External Wall Insulation
External Wall Insulation: History

- Between 1930-1970 fast-track building methods were employed to ease housing problems, resulting in the design of 400 non-traditional house types
- Unproven construction methods created subsequent building defects
- 1980 Building Regulations addressed thermal performance, and later covered refurbishment
- These factors contributed to the development of External Wall Insulation Solutions
- 1987 - first EWI BBA Certificate was issued in the UK
Why Insulate?

Typical Heat Loss - Un-insulated Homes

- Walls 35%
- Roof 25%
- Draughts 15%
- Ground 15%
- Windows 10%
Why Externally Insulate?

- Ensures a home is windproof, weather tight and warm (45% of energy is lost through un-insulated solid walls)
- Reduces heating bills by 25% or more – saving approx. £490 per annum typical 3 bed semi-detached house (80 m² wall area)*
- Saves approx. 1.9 tonnes of carbon per annum for a typical 3 bed semi-detached house (80 m² wall area)* - equating to over 68 tonnes of lifetime carbon emissions per property
- Increases the thermal quality of the building
- Helps overcome moisture/condensation issues
- Protects the existing building envelope
- Improves the building’s appearance
- Improves acoustic performance
- Fire-safe solutions

* Source: Energy Savings Trust
Eliminates Thermal Bridging

- Thermal bridging is a potential problem with all types of building where constructional elements bridge the insulating layer.
- As the insulation is on the external surface, the dew point moves toward the outside of the structure, greatly reducing the risk of interstitial condensation.
- External wall insulation system are applied at openings in the external building envelope, eliminating the thermal bridge.
Multi-Storey Buildings: Design Considerations

- Risk Management
- Fire Performance
- Reduced Maintenance
- Pull-out tests are actioned at early stages of project
- Wind loading evaluation specific to project
Why use EWI? – Minimal Disruption

- External wall insulation is installed without disturbing the building occupants
- This eliminates the need to decant residents
- Insulation systems are applied externally so no aspect of interior space is disturbed or encroached upon
- There is minimal impact on services and homeowner fittings
EWI in Action - Thermal Image Survey
External Wall Insulation: Key Components

- Adhesive & base beads
- Insulation
- Reinforcement
- Render Finish
Standard Insulation Fixing Pattern

- 5 fixings per board (Low Rise)
- Domino 5 pattern
- Extra fixings at building corners and around openings
- Boards laid in stretcher bond flat back to the wall surface
- No board pieces narrower than 200mm to be used
- Maximum gap between boards is 3mm
- All gaps to be filled with foam filler
Insulation Board Options

- Insulation types to achieve the required U-value for traditional solid brick properties are as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>Current Part L (0.30 W/m²K)</th>
</tr>
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<tbody>
<tr>
<td>Phenolic</td>
<td>60mm</td>
</tr>
<tr>
<td>PIR</td>
<td>70mm</td>
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<tr>
<td>Expanded Polystyrene</td>
<td>110mm</td>
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<tr>
<td>Grey EPS</td>
<td>90mm</td>
</tr>
<tr>
<td>Mineral Wool</td>
<td>110mm</td>
</tr>
<tr>
<td>Cork</td>
<td>120mm</td>
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</tbody>
</table>
Traditional Dash Finish

- Polymer modified high performance renders
- Choice of finish
- Resistant to cracking
- Vapour permeable and weather resistant
- Durable and low maintenance
Silicone Render Finishes

- Micro porous
- Choice of grain size
- Choice of texture
- Extensive Colour range
- UV Resistant
- Highly permeable
- Flexible
- Crack Resistant
- Water Resistant
- Durable
Brick Slip Finishes

- High performance brick slip systems for application where the use of real bricks would not be viable
- A choice between Traditional brick slips and lightweight Acrylic brick slips
Clean install and recycled waste

- The insulation is cut to fit the shape of a property on site providing a complete thermal upgrade of the walls.
- Rigid insulation boards - uncontaminated site waste can be recycled.
- Renders are pre-bagged limiting any on site waste and providing a clean method of install.
Green Deal & ECO Accreditation

- Installers are required to be PAS2030 compliant
- A 25 year system manufacturer warranty is required
- A 25 year secondary guaranty is required: SWIGA or other approved
- Training is available though system manufacturers for companies to become approved installers
- Training can be mapped by Construction Skills to complete part of the NVQ level 2 assessment
- An NVQ level 2 qualification can be completed through local colleges, private training companies or system suppliers
Customer Support

- External Wall Insulation systems have been installed in the UK for over 25 years
- The materials and install are warranted for up to 25 years
- Site supervision takes place before, during and after installs
- Assistance is provided for resident’s fitting details and post install fitting
- Aftercare advice and frequently asked questions/answers are provided
Completed Projects
Completed Projects
Completed Projects
EWI Systems Transform Properties

Before

After
External Wall Insulation