

# External Wall Insulation

## Thermal Performance, Typical Details & Installation

### External Wall Insulation



### Thermal Performance

Optimum thermal performance is considered in conjunction with windows, doors and roofs as part of Struchterm's integrated design approach.

The range of high performance insulants is continually reviewed and upgraded to ensure that it meets and exceeds current Building Regulations. Table 1 indicates the range of thermal improvements achieved with different insulants when each are applied to a small selection of typical constructions.

The advanced thermal performance of the Struchterm External Wall Insulation system cuts fuel bills and controls condensation. Under normal UK conditions, interstitial condensation will not occur within the cladding system. However, consultants and building owners must ensure that additional measures are undertaken to increase ventilation in areas with continuous high humidity such as kitchens and bathrooms.

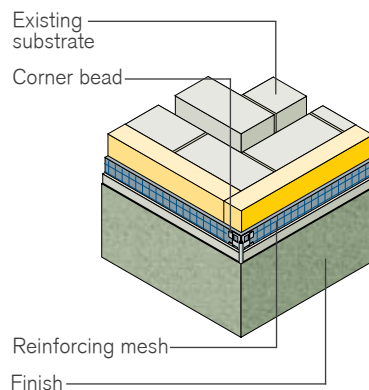
**Table 1** Comparison U-values

Insulation	U-value to Achieve or Better	Solid Wall	Traditional	No Fines
		2.08 W/m <sup>2</sup> K	1.51 W/m <sup>2</sup> K	1.60 W/m <sup>2</sup> K
		Insulation Thickness (mm)	Insulation Thickness (mm)	Insulation Thickness (mm)
EPS	0.30 W/m <sup>2</sup> K	110	110	110
	0.25 W/m <sup>2</sup> K	140	130	130
	0.20 W/m <sup>2</sup> K	170	170	170
	0.15 W/m <sup>2</sup> K	230	230	230
Mineral Wool	0.30 W/m <sup>2</sup> K	110	100	120
	0.25 W/m <sup>2</sup> K	130	120	150
	0.20 W/m <sup>2</sup> K	160	160	190
	0.15 W/m <sup>2</sup> K	220	220	220
Enhanced EPS	0.30 W/m <sup>2</sup> K	90	80	90
	0.25 W/m <sup>2</sup> K	110	100	100
	0.20 W/m <sup>2</sup> K	140	130	130
	0.15 W/m <sup>2</sup> K	190	180	180
PIR	0.30 W/m <sup>2</sup> K	80	70	80
	0.25 W/m <sup>2</sup> K	90	90	90
	0.20 W/m <sup>2</sup> K	110	110	110
	0.15 W/m <sup>2</sup> K	150	150	150
Phenolic	0.30 W/m <sup>2</sup> K	60	60	60
	0.25 W/m <sup>2</sup> K	70	70	70
	0.20 W/m <sup>2</sup> K	90	90	90
	0.15 W/m <sup>2</sup> K	120	120	120

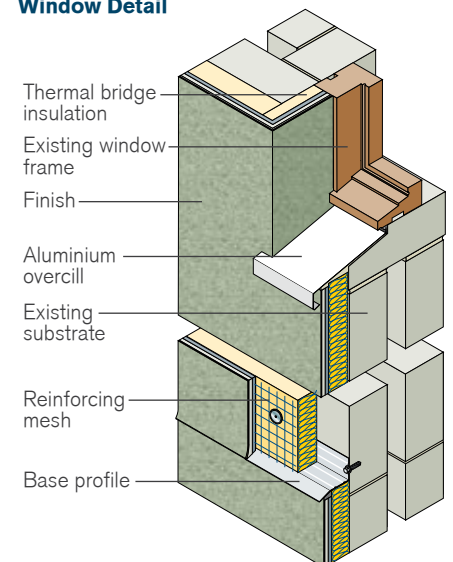
### Typical Details

Typical window, string course and corner details indicate the methods adopted for insulating the building fabric.

#### Corner Detail



#### Window Detail



#### String Course Detail

## Installation Procedures

Systems must be applied to a substrate that is structurally sound. Once the type and condition of substrate is known, the correct choice of proprietary fixing is determined by the pull out tests undertaken prior to work proceeding.

### Thin Coat (NSC2 - Low Rise)

The insulation boards are fully fixed to the wall with 5 fixings in a dice pattern prior to the application of a 2-3mm skim of basecoat render into which a glass fibre reinforcing mesh is pressed. The remainder of the basecoat render is then applied to give a thickness of 4-6mm, followed by the surface finish.

### Thin Coat (NSC2 - High Rise)

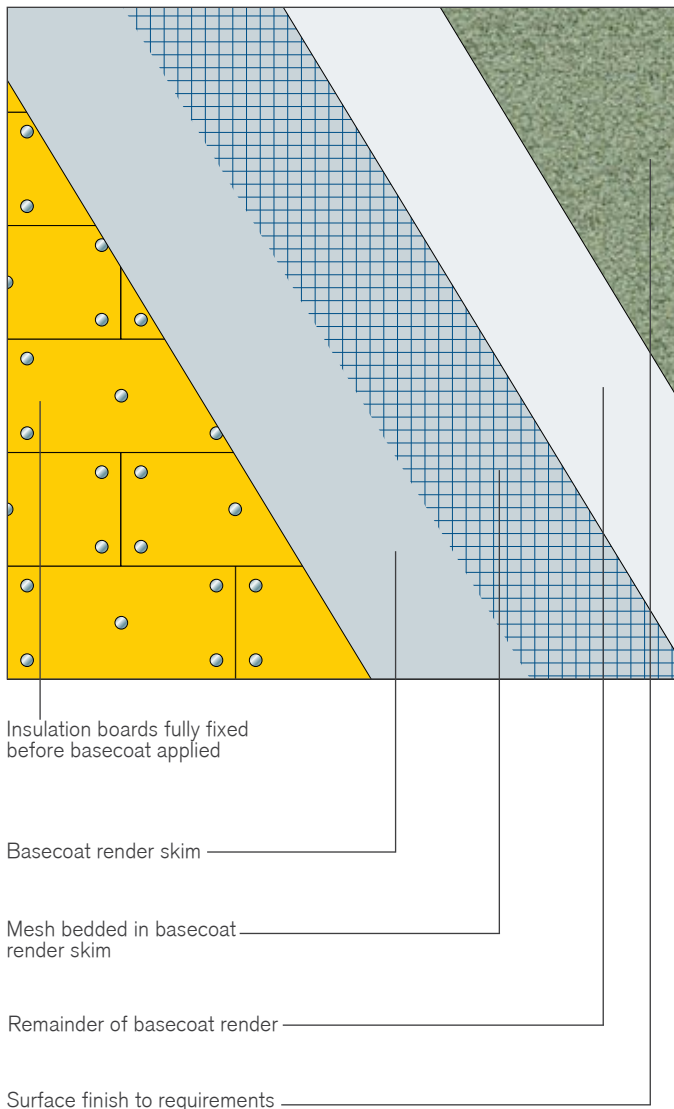
First insulation board is located in position with one central fixing. The procedure is repeated for each board, butt jointing as the work proceeds. A 2-3mm skim of basecoat render is then applied into which a glass fibre reinforcing mesh is pressed. Further fixings are then installed through the mesh, basecoat and insulation boards nominally at the rate of 6-8 per m<sup>2</sup> including one fire rated fixing whilst the basecoat is still wet. The second layer of basecoat render is then applied to give a thickness of 4-6mm, followed by the surface finish.

### Heavy Duty (NSC3 & 5 - Low Rise)

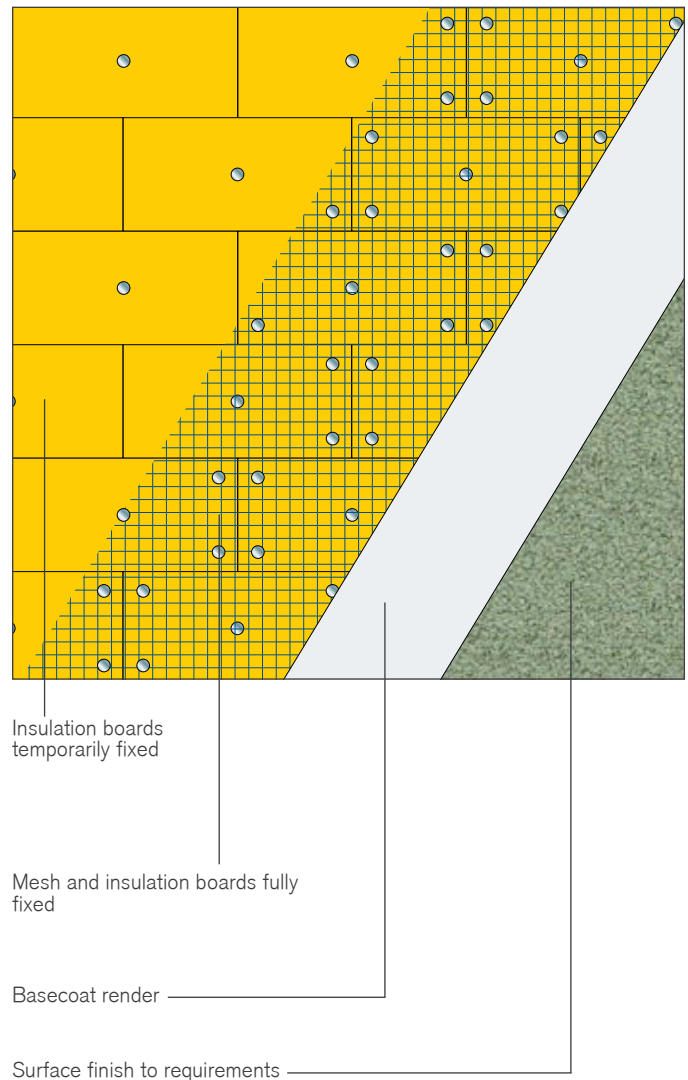
First insulation board is located in position with one central fixing. The procedure is repeated for each board, butt jointing as the work proceeds. The galvanised or stainless steel reinforcing mesh is then offered up over the boards. Further fixings are then installed through the mesh and insulation boards nominally at the rate of 6-8 per m<sup>2</sup>. The render basecoat is trowel applied to the insulation and mesh at a thickness of 8mm, over which the surface finish is applied.

For all options base trims are installed prior to boarding and then top beads, corner beads and other profiles are fixed as required, after the installation of the insulation boards.

#### Procedure for Thin Coat (NSC2 - Low Rise) Systems



#### Procedure for Heavy Duty (NSC3 & 5) Systems



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