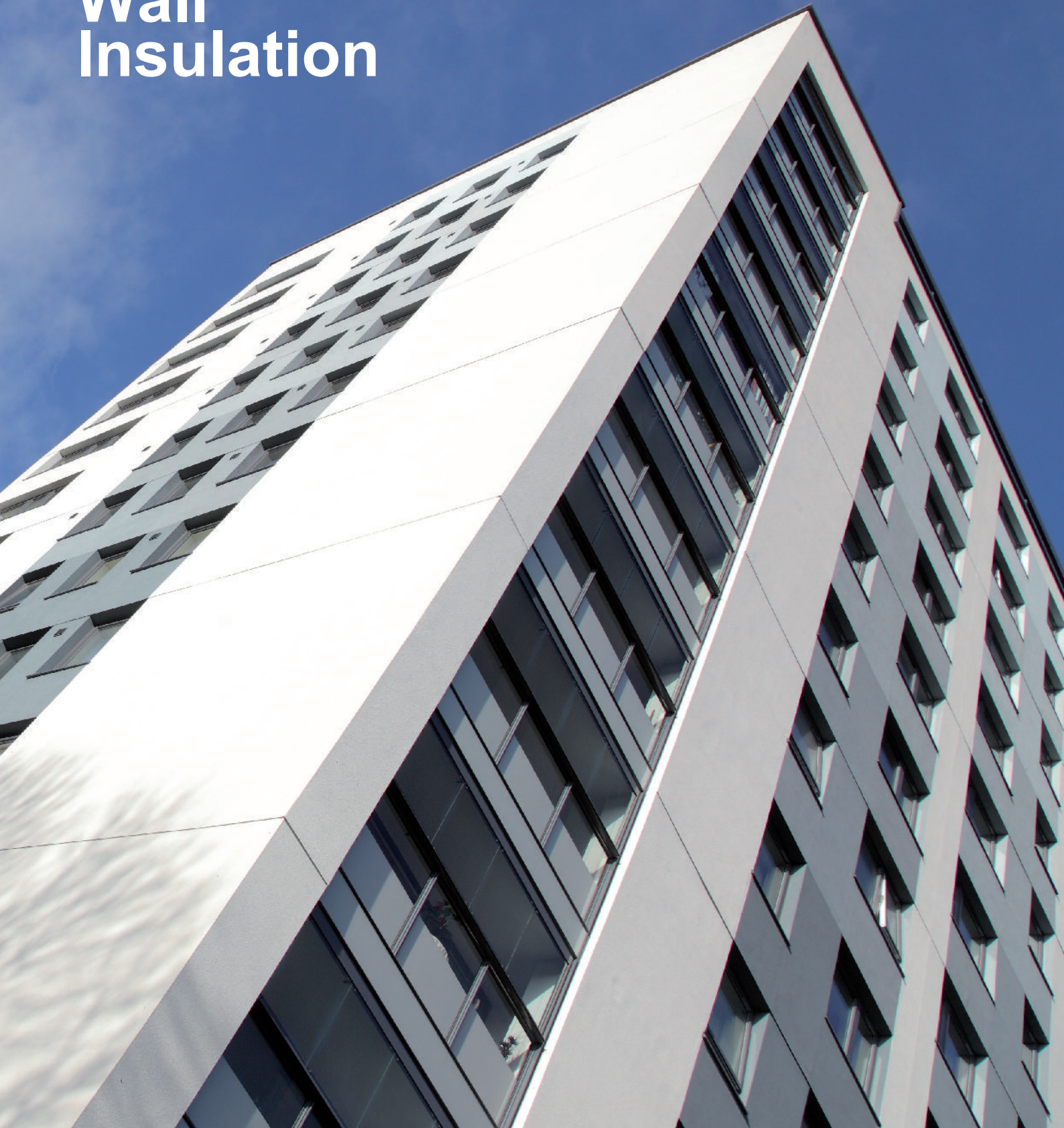




Structherm
STRUCTURAL INSULATED FACADES

External Wall Insulation





Client: Liverpool Mutual Homes
Building Type: Non-traditional Boswells
Project Size: 600 Houses
System: Structural External Wall Insulation
Finish: Acrylic 1.5mm & Brick Effect Render

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STRUCTHERM & OUR UNIQUE BENEFITS

Client: West Dunbartonshire Council
Building Type: Wimpey No-fines Concrete
Project Size: 13 Blocks of Flats
System: Structural External Wall Insulation
Finish: Dash Aggregate & Wonderwall

Social Housing Refurbishment | Rosshead, West Dunbartonshire

STRUCTHERM ARE THE UK'S NUMBER ONE EXPERTS IN THE EXTERNAL REFURBISHMENT OF NON-TRADITIONAL HOUSING & HIGH RISE BUILDINGS

Our unique Structural External Wall Insulation can extend the life of a property by 30 years, dramatically improve the thermal performance, reduce fuel bills and provide a modern and fresh appearance.

Founded in 1983, Structherm is renowned for its unique 'Structural External Wall Insulation' (SEWI) system which is manufactured at its factory in West Yorkshire. The SEWI system is designed to provide a refurbishment solution for the treatment of defective, non-traditional housing and high rise buildings.

There are hundreds of different types of properties in the UK, so selecting the correct system is critical. Giving a building the wrong treatment can have serious effects, which is why our team of technical experts take no short cuts when designing a bespoke, Structural External Wall Insulation solution.

The SEWI system is the least disruptive solution for residents and the most cost effective. It offers many benefits beyond those provided by standard external wall insulation systems, as illustrated opposite.

We also have a comprehensive range of non-structural External Wall Insulation systems suitable for solid wall properties. These are cost effective systems which improve both the thermal and aesthetic qualities of a property.

All our systems are applied by a network of Authorised Installation Contractors that have undergone specific training in the application of our systems. They are regularly monitored to ensure that they provide an excellent service to our customers.

Structherm has a strong culture of customer support resulting from its commitment to ensuring specifiers, procurers, contractors, tenants and all other stakeholders in the business benefit from our innovative solutions.

STRUCTHERM'S STRUCTURAL EXTERNAL WALL INSULATION SYSTEM OFFERS MANY UNIQUE BENEFITS TO RESIDENTS AND SOCIAL LANDLORDS



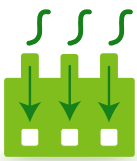
Property Life Extended

Defective properties are stabilised, extending the life of them by at least 30 years.



Reduced Energy Usage

Lower energy bills for residents helping to reduce fuel poverty.



Reduces CO₂ Emissions

Significantly improves thermal efficiency, reducing fuel consumption and CO₂ emissions.



Healthier Living Environment

Your homes will be warmer and have less damp, mould growth and draughts.



Quality

High quality customer and technical support along with independent testing of our systems gives you reassurance.



Minimising Disruption

All work is carried out externally meaning your tenants can remain in their homes.



Low Maintenance Costs

Robust systems with high levels of weather protection and impact resistance.



Homes Transformed

A wide range of finishes for you to choose from which can transform whole streets.



Cost Effective

Compared to other alternative solutions our system is much more cost effective.



Sustainability

Extending the life of your existing housing stock, rather than demolishing them, is a sustainable solution.

“ Learn more about Structural External Wall Insulation on pages 12 to 35. ”

QUALITY AND CUSTOMER SERVICES



Client: South Sefton Sixth Form College, Liverpool
Building Type: New Build College
Project Size: 2,700m²
System: Thin Coat NSC2 External Wall Insulation
Finish: Acrylic 1.5mm

Education New Build | South Sefton, Liverpool

HIGH QUALITY PRODUCTS, EFFECTIVE PROJECT MANAGEMENT AND OUTSTANDING CUSTOMER SERVICE



The British Board of Agrément (BBA) is the UK's major authority offering approval and certification services to manufacturers and installers supplying the construction industry.



We are pleased to advise that most of our systems are BBA certified meaning that specifiers can be confident that they are choosing high quality products that meet the rigorous criteria set out by the BBA and can be used to improve thermal performance, meet all fire resistance criteria and, with appropriate care, will remain effective for at least 30 years.



Construction Products Certification (CPC) are a provider of management systems assessment, certification and training services. Structherm hold the following accreditations through CPC.



- ISO 9001 Quality Management System
- ISO 14001 Environmental Management
- OHSAS 18001 Occupational Health and Safety Accreditation



These certifications are an integral part of our business management systems, which demonstrates our long term commitment to providing high quality, sustainable products and service while reducing our impact on the environment.



Structherm are members of the Insulated Render & Cladding Association (INCA), which represents system designers, specialist installers and key component suppliers to the external wall insulation industry.



Structherm are members of the National Insulation Association (NIA), which represents manufacturers and installers to the insulation industry.

UNRIVALLED TECHNICAL SUPPORT AND DESIGN SERVICES ARE PROVIDED AT EVERY STAGE OF A PROJECT

Structherm has 30 years experience of providing a comprehensive, integrated service from initial concept right through to completion.

Our aim is to develop a full understanding of your business and operational objectives in order to ensure the smooth and timely delivery of your project.

We offer you the best in design services to cover all aspects of your External Wall Insulation projects. Design work is carried out by our in-house qualified engineers and CAD designers and our free technical report service allows us to present a totally integrated holistic solution.

Specific technical advice is always available through our Technical Area Sales Managers, Site Support Technicians or Technical Services team, who can advise you on all aspects of product selection and specification.

At every stage of your development, we provide everything necessary to enable us to arrive at the best design solution for your project.

Specification Support

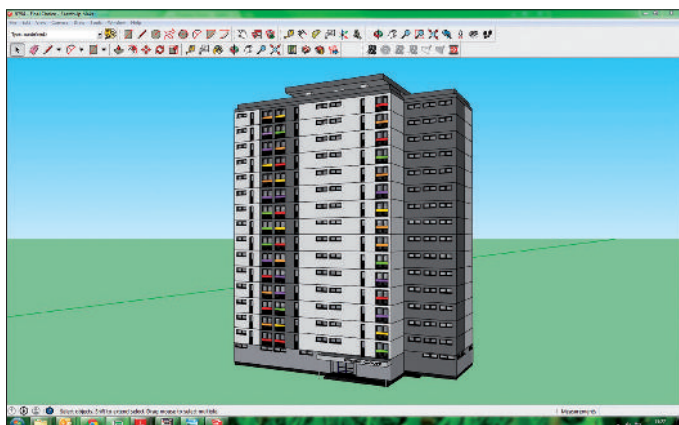
- Detailed specifications
- Advice on regulations and standards
- COSHH and product data sheets

Design Services

- Thermal efficiency calculations
- Condensation risk analysis
- Cost estimates
- Design advice and technical reports
- Detailed site evaluation surveys
- Pull out testing
- Wind loading calculations
- Structural analysis
- CAD details and 3D visuals
- Project specific elevational colour schemes
- Product samples
- Site support
- Thermal imaging photography

Installation, Aftercare and Warranties

- Installation by an authorised contractor
- On site technical and installation support
- Project specific warranties
- Information for O&M manuals
- Repair and maintenance information



Example of a 3D design proposal created by our technical team.

30 years

Experience of providing outstanding technical support and design services.

CONTINUING PROFESSIONAL DEVELOPMENT SEMINAR FOR CLIENTS, ARCHITECTS AND SPECIFIERS

There is increasing expectation from professionals to undertake Continuing Professional Development (CPD) regardless of industry, career level, job role and responsibilities.

Our specification team offers a CPD seminar entitled "How to effectively treat non-traditional low and high rise buildings with External Wall Insulation". The content has been independently certified as conforming to accepted CPD UK and Royal Institute of British Architects (RIBA) guidelines.

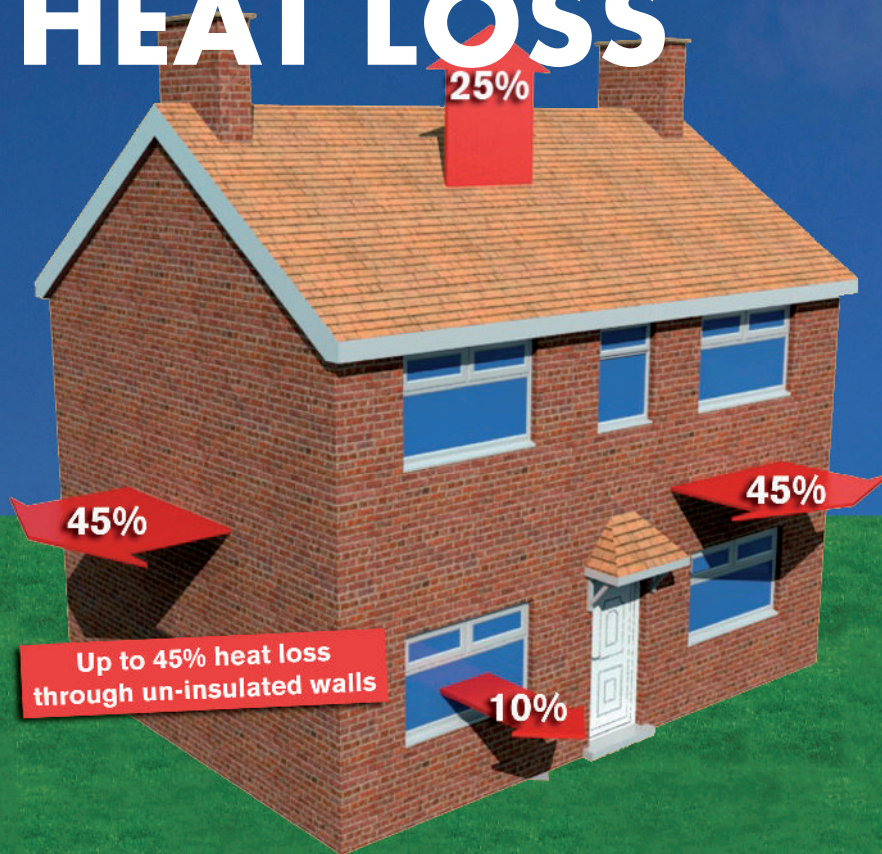
Certified training material gives delegates reassurance that content has been rigorously scrutinised to benchmarked standards of quality and integrity, to provide effective learning opportunities.

By reaching out and working with architects and specifiers we stay ahead of the field in innovation and customer care.

Book online at www.structherm.co.uk or call us on 0800 0407460.



EXISTING HOUSING AND HEAT LOSS



THERE ARE MILLIONS OF SOLID WALL AND NON-TRADITIONAL PROPERTIES IN THE UK WHICH SUFFER FROM POOR THERMAL PERFORMANCE

Our comprehensive range of External Wall Insulation (EWI) systems are the ideal solution as they provide a high level of thermal efficiency, vapour permeability, impact resistance and large choice of textured finishes and colours.

Homes built before the 1970's were constructed with very little regard for thermal efficiency. These buildings now fail to meet current Building Regulations for thermal efficiency and suffer from damp, condensation and deterioration of the façades.

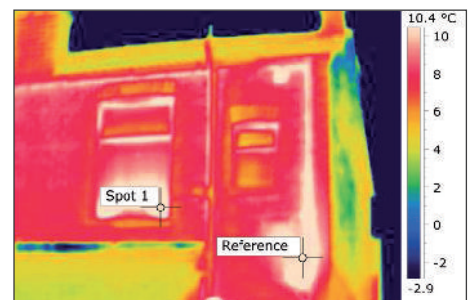
Solid Wall Construction

Over 30% (7 million) of the UK housing stock is of solid wall construction, commonly used in terraced brick houses and flats. Classified as 'hard-to-treat' because they cannot be insulated with cavity wall insulation heat loss through the external walls can be as much as 45%. This amount of heat loss results in high fuel consumption and therefore high CO₂ emissions.

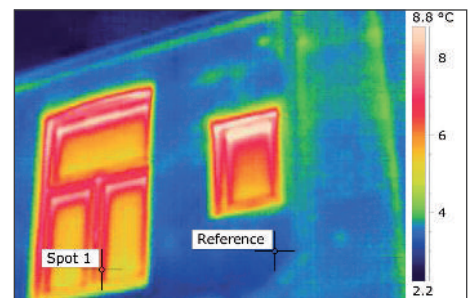
45%

Of heat loss is through uninsulated solid walls.

The photographs below show a typical solid wall terrace house before and after refurbishment.



Thermal image of rear elevation and gable before refurbishment shows excessive heat loss through walls, windows and where the waste pipes exit the house.



Thermal image of rear elevation and gable after refurbishment shows dramatic reduction of heat loss through walls of 5°C and windows of 7°C.

Download the full case study from our website.

OVER ONE MILLION NON-TRADITIONAL HOMES WERE BUILT AFTER THE FIRST AND SECOND WORLD WARS TO ALLEVIATE AN ACUTE HOUSING SHORTAGE

Structherm can offer you a unique Structural External Wall Insulation (SEWI) system. Designed for non-traditional and defective properties or those where the infill material between the load-bearing columns is too weak or unable to accept sufficient fixing loads.

After the First and Second World Wars, the replacement and renewal of housing was a big issue. The building industry was seriously affected by a shortage of skilled labour and essential materials. The result was an acute housing shortage and, in order to alleviate it, a number of Non-Traditional methods of construction were developed often designed for speed and economy of construction and with very little regard for thermal efficiency.

There are hundreds of different types of non-traditional properties, some of which were designated as defective under the housing defects legislation in the 1980's. Non-traditional housing can be grouped into the following categories:

- Prefabricated Reinforced Concrete (PRC)
 - In Situ Concrete Framed
 - Precast Concrete Panel
- Steel Framed
- Timber Framed
- High Rise Blocks of Flats

As well as poor insulation non-traditional housing has many serious design and construction defects and other considerations to take into account.

We recommend a structural survey be carried out before the building is clad to check the structural stability and check for any structural defects such as:

- Cracked masonry joints indicating foundation movement – cause – drains, trees, subsidence.
- Inadequate lintels – particularly important in non traditional properties.
- Cavity walls bulging outwards – condition of wall tie quality and quantity.
- Damp ingress – failed or non existent damp proof course.
- Interstitial condensation
- Carbonation of concrete which indicates corrosion of rebar.
- Corrosion of column bases of steel framed structures.
- Timber frame condition especially around openings and at sole plate level.

“ The SEWI system is the only structural EWI system in the UK that is fully BBA approved. ”

FOR THREE DECADES STRUCTHERM HAS SUCCESSFULLY CLAD SOME OF THE MOST HARD-TO-TREAT NON-TRADITIONAL PROPERTIES INCLUDING:



■ BISF



■ Airey



■ Swedish Timber



■ Unity



■ Wimpey No-fines



■ Cornish



■ Easiform



■ Crosswall



■ Wimpey No-fines



■ In Situ Concrete

For more information regarding our solutions for non-traditional buildings see pages 12 - 35

SCHOOLS AND COMMERCIAL BUILDINGS



Client: Norfolk County Council
Building Type: New Build Special Needs School
Project Size: 1,000m²
System: Heavy Duty NSC5 External Wall Insulation
Finish: Acrylic 1.5mm

THE UK HAS THOUSANDS OF SCHOOLS, COMMERCIAL BUILDINGS AND OFFICE BLOCKS LEAKING HEAT THROUGH POORLY INSULATED WALLS

External Wall Insulation can dramatically improve the thermal performance, reduce fuel bills and provide these buildings with a modern and fresh appearance.

System Built Schools

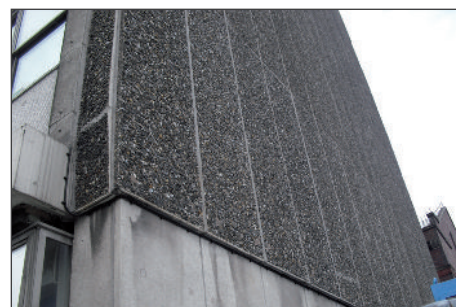
Between 1945 and 1975 thousands of schools were built using systems such as CLASP, Hills and SCOLA. Many of these systems are now failing and in urgent need of thermal and aesthetic upgrade. Structherm has a range of different solutions such as re-configuration of the façade, over cladding of defective concrete panels or installation of SEWI between original load-bearing columns.

Commercial Buildings & Office Blocks

The UK has a huge amount of dated office blocks, retail and commercial buildings. This legacy building stock is extremely inefficient, costly to heat and therefore a large contributor to CO₂ emissions.



Typical system built school before refurbishment with large areas of inefficient glazing and cladding.



Typical 1970's office block before refurbishment with failing concrete panel cladding.



Education New Build | Kings Lynn, Norfolk

£400m

Spend on energy per year by the UK's healthcare sector.

Healthcare Sector

The UK's healthcare sector spends more than £400 million per year on energy. A significant proportion of this is wasted in heating and cooling of the buildings due to poorly insulated walls. This is particularly the case in older buildings constructed in times when sustainability and thermal efficiency were not considered important.

With rising energy prices and tight budgets many managers are keen to increase efficiencies and reduce fuel costs. One of the best ways for you to do this is by installing External Wall Insulation which will prevent heat loss and therefore reduce fuel costs.



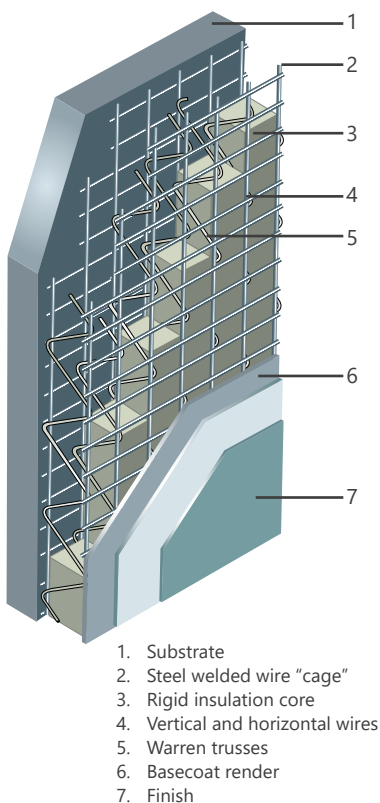
Crosshouse Maternity Unit: External Wall Insulation new build application

STRUCTURAL EXTERNAL WALL INSULATION SYSTEM INTRODUCTION & OVERVIEW

Client: Liverpool Mutual Homes
Building Type: Boots Non-traditional
Project Size: 71 Properties / 4,340m²
System: Structural External Wall Insulation GPL100
Finish: Acrylic 1.5mm & Brick Effect Render

Social Housing Refurbishment | Broad Lane, Liverpool

Diagram 7
Structural External Wall Insulation



A UNIQUE SOLUTION FOR THE REFURBISHMENT SECTOR

Our unique Structural External Wall Insulation system is a cost effective method of extending the life of defective buildings whilst also improving the appearance and thermal efficiency.

In the refurbishment sector, Structherm is thoroughly familiar with the problems likely to be encountered in a variety of ageing structures. Many buildings for example, low rise non-traditional system built housing erected during the immediate post-war period and high rise buildings, particularly those constructed during the 1960s and 1970s, suffer from inadequate thermal insulation, significant thermal bridging and subsequent condensation problems.

Over time, the deteriorating fabric leads to a gradual reduction in structural effectiveness, particularly at construction joints and junctions between components. This is exacerbated by poor concrete cover and/or chloride contamination leading to corrosion of reinforcement in the structural elements. Weather tightness may also be severely reduced.

The SEWI system is based on the performance of a unique, two-way spanning, lightweight prefabricated panel component with a rigid insulation core - the Structural External Wall Insulation panel. These panels are joined together with mesh to provide a rigid, continuous envelope around the building with real structural integrity and racking strength.

A substantial layer of basecoat render is then applied to the system which works with the panels to provide large spanning capabilities of up to 3600mm, without secondary support.

To complete the system a wide choice of final finishes, colours and textures are available.

STRUCTURAL EXTERNAL WALL INSULATION - OVERVIEW

The Structural External Wall Insulation panel is a unique patented system. No other EWI system is able to provide the structural benefits that it offers.

The system differs from traditional insulated render systems in that it does not rely on support or restraint from the existing cladding elements, but spans between structural frame members. This is especially useful where existing cladding may be fragile and easily damaged by a high frequency of drilled holes for fixings. Similarly with existing, thin concrete cladding panels, as they are also likely to spall on their rear face during drilling operations thus reducing the safe working load for mechanical fixings, although outwardly, the panels appear sound.

A 24-26mm thick rendered finish to the face of the system, contributes to the system's flexural stiffness, and exceptional impact and abrasion resistance.

The systems are cost effective methods of re-using or retaining existing components and extending the life of a structure, as well as enabling remedial work in nearly all situations to be carried out whilst people remain in the buildings.

The SEWI systems, whether used as over cladding or as re-cladding, provide methods of refurbishment sympathetic to the original constructional systems and their present condition, and offer a viable alternative to demolition.

The system can be used to refurbish buildings in the following sectors:

- Non-traditional Low Rise Housing
- Prefabricated Reinforced Concrete (PRC) Housing
- Medium and High Rise Buildings
- System Built Schools

System Options

The system has various options offering clients a choice of wire, insulant and surface finish to suit individual requirements.

Steel Reinforcement Wire

There are two types of steel wire to choose from:

- Galvanised Steel
- Stainless Steel

Insulants

There are five insulants to choose from:

- Expanded Polystyrene (EPS)
- Enhanced EPS
- Mineral Wool
- Polyisocyanurate (PIR)
- Phenolic

System Finishes

- Acrylic or Silicone
- Dash Aggregate
- Brick Effect Render
- Acrylic Brick Slips

Refurbishment Programmes Can Include:

1. Over cladding of defective or inefficient system built structures to improve their structural and thermal performance, and their overall appearance.
2. Reconfiguring property façades such as reduction of glazed areas and window replacement.
3. Enclosing balconies or walkways to increase internal floor area, an extremely popular choice amongst residents.
4. Re-modelling of parapets / gables on high rise buildings to increase safety and transform the skyline.

STRUCTURAL EXTERNAL WALL INSULATION - BBA APPROVALS

The only structural cladding system to have BBA approval

The system differs from traditional insulated render systems in that it does not rely on support or restraint from the existing cladding elements, but spans between structural frame members. Particularly useful on some non-traditional house types where the substrate is too thin to take a standard EWI fixing.



**Agrément Certificate
03/4022**



Product Sheet 1
Solid Wall Structures



Product Sheet 2
Solid Wall Structures (Mineral Wool)



Product Sheet 3
Steel Framed Structures



Product Sheet 4
Steel Framed Structures (Mineral Wool)

STRUCTURAL EXTERNAL WALL INSULATION SYSTEM FABRICATION & TECHNICAL DETAILS



Client: City West Housing Trust
Building Type: Unity Non-traditional
Project Size: 46 Properties / 3,400m²
System: Structural External Wall Insulation GPL100
Finish: Acrylic 1.5mm & Brick Effect Render

Social Housing Refurbishment | Cumberland Avenue Estate, Salford, Greater Manchester

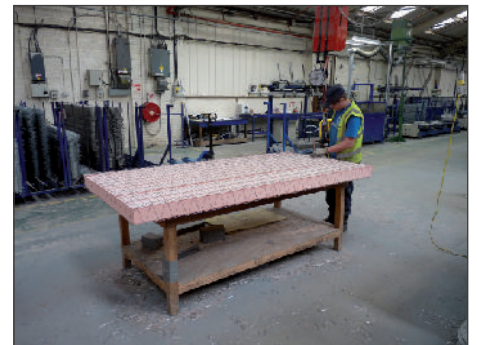
STRUCTURAL EXTERNAL WALL INSULATION FABRICATION DETAILS

The panel is the main component of the Structural External Wall Insulation system and have been manufactured at our factory in West Yorkshire since 1983.

During this time the system has undergone periods of development to ensure compliance with Building Regulation u-values.

The construction of each panel is based on a core of rigid insulation set within a galvanised or stainless steel welded wire space frame composed of a series of warren trusses interconnected by vertical and horizontal wires.

The panels are immensely strong, rigid and lightweight (standard 2450 x 1200 x 75mm, 100mm, 125mm and 150mm panels can be easily handled by one man), and are designed as two-way spanning, high tensile components that may be installed vertically or horizontally.



Photographs showing panels being manufactured at our factory.

A BUILDING USING STRUCTURAL EXTERNAL WALL INSULATION IS ABLE TO MEET THE MOST RIGOROUS OF PERFORMANCE REQUIREMENTS

The structural and thermal characteristics of each panel may be varied considerably because of the permutations possible with the size of steel reinforcement cage, and choice of insulation.

Performance requirements:

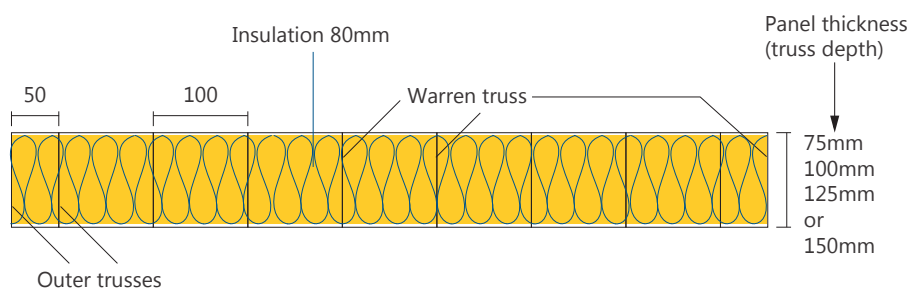
- Structural Strength and Stability
- Fire Resistance
- Thermal Efficiency
- Condensation Control

The type and thickness of insulant determines thermal performance. The depth of the steel wire space frame and the wire diameters determine structural performance. Standard wire diameters are 2mm and 3mm.

The standard panel dimensions are 1200 x 2400mm, however they can be manufactured in lengths up to 3600mm (increasing by 50mm increments), and in widths from 1000 to 1500mm. The panels are available in 75, 100, 125 and 150mm thicknesses. These thicknesses are also the depths of the warren trusses. The warren trusses are spaced at 100mm intervals with the two outer trusses (one on either side) at 50mm.

The table below shows the panel types, the variations available and how the panel coding is generated when based on the type of insulant, reinforcement steel required and panel thickness.

Insulation	Insulation Thickness (mm)	Overall Panel Thickness (mm)	Galvanised Steel (G)	Stainless Steel (S)
Expanded Polystyrene (E)	55	75	GE75	SE75
	80	100	GE100	SE100
	105	125	GE125	SE125
	130	150	GE150	SE150
Enhanced Expanded Polystyrene (PL)	55	75	GPL75	SPL75
	80	100	GPL100	SPL100
	105	125	GPL125	SPL125
	130	150	GPL150	SPL150
Mineral Wool (R)	55	75	GR75	SR75
	80	100	GR100	SR100
	105	125	GR125	SR125
	130	150	GR150	SR150
Polyisocyanurate (PIR)	55	75	GPIR75	SPIR75
	80	100	GPIR100	SPIR100
	105	125	GPIR125	SPIR125
	130	150	GPIR150	SPIR150
Phenolic (PH)	55	75	-	SPH75
	80	100	-	SPH100
	105	125	-	SPH125
	130	150	-	SPH150



5

Different types of insulation for you to choose from.

STRUCTURAL EXTERNAL WALL INSULATION TECHNICAL DATA



Client: Birmingham City Council
Building Type: Cornish Non-traditional
Project Size: 65 Properties / 4,000m²
System: Structural External Wall Insulation GPL100
Finish: Brick Effect Render

Social Housing Refurbishment | Dawberry Fields Road, Birmingham

STRUCTURAL PERFORMANCE OF A BUILDING IS ENHANCED

The SEWI system distributes applied forces in two directions across the linked panels. These forces are transferred through the panels and fixings into the existing structural frame utilising and enhancing the buildings structural capability.

Racking Resistance

Tests performed on the systems indicate that the structural panels have a basic racking resistance (the ability of a panel to resist forces in the panel's plane tending to distort it from its rectangular shape) of 0.51 kN m⁻¹ and racking load strength greater than that of plywood.

Wind Resistance

The systems can adequately transfer to the wall the self-weight and resist negative (suction) and positive (pressure) wind loads. Positive wind load is transferred to the substrate supports directly via bending and compression of the render and the structural panel to the substrate. Negative wind pressure is resisted by the bond between each component. The structural panels are retained by the appropriate mechanical fixing anchors.

Fixing Loads

Structtherm uses a variety of proprietary fixings designed to suit a specific structural problem. As a conservative estimate the ultimate (ULS) wind load to a fixing (adopting a standard distribution pattern) is typically 1.2kN. Typical safe working loads for 8mm diameter resin anchors are 5kN. On site pull out tests are always undertaken to verify the adequacy of the proposed fixing.

Impact Loading

Hard body impact tests were carried out and the systems are approved for use in all "Use Categories" as defined in ETAG 004 : 2013.

“ For more technical data and test results download our BBA certificate from www.structtherm.co.uk ”

FIRE RESISTANCE PROVEN BY INDEPENDENT TESTING

Our SEWI systems have passed all the necessary fire tests required for their use in both low rise and high rise applications. So you can be assured that they are more than fit for purpose.

Following a fire in a residential housing block at Garnock Court, Irvine in 1999 the potential risk of fire spread in buildings by way of the external cladding system has been gaining greater and greater significance within the English, and more prevalently, the Scottish Building regulations.

Resistance to the spread of fire is now paramount for all structures that have an external wall insulation system installed in particular high rise installations which can be more vulnerable.

The Structural External Wall Insulation systems offer very good reaction in relation to the behaviour and resistance of fire. Our British Board of Agrément (BBA) Certificate for the systems confirms that they meet current Building Regulations,

independent testing they also passed BS 8414-1:2002 Fire performance of external cladding systems. Our mineral wool panels have an A2 rating, the highest rating possible.

High Rise Solutions

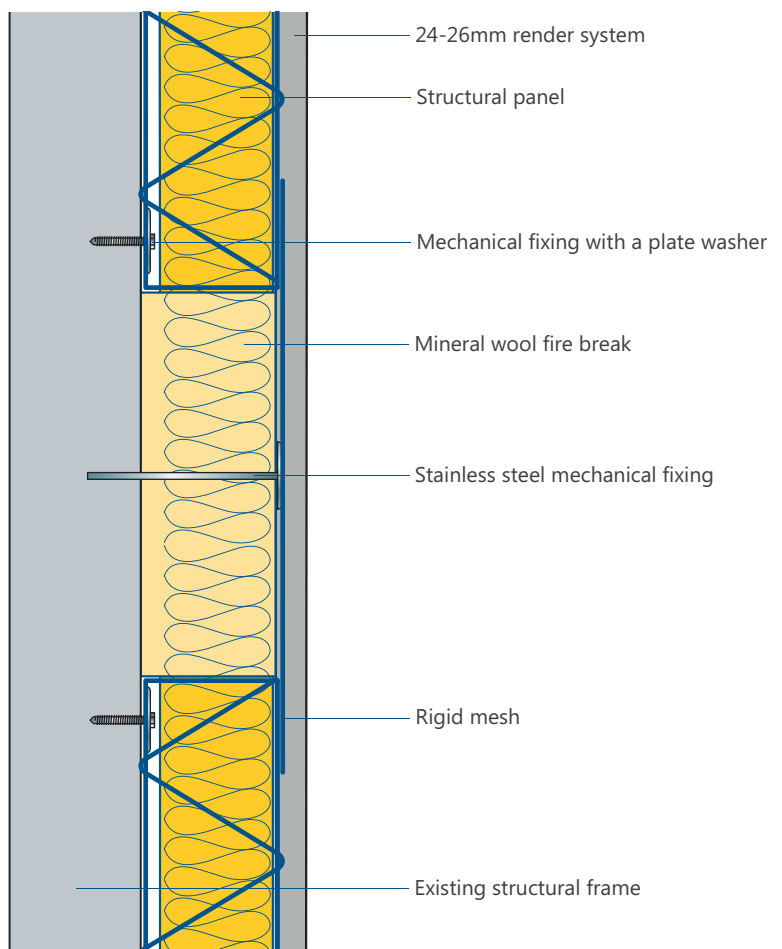
For high rise buildings we have the ability to design systems that meet the performance criteria set out in BRE Report BR 135:2003, Annex A. These designs can incorporate either separate or special integral mineral wool fire barriers mechanically fixed by stainless steel fixings.

The fixings are fully embedded into the existing wall or structural element of the building, and do not work in cantilever as is the case with standard EWI systems. This has distinct benefits for the performance of the fixings in fire. Nevertheless, it is important that structural fixings should be able to resist the effects of a fire, as non-structural fixings will lose their strength with heat and as a consequence transfer more load to the structural fixings.



Our Structural External Wall Insulation system successfully passed BR 135 : 2003 Fire Performance of External Insulation for Walls of Multi-storey buildings. The full scale fire test was carried out at the Building Research Establishment (BRE) in Watford.

Typical fire break detail



STRUCTURAL EXTERNAL WALL INSULATION TECHNICAL DATA



Client: City West Housing Trust
Building Type: Reema Non-traditional
Project Size: 71 Properties / 4,848m²
System: Structural External Wall Insulation GPL100
Finish: Acrylic 1.5mm & Brick Effect Render

Social Housing Refurbishment | De Traffords, Irlam, Greater Manchester

THERMAL EFFICIENCY OF A BUILDING IS IMPROVED

Improving the thermal performance of your existing buildings is one of the main reasons for refurbishing them. The structural panels can be manufactured at different thicknesses with a variety of insulation types to suit your thermal requirements.

Our SEWI systems are designed to achieve or better the current Building Regulation for thermal transmittance (U-values).

The first step in any project is to accurately ascertain the existing construction of the building or properties. This may be done from archive construction drawings but for older properties or those of non-traditional form, "opening up" exercises may be required.

The detailed information about the build up of the existing walls such as types of materials used and thicknesses is then entered into our

U-value calculation software. This provides an accurate existing U-value as a starting point from which to work from in order to specify the most cost effective system which will achieve the desired U-value.

The table below shows some examples of how our different panel types can perform on different property types.

Existing Construction	Existing U-value (W/m ² K)	Panel Type	Insulation Thickness	New U-value (W/m ² K)
BISF	0.96	100mm stainless steel cage with Enhanced EPS (ref: SPL100)	80mm	0.30
Brick-clad No-fines	1.12	125mm stainless steel cage with PIR (ref: SPIR125)	105mm	0.25
Concrete Cavity High Rise	0.85	125mm galvanized steel cage with Enhanced EPS (ref: GPL125)	105mm	0.30
Cruden Rural	0.77	125mm stainless steel cage with PIR (ref: SPIR125)	105mm	0.20

CONDENSATION PROBLEMS RESOLVED

If your properties suffer from condensation then SEWI can deal with the problem. We address this important issue as part of a full system design so that you don't have to worry about it and your tenants have a healthier living environment.



Surface condensation on the internal surface of a wall



Interstitial condensation within the wall construction

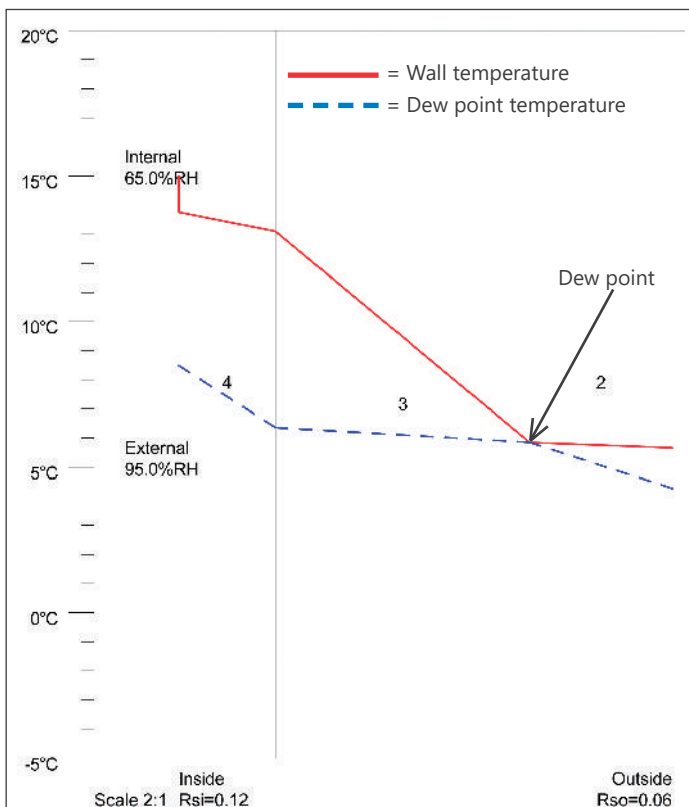
Condensation occurs when the temperature of a surface is below the dew point of the air. This means that at the point of contact with the surface, the air becomes saturated if sufficiently cooled (its dew point has been reached), and is unable to hold moisture in vapour form.

Surface condensation inside a property can cause dampness and mould growth which looks unpleasant and can increase the risk of respiratory illness. Whilst interstitial condensation within the thickness of a wall construction can also create serious problems such as increasing the rate of deterioration of materials and reducing thermal efficiency.

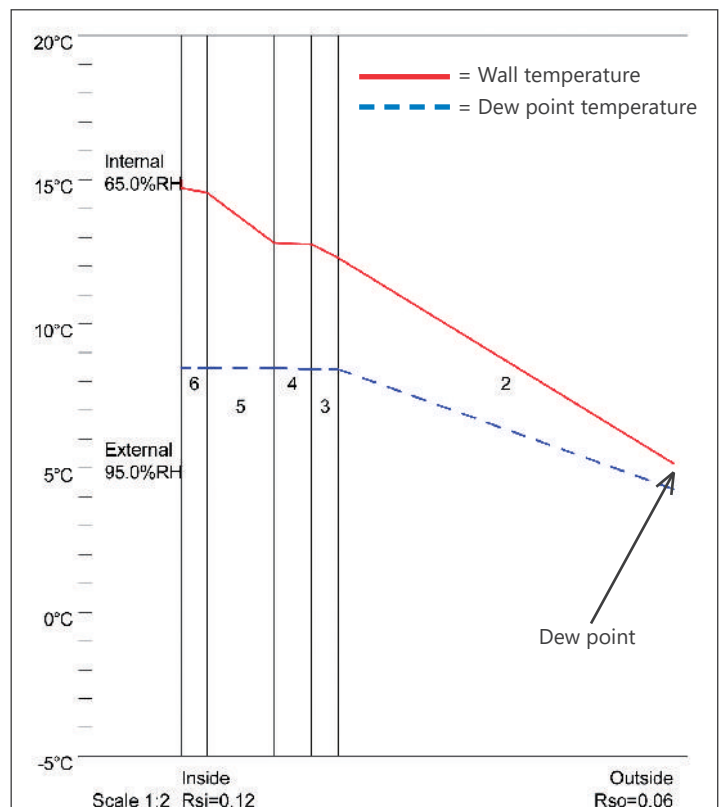
At Structherm we carry out dew point calculations and condensation risk analysis during the design stage for every project. These allow us to specify a system that controls the condensation by moving the dew point to the outside of the wall, thus eliminating condensation within the wall.

Below is an example showing the effects of the dew point position by installing Structural External Wall Insulation onto a BISF non-traditional metal framed property. The dew point is moved to the outside of the property therefore the risk of condensation is removed.

DEW POINT ANALYSIS GRAPHS



Graph showing existing dew point on the inside of the wall.



Graph showing dew point outside of wall, after SEWI installed.

IN SITU CONCRETE NON-TRADITIONAL HOUSING SOLUTIONS

Client: Liverpool Mutual Homes
Building Type: Non-traditional Boswells
Project Size: 600 Houses / 56,940m²
System: Structural External Wall Insulation GPL100
Finish: Acrylic 1.5mm & Brick Effect Render

Social Housing Refurbishment | Daneville Estate, Liverpool

STRUCTURAL EXTERNAL WALL INSULATION DIAPHRAGM FIXING METHOD

If you're looking for a solution to defective in situ concrete properties then SEWI is the perfect choice. Structural panels are fixed into both leaves of the concrete wall and tied to floor joists. This provides enhanced load-bearing capacity and structural stability.

The construction of in situ concrete properties involves three basic elements; Formwork, Concrete and Reinforcement. Steel reinforcement is added between the formwork after which the liquid concrete material is poured in.

There are variations to this construction technique so here we highlight our diaphragm fixing method for properties with two in situ concrete load-bearing panels.



Examples of in situ concrete properties before refurbishment.

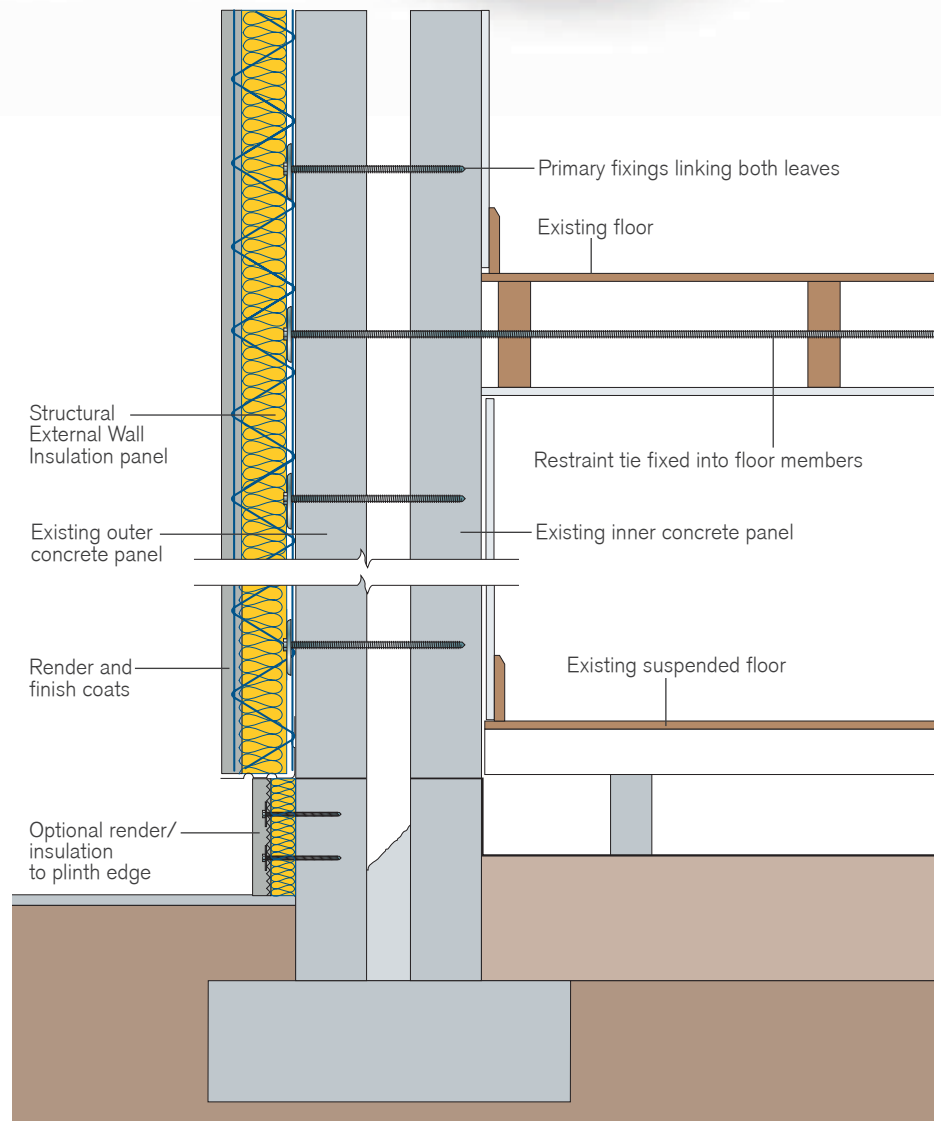
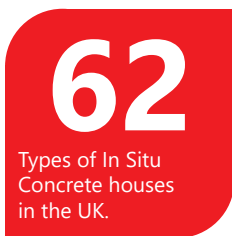
TYPICAL DETAILS

The diaphragm fixing method is designed to provide a structural wrap around for concrete cavity wall properties.

The structural panels are installed by using primary resin anchor fixings which connect the inner and outer in situ concrete load-bearing panels together. Restraint ties are then installed to tie the system to the floor joists.

Once installed the panels are joined with a rigid mesh which is mechanically clipped together to form a continuous monolithic structural system which stops movement in the walls and ties the two skins together.

This provides the necessary structural stability in order to resist all dead loads, design live loads, including impact and wind loads, and the capability to accommodate thermal movements.



METAL FRAMED NON-TRADITIONAL HOUSING SOLUTIONS

Client: Community Gateway Association
Building Type: Non-traditional BISF
Project Size: 70 Houses / 6,653m²
System: Structural External Wall Insulation GPL100
Finish: Multirend Brick Effect Render & Dash Aggregate

Social Housing Refurbishment | Franklands Drive, Preston, Lancashire

STRUCTURAL EXTERNAL WALL INSULATION CLEAR SPAN FIXING METHOD

If you're looking for a solution to metal framed properties then SEWI is the perfect choice. Structural panels are fixed to the load-bearing columns and span from one to the next. This removes the problem of fixing into the existing fragile cladding.

The construction of metal framed properties involves the erection of the main load-bearing frame using metal columns, beams, joists and roof trusses. The framework is then clad, for example with rendered expanded metal lathing or vertically profiled metal sheeting.

There are variations to this construction technique so here we highlight our clear span fixing method for properties with a load-bearing metal frame with cladding panels.



Examples of metal framed properties before refurbishment.

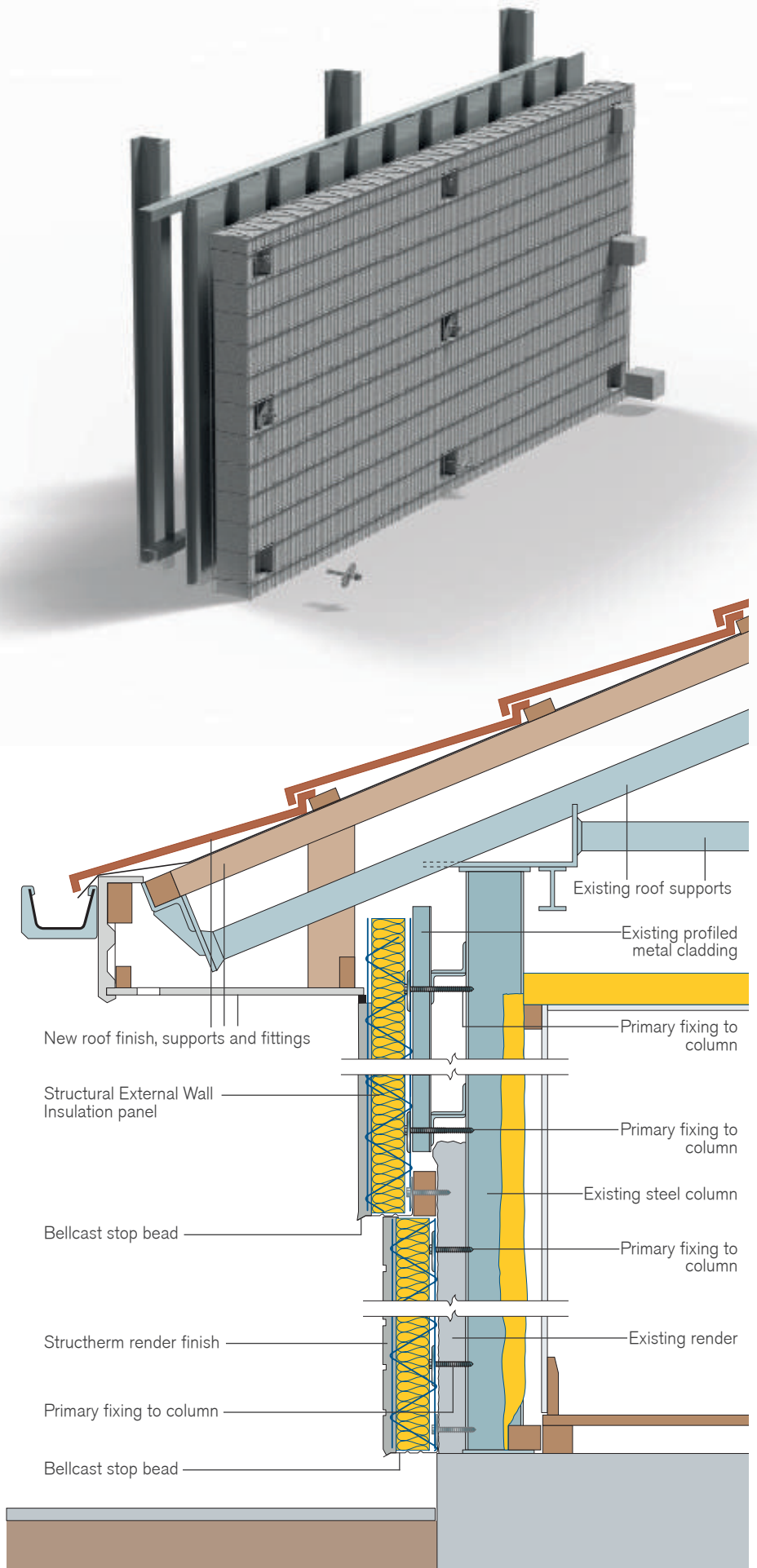
TYPICAL DETAILS

The clear span fixing method is designed to provide a structural wrap around for steel framed properties.

The structural panels are installed by using primary fixings which are fixed through the existing cladding panels and into the load-bearing metal columns.

Once installed the panels are joined with a rigid mesh which is mechanically clipped together to form a continuous monolithic structural system which stops movement in the walls and ties the property together.

This provides the necessary structural stability in order to resist all dead loads, design live loads, including impact and wind loads, and the capability to accommodate thermal movements.



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Types of Metal Framed houses in the UK.

TIMBER FRAMED NON-TRADITIONAL HOUSING SOLUTIONS

Client: North Lanarkshire Council
Building Type: Non-traditional Swedish Timber
Project Size: 24 Houses / 1,680m²
System: Structural External Wall Insulation SPH100
Finish: Dash Aggregate with Brick Effect Render Detailing

Social Housing Refurbishment | Clarkston, Airdrie, North Lanarkshire

STRUCTURAL EXTERNAL WALL INSULATION CLEAR SPAN FIXING METHOD

If you're looking for a solution to timber framed properties then SEWI is the perfect choice. Structural panels are fixed to the load-bearing columns and span from one to the next. This avoids having to fix into the non-structural timber cladding.

The direct platform frame construction method was often used to build timber properties. Storey height timber frame panels, sheathed internally for example with tongued and grooved boarding and externally clad with vertical or horizontal boards.

There are variations to this construction technique so here we highlight our clear span fixing method for properties with a timber load-bearing frame and cladding.



Examples of timber framed properties before refurbishment.



TYPICAL DETAILS

The clear span fixing method is designed to provide a structural wrap around for timber framed properties.

The structural panels are installed by using primary fixings which are fixed through the existing cladding panels and into the load-bearing timber frame. Alternatively the external cladding can be removed prior.

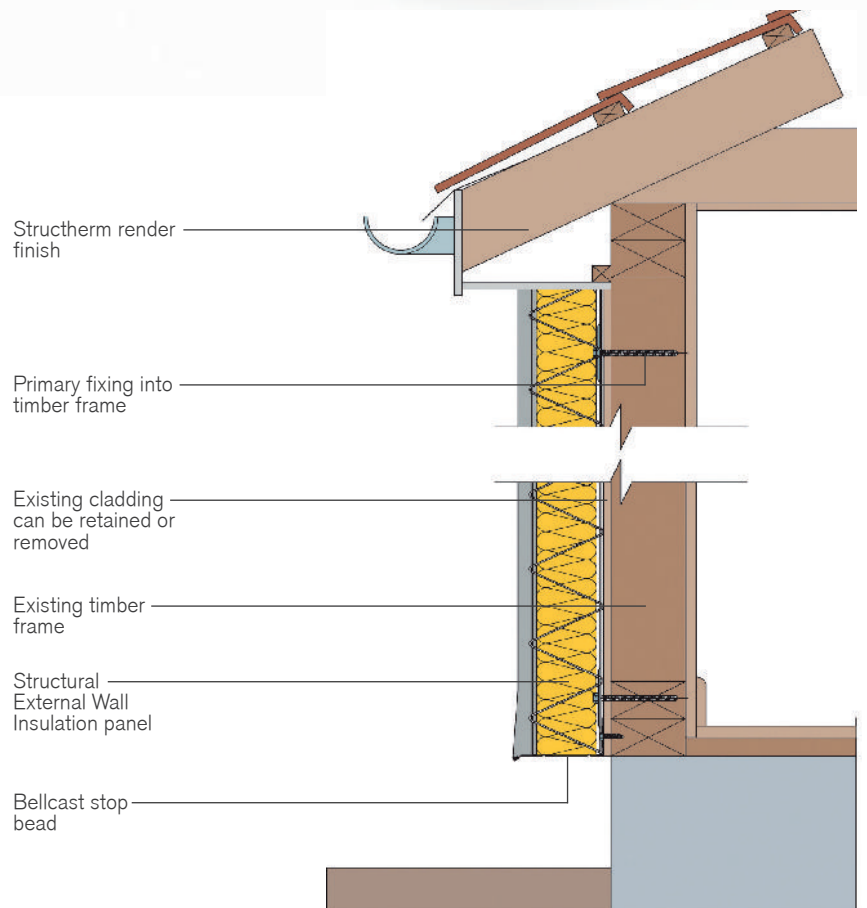
Once installed the panels are joined with a rigid mesh which is mechanically clipped together to form a continuous monolithic structural system which stops movement in the walls and ties the property together.

This provides the necessary structural stability in order to resist all dead loads, design live loads, including impact and wind loads, and the capability to accommodate thermal movements.



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Types of Timber Framed houses in the UK.



PRECAST CONCRETE NON-TRADITIONAL HOUSING SOLUTIONS

Client: Liverpool Mutual Homes
Building Type: Boots Non-traditional
Project Size: 71 Properties / 4,340m²
System: Structural External Wall Insulation GPL100
Finish: Acrylic 1.5mm & Brick Effect Render

Social Housing Refurbishment | Broad Lane, Liverpool

STRUCTURAL EXTERNAL WALL INSULATION PRIMARY & SECONDARY FIXING METHOD

If you're looking for a solution to precast concrete properties then SEWI is the perfect choice. Primary fixings are used to fix structural panels to the load-bearing columns whilst secondary fixings are installed into the concrete cladding panels.

Precast concrete is a construction product produced by casting concrete in a reusable mould or "form" which is then transported to the construction site and lifted into place. Precast Reinforced Concrete (PRC) is manufactured in a similar way but with the addition of reinforcement steel in the moulds.

Many PRC houses have load-bearing concrete columns with external concrete cladding panels, for these types of property we employ the primary and secondary fixing method.



Examples of in situ concrete properties before refurbishment.

TYPICAL DETAILS

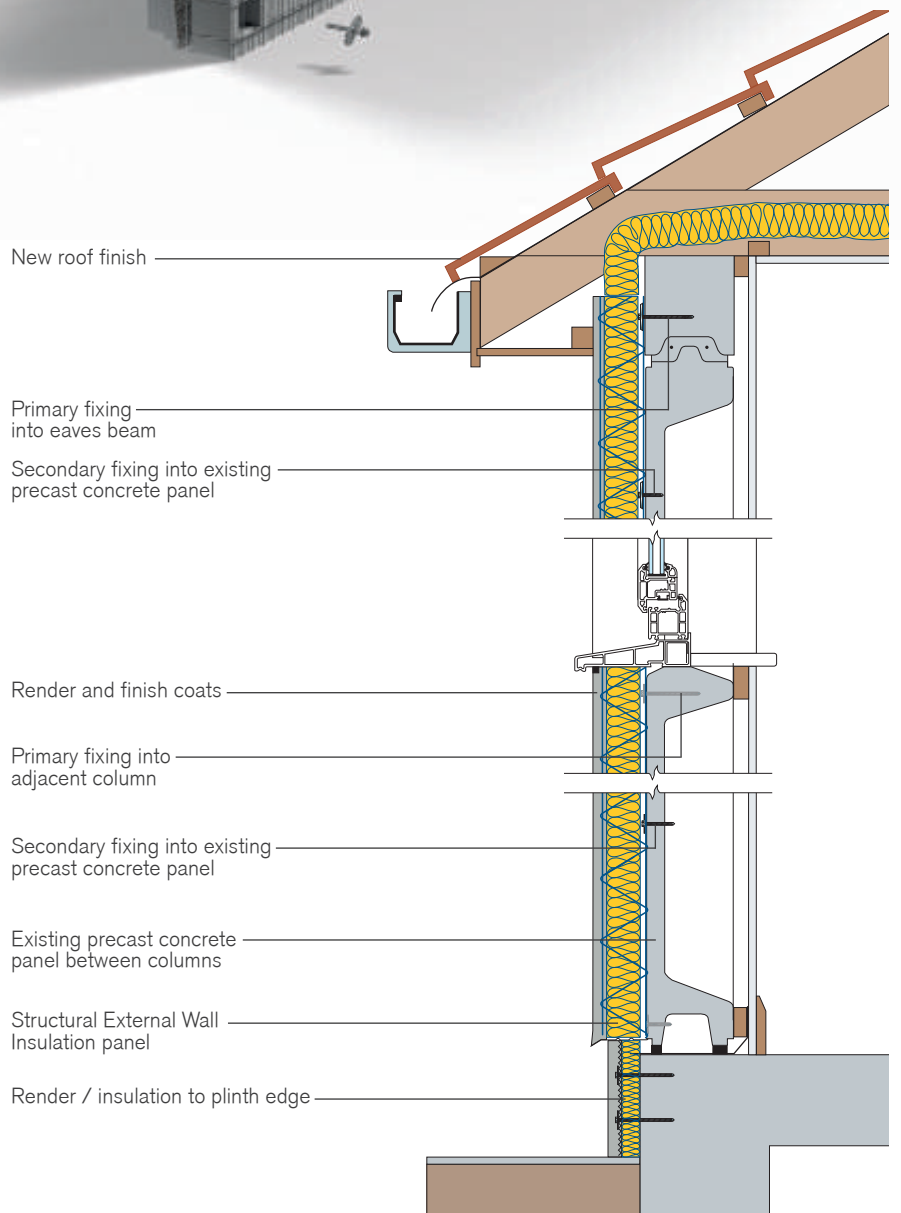
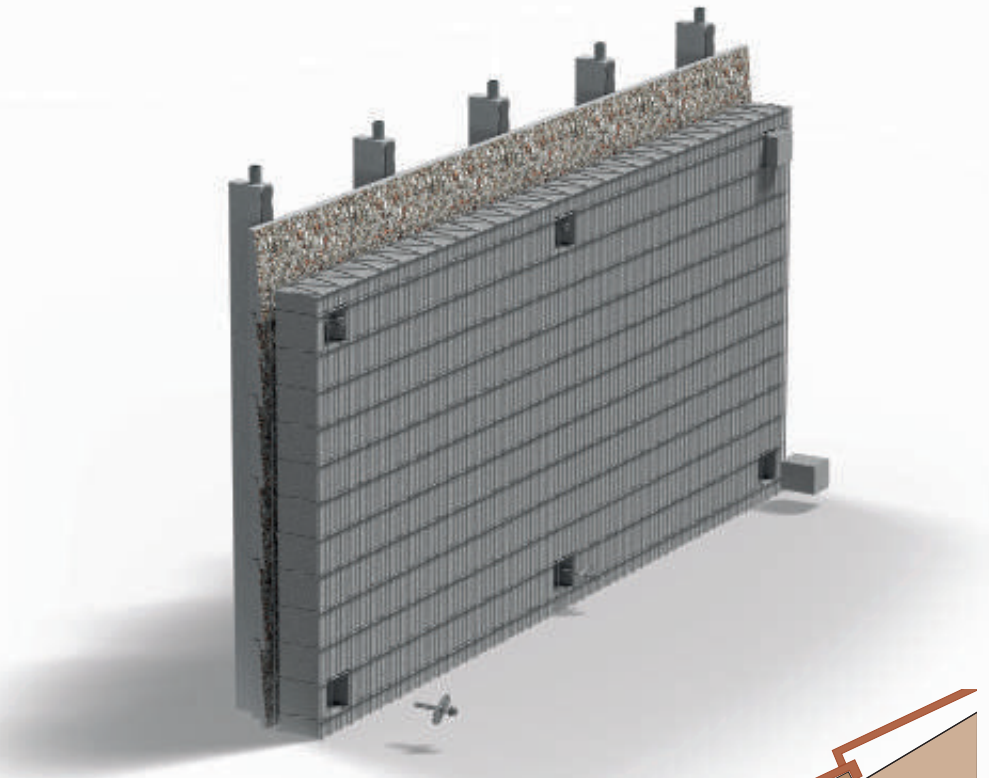
Some PRC properties are designated as defective under the Housing Defects Legislation (now Part XVI of the Housing Act 1985).

The defects are mainly due to cracking of the structural PRC columns caused by inadequate concrete cover to the embedded steel reinforcement and chemical changes to the surrounding concrete. The carbonation of concrete and presence of chlorides, is often exacerbated by the effects of penetrating damp which accelerates the damage. We therefore recommend that the columns be inspected and if necessary repaired prior to over cladding.

The primary and secondary fixing method is designed to provide a structural wrap around for the existing property. The structural panels are installed by using primary fixings which are fixed through the existing cladding panels and into the load-bearing concrete columns. Secondary fixings are then used to restrain the cladding panels.

Once installed the panels are joined with a rigid mesh which is mechanically clipped together to form a continuous monolithic structural system which stops movement in the walls and ties the property together.

This provides the necessary structural stability in order to resist all dead loads, design live loads, including impact and wind loads, and the capability to accommodate thermal movements.



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Types of Precast
Concrete houses
in the UK.

MEDIUM & HIGH RISE SOLUTIONS

Client: West Dunbartonshire Council
Building Type: Skarne Cruden Concrete High Rise Blocks
Project Size: 3 Blocks / 16 Storey High / 10,368m²
System: Structural External Wall Insulation GPIR100
Finish: Silicone 1.5mm & to Ground Floors

Social Housing Refurbishment | Clyde, Lomond & Leven Courts, West Bridgend, Dumbarton

STRUCTURAL EXTERNAL WALL INSULATION VERTICAL AND HORIZONTAL PANEL SPANNING METHOD

If you're looking for a solution to defective high rise buildings then SEWI is the perfect choice. Structural panels span vertically from floor to floor, or horizontally from column to column fixing into the structurally sound frame.

There are many types of medium and high rise buildings designed with low cost and minimum construction time in mind. Built between the 1950's and late 1970's most now exhibit one or more significant defect. They are also likely to have other problems such as poor thermal performance and penetrating damp.

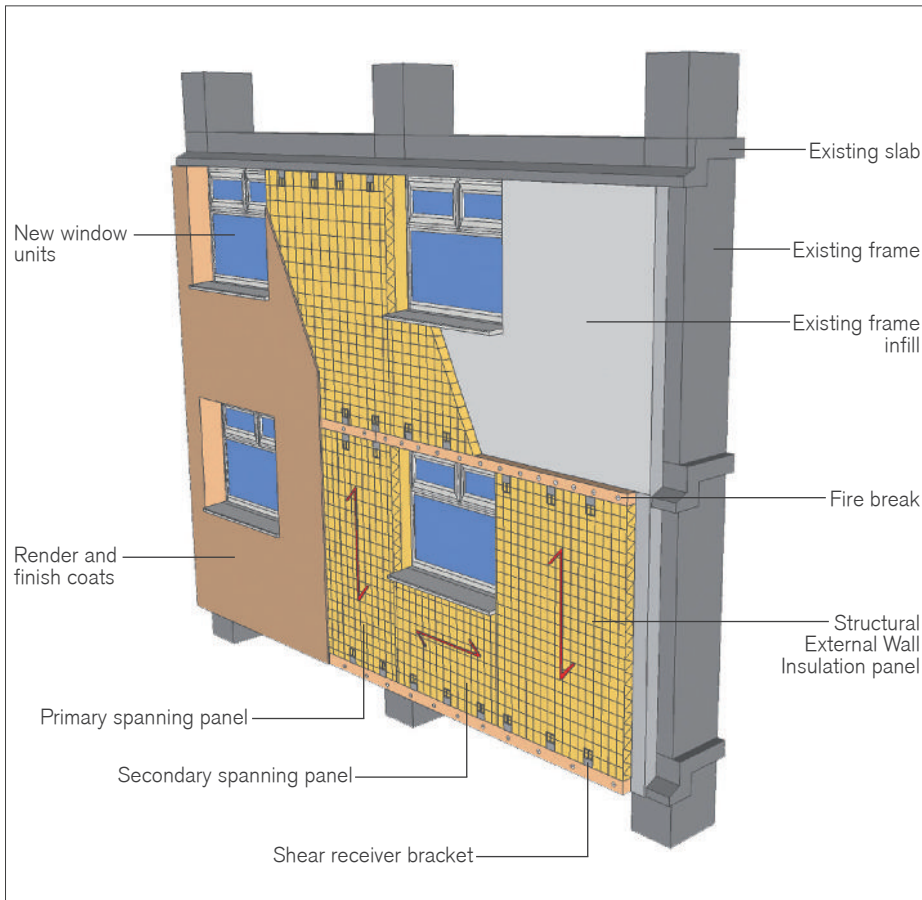
If a building has a structurally sound frame, but the infill material is weak or defective then our solution is our spanning method. During specification panels are assessed against the building location and wind analysis to determine the appropriate panel.

In both the vertical and horizontal panel spanning methods a unique fixing bracket is used. This bracket allows the transfer of shear forces into the building frame, providing the necessary structural support to prevent movement and cracking.

Fire breaks are installed at each floor to suit the Building Regulation in England & Wales and the Technical Standards in Scotland.

“ The Structural External Wall Insulation system can also be used to enclose balconies and walkways or to re-model parapets and gables. ”

TYPICAL DETAIL - VERTICAL PANEL SPANNING

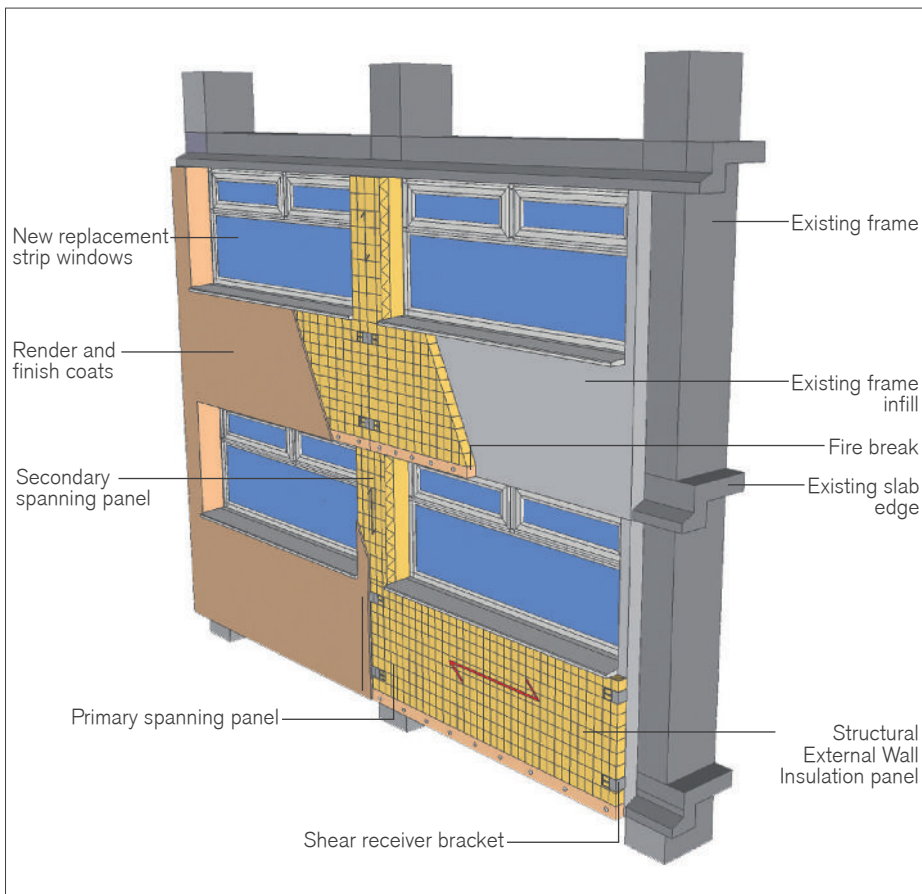


CASE STUDY



Sector: Social Housing Refurbishment
Client: West Dunbartonshire Council
Building Type: Wimpey No Fines
Project Size: 3,000m²
System: Structural External Wall Insulation GPIR100
Finish: Silicone 1.5mm & Wonderwall

TYPICAL DETAIL - HORIZONTAL PANEL SPANNING



CASE STUDY



Sector: Social Housing Refurbishment
Client: Wolverhampton City Council
Building Type: Wimpey No Fines
Project Size: 3 Blocks / 16 Storeys 8,232m²
System: Structural External Wall Insulation
Finish: Silicone 1.5mm

SYSTEM BUILT SCHOOL SOLUTIONS



Client: Kesteven & Grantham Girls School
Building Type: CLASP System Built Steel Frame
Project Size: 3 Storey Block / 460m²
System: Structural External Wall Insulation
Finish: Brick Effect Render

Education Refurbishment | Kesteven & Grantham Girls School, Grantham, Lincolnshire

STRUCTURAL EXTERNAL WALL INSULATION REFURBISHMENT DETAILS FOR SYSTEM / MODULAR BUILT SCHOOLS

The unique capabilities of the Structural External Wall Insulation makes it the ideal over cladding solution for your system built or modular schools. Providing structural support, thermal and visual upgrade all in one process.

Around 46 per cent of the 13,000 schools built in England and Wales between 1945 and 1975 were system / modular built. A large number of these, around 3000, were erected according to the Consortium of Local Authority Special Programme (CLASP) or the Second Consortium of Local Authorities (SCOLA) systems. They were designed to be of standard construction which did not rely on traditional building skills, to provide fast and efficient permanent school buildings.

Constructed using a relatively light-weight steel girder construction with panel infill, and very little insulation, many have deteriorated over the years due to a lack of maintenance and are now failing.

Other types of system / modular school buildings also exist which equally have significant defects and suffer from poor thermal performance. We have a range of different solutions depending on the original type of construction.



Kesteven & Grantham Girls School
Before Refurbishment

Concrete Over Cladding or Removal

Where schools have defective concrete cladding panels we can either over clad the failing panels or remove them and infill between the original load-bearing steel columns.

46%

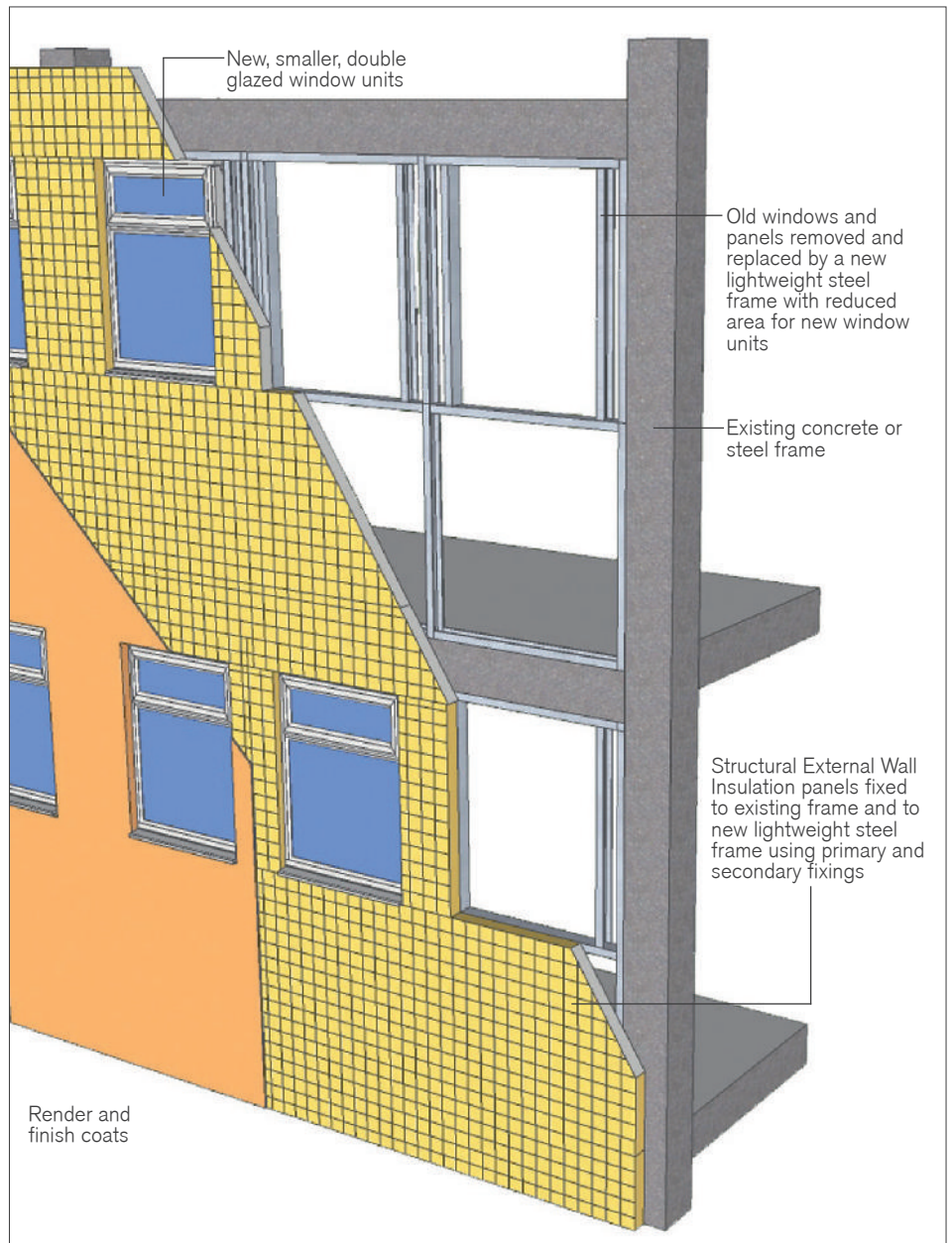
Of schools built between 1945-75 were system / modular built.

TYPICAL DETAIL - FACADE RECONFIGURATION

This solution reduces the amount of glazed areas to improve thermal performance and reduce solar glare in classrooms.

Firstly the existing panels and windows are removed. Then a lightweight steel frame is built leaving the desired size of opening for the window above.

The structural panels are then fixed to the existing frame and the new lightweight steel frame with primary and secondary fixings.



SYSTEM BUILT SCHOOL EXAMPLES

Below are some examples of system built schools (before refurbishment) that Structherm have previously worked on such as CLASP, Scola, Hills, Horsa and Rosla. Our systems have successfully resolved both the structural and thermal deficiencies these schools had.



Ardrossan Academy, Ayrshire
Concrete framed system built school.



Chantry High School, Martley, Worcestershire
Brick clad system built school.



Chryston Primary School, Glasgow
CLASP system built school with failing concrete cladding panels.

TYPICAL SEWI LOW RISE INSTALLATION PROCESS



Installation Procedures

There are many ways of fixing the Structural External Wall Insulation system depending on the substrate. On these pages we show a typical installation.

The structural panels use a primary fixing technique where each panel is fixed to the building structure from the rear of the panel and behind the insulation. The structural fixings, as a result, are fully embedded in the structure and therefore not subjected to short cantilever forces and the increased risk of shear failure. Because the fixings are remote from the panel surface, they will not induce stresses in the rendered finish.

The panels are offered up to the required position and small plugs of insulant are removed from the panel at the fixing points. Each fixing, complete with its large rectangular washer, is inserted into the hole and fixed to the existing structure. The washer is engaged across the horizontal and vertical crosswires at the rear of each panel. After this fixing procedure is complete, the plugs of insulant are replaced.

When the structural panels are used as over cladding, secondary fixings may be used to anchor into existing cladding panels as a means of providing additional restraint, provided that the condition of the panels is suitable.

Adjacent structural panels are also connected to each other with cover mesh sections secured by pneumatically-applied clips providing structural continuity across the whole of the wall area. In addition, rigid angle meshes are applied vertically at corners and also around window and door reveals. These rigid angle meshes dispense with the need for exposed beads and, once rendered, ensure an unbroken, monolithic envelope to the building is achieved.

The panels are rendered with a 14-16mm thick fibre reinforced basecoat, an 8-10mm straightening coat and then a topcoat. The panels are finished at the base with an epoxy powder coated, galvanised or stainless steel bellcast base trim, fixed back to the original substrate.

INSTALLATION PROCESS FOR SEWI LOW RISE SYSTEMS



1. Install Base trim, level and fix to substrate.



2. Panels should be cut to suit the building following the on-site panel layout diagram and then located into the base trim.



3. Measure panel and locate the fixing location on the existing building, i.e. column locations. Clip the transom wire using a wire cutter.



4. Bend back the cut wire and then use a pad saw to cut out a 100mm square of insulation.



5. Remove the piece of insulation and retain for use later.



6. Drill a suitable pilot hole. Insert the selected fixing/washer such that the washer plate clamps a cross wire and a truss wire to the building.



7. Replace the block of insulation back into the hole and bend the wire back to its original position.



8. Before fitting the next panel the foam filler strip material should be fitted to the sides of the panels. The next panel can then be installed.



9. Before rendering can commence the panels must be fully meshed together using 200mm wide rigid flat mesh. The mesh should have a minimum overlap of 100mm and should be clipped to the truss wires of both panels using Vertex clips clamped onto the wires using a Hartco clinching tool gun (also see main photograph).



10. Basecoat render is applied in one coat 14-16mm thick. The cage must be fully covered by the render and have a minimum of 2-3mm coverage. No 'Gridding' should be seen through the first basecoat. The required finishing coats can now be applied to complete the system.

“ Visit www.struclerm.co.uk to watch our full length installation videos. ”

TYPICAL SEWI HIGH RISE INSTALLATION PROCESS



Installation Procedures

There are two methods of installing the Structural External Wall Insulation system; horizontal and vertical spanning depending on the existing construction of the high rise block.

On these pages we show a typical vertical spanning installation from floor to floor however it is important that the project specific drawings and specification are followed. Panel layouts are also produced for all high rise projects that show orientation and fixing points, again these should be followed closely.

Resin anchors are fixed into the load-bearing, structurally sound concrete floor slabs. Steel channels are then fixed onto the pre-installed resin anchors using a washer and nut.

Fix BR01 bracket to steel channel using required fixing, ensuring the bracket lines up with the truss wires of the panels. Once the bracket has been installed in the correct location, the front face of the bracket is then bent back to 90°, to allow for the panel to be inserted. Two brackets need to be installed to the channels top and bottom of each panel.

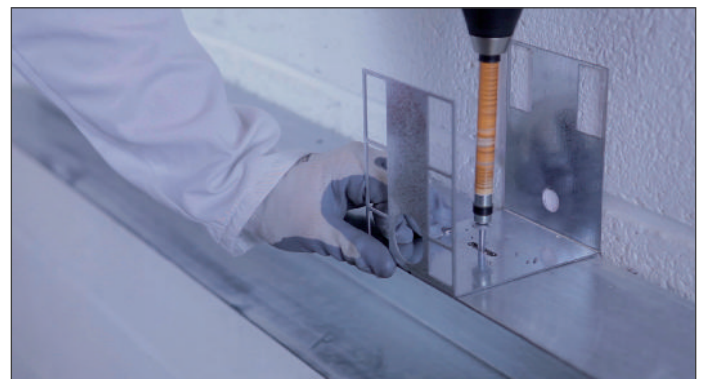
Panel should then be inserted into the bracket, ensuring trusses line up with the bracket. The front face of the bracket can now be bent back to its original position. Foam filler strip is then installed before the brackets are clipped to the panel truss wires. Fire break material is installed to all channels and rigid mesh clipped over the top to secure. Mesh is also then installed over all adjacent structural panels secured by pneumatically applied clips providing structural continuity across the whole of the wall area.

The panels are rendered with a 14-16mm thick fibre reinforced basecoat, an 8-10mm straightening coat and then a topcoat.

INSTALLATION PROCESS FOR SEWI HIGH RISE SYSTEMS



1. Install resin anchors into the floor slab or columns and then fix steel channels using washer and nut ensuring the channels are level.



2. Fix BR01 bracket to steel channel using required fixing ensuring the bracket lines up with the truss wires of the panels.



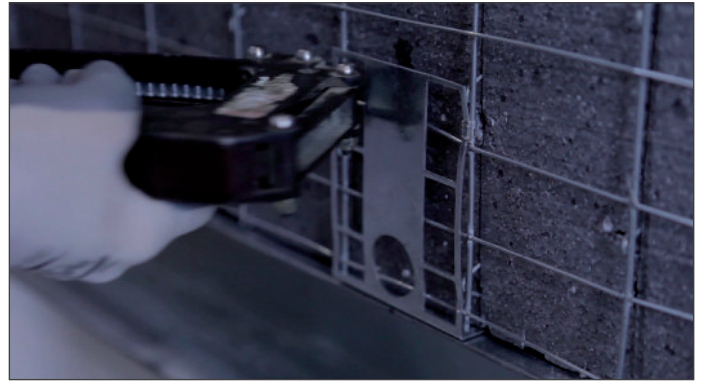
3. Bend the front face of the brackets 90°, to allow the structural panel to be inserted.



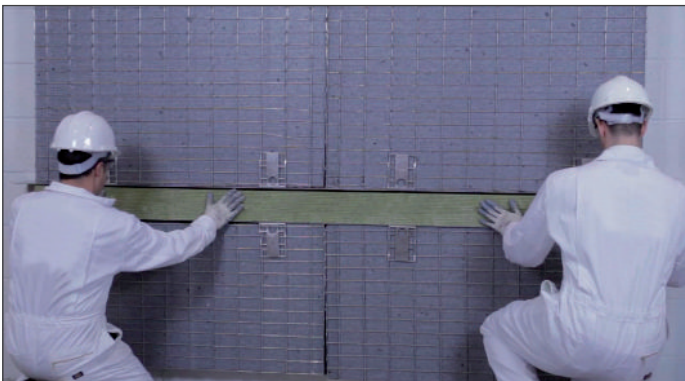
4. Insert panel into brackets, ensuring trusses line up with the brackets. The front face of the bracket can now be bent back to its original position.



5. Before fitting the next panel the foam filler strip material should be fitted to the sides of the panels. The next panel can then be installed.



6. The BR01 bracket can now be clipped to the panel truss wires using Vertex clips clamped onto the wires using a Hartco clinching tool gun.



7. Once panels are installed, the fire break material should be installed to all channels, ensuring a tight fit.



8. Rigid mesh installed over the fire break, overlapping the panels above and below by 100mm minimum, and clipped to the panels.



9. Before rendering can commence the panels must be fully meshed together using 200mm wide rigid flat mesh. The mesh should have a minimum overlap of 100mm and should be clipped to the truss wires of both panels using Vertex clips clamped onto the wires using a Hartco clinching tool gun (also see main photograph).



10. Basecoat render is applied in one coat 14-16mm thick. The cage must be fully covered by the render and have a minimum of 2-3mm coverage. No 'Gridding' should be seen through the first basecoat. The required finishing coats can now be applied to complete the system.

“ Visit www.strucltherm.co.uk to watch our full length installation videos. ”

EXTERNAL WALL INSULATION SYSTEM OVERVIEW & BENEFITS



Client: Cartrefi Conwy
Building Type: Lowton Cubitt
Project Size: 230 Properties / 13,800m²
System: Thin Coat NSC2 External Wall Insulation
Finish: Silicone 1.5mm

Social Housing Refurbishment | Peulwys Estate, Colwyn Bay

STRUTHERM'S EXTERNAL WALL INSULATION SYSTEMS PROVIDE THERMAL AND AESTHETIC QUALITIES TO EXISTING OR NEW BUILD PROJECTS

Our 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.

Insulants

There are five insulants to choose from:

- Expanded Polystyrene (EPS)
- Enhanced EPS
- Mineral Wool
- Polyisocyanurate (PIR)
- Phenolic

All insulants are available as rigid boards in standard sizes of 1200 x 600mm and in a range of thicknesses typically in increments of 10mm.

System Finishes

- Acrylic or Silicone
- Dash Aggregate
- Brick Effect Render
- Acrylic Brick Slips

Areas Of Application

Strutherm EWI systems are suitable for any of the following provided that the substrate is structurally sound:

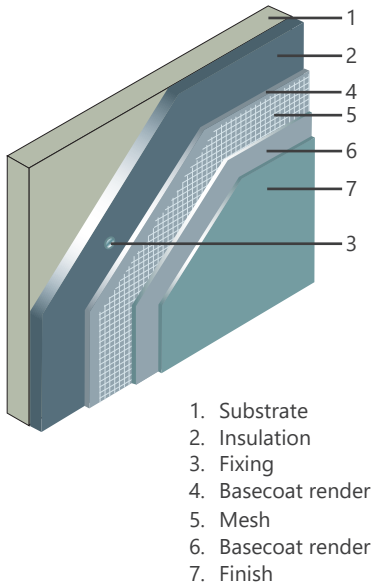
1. Refurbishment of low rise social housing
2. Refurbishment of high rise social housing
3. Refurbishment of private housing
4. New build projects
5. Commercial premises including office blocks
6. Schools, colleges and other educational establishments

£460*

Annual saving on heating bill for a detached property with EWI installed.

BENEFITS OF STRUCTHERM'S EXTERNAL WALL INSULATION SYSTEMS

Diagram 1
External Wall Insulation
- Typical sequence of system layers



Reduces CO₂ Emissions

Significantly improves the thermal efficiency of walls, thereby reducing fuel consumption and CO₂ emissions.

Quality

Structherm External Wall Insulation systems are backed by full BBA Certification confirming that the products have a minimum design life of 30 years. BBA Certificate No. 96/3243, product sheets 1, 2, 3, 4 and 5.

Low Maintenance Costs

Hard body impact tests have been carried out on the systems in accordance with ETAG 004 : 2011 and have been proven suitable for Category I and Category II locations. The external render face offers a high level of weather protection and is low maintenance.

Homes Transformed

A wide range of finishes for you to choose from which can transform whole streets.

Healthier Living Environment

Condensation risk analysis calculations carried out prior to specification to ensure the dew point is moved to the outside of the system, meaning condensation and mould does not occur.

Minimising Disruption

All work is carried out externally meaning your tenants can remain in their homes during the refurbishment work.

Financial Reward

Lower energy bills for residents helping to reduce fuel poverty.

Fire Performance

The systems are classified as class 0 or 'low risk' as described in the national Building Regulations. Some of the systems have attained BS 8414 part 1 (fire performance of external cladding systems) and for use in high rise applications have been tested and meet the performance criteria set out in BRE Report BR 135 : 2003 using mineral wool and phenolic insulations.

“ The difference now is unbelievable. The old house was always cold, the gas fire and upstairs electric heaters were always on, and heat just seemed to vanish out of the house. The house now is so comfortable. The results achieved are brilliant. ”



U-VALUES AND INSULATION TYPES

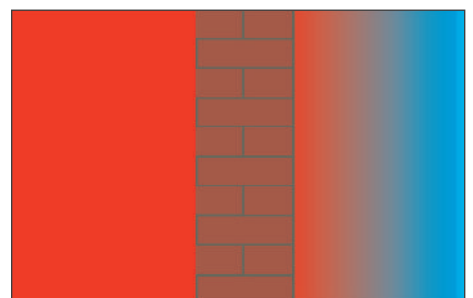


THERMAL PERFORMANCE IS MEASURED IN U-VALUES, THE RATE OF HEAT LOSS THROUGH A STRUCTURAL ELEMENT SUCH AS A WALL

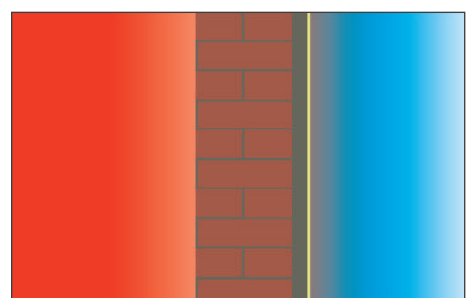
Our range of high performing insulants, which are available in varying thicknesses, ensure that our systems dramatically improve thermal performance and achieve or exceed current Building Regulation u-values which are currently $0.30 \text{ W/m}^2\text{K}$ in England.

All construction materials such as brick, insulation, plasterboard and render have a Lambda value - a measure of how they conduct heat. Used together during the construction of buildings, various materials will determine the overall thermal performance of a wall; this is known as the U-value. The lower the U-value, the more thermally efficient the wall construction is.

A U-value calculation will take into consideration the wall thickness and material and any render or insulation used. In a typical Victorian property with 9 inch solid brick walls the U-value is $2.08 \text{ W/m}^2\text{K}$.



Heat loss is vast through an uninsulated solid brick wall.



Heat loss is greatly reduced through a solid brick wall with the installation of External Wall Insulation.

THERMAL IMPROVEMENTS POSSIBLE WITH DIFFERENT TYPES OF INSULATION APPLIED TO A SELECTION OF TYPICAL CONSTRUCTION METHODS

Insulation	U-value to Achieve or Better	Solid Wall 2.08 W/m ² K	Traditional 1.51 W/m ² K	No Fines 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

The advanced thermal performance of the Structerm External Wall Insulation system moves the dew point to the outside of the wall. This eradicates interstitial condensation, reduces mould growth and as a result leads to a healthier living environment.

Our range of high performance insulants are continually reviewed and upgraded to ensure that they can meet and exceed current Building Regulations. The table above indicates the range of thermal improvements achieved with different insulants when each are applied to a small selection of typical house constructions.

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

Opposite is an example of a u-value calculation we did for a project in Birkenhead for Wirral Partnership Homes consisting of 360 solid brick wall properties.

“ A full u-value calculation and condensation risk analysis service is available from Structerm's technical team, please call 0800 0407460 for more information. ”

U-value before refurbishment was 2.10 W/m²K

Construction	Thickness (mm)	Thermal Conductivity (W/mK)	Thermal Resistance (m ² K/W)
Outside Surface Resistance	-	-	0.040
Brickwork	215	1.023	0.210
Plasterboard	16	0.170	0.094
Inside Surface Resistance	-	-	0.130
Existing U-value	2.10 W/m ² K		

U-value after refurbishment improved to 0.29 W/m²K

Construction	Thickness (mm)	Thermal Conductivity (W/mK)	Thermal Resistance (m ² K/W)
Outside Surface Resistance	-	-	0.040
Render	8	0.800	0.010
Phenolic Insulation	60	0.020	3.000
Brickwork	215	1.023	0.210
Plasterboard	16	0.170	0.094
Inside Surface Resistance	-	-	0.130
New U-value	0.29 W/m ² K		

EXTERNAL WALL INSULATION SYSTEM SELECTOR



Client: Knowsley Housing Trust
Building Type: Traditional Brick Wall
Project Size: 15 Properties 930m²
System: Thin Coat NSC2 External Wall Insulation
Finish: Acrylic 1.5mm

Social Housing Refurbishment | Boundary Farm Road, Halewood

THIN COAT SYSTEM NSC2 - LOW RISE APPLICATIONS

If you're looking for a high quality system with an extensive range of insulants and finishes, then the NSC2 system is the perfect choice. Five insulation boards and six different finishes are available to suit all your requirements.

Characteristics

The system uses a thin build up of high polymer modified basecoat render, with glass fibre mesh embedded within to create a finish ready to receive a variety of decorative finishes.

Benefits

- Fast installation
- High thermal efficiency via a wide range of insulants
- Excellent level of impact resistance
- Vapour permeable
- Lightweight
- Extensive choice of final texture, colour and effect

Insulants

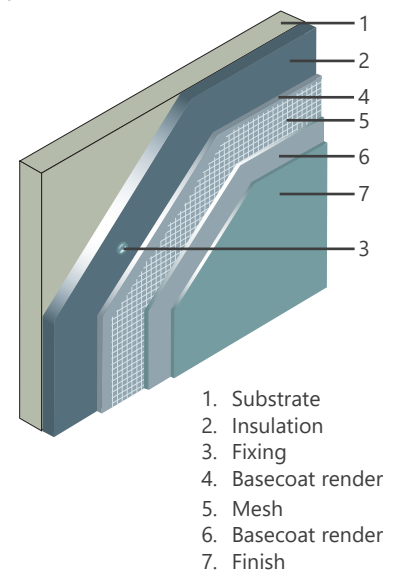
Insulants available are:

- Expanded Polystyrene (EPS)
- Enhanced EPS
- Mineral Wool
- Polyisocyanurate (PIR)
- Phenolic

All insulants are available as rigid boards in standard sizes of 1200 x 600mm and in a range of thicknesses typically in increments of 10mm.

Diagram 2

Thin Coat System - NSC2 - sequence of layers for low rise applications



Fixings

Selected proprietary insulation fixings nominally at the rate of 6-8 per m². Fixing type is dependant on existing substrate.

Basecoat Render - First Layer

First layer of high polymer modified basecoat render incorporating lightweight aggregates and reinforcing polyester fibres applied to a thickness of 2-3mm.

Mesh

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

Basecoat Render - Second Layer

In addition to the initial 2-3mm skim coat, a second layer of basecoat render is applied over the mesh to a final thickness of 4-6mm.

Accessories

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

Finishes

Contemporary

Acrylic



Silicone



Traditional

Brick Effect Render



Dash Receiver & Aggregates



Acrylic Brick Slips



Areas Of Application

Structherm NSC2 Low Rise systems are suitable for any of the following provided that the substrate is structurally sound:

1. Refurbishment of low rise social housing
2. Refurbishment of private housing
3. New build projects
4. Buildings up to 18m high

Low Rise

Excellent range of approved insulants and finishes.

CASE STUDIES

Balby & Intake Estate, Doncaster, South Yorkshire



Sector: Social Housing Refurbishment
Client: St. Leger Homes of Doncaster
Building Type: Dorman Long
Project Size: 35 Properties 3,136m²
System: Thin Coat NSC2 External Wall Insulation
Finish: Brick Effect Render to Ground Floor
Acrylic to First Floor

Wylam & Railway Street, Craghead, County Durham



Sector: Social Housing Refurbishment
Client: Durham County Council
Building Type: Solid Brickwork
Project Size: 89 Properties 5,340m²
System: Thin Coat NSC2 External Wall Insulation
Finish: Brick Effect Render with Multirend Finish

EXTERNAL WALL INSULATION SYSTEM SELECTOR

Client: Sandwell Metropolitan Borough Council
Building Type: 10 Storey High Rise Block
Project Size: 3,000m²
System: Thin Coat NSC2 External Wall Insulation
Finish: Acrylic 1.5mm

Social Housing Refurbishment | Lancaster House, Sandwell

THIN COAT SYSTEM NSC2 - HIGH RISE APPLICATIONS

If you're looking for a high quality, lightweight system then the NSC2 system is a great choice. Fully fire tested to BRE135 standards for buildings over 18 metres high and finished with a silicone top coat to provide a low maintenance solution.

Characteristics

The system uses a thin build up of high polymer modified render, with glass fibre mesh embedded. A high performance silicone top coat is used to finish the system.

Benefits

- Fast installation
- High thermal efficiency
- Excellent level of impact resistance
- Vapour permeable
- Fire tested to BRE135
- Lightweight
- Low maintenance
- Flexible choice of final colour

Insulants

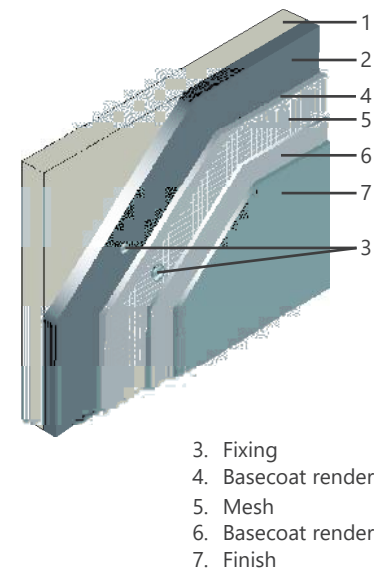
Insulants available are:

- Mineral Wool
- Phenolic

Both insulants are available as rigid boards in standard sizes of 1200 x 600mm and in a range of thicknesses typically in increments of 10mm.

Diagram 3

Thin Coat System - NSC2 - sequence of layers for high rise applications



First Fixings

First insulation board is located in position with one central fixing. The procedure is repeated for each board, butt jointing as the work proceeds.

Basecoat Render - First Layer

First layer of high polymer modified basecoat render incorporating lightweight aggregates and reinforcing polyester fibres applied to a thickness of 2-3mm.

Mesh

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

Second Fixings

Further fixings are then installed through the mesh, basecoat and insulation boards nominally at the rate of 6-8 per m² including one fire rated fixing. Fixing type is dependant on existing substrate.

Basecoat Render - Second Layer

In addition to the initial 2-3mm skim coat, a second layer of basecoat render is applied over the mesh to a final thickness of 4-6mm.

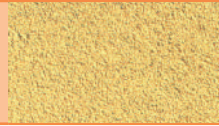
Accessories

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

Finishes

Contemporary

Silicone



Areas Of Application

Structherm NSC2 High Rise system is suitable for any of the following provided that the substrate is structurally sound:

1. Refurbishment of high rise social housing
2. Refurbishment of high rise commercial buildings
3. New build projects
4. Buildings over 18m high

High Rise

Lightweight, fire tested and low maintenance.

CASE STUDIES

Eccles, Salford, Greater Manchester



Sector: Social Housing Refurbishment
Client: City West Housing Trust
Building Type: Solid Brick High Rise Blocks
Project Size: 3 Blocks 4,742m²
System: Thin Coat NSC2 External Wall Insulation
Finish: Silicone

Linkwood Crescent, Drumchapel, Glasgow



Sector: Social Housing Refurbishment
Client: Glasgow Housing Association
Building Type: Concrete and Brick High Rise
Project Size: 2 Blocks 8,443m²
System: Thin Coat NSC2 External Wall Insulation
Finish: Silicone

Richmond Flats, Huddersfield, West Yorkshire



Sector: Social Housing Refurbishment
Client: Kirklees Council / Kirklees Neighbourhood Housing
Building Type: Brick Cavity High Rise Block
Project Size: 1 Block 1,900m²
System: Thin Coat NSC2 External Wall Insulation
Finish: Silicone

EXTERNAL WALL INSULATION SYSTEM SELECTOR



Social Housing Refurbishment | Pappert, Alexandria, West Dunbartonshire

Client: West Dunbartonshire Council
Building Type: Crosswall
Project Size: 203 Properties 11,571m²
System: Heavy Duty NSC3 External Wall Insulation
Finish: Dash Aggregate

HEAVY DUTY SYSTEM NSC3 - LOW RISE APPLICATIONS

If you're looking for a heavy duty system with a traditional finish then the NSC3 system is the perfect choice. The steel reinforcing mesh and extra thick layers of basecoat render provide the superior strength and impact resistance.

Characteristics

The system uses a thicker build up of polymer modified renders with a steel mesh, through fixed, to provide a more robust build up, ready for the dash finish. Used in exposed and coastal areas mainly in the social housing sector.

Benefits

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

Insulants

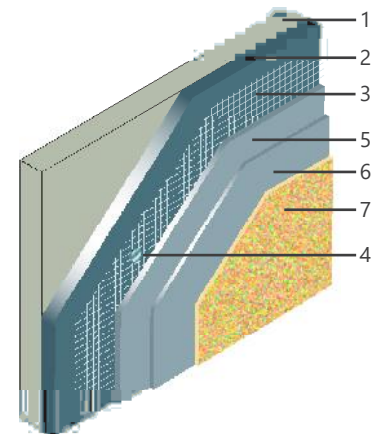
Insulants available are:

- Expanded Polystyrene
- Mineral Wool

Both insulants are available as rigid boards in standard sizes of 1200 x 600mm and in a range of thicknesses typically in increments of 10mm.

Diagram 4

Heavy Duty System - NSC3 - sequence of layers for low rise applications



1. Substrate wall
2. Insulation
3. Mesh
4. Fixing
5. Basecoat render
6. Dash receiver
7. Aggregate finish

Mesh

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

Fixings

Selected proprietary insulation fixings nominally at the rate of 6-8 per m². Fixing type is dependant on existing substrate.

Basecoat Render

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

Dash Receiver

In addition to the initial 8mm basecoat, a layer of dash receiver 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, polyester powder coated galvanised steel, stainless steel and PVCu to suit requirements.

Finishes

Traditional

Dash Receiver & Aggregates



Areas Of Application

Structherm NSC3 Low Rise system is suitable for any of the following provided that the substrate is structurally sound:

1. Refurbishment of low rise social housing in exposed and coastal areas
2. Refurbishment of private housing in exposed and coastal areas
3. Commercial premises under 18m high
4. Schools, colleges and other educational establishments
5. Refurbishment of low rise housing where a heavy duty system is required
6. Buildings up to 18m high

Heavy Duty

Ideal for social housing in coastal or exposed areas.

CASE STUDIES

Pinkie Braes, Musselburgh, East Lothian



Sector: Social Housing Refurbishment
Client: East Lothian Council
Building Type: Wimpey No Fines
Project Size: 35 Properties 3,062m²
System: Heavy Duty NSC3 External Wall Insulation
Finish: Dash Aggregate

Threwells Drive, Forfar, Angus



Sector: Social Housing Refurbishment
Client: Angus Council
Building Type: Wimpey No Fines
Project Size: 3 Blocks, 2,000m²
System: Heavy Duty NSC3 External Wall Insulation
Finish: Dash Aggregate

EXTERNAL WALL INSULATION SYSTEM SELECTOR



Client: Brierley Groom Chartered Architects
Building Type: Brick Cavity
Project Size: 200m²
System: Heavy Duty NSC5 External Wall Insulation
Finish: VantagePro Silicone 1.5mm

Commercial Refurbishment | RNL Redcar Lifeboat Station, Cleveland

HEAVY DUTY SYSTEM NSC5 - LOW RISE APPLICATIONS

If you're looking for a heavy duty system with a contemporary finish then the NSC5 system is the perfect choice. The steel reinforcing mesh and extra thick layers of basecoat render provide the superior strength and impact resistance.

Characteristics

The system uses a thicker build up of polymer modified renders with a steel mesh, through fixed, to provide a more robust build up, ready for the decorative finish. Used in exposed and coastal areas and on buildings with high usage levels such as schools.

Benefits

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

Insulants

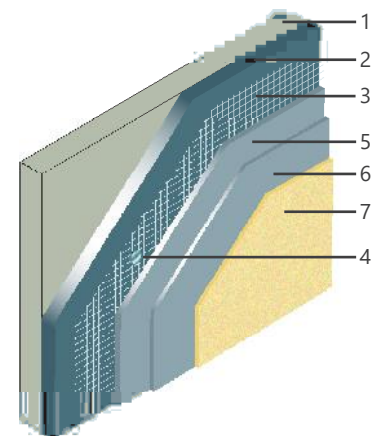
Insulants available are:

- Expanded Polystyrene
- Mineral Wool

All insulants are available as rigid boards in standard sizes of 1200 x 600mm and in a range of thicknesses typically in increments of 10mm.

Diagram 5

Heavy Duty System - NSC5 - sequence of layers for low rise applications



1. Brickwork
2. Thin render
3. Mesh
4. Fixing
5. Basecoat render
6. Basecoat render
7. Finish



Agreement Certificate
96/3243
Product Sheet 2

Mesh

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

Fixings

Selected proprietary insulation fixings nominally at the rate of 6-8 per m2. Fixing type is dependant on existing substrate.

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, polyester powder coated galvanised steel, stainless steel and PVCu to suit requirements.

Finishes

Contemporary

Acrylic



Areas Of Application

Structherm NSC5 Low Rise system is suitable for any of the following provided that the substrate is structurally sound:

1. Refurbishment of low rise social housing in exposed and coastal areas
2. Refurbishment of private housing in exposed and coastal areas
3. Commercial premises under 18m high
4. Schools, colleges and other educational establishments
5. Refurbishment of low rise housing where a heavy duty system is required
6. Buildings up to 18m high

Heavy Duty

Ideal for schools, commercial and coastal areas.

CASE STUDIES

Special Needs School, Churchill Drive, Kings Lynn, Norfolk



Sector: Education New Build
 Client: NPS Property Consultants Ltd
 Building Type: New Build School
 Project Size: 180m²
 System: Heavy Duty NSC5 External Wall Insulation
 Finish: Acrylic 1.5mm

Tranent Care Home, Sandersons Wynd, Tranent, East Lothian



Sector: Commercial New Build
 Client: East Lothian Council
 Building Type: 3 Storey Care Home
 Project Size: 1,700m²
 System: Heavy Duty NSC5 External Wall Insulation
 Finish: Acrylic 1.5mm

EXTERNAL WALL INSULATION SYSTEM SELECTOR

Engels

Client: City West Housing Trust
Building Type: 10 Storey Solid Brick High Rise Block
Project Size: 1,450m²
System: Thin Coat NSC2 External Wall Insulation
Finish: Brick Slip System to Ground Floor

Social Housing Refurbishment | Engels House, Salford, Greater Manchester

BRICK SLIP SYSTEM

An external wall insulation system with a real brick slip finish. It combines the advantages of modern construction techniques with the appeal of traditional brickwork.

The system can be 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 more robust system is needed.

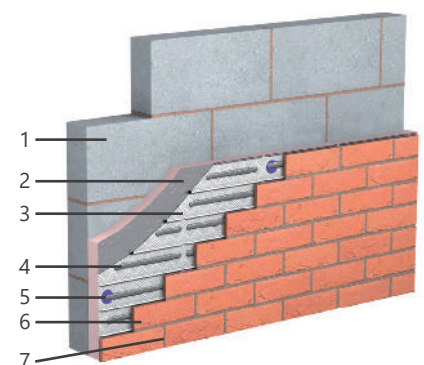
Benefits

- Fast and easy installation
- High thermal efficiency
- Maximum level of impact resistance
- Traditional brick finish
- On-site flexibility enables shaping to suit openings and other details
- Wide choice of brick slip colours and textures including extruded and stock facing slips.
- Wide choice of pointing mortar colours

Insulation & Carrier Sheet

comprises of a rigid 25mm or 50mm thick insulation board which is pre-bonded to a brickwork coordinating carrier sheet measuring 1.2m x 2.4m in size. If necessary additional insulation can be added behind the system to increase the thermal performance in conjunction with a framed structure.

Diagram 6
system build up.



1. Substrate
2. Insulation
3. Carrier Sheet
4. Adhesive
5. Fixing
6. Brick slips
7. Pointing mortar

Fast

Installation is fast and easy, saving you time and money.

Fixings

The composite panel is fixed to the substructure on site using selected proprietary insulation fixings nominally at the rate of 11 per m2. Fixing type is dependant on existing substrate.

Brick Slips

accepts standard 20mm thick brick slips however it can take brick slips up to 35mm thick for small feature areas. A purpose made adhesive is applied to the carrier sheet using an applicator gun, the brick slips are then applied with a suitable gap for pointing (within 72 hours).

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

Pointing

Finally a specialist pointing mortar available in a wide range of colours is applied between all brick slips to complete the installation.

Areas Of Application

The system is suitable for any of the following provided that the substrate is structurally sound:

1. Refurbishment of high rise social housing ground floor areas
2. Schools, colleges and other educational establishments
3. Refurbishment of low rise housing where a real brick finish is required

“ See pages 62-64 for our full range of brick slips. ”

CASE STUDIES

Lyndhurst Towers, Birmingham



Sector: Social Housing Refurbishment
Client: Birmingham City Council
Building Type: Wimpey No Fines Concrete High Rise Blocks
Project Size: 5 Blocks, 9,600m²
System: Thin Coat NSC2 External Wall Insulation
Finish: Real Brick Slip System to Ground Floor

Dalmuir Court, Clydebank, West Dunbartonshire



Sector: Social Housing Refurbishment
Client: West Dunbartonshire Council
Building Type: Wimpey No Fines Concrete High Rise Blocks
Project Size: 6 Blocks / 15 Storey High / 15,435m²
System: Structural External Wall Insulation SPH100
Finish: Real Brick Slip System to Ground Floor

TYPICAL EWI INSTALLATION PROCESS



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 m² 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 m². 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.

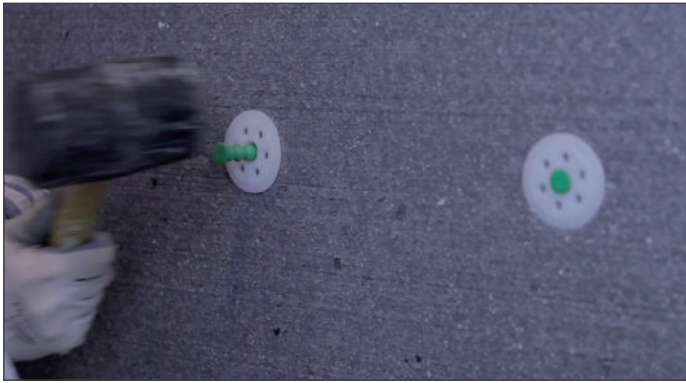
INSTALLATION PROCESS FOR THIN COAT SYSTEMS



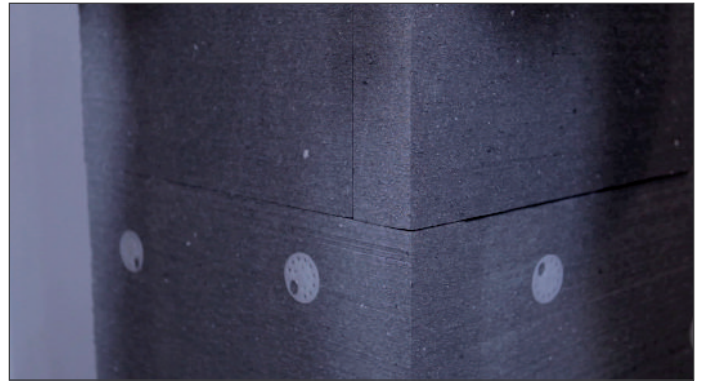
1. Install Base trim, level and fix to substrate.



2. Locate insulation boards into base trim, ensuring correct overlap at corners.



3. Fix insulation boards with fixings noted in the project specification. Fixings at corners and around windows/doors should be every 300mm.



4. At corners, overlaps of the boards need to be staggered to increase strength.



5. To ensure board above windows are 'L' shaped around windows, smaller strips maybe required.



6. Cut 'L' shaped boards around window heads to reduce the risk of render cracking.



7. Apply first basecoat at 2-3mm thick using a notched trowel.



8. Bed fibre mesh into first basecoat whilst still wet.



9. Ensure mesh overlaps by min 100mm at all times, including mesh on corner beads.



10. Apply second basecoat to a thickness of 2-3mm and smooth down with a damp sponge or float.

“ Visit www.structherm.co.uk to watch our full length installation videos. ”

TYPICAL INSTALLATION PROCESS



INSTALLATION PROCESS FOR B

The system is fast and easy to install, allowing you to complete your project on time and on budget.

To begin the starter rail is horizontally aligned with a spirit level and fixed to the base of the substrate wall or vertical steel rails/ timber battens.

The backerboard panel is positioned against the starter rail and fixing positions marked as per the project specification. Fixing type and spacing is designed on a project specific basis. The maximum distance between fixings is 600 mm horizontally and 225 mm vertically. Care must be taken to ensure the fixing holes are drilled perpendicular to the surface of the panel.

Backerboard panels can be handled on site and can be cut or trimmed using a sharp knife or fine-toothed saw. Reasonable precautions must be taken to ensure panels are not damaged during and subsequent to installation. Prior to the next panel being installed, a 5 mm adhesive bead is applied along the full height of the vertical edge.

The brick slip adhesive is applied between the ribs of the carrier sheet in a single continuous 10mm diameter bead. Care must be taken to ensure that the drainage channels located within the ribs of the carrier sheet are not obstructed

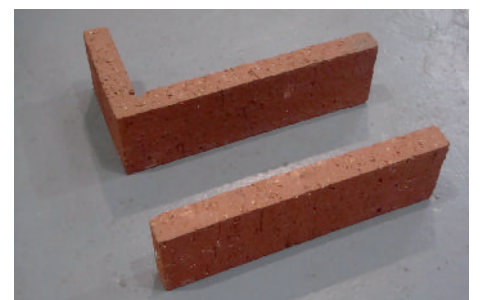
by ending and starting the line of adhesive bead at the corresponding gaps.

The clay brick slips are placed on horizontal bed joint ribs of the carrier sheet and must be placed within 10 minutes of the adhesive being applied. The ribs are 75 mm centres and the brick slips sit directly on top of the flat face and must be pressed firmly against the carrier. Alignment should be checked as work proceeds ensuring a typical 10 mm joint between adjacent brick slips is maintained.

Joints are filled with a specialist pointing mortar available in a wide range of colours. Pointing should only take place at temperatures between 5°C and 30°C. When pointing is completed, tooling of the mortar joints is done to the desired effect and all the excess mortar is brushed off with a soft brush.

Fast

Installation is fast and easy, saving you time and money.





1. Alignment of composite panel



2. Spacing and frequency of fixings



3. Attach composite panel to the substrate



4. Application of adhesive



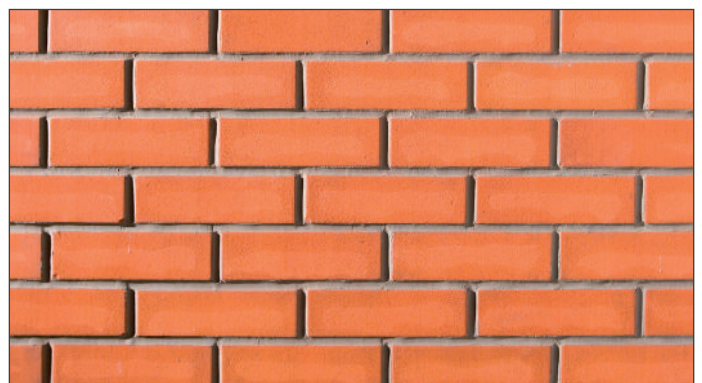
5. Adhering brick slips to carrier sheet



6. Pointing of mortar joint



7. Tooling of the mortar joint



8. Finished

“ See pages 62-64 for our full range of brick slips. ”

RENDERS & FINISHES



CONTEMPORARY FINISHES - ACRYLIC & SILICONE

Structherm's range of quality synthetic renders and finishes are thin, durable coatings suitable for contemporary new build or refurbishment projects, manufactured using acrylic or silicone resin bases, graded aggregates and water.

Continuous research and development ensures that the performance of each product consistently meets the most demanding conditions likely to be encountered with a particular building project and have a wide range of benefits over traditional renders.

Crack resistance

Highly flexible due to the synthetic resin binders which are highly elastic therefore providing excellent resistance to surface cracks in comparison to traditional cement based renders.

Excellent adhesion

Can be applied to a wide range of substrates, including our External Wall Insulation and Structural External Wall Insulation systems as well as render carrier board, concrete and masonry.

Weather resistant

Polymer modified renders provide excellent water repellency as well as resistance to stressing climatic conditions such as frost and thaw, UV rays, acid gases and pollution.

Water vapour permeable

High water vapour permeability, or breathability, enables the humidity within a buildings structure to be released unhindered into the environment, avoiding moisture build up between coating and substrate.

Through coloured

Over painting is not required as all our renders are through coloured to provide long lasting protective coatings. Everyday wear and tear does not affect the finished appearance of the system.

Colour plan swatch

Colour in architecture is a critical element in every project. Our 212 colour plan swatch is the ideal tool to select colours from to provide an attractive finish to your new build or refurbishment project.

CONTEMPORARY FINISHES - ACRYLIC v SILICONE

The table below identifies the benefits of acrylic and silicone products to help specifiers choose the correct product for their project. Generally

we would recommend acrylic products for low rise projects and silicone for high rise projects or projects within 20 miles of the coast where sea

salt in the air can be aggressive. If you are still unsure which product to choose then our team of Technical Sales Managers can offer advice.

	Acrylic	Silicone
Water Vapour Permeability	★	★ ★
Prevention of Algae & Fungus Growth	★	★ ★
Resistance to Dirt Pick Up	★	★ ★
Resistance to Aggressive Weather	★ ★	★ ★
Water Resistance	★ ★	★ ★
UV Resistance	★ ★	★ ★
Resistance to Frost / Thaw Process	★ ★	★ ★
Adhesion	★ ★	★ ★

ACRYLIC & SILICONE PRODUCT SELECTOR



Product	Texture	Application	Description
Acrylic Paint			Acrylic based smooth paint
Acrylic 1.5mm			Acrylic marble based 1.5mm grain render
Silicone Paint			Silicone based smooth paint
Silicone 1.5mm			Silicone marble based 1.5mm grain render

COLOUR PLAN

Whether you are matching traditional façades, or creating crisp, clean lines and a seamless, modern finish, Structherm has a solution.

The range of options offers designers and architects the freedom to design buildings which are visually stunning.

Our Acrylic and Silicone finishes are available in our standard range of 212 colours, giving the designer an excellent combination of colours to choose from.



“ Call 0800 0407460 to request our ColourPlan Swatch. ”

TRADITIONAL FINISHES BRICK & STONE EFFECT RENDER



Client: Liverpool Mutual Homes
Building Type: Non-traditional Boswells
Project Size: 600 Houses
System: Structural External Wall Insulation
Finish: Acrylic 1.5mm & Brick Effect Render

Social Housing Refurbishment | Daneville Estate, Liverpool

TRADITIONAL FINISHES - BRICK & STONE EFFECT RENDER

Structherm's range of Brick & Stone Effect finishes are highly versatile two coat specialist render systems, providing the effect of real brick or stonework by using differently coloured, render mortar and face layers.

Macerend - Brick Effect Render

The images opposite show just some of the 44 standard colours available, for use as the mortar or face layer. The system can be used for full area coverage or for brick features such as string courses, quoins or soldier courses.



Mortar Layer: Keighley Grey Face Layer: Aldridge Red



Mortar Layer: Light Grey Face Layer: Carmel Yellow



Mortar Layer: Light Grey Face Layer: Winchet Red



Mortar Layer: Mellow Grey Face Layer: Stockport Red

44

Colours to choose from giving you freedom of design.

Stone Effect Render

The images opposite show an example of stone effect render. Horizontal and vertical grooves are cut to replicate coursed stone work. The colour of the render used is normally of traditional buff or stone colour. Depending on the final aesthetic result required the face layer can be either smooth or traditional rustic style.



Random Stone Effect Render

The images opposite show an example of random stone effect render. Horizontal and vertical grooves are cut in a random pattern to replicate random stone work. The colour of the render used is normally of traditional buff or stone colour. Depending on the final aesthetic result required the face layer can be either smooth or traditional rustic style.



Ashlar Stone Effect Render

The images opposite show an example of the ashlar stone effect render normally applied in just one thick coat rather than two. Horizontal grooves are cut to create the effect of recessed joints. This finish is ideal for plinths, corbels and full elevations.



APPLICATION PROCEDURE

The application procedure is similar for Macerend, Multirend, Stone and Random Stone. For Ashlar Stone please request details from our technical department.

1. The mortar joint layer is applied 8-10mm thick using a hawk and trowel or projection machine, and brought to a uniform level.
2. When the mortar joint layer has begun to stiffen, but before it is dry, the face layer is applied to an average thickness of 5-6mm using a hawk and trowel, and immediately textured.
3. A spirit level, templates and other appropriate devices are used to determine levels and straight edges.
4. After the initial stiffening, the face layer is cut through to reveal the mortar joint layer below, using an appropriate cutting tool, creating the effect of brick or stone work with recessed mortar joints.



1
Photograph notes:
Cutting through the top coat to reveal the mortar layer

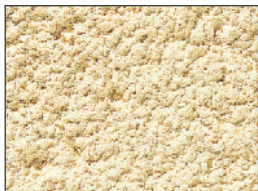
TRADITIONAL FINISHES DASH RECEIVER AND AGGREGATE

Client: West Dunbartonshire Council
Building Type: Non-traditional Crosswalls
Project Size: 203 Houses / 11,571m²
System: Heavy Duty NSC3 &
Structural External Wall Insulation
Finish: Dash Receiver & Aggregate

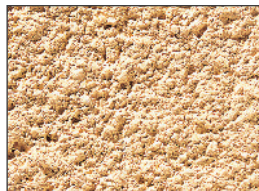
Social Housing Refurbishment | Pappert, Alexandria, West Dunbartonshire

TRADITIONAL FINISHES - DASH RECEIVERS

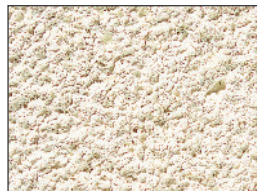
Structherm's range of Dash Receiver and Aggregate provides a decorative, durable and cost effective finish applied in two stages. The final aesthetic appearance depends on the combination of coloured dash receiver and aggregate chosen. Dash receiver is a specially formulated polymer modified through colour render that provides excellent adhesion and impact resistance. A standard colour range is available (see below). The dash receivers should be hand applied onto an appropriate basecoat using a hawk and trowel to a thickness of 6-8 mm.



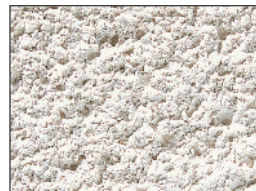
Ancaster



Bath



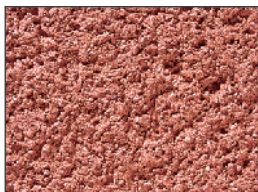
Bournemouth



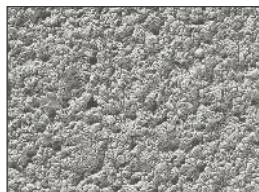
Buckingham



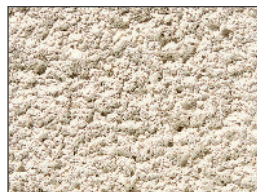
Cambridge



Carlisle



Chester



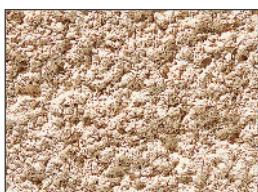
Dover



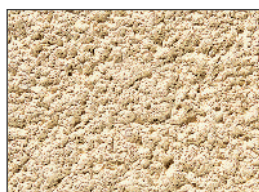
Dumfries



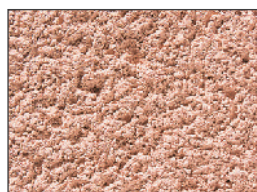
Durham



Kendal



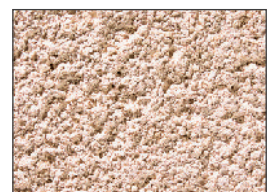
Luton



Matlock



Oxford



Plymouth



Portland



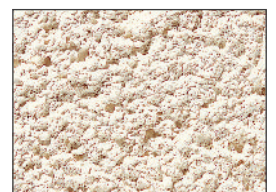
Richmond



Rutland



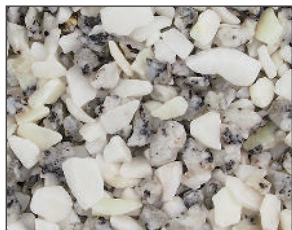
Sandringham



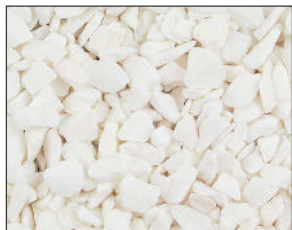
Torbay

TRADITIONAL FINISHES - IRON FREE DASH AGGREGATES

The high quality decorative dash aggregates allow you to not only create classic rendered pebble dashed walls, but also some very unique styles with our wide range of colours available (see below). The dash aggregate is thrown onto the surface of the dash receiver, whilst still wet, in an upward motion using a hand scoop. For best results an even distribution of aggregate is necessary and any missed areas should be rectified immediately as it can not be touched up next day.



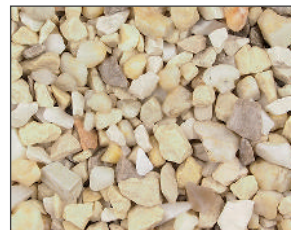
Arctic Silver 6mm



Arctic White Spar 3-8mm



Bala Spar 3-8mm



Chatsworth Spar 3-8mm



Hendry Spar 6mm



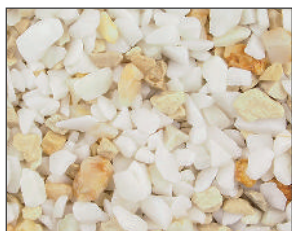
Multicolour 3-8mm



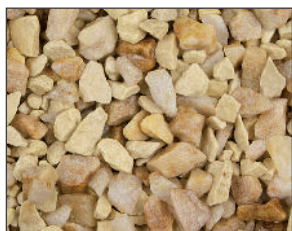
Red & White Spar 3-8mm



Valley Spar 3-8mm



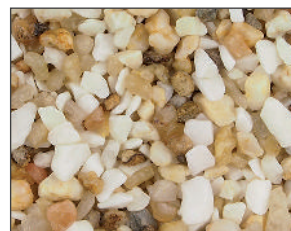
Calderdale Spar 3-8mm



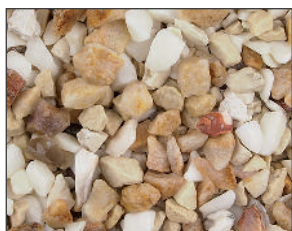
Carlton 3-8mm



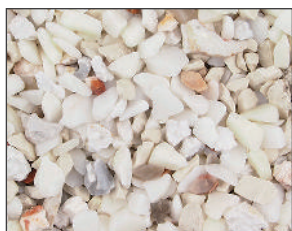
Wentworth 3-8mm



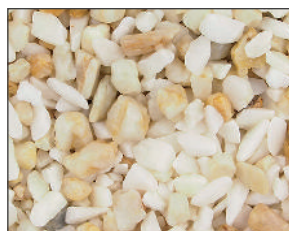
Windsor 3-8mm



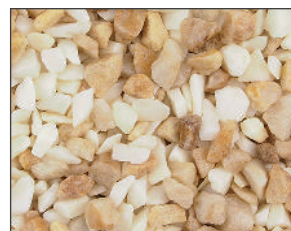
Alba Harvest Gold 3-8mm



Alba Spar 3-8mm



Balmoral 3-8mm



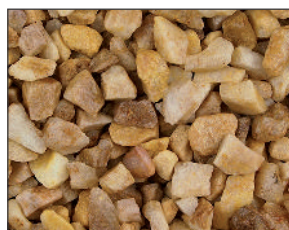
Caledonian Harvest 3-8mm



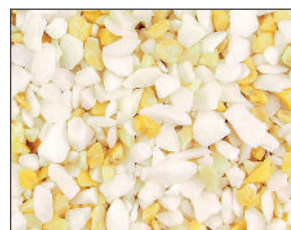
Gower 3-8mm



Ashton Cream 3-8mm



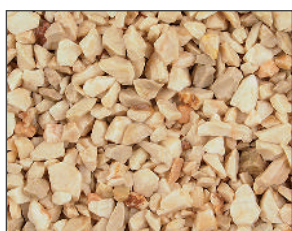
Buff Quartz 3-8mm



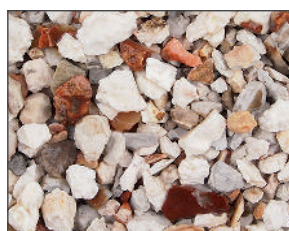
Iris 3-8mm



Yellow Cream Quartz 3-8mm



Beige Marble 6mm



Durite Canterbury Spar 3-8mm



Honey 6mm

TRADITIONAL FINISHES ACRYLIC BRICK SLIPS

Client: City West Housing Trust
Building Type: Solid Brick High Rise Blocks
Project Size: 10 Storey / 14,50m²
System: Thin Coat NSC2 External Wall Insulation
Finish: Silicone & Acrylic Brick Slips

Social Housing Refurbishment | Engels House, Salford, Greater Manchester

ACRYLIC BRICK SLIPS

Combine technology and traditional appearance to offer a high quality façade.

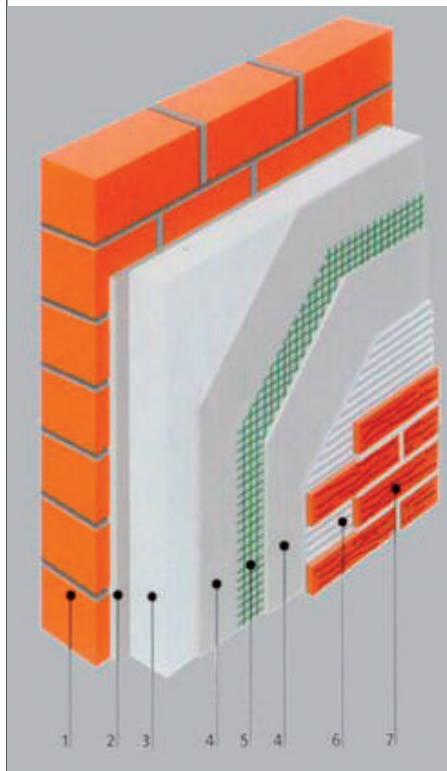
Acrylic Brick Slips are lightweight (6kg/m²) and flexible, creating an ideal finish for our External Wall Insulation (EWI) systems and our unique Structural External Wall Insulation (SEWI) system.

The diagram opposite shows a typical system build up with our high build EWI system consisting of a layer of insulation, basecoat render, reinforcing mesh and the decorative Acrylic Brick Slip finish.

Benefits

- Faster and easier installation than traditional masonry.
- Lightweight and flexible brick slips enable over cladding of entire buildings.
- Achieves natural, traditional appearance of brick.
- Each design contains natural shades and textures, as found with real brick finishes.
- 24 Standard colours.
- Can be colour matched to any brick.
- Standard UK size 65 x 215mm.

Acrylic Brick Slips sequence of layers with Thin Coat External Wall Insulation system.



1. Substrate
2. Levelling mortar (if required)
3. Insulation
4. Base coat render
5. Polypropylene reinforcing mesh
6. Primer and acrylic slip adhesive
7. Acrylic brick slips

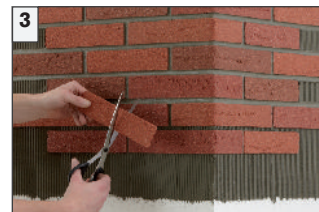
Application Procedure



Apply adhesive using a serrated trowel 6mm deep with 4mm gaps.



Embed the brick slips and pistols fully into the adhesive. The joints should be 10-12 mm wide.



The flexible slips can easily be cut.



Smooth the joints with a damp paintbrush making sure that the brick slips are fully embedded on all sides.

ACRYLIC BRICK SLIP COLOUR RANGE

Our high quality acrylic brick slips are available in 24 colours / designs and are complemented by 5 standard adhesive / mortar colours. All our acrylic brick slips come in standard UK sizes of 65mm x 215mm.



E6000 Dark Red Multi



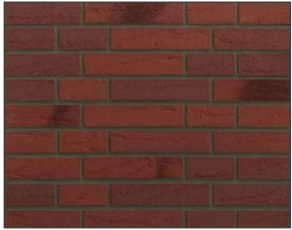
E6001 Light Brown Multi



E6002 Light Beige



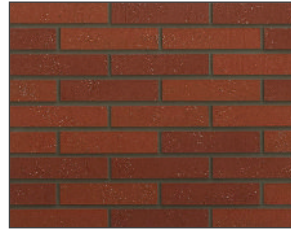
E6003 White



E6005 Red Multi



E6006 Light Grey



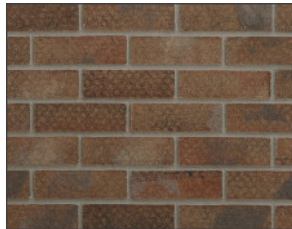
E6007 Light Red Multi



E6008 Dark Red Rustic



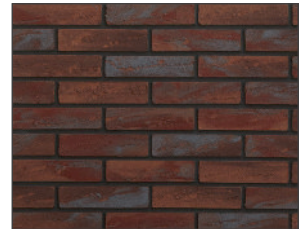
E6009 Grey Rustic



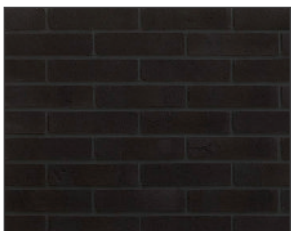
E6010 Blended Multi Beige



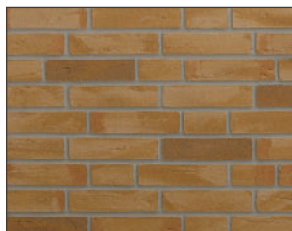
E6011 Beige Multi



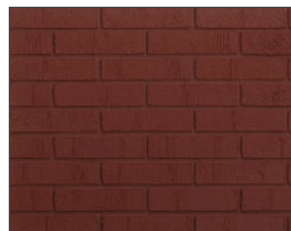
E6012 Blended Multi Red



E6013 Brown / Black Multi



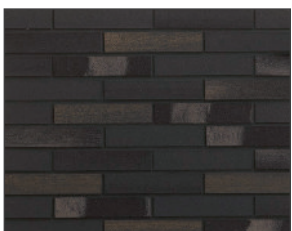
E6018 Golden Multi



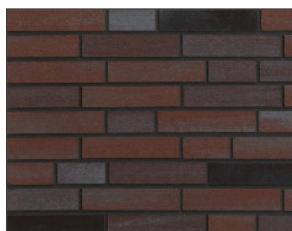
E6019 Dark Red



E6020 Terracotta



E6021 Grey Multi



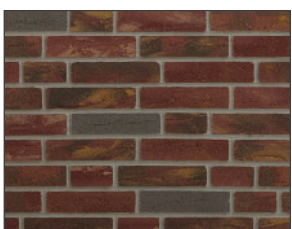
E6022 Blended Multi



E6023 Light Beige Multi



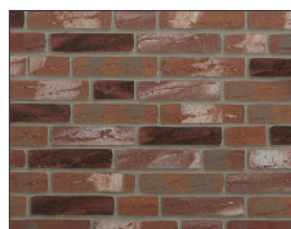
E6024 Dark Brown Multi



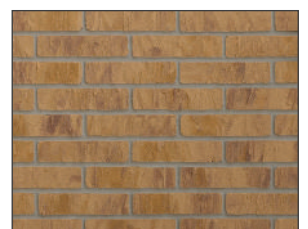
E6025 Blended Multi Stock



E6029 Dark Blue



E6030 Blended Multi Rustic

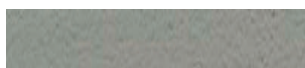


E6031 Buff Multi

ADHESIVE / MORTAR COLOURS



White



Grey



Anthracite



Light Grey



Brown



Client: Wrexham County Borough Council
 Building Type: Airey Properties
 Project Size: 75 Properties
 System: Structerm SEWI
 Finish: ArtBrick™

Social Housing Refurbishment | Wrexham, North Wales

ARTBRICK™

Can replicate the colour and texture of any traditional brick or brickwork .

ArtBrick™ is an advanced resin system used to tint and replicate the hue of traditional brickwork to cement based renders.


ArtBrick™ provides aesthetic choice for blending the appearance of projects to the local area build environment. ArtBrick™ alleviates planning concerns for both new-build and refurbishment projects.

ArtBrick™ has a proven track record, it is absorbed by the background materials, preventing discolouration, providing long-term durability and preserving its hue for a lifetime.




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