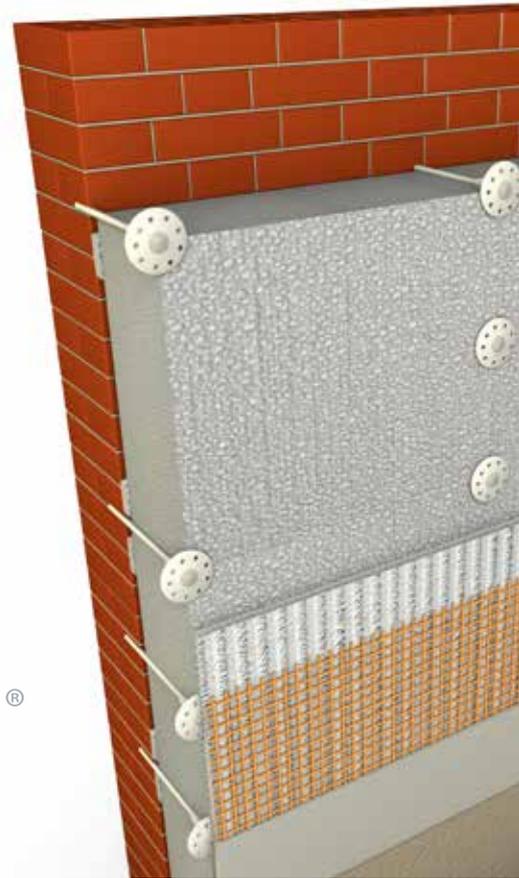
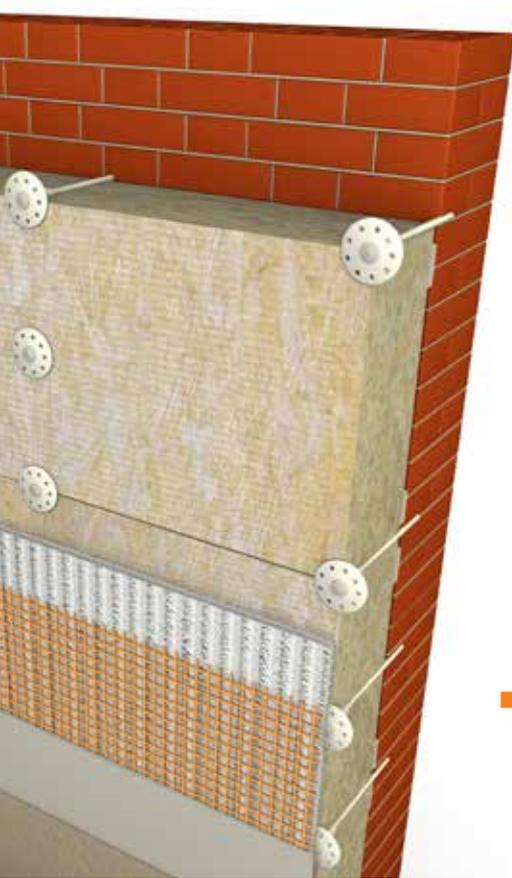


Turning the
world of
insulation
inside out

ThermoShell[®]
External Wall Insulation



KNAUFINSULATION
it's time to save energy

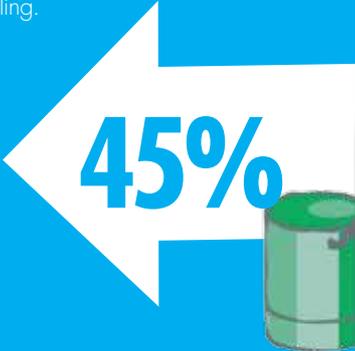
EWI - It's what's on the outside that counts

Buildings account for 40% of our energy consumption, in houses up to 45% of this energy is lost through the uninsulated solid walls of the dwelling. Insulating solid walled homes has traditionally been considered expensive and 'hard to treat', but now there's a perfect solution – ThermoShell (TS) External Wall Insulation (EWI).

External Wall Insulation acts as a shell, protecting your property from the elements and helping to retain the warmth on the inside, while in warmer climates it can also help to maintain a cooler internal environment. In addition to all this, it saves energy, reduces fuel bills and helps towards the reduction in carbon emissions, associated with the dwelling.

ThermoShell EWI is part of the changing face of building methods within the UK, with the ability to not only deliver a thermally efficient, carbon saving façade, but also to visually improve buildings and at the same time extend the life and value of the building itself. Ideal for the solid wall market, the highly breathable rock mineral wool ThermoShell System provides a healthier indoor climate and prevents the problems associated with damp and the formation of condensation.

With its state of the art manufacturing technology, large range of finishes, suitability for most substrates and the knowledge that the system is manufactured by a world leading company in energy reduction, ThermoShell EWI is turning insulation inside out.



45%



13%



Solid reasons to choose ThermoShell EWI



The ThermoShell (TS) EWI System is a robust and versatile solution for meeting the increasing demand to deliver high performance thermal upgrades for buildings with solid walls.

The availability of both high density rock mineral wool slabs and expanded polystyrene (EPS) boards ensures that ThermoShell can be used in a wide range of applications. High quality silicone and mineral topcoat renders - designed to resist UV degradation and cracking - provide a superior finish to a superior system. New high performance self maintaining paints, which can be used in conjunction with the system not only extends the life of a building, but also allows it to be brought to life with colour.

Benefits of ThermoShell EWI

- Externally insulated, so minimal disruption to occupants
- Able to meet current as well as anticipated future thermal regulations
- Breathable rock mineral wool solution allows water vapour to escape
- Durable and designed for the lifetime of the building
- Prolongs building life
- Aesthetically pleasing
- Low maintenance
- Extensive range of finishes and colours
- Reduces CO₂ emissions
- Reduces fuel consumption and energy bills

Thermal performance

- 110mm of ThermoShell Rock installed on a solid 225mm brick wall will achieve a U-value of 0.28 W/m²K
- 110mm of ThermoShell Rock Plus installed on a solid 225mm brick wall will achieve a U-value of 0.29 W/m²K

ThermoShell Rock Mineral Wool System

The ThermoShell (TS) Rock mineral wool system incorporates high strength, rock mineral wool slabs with a specifically designed water repellent additive.

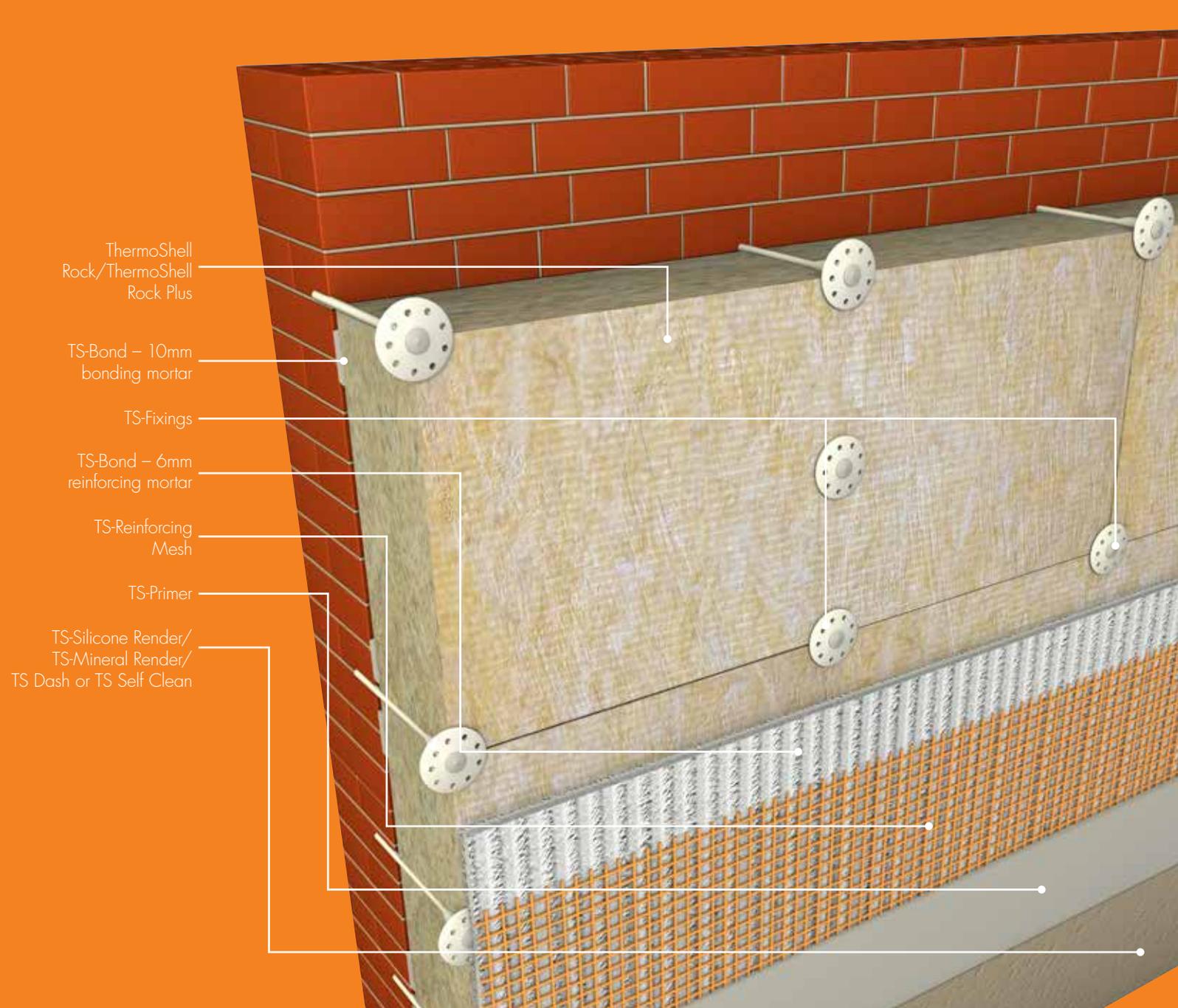
ThermoShell Rock/Rock Plus have very high compressive strength, twice that of some other external wall insulation slabs, which delivers a robust and durable system with high impact strength, which is less prone to impact damage.

The highly breathable nature of rock mineral wool is perfect for existing solid wall properties, and helps to deliver a cleaner, healthier internal living environment.



Features

- **Vapour permeable**
The breathable nature of mineral renders and rock mineral wool insulation allows water vapour to permeate through the system
- **Water repellent**
High performing topcoats and renders prevent water ingress into the system
- **A1 reaction to fire rating**
ThermoShell Rock Slab/Rock Plus are non-combustible with a Euroclass A1 reaction to fire rating
- **Excellent weathering protection**
Through years of technological advancement, the ThermoShell system is designed to cope with a variety of climates. Ultra Violet (UV) resistant coatings ensure excellent weathering protection and a durable finish to the topcoat
- **Better acoustic performance**
The ThermoShell Rock system can improve the acoustic performance of the wall, reducing the impact of external noise

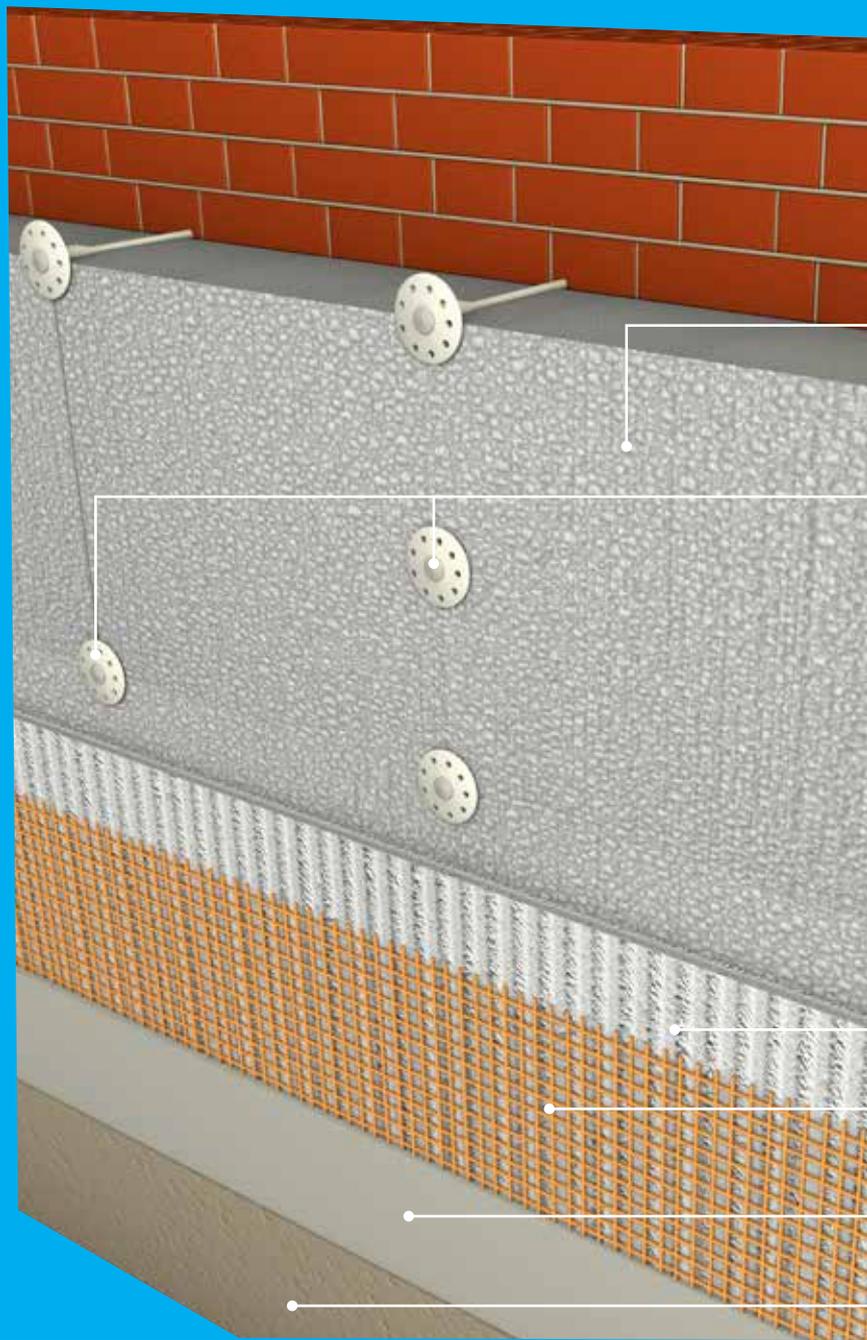


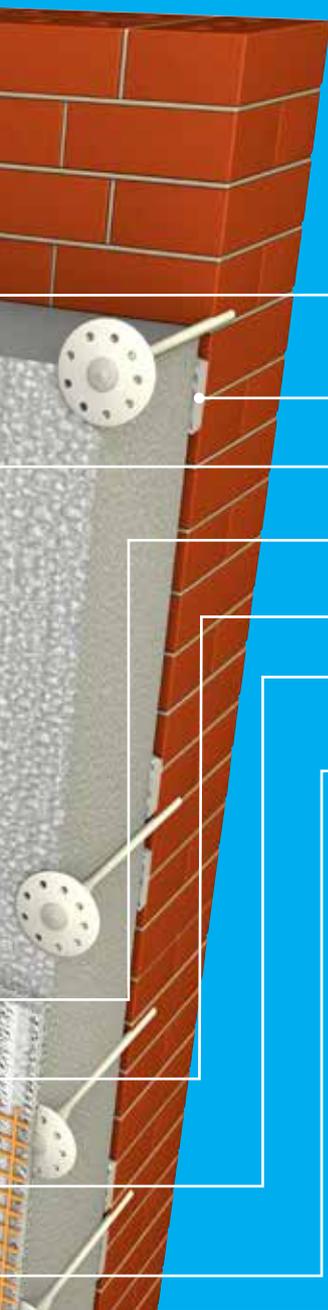
ThermoShell EPS System

ThermoShell (TS) Expanded Polystyrene (EPS) is a very effective solution for thermal upgrading and it's lightweight nature makes it easy to handle and quick to install.

In addition ThermoShell EPS is suitable for Secondary Thermal Upgrading (STU), being lightweight it will not add a significant load to the existing substrate. STU refers to existing properties that already have some form of EWI system in place but require additional thermal upgrading.

The outstanding thermal performance of ThermoShell EPS can deliver the required performance level where thickness constraints are an overriding factor for the building under consideration.





ThermoShell EPS

TS Bond Universal 10mm
bonding mortar

TS-Fixings

TS Bond Universal
3 - 8mm reinforcing mortar

TS-Reinforcing mesh

TS-Primer

TS Silicone Render
TS Mineral ES Render
TS Silicate Render
TS Nano Render



Features

- **Cost effective**

ThermoShell EPS is a more cost effective solution when compared to other foam products

- **Water repellent**

High performance topcoats and renders prevent water ingress into the system

- **Lightweight**

Lightweight and easy to handle and install

- **Excellent weathering protection**

Through years of technological advancement, the ThermoShell system is designed to cope with a variety of climates. UV resistant coatings ensure excellent weathering protection and a durable finish to the topcoat

- **Ease of use for detailing**

Easy to cut and fit around architectural details such as dentil courses and corbelling especially when using a hot wire cutter

- **Thermal performance**

ThermoShell EPS provides high levels of thermal resistance

Renders

Put a good face on it

First impressions last, that's why the quality of the render is of the utmost importance.

The ThermoShell range of renders are both decorative and robust, providing the perfect finish to any building.

Mineral Render - benefits

- **Robust**
Mineral and marble aggregates provide a long-lasting durable finish
- **Open to diffusion**
Excellent vapour diffusion when compared to other types of finishes
- **Various textures**
Mineral renders allow for freedom of design when structuring the product, from fine detailing to traditional rustic appearances
- **Good for winter working**
Fast setting times mean that the finish does not 'hang' too long in winter conditions
- **Compatible with TS-Self Clean Paint**
By using TS-Self Clean paint, you can provide TS-Mineral with a durable, low maintenance coating
- **Part of a complete mineral system**
Use with ThermoShell Rock/Rock Plus slabs to provide a complete mineral based system

Available in grain sizes:
1.5mm, 2mm, 3mm and 5mm

Silicone, Silicate and Nano Renders - benefits

- **Vapour permeable**
Offers negligible resistance to the passage of water vapour. Silicates offers excellent vapour diffusion
- **Ready mixed**
Pre-mixed in the tub to guarantee consistency and reduce installation time and labour costs and it's ready to use
- **Wide range of colours**
Silicone render can be produced in an extensive range of colours. Silicate and Nano have a slightly reduced colour range
- **Flexible**
Silicone render is flexible and accommodates minor substrate movement

TS Nano is through coloured finish with self cleaning effect technology for prolonged resistance to dirt build up

Available in grain sizes:
1.5mm, 2mm and 2.5mm

Dashing Render - benefits

- **Vapour permeable**
Mineral based render system with good vapour diffusion
- **Robust**
Long lasting robust finish
- **Various aggregates**
A range of decorative aggregates are available
- **Deters graffiti**
The aggregated nature of the finish helps to deter graffiti
- **Good for winter working**
Hand thrown aggregate helps with the application during the winter period
- **Part of a complete mineral system**
Use with ThermoShell Rock mineral wool slabs to provide a complete mineral based system

Available in 3 - 8mm grain aggregate
and 3 colours of dashing receiver.

*All renders are suitable for use as a render only system with TS-Onecoat

Make a colourful statement

An extensive range of colours

Add an element of style and individuality to any building with Knauf Insulation's wide range of colours.

Available in over 200 colours with an exclusive range of the 12 most modern colours, tired looking buildings are rejuvenated, enhancing the look and the value of the property and giving you the freedom to turn your project into a work of art.

TS-Equaliser and TS-Self Clean

The Knauf Insulation range of high performance paints utilises new technology in providing long life over-coatings and self cleaning finishes.

TS-Self Clean has been specifically developed to allow rainwater to pick up and transport dirt away from the surface of the facade, keeping it cleaner looking for longer.



Technical Information

U-value table for ThermoShell External Wall Insulation System												
Insulation Thickness (mm)	225mm solid brick wall (1)			215mm solid block wall (2)			250mm brick/block cavity wall unfilled (3)			250mm brick/block cavity wall filled (4)		
	U-values (W/m ² K)											
	(W/mK)			(W/mK)			(W/mK)			(W/mK)		
	0.038	0.036	0.032	0.038	0.036	0.032	0.038	0.036	0.032	0.038	0.036	0.032
200	0.17	0.17	0.15	0.17	0.16	0.14	0.17	0.16	0.15	0.14	0.14	0.13
190	0.18	0.17	0.16	0.18	0.17	0.15	0.18	0.17	0.15	0.15	0.14	0.13
180	0.19	0.18	0.16	0.18	0.18	0.16	0.19	0.18	0.16	0.16	0.15	0.14
170	0.20	0.19	0.17	0.19	0.19	0.17	0.20	0.19	0.17	0.16	0.16	0.14
160	0.21	0.20	0.18	0.20	0.20	0.18	0.21	0.20	0.18	0.17	0.16	0.15
150	0.22	0.21	0.19	0.22	0.21	0.19	0.22	0.21	0.19	0.18	0.17	0.16
140	0.24	0.23	0.21	0.23	0.22	0.20	0.23	0.22	0.20	0.19	0.18	0.17
130	0.26	0.24	0.22	0.24	0.23	0.21	0.25	0.24	0.21	0.20	0.19	0.17
120	0.27	0.26	0.24	0.26	0.25	0.23	0.26	0.25	0.23	0.21	0.20	0.18
110	0.29	0.28	0.25	0.28	0.27	0.24	0.28	0.27	0.25	0.22	0.21	0.19
100	0.32	0.31	0.28	0.30	0.29	0.26	0.31	0.29	0.27	0.23	0.22	0.21
90	0.35	0.33	0.30	0.33	0.32	0.29	0.33	0.32	0.29	0.25	0.24	0.22
80	0.38	0.37	0.33	0.36	0.35	0.32	0.37	0.35	0.32	0.26	0.26	0.24
70	0.43	0.41	0.37	0.40	0.38	0.35	0.41	0.39	0.36	0.28	0.27	0.26
60	0.48	0.46	0.42	0.44	0.43	0.39	0.45	0.44	0.40	0.31	0.30	0.28

1 Lambda value of brickwork - 0.770 W/mK

2 Lambda value of block - 0.45 W/mK

3 Lambda value of block - 1.130 W/mK

4 Lambda value of block 1.130 W/mK - cavity insulation - 0.040 W/mK

ThermoShell Rock Plus has a thermal conductivity of 0.038 W/mK

ThermoShell Rock has a thermal conductivity of 0.036 W/mK

ThermoShell EPS has a thermal conductivity of 0.032 W/mK

The above figures are indicative and should only be used as a guideline.

Knauf insulation would always recommend that a U-value calculation and condensation risk analysis is performed for each project.

The right support is a critical factor if a successful project is to be delivered. From first point of contact to the completion of the job, Knauf Insulation will be by your side every step of the way.

Technical support includes

- NBS specifications
- Detail drawings
- U-value calculations and condensation analysis
- Site inspections
- Project supervision
- Product sample service

Rigorous testing in some of the most sophisticated laboratories in Europe ensures that the ThermoShell (TS) System will last the lifetime of the building it is applied to. Knauf Insulation as part of the Knauf Group of companies has the capability of manufacturing all the key components for the ThermoShell (TS) External Wall Insulation system, placing us in the enviable position of having complete control over manufacturing quality and standards.

External Wall Insulation (EWI) is an energy efficiency measure within the Green Deal and can potentially attract ECO funding to make sure it meets the Golden Rule.

Green Deal

The premise behind the Green Deal is that energy efficiency measures can be installed in homes and commercial buildings at no upfront cost to the owner. Finance will be provided by private firms, with the costs being recouped through charges on energy bills which will be reduced as a result of the energy efficiency measures.

ECO (Energy Companies Obligation)

ECO is the Government's new domestic energy efficiency programme which has replaced the existing CERT and CESP programme. ECO is designed to work alongside the Green Deal to provide additional support for packages of energy efficiency measures. ECO also provides insulation and heating packages to low income and vulnerable households and insulation measures to low income communities.

ThermoShell Recommended Installer Scheme

A quality system requires a quality installer

The ThermoShell Recommended Installer Scheme is designed to train, monitor and update installers regarding the best way of using the materials. The scheme is designed to address the needs of each installer, from more intensive close quarter

training for new installers, to technical update seminars for well established professionals. Our system will be judged upon the quality of installation; therefore it makes sense to make sure our installers are the best.

For more information,
visit **knaufinsulation.co.uk**
or ask your local supplier.

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