

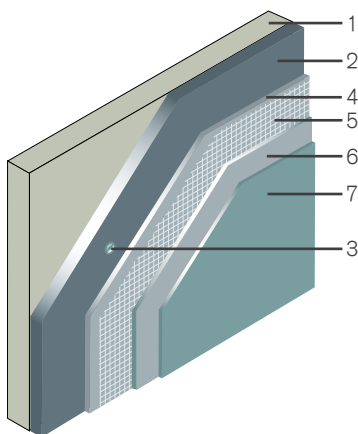
External Wall Insulation System Overview & Benefits



External Wall Insulation

Diagram 1

EWI - typical sequence of layers



1. Substrate
2. Insulation
3. Fixing
4. Basecoat render
5. Mesh
6. Basecoat render
7. Finish

System Overview

Introduction

Structherm's quick and easy-to-use system is based on a sequence of layers built up to form a thermally insulated, weatherproof and attractive envelope, suitable for a wide variety of building types. The layers consist of a CFC and HCFC free insulant overlaid in turn with reinforcing mesh, basecoat render and a decorative finish.

System Options

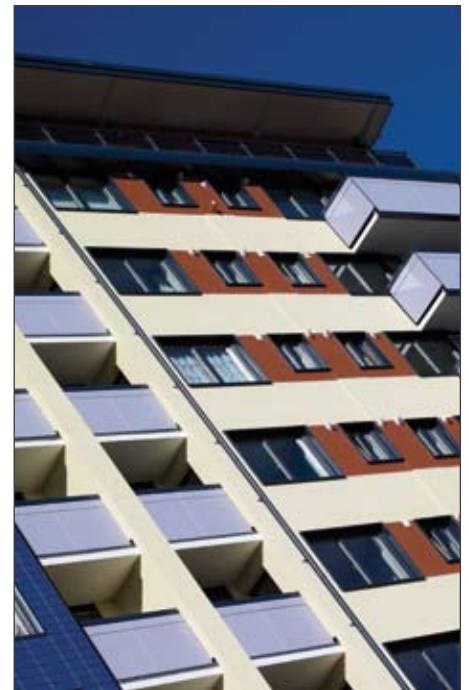
The system has various options offering clients a choice of insulant and surface finish to suit individual requirements. Please refer to specific datasheets for each option.

Insulants

There are five insulants to choose from, Expanded Polystyrene (EPS), Mineral Fibre, Enhanced EPS, PIR and Phenolic. All insulants are available as rigid boards in standard sizes of 1200 x 600mm and in a standard range of thicknesses from 20mm to 120mm. Other thicknesses are available to suit varying thermal insulation requirements.

Surface Finishes

For information on the wide range of textures and colours available, please refer to our Renders and Finishes Datasheets.



Areas Of Application

Structherm systems are suitable for:

1. New build projects
2. Refurbishment of local authority dwellings
3. Refurbishment of private dwellings
4. Public buildings including ground floor areas
5. For buildings where a traditional appearance is required
6. Offices
7. Schools
8. Commercial premises
9. Any high-rise or low-rise building

System Benefits

The unique characteristics of Structerm's External Wall Insulation systems offer many benefits:

1. Thermal performance

Significantly improves the thermal efficiency of walls, thereby reducing fuel consumption and environmental pollution.

2. BBA certification

BBA Certificate No. 96/3243 indicates that the system may be used without restriction of height or exposure, and has an assessed life of at least 30 years.

3. Impact resistance

Impact resistance of 6 N/m has been attained.

4. Easy handling, rapid installation

The low weight of the rigid insulation boards means they are easily handled by one person, and readily cut or shaped on site to suit complicated configurations.

5. Fire

The system is classified Class 0 as defined in the current Building Regulations.

6. Acoustic performance

Transmission of external airborne noise is much reduced using the system.

7. Insulants

Five standard insulants are available giving a range of thermal performance figures to suit any application.

8. Renders and surface finishes

The external render face offers a high level of weather protection and is virtually maintenance free.

9. Moisture

In addition to their water resistant properties, renders are also vapour permeable to allow natural drying of existing walls.

10. Condensation

No risk of condensation because dew point occurs on the outside of the system.

11. Ancillary materials

A range of standard profiles and fixings for finishing corners and edges complements the system components, offering complete continuity of the system across the building façade.

12. Minimising disruption

In refurbishment projects, occupants do not have to vacate the building because all work access and installation are external.



Beechwood Secondary School, Slough



University Accommodation, Sheffield

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External Wall Insulation Thermal Performance, Typical Details & Installation



Thermal Performance

Optimum thermal performance is considered in conjunction with windows, doors and roofs as part of Structherm's integrated, whole building 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 Structherm 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.

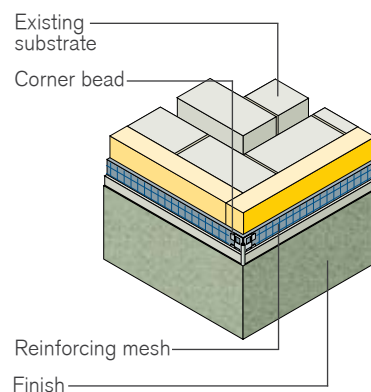
Table 1 Comparison U-values

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

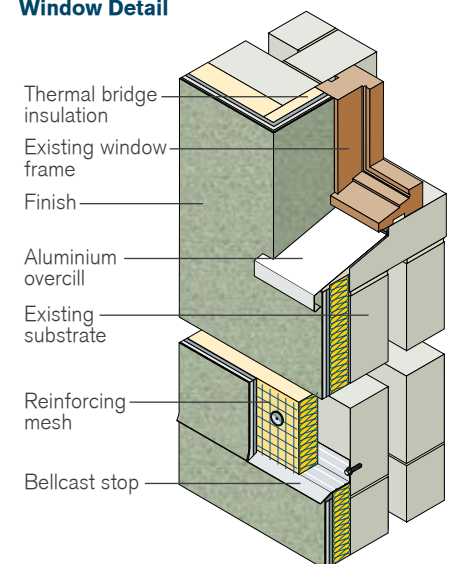
Typical Details

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

Corner Detail



Window Detail



String Course Detail

Installation Procedure

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.

For our Thin Coat and High Build systems, the procedure is similar, the insulation boards are fully fixed to the wall prior to the application of a 1mm

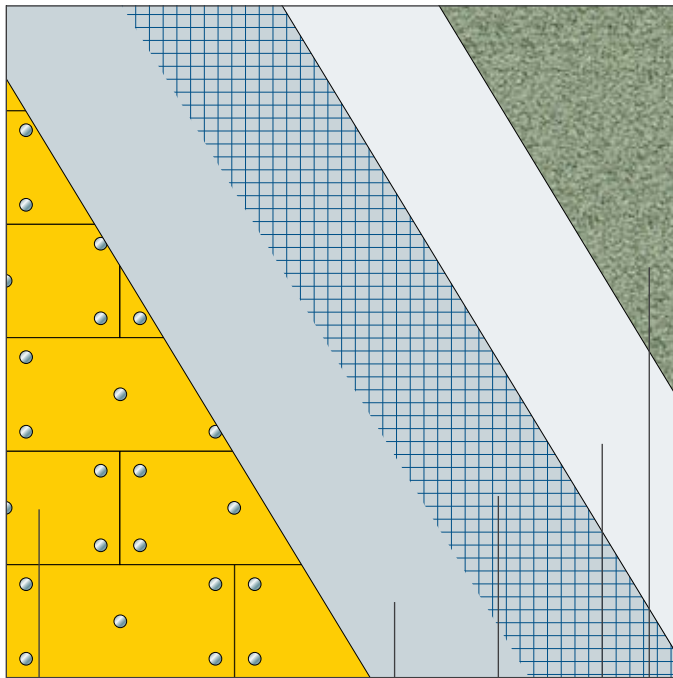
or 3mm skim of basecoat render into which a glass fibre mesh is pressed. The remainder of the basecoat is then applied to give a thickness of 3mm or 6mm, followed by the surface finish.

For our Heavy Duty systems, the first insulation board is located in position with a temporary 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. The mesh and insulation boards are fixed to the wall using 6 to 8 proprietary fixings per m². The render basecoat is trowel applied to the insulation and mesh, over which the surface finish is applied.

For all options, top and corner beads and other profiles are fixed as required, after the installation of the boards.

Procedure for Thin Coat and High Build System



Insulation boards fully fixed before basecoat applied

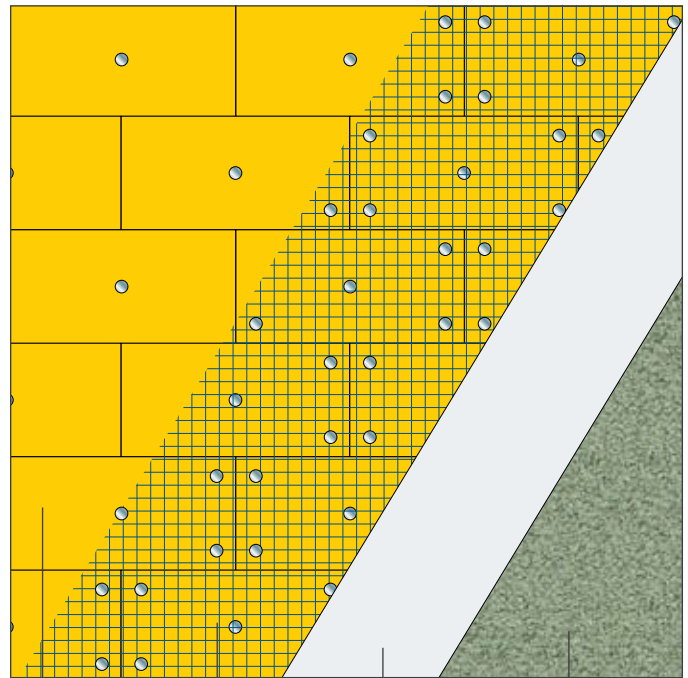
Basecoat render skim

Mesh bedded in basecoat render skim

Remainder of basecoat render

Surface finish to requirements

Procedure for Heavy Duty Systems



Insulation boards temporarily fixed

Mesh and insulation boards fully fixed

Basecoat render

Surface finish to requirements

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External Wall Insulation High Build System

External Wall Insulation



Characteristics

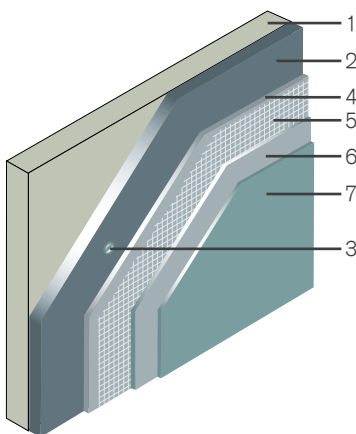
The system uses a medium build up of cementitious render, with glass fibre mesh embedded within to create a finish ready to receive a variety of decorative finishes.

Fixings

Selected proprietary insulation fixings nominally at the rate of 6-8 per m², dependent upon individual specifications. Available in polypropylene or stainless steel.

Diagram 1

High Build System - sequence of layers



1. Substrate
2. Insulation
3. Fixing
4. Basecoat render
5. Mesh
6. Basecoat render
7. Finish

- Fast installation
- High thermal efficiency
- Excellent level of impact resistance
- Vapour permeable
- Flexible choice of final texture, colour and effect

Insulants

Our range of high performing insulants are CFC and HCFC free, available as rigid boards in standard sizes of 1200 x 600mm and in a standard range of thicknesses from 20mm to 120mm. Other thicknesses are available to suit varying thermal insulation requirements.

The range includes:

- EPS 16 kg/m³
- Mineral Fibre 140 kg/m³
- Enhanced EPS 15 kg/m³
- PIR 32 kg/m³
- Phenolic 35 kg/m³

Basecoat Render - First Layer

First layer of polymer modified basecoat render incorporating lightweight aggregates and reinforcing polyester fibres applied to a thickness of 3mm.

Mesh

Glass fibre reinforcing mesh in sheet or roll form, embedded into first layer of basecoat render.

Basecoat Render - Second Layer


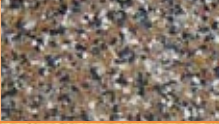

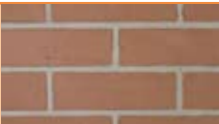

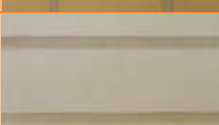

In addition to the initial 3mm skim coat, a second layer of basecoat render is applied over the mesh to a final thickness of 6mm.

Accessories

A wide range of bellcast, capping, bead and joint profiles are available in aluminium, galvanised steel, stainless steel and PVCu to suit requirements.

Finishes

To complete the system, choose a finish from our Contemporary or Traditional ranges.

Contemporary	
Acrylic ✓	
Marble Aggregate ✓	
Silicone ✓	
Traditional	
Brick Effects ✓	
Stone Effects ✓	
Ashlar Effect ✓	
Dash Receiver & Aggregates ✓	

For more details, please see our **Renders & Finishes Datasheets**.

Application Procedures

The notes below are intended to give general guidance on the application of a basecoat render.

1. To prevent the appearance of efflorescence, do not render in cold, damp weather. Do not allow downpipes, sills and scaffolding to throw water onto setting render. Protect render from rain for at least 48 hours after application.
2. Where possible, application on individual wall surfaces should be completed in one operation. Where this is not practical, the location of day work joints should be agreed with the architect.
3. The basecoat, should be applied with a hawk and trowel using the normal method.
4. A darby float or straight edge must be used to ensure that the finishing coat (or coats) is applied to a uniformly levelled surface.
5. Allow 24 hours curing time before application of finishing coats.
6. Work must NOT be carried out in temperatures less than 5°C or more than 35°C.
7. During hot weather, it is recommended that work is started on the shady side of the building and continued round following the sun.
8. Drying conditions will vary according to wind, temperature and humidity.
9. Always protect window frames, quoins, etc.

For further advice call our technical department on 01484 850098.



Residential Refurbishment Project: High Build EWI System with Brick Effect Finish to Ground Floor & Acrylic Finish to First Floor



Residential Newbuild Project: High Build EWI System with Ashlar Effect Finish to Ground Floor

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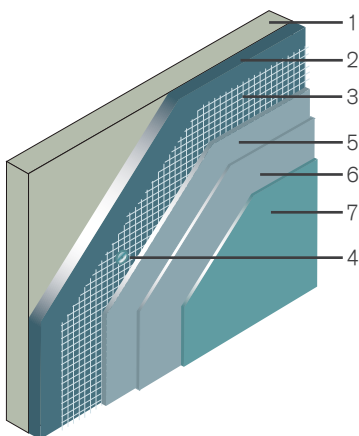
External Wall Insulation Heavy Duty System

External Wall Insulation



Diagram 1

Heavy Duty System - sequence of layers



1. Substrate
2. Insulation
3. Mesh
4. Fixing
5. Basecoat render
6. Basecoat render
7. Finish

Characteristics

The system uses a thicker build up of cement renders with a steel mesh, through fixed, to provide a more robust build up, ready for the decorative finish. Used generally in more robust areas such as schools where usage levels are high and in more exposed and severe environments.

- Fast installation
- High thermal efficiency
- Maximum level of impact resistance
- Vapour permeable
- Flexible choice of final texture, colour and effect

Insulants

Our range of high performing insulants are CFC and HCFC free, available as rigid boards in standard sizes of 1200 x 600mm and in a standard range of thicknesses from 20mm to 120mm. Other thicknesses are available to suit varying thermal insulation requirements.

The range includes:

- EPS 16 kg/m³
- Mineral Fibre 140 kg/m³
- Enhanced EPS 15 kg/m³
- PIR 32 kg/m³
- Phenolic 35 kg/m³

Fixings

Selected proprietary insulation fixings nominally at the rate of 6-8 per m², dependent upon individual specifications. Available in polypropylene or stainless steel.

Mesh

Stainless or galvanised steel reinforcing mesh in sheet form is fixed to the insulation panels with universal anchor fixings.

Basecoat Render - First Layer

First layer of polymer modified basecoat render incorporating lightweight aggregates and reinforcing polyester fibres applied to a thickness of 8mm.

Basecoat Render - Second Layer


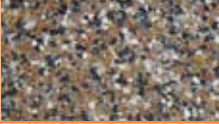

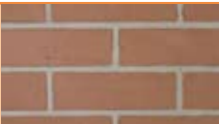


In addition to the initial 8mm basecoat, a second layer of render is applied to a thickness of 6mm, giving an overall thickness of 14mm.

Accessories

A wide range of bellcast, capping, bead and joint profiles are available in aluminium, galvanised steel, stainless steel and PVCu to suit requirements.

Finishes

To complete the system, choose a finish from our Contemporary or Traditional ranges.

Contemporary	
Acrylic ✓	
Marble Aggregate ✓	
Silicone ✓	
Traditional	
Brick Effects ✓	
Stone Effects ✓	
Dash Receiver & Aggregates ✓	

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3. The basecoat, should be applied with a hawk and trowel using the normal method.
4. A darby float or straight edge must be used to ensure that the finishing coat (or coats) is applied to a uniformly levelled surface.
5. Allow 24 hours curing time before application of finishing coats.
6. Work must NOT be carried out in temperatures less than 5°C or more than 35°C.
7. During hot weather, it is recommended that work is started on the shady side of the building and continued round following the sun.
8. Drying conditions will vary according to wind, temperature and humidity.
9. Always protect window frames, quoins, etc.

For further advice call our technical department on 01484 850098.



School Refurbishment Project: Heavy Duty EWI System with Brick Effect & Acrylic Finishes



School Newbuild Project: Heavy Duty EWI System with Acrylic Finish

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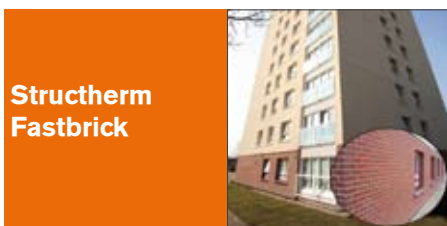
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DS 205 Rev.1

Structherm Fastbrick



The System

The installation of the Structherm Fastbrick system is much quicker than traditionally built masonry and to a higher quality standard.

It is suitable for fixing to existing structures that use masonry, dense concrete, modular units, timber or metal frames.

The system comprises a rigid phenolic insulation panel which Structherm pre-bonds to a brickwork coordinating carrier sheet. This composite panel is then fixed to the substructure on site, and brick slips are fixed to the carrier sheet using a purpose made adhesive. A specialist pointing mortar completes the installation and gives the perfect finish.

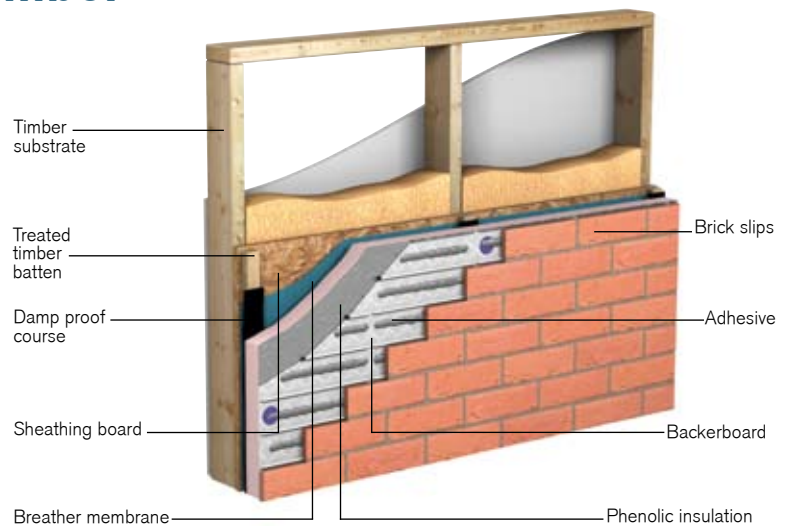
Fastbrick incorporates standard 20mm brick slips; however small areas such as corbels and dentil courses can be achieved by altering the thickness of the finishes from 15mm to 30mm.

External corners, soldier courses and reveals can also be achieved by the use of L-shaped pistol slips.

Fastbrick is a real brick slip cladding system combining the advantages of modern construction techniques with the appeal of traditional brickwork. The system is used in the social housing and school refurbishment sectors, where façades are often in need of aesthetic and thermal upgrade or on ground floors of high rise blocks where a robust system is needed.

Fastbrick can be fixed against almost any substrate. The illustrations show three of the most popular construction substrates.

Timber



Masonry



Steel

Application Procedure

Structerm's Fastbrick cladding system is fast and easy to install. A rigid insulation panel with pre-formed brickwork carrier sheet is fixed to a suitable substrate. Brick slips are then fixed to the carrier sheet using a purpose made adhesive. A specialist pointing mortar completes the installation.



1. Alignment of backboard



2. Spacing and frequency of fixings



3. Attach backboard to the substrate



4. Application of adhesive



5. Adhering brick slips to backboard



6. Pointing of mortar joint



7. Tooling of the mortar joint



8. Finishing



9. Finished

System Benefits

- Faster and easier installation than traditional masonry and other brick slip systems.
- Aesthetically pleasing giving a traditional brick finish.
- On-site flexibility enables shaping to suit openings and other building details.
- High insulation values can be achieved.
- Real brick slips are as robust and impact resistant as traditional masonry.
- Suitable for use with masonry, modular units, metal and timber frames.
- Any variety of brick can be used, including extruded and stock facing slips allowing accurate colour matching.



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