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Insulated Render Systems New Build







A new building makes a unique contribution to its surrounding environment and the completed style, colour and finish can have a severe impact on the general feel of a local neighbourhood.

The construction industry is going through some very significant changes, so much so that specifiers and contractors are embracing new construction techniques to help meet the escalating daily challenges they face such as controlling costs, abiding by stringent new regulations and reducing levels of skilled labour.

Wetherby has been at the forefront of developing insulated render systems to compliment these new building techniques for many years and Clients are gradually beginning to realise that by using an external wall insulation system as part of their construction method, they can significantly alleviate a number of typical design headaches.

Wetherby Insulated Render Systems offer the following design benefits:-

- Flexible enough to meet any thermal requirement which will help to improve the overall energy efficiency of the building.
- Cost effective in terms of materials and contract period.
- Skill shortages within the construction industry can be overcome.
- By installing the insulation on the outside, the internal building footprint is increased, improving build cost per m².
- Significantly reduce energy costs during the construction of the building which helps improve the carbon footprint.
- Acoustic performance is improved.
- Sustainable / recyclable materials can be used.







Why Insulate Externally

In recent years the need to achieve lower U-values and reduce heating costs and ${\rm CO_2}$ emissions has become a major priority for social landlords, private house owners and government bodies.

To achieve this specifiers have two choices. To continually increase the thickness of insulation or to specify new products with lower 'K' or insulation values than have been traditionally used.

Simple construction methods such as single skin blockwork combined with an external insulation system have been used on the continent for decades and they have proven to offer a number of significant solutions against traditional construction methods.

Not only do they increase the building footprint by eliminating the cavity, but they also allow the designer the flexibility to achieve incredibly low U-values for the property, which by the nature of the product helps to reduce energy costs, even to the passive house stage, providing other energy efficiency methods are incorporated into the construction mix.

This 'tea cosy' effect also ensures that the warm dry structure retains heat and ensures that the internal temperature remains constant. Designers have the flexibility to incorporate varying thicknesses of insulation and U-values as low as 0.1 W/m²K can be easily achieved.

This construction method is not only a cost effective method in terms of materials but also labour. Application of the insulation to the structure is a very quick process and scaffolding costs and construction times can all be reduced by using an insulated render system.

Now that designers are embracing these new construction methods they are afforded a much greater choice for the aesthetic elements of the external façade.

Wetherby offer a wide range of external render colours and textures which can be used alongside other types of cladding methods allowing for unlimited scope.



















Steel and Timber Frame Construction

Steel and timber frame construction solves many of the economic and environmental problems that new build construction faces. Frames can be erected with amazing speed, regardless of weather conditions and once all of the external sheathing has been fixed, internal works can commence much sooner than can be done using traditional methods.

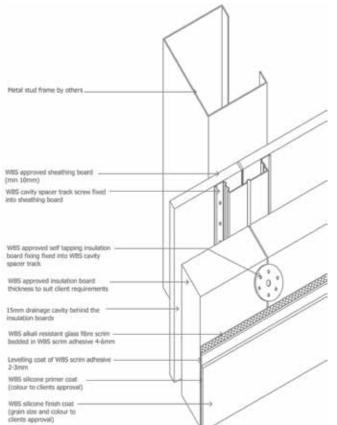
Wetherby developed the **epsitec** system specifically for this type of construction and now have a long and successful track record of using it on various new build projects including residential, educational, commercial and leisure on a variety of low, medium and highrise build types.

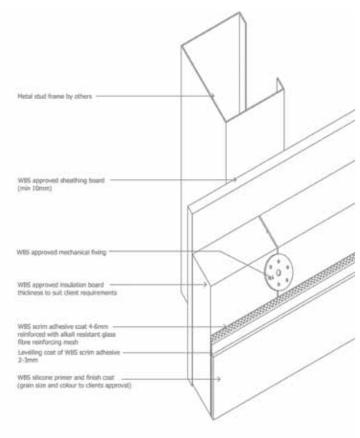


Following NHBC guidelines, the system can be designed to incorporate a drainage cavity, which is placed behind the rigid insulation board and ensures that the sheathing board and timber frame remain dry and structurally sound.









Depending on the height of the building and the proposed façade design, the **epsitec** system can be modified to incorporate a variety of cavity widths and various insulation thicknesses which enables the specifier to achieve considerably low U-values for the building.

Once the correct rails, deflective beads and cavity fire strips have been installed to the sheathing board, rigid insulation boards are mechanically fixed to the rails and/or the steel frame offering a quick and efficient method of encapsulating the building. Once the insulation boards are in place, an alkali resistant reinforcing mesh is bedded onto the face of the boards using a high quality basecoat. For areas of heavy traffic where there is a greater risk of impact damage, such as at ground level, a variety of heavy duty meshes and fibre reinforced renders are available.

Finally, the system is completed via the application of a WBS Silicone or Acrylic render which is available in a wide range of colours and textures. Alternative finishes such as brick slips, timber cladding etc, can also be used to give a hard-wearing and attractive, weatherproof finish.







Modern Methods of Construction

In addition to steel and timber frame, there are many other new non-traditional methods of construction that are becoming increasingly popular in the UK, especially as construction companies look to adopt prefabricated solutions to help overcome skill shortages and reduce build time and costs.

These include:

- Panellised Systems
- SIPS
- Volumetric Construction
- Hybrids & Pods (semi-volumetric)

While all these systems offer a 'fast track' construction solution, where the majority of the construction work takes place in off-site premises, the render finish still needs to be applied on-site so that a seamless weatherproof finish can be achieved.

Other methods of construction such as TunnelForm, Thin Joint Blockwork, Calcium Silicate Blocks and ICF are still classed as MMC's, however these methods rely less on off-site construction and are celebrated for their use of recyclable / sustainable materials and innovative processes.

The insulation acts as an excellent render carrier and Wetherby offers a wide range of flexible anti-crack renders and brick slip systems to give the designer endless possibilities for the design of the external façade in regard to colours and textures.

Wetherby continue to be at the forefront of developing high quality insulated render systems with a variety of MMC manufacturers, so that they can offer a complete solution to their own clients. Additional thicknesses of insulation can be fitted which adds to the increased thermal efficiency of the structure and helps to reduce the occupiers heating costs.





















Traditional Construction Methods

The term 'traditional build' is most often used to describe a structure where the internal load bearing leaf of the walling is of masonry construction, tied with stainless steel ties to an outer leaf of either block or brick.

Although Modern Methods of Construction are taking building practices into the future, traditional brick and block methods still remain one of the most widely used build types in the UK and Ireland.



There are many varied forms of construction and blocks take many different forms:

Traditional Brick & Block Construction

Dense Concrete Blocks have a high strength factor and they are therefore used for foundations, external leaves of walls that are to be rendered and for internal load bearing partitions. They do not, however, have a very high insulation value.

Lightweight Aerated (Aircrete) Blocks are suitable for foundations, internal and external leaves of cavity walls, solid walls, internal walls and party walls. They provide a far greater thermal efficiency but usually require the application of an external wall insulation system to achieve current building regulations.

Thin Joint Systems (which are actually classed as an MMC due to the innovative process) have been designed to speed up the build process. The blocks are laid using a proprietary mortar (instead of sand / cement) which is applied using a special scoop. The system allows a single leaf to be taken up to roof height without waiting for the external leaf offering a similar construction speed of panellised systems.

Single Skin Construction

On the continent, single skin construction used together with external insulation has been the standard method of building for decades. With rising densities, higher land costs and the rising cost and shortages of skilled labour, UK architects and developers are now specifying this method of construction more often.

With this in mind, Wetherby have developed the **epsiwall** system specifically for this type of construction.

The **epsiwall** system incorporates a layer of Kingspan Koottherm phenolic insulation which is fixed directly to the brick or blockwork substrate using mechanical and/or adhesive fixing methods. The Koottherm insulation board, available in a range of thicknesses, offers a 'K' value as low as 0.021 W/mK in comparison to standard external insulations of 0.036 W/mK therefore allowing a significant improvement in the building's overall U-value to be achieved.

Once the insulation has been fixed to the blockwork, a wide variety of render finishes or brick façades can be installed to give modern, seamless finishes or to replicate traditional construction without the cost or reliance of skilled labour.

The **epsiwall** system has been fully tested for fire resistance and due to the Class 'O' fire rating properties of the Kooltherm insulant, **epsiwall** can be specified for high rise buildings without the need for additional safety features such as fire breaks. WBS systems provide designers unlimited options when designing a new build construction with these systems.

Whether multi-storey, low rise or traditional two storey dwellings, the architect has unlimited scope to incorporate curved elevations, features, contrasting textures and colours to give these structures a unique look and feel.





Insulant Types

New Build: Current building regulations require new insulated buildings to have a U-value below 0.35 W/m²K.

Refurbishment: The building regulations will change once again on 1st October 2010 where the required U-value of any refurbishment project will be lowered from 0.35 W/m²K to 0.30 W/m²K.



History suggests that improvements will continue to be made during the next five years with the aim of achieving zero carbon homes by the year 2016 and below, you will find the most currently specified insulants along with their current 'K' values.

INSULANT	THICKNESS	'K' VALUE 0.036 - 0.038 W/mK	
Polystyrene SD/FRA Grade	10mm - 160mm		
Polyisocyanurate (PIR)	0mm - 79mm	0.028 W/mK	
Polyisocyanurate (PIR)	80mm - 119mm	0.027 W/mK	
Mineral Wool	20mm - 180mm	0.036 - 0.038 W/mK	
Lamella	20mm - 140mm	0.040 W/mK	
Phenolic	0mm - 24mm	0.023 W/mK	
Phenolic	25mm - 44mm	0.021 W/mK	
Phenolic	45mm - 140mm	0.020 W/mK	

All values correct at time of going to print

Insulation Fixing & Reinforcement

When considering the right insulation fixing method and reinforcement to use on a particular project, a number of variables should be considered including the substrate, the insulant type and the final finish required.

The table below gives a good indication as to which methods should be used in various circumstances.

Substrate	Insulant	Fixing Method	Reinforcement	Finish	Approval
SFS	Phenolic	Mechanical	Alkali Resistant Mesh	Silicone	Epsitec - BBA 09/4625
Masonry / Concrete	Phenolic	Wet/Dry + Mechanical	Alkali Resistant Mesh	Silicone	Epsiwall - BBA 09/4625
Masonry / Concrete	EPS / Mineral Wool	Wet/Dry + Mechanical	Lathe	Dry Dash	Epsicon 2 - BBA 03/4058
Masonry / Concrete	Phenolic / PIR / EPS / Mineral Wool	Wet/Dry + Mechanical	Alkali Resistant Mesh	Dry Dash	Epsicon 3 - BBA 03/4058
Masonry / Concrete	Phenolic / PIR	Wet/Dry + Mechanical	Alkali Resistant Mesh	Dry Dash	Thermaloc - BBA 99/3564
Masonry / Concrete	Mineral Wool	Wet/Dry + Mechanical	Alkali Resistant Mesh	Silicone/Acrylic	Heck - DIBT 05/0216
Masonry / Concrete	EPS / Mineral Wool	Wet/Dry + Mechanical	Alkali Resistant Mesh	Silicone/Acrylic	Heck - DIBT 05/0045
Masonry / Concrete	Lamella	Wet/Dry + Mechanical	Alkali Resistant Mesh	Silicone/Acrylic	Heck - DIBT 05/0079
ICF	EPS	Mechanical	Alkali Resistant Mesh	Silicone	Amvic - IAB 07/0277
Masonry	None - Render Only	N/A	N/A	Polymer Modified Renders	Kilwaughter - BBA 97/3428
TF / SFS / Masonry / Concrete	Phenolic / PIR / EPS / Mineral Wool	Mechanical	Galvanised Mesh	Brick Slip	-



System Finishes

For further information on the full range of WBS External Renders please refer to either the **Silicone & Acrylic Finishes** or **Polymer Modified Renders & Specialist Finishes** brochures.



Ancillary Products & Components

WBS supply a comprehensive range of ancillary products. Full technical details are available on request.



Project Type: New Build - Educational Facility

Location: Newcastle under Lyme College, Knutton Lane,

Newcastle-under-Lyme

Architect: Ellis Williams Architect

Main Contractor: BAM

System Installer: C.G. Reynolds

System Used: WBS Insulated Render System incorporating Mineral Wool Insulation

Finish: WBS Silicone 1.5mm 'K'









Newcastle-under-Lyme College has grown significantly over the past 10 years and is currently home to a population of over 2,500 full-time and 10,000 part-time students.

As well as offering traditional vocational and non-vocational courses to students of school leaving age, their brand new £60 million campus on Knutton Lane boasts some of the most advanced facilities in the country including an impressive 200-seat auditorium, a state-of-the-art Sports Centre & Spa and a suite of conference and seminar facilities. The building also features specially-designed areas for adult students, including those on higher education courses and areas predominantly for employer training.

The structure of the new building was formed in concrete with lightweight steel frame infill panels. This was then faced with a layer of 10mm building boards onto which WBS Mineral Wool insulation of 150mm and 200mm thicknesses were mechanically fixed.

Naturally, the utilisation of Mineral Wool as the main insulant on this project negated the need for additional fire breaks and also proved to be the perfect solution when it came to encapsulating the difficult curved elevation at the front of the building.

Following the application of a basecoat and reinforcing mesh layer, the entire building was finished using in excess of 6000m² of WBS 1.5mm 'K' decorative render which resulted in a visually spectacular façade. Final U-value 0.28 W/m²K.



Project Type:New Build Student Accommodation Block **Location:**Newington Court, Green Lanes, London N16

Client: UNITE Group

Architect: Stock Woolstencroft

Main Contractor: Mansell Plc **System Installer:** B.R. Hodgson

System Used: WBS Insulated Render System incorporating 60mm

Mineral Wool Insulation

Finish: WBS Silicone 1.5mm 'K' (Colour RAL 1016)







Located a short walk away from the cafes, bars and restaurants of Angel Islington, Newington Court is a purpose built student accommodation block that offers a selection of 40 en-suite flats and 47 studios. Stock Woolstencroft's bold design addresses the local townscape and landscape through a contemporary interpretation of the neighbouring Victorian mansion blocks and the modernist housing of the nearby Quadrant Estate.

By utilising their own off-site manufacturing facility in Stroud, the Client was able to construct modular pods within controlled factory conditions and transport the virtually completed structures to site for installation. This method of construction allowed for approximately 70% of the construction activity to be carried out off-site which helped to lower costs, speed up the construction process and is considered a much better solution for the environment than traditional construction methods.

Once the pods had been carefully craned into position and connected to all relevant services the WBS Insulated Render System was applied.

The system incorporated 60mm of WBS Mineral Wool insulation, which was mechanically fixed directly to the substrate. A basecoat and reinforcing mesh was then applied and finished using a truly breathtaking yellow shade of WBS Silicone 1.5mm 'K'. A layer of woven steel mesh was added purely as an aesthetic addition to this building which is undeniably at the architectural cutting edge.

Project Type: Residential New Build

Location: Tulloch Court, Marton, Blackpool

Client: Great Places Housing

Architect: Croft Goode

Main Contractor: Seddon Construction Group

System Installer: Yesero Ltd

System Used: WBS Insulated Render System incorporating

40mm Phenolic Insulation

Finish: WBS Silicone 1.5mm 'K'







Developed by Great Places Housing Group, Tulloch Court is a stylish £5.68m scheme of 46 self contained two-bedroom apartments aimed at the over 55's.

Features include art deco and nautical inspired exteriors with bold coloured render and communal facilities which include a spa and jacuzzi. Designed by architects Croft Goode and built by Seddon Construction Group the apartments offer residents the independence of a self contained apartment with the security and peace of mind of 24 hour care.

The timber frame structure required a lightweight insulation system. A WBS Insulated Render System incorporating 40mm phenolic insulation was the ideal solution as the thermal properties of the phenolic insulation gave the apartments an exceedingly low U-value of 0.18 W/m²K, which in turn will help residents save money on their heating bills.

The phenolic boards were fixed to timber battens at 600mm centres to create the necessary drainage cavity. A K&A basecoat, reinforced with an alkali resistant scrim cloth, was applied to the insulation which was then encapsulated in a layer of 1.5mm Silicone Render in grey to the ground floor area and striking red/white panels to the upper floors.

Due to the building being constructed of timber frame, slip joints were installed at every floor level to allow for potential movement.

The residents have commented that it will be like living in a hotel with the fantastic facilities that are on offer.



Project Type: New Build Comprehensive School

Location: Rodillian School: South Leeds Performing Arts College

Client: Leeds City Council
Architect: Browne Smith Baker

Main Contractor: Interserve

System Installer: Skyline Construction Limited

System Used: WBS Insulated Render System incorporating

150mm Mineral Wool Insulation

Finish: WBS Silicone 1.5mm 'K' in a variety of colours





Every school has unique characteristics to meet the needs of its young people, staff and local community and Rodillian High School, situated in Lofthouse, near Wakefield is certainly no exception.

The state-of-the-art facilities were created as part of the first phase of the Leeds Building Schools for the Future programme with Leeds being one of only 14 local authorities to have been included in Wave 1 of the scheme.

For a school specialising in the Performing Arts, a visually unique design was required that embraced the school's positive approach and creative curriculum. The architect went on to produce a visually stunning design incorporating a wide range of bright, contrasting colours. Due to the enormity of the silicone colour range, the significant U-values achieved (0.24 W/m²K) and the level of fire resistance offered, the WBS Insulated Render System was considered the perfect façade solution.

The lightweight steel frame structure was encapsulated with 10mm Calcium Silicate Boards onto which 150mm of WBS Mineral Wool Insulation was mechanically fixed and a basecoat and alkali resistant reinforcing mesh applied.

For the final decorative render coat, a white WBS Silicone 1.5mm 'K' was used on the majority of the main building with each window reveal being rendered one of a variety of colours. Other areas used the bright colours as a main feature.

Project Type: Residential New Build Apartments

Location: Aurora, Swansea Point, St Nicholas Quay, Swansea, SA1

Client: Charles Church Developments
Architect: Powell Dobson Architects

Main Contractor: OPCO Construction

System Installer: MIB Façades (Cardiff) Ltd

System Used: WBS Insulated Render System incorporating 80mm EPS Insulation

Finish: WBS Silicone 1.5mm 'K' & Trespa Panels



Set on Swansea's beautiful waterfront, in the much sought after Maritime Quarter, these prestigious new build apartments enjoy an enviable location in the heart of the Welsh city.

Aurora is unusually angular in design with 14 floors containing a total of 76 ultra-modern apartments. Taking advantage of the three corners of the triangular floorplates are balconies, with the largest dominating the sharp end of the triangle. The penthouses feature particularly large balconies, with the duplex unit having one running over 18 metres in length.

Being such a large structure, positioned in a very exposed coastal area, it was important to take into account any potential fire risk to the façade system, as well as the effects of wind suction, ultra violet radiation and salt corrosion.

Wetherby offered the perfect solution! The building structure was constructed in concrete with lightweight steel frame infill panels. This was faced with a layer of 10mm building boards onto which 80mm of WBS Expanded Polystyrene Insulation was mechanically fixed, with Mineral Wool fire breaks situated at every floor level.

Following the application of a basecoat and reinforcing mesh layer, the main elevations of the building were finished using a brilliant white and copper green Silicone 1.5mm 'K' decorative render with accents of brown 'weatherboard style' Trespa panels. Final U-value 0.26 W/m²K.



Project Type: New Build Retirement Apartments

Location: Mariners Court, Lamberts Road, Swansea SA1

Client: Coastal Housing Group
Architect: Holder Mathias, Cardiff
Main Contractor: Jistcourt (South Wales) Ltd
System Installer: MIB Façades (Cardiff) Ltd

System Used: WBS Insulated Render System incorporating

Expanded Polystyrene Insulation

Finish: WBS Silicone 1.5mm 'K'







The SA1 Waterfront development has without doubt become one of South Wales' most enviable places to live. The main focal point is the vast expanse of water, Prince of Wales Dock, surrounded by quality residential and ongoing commercial developments that plan to serve the new growing community including restaurants, bars, retail, leisure and educational facilities.

Situated in a pedestrian-friendly environment of SA1, the Mariners Court scheme saw the construction of 79 spacious one and two bedroom modern apartments, in two blocks of five and three storeys, created specifically with the over 55's in mind.

A 25mm cavity was formed on the outside of the timber frame structure using timber battens, which was then encapsulated with 10mm sheathing boards onto which a layer of WBS Expanded Polystyrene in 30mm and 120mm thickness were fixed. Slip joints were added at each floor level to compensate for potential movement in the timber structure and Mineral Wool fire breaks were also added at each floor level to prevent potential spread of flame.

A layer of K&A basecoat and alkali resistant reinforcing mesh was then applied to the insulated render system which was finished using white and blue WBS Silicone 1.5mm 'K' decorative render. The final U-value achieved was a very respectable 0.14 W/m²K.

Due to it's striking colour, Mariners Court is a very prominent feature on the entry route into Swansea.

WBS Design & Specifications Advisory Service

In addition to our continuing success in supplying high quality materials at cost effective rates, Wetherby offer a complete **Design & Specifications Advisory Service**, enabling you to gain sound technical advice based on years of practical on-site experience.

Located across the UK, our technical personnel can advise on all aspects of the suitability of materials and systems, providing details, designs and specifications for the application of the products and also U-value calculations, condensation risk calculations and physical display samples for client consultation purposes.



- Comprehensive specifications
- Thermal calculations
- Full colour technical drawings in *.DWG or *.PDF format
- On site inspections and professional advice
- Tenant awareness presentations & regular liaison meetings
- Physical product samples
- Accurate budget costs supplied via our network of approved contractors



Specifications provided in NBS Format

Guarantees

All WBS systems are guaranteed to perform to pre-determined standards and are supplied with a standard 10 year materials and labour warranty.

For clients who require additional or extended protection, longer periods of latent defects insurance can be arranged, with time periods, terms and conditions determined at the design stage.





Approved Contractors

WBS are product distributors and do not directly carry out any installation works.

However, to enable us to enforce and maintain the highest standards in the use of our products and systems, we have developed a substantial UK wide network of installers, who receive ongoing training and monitoring in the application of WBS products and systems.



For further details, please contact

WBS TECHNICAL SUPPORT on 08458 382380.



Certification & Accreditation



epsitec External Wall Insulation Systems B.B.A. Certificate No 09/4625 PS1

For use on sheathed lightweight steel-framed structures. The system incorporates phenolic insulation, specific reinforced renders and provides a 15mm wide drainage cavity. Minimum life expectancy 30 years.



epsiwall External Wall Insulation Systems

For use on walls of solid masonry construction. The system incorporates phenolic insulation and silicone/acrylic reinforced renders. Minimum life expectancy 30 years.



epsicon External Wall Insulation Systems

B.B.A. Certificate No: 03/4058 PS1, PS2, PS3

For use on walls of solid masonry or concrete construction. The system incorporates a variety of insulants, reinforcements and decorative render finishes. Minimum life expectancy 30 years. expectancy 30 years.



Wetherby Silicone & Acrylic Systems

Covered DIBT European Technical Approval which is an EEC wide accepted equivalent to BBA standard. Certificate Nos: 14-8.04.04-10/02, 14-8.04.04-12/02, 14-8.04.04-105/04





Wetherby Renders are manufactured and certified to ISO9002 - Certificate No 2478 and ISO9001 / ISO-14001 - Certificate No 12 100/1004 16976/2.



ISO9001 / ISO14001

Wetherby Building Systems are certified to Quality Standard ISO-9001 and Environmental Standard ISO-14001, Joint Certificate No UK9000006.





Energy Saving Recommended / Ofgem Approved

Many of our insulated systems are approved by the Energy Saving Recommended Scheme & Ofgem. Please visit our website for further details.





Industry Associations

Full members of the Insulated Render and Cladding Association and the National Insulation Association.

For further details, please contact

WBS TECHNICAL SUPPORT on 08458 382380



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Insulated Render Systems
// New Build



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Flexible Silicone & Acrylic Finishes



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WBS Brick Slip Cladding Systems



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Insulated Render Systems
// Refurbishment



05

Polymer Modified Renders & Specialist Finishes



06

GRP Canopies &Architectural Mouldings