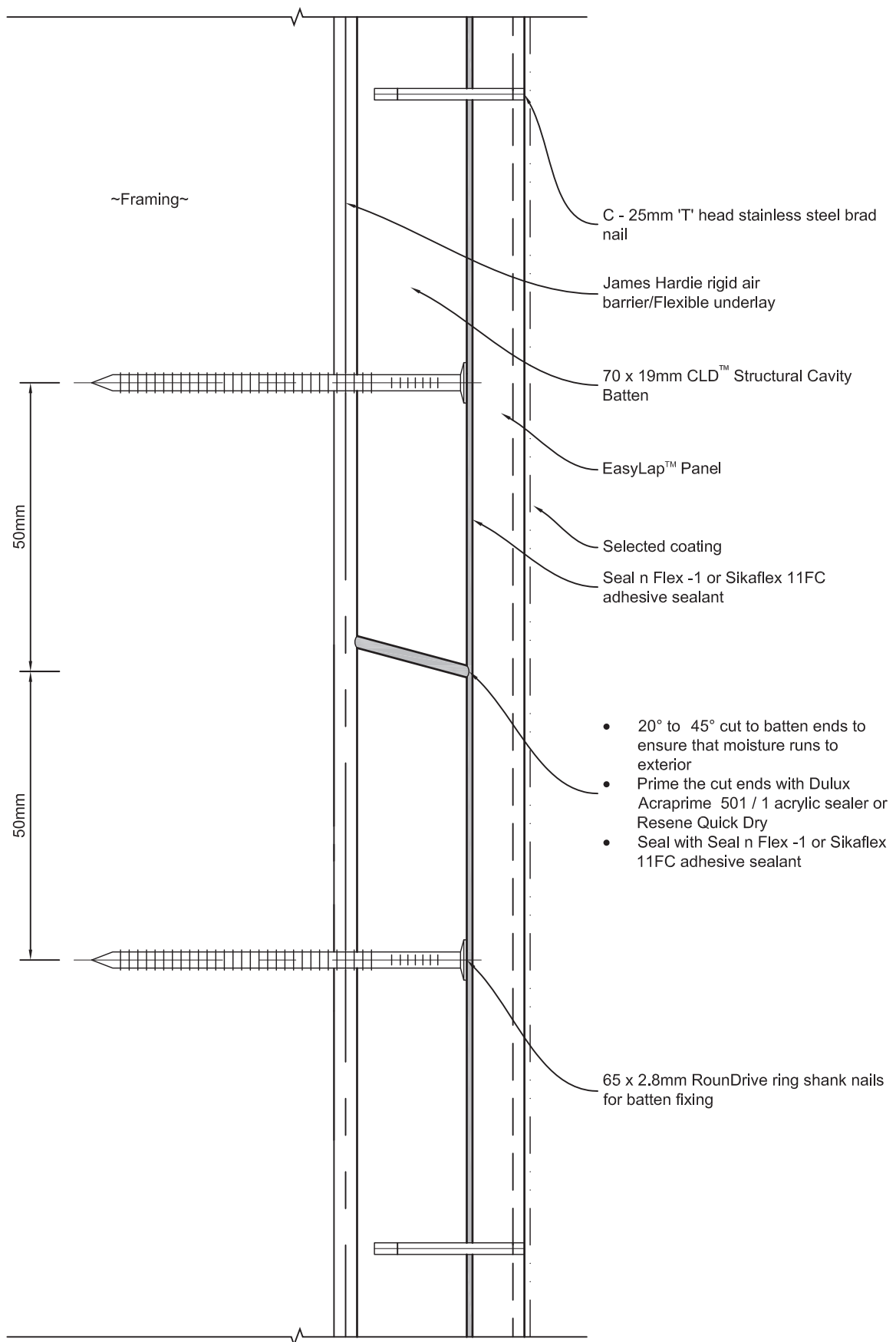
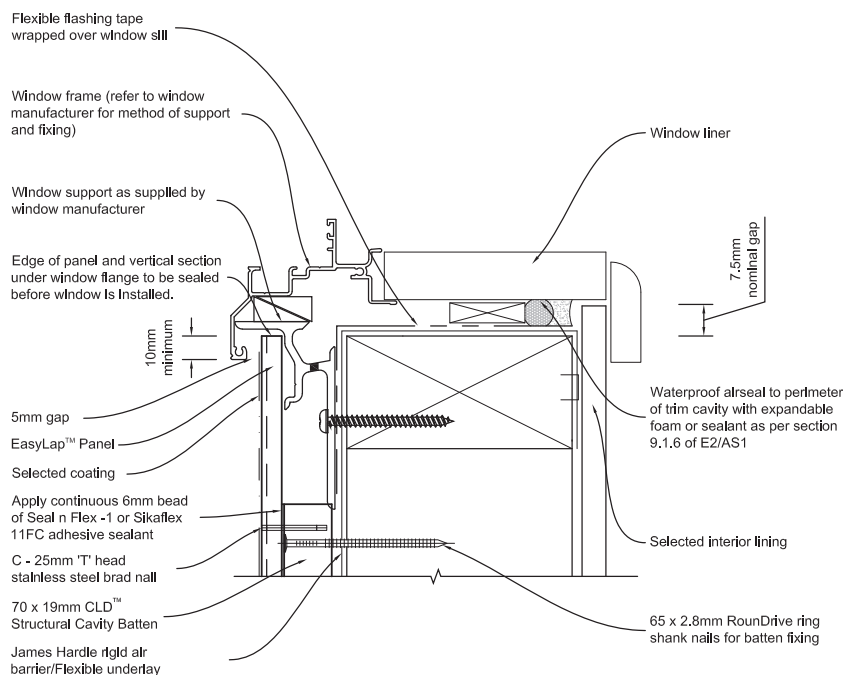


Figure 10: Window sill

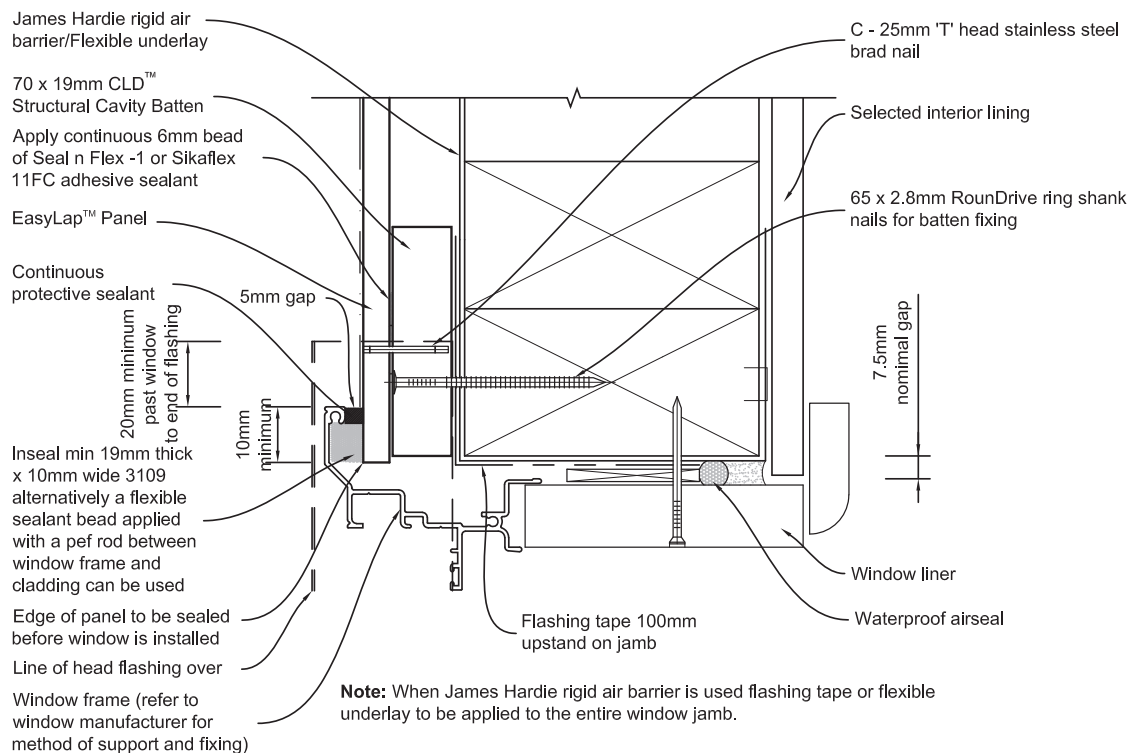


General notes for materials selection

1. Flashing materials must be selected based on environmental exposure, refer to NZS 3604 and Table 20 of NZBC E2/AS1.
2. Flexible underlay must comply with acceptable solution E2/AS1 and NZS 3604.
3. Flashing tape must have proven compatibility with the selected flexible underlay and other materials with which it comes into contact as per Table 21 of E2/AS1.

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

Figure 11: Window jamb



Note: When James Hardie rigid air barrier is used flashing tape or flexible underlay to be applied to the entire window jamb.

Figure 12: Window head

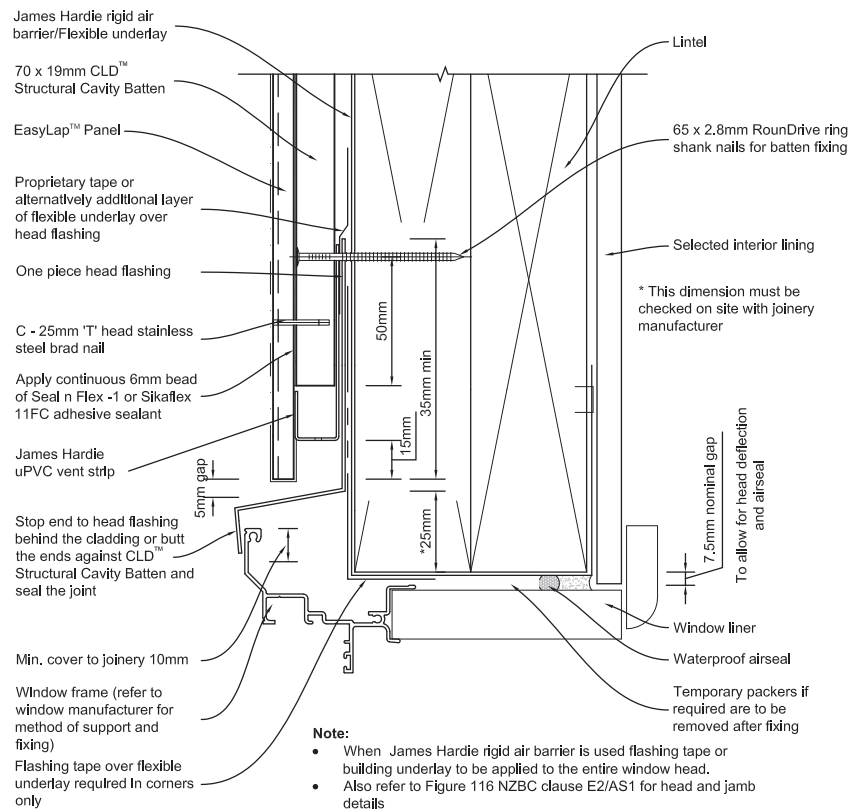
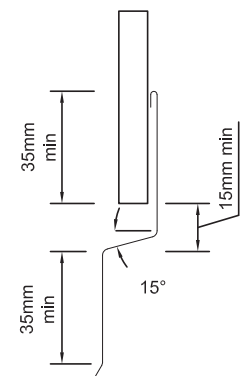
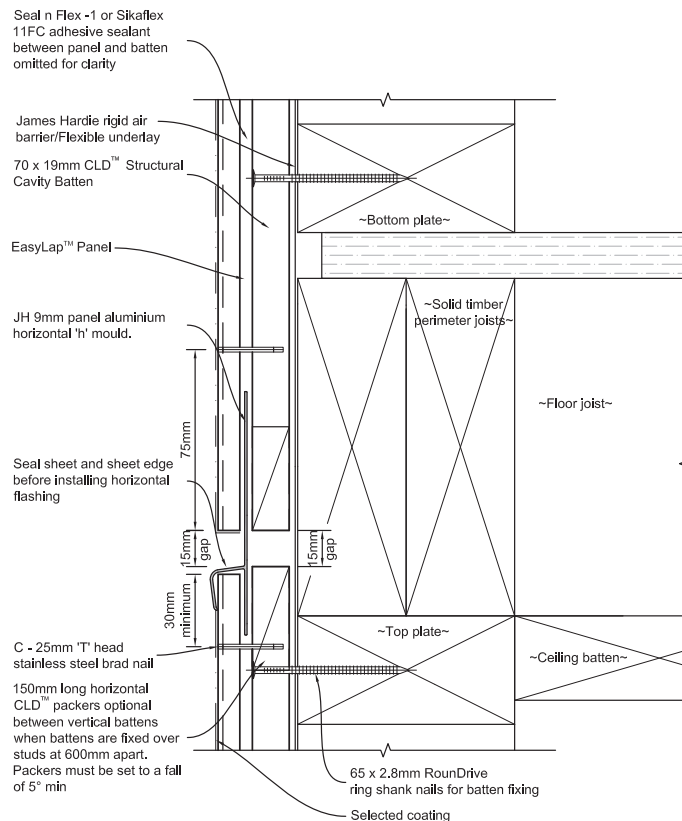


Figure 13: Horizontal joint at floor joist



Alternative Flashing Option

Note:

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

Figure 14: Horizontal joint in tall wall

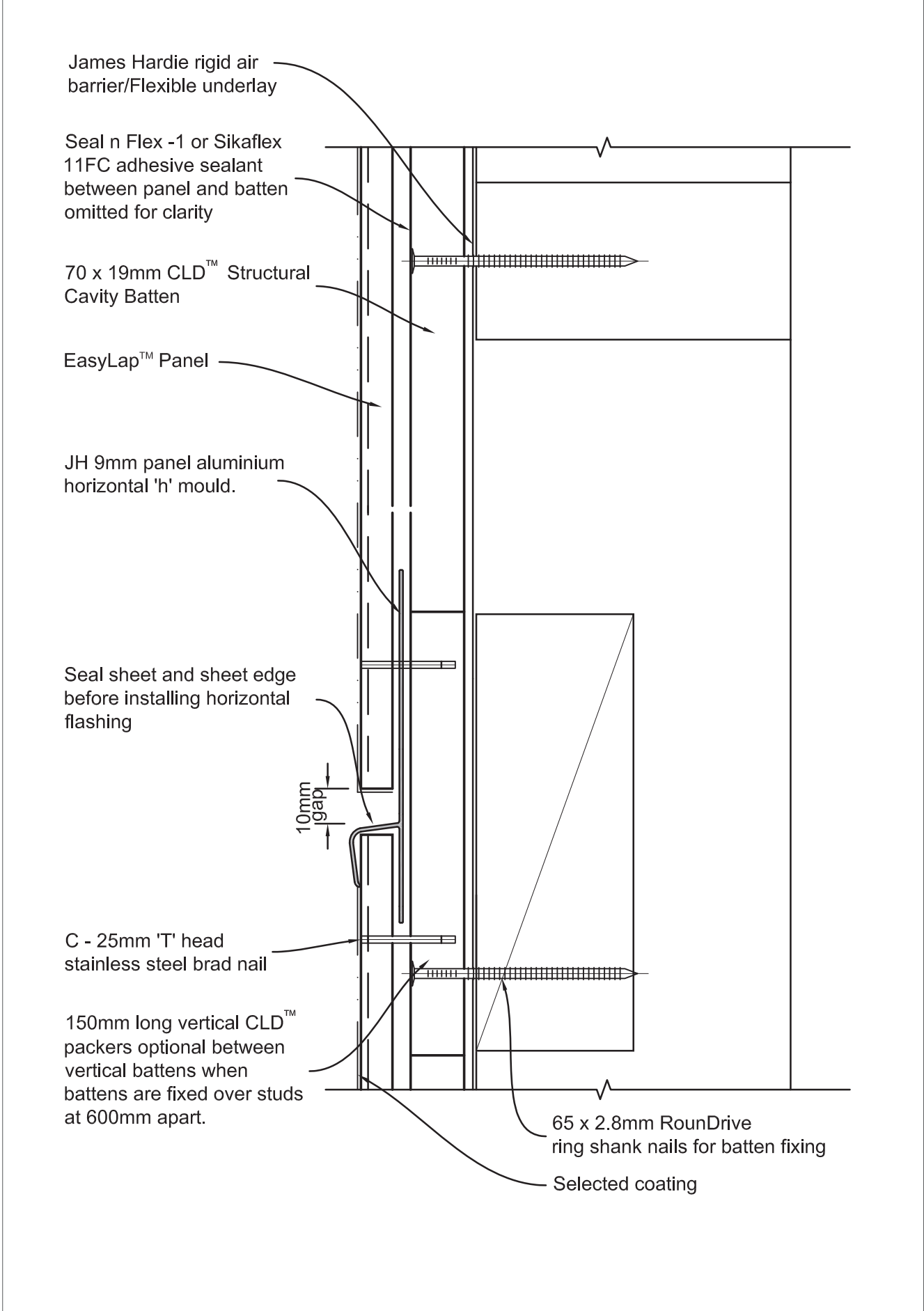


Figure 15: Soffit detail

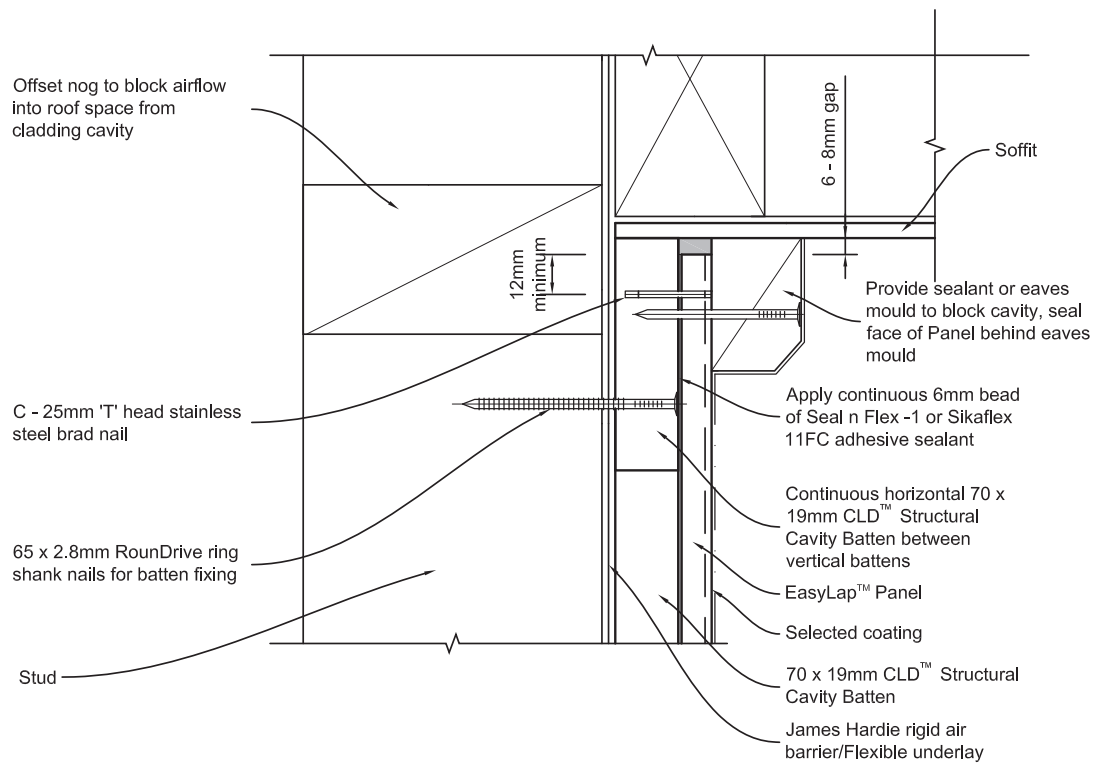


Figure 16: Cavity pipe penetration

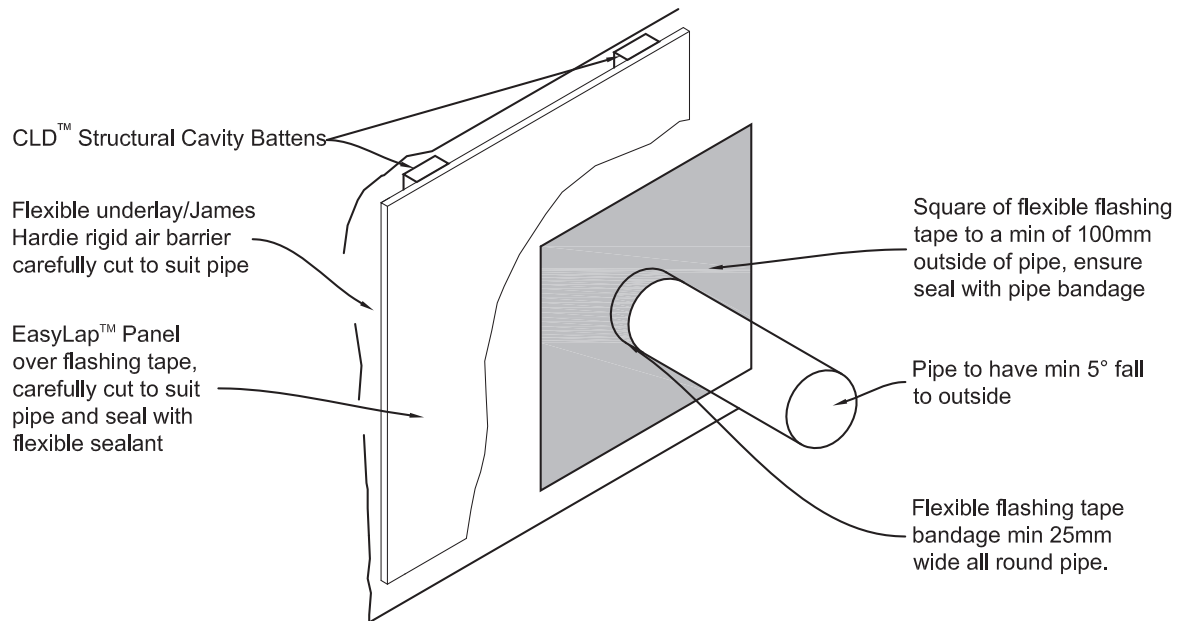


Figure 17: External corner at 'h' mould joint detail

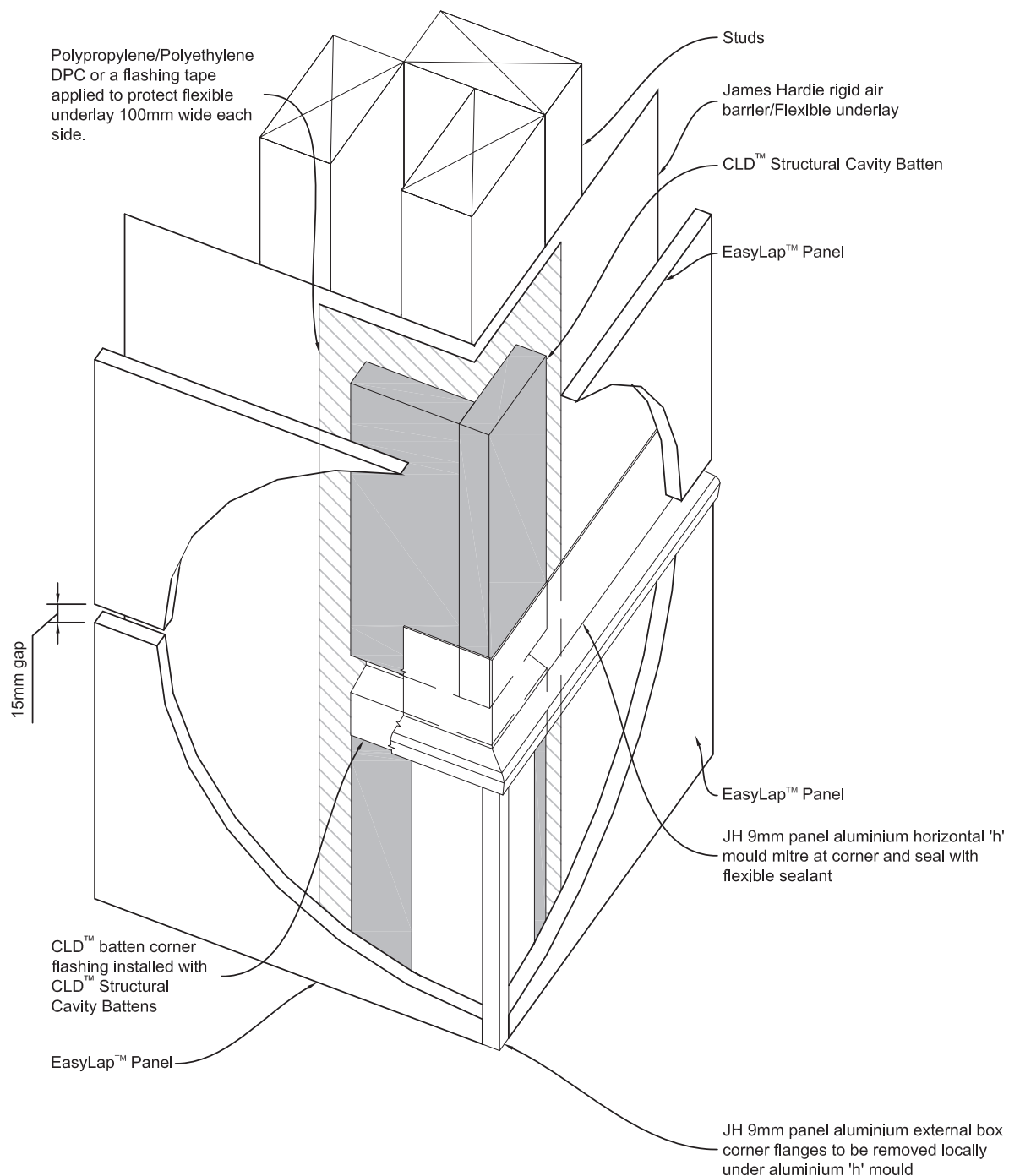


Figure 18: Internal corner at 'h' mould joint detail

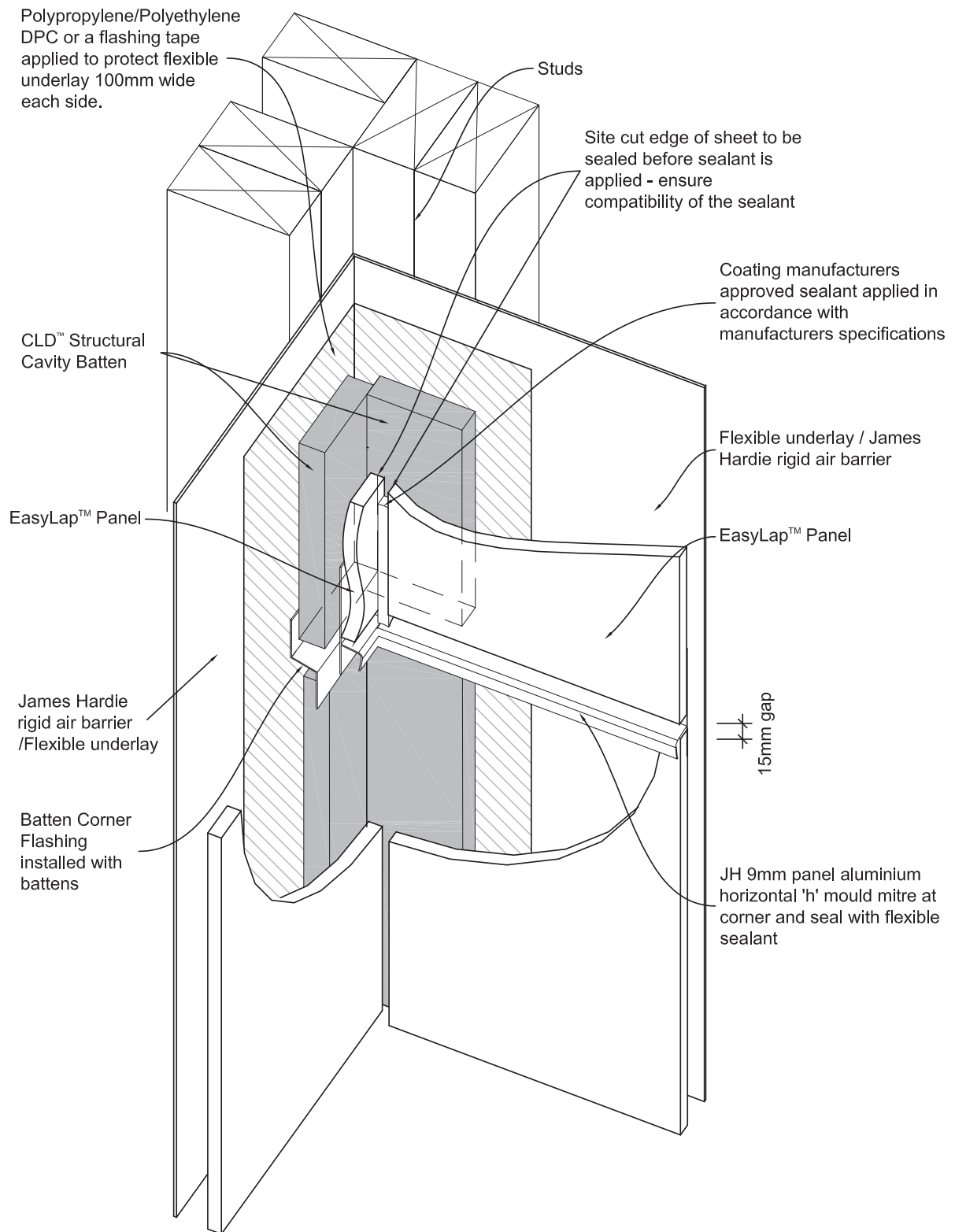


Figure 19: Aluminium 'h' mould joiner

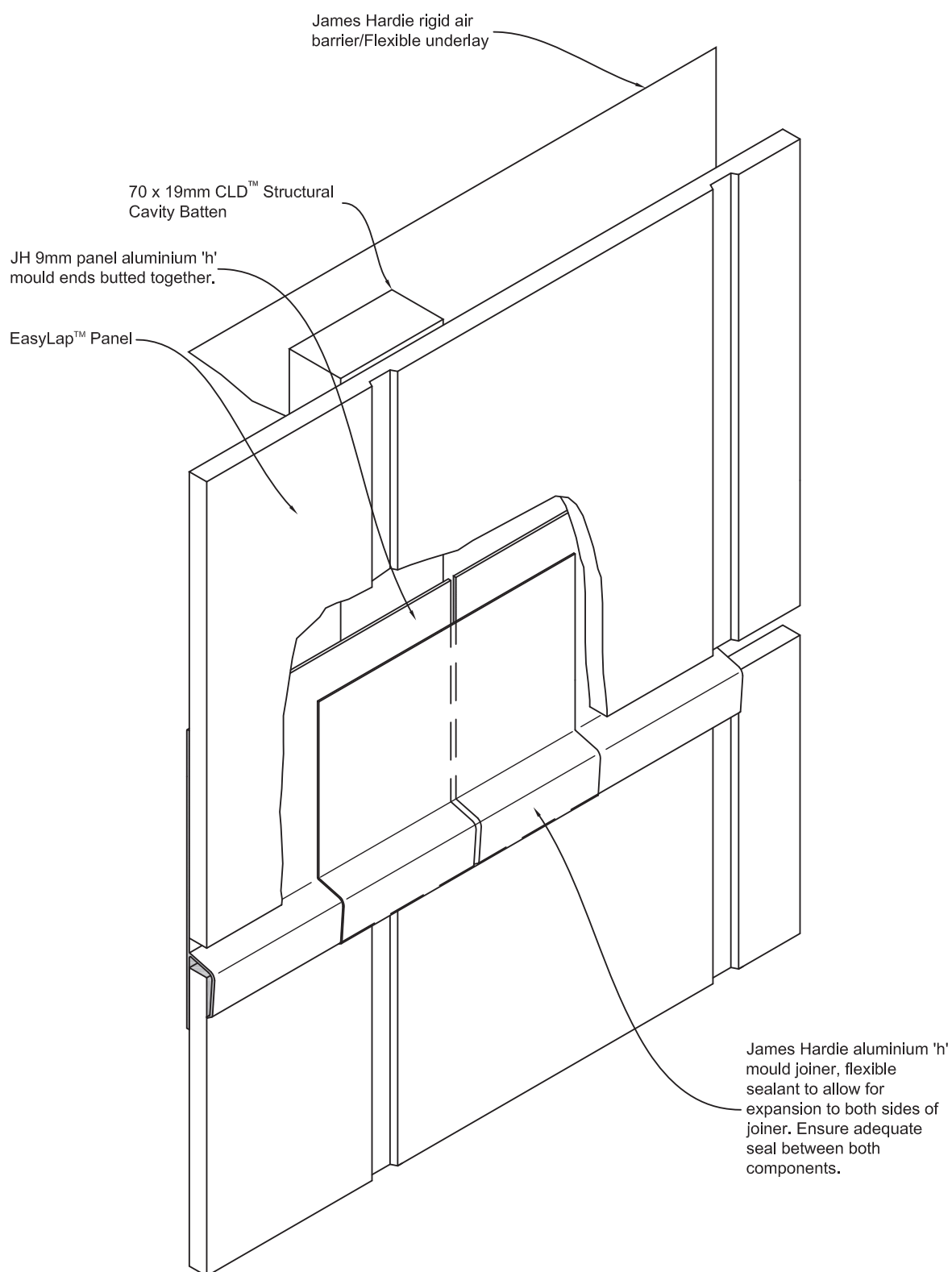
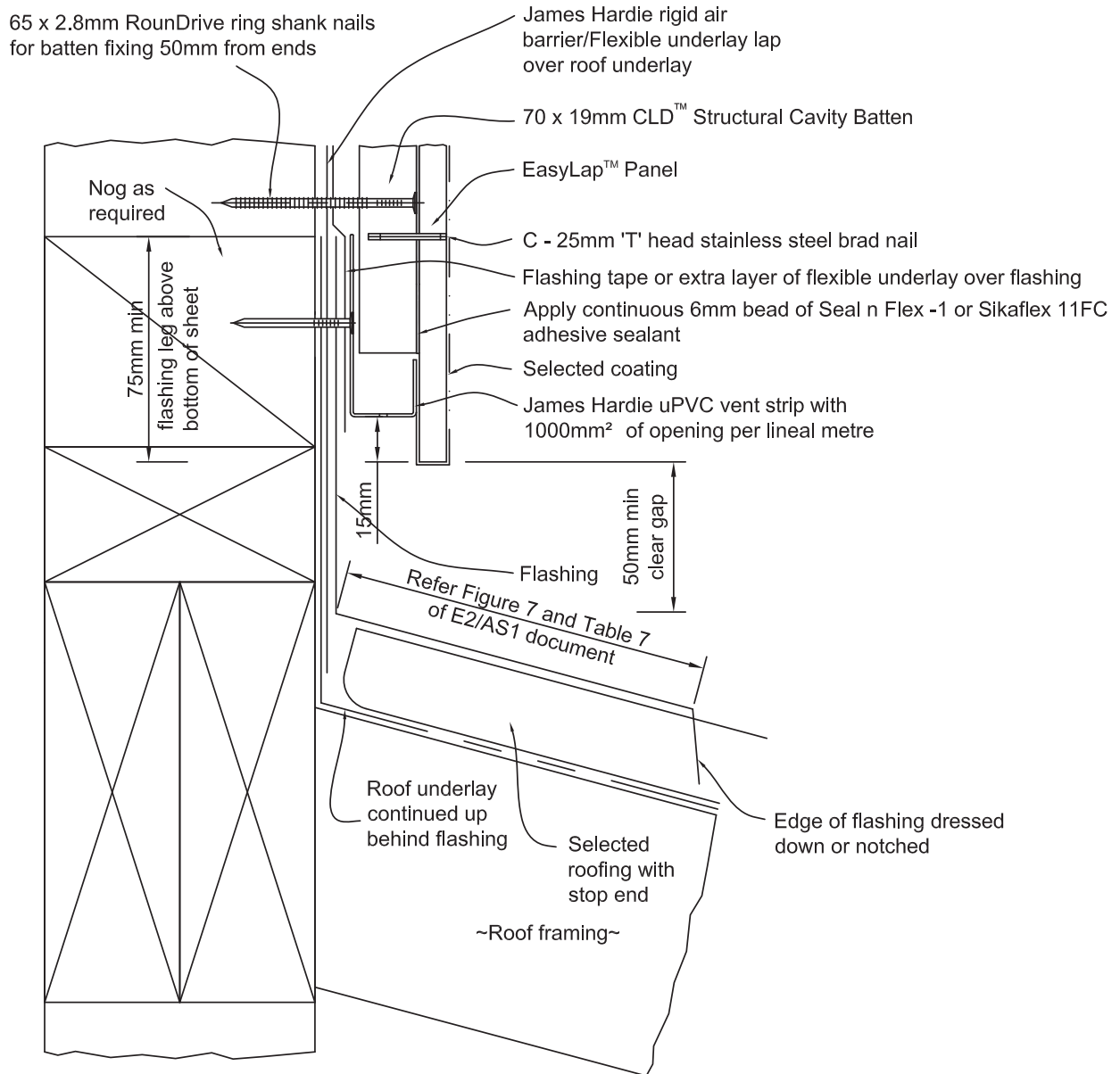
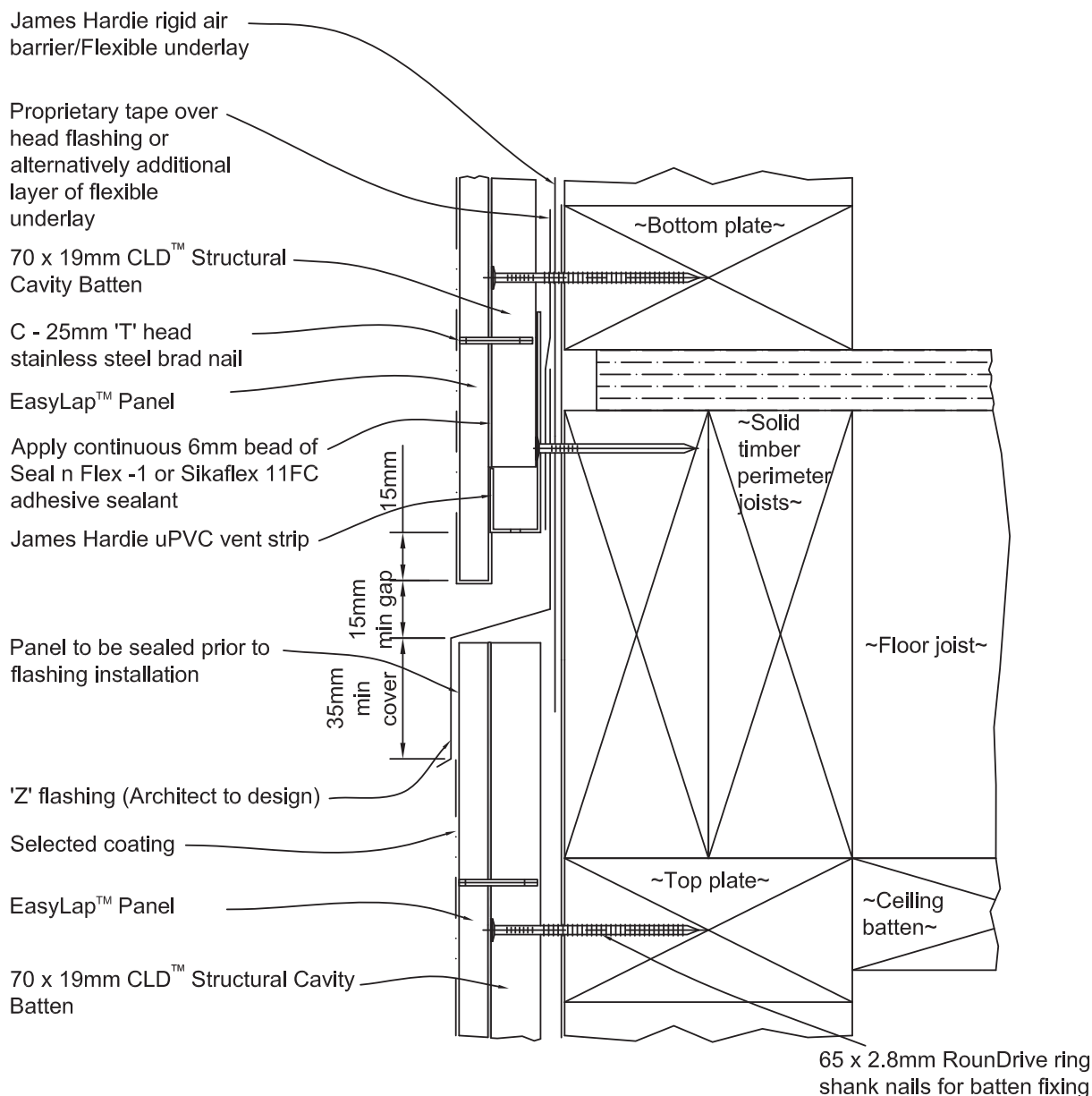


Figure 20: One piece apron flashing joint



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

Figure 21: Drained flashing joint at floor joist



Step 1

- Check Architect's plans for the type of flashing to be used.

Step 2

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

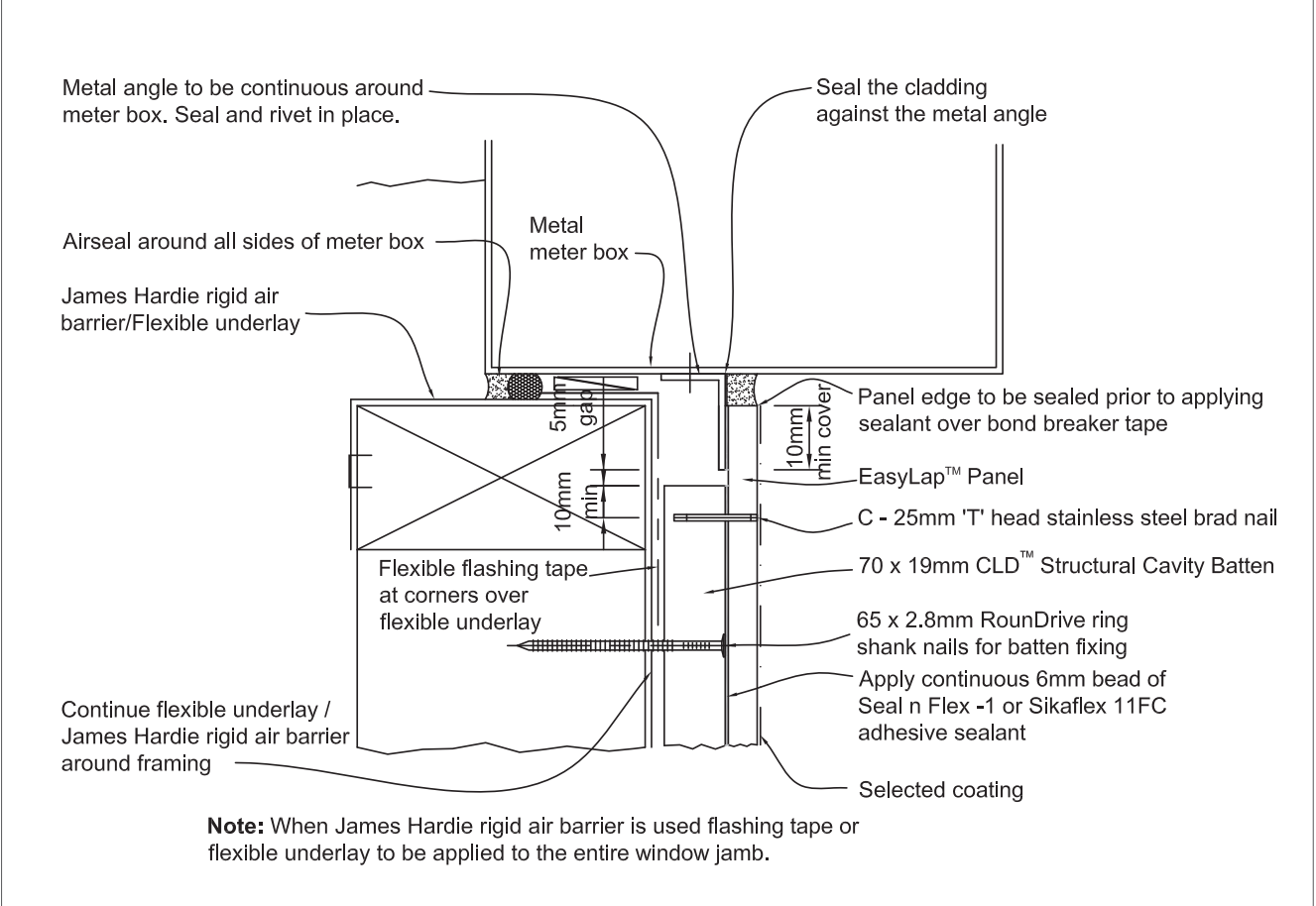
Step 3

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

Step 4

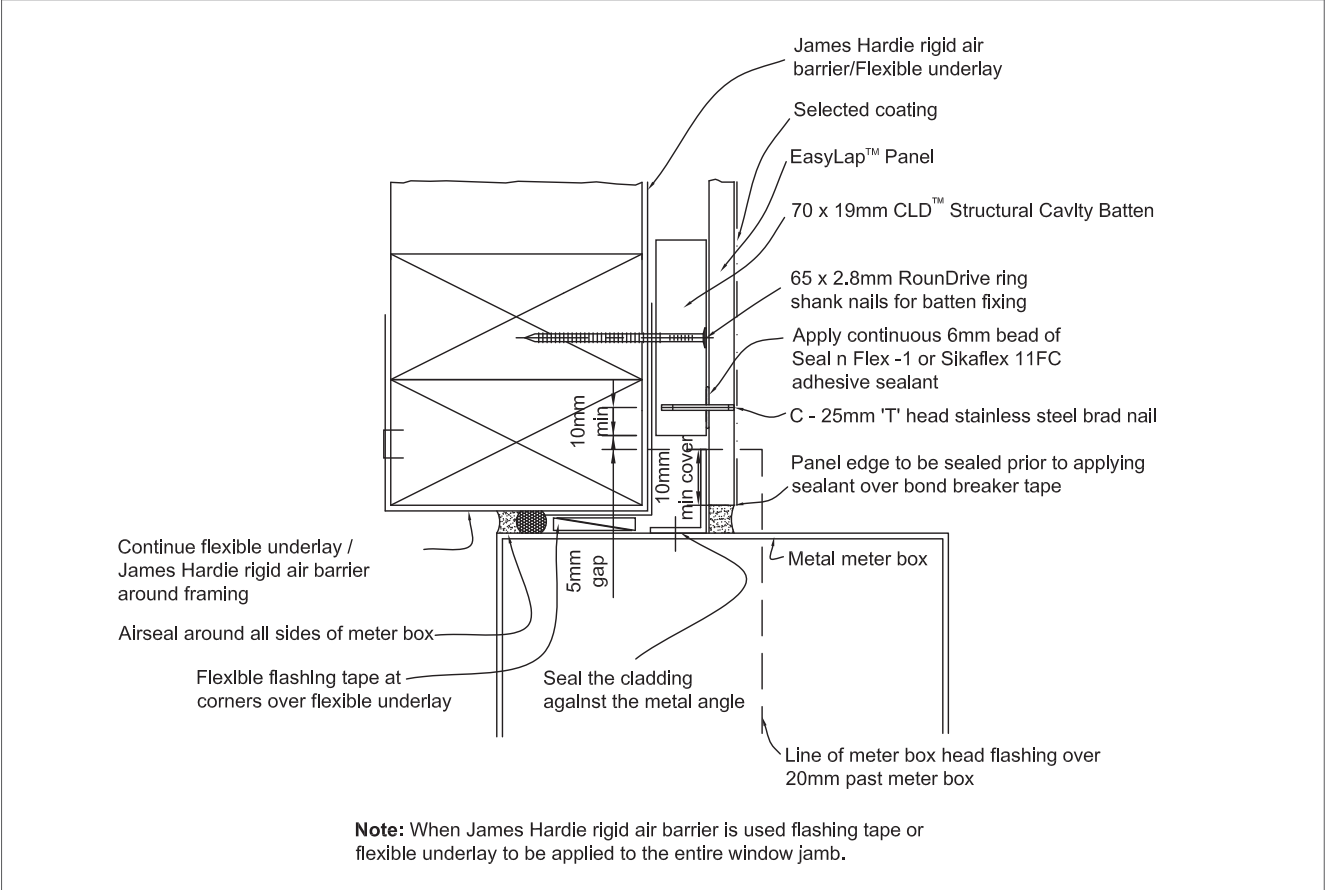
- The flashing to be placed in the centre of the floor joists. Do not fix CLD™ Structural Cavity Battens or panels into floor joists.

Figure 22: Meter box at sill



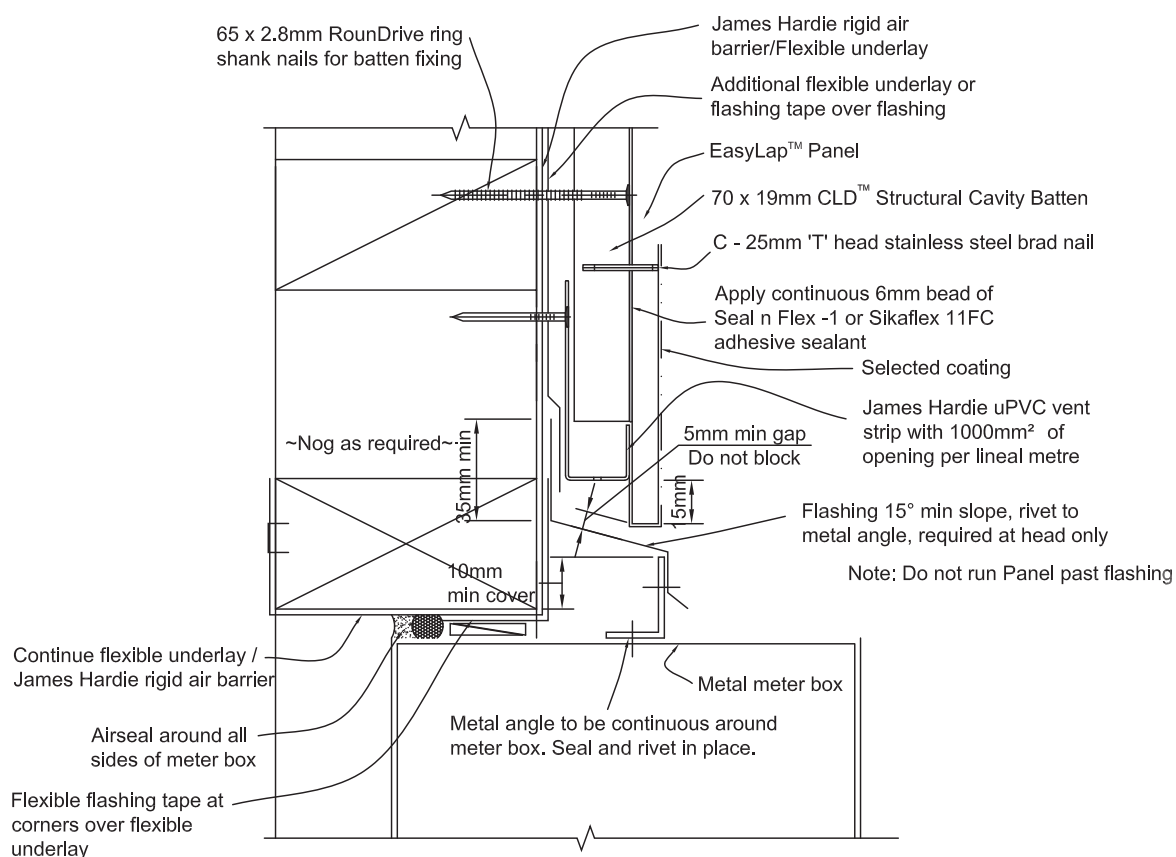
Note: When James Hardie rigid air barrier is used flashing tape or flexible underlay to be applied to the entire window jamb.

Figure 23: Meter box at jamb



Note: When James Hardie rigid air barrier is used flashing tape or flexible underlay to be applied to the entire window jamb.

Figure 24: Meter box at head



Note: When James Hardie rigid air barrier is used flashing tape or flexible underlay to be applied to the entire window jamb.

Figure 25: Junction between EasyLap™ Panel and fascia board

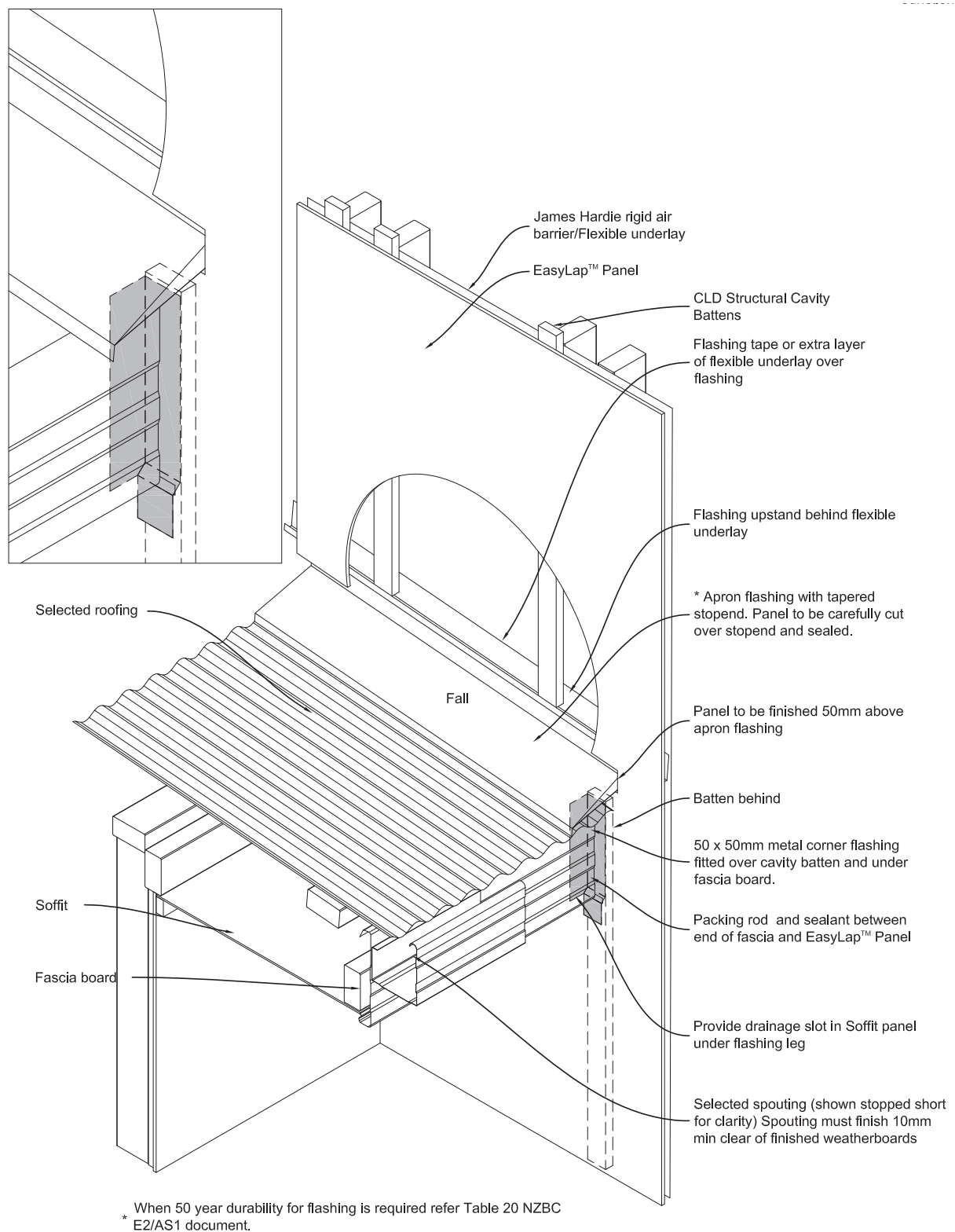
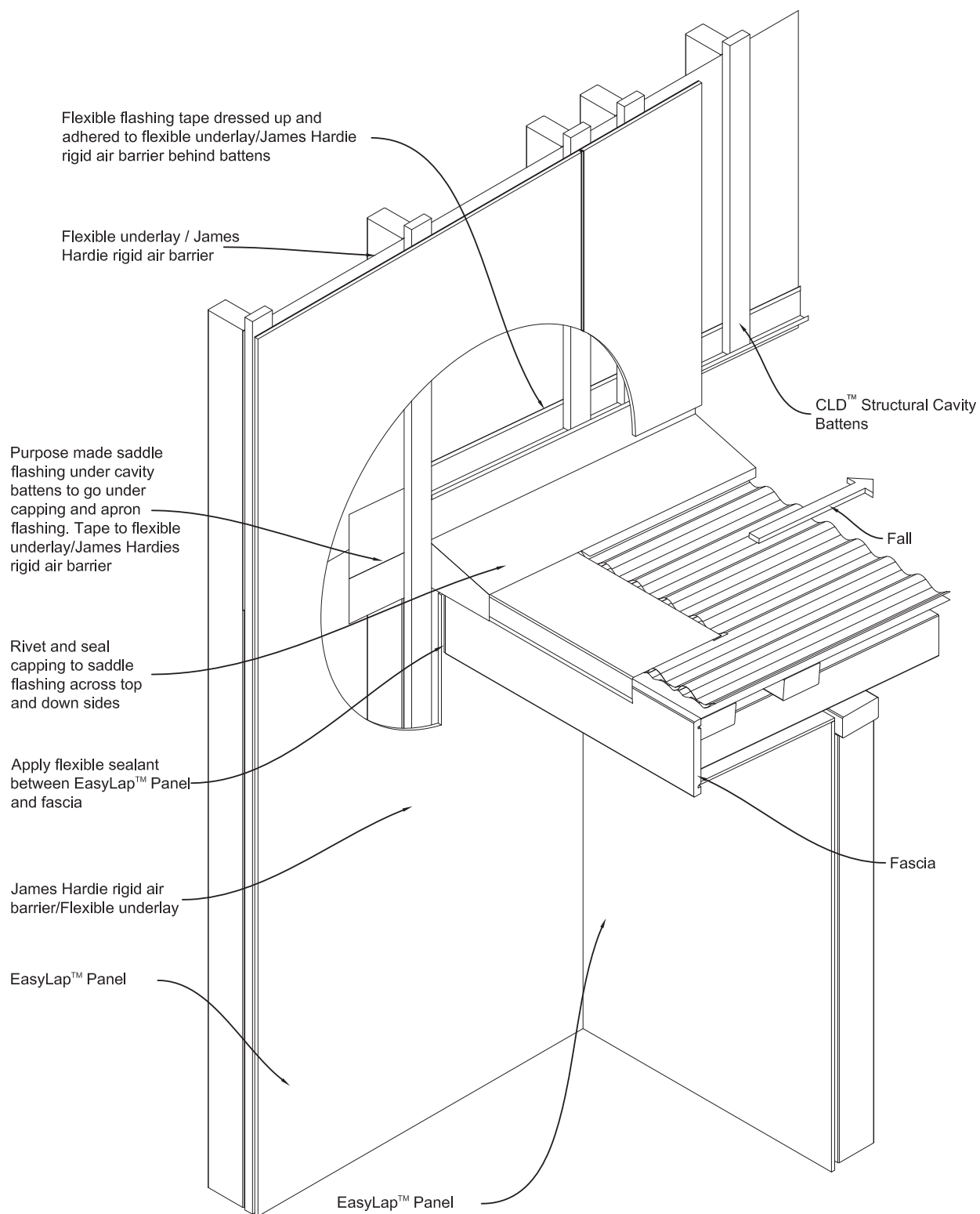


Figure 26: Enclosed roof to wall intersection



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 and CLD™ Structural Cavity Batten (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 the performance of the EasyLap™ Panel and CLD™ Structural Cavity Batten when installed in accordance with the EasyLap™ Panel and CLD™ Cavity Batten technical specification, in accordance with the standards and verification methods required by the NZBC and those test results demonstrate the product complies with the performance criteria established by the NZBC. However, as the successful performance of the relevant system depends on numerous factors outside the control of James Hardie (e.g. quality of workmanship and design) James Hardie shall not be liable for the recommendations made in its literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the NZBC, regulations and standards, as it is the responsibility of the building designer to ensure that the details and recommendations provided in the relevant James Hardie installation manual are suitable for the intended project and that specific design is conducted where appropriate.

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