



RENDERED WALL SYSTEM

EXTERNAL RENDERED WALL SYSTEM TECHNICAL INFORMATION & INSTALLATION MANUAL

INSULCLAD CORE PANEL
DIRECT FIX & CAVITY BATTEN SYSTEM



Foamex Polystyrene Pty Ltd
Version 1.0
28 June 2021

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1. Introduction

1.1 Insulclad Rendered Wall System

The Insulclad Rendered Wall System is a systematic, lightweight polystyrene cladding with a visually appealing rendered finish that can be installed direct fix or via a cavity system (EPS battens).

This technical information & installation manual is designed for use by builders and installers to provide relevant information about how to install the system to meet Building Code of Australia (BCA) requirements.

The National Construction Code 2019 (NCC) – Building Code of Australia, Volume 2 for Class 1 & 10 buildings is a performance-based code. The Insulclad Rendered Wall System has been extensively tested and is certified to meet the performance requirements prescribed by the code.

Refer to Insulclad website to view the complete CodeMark Certificate of Conformity.



Structure: (P2.1 Structural stability and resistance to actions)

Assessed and appraised for serviceability and strength under wind loads up to:

- AS 4055 Wind Class N4 for 75mm minimum thickness panels, and N3 for 50mm thickness panels.
- AS/NZS 1170.2 serviceability wind pressures $W_s = +0.82\text{kPa}$ & -1.23kPa , and ultimate limit state wind pressures of $+2.01\text{kPa}$ & -3.01kPa for minimum 75mm thickness panels, and $+1.35\text{kPa}$ & -2.03kPa for 50mm thickness panels.

Weatherproofing and Dampness: (P2.2.2 Weatherproofing, P2.2.3 Dampness)

Assessed and appraised for resistance to moisture from the ground and the penetration of water.

Bushfire Attack Level (BAL A-29)

The Insulclad BAL-29 system must be comprised of a precise group of specified materials to meet the Bushfire Attack Level standard as tested (AS1530.8.1-2007). This includes the Insulclad panel with all the Insulclad accessories, i.e., Insulclad Breather Frame Wrap, window flashing tape, fixings, fixing washers, MS sealants, foam sealants and selected Insulclad render system.

For all BAL-29 products and specifications please refer to Section 6.5.

Fire: (P2.3.1 Fire Separation)

The Insulclad Rendered Wall System is combustible and does not achieve an FRL to AS1530.4 as defined by the NCC 2019 BCA Volume 2 and must not be located less than 900mm from boundaries or 1800mm from another building, as defined in 3.7.2.2.

2. System Summary

The Insulclad Rendered Wall System consists of M Grade expanded polystyrene directly screwed or installed via a cavity system, to either steel or timber wall framing through breathable wall wrap.

The system is very versatile due to the capability of both direct fix or a cavity system and is designed to be used in residential construction. Examples of applications include external walls, parapets, bulkheads, fences, and columns.

The Insulclad EPS panel, screwed through breathable wall wrap to the external wall framing, is finished on-site with the Insulclad render system. This incorporates Insulclad fiberglass mesh embedded into an initial base coat of Insulclad EPS render, followed by a second base coat layer and finished with Insulclad topcoats or tintable texture.

The Insulclad Rendered Wall System provides the appearance of a rendered masonry wall without the increased site preparation, cost, and time of high-mass construction. It is designed to be installed on parapets and bulkheads which allows the designer the freedom to achieve various finishes on the same façade.

External wall cladding system selection and design for any building, must be made by a person who understands all the relevant local and national building requirements, the technical aspects of the product and its proper use.

Ensure you follow the full Insulclad design & installation guidelines provided in conjunction with the relevant Insulclad Construction Drawings details. Insulclad system components can only be supplied by Insulclad or other Insulclad approved suppliers. Insulclad Installer training is available, providing training is system detail specific to Insulclad CodeMark Certificate of systems.

If you are an Installer:

In all circumstances installers must be appropriately licensed to install cladding relative to the governing State Building Authority. Each state and territory have different licensing and registration requirements and it is important that you understand the requirements that apply to you as an individual to hold the appropriate licence or be registered.

If you are a Builder:

Ensure the installer is suitably qualified and licensed to install cladding relative to the governing State Building Authority. Each state and territory have different licensing and registration requirements and it is important that you understand the requirements that apply to you as a builder and in respect to contracting cladding installation.

2.1 Foamex Warranty – 7 Years Limited

Foamex Polystyrene Pty Ltd warrants that its products are free from defects in materials and workmanship for a period of 7 years from the date of purchase. For a full description of the Warranty refer to Section 12.

2.2 Benefits

The Insulclad Core panels are available as a standard size of 5m x 1200mm and 2.5m x 1200mm with thicknesses of 50mm, 60mm, 75mm and 100mm.

Manufacture:

The Insulclad Core panels are manufactured locally from Australian and imported materials by Foamex Polystyrene Pty Ltd.

Panel:

Medium (M) Grade expanded polystyrene (EPS) with included flame retardant.

Red in appearance.

Manufacturing /Tolerances:

Length: -2.5m – 5.0m, +/- 10mm

Width: 1200mm, +/- 5mm

Thickness: 50mm, 60mm, 75mm & 100mm, +/- 1.0mm

2.3 Termites

Please seek expert advice for termite prevention. All Insulclad panels are made with Preventol®, an exclusive termite protection system, included in the formulation of the EPS. It is an additive used during the production process when the Insulclad EPS panels are manufactured and provides protection to the EPS against termite attack.

Preventol® is not a total barrier system for the entire building construction and should be used in conjunction with a total insect management system. It is the responsibility of the building designer or building contractor to ensure the appropriate system is selected to comply with the relevant building code requirements. Where the building is required to be protected from subterranean termite attack, the building must be protected by a barrier system that is compatible with the use of EPS in the system. Tested in Australia in accordance with Australian Wood Preservation Committee protocols for Assessment of Wood Preservations. Insulclad has the only tested and approved system in Australia.

Approved by the Australian Pesticides & Veterinary Medicines Authority.

Insulclad EPS benefits include:

- Energy efficient construction by continuous insulation over the framing.
- Versatility to satisfy different architectural forms.
- Lightweight for quick and cost-effective installation.
- Weatherproofing, durability, impact & moisture resistance.
- External Insulation & Finish System (EIFS) is a well-known system for builders and renderers.

3. National Construction Code (NCC) 2019

The NCC is a performance-based code that provides solution options via Deemed-to-Satisfy, or Performance Solution paths.

Prior to any system installation, builders and installers should check the job requirements against the proposed Insulclad System CodeMark Certificate of Conformity that is to be installed, to satisfy themselves that the proposed Insulclad System is in accordance with the building surveyors planning approvals for that specific job.

Any failure to follow the Insulclad installation guidelines and specifications will mean that the Insulclad CodeMark Certification is not valid for that installation, and compliance to NCC cannot be claimed for that specific job.

Any building system that is not described in the Deemed-to Satisfy provisions can only demonstrate compliance via a Performance Solution.

This applies to all External Wall Cladding Systems that are not listed in BCA Volume 2, Part 3.5.4. or 3.5.5.

External Walls may be required to comply with performance requirements for structure, fire, weatherproofing, dampness, and energy efficiency. Details of compliance are outlined below.

3.1 Structural Performance – Direct Fix & Cavity System

The Insulclad Rendered Wall System with 75mm minimum thickness panels has been designed and tested to withstand the strength limit state design wind loads for AS 4055 Wind Classifications N1, N2, N3 and N4.

50mm thick panel is limited to AS 4055 Wind Classifications N1, N2 & N3 only.

The Insulclad Rendered Wall System meets AS/NZS 1170.2 serviceability wind pressures $W_s = +0.82\text{kPa}$ & -1.23kPa ; and ultimate limit state wind pressures of 2.01kPa & -3.01kPa for minimum 75mm minimum thickness, 2.03kPa for 50mm thickness.

The Insulclad Rendered Wall System cannot be installed in cyclonic wind regions. The design wind loads for a building are typically calculated by an engineer based on the site classification and height of the building.

The Insulclad Rendered Wall System is not designed to act as wall bracing. Bracing resistance must be taken up by the wall framing.

The Insulclad Rendered Wall Cladding System is not load bearing. Control joints are required at regular intervals to allow for building movement. Refer to Section 7 – Construction Details, items 7.11 & 7.12.

Where the Insulclad Rendered Wall System is installed on buildings designed to conform to the requirements of AS 4055, it should be noted that this standard, limits height from ground level to the:

- Underside of eaves – shall not exceed 6.0m; and to highest point of the roof, not including chimneys, shall not exceed 8.5m.
- Width – including roofed verandas, excluding eaves, shall not exceed 16.0m.
- Length – shall not exceed five times the width.
- Roof pitch – shall not exceed 35 degrees.

3.2 Fixing Spacing and Edge Table

In all cases the maximum vertical fixing spacing must be 300mm along studs at maximum 600mm spacing. Edge fixings must not be placed less than 25mm/50mm (or more than the panel thickness) from the edge or end of a panel. At the starter channel, fixings may be spaced a distance up to the thickness of the panel from the bottom edge.

Insulclad Core Wall System Fixing Requirements: within 1,200mm of corners

Wind Classification	Stud Spacing (mm)	50 – 60mm Cladding	75 – 100mm Cladding
		Fastener Spacing Vertically (mm)	Fastener Spacing Vertically (mm)
N1	450	300	300
N2	450	300	300
N3	450	200	220
N4	450	N/A	185

Insulclad Core Wall System Fixing Requirements: within 1,200mm of corners

Wind Classification	Stud Spacings (mm)	50 – 60mm Cladding	75 – 100mm Cladding
		Fastener Spacing Vertically (mm)	Fastener Spacing Vertically (mm)
N1	600	300	300
N2	600	240	275
N3	600	150	185
N4	600	N/A	155

Insulclad Core Rendered Wall System Fixing Requirements: > 1,200mm away from corners

Wind Classification	Stud Spacings (mm)	50 – 60mm Cladding	75 – 100mm Cladding
		Fastener Spacing Vertically (mm)	Fastener Spacing Vertically (mm)
N1	450	300	300
N2	450	300	300
N3	450	300	300
N4	450	N/A	275

Insulclad Core Rendered Wall System Fixing Requirements: > 1,200mm away from corners

Wind Classification	Stud Spacings (mm)	50 – 60mm Cladding	75 – 100mm Cladding
		Fastener Spacing Vertically (mm)	Fastener Spacing Vertically (mm)
N1	600	300	300
N2	600	300	300
N3	600	270	275
N4	600	N/A	220

Note: AS 4055 Table 3.3, N3 Wind Classification includes Ultimate Strength Wind Pressures up to +1.35kPa & -2.03kPa, and N4 Wind Classifications includes Strength Wind Pressures up to +2.01kPa & -3.01kPa.

3.3 Dampness and Weatherproofing Performance

The Insulclad Rendered Wall System complies with the NCC 2019 performance requirements for weatherproofing and dampness.

This has been confirmed by testing and appraisal in accordance with the verification method V2.2.1 in the NCC 2019. This verification method requires that a test specimen is constructed and assessed so that the weatherproofing performance of many of the common combinations of details found in normal construction practice can be examined.

In accordance with V2.2.1, weatherproofing compliance is demonstrated for an external wall with:

- Serviceability limit state design wind pressures of not more than +0.82kPa & -1.23kPa, this includes up to AS 4055 N4 Wind Classification (note that 50mm thickness panel is only up to N3 applications only);
- Includes only windows that comply with AS 2047 (windows and external glazed doors in buildings); and
- Has a Risk Score of 20 or less determined in accordance with NCC 2019, BCA Volume 2 Table V2.2.1a, as follows:

Table V2.2.1a: Risk Factors and Scores

Risk Factor	Category	Risk Severity	Score
Wind Region	Region A (AS/NZS 1170.2)	Low to medium	0
	Region B (AS/NZS 1170.2)	Low to medium	0
	Region C (AS/NZS 1170.2)	High	1
	Region D (AS/NZS 1170.2)	Very High	2
Number of Storeys	One storey	Low	0
	Two storeys in part	Medium	1
	Two storeys	High	2
	More than two storeys	Very High	4
Roof/Wall Junctions	Roof to wall junctions fully protected	Low	0
	Roof to wall junctions partially exposed	Medium	1
	Roof to wall junctions fully exposed	High	2
	Roof elements finishing within the boundaries formed by external walls	Very High	5
Eaves Width	Greater than 600mm for single storey	Low	0
	451 – 450mm for single storey, or greater than 600mm for two storeys	Medium	1
	101 – 450mm for single storey, or 0 – 450mm for two storeys, or less than 600mm for above two storeys	High	3
	0 – 100mm for single storey, 0 – 450mm for two storeys, or less than 600mm for above two storeys	Very High	6

Table V2.2.1a: Risk Factors and Scores (cont...)

Risk Factor	Category	Risk Severity	Score
Envelope Complexity	Simple shape with single cladding type	Low	0
	Complex shape with no more than two cladding types	Medium	1
	Complex shape with more than two cladding types	High	3
	As for high risk but with fully exposed roof to wall junctions	Very High	6
Decks, Porches and Balconies	None, or timber slat deck or porch at ground level	Low	0
	Fully covered in plain view by roof, or timber slat deck attached at first or second floor level	Medium	2
	Balcony exposed in plain view at first floor, or balcony cantilevered at first floor level	High	4
	Balcony exposed in plain view at second floor level or above	Very High	6

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3.4 Thermal Performance

The Insulclad Rendered Wall System is an excellent insulator that achieves high Total R-values. These may be used to satisfy NCC 2019, BCA Vol. 2 Part 3.12.1.4 wall insulation requirements, or as input to house energy rating software to achieve an energy rating.

The Insulclad Rendered Wall System with breathable non-reflective wall wrap and 10mm plasterboard lining achieves Total R-values in accordance with AS/NZS 4859.1:2018.

Increased thermal performance can be achieved by adding insulation between the wall studs.

Insulclad Direct Fix: Total R-Value to AS/NZS 4859.1:2018 (inc. thermal bridging m²K/W)

Panel Thickness	Timber Frame (90 x 45 @ 600mm c/c)		Steel Frame (90 x 35 @ 600mm c/c)	
	Summer	Winter	Summer	Winter
50mm	1.66	1.74	1.59	1.68
60mm	1.90	2.00	1.84	1.93
75mm	2.25	2.36	2.18	2.29
100mm	2.92	3.07	2.86	3.01

Insulclad Cavity Fix: Total R-Value to AS/NZS 4859.1:2018 (including thermal bridging m²K/W)

Panel Thickness	Timber Frame (90 x 45 @ 600mm c/c)		Steel Frame (90 x 35 @ 600mm c/c)	
	Summer	Winter	Summer	Winter
50mm	1.83	1.94	1.78	1.88
60mm	2.08	2.20	2.02	2.14
75mm	2.43	2.56	2.37	2.50
100mm	3.12	3.29	3.05	3.22

3.5 Fire Safety Performance

The Insulclad Rendered Wall System consists of an EPS core that is made of a fire-retarded expanded polystyrene tested in accordance with AS/NZS 1530.3.

As a combustible external wall system, Insulclad Rendered Wall System has not been evaluated for applications that require a Fire-Resistance Level (FRL) and may not be installed less than 900mm from an allotment boundary, or within 1800mm from another building as defined in 3.7.2.2.

When installed using the materials and methods prescribed in this manual the Insulclad Rendered Wall System is suitable for construction for Class 1 & 10 buildings in bushfire prone areas up to Bushfire Attack Level (BAL) 29.

The system has successfully passed testing in accordance with AS1530.8.1:2007, which is the prescribed test standard in AS3959:2018, for a tested system with the exposure level up to Bushfire Attack Level exposure of 29 kW/m² (BAL 29) and complies with the requirements prescribed in NCC 2019 BCA Volume 2, 3.10.5.0 (c) using the application methods outlined in Section 3.3 below.

The Insulclad Rendered Wall System must not be exposed to temperatures of more than 80°C for extended periods due to the risk of softening and damage. Heat producing appliances e.g., BBQ's & patio heaters, hot water services, flues from heating appliances, all must be installed in accordance with manufacturers' requirements, so the Insulclad Rendered Wall System does not become heat damaged.

3.6 Installation to achieve Bushfire Attack Level (BAL-29)

To achieve BAL-29, the complete Insulclad EPS External Wall Cladding System must be used.

The system must be installed in accordance with this manual and be comprised of a precise group of specified materials to meet the Bushfire Attack Level standard as tested (AS1530.8.1:2007). This includes min. 75mm Direct Fix Insulclad panel, Insulclad aluminium/PVC-UV stabilised U – Shape or L – shape, aluminium/ PVC-UV stabilised starter channels (required where the bottom edge of panel is unprotected), Insulclad fixings and washers, Insulclad 165 gsm fiberglass mesh, foam sealant, window flashing tape, Insulclad Base Render Plus (2 coats @ 3mm each), Insulclad Medium Float 3mm, sealant. Bushfire is achieved for the 75mm based on testing conducted to (AS1530.8.1.).

The 100mm panel is achieved based on section 15.7 of AS 1530.8.1, Direct field of Application, whereby compliance is validated based on the increase of the wall thickness as validated by Warrington fire report (Direct Fix only). See Section 6.5.

Materials

When using the Insulclad Rendered Wall System, Insulclad components must be used as defined below.

The substitution of any Insulclad EPS cladding or Insulclad Core Panel System fixings (screws & washers) is not permitted on any Insulclad Rendered Wall System application. All other components may be substituted with equivalent alternatives that meet the specifications of the products used in this manual and the required building standards.

Failure to meet these requirements using any non-standard or non-approved component will void any product or system warranty.

The following is a list of materials required to install the complete Insulclad EPS system:

- Breathable non-woven, non-reflective wall wrap (AS/NZS 4200.1) and installed to AS/NZS 4200.2
- Insulclad Flashing Tape (Butyl Flashing Tape)
- Insulclad Cavity Batten – VH Grade 1200 x 45mm x 25mm, nominal density at 28kg/m³
- For Cavity System – EPS, timber or steel battens (depth between 15-40mm)
- Insulclad cladding in selected thickness & size (50, 60, 75 & 100mm)
- Insulclad fixings (screws & washers) in size relevant to cladding (need screws a minimum of 25mm longer than cladding thickness)
- Insulclad Starter channel PVC – UV stabilised (for BAL-29 aluminium or PVC/UV stabilised starter channels can be used)
- Insulclad PVC – UV stabilised external angles (for BAL-29 aluminium or PVC/UV stabilised external angles can be used)
- Insulclad Expander Foam (urethane) (for BAL-29 system Insulclad Touch'n Seal or Soudal FR Expander Foam)
- Insulclad Construction Sealant/Adhesive
- Insulclad Alkali Resistant Fiberglass Mesh 1200 x 50m 165 gsm
- Insulclad Alkali Resistant Fiberglass Mesh 200 x 50m 165 gsm
- Insulclad Render systems, please see render application in Section 6.2
- Insulclad Texture systems, please see render application in Section 6.2
- Sealant (by builder) around windows, penetrations, control joints and where Insulclad core panel and any other substrate meet
- Optional:
 - o Insulclad Primer (tintable) please see Section 6.2
 - o Insulclad Membrane (tintable) please see Section 6.2

4.1 Damp Proof Course

Damp Proof Course (DPC), installed by builder, must meet the requirements of AS/NZS 2904.

4.2 Breathable Wall Wrap

The framing must be wrapped with Insulclad breathable non-reflective and non-woven, vapour permeable wall wrap that meets the requirements of AS/NZS 4200.1 and must achieve a Medium Duty (MD) Classification. It must have a Low Flammability Classification (Flammability Index (FI) equal or less than 5 in accordance with AS 1530.2.

4.3 Insulclad Flashing Tape

All joints, edges and penetrations of the wall wrap paper must be sealed with Insulclad Flashing Tape. This includes around all penetrations (windows, doors, electrical, plumbing and other services) and along the base of the wall.

4.4 Insulclad EPS Panel

Insulclad M Grade Core Panel fire retarded expanded polystyrene manufactured in accordance with AS 1366.3, in the selected thickness and size.

4.5 Insulclad Cavity System – Battens

Battens may be EPS, timber, or steel with a depth of between 15 – 40mm.

4.6 Insulclad System Fixings (Screws & Washers)

- *Screws:* Insulclad CL4 Coated Torx Drive Poly Screw (Class 4 in corrosive environments) to suit timber or steel framing. Screws must comply with the corrosion protection requirements of AS 4773 (Part 4 and Appendix C). Screws must penetrate at least 25mm into timber wall framing (e.g., Length = Panel + 25 mm), or at least 3-full threads through steel wall framing (e.g., Length = Panel + 3-full threads).
- *Washers:* Insulclad approved 45 mm diameter flexible high-density polypropylene washer with holes and slots for adhesion/bonding.

4.7 Insulclad Starter Channel

- Starter channel for BAL-29 system please see BAL-29 Specification for details in Section 6.5.
- Starter channels are PVC – UV stabilised to the equivalent thickness size.
- Aluminium or PVC – UV stabilised for BAL applications.

4.8 Insulclad External Angles

- External angles are PVC – UV stabilised and must be installed at all external corners, openings, and edges.
- Aluminium or PVC – UV stabilised for BAL applications.

4.9 Insulclad PU Expanding Foam

- Insulclad polyurethane expanding foam filler to be applied between all panel connections, horizontal and vertical joints.

4.10 Insulclad Construction Adhesive

- A flexible sealant should be applied to all openings.

4.11 Insulclad Fiberglass Mesh

- 5mm x 5mm x 1200mm wide, 165 gsm alkali resistant fiberglass mesh is to be embedded into the initial base coat.
- 5mm x 5mm x 200mm wide, 165 gsm alkali resistant fiberglass mesh is to be embedded over joints at openings on a 45° angle.

4.12 Insulclad EPS Render Systems

- A pre-blended polymer modified cement render. Proprietary systems complying with the following minimum specification are deemed suitable. Minimum Requirements: 2 mm Base Coat; Mesh; 2 mm Second Base Coat; 1 mm Texture Coat and Sealant around openings.
- Sealant must be an acrylic based texture coating suitable for external application over acrylic rendered surfaces. Coating must consist of an acrylic external coating system, applied according to the manufacturer's instructions.

4.13 Sealant (by builder)

- Sealant (by builder) around windows, penetrations, control joints and where Insulclad EPS and any other substrate meet. When looking to achieve BAL-29 a fire rated (up to 4 hours fire protection in accordance with AS 1530.4) intumescent, low modulus, one component and Class A polyurethane sealant such as Bostik Fire Ban One should be used to a depth of 20mm (+/- 5mm). When cured it will form a tough, flexible, fire rated seal capable of cyclic expansion and compression.

4. Specifications

Before the Insulclad Rendered Wall System can be installed, all wall framing must be constructed and detailed to comply with the relevant regulations.

The placement and detail of correct installation of control joints is the responsibility of the designer, architect, and builder.

Good cladding system building practice typically requires vertical expansion joints every 6-8m along the wall and at each floor level (e.g., 3m high).

Control joints should correspond with control joints of the building structure. This is typically at all weak or stress points and at all joints between different building substrates.

'Articulation Relief Joints' of the render coating are also recommended for the control of cracking/hairline fractures. Articulation Joints should be installed vertically in line with the sides of doors, windows and openings, as well as in areas where the EPS section is less than 300mm in height (e.g., above/below window & door heads).

These should be installed by forming or cutting a 'V' groove to a depth of at least 50% into the render base coats without penetrating the mesh layer. This groove is to be reproduced as a visible line in the texture coat.

Again, it is the responsibility of the designer, architect, and builder to ultimately determine the most appropriate approach for the specific project.

All facets of the design, supply, and correct installation of penetrations in the cladding system, e.g., windows, doors etc., are outside the scope of the Insulclad Rendered Wall System. The designer and builder must ensure that the building, including all drainage holes and integral flashings in all penetrations will prevent the ingress of rainwater behind the EPS panel and will drain to the outside of the building.

Variations in the strength, stiffness, straightness, and squareness of the wall framing will affect the cladding system and must be checked, and rectified as necessary, before any cladding installation can begin.

5.1 Substrates

Timber framing must comply with AS 1684 – Timber Framing Code.

Metal framing must comply with NASH Standard – Residential low rise steel framing, Part 2.

In all cases the Insulclad Rendered Wall System may only be installed in accordance with this manual on steel or timber wall framing with maximum stud spacing of 600mm.

Prior to installation:

- Ensure the wall frame is square, level and plumb.
- Check that the stud spacing does not exceed 600 mm.
- Ensure panel edges that are parallel to the studs are supported so that fixings can be applied between 50mm to max thickness from the panel edge as required.
- To achieve this requirement, additional framing and/or back blocking may be required at vertical panel joints.

- Ensure eave linings, flashings, damp proof course and termite protection are provided as per the project requirements and the specifications contained herein.
- Ensure back blocking is installed for wall mounted services, downpipes, penetrations, etc. Ensure windows are aligned to meet the project specific detailing requirements for battens, finished reveal depth etc.

5. Installation

Product selection, and incorporation of the Insulclad Core Panel Rendered Wall System into the building design should be made by a person who is familiar with the application and technical aspects of the product, with ready access to the relevant technical information related to product use and accredited by Foamex Polystyrene Pty Ltd.

System installation must be carried out by a competent tradesman accredited by Foamex Polystyrene Pty Ltd with a minimum 1 years' experience in external wall cladding and rendering under the direction of a registered builder. They must have read and adhered to all relevant technical information on product installation including the installation techniques set out in this manual.

6.1 Certification

Upon completion of a job, the installer must go online to www.insulclad.com.au and complete the online certification process.

You will be required to provide:

- Proof of purchase;
- Address of the site where the system was installed;
- Builder or client details;
- The number of panels used and size of total job;
- Render system used;
- Colour of the texture used (if applicable); and
- A declaration that the product was installed in accordance with this manual.

Foamex Polystyrene Pty Ltd, will then issue you with a Certificate of Installation which is required to make any future warranty claims. CodeMark accreditation form will also be supplied.

6.2 Render Specification

Render Application over Insulclad Core Panel Rendered Wall System

Product Used		Method of Application	Spreading Rate	Coating Thickness	Curing Time
Pre-Coated Panel	Insulclad Render			2 – 3mm	
1 st Coat	Rockcote PM 100	Trowel or spray	2m ² /20kg bag	2 – 4mm	48 – 72 hours
2 nd Coat	Rockcote Texprime	Brush or long nap roller	5 – 6m ² /L		4 – 6 hours
3 rd Coat	Sandcote Hydratech	Trowel	8 – 10m ² /L	1 – 2mm	24 – 48 hours

Please refer to the Rockcote Installation Manual.

Product Used		Method of Application	Spreading Rate	Coating Thickness	Curing Time
Pre-Coated Panel	Insulclad Render			2 – 3mm	
1 st Coat	Ezycoat ECR	Trowel or spray	2m ² /20kg bag	2 – 4mm	24 – 48 hours
2 nd Coat	Ezycoat Sand 800	Steel trowel	8 – 10m ² /15L	0.8 – 1mm	4 – 6 hours
3 rd Coat	Ezycoat Membrane	24mm long nap roller	0.30L/m ² /coat	200 micron (wet) 80 micron (DFT)	8 – 12 hours

Please refer to the Ezycoat Installation Manual.

Product Used		Method of Application	Spreading Rate	Coating Thickness	Curing Time
Pre-Coated Panel	Insulclad Render			2 – 3mm	
1 st Coat	Insulclad Base Plus	Steel trowel	4m ² /20kg bag	3 – 4mm	24 – 48 hours
2 nd Coat	ER 100	Steel trowel	2 – 4m ² /20kg bag	1 – 2mm	12 – 24 hours
3 rd Coat	Valencia	Steel trowel	12m ² /15L	1 – 2mm	12 – 24 hours

Please refer to the Novatex Installation Manual.

6.3 Installation Steps

Prior to commencing installation, it is recommended that you ensure that the frame that you are installing the panel onto meets the stud spacing requirements detailed above i.e., stud spacing to be no more than 600mm.

You should also ensure that the frame is straight/level (we recommend utilising a straight edge or level to achieve this). If the frame is not level, appropriate measures such as packing out the frame should be completed prior to installing the panel.

1. *Approved breathable wall wrap:* To be fixed over the studs, cut openings around penetrations (e.g., doors, windows, and other services). If the wall wrap has been applied by another party (e.g., by the builder) prior to application, the person who is installing the panel should make sure the wrap has been correctly installed before starting.
2. *Approved flashing tape:* Is required to be installed around all doors, windows and openings, and forms part of the weatherproofing of the system. In all cases the Flashing Tape must be applied in accordance with the manufacturers' instructions and with emphasis on:
 - a. Ensuring the surfaces being joined are clean and free from any contamination such as dust, dirt, oil, or silicones.
 - b. The installation temperature range and environmental conditions are within tolerances.
 - c. Pressure is applied to the surface to ensure firm contact with the substrate.
 - d. Tapes are not to be used as mechanical joining devices, care should be taken to ensure that the materials joined are not liable or subject to movement. Flapping of the two surfaces joined by the tape creates enormous pressure on the join and can lead to tape breakdown.

6.4 Battens – For Cavity System

Battens may be EPS, timber, or steel and are to be installed vertically at every stud. EPS and timber battens are to be 35mm or wider and between 15-50mm deep.

Note: if installing the foam panels on battens, the bottom edge of the breathable wall wrap needs to be sealed with flashing tape.

1. *Starter Channel:* The choice of a U-shaped or L-shaped starter channel is entirely up to the installer. If using a U-shaped starter channel, it needs to be fixed at each stud with nails prior to fixing foam onto the frame. The starter channel is only required when the bottom edge of the panel is visible. If using an L-shaped starter channel, it needs to be glued to the foam after the foam has been installed. The starter channel is only required when the bottom edge of the panel is exposed.
2. *Cutting Panels:* The use of Personal Protective Equipment is required for cutting Insulclad Panels. The product can be easily and conveniently cut to size using a circular saw (timber or diamond blade) or hand saw. It is strongly recommended that the installer works in a well-ventilated area, uses hearing protection, wears a dust mask and eye protection to protect from any particles which may become airborne during cutting.
3. *Fixing Panels:* The panel is screwed to the stud through the washers at maximum 300mm spacing up every stud. The timber screws should be a minimum of 25mm longer than the panel thickness. Note that screws must be driven only until the washer just sinks into the Insulclad panel.
4. *Foam Adhesive:* Is to be installed between panels. Leave a 3mm gap between panels to ensure adequate space for foam filler to expand. Use of a non-system approved foam filler may affect the integrity of the panel and will void warranty.
5. *Control Joints:* 15mm (+/- 5mm) horizontal and vertical control joints should be placed at all locations as specified by the architect, engineer or builder for the specific project; as well as between the Insulclad panel and dissimilar materials.
6. *At windows, door and other large openings:* Ensure a 3mm gap is made between the panel and the wall framing. Cut the panel at windowsills at a minimum of 7° to provide for fall away from the opening. At all penetrations install Insulclad External Angles and butterfly the mesh to cover all corners. See Section 7.15 for a diagram.
7. *External Corners:* PVC – UV treated external angles are required to be installed on all openings and external corners. These are to be glued on with Insulclad Sealant.
8. *Internal Corners:* Install an additional layer of Insulclad Fiberglass Mesh into internal corners. As an alternative a vertical control joint detail may be used.
9. *Sealant (by builder):* Should be applied in the following areas:
 - Around windows and other penetrations.
 - Where Insulclad panel and any other substrate meet and at control joints.
10. *Substrate:* Prior to the application of Insulclad Render Systems ensure that the substrate is clean and free of any impurities that may compromise adhesion.

6.5 BAL-29 Specification Guide for Insulclad Core Panel

The BAL-29 accreditation for Insulclad is for compliance with a complete wall system comprising of the following:

- Insulclad M Grade core panel 2500 x 1200 or 5000 x 1200 x 75mm-100mm (red core panel)
- Insulclad breathable, non-woven, non-reflective wall wrap (AS/NZS 4200.1) & installed to AS/NZS 4200.2
- Insulclad Flashing Tape (Butyl Flashing Tape)
- Insulclad Fixing Screws & Washer
- Insulclad Aluminum/ PVC-UV treated Starter Channels must be used
- Insulclad Aluminum / PVC-UV treated External Angles must be used
- Insulclad Expander PU Foam (Touch'n Seal or Soudal FR)
- Insulclad Construction Seal/Adhesive
- Insulclad Alkali Resistance Fiberglass Mesh 1200 x 50m 165 gsm
- Insulclad Alkali Resistance Fiberglass Mesh 200 x 50m 165 gsm
- Direct Fix System only

The below is a list of render materials to achieve BAL-29.

Product Used		Method of Application	Spreading Rate	Coating Thickness	Curing Time
1 st Coat	Insulclad Base Render Plus	Steel trowel	4m ² /20kg bag	6mm	24 – 48 hours
2 nd Coat	Insulclad Medium Float Finish	Steel trowel	12m ² /20kg bag	3mm	24 – 48 hours
3 rd Coat	Dulux Weathershield Low Sheen Paint		Two Coats		

PLEASE NOTE: The use of any render system other than the Insulclad Rendered Wall System and accessories is not covered by the scope of the Insulclad BAL-29 Certification. While similarly formulated acrylic render products may be similar in BAL-29 performance, Foamex Polystyrene Pty Ltd has not tested other render systems in this instance.

6. Construction Details

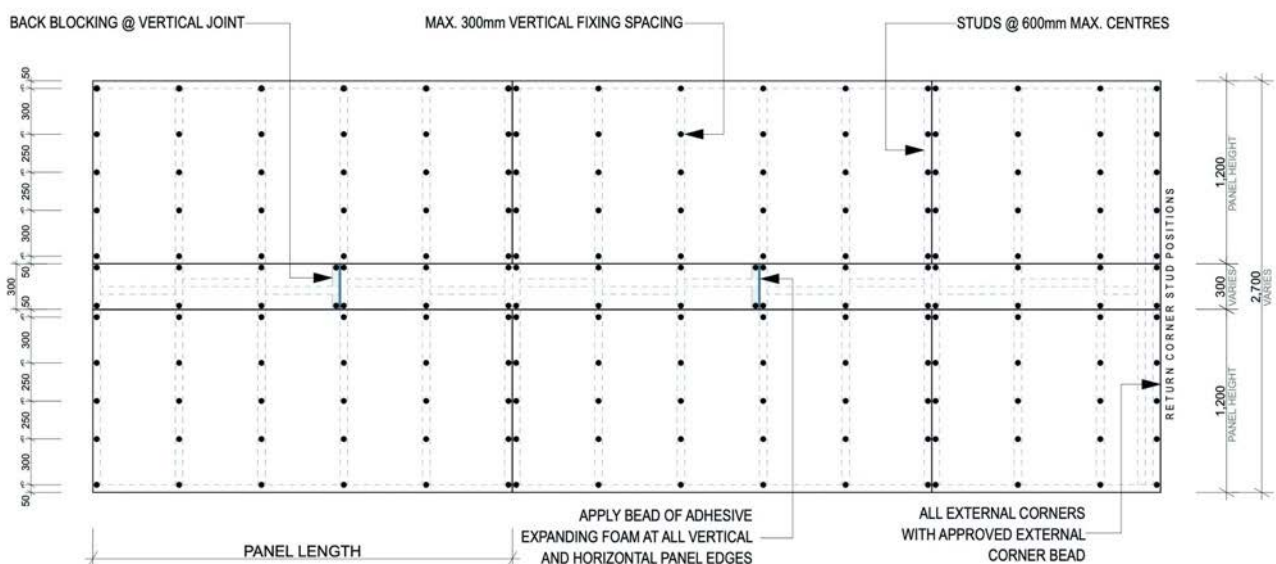
Insulclad Rendered Wall System must be installed in accordance with this Technical Information and Installation Manual and be in accordance with all relevant building codes, Australian Standards and Regulations.

Typical construction details are provided as a guide for construction industry professionals.

These details do not constitute a project specific specification and should only be made use of within the context of the entire project specific documentation. Modifications to these drawings must not be made without the approval of Foamex Polystyrene Pty Ltd.

Typical construction details are provided below.

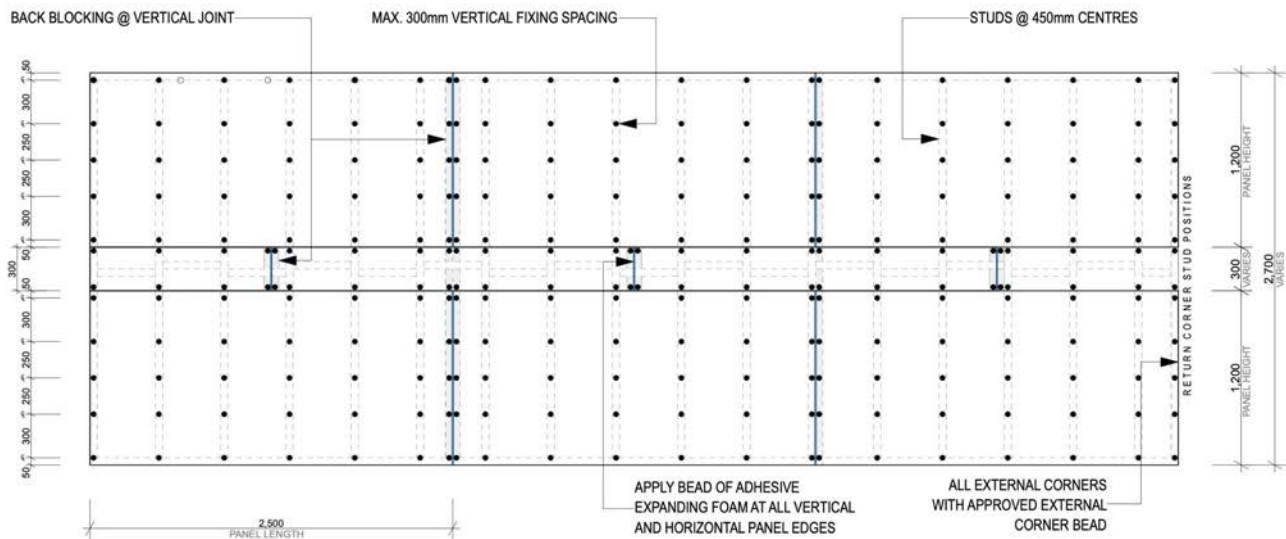
7.1 Typical Panel Layout For 600mm Stud Centres



Note:

- Fixing must be 25mm min. and 50mm max. from the edge of the panel.
- Back blocking must be of similar specification as the stud and rigidly connected to the stud, or to the top plate, noggin, and bottom plate.

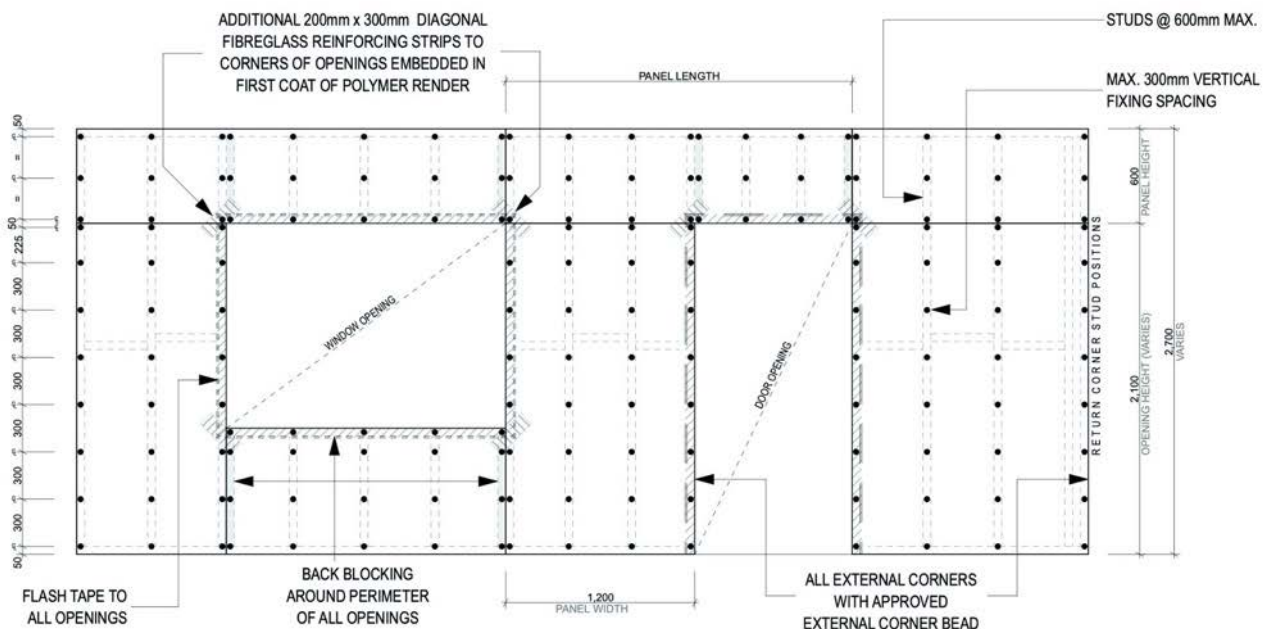
7.2 Typical Panel Layout For 450mm Stud Centres



Note:

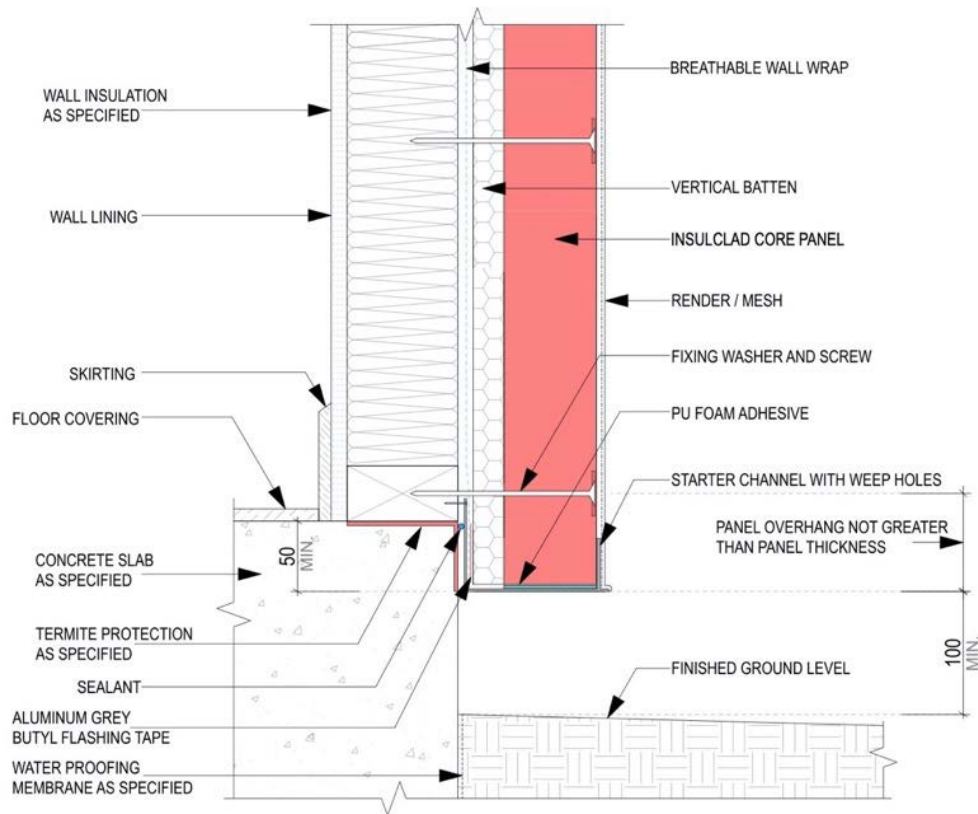
- Fixing must be 25mm min. and 50mm max. from the edge of the panel.
- Back blocking must be of similar specification as the stud and rigidly connected to the stud, or to the top plate, noggin and bottom plate.

7.3 Typical Panel Layout For Openings

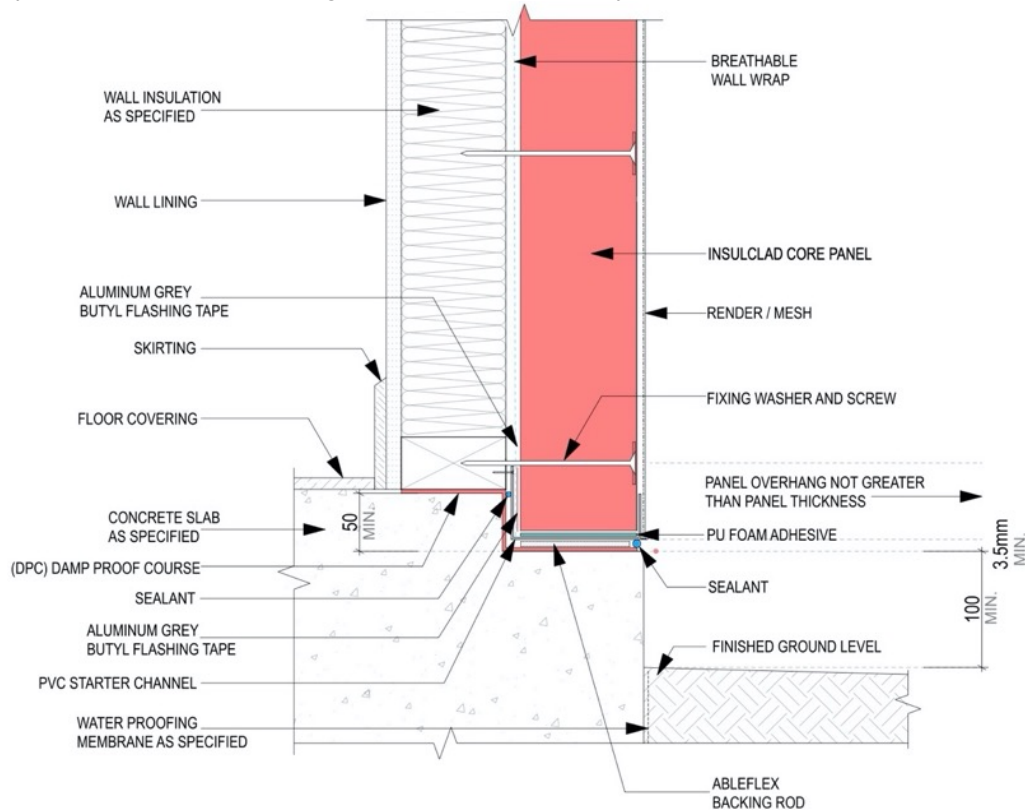


7.4 Concrete Slab Edge Detail

Typical Concrete Slab Edge Detail – Cavity System

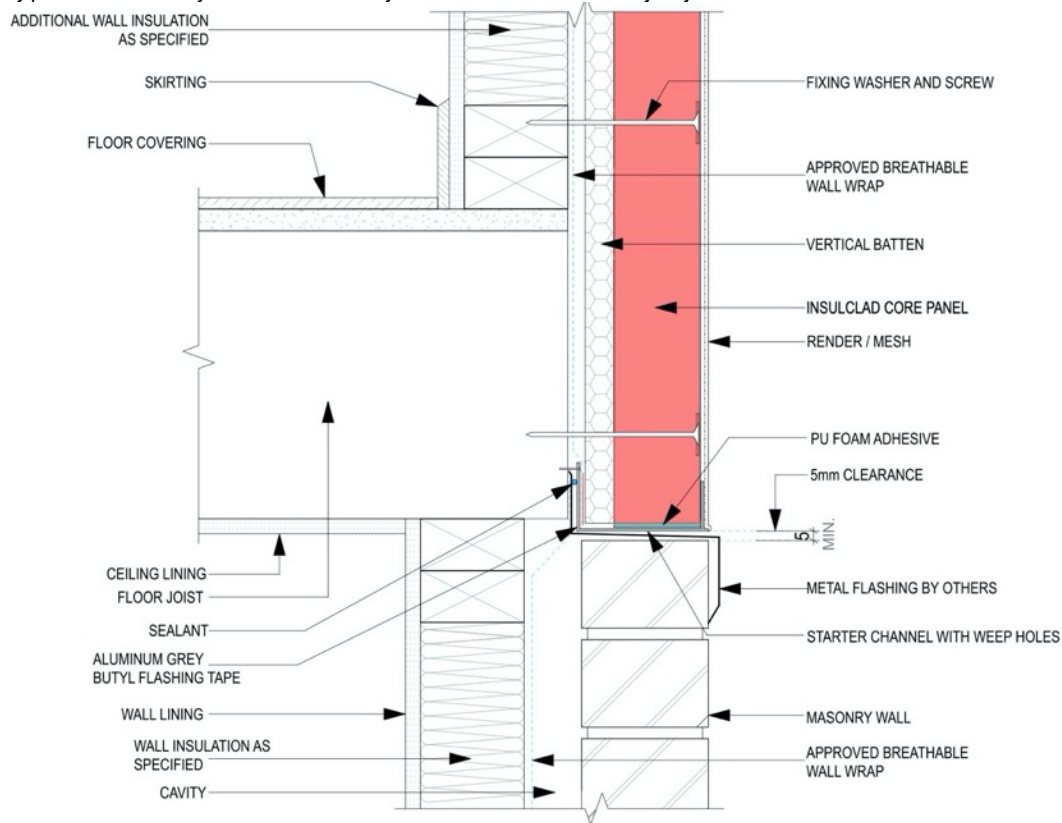


Typical Concrete Slab Edge Detail – Direct Fix System

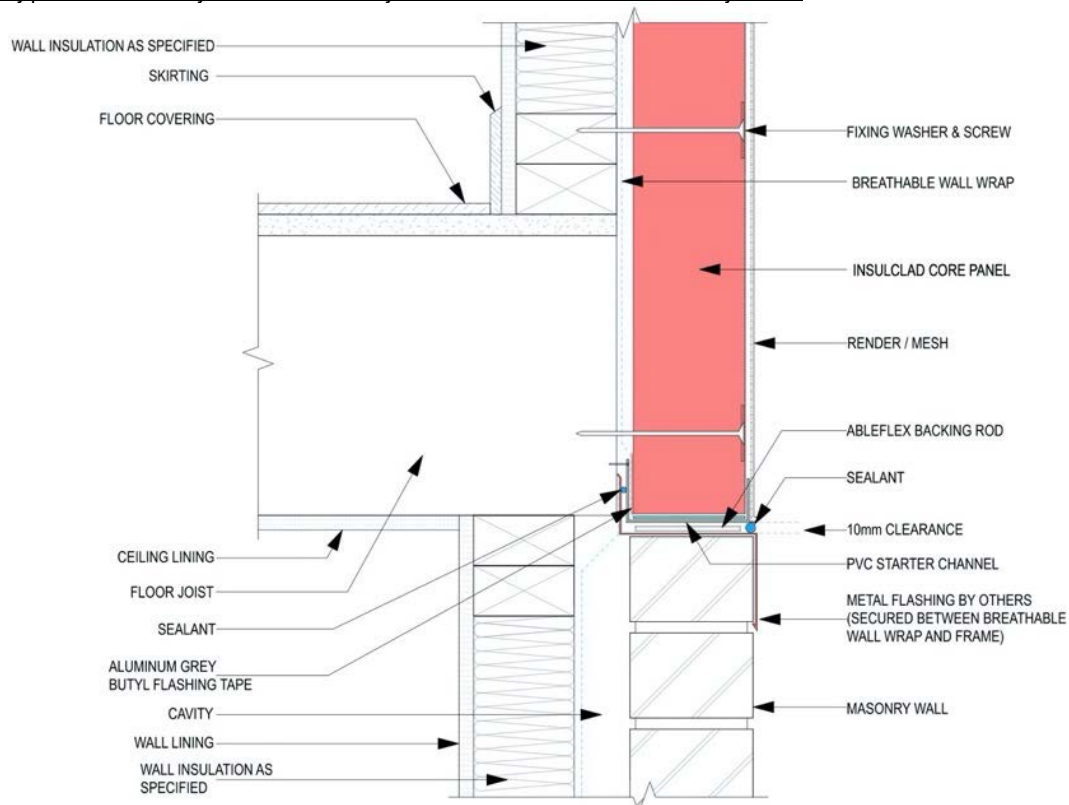


7.5 Panel Over Masonry Wall

Typical Masonry Over Masonry Wall Detail – Cavity System

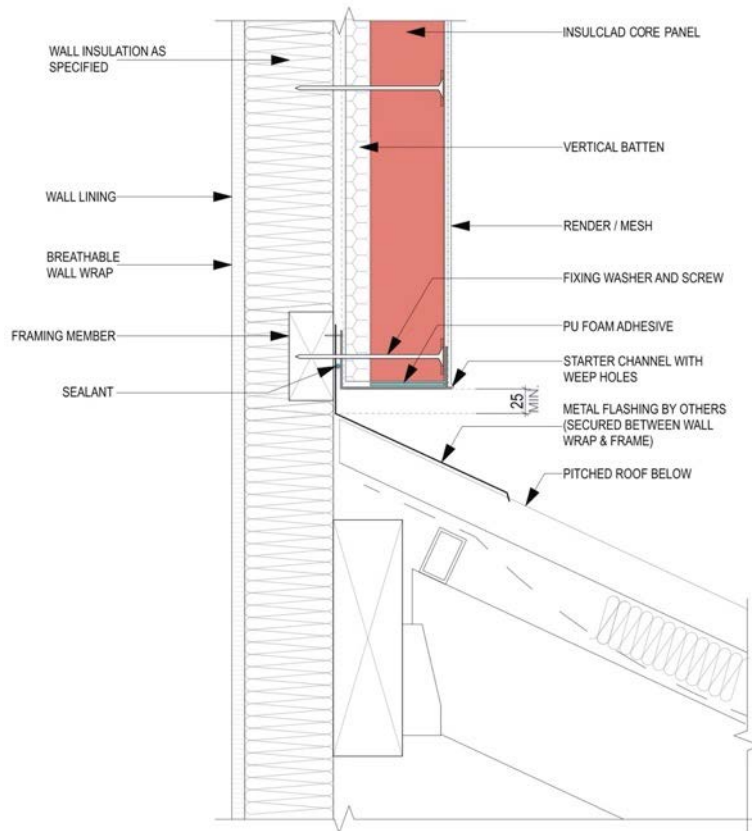


Typical Masonry Over Masonry Wall Detail – Direct Fix System

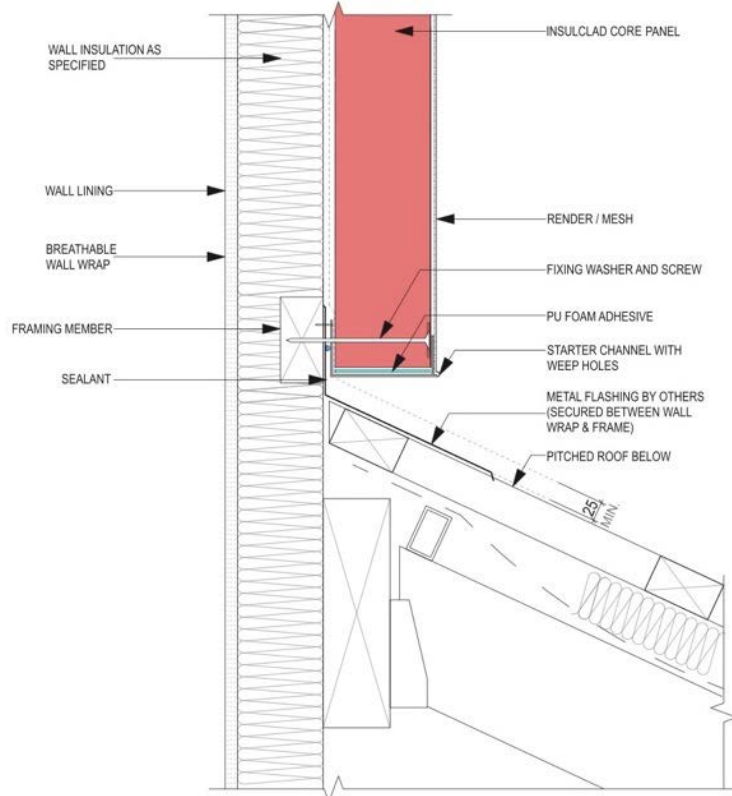


7.6 Wall Over Roof

Typical Wall Over Roof Detail – Cavity System

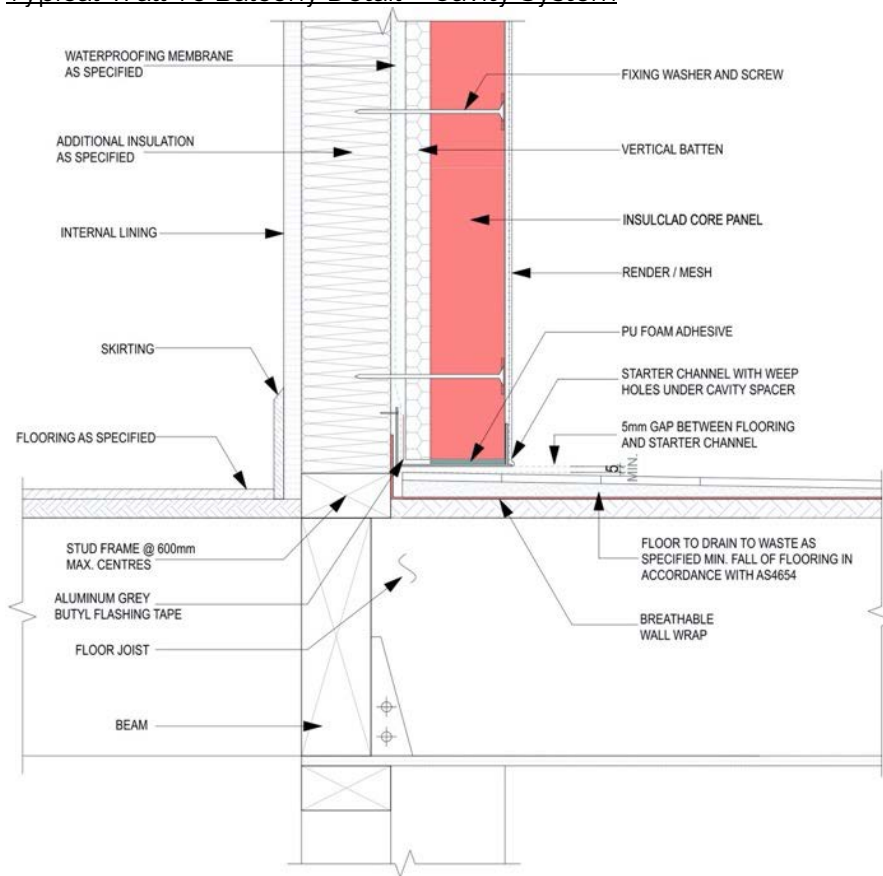


Typical Wall Over Roof Detail – Direct Fix System

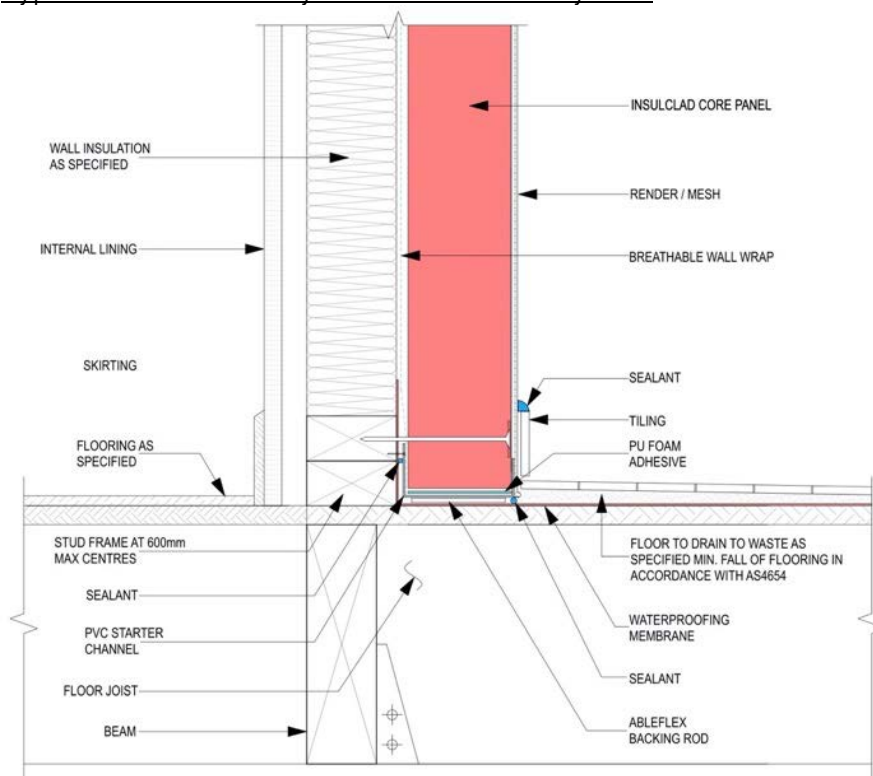


7.7 Wall To Balcony

Typical Wall To Balcony Detail – Cavity System

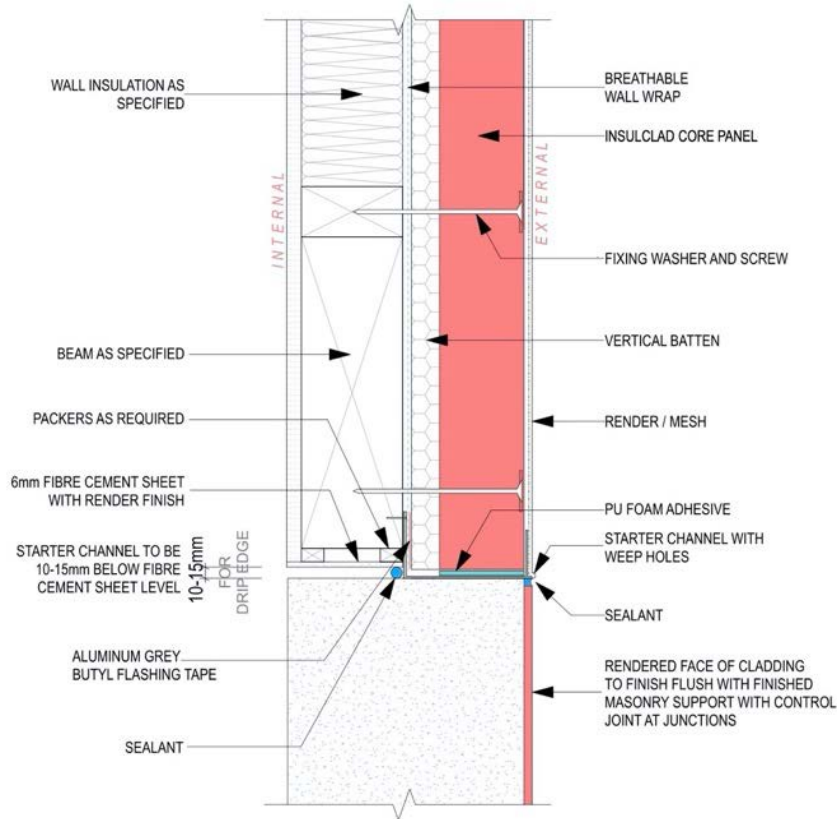


Typical Wall To Balcony Detail – Direct Fix System

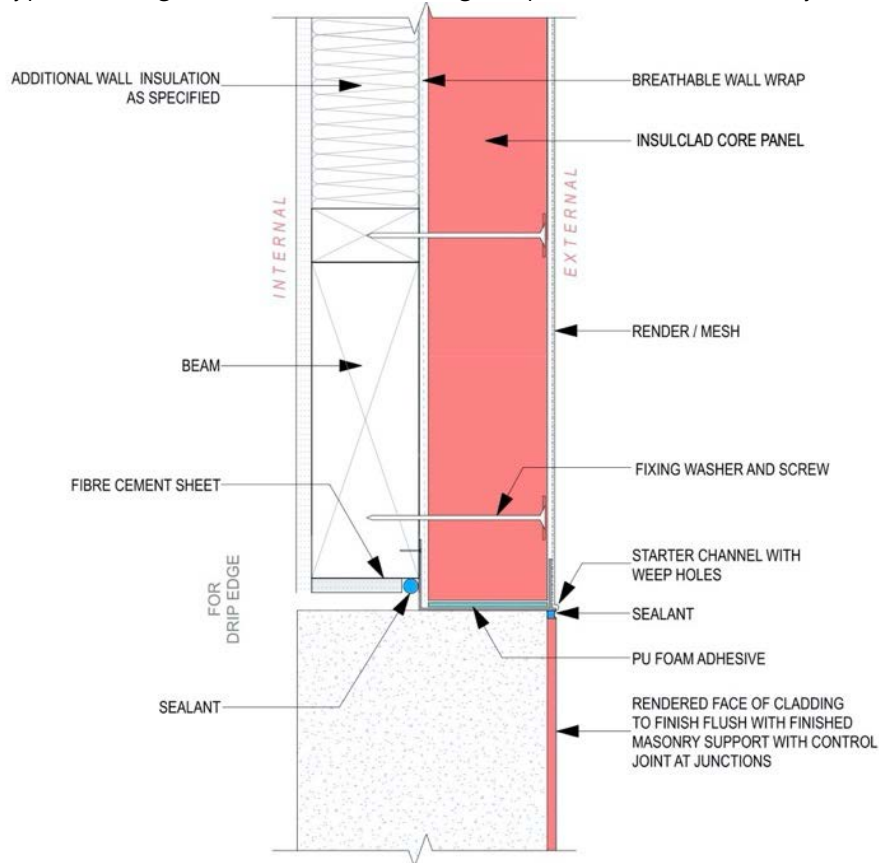


7.8 Garage/Bulkhead/Overhang/Drip

Typical Garage/Bulkhead/Overhang/Drip Detail – Cavity System

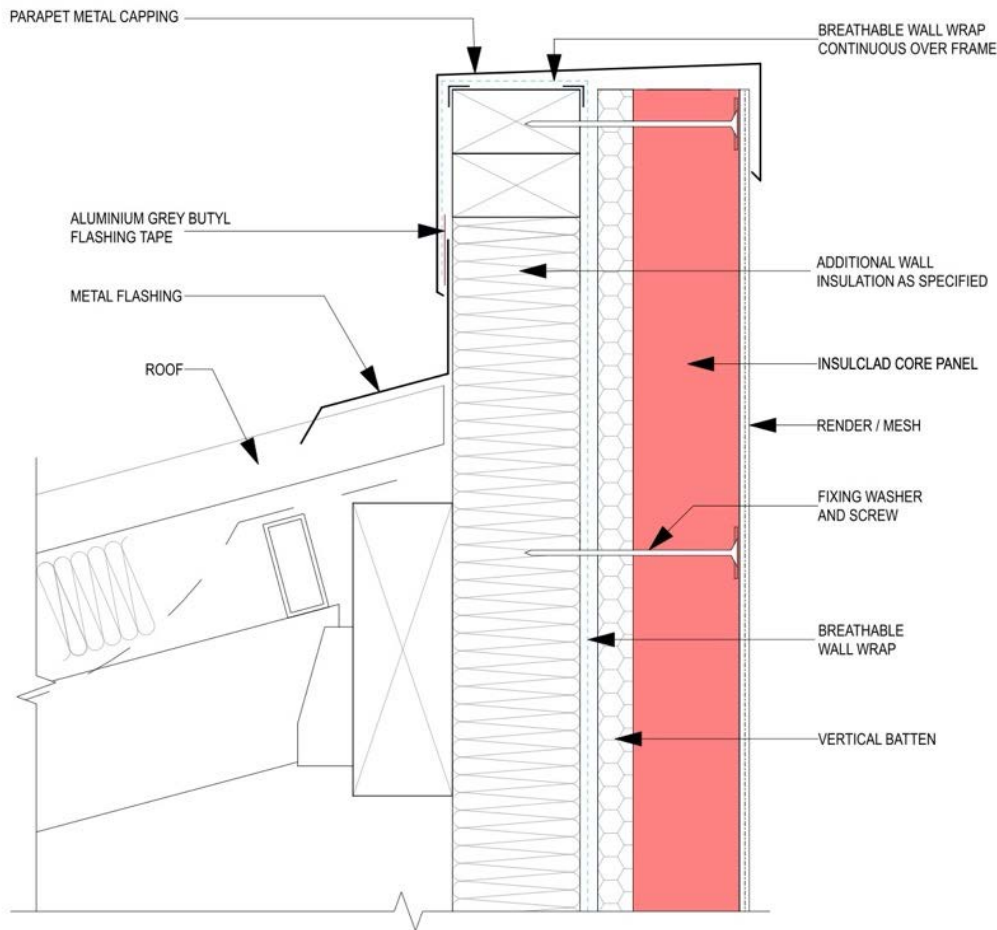


Typical Garage/Bulkhead/Overhang/Drip Detail – Direct Fix System

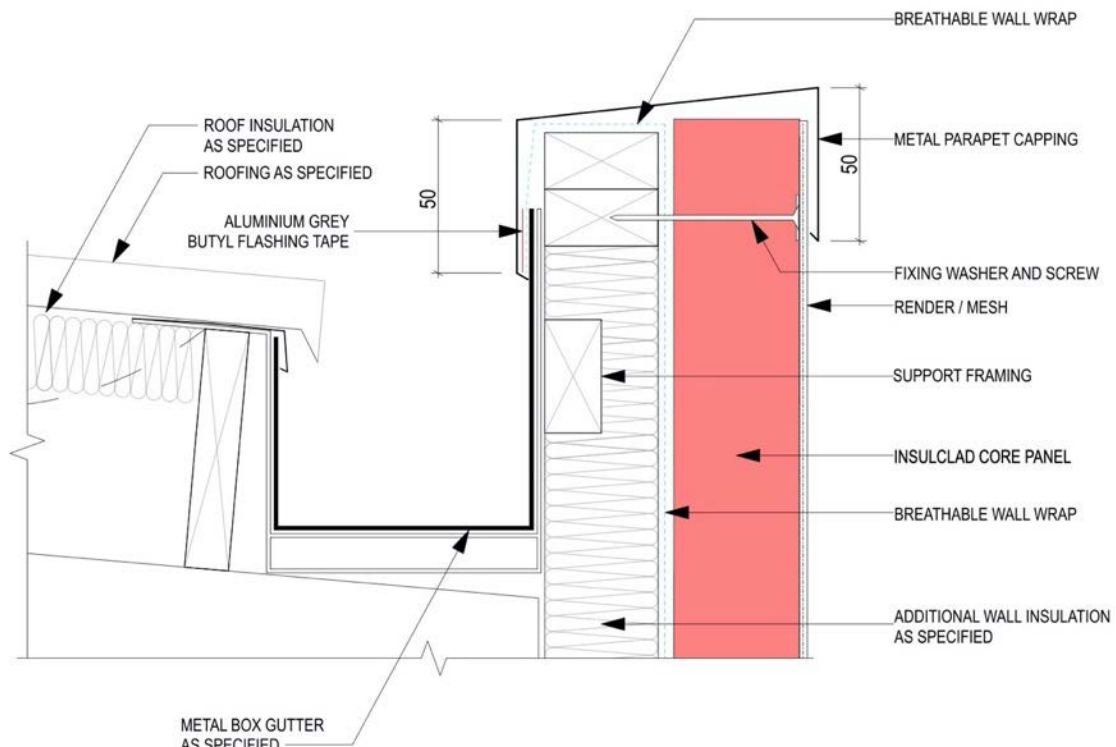


7.9 Metal Capping Parapet Wall To Roof

Typical Metal Capping Parapet Wall To Roof Detail – Cavity System

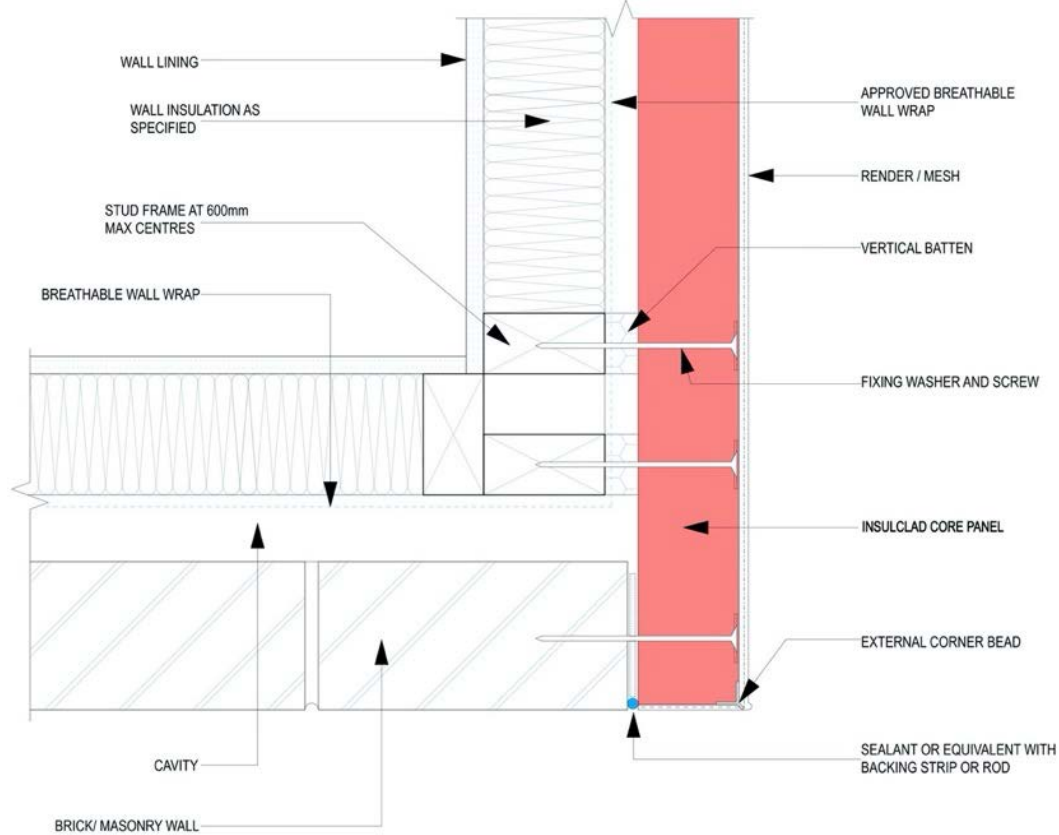


Typical Metal Capping Parapet Wall To Roof Detail – Direct Fix System

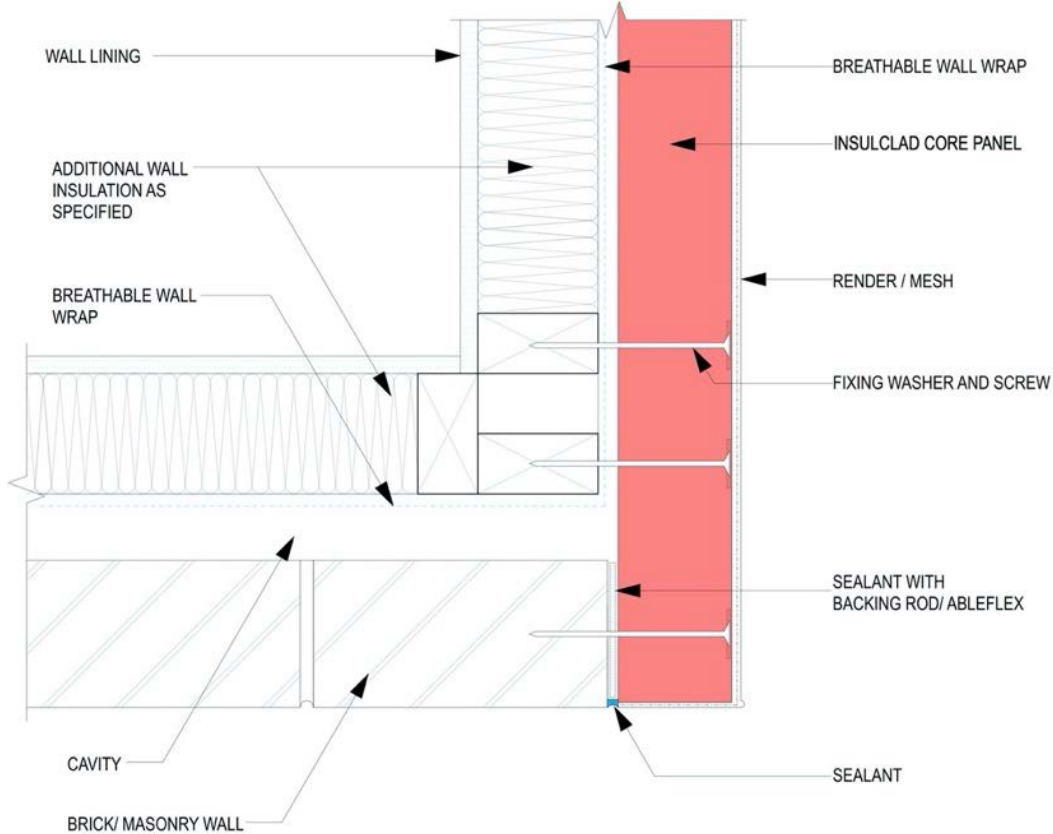


7.10 Junction To Masonry Wall

Typical Junction To Masonry Wall Detail – Cavity System

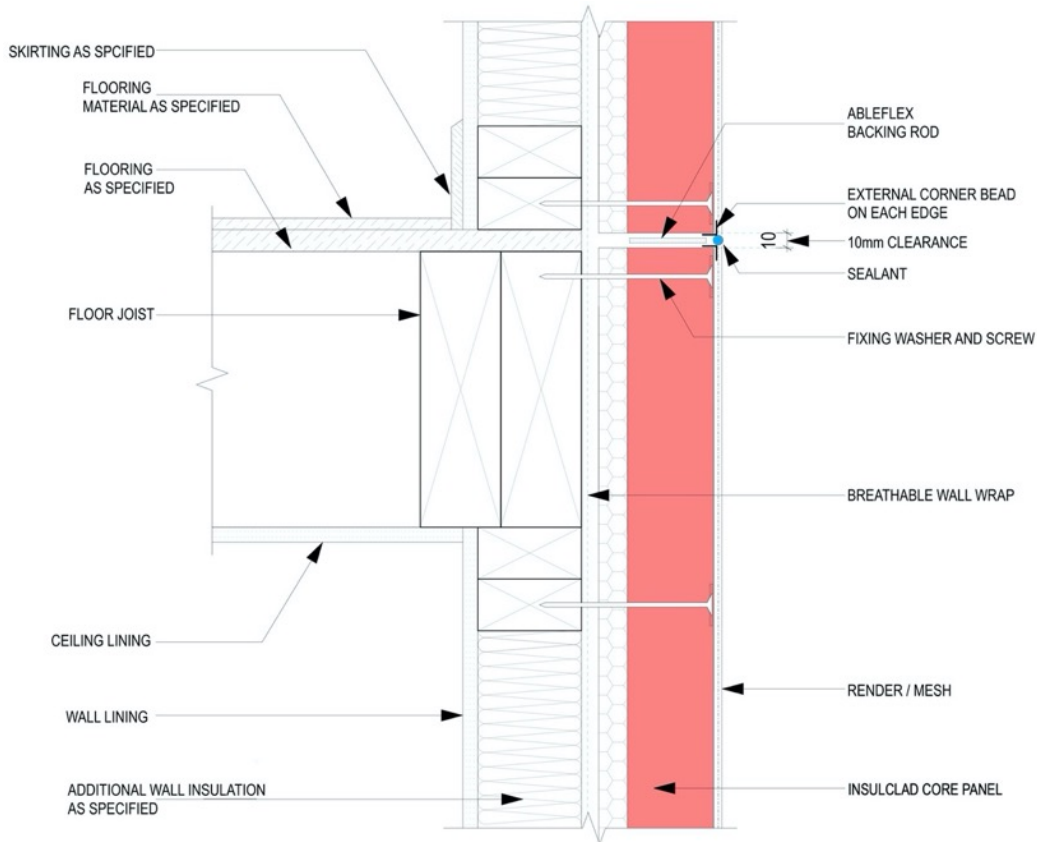


Typical Junction To Masonry Wall Detail – Direct Fix System

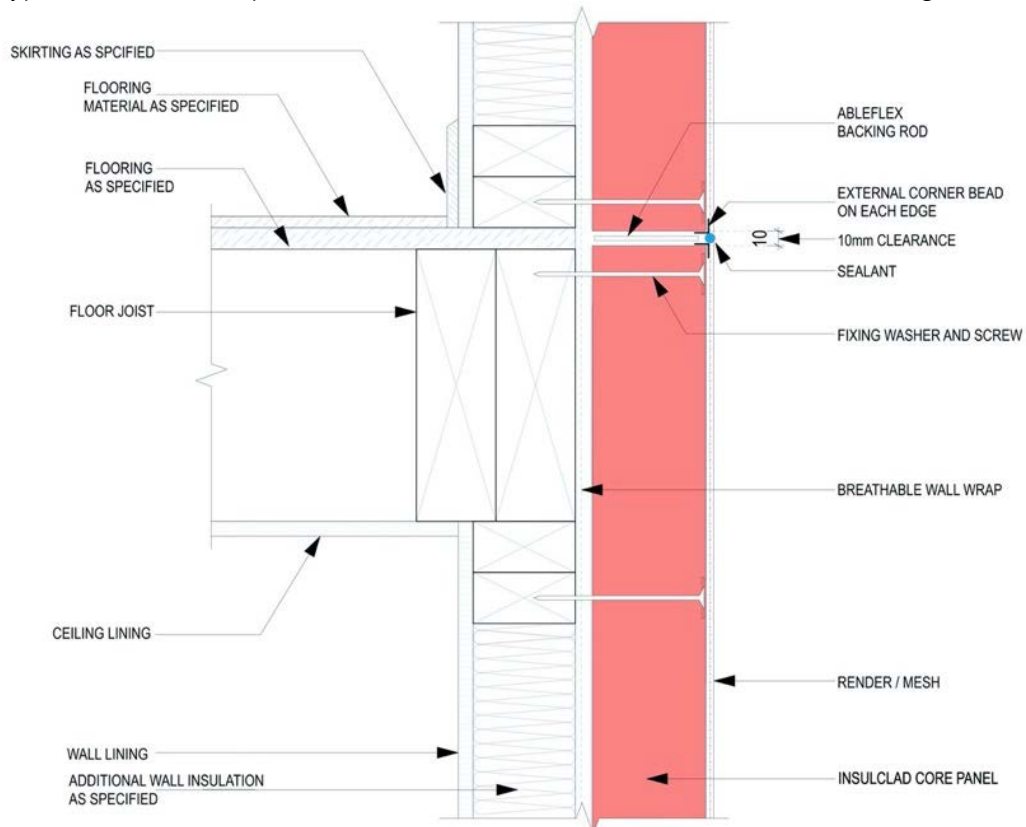


7.11 Horizontal Expansion Joint

Typical Horizontal Expansion Joint Detail External Corner Beads on each edge – Cavity System

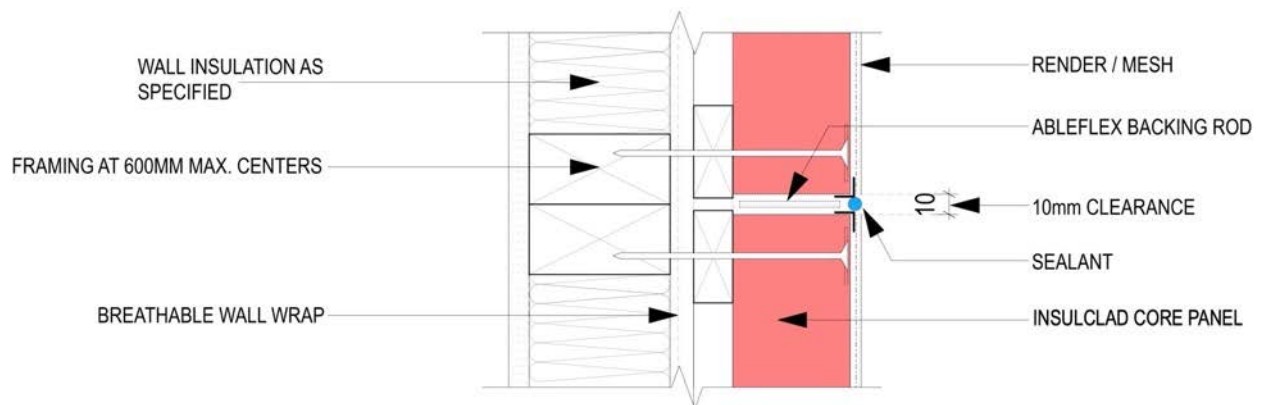


Typical Horizontal Expansion Joint Detail External Corner Beads on each edge – Direct Fix System

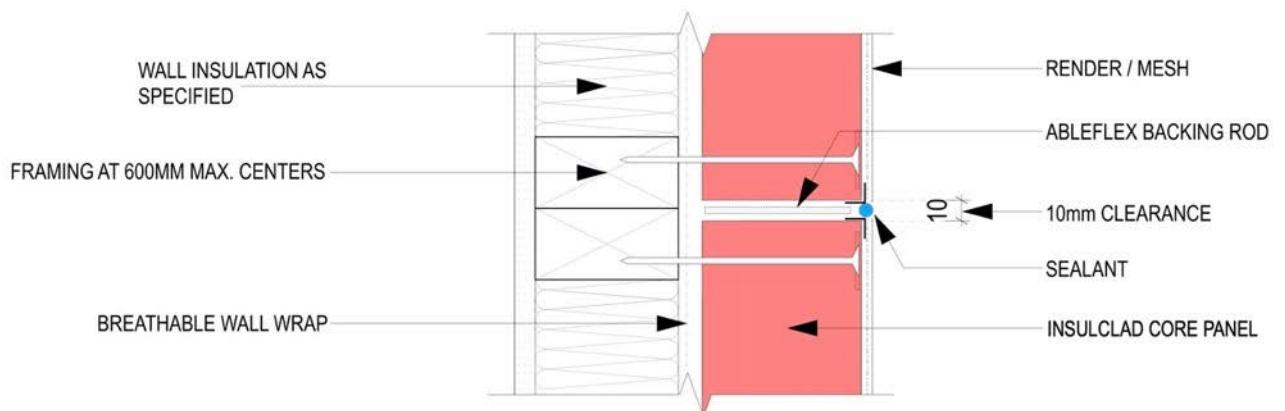


7.12 Vertical Expansion Joint

Typical Vertical Expansion Joint Detail External Corner Beads on each edge – Cavity System

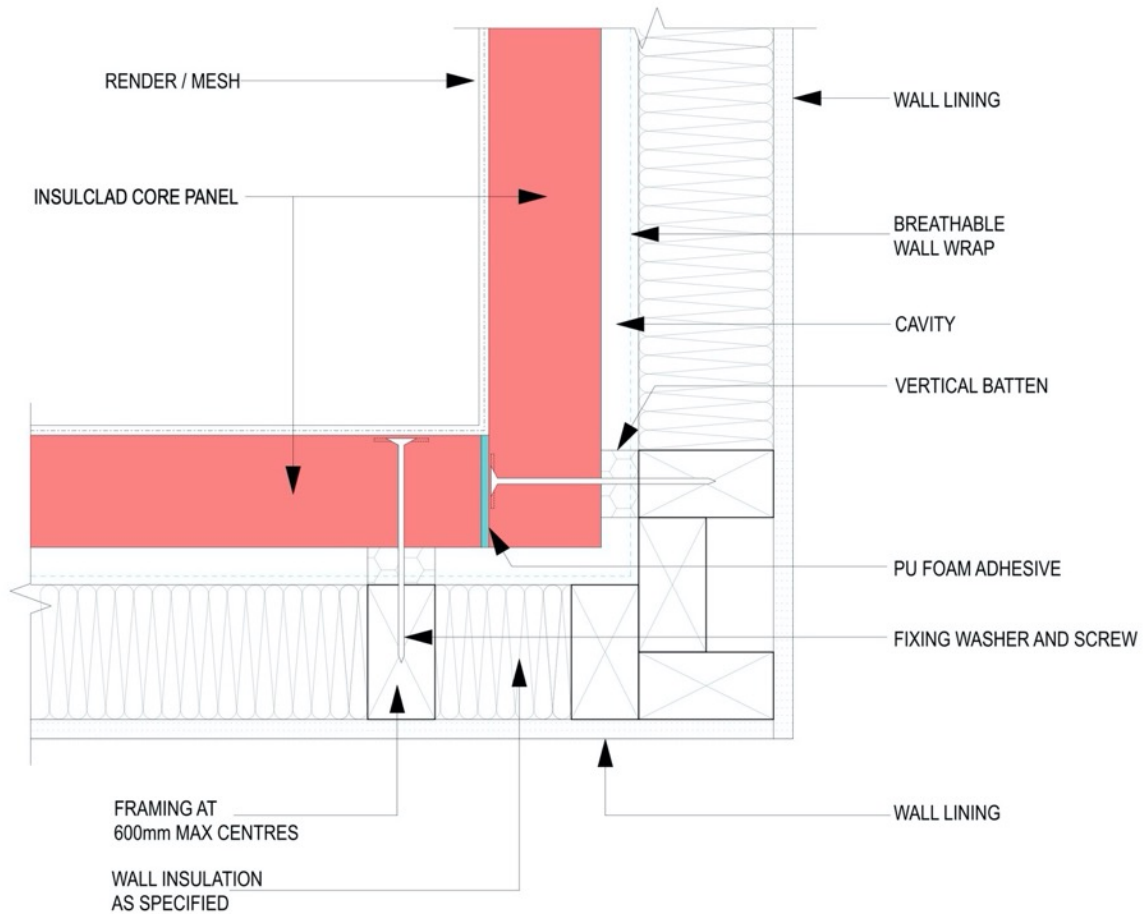


Typical Vertical Expansion Joint Detail External Corner Beads on each edge – Direct Fix System

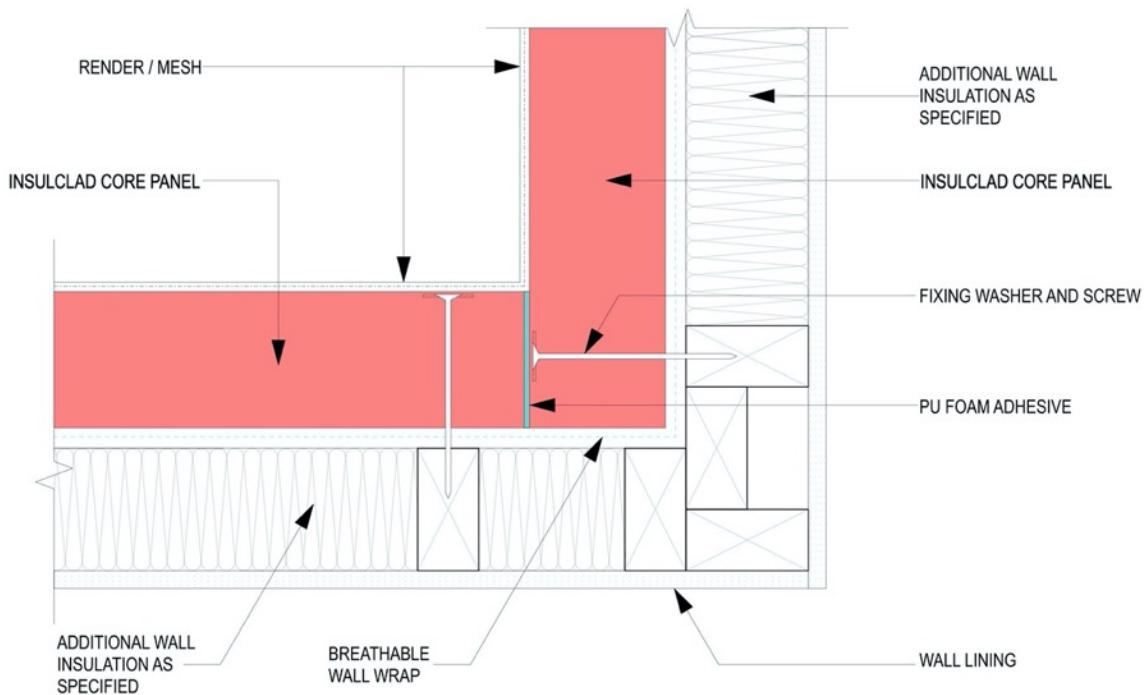


7.13 Internal Corner

Typical Internal Corner Detail – Cavity System

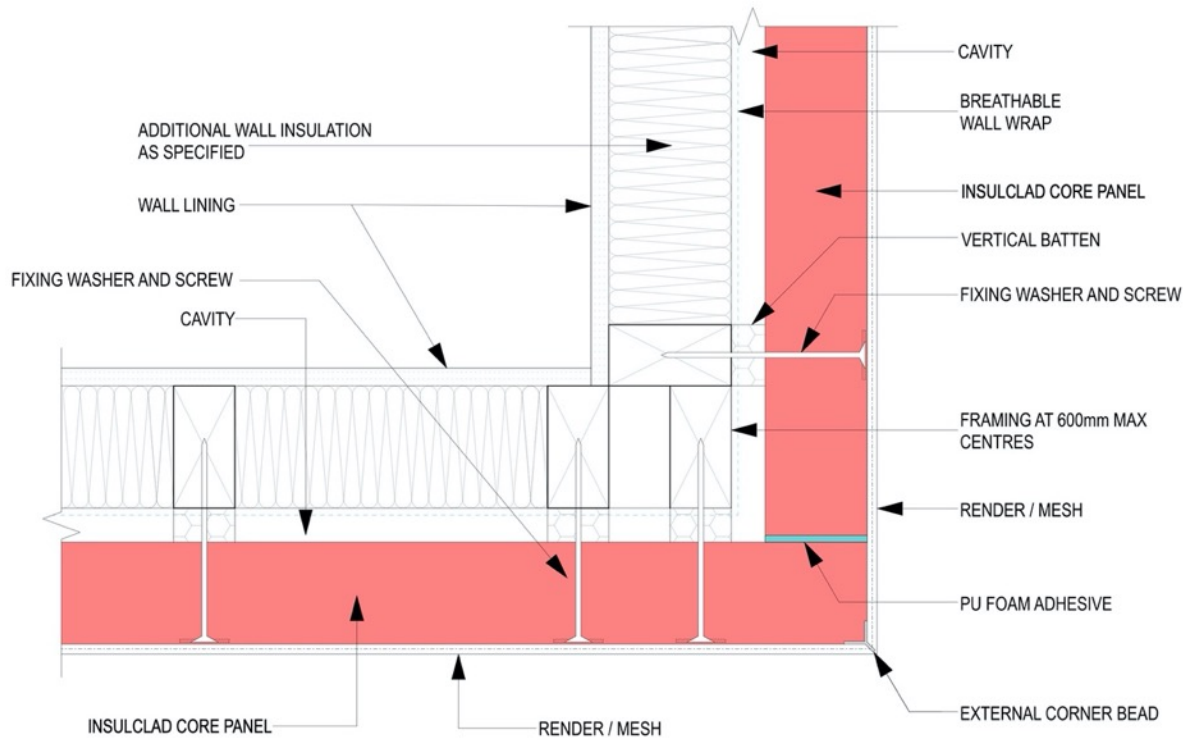


Typical Internal Corner Detail – Direct Fix System

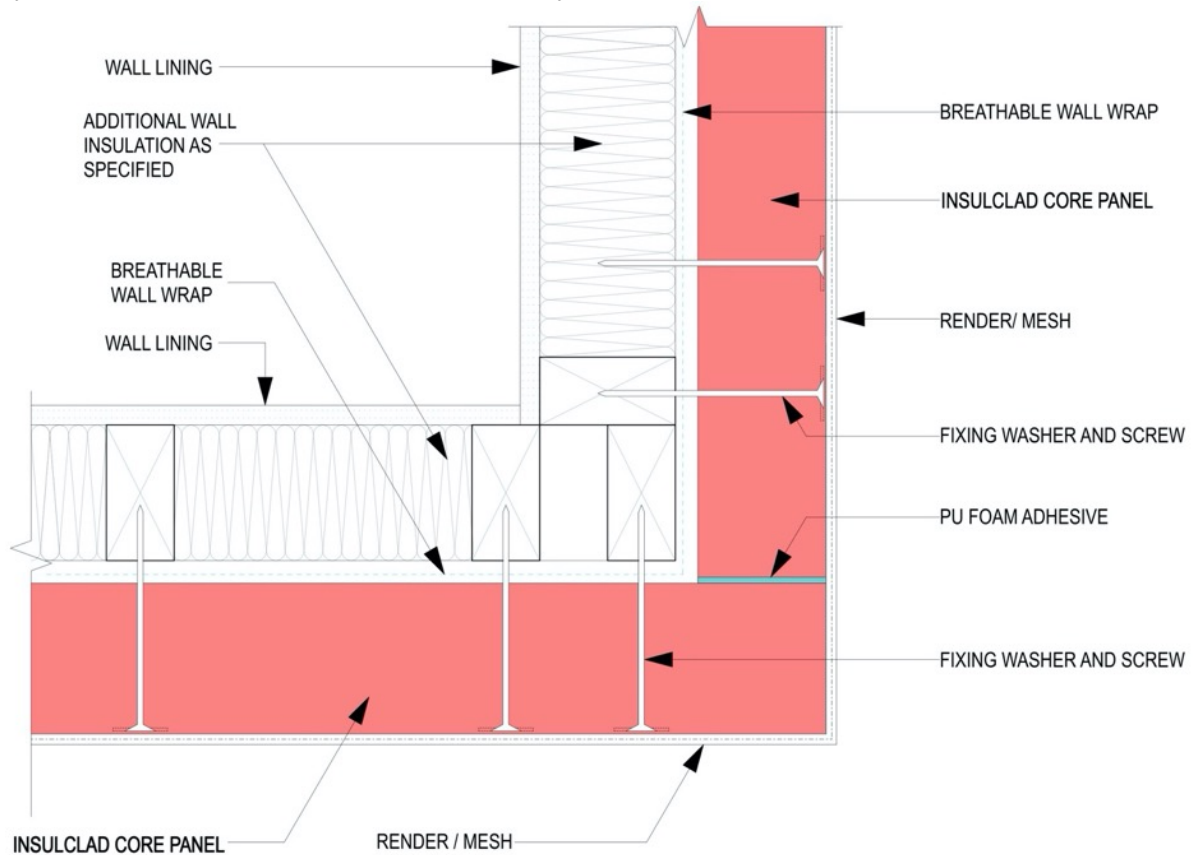


7.14 External Corner

Typical External Corner Detail – Cavity System

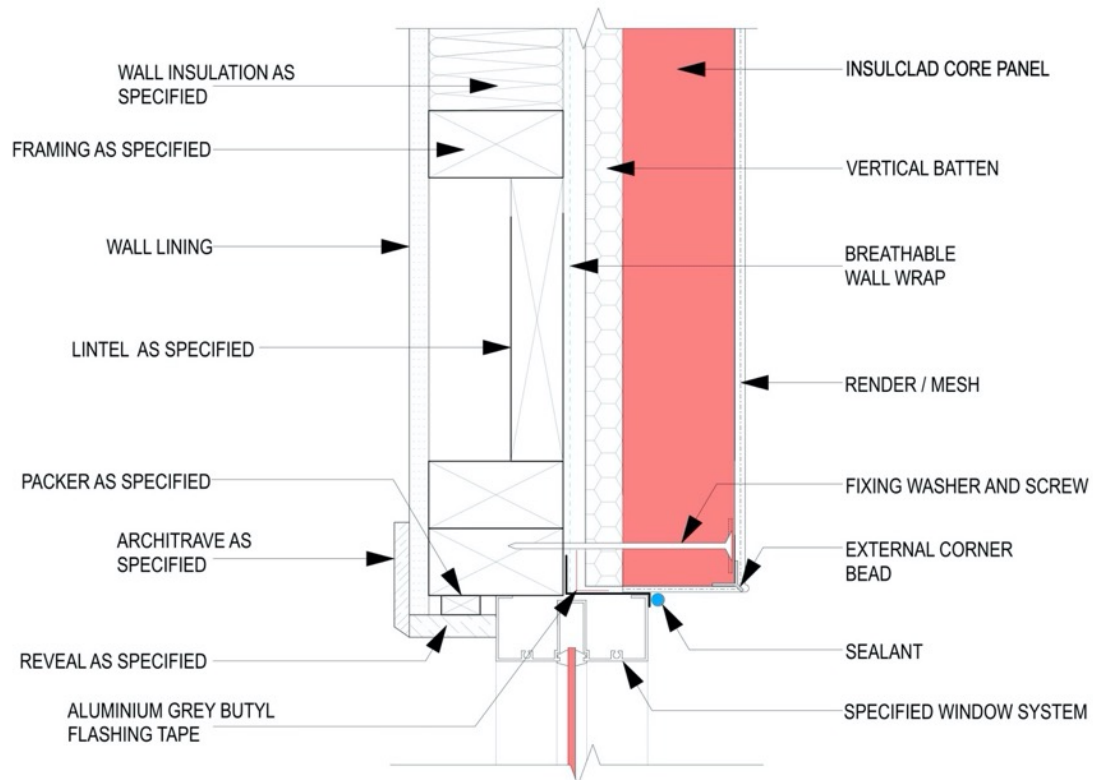


Typical External Corner Detail – Direct Fix System

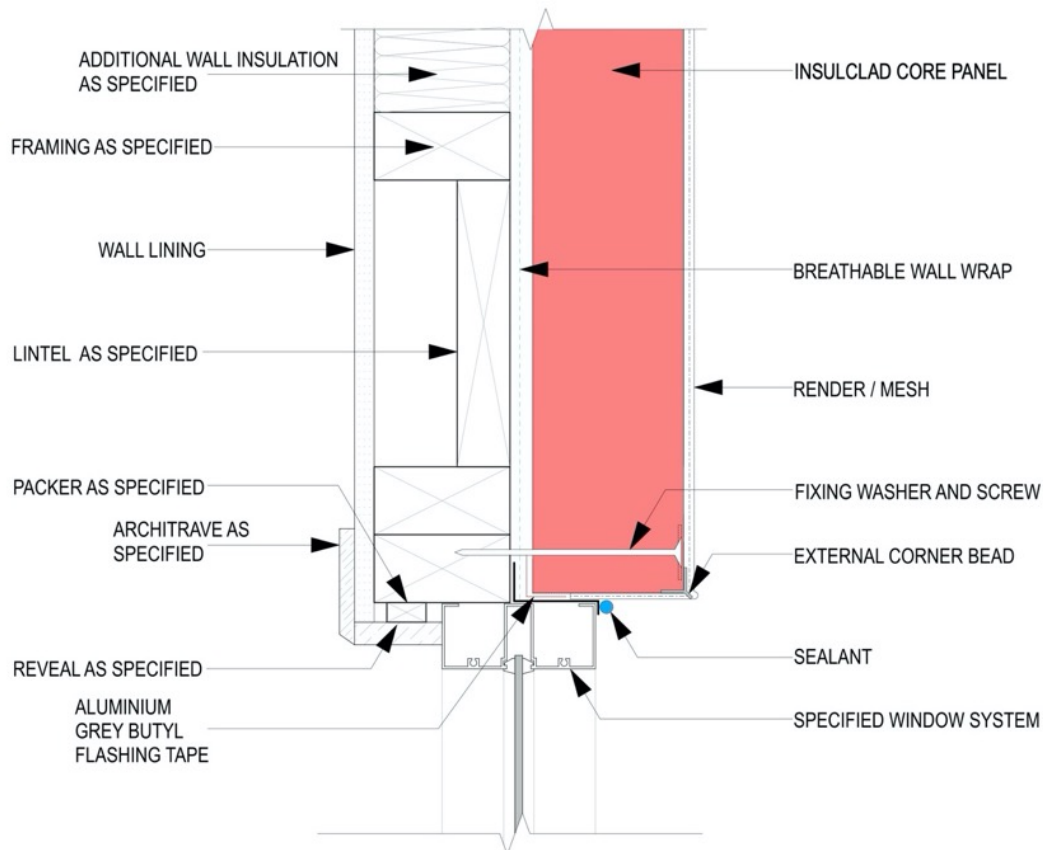


7.15 Window Head

Typical Window Head Detail – Cavity System

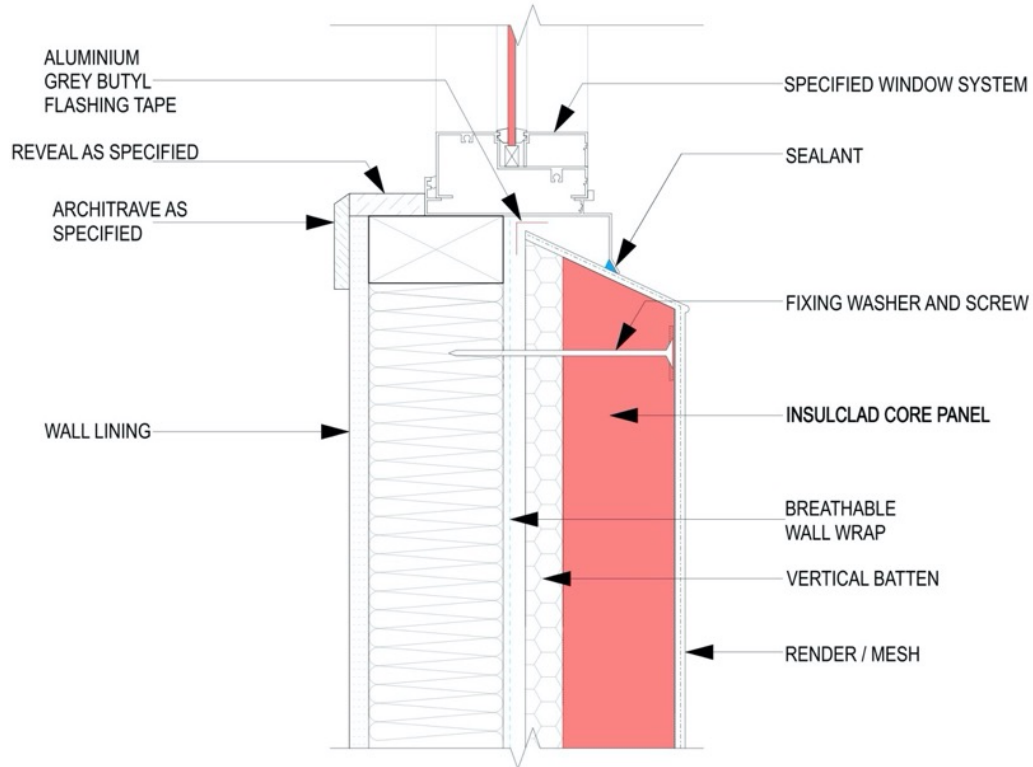


Typical Window Head Detail – Direct Fix System

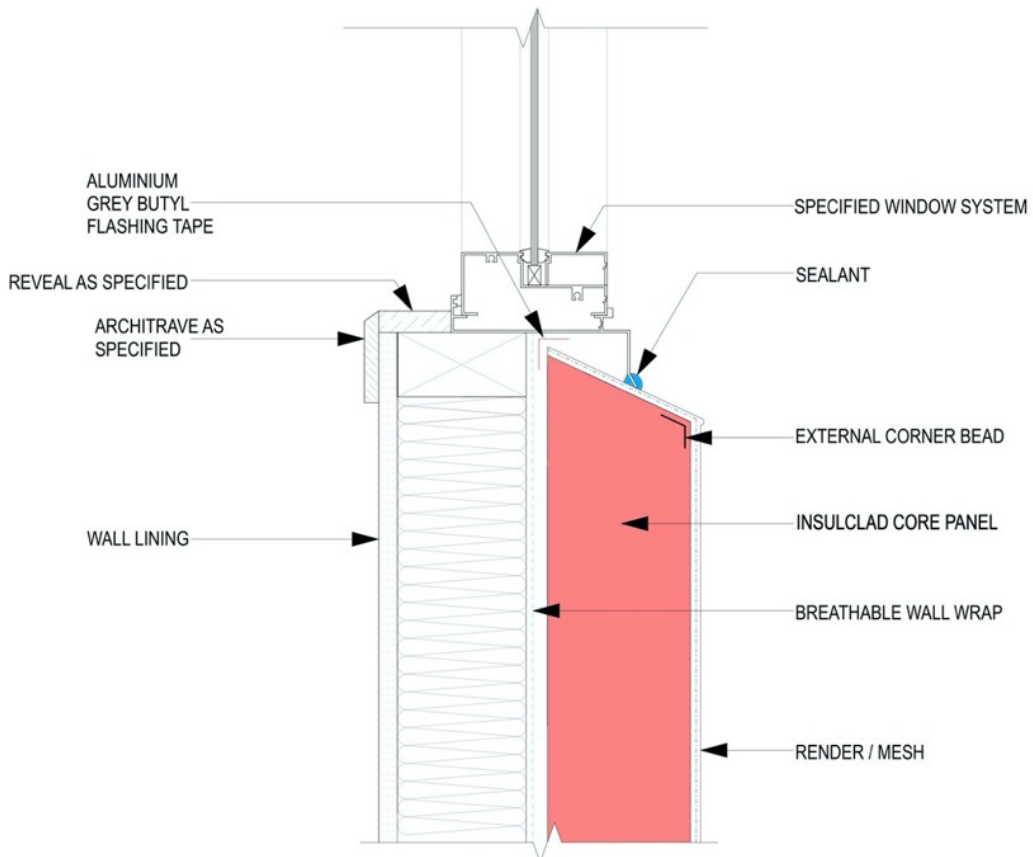


7.16 Windowsill

Typical Windowsill Detail – Cavity System

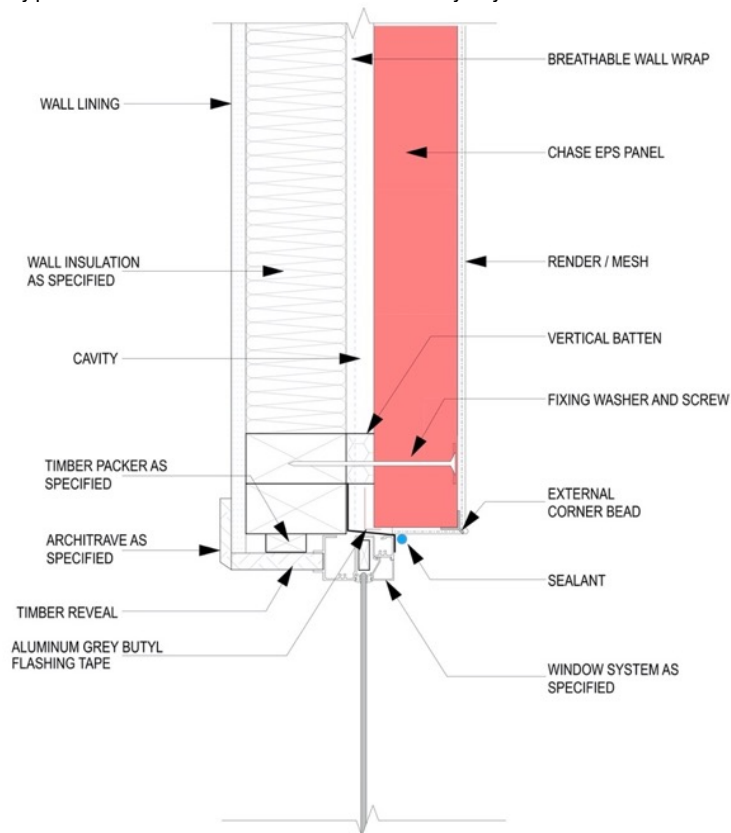


Typical Windowsill Detail – Direct Fix System

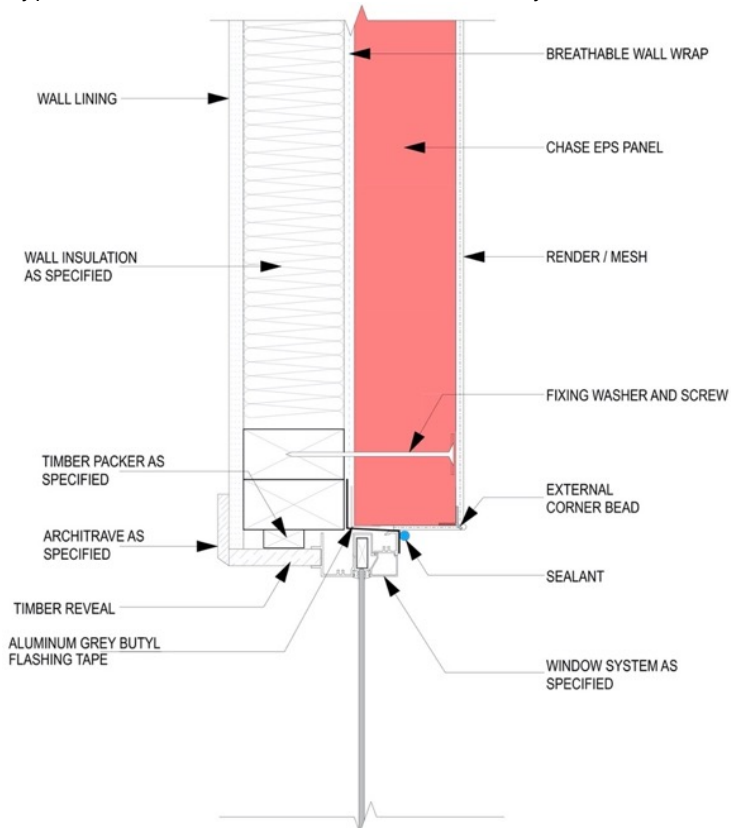


7.17 Window Jam

Typical Window Jam Detail – Cavity System

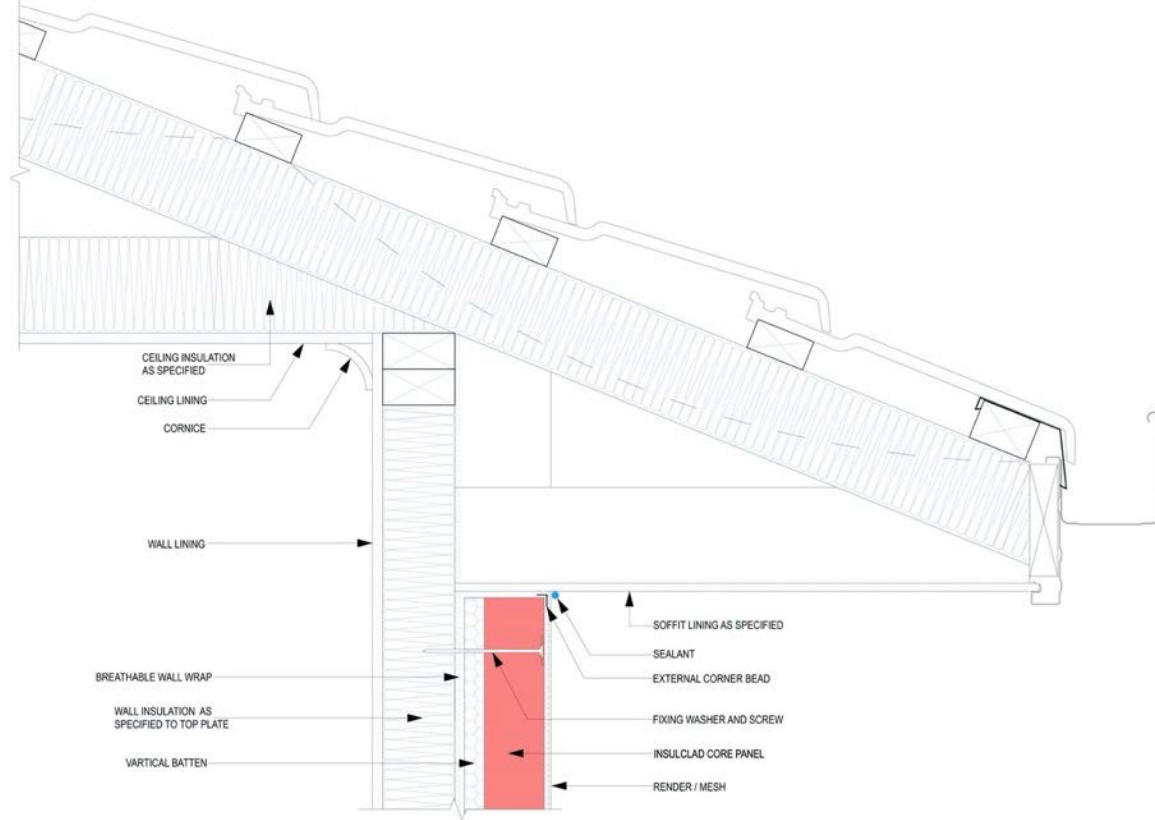


Typical Window Jam Detail – Direct Fix System

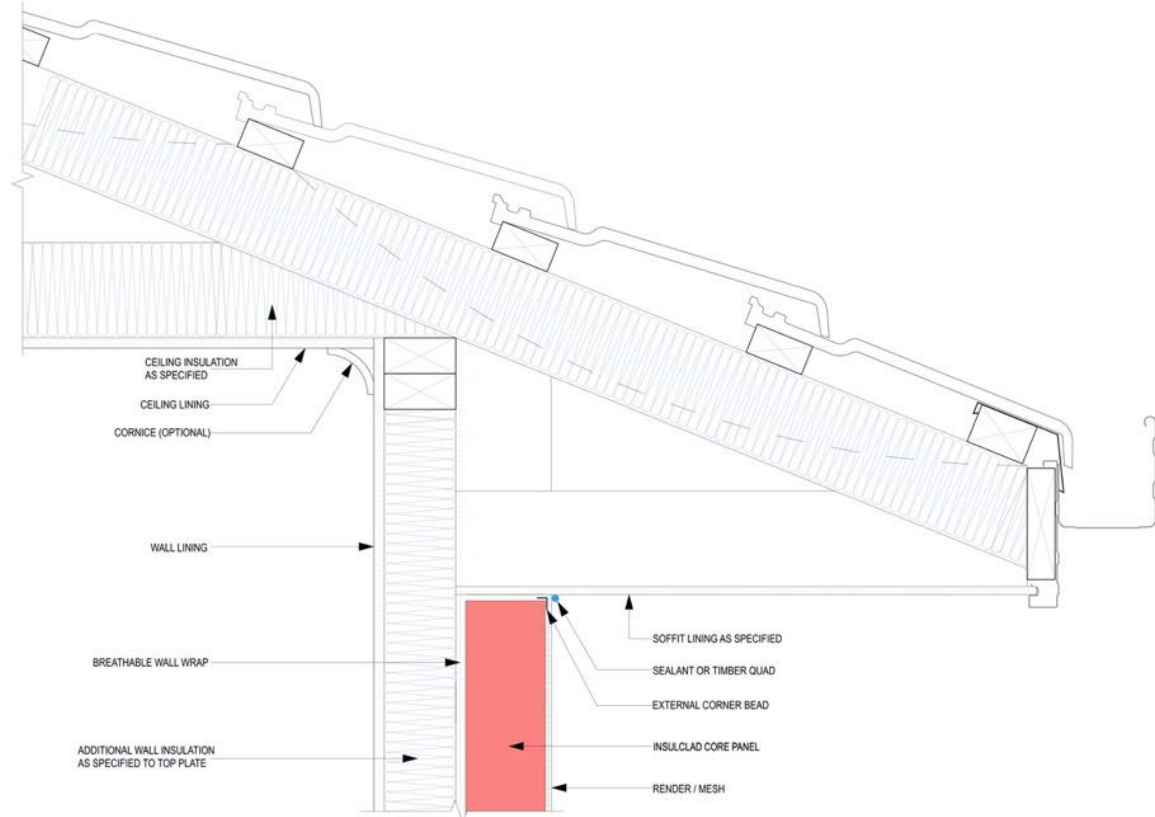


7.18 Eave Soffit

Typical Eave Soffit Detail – Cavity System

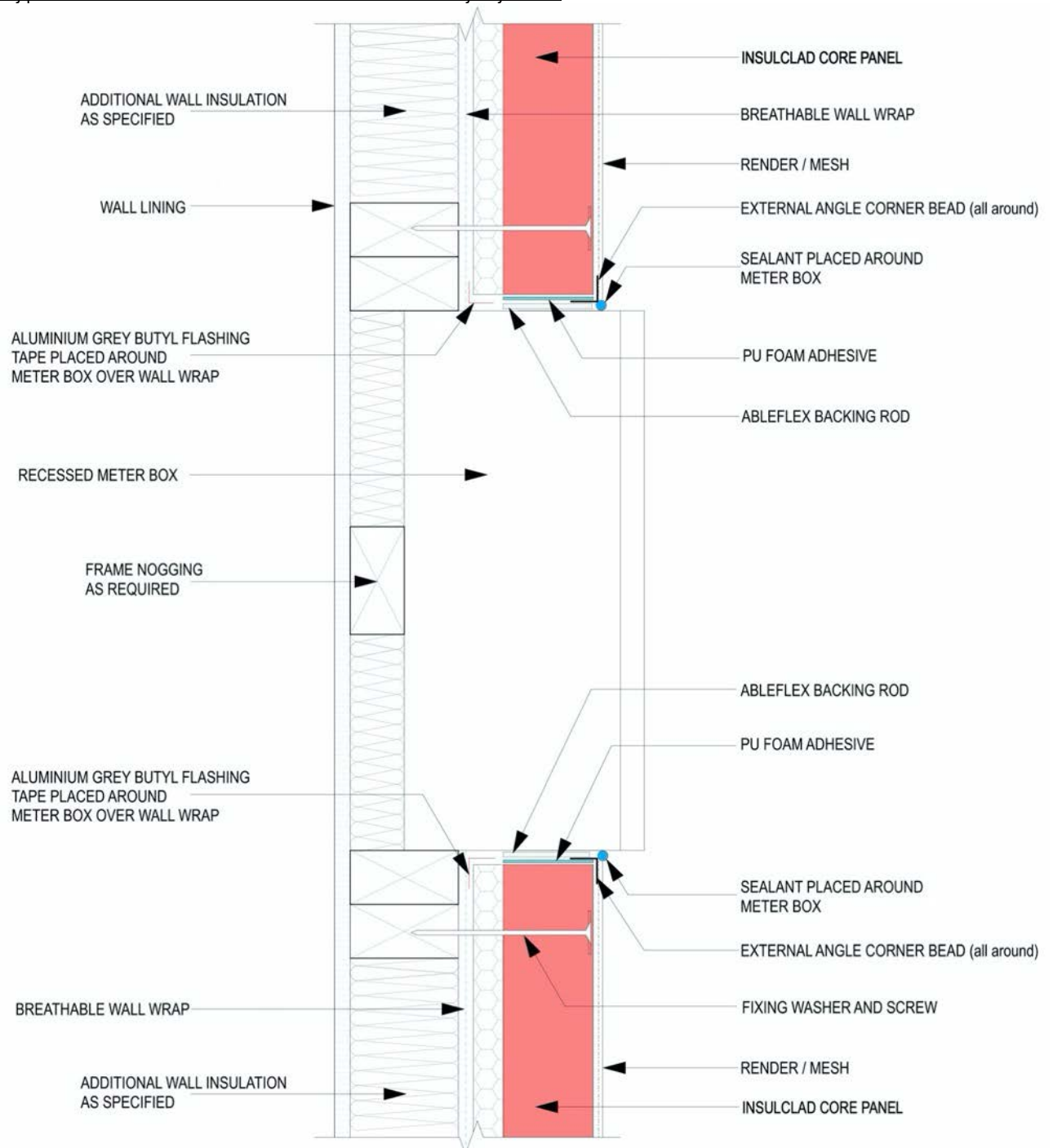


Typical Eave Soffit Detail – Direct Fix System

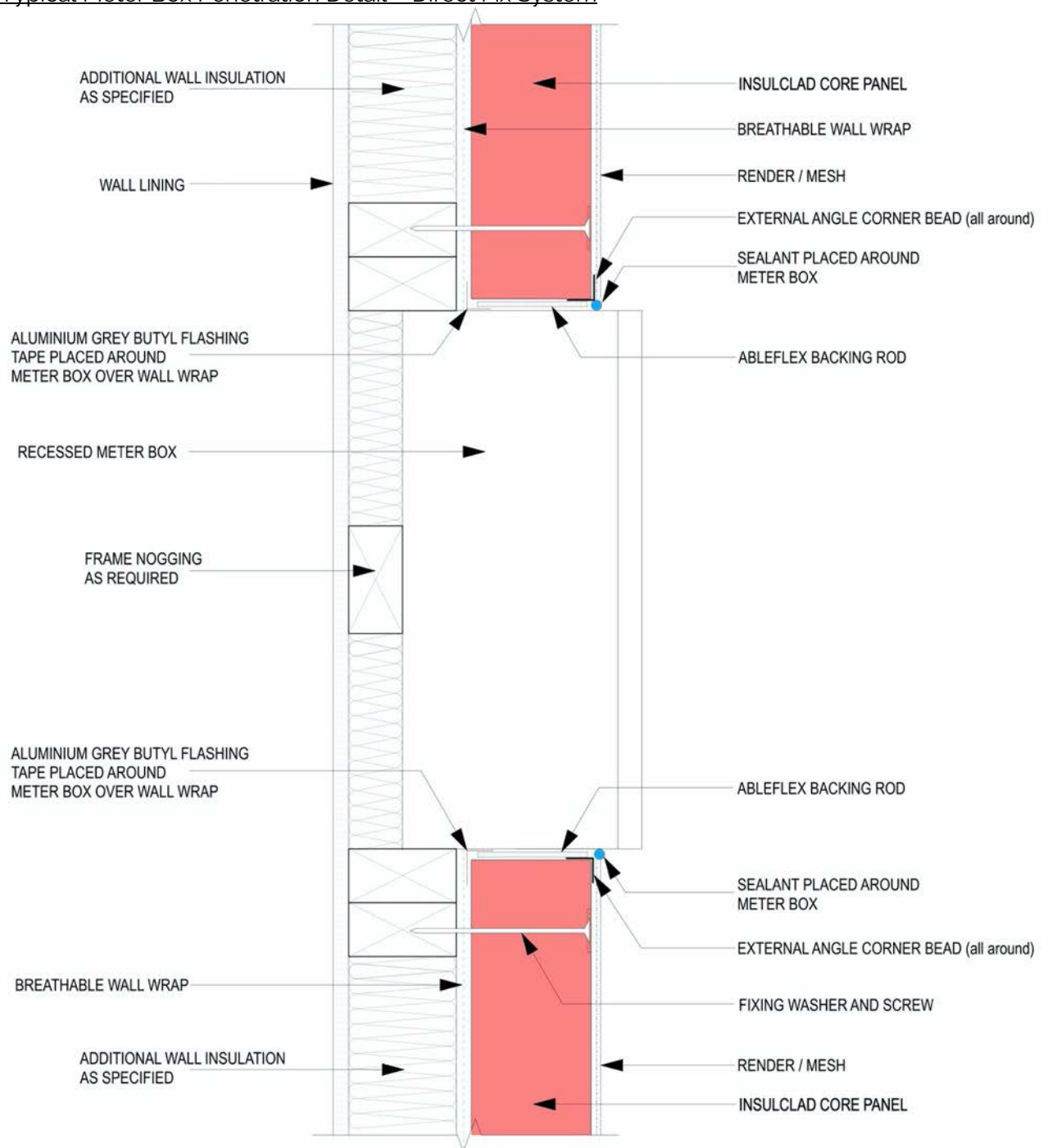


7.19 Large Penetration

Typical Meter Box Penetration Detail – Cavity System

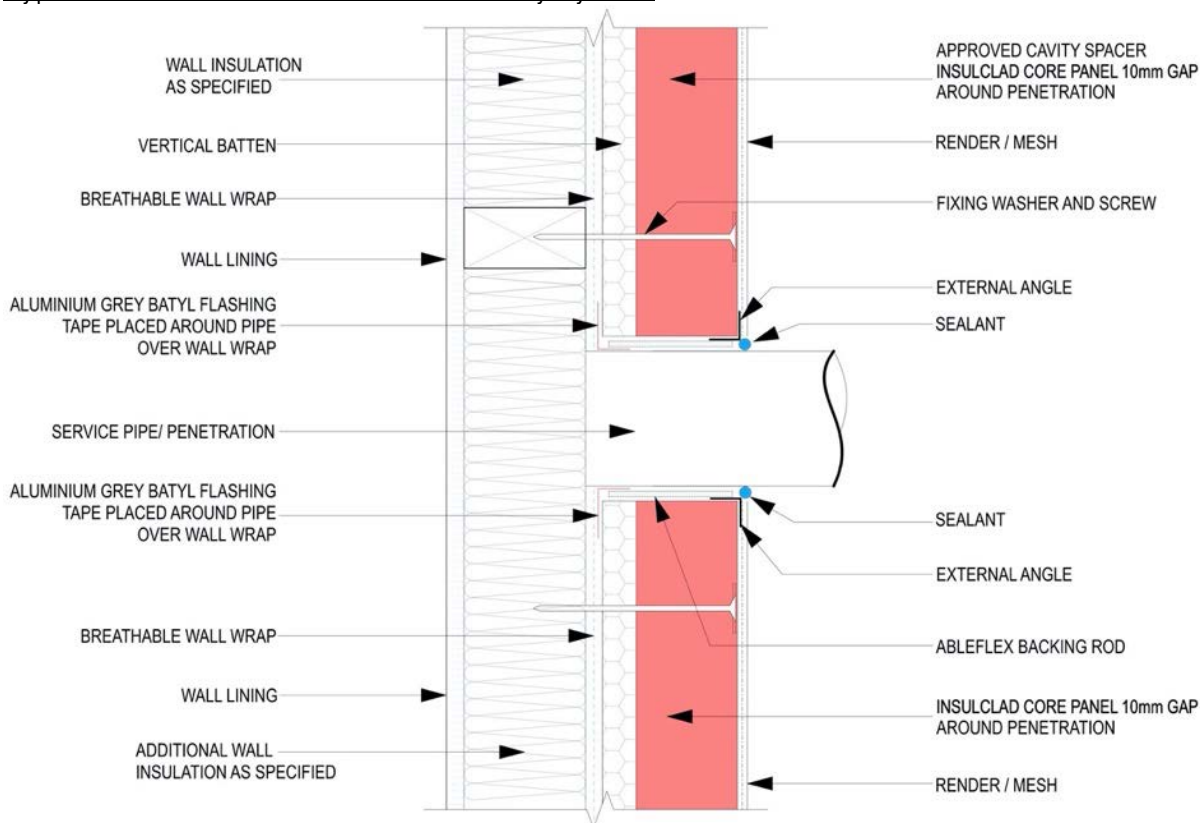


Typical Meter Box Penetration Detail – Direct Fix System

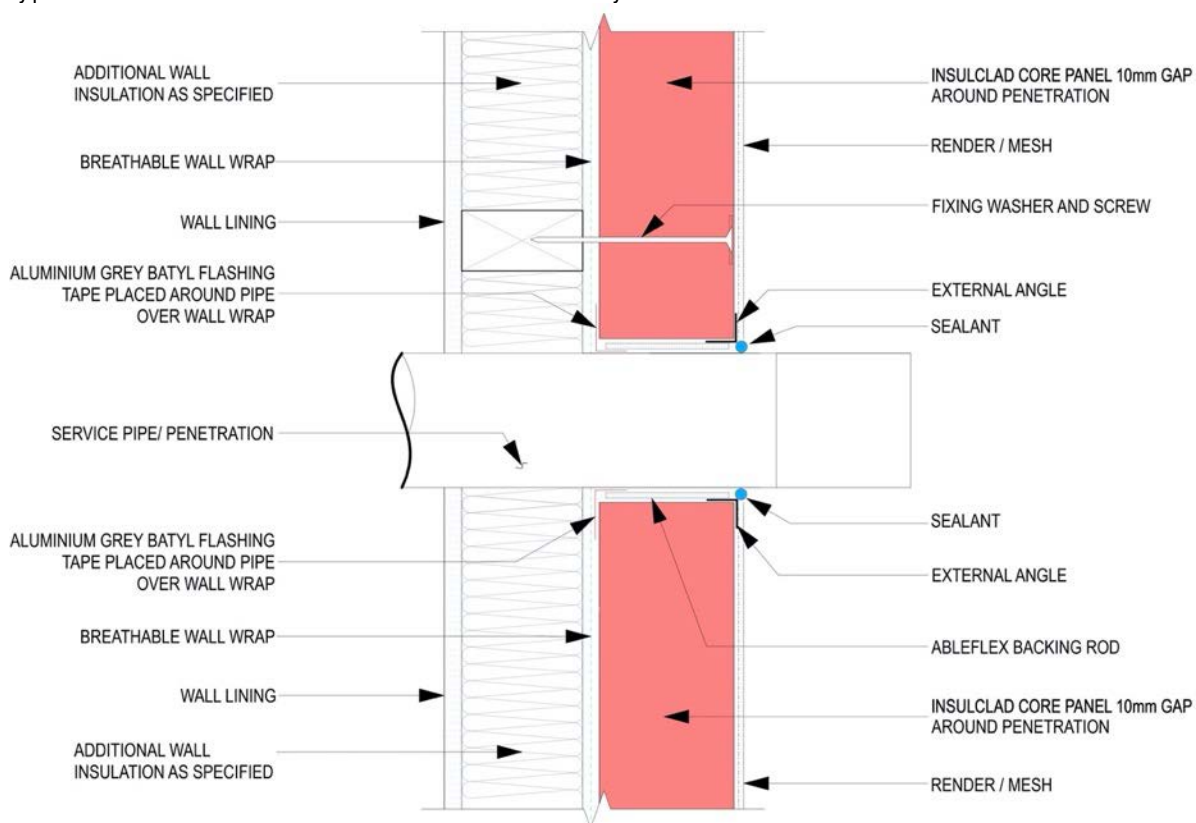


7.20 Service Penetration

Typical Service Penetration Detail – Cavity System

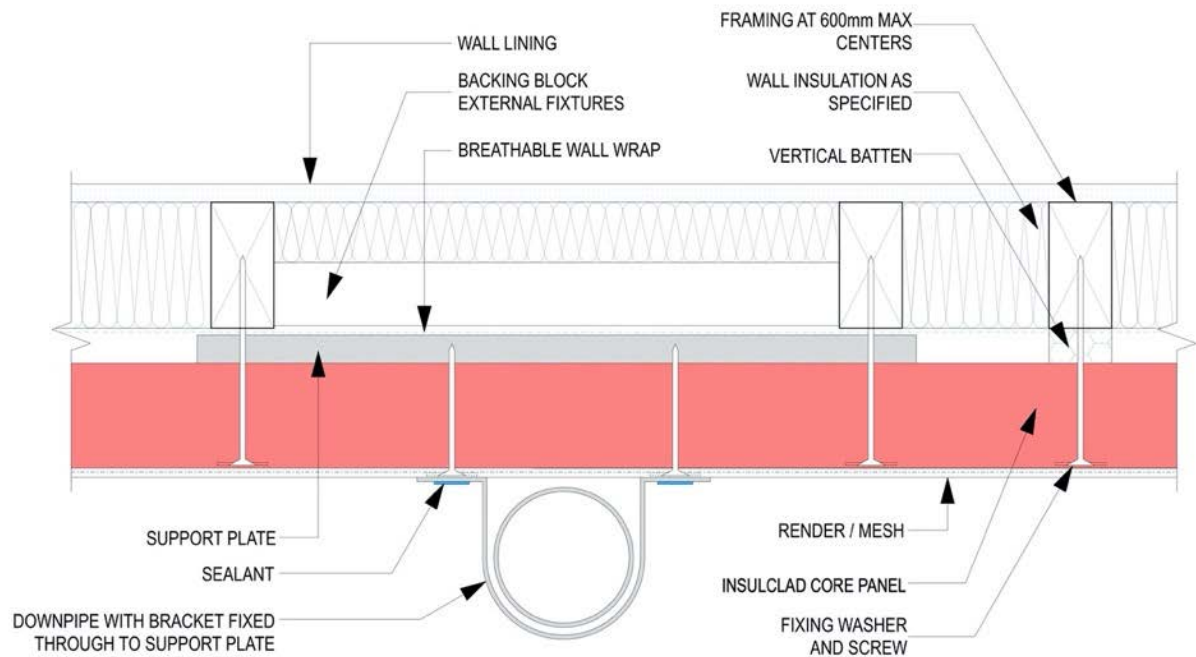


Typical Service Penetration Detail – Direct Fix System

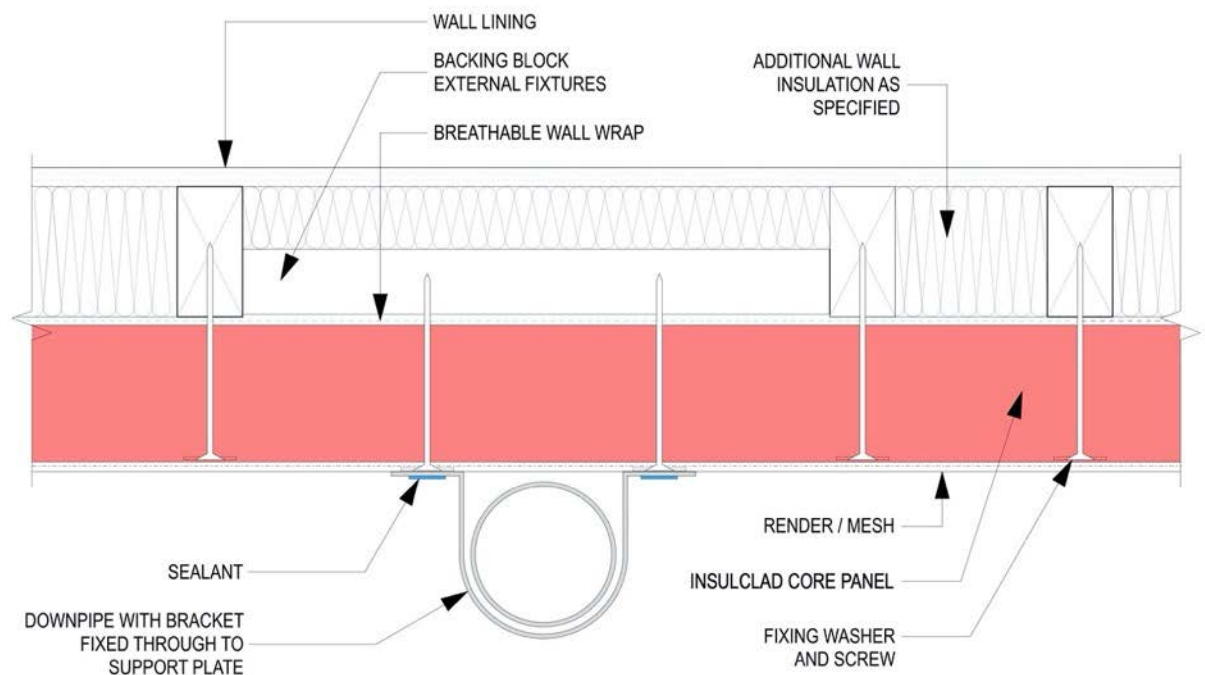


7.21 Downpipe Fixing

Typical Downpipe Fixing Detail – Cavity System



Typical Downpipe Fixing Detail – Direct Fix System



7. Storage

Render & Texture.

Store in original containers.

- Keep containers securely sealed.
- Store in a cool, dry area protected from environmental extremes.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within the MSDS.
- For larger quantities, bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse. Check that all containers are clearly labelled and free from leaks.

8.1 Health & Safety

Installation instructions do not deal with materials safety, site safety or safe work practices. These should be considered in conjunction with suitable Safety Data Sheets prior to commencing installation. However, as with all composite materials use of personal protective equipment is recommended.

- Basic safety clothing and gloves should be worn when handling or cutting the Insulclad Rendered Wall System.
- When cutting Insulclad EPS External Wall Cladding it is recommended that a face mask and protective glasses be worn.
- Quality assurance aspects of the construction process should be considered in conjunction with the necessary safety analyses.

8. Maintenance

The exterior walls of our homes shelter us from the forces of nature. These forces can be destructive, and it is important that you protect your home by inspecting and maintaining its exterior on a regular basis to ensure the performance requirements of the Building Code are continuously met. Even the most durable of wall systems can fail if the owner does not follow through with regular maintenance.

Following is a list of recommendations to maintain, preserve and protect your Insulclad Rendered Wall System.

To Maintain & Preserve

- The exterior surfaces of your home should be cleaned on a regular basis (at least annually). This will help to improve your home's appearance and to preserve your paint system. Cleaning once per year will remove light soil as well as grime and airborne pollutants.
- The exterior can be cleaned with a low-pressure water blaster (less than 450psi) using a fanjet of cold water at a 45-degree angle from the wall (not perpendicular). The fan of the water blaster should be kept a minimum of 20cm from the surface of the render in order to avoid damage.
- Localised grime or ingrained dirt should be removed by cleaning with a scrubbing brush, a solution of detergent and warm water.
 - o DO NOT attempt to remove heavy staining using a high-pressure water blaster.
 - o DO NOT use solvent-based products to clean the surface of your Insulclad Rendered Wall System.
- The system must remain in a weatherproof condition. Check for cracked, loose or missing sealant. You will find sealant in most areas where different surfaces meet and all sealed joints. These include around windows and doors, pipes, where walls meet the soffit line and where electrical fittings and handrails have been attached to walls. All deteriorated or damaged sealant should be removed and replaced as soon as it appears. We recommend that a flexible sealant – paintable, UV stable MS sealant complying with Type F, Class 25LM of ISO 11600. EPS foam products are susceptible to chemical damage resulting from the use of sealants that contain solvents. The sealant must be free from solvents and having a VOC level of no more than 70g/Ltr Californian South Coast Air Quality Management District (Rule 1168).
- It is important to monitor areas that are heavily exposed such as any flashings, parapets, and balcony handrail tops. Due to the minimal slope on these areas and the extremes in thermal movement they must endure, it is critical that they are well inspected and maintained.
- If damage occurs, immediately contact your original installer and they will provide the support or technical expertise required to have the problem fixed. Because cracks may indicate underlying structural problems, they should always be inspected by a professional. Temporary repairs can be made to cracks by filling them with the recommended sealant described above until the inspection is done and permanent repairs are made.
- During your regular inspections check areas that are cold and dark, such as under decks or behind heavy foliage. Dirt provides the perfect environment for mould and algae growth. The tiny roots that these organisms use to cling to your walls will cause your paint to deteriorate very quickly and can lead to plaster erosion if it is not regularly cleaned.

- By regularly cleaning the exterior of your home, you will dramatically reduce the chances of your Insulclad Rendered Wall System becoming dirt stained. This will help to ensure that the task of repainting your home can be postponed for as long as possible. Trimming bushes to allow good air circulation, covering soil with mulch, bark or stone and keeping your gutters clean will all help to keep your maintenance to a minimum.
- Ensure that all minimum ground clearances as set out in the technical literature are always maintained during the life of the system. Check that any dirt or unpaved ground (especially in garden beds) has not reduced these clearances over time.
- Depending on the quality of the paint that has been used on your home, it will invariably require repainting after 5-10 years. Simply wash the wall surfaces with a non-solvent based chemical or detergent and rinse off. If areas of the property have been poorly maintained ensure any lichen, moss or loosely adhered paint is removed using a wire brush prior to any new paint being applied.

9. Checklist for Insulclad Core Panel

Installation checklist for Insulclad Rendered Wall System CodeMark Certification (Issue 1).

INSTALLER

Name: _____ Licence No.: _____

Company: _____

Address: _____

State: _____ Postcode: _____

Phone: _____ Email: _____

INSULCLAD CORE PANEL INSTALLATION CHECKLIST

- ☐ Installation has been completed in accordance with the Insulclad Construction Manual (Version 7.0 28 June 2021).
- ☐ Both builder and installer:
 - ☐ Are conversant with the method of the Insulclad Rendered Wall System installation.
 - ☐ Have ready access to all relevant technical information related to Insulclad installation.
- ☐ Insulclad Rendered Wall System is fixed in accordance with fastener spacings (Section 3.2) e.g., 300mm centres vertically, 450mm centres horizontally.
- ☐ Glue both horizontal and vertical Insulclad panel edges to each adjoining panel using an approved construction expander foam.
- ☐ Allow 3mm gap between the Insulclad panel edge and openings for bead and sealant procedure.
- ☐ Expansion joints are installed where Insulclad meets other substrates.
- ☐ Expansion joints are installed horizontally, with a maximum of 3 metres spacing and vertically a maximum of 8 metres spacing.

I, the installer, have checked the checklist and have installed the Insulclad Rendered Wall System in accordance with the Insulclad Construction Manual (Version 7.0 28 June 2021).

Installer Signature: _____ Date: _____

10. Application Form For CodeMark

The Insulclad Rendered Wall System has achieved CodeMark accreditation. This provides complete assurance that the system will be accepted by all building authorities throughout Australia. This certification advises building inspectors, building certifiers, designers, builders, and home insurers that the Insulclad Rendered Wall System meets Building Code of Australia (BCA) requirements.

To apply for the Insulclad Rendered Wall System CodeMark Certification for your project, the builder and the installer must fill out in full this application form, sign and return it via email to nswsales@foamex.com.au within a month of installation to register the project for certification.

PROJECT DETAILS

Project Address: _____

State: _____ Postcode: _____

INSULCLAD SUPPLIER

Distributor Name: _____

Core Panel Size: _____ Quantity: _____

Render Specification: _____

BUILDER DETAILS

Builder Name: _____ Licence No.: _____

Company: _____ Phone: _____

Email: _____

Address: _____

State: _____ Postcode: _____

I, the builder, certify that I have installed the Insulclad Rendered Wall System in accordance with the Insulclad Construction Manual (Version 7.0 28 June 2021), and I am aware of the importance of the installation of the Insulclad Rendered Wall System to achieve CodeMark accreditation.

Builder's Signature: _____ Date: _____

11. Foamex 7 Year Limited Warranty

In addition to the Consumer Law statutory guarantee; the Insulclad Rendered Wall System comes with a 7-year limited manufacturer's warranty for approved Insulclad installers only.

The manufacturer's installation instructions must be adhered to for your warranty to remain valid. As an installer, please ensure that all instructions on the product packaging, installation manuals and construction details referred to on www.insulclad.com.au are followed. Details for the conditions that apply to this limited warranty can also be found at www.insulclad.com.au.

Any claim under this limited warranty must be made in writing within 7 years from the date of purchase of the product. To make a claim under the limited warranty, take your written claim (proof of purchase and CodeMark Certificate) to the manufacturer. The manufacturer having taken the opportunity to assess/inspect or test the materials, whether before or after installation of the materials, will pay your reasonable, direct expenses of claiming under this limited warranty.

You may submit details and proof of your expense claim to the manufacturer for consideration.

A failure of the Insulclad Rendered Wall System is determined by the manufacturer when the fault in product is due directly to a manufacturing flaw.

The manufacturer does not deem failure of the product when as a direct result of an incorrect installation, product alteration or as a result of deficiencies to the building. For your warranty to remain valid all materials, components and accessories must be used, that are manufactured or recommended by Foamex Polystyrene Pty Ltd that comprise the total Insulclad Rendered Wall System.

This warranty is provided in addition to other rights and remedies you have under law. Our goods come with guarantees which cannot be excluded under the Australian Consumer Law.

You are entitled to replacement or refund for a major failure and compensation for other reasonably foreseeable loss of damage. You are also entitled to have the goods replaced if the goods fail to be of acceptable quality and the failure does not amount to major failure.

This warranty is given by the manufacturer:

Foamex Polystyrene Pty Ltd
ABN 94 088 759 264
31 Mavis Street, Revesby, NSW 2212
Phone: 1300 78 74 78
Email: nswsales@foamex.com.au