

# ■ PROREND EIFS

EXTERNAL WALL INSULATION FINISHING SYSTEMS



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## ■ ProRend EIFS

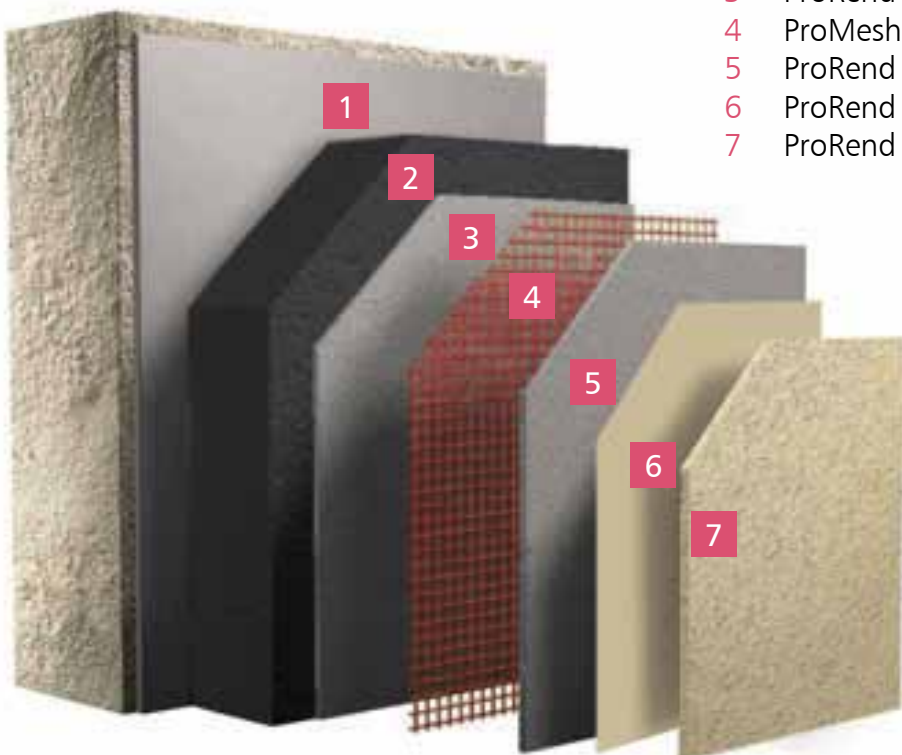
ProRend External Insulation Finishing System, EIFS for short, is a complete render solution for new build and renovation properties both residential and commercial.

This brochure details many of the benefits of the system, as well as explaining the types of insulation which are available along with the two primary construction methods: adhesive and rail.

This brochure should be read in conjunction with the ProRend brochure which explains in detail the ProRend Lite basecoat and ProRend Colourtex finishes: the final decorative finish of this system.

## ■ ProRend EIFS - Adhesive

- 1 ProRend Lite Basecoat
- 2 ProRend EIFS Platinum EPS
- 3 ProRend Lite Basecoat
- 4 ProMesh Grade 3
- 5 ProRend Lite Basecoat
- 6 ProRend Colourtex Primer
- 7 ProRend Colourtex





## ProRend EIFS Overview

ProRend EIFS primary function is to comply with Building Regulations Part L- Conservation of Fuel and Power, to achieve the current thermal conductivity requirements for walls. It also achieves many other construction objectives such as providing an attractive façade for a property and protecting it against the elements.

The insulation may be fixed to the wall using either:

- ProRend Lite adhesive with secondary mechanical fixings
- Rails, which mechanically hold the edges of the insulation

See below for a comparison of the 2 systems.

## Features & Benefits

- Building Regulation compliant:
  - Part B Fire Safety
  - Part L Conservation of Fuel and Power
- Watertight façade
- Breathable render system
- Cavity (Rail system)
- Residential and Commercial properties
- New Build and Renovation
- Low maintenance systems

## Ideal Substrates

- Concrete
- Masonry
- Timber frame
- Steel frame
- Existing render

## ProRend EIFS Overview

	Adhesive	Rail
Insulation dimensions	1000 x 500mm	500 x 500mm
Mineral Wool Insulation	✓	✓
Expanded Polystyrene Insulation	✓	✓
Fire barrier	Mineral Wool Lamella – only where primary insulant is EPS	Mineral Wool Rail Slab with Stainless Steel rails and intumescent strip
Cavity	✗	✓
Fixing method	ProRend Lite adhesive with secondary mechanical fixings	PVCu rails fixed at each edge of the insulation panel
Uneven substrates	Requires dubbing out of installed insulation	Ideal
Curved walls	✓ – using Mineral Wool Lamella	✗



## Insulation Overview

ProRend EIFS can be installed using either expanded polystyrene (EPS), or mineral wool insulations. Both boast superb green properties:

- CFC / HCFC free
- Zero Ozone Depletion Potential (ODP) rated
- Zero Global Warming Potential (GWP) rated

	Mineral Wool		EPS		
	Slab	Lamella	70 White	70 Platinum	200 White

### Technical Properties

Thermal conductivity $\lambda_{90/90}$ W/mK	0.036 *	0.040	0.037	0.030	0.033
Water vapour permeability, $\mu$ (BS EN ISO 10456 2007 Table 4)	1/1	1/1	60/60	60/60	60/60
Fire classification	A1	A1	E †	E †	E †
Nominal density, kg/m <sup>3</sup>	126 - 140	126 - 140	14 - 16	14 - 16	30 - 32

† Contains fire retarding additive  
\*Lambda may vary for 30-40mm

### Insulation panel properties

Blunt edge	Thickness, mm	30 - 250	30 - 300	20 -*	20 -*	20 -*
	Face, l x h, mm	1200 x 600	1000 x 200	1000 x 500	1000 x 500	1000 x 500
Rail edge	Thickness, mm	40 - 160	✗	40 -*	40 -*	40 -*
	Face, l x h, mm	500 x 500	✗	500 x 500	500 x 500	500 x 500
Tongue and groove	Thickness, mm	✗	✗	40 -*	40 -*	40 -*
	Face, l x h, mm	✗	✗	1050 x 550	1050 x 550	1050 x 550
Bends around curved walls		✗	✓	✗	✗	✗

\* Size limit in excess of 1000mm

Note: insulation panel thicknesses increase in 10mm increments.

Bespoke EPS shaped panels are available on request e.g. columns and decorative details.



## U Values & Dew Points

U Values are the measure of the amount of heat conducted through a material per m<sup>2</sup> at a given temperature. The lower the U value the less heat that will be lost through the walls.

A dew point is the temperature at which air becomes saturated: below this point moisture is deposited as condensation.

Properties constructed using external wall insulation are able to force the dew point to the outside of the wall.

The SAS technical team will provide you with a U value and dew point calculation once you have provided us with the makeup of the wall.

## Expanded Polystyrene - EPS

ProRend EIFS EPS insulation, manufactured to BS EN13163: 2001, is available in 3 grades:

- EPS 70 White – standard insulation with highest (poorest) thermal conductivity
- EPS 70 Platinum – premium insulation with the best thermal conductivity of all insulants sold as part of the ProRend EIFS system. The use of Platinum EPS Insulation on a traditional cavity wall renovation could save you 20mm in thickness of insulation compared with EPS 70 White or Mineral Wool slab, saving on transport costs and sundry items such as fixings and beading profiles
- EPS 200 White – dense insulation ideally suited to applications below DPC

## Mineral Wool

ProRend EIFS Mineral Wool insulation is available in 2 grades

- Slab – best thermal conductivity of mineral wool insulants
- Lamella – available in widest range of thicknesses and suitable for curved walls

Mineral Wool can be used as a sole insulant in ProRend EIFS projects or to serve as a fire barrier in EPS type application. Mineral Wool fire barriers are typically used as follows:

- ProRend EIFS adhesive EPS applications using Mineral Wool Lamella
- ProRend EIFS rail EPS applications using Mineral Wool Rail Slab

For further details on fire barriers refer to: page 11 – adhesive system; page 17 – rail system

Contact our technical team and we can work with you to specify the right insulation for your project.



# ■ Adhesive Starter Track

1. DPC membrane
2. ProRend EIFS starter track
3. Fixings at 600mm centres maximum (5 per 2.5m length)

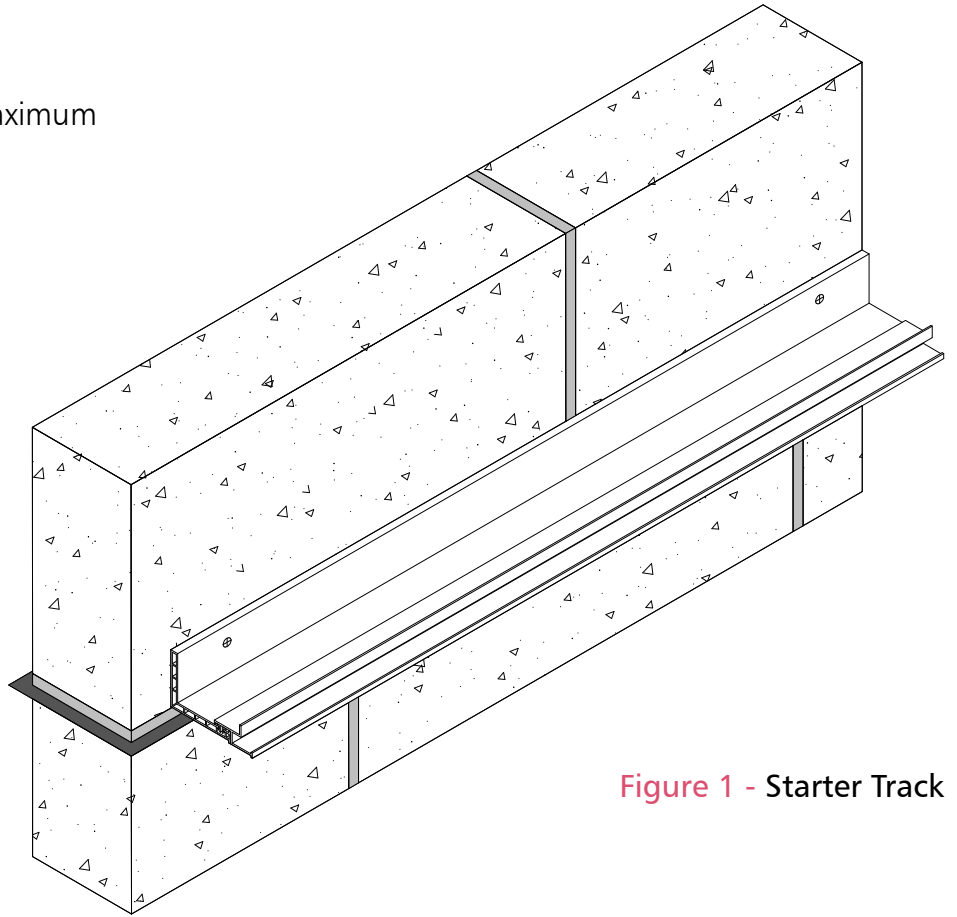
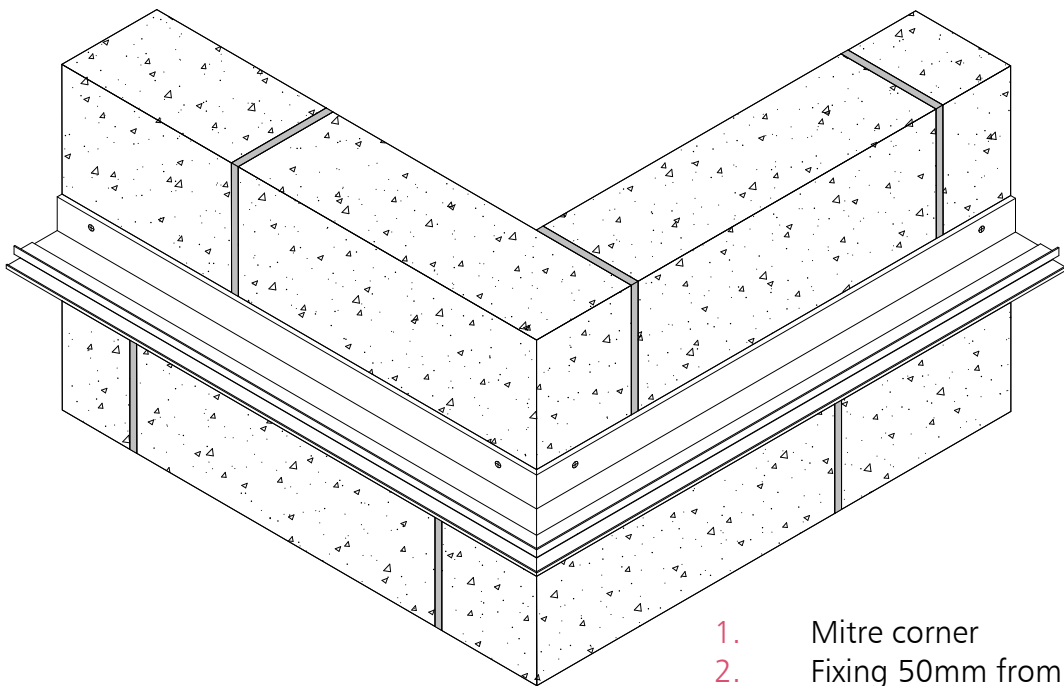


Figure 1 - Starter Track

Figure 2 - Starter Track Mitre Corner

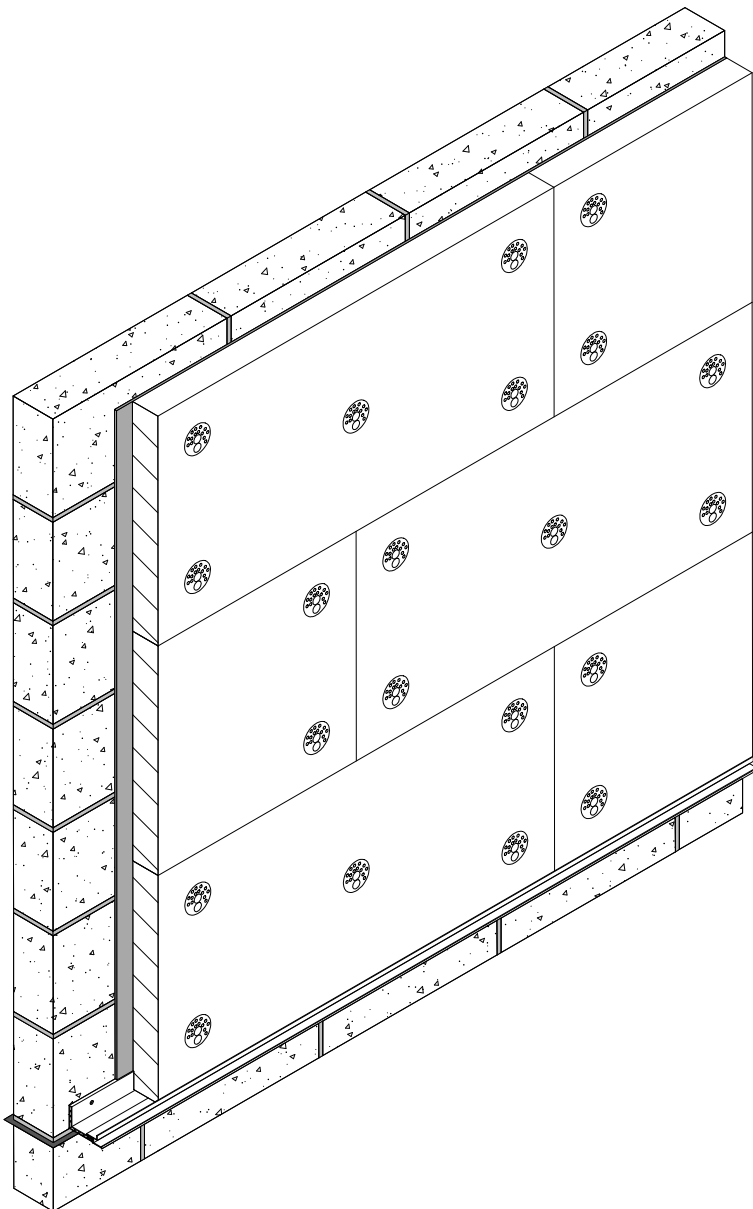


1. Mitre corner
2. Fixing 50mm from corner

# ■ Adhesive Application

Figure 3 - Adhesive Application

1. 100% coverage of insulation panel using 10mm grooved tiling trowel



2. Insulation panels installed block bond
3. Minimum stagger 150mm
4. Mechanical fixings 10/m<sup>2</sup> in each corner of panel and centre

## Aperture Planning

1. Minimum 150mm stagger of insulant joints
2. Avoid vertical or horizontal joints at corners of apertures
3. Cut insulation panels to fit around aperture corners
4. Ensure suitable quantity of mechanical fixings used around aperture

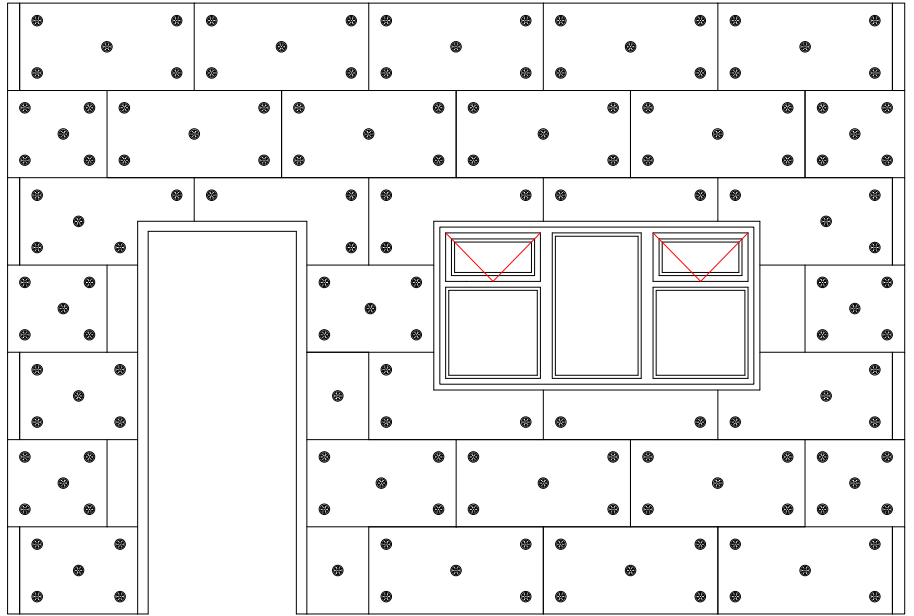


Figure 4 - Insulation Layout Around Apertures

## Corner Detail

1. Ensure alternating blockbond at corner

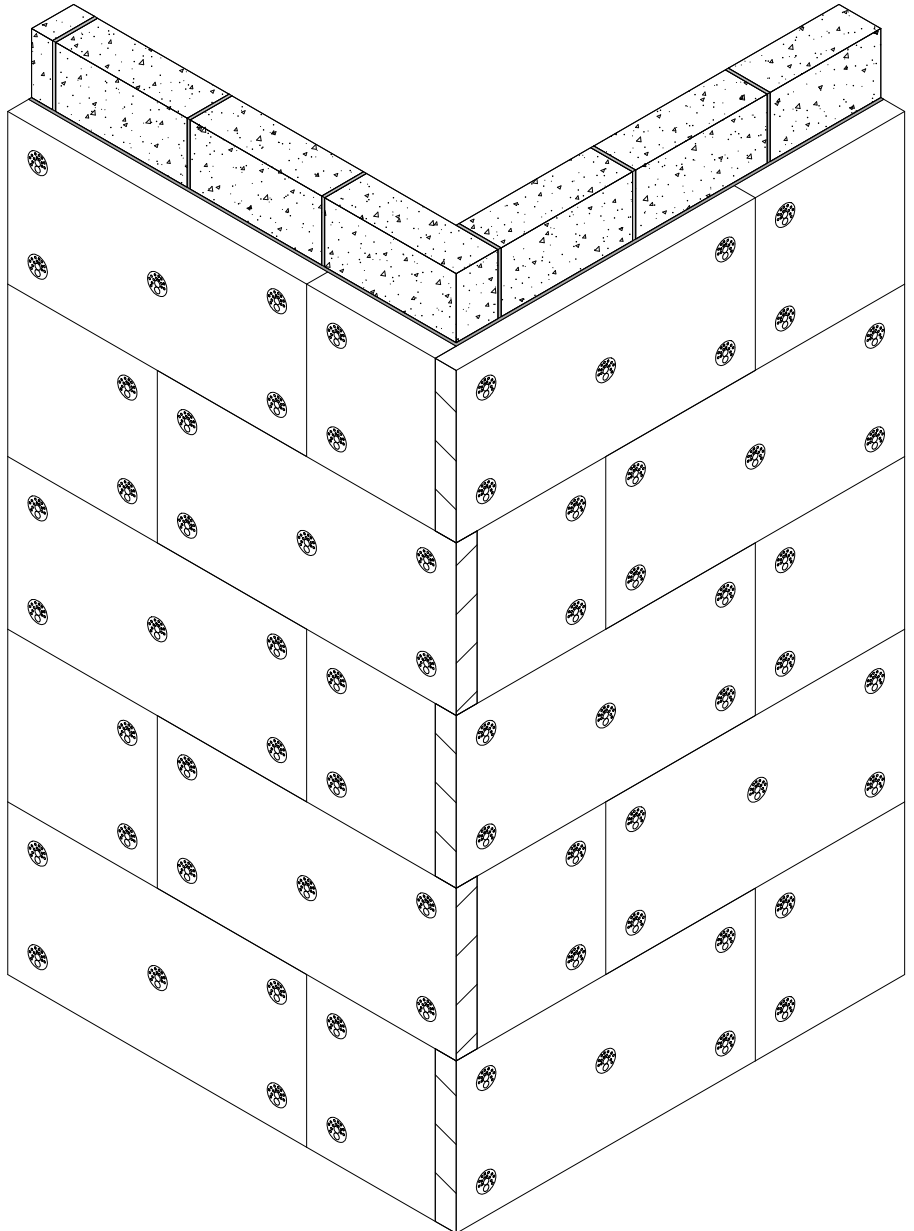


Figure 5 - Insulation Corner Detail



## Reveal Detail

1. Insulation panels fitted around aperture to avoid horizontal and vertical joints at corners
2. Face insulation panels fitted 20mm proud of blockwork at aperture
3. 20mm insulation fillet fitted between face insulation and window frame to avoid cold bridge
4. Joints in insulation fillet not coincident with joints in face insulation panels
5. Adhesive bitumen sealtape fitted between insulation fillet and window frame to ensure watertight seal

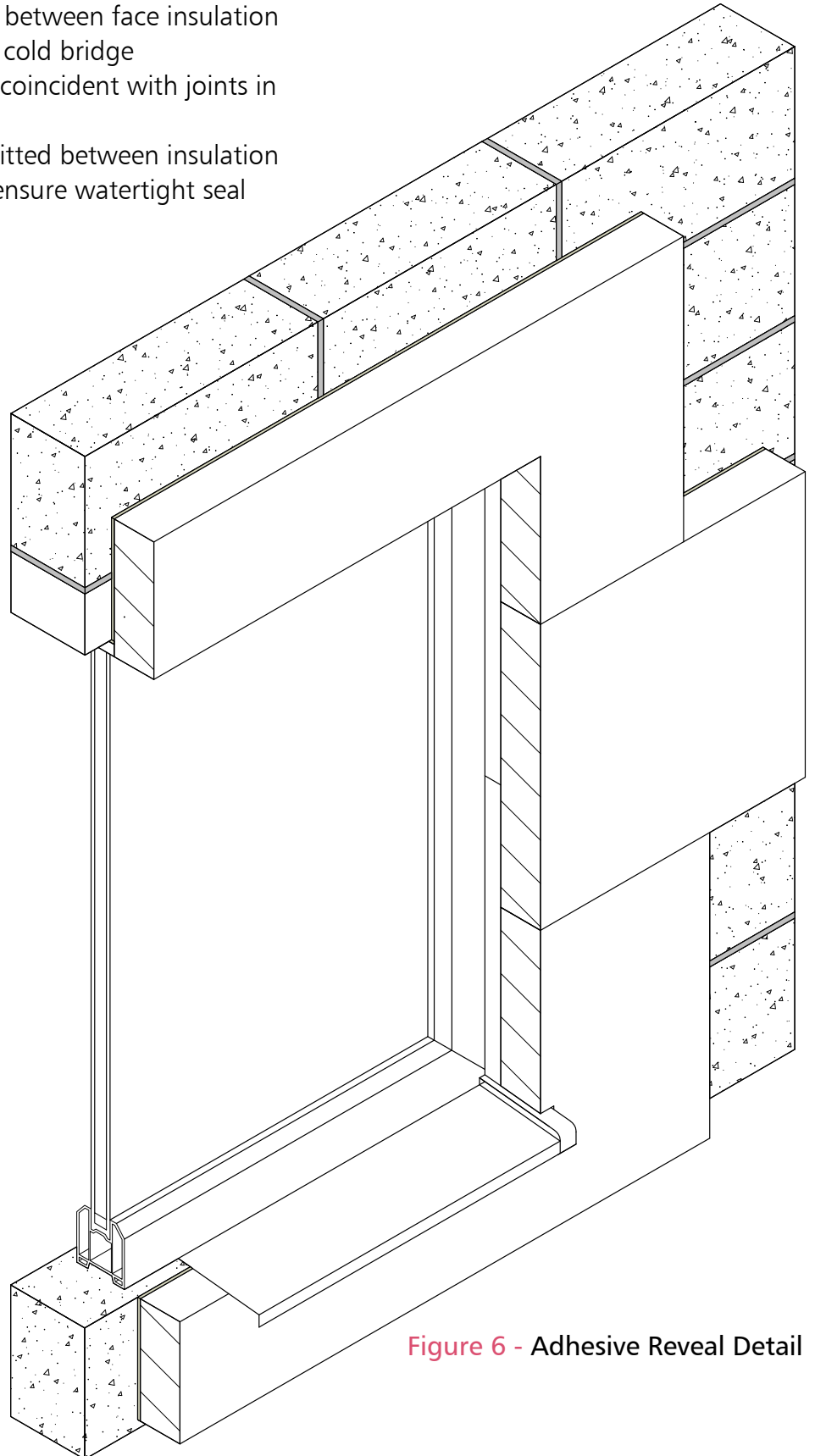


Figure 6 - Adhesive Reveal Detail

## ■ Ventilation Services, Flue Pipe and Fixing Pattresses

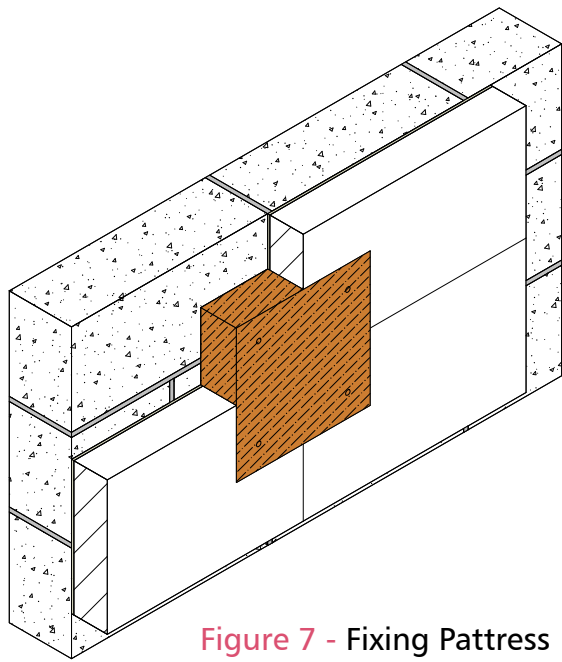


Figure 7 - Fixing Pattice

1. Fixing pattice made of solid timber
2. Maximum dimensions: 300mm x 300mm
3. Thickness of pattice to match thickness of insulation
4. Mechanically fixed back to substrate
5. Avoid primary insulation joints within 150mm of fixing pattice

1. Ventilation services fitted through centre of insulation panel without joints
2. Avoid ventilation service at edge of insulation panel

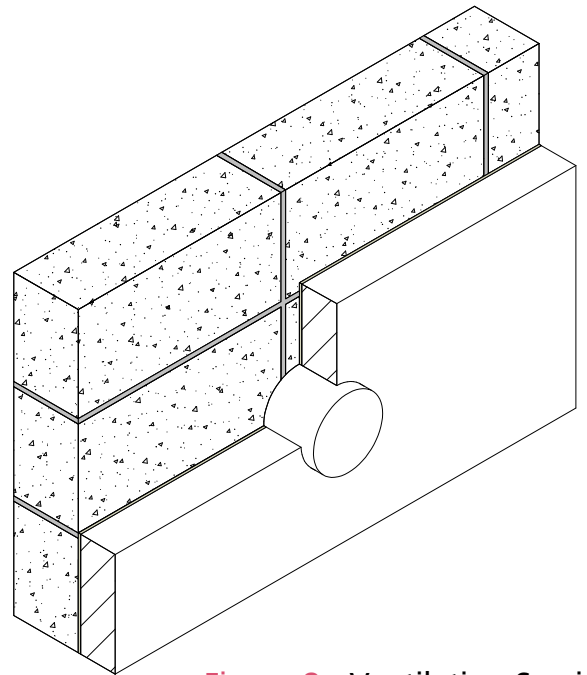


Figure 8 - Ventilation Service

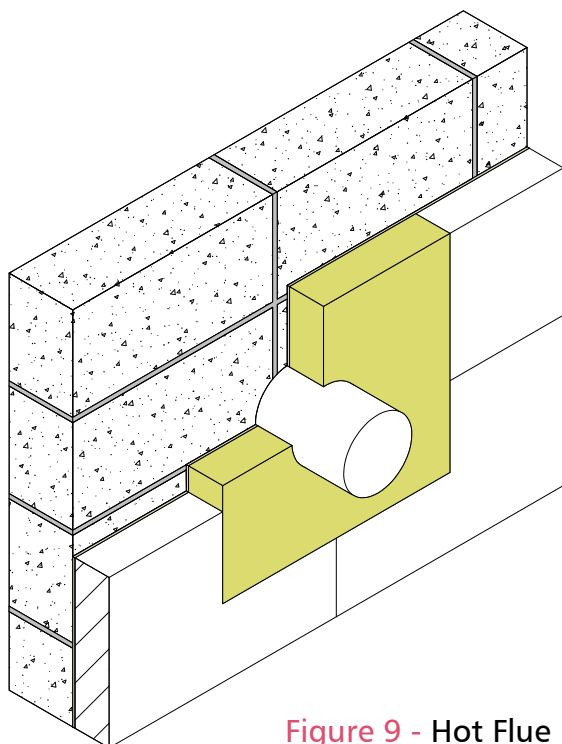


Figure 9 - Hot Flue

1. Hot flue requires mineral fibre insulation (if primary insulant is EPS) around hot flue pipe
2. Hot flue fitted through centre of insulation panel without joint
3. For systems using EPS as primary insulant minimum distance of EPS from hot flue to be determined during system design
4. Avoid hot flue at edge of insulation panel

## Fire Barrier in EPS Adhesive Systems

1. Mineral Wool Lamella insulation fitted at floor level between EPS insulation panels
2. Fire barrier panels fitted block bond so joints alternate with EPS joints – minimum 150mm stagger
3. Adhesive mortar used to rear of fire barrier panels – see figure 3
4. Mechanical fixings used to secondary fix fire barrier panels to substrate

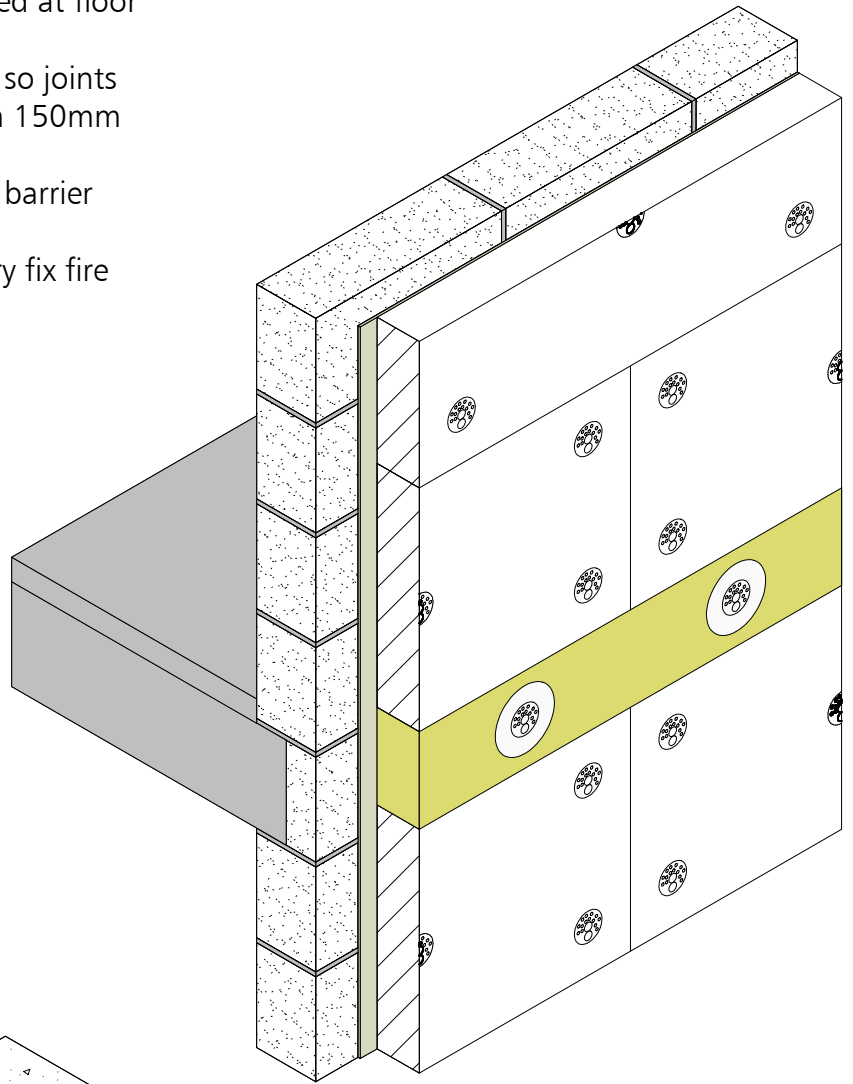
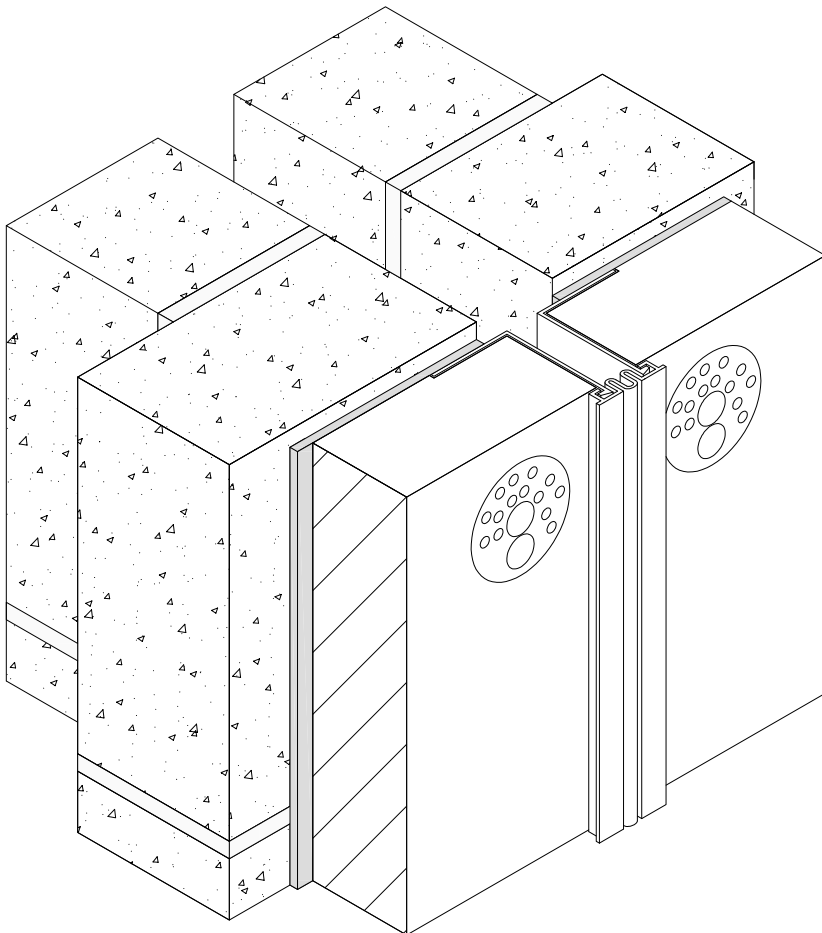


Figure 10 - Adhesive Fire Barrier



1. Stainless steel fire bead to thickness of insulation mechanically fixed to the substrate coincident with party wall of adjacent dwellings
2. Flexible PVCu joints between adjacent fire beads

Figure 11 - Fire Barrier Layout Between Adjacent Dwellings

## ■ Rail Starter Track

1. DPC membrane
2. ProRend EIFS ventilated starter track
3. Fixings at 600mm centres into sheathing board

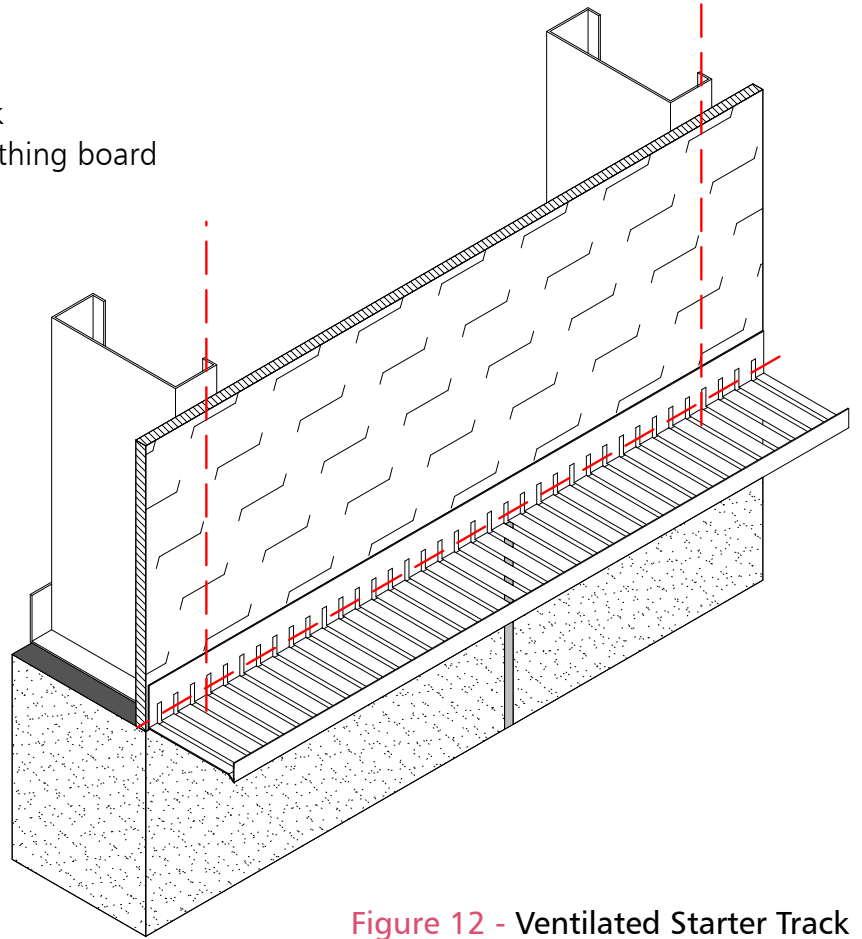
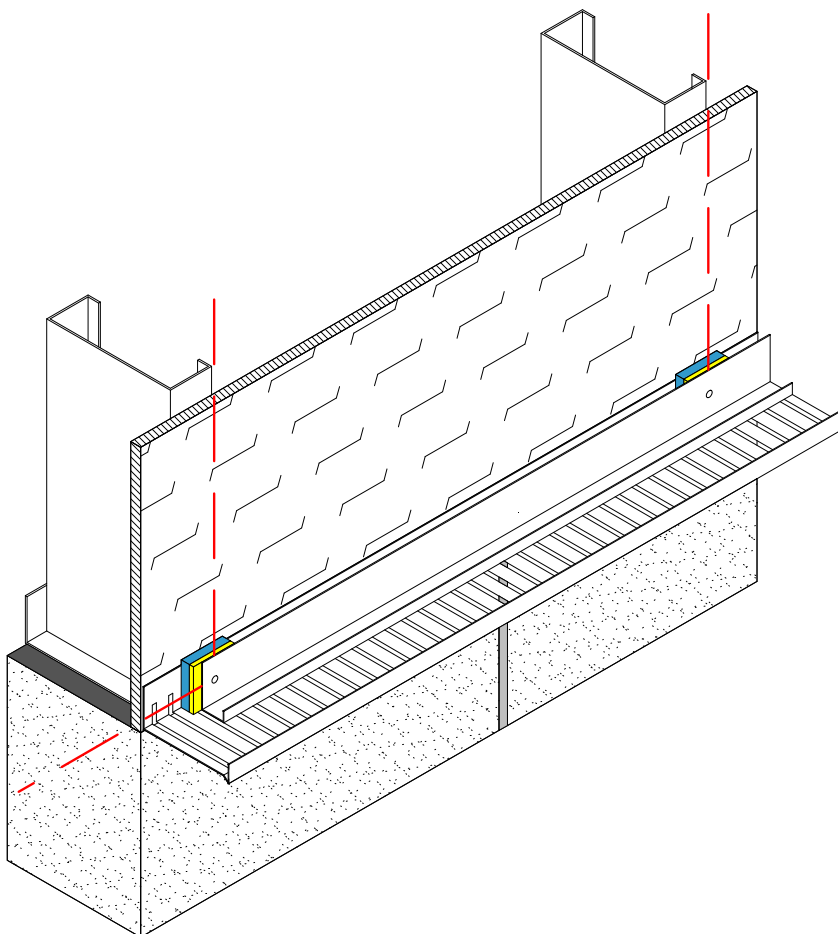


Figure 12 - Ventilated Starter Track



1. PVCu termination profile sits on ventilated starter track
2. Packing shims create typical 15mm cavity
3. PVCu termination profile fixed through sheathing board into steel uprights
4. Use of laser beam to confirm level application of rails

Figure 13 - Termination Profile and Packing Shims

# Insulation Application

1. Insulation panels fitted with rebated grooves embedded on PVCu termination profile
2. PVCu intermediate track fitted into rebated groove of insulation panel
3. Vertical PVCu T spline between every insulation panel clips into PVCu termination profile below
4. PVCu intermediate track packed off substrate in line with laser aligned cavity
5. Mechanical fixing into every vertical upright

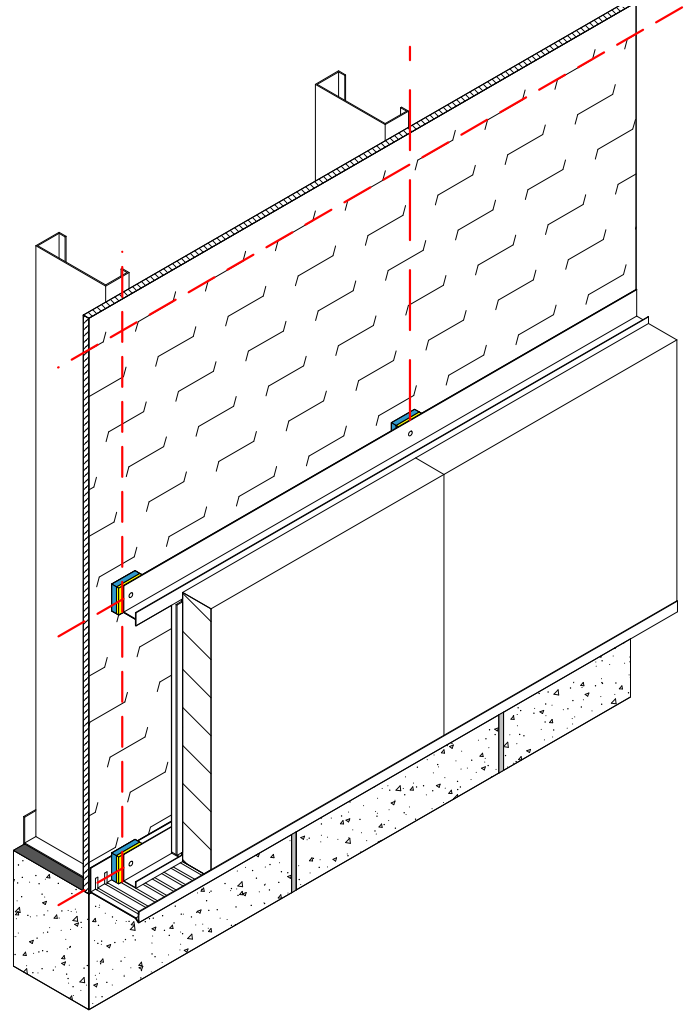


Figure 14 - Insulation Application

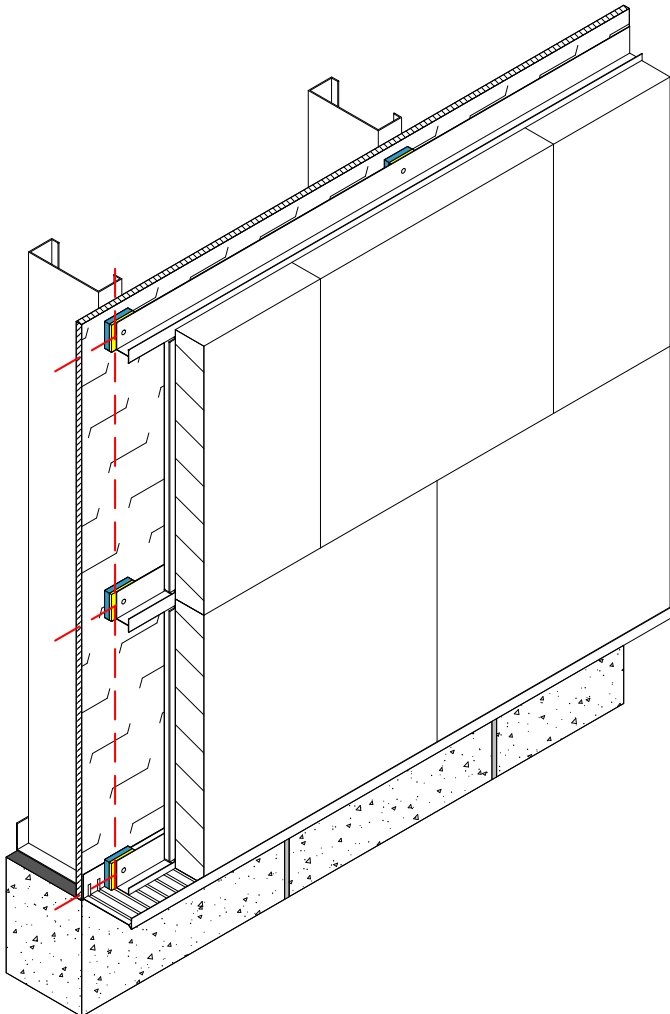


Figure 15 - Insulation Application Continued

1. Repeat figure 14 with additional intermediate tracks
2. Insulation panels installed block bond with minimum 150mm stagger

## ■ Aperture Planning

1. Minimum 150mm stagger of insulant joints
2. Avoid vertical or horizontal joints at corners of apertures
3. Cut insulation panels to fit around aperture corners

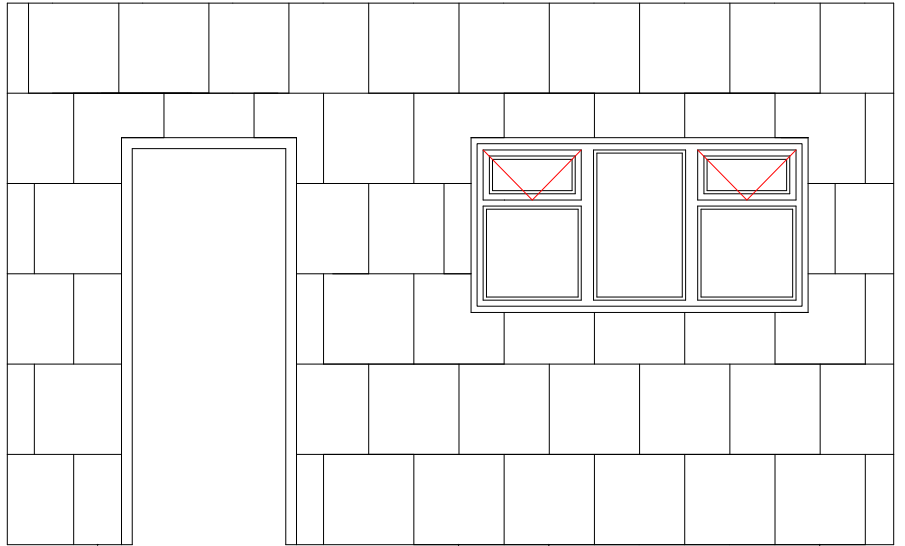


Figure 16 - Insulation Layout Around Apertures

## ■ Corner Detail

1. Ensure alternating block bond at corner

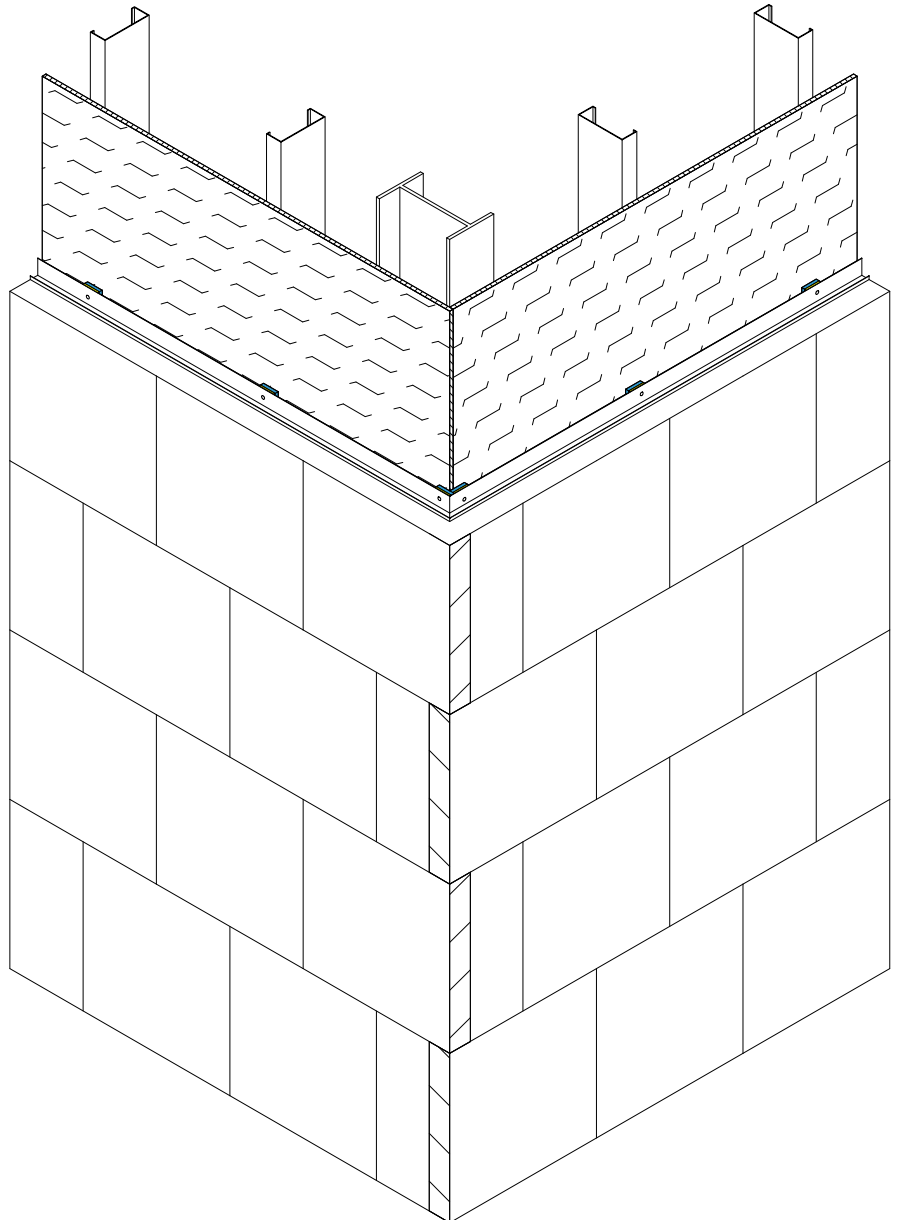


Figure 17 - Insulation Corner Detail



## Reveal Detail

1. Insulation panels fitted around aperture to avoid horizontal and vertical joints at corners
2. Face insulation panels fitted 20mm back from window frame
3. 20mm insulation fillet fitted to end of insulation panels closing rail cavity
4. Joints in insulation fillet not coincident with joints in face insulation panels
5. Adhesive bitumen sealtape fitted between insulation fillet and window frame to ensure watertight seal

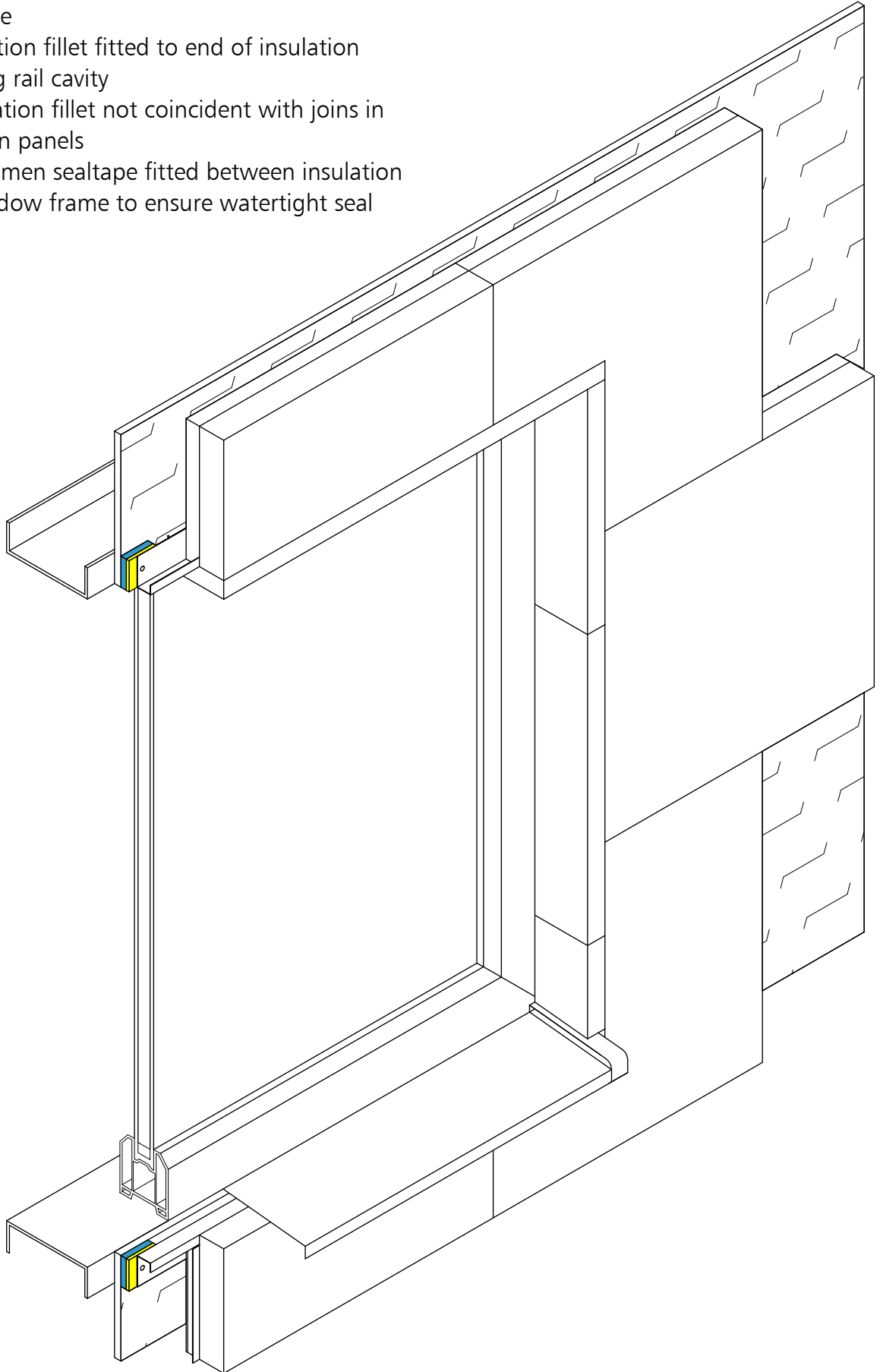


Figure 18 - Rail Reveal Detail

## Ventilation Services and Flue Pipes

1. Ventilation services fitted through edge of insulation panel with vertical join at centre
2. Ventilation service must avoid intermediate rail tracks
3. PVCu T splines to be cut to appropriate length by installer

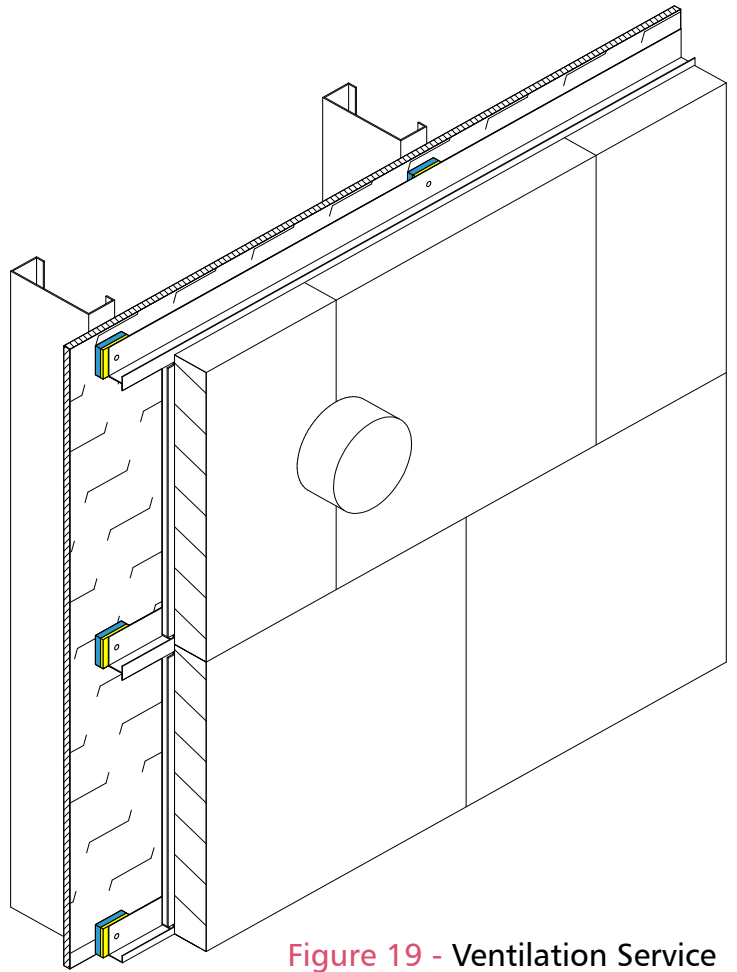


Figure 19 - Ventilation Service

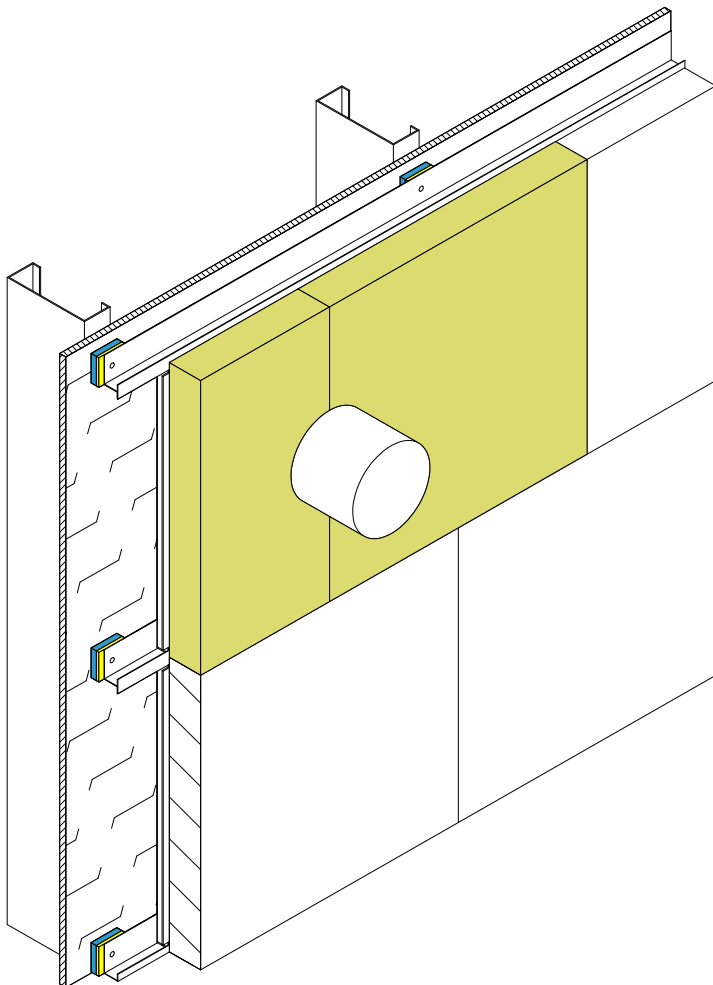


Figure 20 - Hot Flue

1. Hot flue requires mineral fibre insulation (if primary insulant is EPS) around hot flue pipe
2. Hot flue fitted through edge of insulation panel with vertical join at centre
3. For systems using EPS as primary insulant minimum distance of EPS from hot flue to be determined during system design
4. Hot flue must avoid intermediate rail tracks
5. PVCu T splines to be cut to appropriate length by installer

## ■ Fire Barriers in EPS Rail Systems

1. Mechanically fix stainless steel fire track to substrate above final row of EPS insulation
2. Stainless steel fire track contains ventilation and drainage holes in cavity section
3. Mechanically fix intumescent strip to substrate above stainless steel fire track

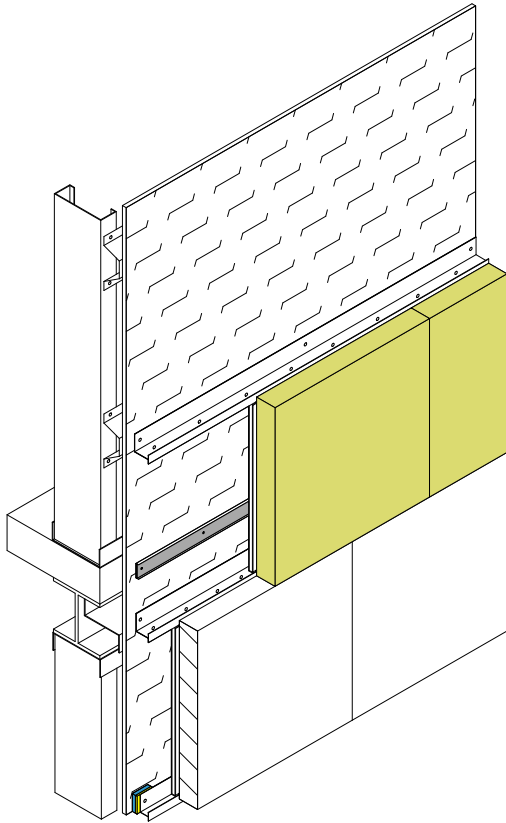


Figure 22 - EPS Rail Fire Barrier 2

1. Continue installation of EPS rail system above fire barrier using PVCu intermediate tracks

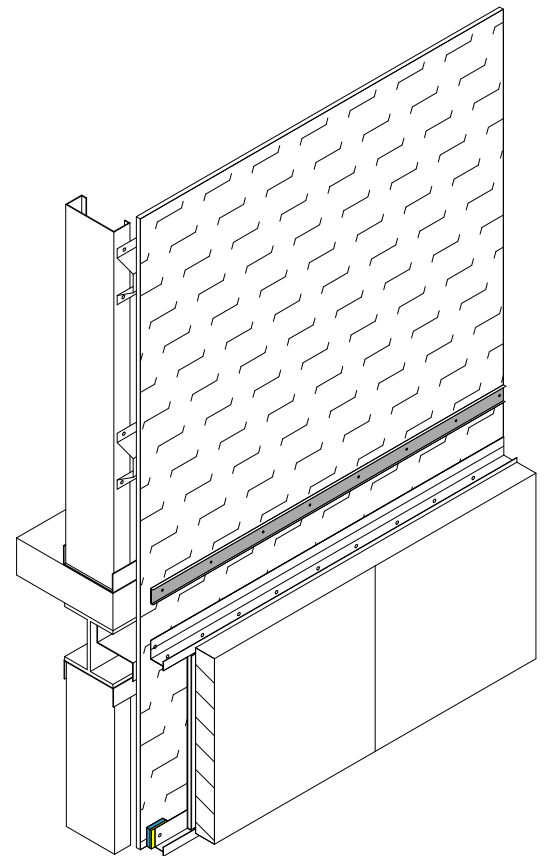


Figure 21 - EPS Rail Fire Barrier 1

1. Install course of Mineral Wool Rail Slab
2. Further mechanically fix with stainless steel fire track above insulation
3. Use vertical PVCu T spline to fix insulation between stainless steel fire tracks

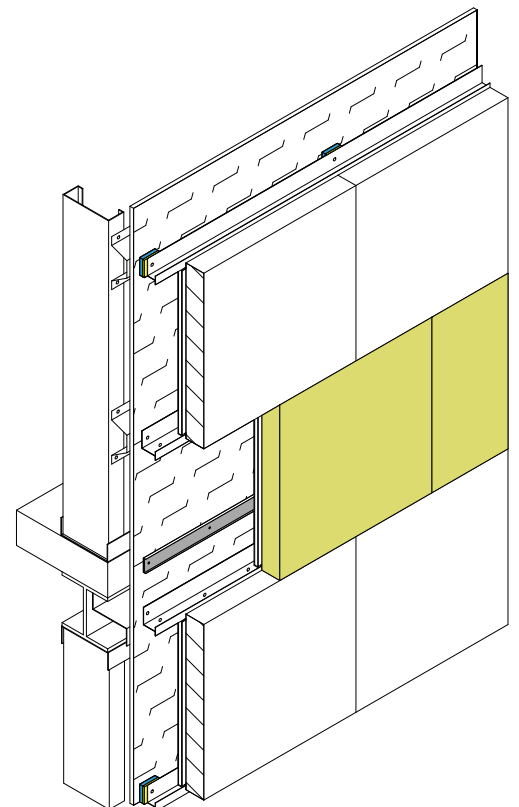


Figure 23 - EPS Rail Fire Barrier 3

## Mesh Layout

1. Minimum 100mm overlap between layers of mesh
2. 300x300mm reinforcement squares at corners of apertures at 45°
3. Applied within 4-7mm ProRend Lite basecoat



Figure 24 - Mesh Overlap Layout

## Render Application

Following application of the insulation components of ProRend EIFS the decorative render system is applied:

1. ProBead Noseless Meshed Angle beads to corners
2. ProBead Window Protection Beads to window and door returns
3. 4-7mm ProRend Lite mesh-coat with embedded ProMesh Grade 3 – see figure 24 above
4. ProRend Colourtex Primer
5. ProRend Colourtex Finish

Refer to ProRend brochure for application, technical details and CE markings of ProRend render products

## Tools

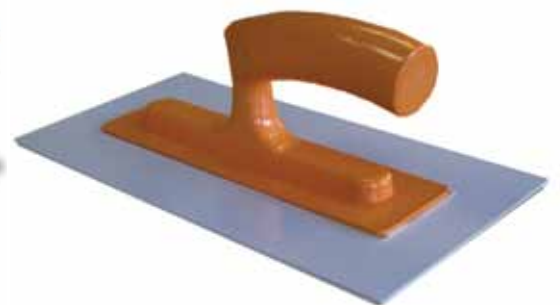
A wide range of tools and fixings are available which are used during the application of the ProRend EIFS system. Further details will be stated as part of the written documentation for the project.



ProRend Finishing Spatula



ProRend EIFS Rasp



ProRend Colourtex PVC Float

## ■ Sample U-value Calculation<sub>†</sub>

Adhesive system renovation over typical rendered solid brickwork wall using 90mm EPS Platinum

<u>Construction</u>	<u>Thickness, m</u>	<u>Lambda, W/mK</u>	<u>R, m<sup>2</sup>K/W</u>
External Resistivity			0.04
ProRend Colourtex	0.0015	0.700	0.02
ProRend Lite	0.0050	0.270	0.02
ProRend EIFS EPS 70 Platinum	0.0900	0.030	3.0
ProRend Lite	0.0050	0.270	0.02
BS EN 12524 Render, Lime, Sand	0.0200	0.800	0.03
215m Brick Wall	0.2150	0.770	0.13
BS EN 12524 Gypsum Plastering	0.0150	0.570	0.03
Internal Resistivity			0.13
	<u>0.3605</u>		$R_T = \underline{\underline{3.09}} \text{ m}^2\text{K/W}$
			$U = \underline{\underline{0.29}} \text{ W/m}^2\text{K}$

Rail system new build over lightweight steel constructed walls using 130mm Mineral Wool Slab

<u>Construction</u>	<u>Thickness, m</u>	<u>Lambda, W/mK</u>	<u>R, m<sup>2</sup>K/W</u>
External Resistivity			0.04
ProRend Colourtex	0.0015	0.700	0.00
ProRend Lite	0.0050	0.270	0.02
ProRend EIFS Mineral Wool Slab	0.1300	0.036	3.61
BS EN ISO 6946 Cavity	0.0150	0.088	0.17
BS EN 12524 Sheathing Board	0.0090	0.130	0.07
Metal Frame	0.1000	0.556	0.18
Plasterboard	0.0125	0.210	0.06
Plasterboard	0.0125	0.210	0.06
BS EN 12524 Gypsum Plastering	0.0030	0.570	0.01
Internal Resistivity			0.13
	<u>0.2885</u>		$R_T = \underline{\underline{4.35}} \text{ m}^2\text{K/W}$
			$U = \underline{\underline{0.23}} \text{ W/m}^2\text{K}$

† U value calculations according to BS EN ISO 6946



## SAS

At SAS we have in excess of 35 years of practical experience in the rendering and facades industry from personal application of materials to technical troubleshooting on site. We are always striving to improve our service and provide quality information as quickly as possible.

We are constantly developing and innovating new products for the market place to provide the best solutions for rendering and plastering. Our product portfolio contains premium quality products offering longevity to the proprietor as well as technically sound and fast applications to the contractor.

## Nationwide Delivery

Ex stock packaged goods next working day  
Ex stock palletized goods 1-3 working days

## Office Hours:

Monday-Thursday - 08:00-17:00  
Friday - 08:00-16:30

Details and drawings contained within this brochure are for illustration only and do not form part of any project specific guidelines or technical specification and should not be used in that way.

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\* Subject to SAS specification- please contact for details

## ProRend EIFS Service

Free of charge specification service providing:

- Details of required materials including sundry items
- Technical, safety and maintenance datasheets
- CAD details specific to your project
- Finish samples available in colours chosen by you
- Full technical support from our offices
- Comprehensive U value and condensation risk analysis calculations

Applicators:

- Providing comprehensive hands-on training courses for applicators
- Recommendations of sub-contractors to complete works
- Practical completion certificate when works have finished
- 10 year product guarantee

## PROREND EIFS

ProRend EIFS is part of the SAS (Europe) Ltd range of products and systems

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