Structherm
STRUCTURAL INSULATED FACADES

SYSTEM SOLUTIONS

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STRUCTHERM & OUR UNIQUE BENEFITS

Project: Craghead, County Durham
Client: Gentoo Construction
Building Type: Solid Wall
Project Size: 89 Properties
System: External Wall Insulation
Finish: Artbrick™

STRUCTHERM ARE THE MARKET LEADING EXPERTS IN THE EXTERNAL REFURBISHMENT OF NON-TRADITIONAL, LOW & HIGH RISE SOCIAL HOUSING MARKET

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.

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

There are hundreds of different types of property 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 the most appropriate bespoke External Wall Insulation solution.

All our systems are applied by a network of Authorised Installation Contractors (AICs) 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 have 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

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.

STRUCTHERM'S EXTERNAL WALL INSULATION SOLUTIONS OFFER MANY UNIQUE BENEFITS TO DESIGNERS, RESIDENTS AND SOCIAL LANDLORDS

FIRE PERFORMANCE

All of our systems comply with Building Regulations

REDUCED ENERGY USAGE

Lower energy bills for residents helping to reduce fuel poverty.

REDUCED CO_2 EMISSIONS

Significantly improves thermal efficiency, reducing fuel consumption and CO_2 emissions, helping to reduce global warming

QUALITY & COMPLIANCE

High quality customer and technical services with independent product testing gives you confidence in our installed system.

SUSTAINABILITY

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

LOW MAINTENANCE COSTS

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

HOMES TRANSFORMED

A wide range of aesthetic designs to choose from.

INDOOR AIR QUALITY

Healthier living environment, with mitigated condensation risk which inhibits mould growth.

Website: www.structherm.co.uk Email: info@structherm.co.uk Tel: 01484 850098

FIRE SAFETY

40 years
Experience of providing outstanding technical support and design services

FIRE RESISTANCE PROVEN BY INDEPENDENT TESTING

Following the Grenfell Tower tragedy in 2017, the potential risk of fire spread in buildings by way of external cladding systems has gained greater significance within the UK Building Regulations.

The Building Safety Act overhauls existing regulations, creating lasting change and makes clear how residential buildings should be constructed, maintained and made safe.

Consideration in relation to the spread of fire is now paramount for all structures that have an External Wall Insulation system installed, in particular high risk structures. High rise installations are quite rightly considered as higher risk.

The British Board of Agrément (BBA) Certificates for our systems confirm that they meet current Building Regulations. Independent reaction to fire testing is undertaken at accredited UKAS Laboratories to ensure the systems obtain the required Reaction to Fire Classification to BS EN 13501:1 and thus satisfy Building Regulations.

Photograph of EN 13823 (SBI) Testing

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

FACT:
All of Structherm's Mineral Fibre based systems are A Rated and approved for use by the BBA for buidings above 18m (11m in Scotland) and fully comply with the latest UK Building Regs

When fire testing our systems, to meet the requirements of BS EN 13501:1 the following tests are undertaken:

EN ISO 11925-2	– ignitability test
EN 13823 (SBI)	– heat release and smoke production test
EN ISO 1716	– bomb calorimeter test (provides a calorific value)

Photograph of EN ISO 11925-2 Testing

QUALITY & COMPLIANCE

HIGH QUALITY PRODUCTS, EFFECTIVE PROJECT MANAGEMENT AND OUTSTANDING CUSTOMER SERVICE

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.

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 the majority 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.

CPD

Book onto our CPD seminar "How to effectively treat non-Traditional low and high rise buildings with External Wall Insulation" by visiting our website or call us on: 01484 850098

Structherm are proud to hold a LABSS (Local Authority Building Standards Scotland) certification for the use of our Unique Structural External Wall Insulation onto timber framed, steel frames and solid wall structures.

TECHNICAL SERVICES

40 years
Experience of providing outstanding technical support and design services

Our aim is to develop a full understanding of your requirements and provide unrivalled technical support and design services in order to ensure the smooth and timely delivery of your project.

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

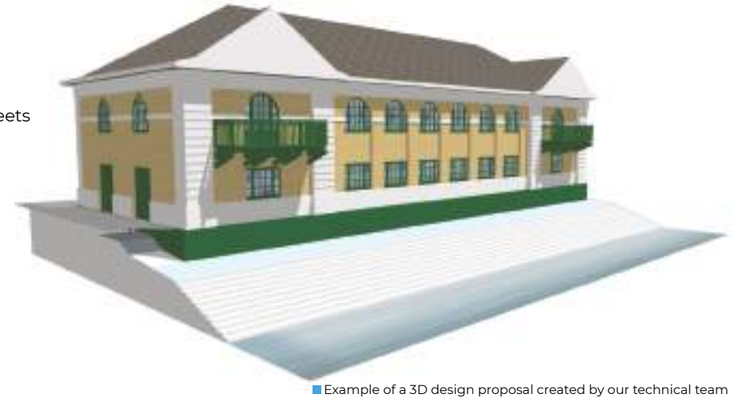
Please ask our team of Technical Sales Managers, Quality Assurance Technicians or Technical Services team for advice on all aspects of product selection and specifications.

Specification Support

- Detailed specification
- Advice on regulations and standards
- Health & safety data sheets and product data sheets

Our Design Services include:

- U-Value calculations
- Condensation risk analysis (CRA)
- Cost estimates
- Design advice and technical reports
- Wind load calculations
- Structural analysis
- CAD details and 3D visuals
- Project specific elevational colour schemes
- Product samples



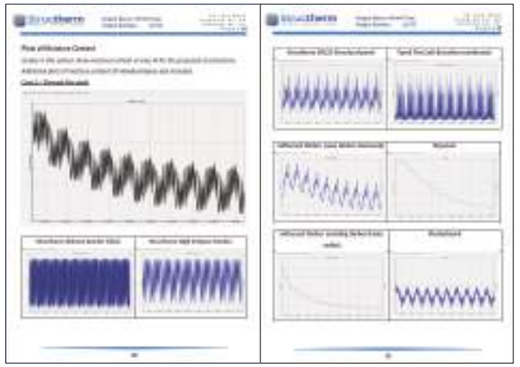
Example of a 3D design proposal created by our technical team

Our On Site & Installation Services include:

- Pull out testing
- Detailed site elevation surveys
- Site Reports using Fieldmotion (An app based survey tool to provide on site support, verify systems and compliance)
- Technical and Installation support to the Authorised Installation Contractors (AICS)
- Thermal Imaging Photography

Aftercare & Warranties

- Project specific warranties
- Information for O&M manuals
- Repair and maintenance information



Example of a WUFI calculation created by our technical team

EXISTING HOUSING & HEATING LOSS

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

Homes built before the 1970s 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. Classed as 'hard-to-treat' because they cannot be insulated with cavity wall insulation, heat loss can be as much as 45%. This amount of heat loss results in high fuel consumption and therefore high CO^2 emissions.

Thermal image of rear elevation and gable before refurbishment shows excessive heat loss through walls, windows and waste pipe penetrations

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

NON-TRADITIONAL HOUSING STOCK

For four decades Structherm has successfully clad some of the most hard-to-treat non-traditional properties

- BISF

- Airey

- Swedish Timber

- Unity

- Woolaway

- Cornish

- Easiform

- Crosswall

- Wimpey No-Fines

- In-Situ Concrete

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 1980s. Non-traditional housing can be grouped into the following categories:

- Prefabricated Reinforced Concrete (PRC)
  - In Situ Concrete Framed
  - Precast Concrete Panel
- Steel Framed
- Timber Frames
- 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 to 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 Usually caused by leaking drains, trees or subsidence.
- Inadequate lintels - particularly important in non-traditional properties.
- Cavity walls bulging outwards - indicates issues with the 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 frames structures
- Timber frame condition especially around openings and at sole plate level

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SCHOOLS & COMMERCIAL BUILDINGS

Project: Allanton Primary School, North Lanarkshire
Client: North Lanarkshire Council
Building Type: Timber Frame
Project Size: 1000m²
System: Structural External Wall Insulation
Finish: Silicone

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

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 the SEWI system 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 CO^2 emissions.

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

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.

HEALTHCARE SECTOR

Project: Crosshouse Maternity Hospital
Client: Ayrshire & Arran NHS Trust
Building Type: Lightweight Steel frame
Project Size: 4000m²
System: Structural External Wall Insulation
Finish: Silicone

Healthcare Sector
The UK's healthcare sector spends more than £600 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 Healthcare 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.

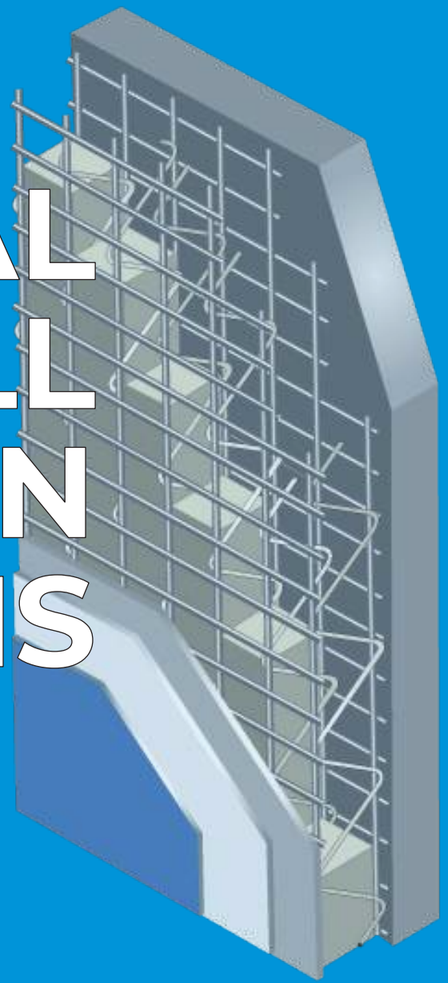
£600m
Spend on energy per Year by the UK's Healthcare sector

Not only can we provide solutions for the residential sector, Structherm can also supply for commercial, educational and healthcare projects.

Get in touch to find out more.

Redcar Lifeboat Station now benefits from an External Wall Insulation system with a silicone finish

EXTERNAL WALL INSULATION SOLUTIONS



EXTERNAL WALL INSULATION - OVERVIEW

Project: Eschol Court, Newport
Client: Newport City Homes
Building Type: Brick Cavity
Project Size: 1000m²
System: External Wall Insulation
Finish: Artbrick™

£650*
Annual savings on heating bills for a detached property with EWI installed

Structherm's External Wall Insulation systems provide thermal and aesthetic qualities to existing or new build projects. They are backed by full BBA certification confirming that the products have a minimum design life of 30 years. BBA certificate Nos. 96/3243 & 18/5576

The systems are fire classified to BS EN 13501:1 as A2 - s1,d0 for the Mineral Fibre systems and B - s1, d0 for the EPS and Phenolic systems.

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, base coat render and a decorative finish to suit your requirements.

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

Insulants
There are 3 different insulants to choose from:

- Enhanced EPS
- Mineral Wool
- Phenolic

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

System Finishes

- Silicone
- Dash Aggregate
- Artbrick™ Brick Effect Render
- Artbrick™ Stone Effect Render
- Artbrick™ Wood Effect Render

Areas of Application

Structherm EWI systems are suitable for any of the following providing that the substrate is structurally sound:

- *Refurbishment of low rise social housing*
- *Refurbishment of high rise social housing*
- *Refurbishment of private housing*
- *New build projects*
- *Commercial premises including office blocks*
- *Schools, Colleges and other educational establishments*

*Figure from the Energy Saving Trust Website Based on April 2022 gas prices

REFURBISHMENT SOLUTIONS

Project: 3 High Rise Blocks, Shakespeare Towers, Leeds
Client: Leeds City Council
Building Type: Wimpey No-Fines
Project Size: 12,000m²
System: External Wall Insulation
Finish: Silicone

EXTERNAL WALL INSULATION SOLUTIONS FOR REFURBISHMENT PROJECTS

As the cost of living rises, it is more important than ever to keep energy use down.

Structherm's range of External Wall Insulation is the perfect solution for refurbishing your existing properties by creating a thermal envelope around the building.
By reducing the cold bridging through the walls of the property, means that heating costs can dramatically reduce.

There are a number of government grants which may be available in your area to help with the costs of refurbishing your properties. Examples are:

- LAD - Local Area Development Fund
- SHDF - Social Housing Decarbonisation Fund
- HUG - Home Upgrades Grant
- WHS - Warmer Homes Scotland

Our insulation systems are fire classified to BS EN 13501:1 meaning you can be confident that our systems will not only improve the cold bridging in your home but will ensure full compliance with the fire safety requirements of the building regulations.

Stoke Crosswall Properties Before Refurbishment

Stoke Crosswall Properties After Refurbishment

NEW BUILD SOLUTIONS

Project: Goffs Academy
Client: Goffs Academy
Building Type: New Build Steel Frame
Project Size: 2207m²
System: Render only
Finish: Artbrick™

EXTERNAL WALL INSULATION SOLUTIONS FOR NEW BUILD PROJECTS

Our External Wall Insulation systems are not just for refurbishment projects but will also provide an excellent solution for new build projects.

If your new build project is looking to surpass energy efficiency regulations and targets then Structherm's External Wall Insulation is the solution. External wall Insulation systems can provide a cost effective way of construction when planning your new build project.
Long term maintenance and repairs are easier to carry out and more cost effective than repairs to a traditional construction.

We can also help you achieve a variety of appearances with the use of our extensive range of renders and finishes.

Our External Wall Insulation Systems can be combined with our Unique Structural External Wall Insulation Systems to create a hybrid solution

Goffs Academy during construction

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STRUCTURAL EXTERNAL WALL INSULATION - OVERVIEW

Project: NLC Towers, Coatbridge
Client: Equans / North Lanarkshire Council
Building Type: Leggatt Construction
Project Size: 2 Tower Blocks
System: Structural External Wall Insulation
Finish: Silicone

SEWI
The only structural cladding system to have BBA approval

STRUCTURAL EXTERNAL WALL INSULATION - OVERVIEW

Structherm's Structural External Wall Insulation (SEWI) 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 may appear sound.

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

The systems are cost effective method 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

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

Steel Reinforcement Wire
- Galvanised Steel
- Stainless Steel

Insulants
- Enhanced EPS
- Mineral Wool
- Phenolic

System Finishes
- Silicone
- Dash Aggregate
- Artbrick™

MEDIUM & HIGH RISE SOLUTIONS

Project: Kyle Court, Cambuslang
Client: South Lanarkshire Council
Building Type: Reinforced concrete frame with PRC cladding panels
Project Size: 2170m²
System: Structural External Wall Insulation
Finish: Silicone

STRUCTURAL EXTERNAL WALL INSULATION VERTICAL AND HORIZONTAL PANEL SPANNING METHOD

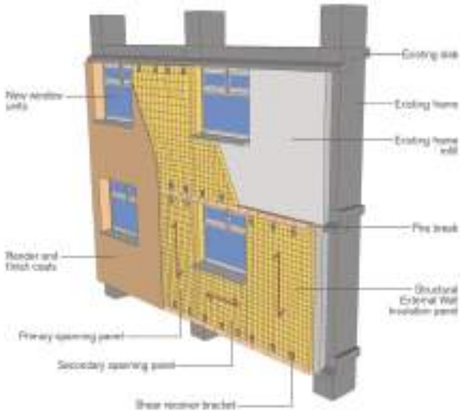
There are many types of medium and high rise buildings designed with a low cost and minimum construction time in mind and as such, can now exhibit many structural defects. They are also likely to have other problems such as poor thermal performance and penetrating damp.

If a building has a structurally sound frame, but the infill material is weak or defective then the solution is our unique Structural External Wall Insulation System. During specification, the development of the BS EN 1991-1-4 is undertaken by our in house Structural engineers to determine the appropriate SEWI type panel and fixing method.

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 to meet the requirements of the Building Regulations 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

SYSTEM BUILT SCHOOL SOLUTIONS

Project: Kesteven & Srantham Girls School, Grantham
Client: Kesteven & Grantham Girls School
Building Type: CLASP System Built Steel Frame
Project Size: 3 Storey Block / 460m²
System: Structural External Wall Insulation
Finish: Artbrick™

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

Around 46 percent 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.

46%
Of schools built between 1945-75 were system / modular built

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 upgrades all in one process.

Kesteven & Grantham Girls School Before Refurbishment

TYPICAL DETAIL - FACADE RECONFIGURATION

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

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

SYSTEM BUILT SCHOOL EXAMPLES

Below are some examples of system built schools (before refurbishment) that Structherm have previously worked on such as CLASP, SCOLA, 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

IN SITU CONCRETE NON-TRADITIONAL HOUSING SOLUTIONS

Project: Daneville & Florence Melly Estates, Liverpool
Client: Torus Limited
Building Type: Boswell
Project Size: 40,000m²
System: Structural External Wall Insulation
Finish: Artbrick & Silicone

STRUCTURAL EXTERNAL WALL INSULATION DIAPHRAGM FIXING METHOD

The construction of in situ concrete properties involve three basic elements; form work, concrete and reinforcement. Steel reinforcement is added between the form work after which the fluid 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.

If you are 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

Boswell

Duo Slab

Easiform

Examples of in situ concrete properties before refurbishment

TYPICAL DETAILS

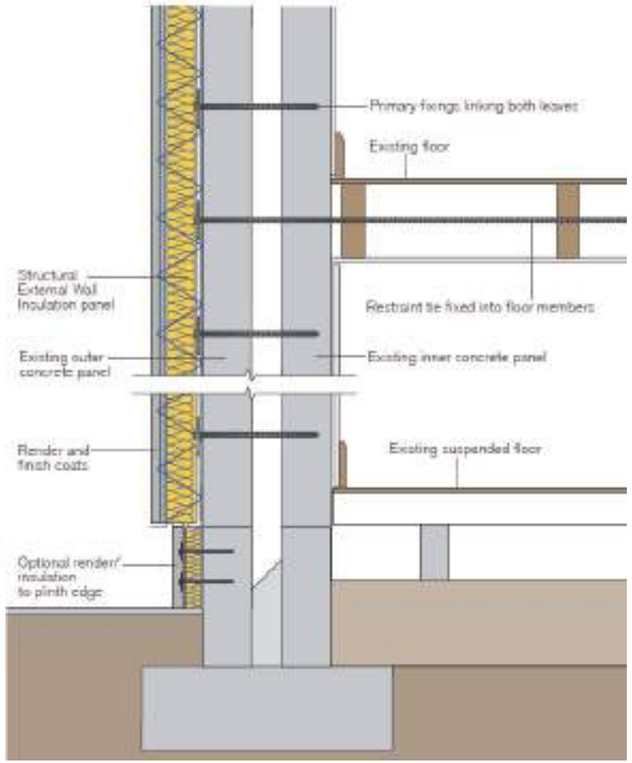
The diaphragm fixing method is designed to provide a structural wrap around for concrete cavity wall properties.

62
Types of in situ concrete houses in the UK

The structural panels are installed by using primary 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 if necessary.

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 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

Project: Luton BISF
Client: Luton Borough Council
Building Type: BISF
Project Size: 10,000m²
System: Structural External Wall Insulation
Finish: Artbrick & Silicone

STRUCTURAL EXTERNAL WALL INSULATION CLEAR SPAN FIXING METHOD

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.

If you are 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.

Examples of metal framed properties before refurbishment

104
Types of metal framed houses in the UK

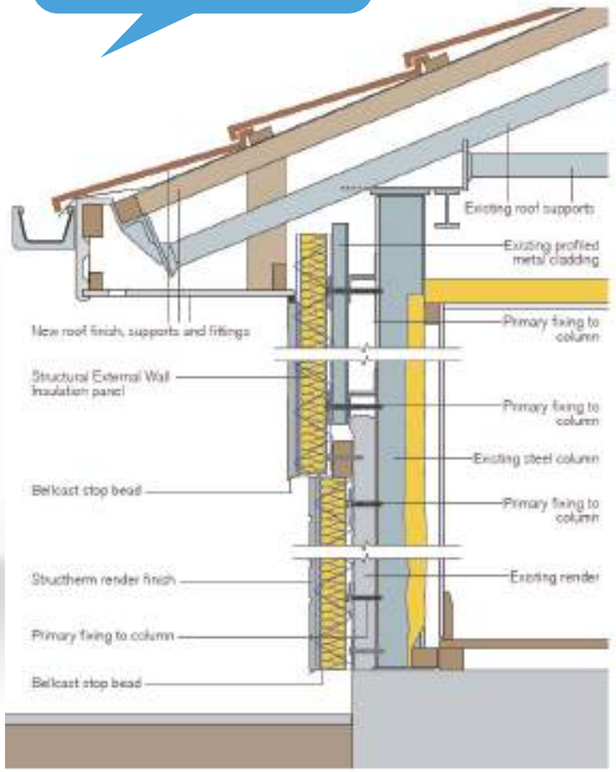
TYPICAL DETAILS

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.

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



TIMBER FRAMED NON-TRADITIONAL HOUSING SOLUTIONS

Project: Wishaw MultiCon Crosswalls
Client: North Lanarkshire Council
Building Type: Wishaw MultiCon
Project Size: 4000m²
System: Structural External Wall Insulation and External Wall Insulation
Finish: Dash

STRUCTURAL EXTERNAL WALL INSULATION CLEAR SPAN FIXING METHOD

The direct platform frame construction method was often used to build timber properties. Storey height timber frame panels, sheathed internally for example with tongue and groove 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.

If you are 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

Examples of timber framed properties before refurbishment

TYPICAL DETAILS

143
Types of timber framed houses in the UK

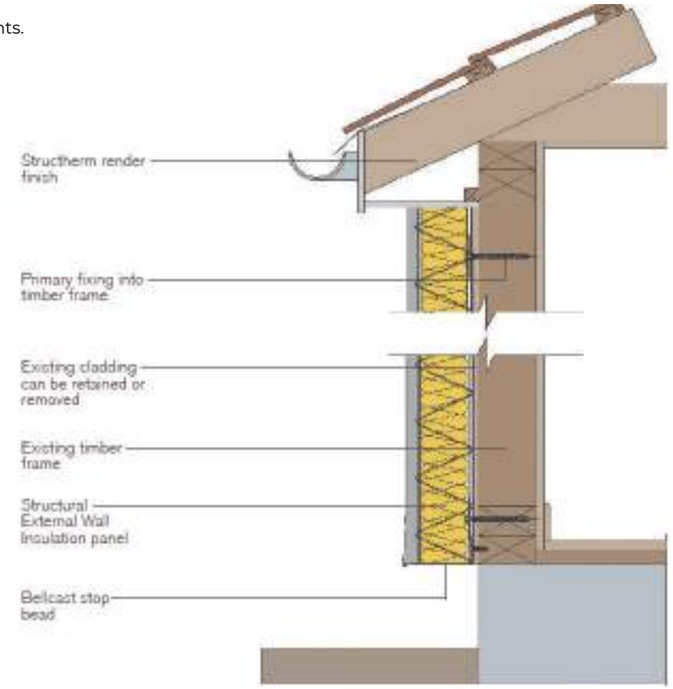
The structural panels are installed by using primary fixings which are fixed through the existing cladding panels and into the load-bearing timber frame. Alternatively, the external cladding can be removed prior to application of the system.

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.

Why not finish off with a Timber Effect finish with our Artbrick System?

See page 37 for more information



PRECAST CONCRETE NON-TRADITIONAL HOUSING SOLUTIONS

Project: Wrexham Aireys Phase 2
Client: Wrexham County Borough Council
Building Type: Airey
Project Size: 7200m²
System: Structural External Wall Insulation
Finish: Silicone & Artbrick™

STRUCTURAL EXTERNAL WALL INSULATION PRIMARY & SECONDARY FIXING METHOD

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.

If you are 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.

Examples of timber framed properties before refurbishment

TYPICAL DETAILS

The defects are mainly due to the 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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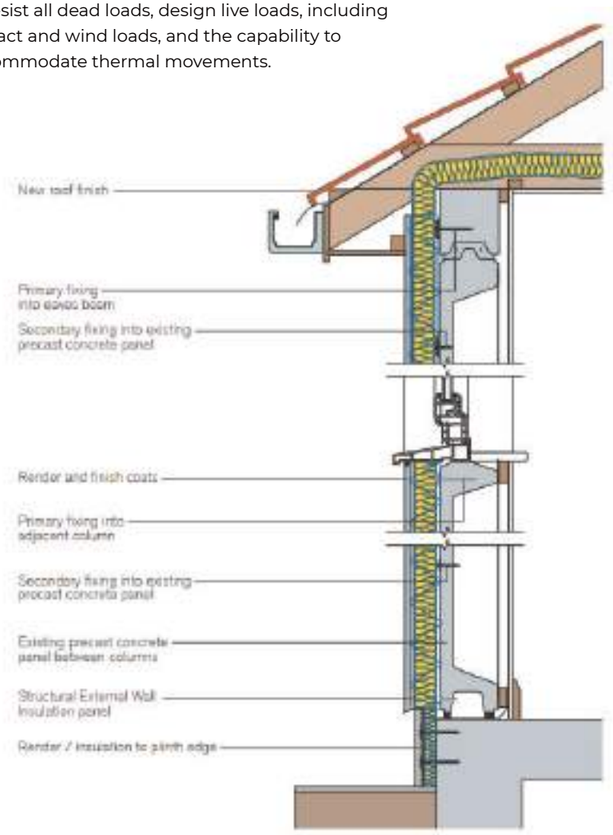
Types of concrete houses in the UK

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



HYBRID SOLUTIONS

Project: Stoke Crosswalls (Before Hybrid System Installation)
Client: Unitas
Building Type: Crosswall
Project Size: 600m²
System: Structural External Wall Insulation & External Wall Insulation
Finish: Silicone & Artbrick™

Project: Stoke Crosswalls (After Hybrid System Installation)
Client: Unitas
Building Type: Crosswall
Project Size: 600m²
System: Structural External Wall Insulation & External Wall Insulation
Finish: Silicone & Artbrick™

STRUCTHERM'S HYBRID SYSTEM IS A COST EFFECTIVE SOLUTION CONSISTING OF BOTH EWI AND SEWI SYSTEMS TO TREAT THE DIFFERING SUBSTRATES

Structherm's Hybrid System is a combination of standard External Wall Insulation, used where the substrate is structurally sound, combined with Structherm's unique Structural External Wall Insulation System, used where the substrate requires structurally stabilising and is unsuitable for applying standard EWI systems, or where a spanning system is required.

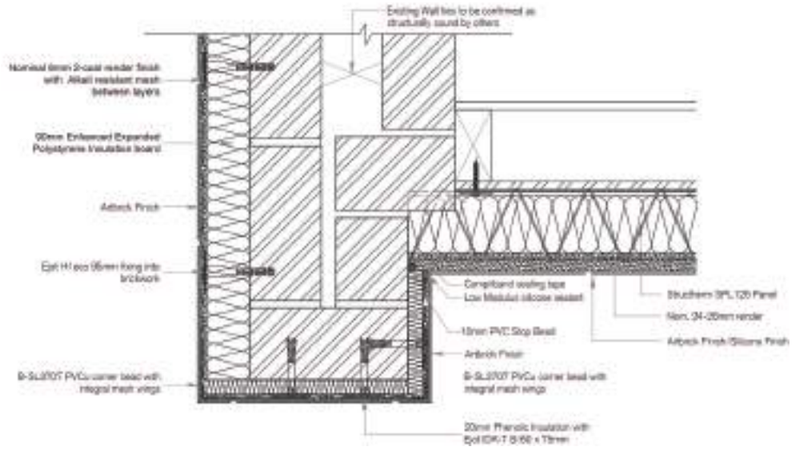
The Hybrid system is a method that has been developed to allow for the integration of the two systems, to produce major advantages in strength, cost and speed of application, and to enable properties of mixed substrates to be effectively treated. e.g. Properties built from a mix of timber frame elevations and brick and block walls.

"The INCA Award winning housing project, carried out on seven properties in Norton, Stoke-On-Trent, improved the design of the pilot project to create a 'hybrid' of the original specification. The structural challenges posed by the old crosswall design and the energy efficiency requirements made for a unique refurbishment project" - UNITAS

Alternative systems are more costly and disruptive, often requiring the occupants to be decanted whilst work is carried out. These systems require the walls to be stabilised by stripping the wall facings and/or strengthening the structure using heavy gauge steel beams. The new framework is then faced in sheathing boards and a standard EWI system is then applied. The large steel beams are often spliced to reduce the length and are difficult to manoeuvre into position and fix in place, requiring the need for heavy lifting equipment which can often cause issues in inaccessible locations.

The Hybrid systems offer a faster, efficient and more cost-effective way of spanning structural defective walls than the alternative methodology thereby reducing the duration on site and associated additional costs.

A pilot scheme was developed in partnership with Unitas, Stoke-On-Trent Council's repairs and property maintenance company and installation contractor Westdale Ltd. In 2020, the Hybrid system installed on the Stoke Crosswall properties (Seen above) received a refurbishment award from INCA (The Insulation Render and Cladding Association) for the best refurbishment project.



RENDER AND FINSHES

CONTEMPORARY FINISHES

Project: Roxby Close, Leeds
Client: Leeds City Council
Building Type: Concrete frame with brick cavity walls
Project Size: 3000m²
System: External Wall Insulation
Finish: Silicone

SILICONE FINISHES

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

Structherm's range of quality synthetic renders and finishes are thin, durable coatings suitable for contemporary new build or refurbishment projects, manufactured using silicone resin basis, 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

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

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

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

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

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

TRADITIONAL FINISHES BRICK & STONE EFFECT

Project: Stoke Crosswall Properties
Client: Unitas
Building Type: Crosswall
Project Size: 600m²
System: SEWI / EWI Hybrid
Finish: Artbrick™ & Silicone Render

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.

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.
We are also able to produce a multistock brick effect by using our Artbrick™ brick effect render system.

See page 37 for further information.

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Colours to choose from giving you freedom of design

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

Stone Effect Render/Random Stone Render
The images opposite show examples 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 a rustic style.

Ashlar Stone Effect Render
The images opposite show examples of 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 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

Photograph Notes:
Cutting through top coat to reveal the mortar Layer.

TRADITIONAL FINISHES DASH RECEIVER & AGGREGATE

Project: Mossblown, Ayr
Client: South Ayrshire Council
Building Type: Anchor
Project Size: 6000m²
System: External Wall Insulation
Finish: Dash Aggregate

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 basecaot using a hawk and trowel to a thickness of 6-8mm.

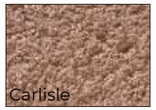
Ancaster

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 it is still wet, in an upward motion using a hand scoop. For best results, an even distribution or aggregate is necessary and any missed areas should be rectified immediately as it can not be touched up the next day.

Calderdale Spar

Chatsworth Spar

Arctic Silver

Arctic White Spar

Ashton Cream

Caledonian Harvest

Hendry Spar

Beige Marble

Red and White Spar

Yellow Cream Quartz

Classic Spar

Buff Quartz

Multicolour

INNOVATION

ARTBRICK™

ArtBrick™ is an advanced resin system used to tint and replicate the hue of traditional brickwork, stonework and timber. It is cost effective, efficient, robust and looks stunning - You wouldn't believe it isn't real!

Capable of finishing almost any substrate, be it new build or refurbishment, **Artbrick™** can be made to order or made to match any existing brick or stone. As the system is formed on site, **Artbrick™** is quicker to apply and more robust than pre-formed brick slips and does not compromise in appearance, unlike brick effect renders.

As well as recreating the tint and hue of brickwork, **Artbrick™** can also replicate the appearance of existing Timber Cladding.

Examples of projects utilising our **Artbrick™** finish can be seen in the photographs to the right.

Artbrick™ has passed weathering experiments in accordance with ETAG 004 and ETAG 017. The European Organisation for Technical Approvals (EOTA) is a comprehensive performance and durability evaluation system, which is prepared for plastered exterior surface systems.

Artbrick™ alleviates planning concerns for both new-build and refurbishment projects

ROOFLINE™

Project: Craghead, County Durham
Client: Gentoo Construction
Building Type: Solid Wall
Project Size: 89 Properties
System: External Wall Insulation
Finish: Artbrick™.

ROOFLINE™

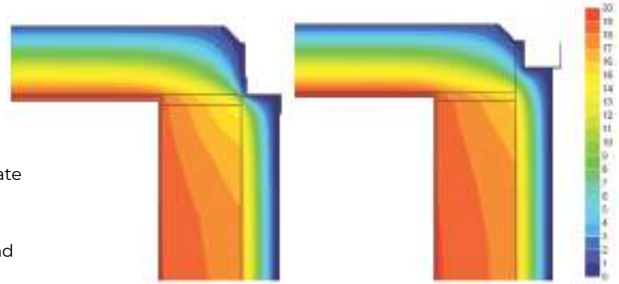
Our **Roofline™** System is designed to provide a simple yet robust extension to eaves and verges that negates the need for costly adaptations to roofs.

The design incorporates an all-in-one aluminium gutter and eaves closure system which is mounted onto an insulated fascia to reduce the risk of cold bridging

The system which has been assessed by the BRE has proven to thermally improve the junction between roof and EWI system to significantly reduce the risk of water ingress when compared with traditional trims/profiles.

Typically where aluminium eaves trims are used, they have to be situated lower than the internal ceiling height in order to accommodate The gutter, whereas Structherm's **Roofline™** System allows the new gutter to be installed up to the roof tiles.
The inclusion of insulation moves the dew point outside of the wall and reduces the risk of condensation and mould growth.

Pat App. GB2106465.4



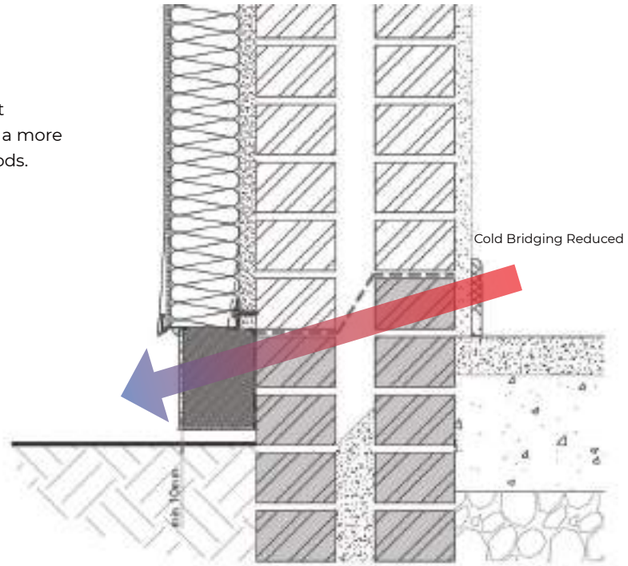
Thermal modelling showing effect of installing the Roofline System (Right) compared to standard verge trims (Left).

THERMABASE™

Project: Orbit SHDF Retrofit Scheme
Client: Orbit Housing
Building Type: Cavity Wall
Project Size: 6500m²
System: External Wall Insulation
Finish:Artbrick & Silicone

ThermaBase™

ThermaBase™ is an innovative below DPC insulation system that is pre-finished and can be adhesively fixed in place. This enables a more time and cost effective installation process over traditional methods.



ThermaBase typical detail

Notes

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INCA MEMBER

BBA APPROVAL INSPECTION TESTING CERTIFICATION

BBA APPROVAL INSPECTION TESTING CERTIFICATION

BBA APPROVAL INSPECTION TESTING CERTIFICATION

CPC UKAS

CPC UKAS

CP 08183

CPC UKAS

CP E 80027

LABSS