Spacetherm® Solutions

SPACETHERM AEROGEL INSULATION
(For Building & Construction)

Proctor Group

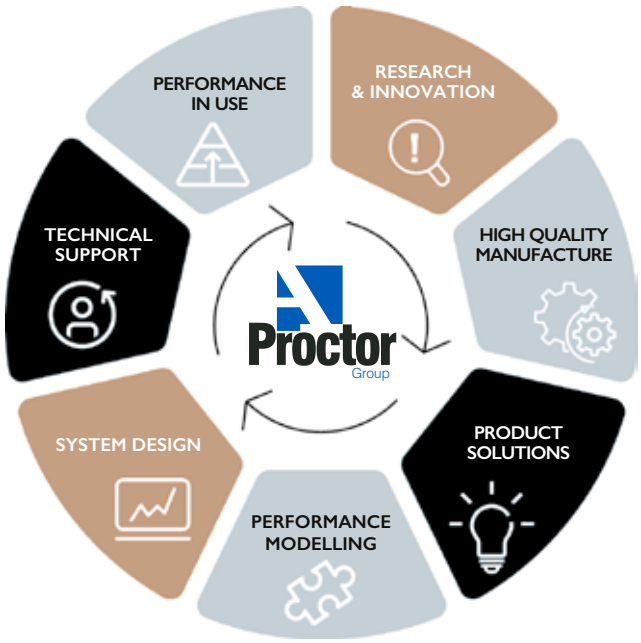
A. Proctor Group

Experts in thermal solutions

The A. Proctor Group has, for 50 years, been serving the construction industry with an extensive portfolio of thermal, acoustic and membrane products. Already a trusted brand with architects, developers and contractors, the A. Proctor Group product portfolio includes such familiar names as Wraptite®, an external air barrier to solving the problem of reliably achieving airtightness in buildings.

Total Solution Capabilities

From concept to completion



Our products are backed up by a dedicated team of technical experts, able to assist at every project stage from pre-planning to on site. We offer CAD detail reviews, installation guidance, condensation risk analysis, WUFi calculations, U-Value calculations, ground gas system designs, telephone support & more. Our products also have a range of BIM Objects & Performance Specifications.

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NBS

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Thermal Insulation – improving the thermal efficiency of buildings

The key drivers for improving the thermal performance of the UK's buildings are well known, requiring designers, developers and builders to comply with building regulations such as Part L, meet the targets set by the government on carbon reduction and even aspiring to achieve BREEAM standards. In the move towards improving the energy efficiency of homes and residential high-rise, insulation products have become an integral part of the design and fabric of both new build and refurbishment and repair.

Since a high proportion of existing housing and apartments continue to be energy inefficient these present the greatest need for refurbishment and improvement. The challenge with existing buildings is in selecting the most effective method of insulation suitable and all too often it seems this has been driven by traditional methods and cost.

The A Proctor Group Ltd which has been pioneering thermal solutions for over half a century has developed a range of insulation solutions particularly suited to meet this challenge. Spacetherm Aerogel offers a flexible insulation blanket solution. Combining a silica aerogel with a fibre matrix, it is a material which is suitable for a wide range of applications where thermal performance is crucial. With a thermal conductivity of 0.015 W/mK, Spacetherm Aerogel's performance credentials qualify it as one of the lowest thermal conductivity available worldwide.

Benefits of thermally efficient buildings

- Reduce energy costs
- Lower CO_2 emissions
- Reduce interstitial condensation
- Improved performance of HVAC
- Improved health and comfort for occupants

Thermal Insulation – designing for performance

Architects, designers and developers involved with the construction of new build dwellings and the refurbishment, conversion or extension of existing dwellings will be required to comply with Part L of the Building Regulations (England & Wales), and Building Standards Section 6 Energy (Scotland).

Effective insulation systems will take into account U-values, air permeability, and moisture management. The U-value quantifies the rate of heat loss through a building element such as walls, roof, windows and doors. The lower the U-value is the slower the heat generated by heating systems will escape from the building, and the less energy input will be needed to maintain a comfortable internal temperature.

To improve the u-value of a given element, we might add thermal insulation board or blankets to the walls to keep the heat in. The thickness of a specific material has a thermal resistance, and to work out a u-value we add all the R-values in our wall together and take the inverse of the result. Because this is an inverse, the more insulation we add, the more we need to add to improve the u-value further.

Not all materials insulate equally well, and to define this, we use a value called the thermal conductivity or lambda value. Materials like bricks or metal have high thermal conductivity, while insulation material like mineral wool or rigid foams has far lower conductivity. The thermal conductivity of a material is usually independent of the thickness.

We can now take the thicknesses of our materials and divide these by their thermal conductivity to get R-values. Adding the R-values together and taking an inverse provides us with the U-value. This is then adjusted for any penetrations like structural elements, called repeating thermal bridges, any fixings or air gaps present, to give us a final U-value for the element.

Taking all our u-values, and weighting them by area, we can derive an overall average for the entire building. We then adjust this to account for non-repeating thermal bridges like corner junctions, floor zones etc, and end up with our complete heat loss model.

Modern new build homes typically have wall u-values of around 0.2 W/m^2K (watts per metre squared kelvin) while older properties with solid walls will be more like 2 W/m^2K, an order of magnitude worse, which will have an effect on both the heating bills of the property and the quality of life of the occupants. This is especially true where occupants are considered to be in fuel poverty or belong to a particularly vulnerable social group such as the elderly. In such groups, poor thermal insulation can lead to a variety of health problems so it's important that upgrading such homes is considered a priority.

Thermal Insulation – designing for performance

Types of Thermal Insulation

There are a great many types of insulation on the market, with a wide range of thermal conductivity. When considering existing dwellings or older properties, ensuring the right specification can pose specific challenges.

The first of these challenges is that older buildings typically benefit from highly vapour permeable insulation. This is because building material such as lime-based mortar and plaster have very different hygrothermal properties form their modern equivalents. Adding insulation of low permeability, such as rigid foam, can lead to damaging moisture problems for two primary reasons.

Firstly, adding any insulation will reduce the temperature of the existing wall masonry, making it more likely that condensation will occur, and will occur further to the inside as there will be less heat penetrating from the living spaces to warm up the masonry.

Secondly, some insulation types such as rigid foams can prevent the drying out of condensed moisture inwards into the building, further compounding the problems. If not properly accounted for in the design, this moisture accumulation can continue unchecked, leading to increasing problems with damp and mould over time, and in extreme cases causing the masonry to degrade due to freeze/thaw cycling.

Permeable insulation prevents moisture being trapped in the construction and does not disrupt the established balance of moisture flows within the building fabric to the same degree, however moisture vapour permeable insulation, such as mineral fibre, tend to be very bulky.

This leads on to the second challenge in refurbishment, preserving interior space. While mineral fibre or natural wool does ensures moisture can permeate, their relatively high thermal conductivity means achieving modern thermal standards can require up to 200mm of thickness, which is not always practical to incorporate into an existing space.

Aerogel composites such as Spacetherm, on the other hand, can maintain permeability while reducing the required depth dramatically. This makes it ideal for use in rooms with limited floor area, as well as at door and window reveals and other areas where retaining existing features limits the use of thick and bulky insulation.

Standards & Building Regulations

With the increased spotlight and focus on building regulations and the suitability of materials specified for use within building construction, the correct selection and application of materials are at their most critical. The key guidance on meeting the requirements of Building Regulations for England, Ireland and Wales, and Building Standards (Scotland) relating to ventilation, thermal efficiency, moisture and condensation control is outlined within the Approved Documents and Technical Standards below.

For specific advice on any of these please contact our technical support on 01250 872261.

Building Regulations

Ventilation

- Approved Document F - Means of Ventilation (England & Wales)
- Building Standards Section 3 Environment (Scotland 2023)
- Technical Booklet K - Ventilation (N. Ireland Oct 2012)
- Technical Guidance Document F - Ventilation (Ireland 2019)

Moisture

- Approved Document C Site Preparation and Resistance to Contaminants and Moisture 2013
- Building Standards Section 3 Environment (Scotland 2023)
- Technical Booklet C - Site Preparation and Resistance to Contaminants and Moisture (N. Ireland Oct 2012)
- Technical Guidance Document C - Site Preparation and Resistance to Moisture (Ireland 2023)

Thermal

- Approved Document L - Conservation of Fuel & Power (England 2021 with amendments 2023 / Wales 2022)
- Building Standards Section 6 Energy (Scotland 2023)
- Technical Booklet F - Conservation of fuel and power (N. Ireland Oct 2012)
- Technical Guidance Document L - Conservation of Fuel and Energy (Ireland 2022)

Ground Gas

- Approved Document C Site Preparation and Resistance to Contaminants and Moisture 2013
- BR211 -2023: Radon: Guidance on protective measures for new buildings
- CIRIA C665 – Assessing risk posed by hazardous ground gas to buildings
- CIRIA C735 – Good practice on the testing and verification of protection systems for buildings against hazardous ground gases

Standards & Building Regulations

Ground Gas (cont'd)

- CIRIA C716 – Remediating and mitigating risks from volatile organic compound VOC vapours from land affected by contamination
- BS5250:2021 Management of Moisture in Buildings – Code of Practice
- BS EN ISO 13788:2012 Hygrothermal performance of Building Components and Building Elements. Internal surface temperature to avoid critical surface humidity and interstitial condensation. Calculation methods.
- BS8485:2015+A1:2019 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings

Product & Performance Standards

- BS5250:2021 Management of Moisture in Buildings - Code of Practice
- BS EN 15026:2023 Hygrothermal Performance of Building Components and Building Elements
- BS EN ISO 13788:2012 Hygrothermal performance of Building Components and Building Elements. Internal surface temperature to avoid critical surface humidity and interstitial condensation. Calculation methods.

Amendment to Approved Document B: December 2022

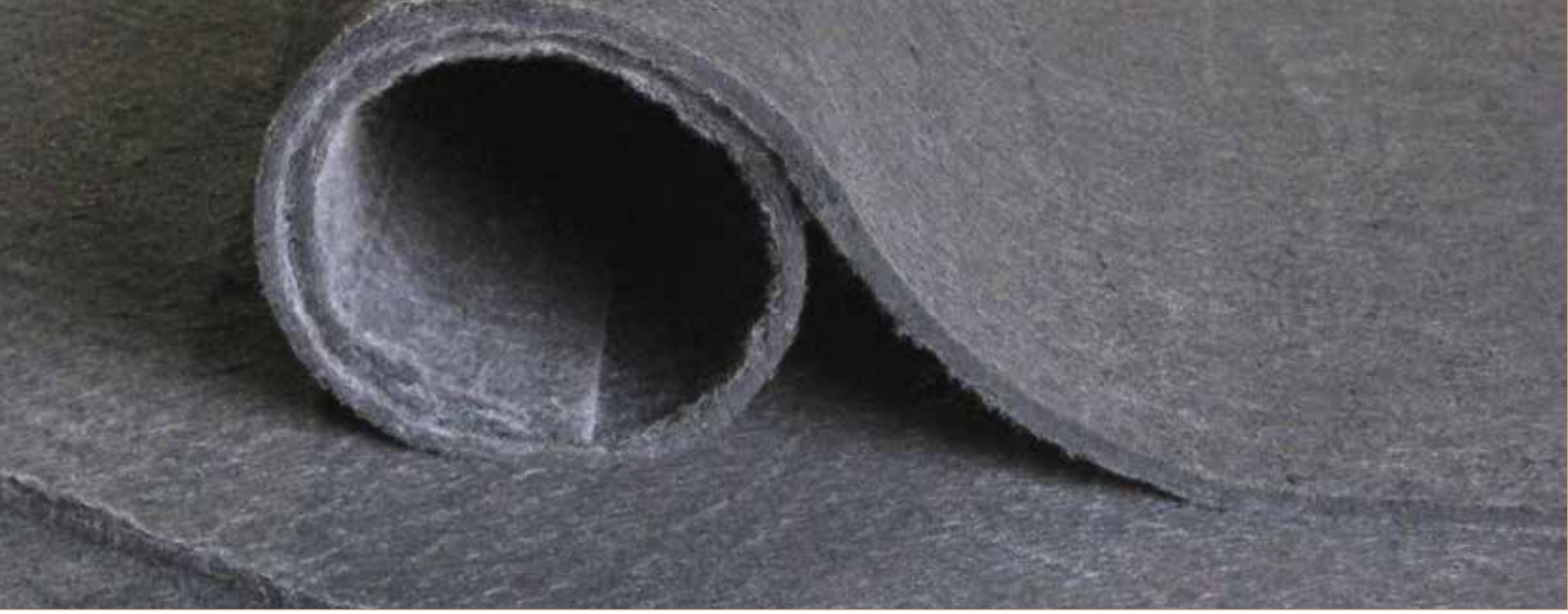
Guidance on how external walls can meet the Building Regulations requirement for resisting fire spread is set out in Approved Document B. Following the Independent Review of Building Regulations and Fire Safety, and subsequent Interim Report by Dame Judith Hackitt, the Government has introduced an amendment to the Approved Document B: Fire safety - which was updated in December 2022. This has a significant impact on the design and construction of relvant buildings and those over 11m/18m.

Use of membranes as part of the external wall construction.

It is important to note that with specific reference to membranes the Regulation provides an exemption and further clarification is found within Regulation 7, as stated below:

- 10.21 Particular attention is drawn to the following points: a. Membranes used as part of the external wall construction should achieve a minimum classification of European Class B-s3,d0.

In summary, the amendment stipulates significant changes to which membranes can now be used and limits these to a minimum rating of Class B-s3,d0.



SPACETHERM® BLANKET
Aerogel insulation

Spacetherm® Aerogel offers specifiers a flexible insulation blanket solution. Combining a silica aerogel with a fibre matrix, it is a material which is suitable for a wide range of challenging applications where thermal performance is crucial.

With a thermal conductivity of 0.015 W/mK, Spacetherm Aerogel's performance credentials qualify it as one of the lowest thermal conductivity materials available worldwide. Engineered for unsurpassed thermal performance in space-critical applications, the product offers low thermal conductivity plus breathability allied to hydrophobic characteristics. It is also reassuring for specifiers to know it retains its thermal properties for over 50 years

The ongoing issue of hard - to - treat walls in the UK can be overcome utilising Spacetherm - an ultra-thin insulation for thermal upgrades, saving valuable space without altering the exterior fabric of the building. Spacetherm can be supplied on its own and cut to size or laminated to a number of facings to suit individual requirements. The insulation used in Spacetherm is material derived from silica gel.

The Spacetherm Blanket consists of unfaced sheets of aerogel composite insulation. The possible applications of the Spacetherm Blanket are virtually limitless as it has been used in doors, shutters, window reveals, boats, swimming pool covers and numerous other applications where thermal performance, space and thickness are critical.

Blanket size	2400 x 1200mm 1200 x 1200mm
Thickness	5mm / 10mm
Density	0.15 g/cm^3
Weight	0.745 - 1.56 kg/m^2
Thermal Conductivity	0.015W/mK
Water Vapour Permeability, μ-Value	5
Reaction to fire	C - sl - d0
Specific Heat Capacity	1kJ / kgK

Key Benefits

- Thin insulation system for hard to treat walls
- Class-leading performance
- Minimum loss of room space
- 50 year continued thermal performance
- Direct fix to solid walls
- Non-hazardous material

NBS

SPACETHERM® A1

Spacetherm A1 is a flexible, silica aerogel-based insulation material of limited combustibility used for exterior and interior applications. The product is used to optimise the thermal performance and fire properties of façade systems in a number of ways. These include enhancing the thermal performance of the ventilated façade, and addressing thermal bridging in the façade. Spacetherm A1 is also useful in minimising thermal bridges around windows in areas such as window reveals and roller shutter cases.

With a thermal conductivity of less than 0.02 W/mK, Spacetherm A1 performance credentials qualify it as one of the lowest thermal conductivity materials available worldwide. Engineered for space-critical applications, the product offers low thermal conductivity, compression strength, plus breathability allied to hydrophobic characteristics. Spacetherm A1 can be also be supplied in a variety of finishes, the substantial layers meeting the requirements for A1 classification (insulation, MgO and plasterboard).

Thickness	5/10mm
Operating temperature	-100°C - 650°C
Colour	White
Weight	184 kg/m^3
EU and UK Fire Test	A1 - Non-combustible
Thermal Conductivity @ 23°C	0.0195 W/mK
Dimension Stability (length and width)	Δ <0.2%
Water Absorption (24hr)	0.01 kg/m^2
Water Absorption (28 days)	0.012 kg/m^2
Water Vapour Transmission	242 g/m^2 per day

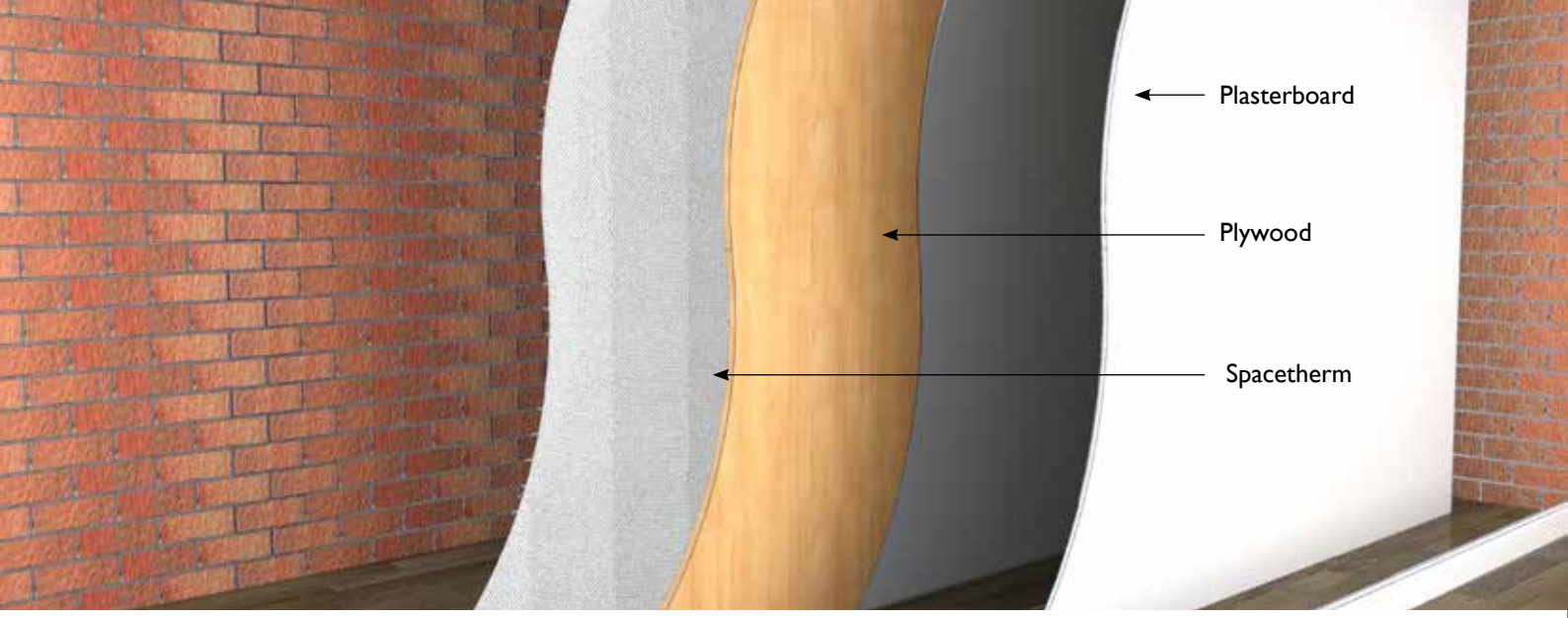
Key Benefits

- Reaction to Fire A1 non-combustible
- Non-combustibility
- Water vapour diffusion open
- Permeable
- Flexible
- Thinnest aerogel insulation available
- Hydrophobic

NBS

For specific details please contact technical for further information.

Please note, only the Spacetherm A1 material is fire rated - for any components laminated to this product, it will no longer achieve this.



SPACETHERM® DIRECTFIX

Spacetherm Directfix is an insulated laminate which should be fixed directly to the wall. It consists of Spacetherm A1 insulation blanket bonded to plasterboard, with an additonal pre-bonded plywood reinforcement to the plasterboard. This reinforced laminate will reduce the risk of drill bit snagging, should you be using a mechanical fixing method.

Ideal for use in applications where low U-values are required but space is at a premium. Spacetherm Directfix is supplied with foil faced plasterboard as standard to reduce condensation. Plain plasterboard is available on request. Spacetherm Directfix lining boards can achieve similar performance to other plasterboard laminates, but at a fraction of the thickness, allowing specifiers greater flexibility and higher performance for refurbishment projects. Due to Spacetherm's hydrophobic qualities it is also possible to directly fix Spacetherm Laminates to certain existing wall substrates (see installation guide for details).

This product is also available using Spacetherm Aerogel blanket insulation and is available in various thicknesses from 5mm to 20mm (in multiples of 5).

Key Benefits

- Thin insulation system for hard to treat walls
- Class Leading Performance
- Minimum loss of room space
- Direct fix to solid walls
- Constant long term thermal performance 50 years
- Includes an integrated vapour control layer
- Non-Hazardous material
- Class leading fire performance for aerogel insulation

Composition	Spacetherm A1 Blanket Plasterboard / Plywood
Spacetherm Directfix panel sizes	2400 x 1200mm
Thickness: Plasterboard Plywood	12.5mm 6mm
Thickness: Aerogel	5, 10, 15, 20mm*
Vapour Control Layer	78.5 MNs/g
K-Factor: Aerogel	0.0195W/mK
K-Factor: Plasterboard Plywood	0.190W/mK 0.13W/mK
Fire Resistance	Aerogel (Class A1) Plasterboard (Class A2-s1, d0) Plywood (Class D-s2, d0)

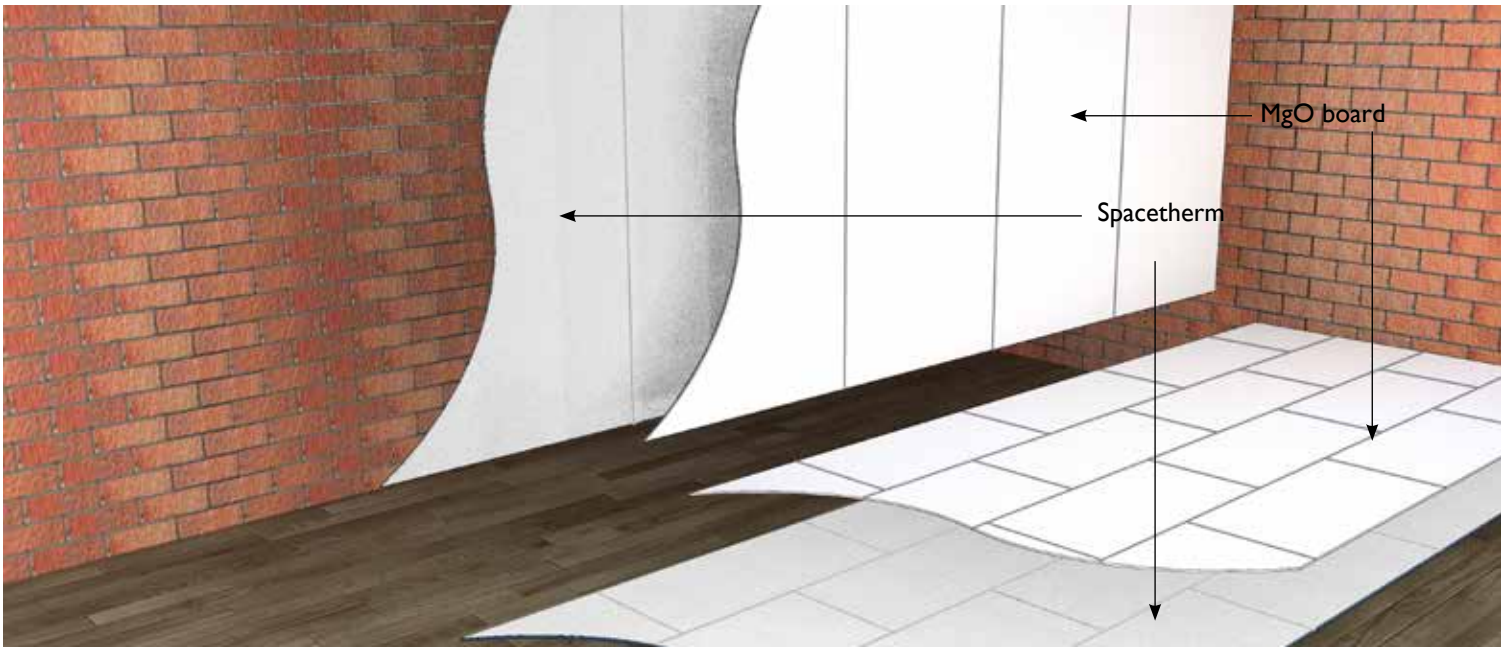
*other thicknesses available on request **colour of insulation component can vary

Please note, only the Spacetherm A1 material is fire rated - for any components laminated to this product, it will no longer achieve this.

SPACETHERM® MULTI

Spacetherm Multi is an insulated laminate which should be be laid directly onto existing floors & walls. Spacetherm Multi consists of Spacetherm A1 insulation blanket bonded to a 6mm Magnesium Oxide Board. Spacetherm blanket is available in various thicknesses in multiples of 5mm.

This solution is ideal for use in applications where low U-values are required and room space is at a premium (such as loft conversions). Spacetherm Multi can achieve similar performance to other insulation systems, but at a fraction of the thickness. This allows specifiers greater flexibility and higher performance for refurbishment projects. For other thicknesses, or for U-value calculations for your project, please contact Proctor Technical services. Full installation guides available to download from the website.



Key Benefits

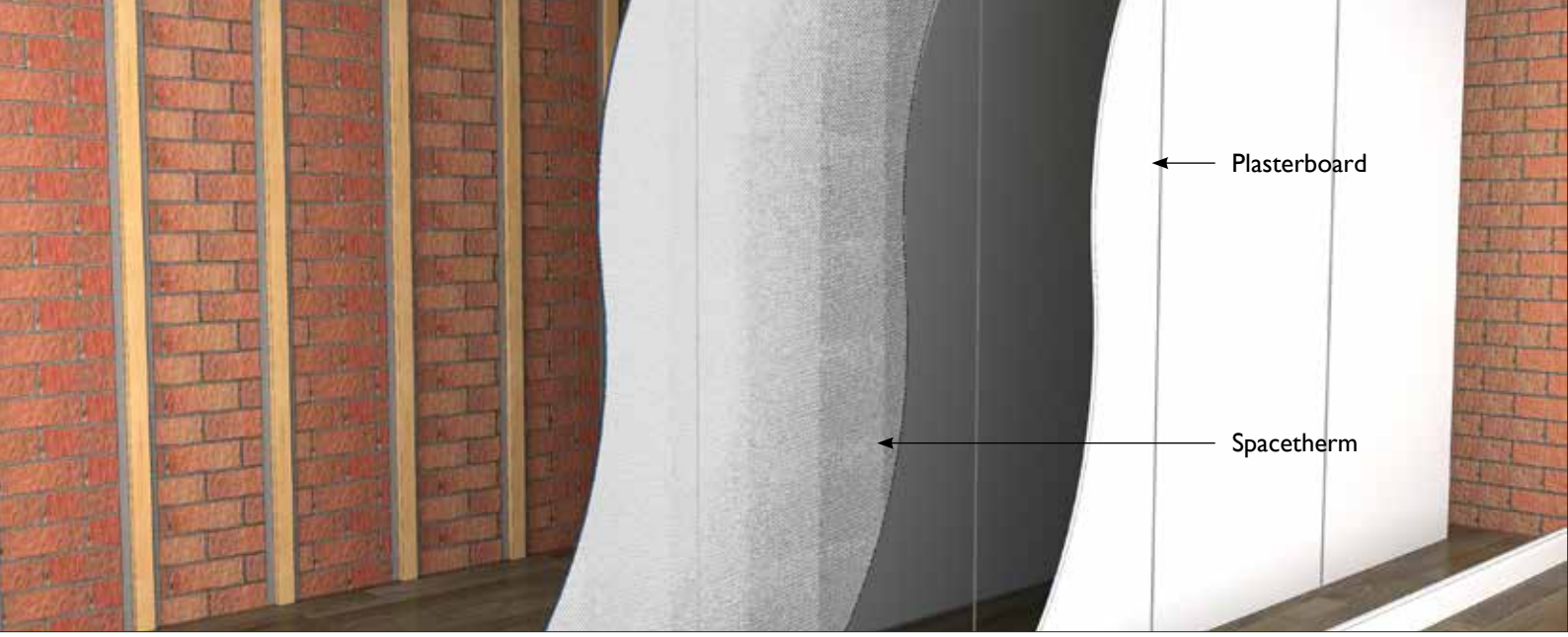
- Thin insulation system for floors & walls
- Minimum loss of room space
- Can accept most floor coverings
- Moisture resistant
- One board - multiple applications
- Class leading fire performance for aerogel insulation

Composition	Spacetherm Blanket 6mm MgO Board	
Spacetherm Multi panel sizes	Floors / WRB / Soffit Lining Walls	1200 x 600mm 2400 x 1200mm
Thickness: Spacetherm Multi	Floors / WRB / Soffit Lining Walls	From 11mm From 11mm
K-Factor Magnesium Oxide	0.19W/mK	
K-Factor Aerogel	0.0195W/mK	
Vapour Resistance (MgO)	Sd 0.05m	
Fire Resistance	Aerogel (Class A1) Magnesium Oxide Board (Class A1)	

*other thicknesses available on request

**colour of insulation component can vary

Please note, only the Spacetherm A1 material is fire rated - for any components laminated to this product, it will no longer achieve this.



SPACETHERM® WALLBOARD

Spacetherm Wallboard is an insulated laminate which should be fixed to timber straps. It consists of Spacetherm A1 insulation blanket bonded to plasterboard, and is ideal for use in applications where low U-values are required but space is at a premium. Spacetherm Wallboard is supplied with foil faced plasterboard as standard to reduce condensation. Plain plasterboard is available on request. Spacetherm Wallboard lining boards can achieve similar performance to other plasterboard laminates, but at a fraction of the thickness, allowing specifiers greater flexibility and higher performance for refurbishment projects. Due to Spacetherm's hydrophobic qualities it is also possible to directly fix Spacetherm Laminates to certain existing wall substrates (see installation guide for details). For other thicknesses, or for U-value calculations for your project, please contact Proctor Technical services.

Key Benefits

- Can be installed directly to solid walls or onto straps
- Ideal for hard to treat solid walls
- Ideal solution where maximising internal space is critical
- Class leading fire performance for aerogel insulation

Composition	Spacetherm A1 Blanket Plasterboard
Spacetherm Wallboard panel sizes	2400 x 1200mm
Thickness: Plasterboard	12.5mm
Thickness: Aerogel	5, 10, 15, 20mm*
Vapour Control Layer	78.5 MNs/g
K-Factor: Aerogel	0.0195W/mK
K-Factor: Plasterboard	0.190W/mK
Fire Resistance	Aerogel (Class A1) Plasterboard (Class A2-s1, d0)

other thicknesses available on request
***colour of insulation component can vary*

Please note, only the Spacetherm A1 material is fire rated - for any components laminated to this product, it will no longer achieve this.

SPACETHERM DIRECTFIX U-VALUE - PERFORMANCE READY RECKONER

BASE WALL CONSTRUCTION	OVERALL THICKNESS	SPACETHERM DIRECTFIX
220mm Brick (no cavity) 13mm Plaster Base Wall Performance 2.11 W/m²K Spacetherm Directfix	28.5mm	0.92 W/m²K
	33.5mm	0.75 W/m²K
	38.5mm	0.63 W/m²K
	43.5mm	0.55 W/m²K
	48.5mm	0.48 W/m²K
	53.5mm	0.43 W/m²K
	58.5mm	0.39 W/m²K
	63.5mm	0.35 W/m²K
	68.5mm	0.33 W/m²K
	73.5mm	0.3 W/m²K
	78.5mm	0.28 W/m²K
	83.5mm	0.26 W/m²K
	88.5mm	0.25 W/m²K
	93.5mm	0.23 W/m²K
	98.5mm	0.22 W/m²K
	103.5mm	0.21 W/m²K
	108.5mm	0.2 W/m²K
	113.5mm	0.19 W/m²K
	118.5mm	0.18 W/m²K

SPACETHERM WALLBOARD U-VALUE - PERFORMANCE READY RECKONER

BASE WALL CONSTRUCTION	OVERALL THICKNESS	SPACETHERM WALLBOARD
220mm Brick (no cavity) 13mm Plaster Base Wall Performance 2.11 W/m²K Spacetherm Wallboard onto timber battens	22.5mm	0.82 W/m²K
	27.5mm	0.68 W/m²K
	32.5mm	0.58 W/m²K
	37.5mm	0.51 W/m²K
	42.5mm	0.45 W/m²K
	47.5mm	0.41 W/m²K
	52.5mm	0.37 W/m²K
	57.5mm	0.34 W/m²K
	62.5mm	0.31 W/m²K
	67.5mm	0.29 W/m²K
	72.5mm	0.27 W/m²K
	77.5mm	0.25 W/m²K
	82.5mm	0.24 W/m²K
	87.5mm	0.22 W/m²K
	92.5mm	0.21 W/m²K
	97.5mm	0.2 W/m²K
	102.5mm	0.19 W/m²K
	107.5mm	0.18 W/m²K

SPACETHERM MULTI U-VALUE - PERFORMANCE READY RECKONER

BASE WALL CONSTRUCTION	OVERALL THICKNESS	SPACETHERM MULTI
220mm Brick (no cavity) 13mm Plaster Base Wall Performance 2.11 W/m²K Spacetherm Multi onto timber battens	16mm	0.84 W/m²K
	21mm	0.69 W/m²K
	26mm	0.59 W/m²K
	31mm	0.52 W/m²K
	36mm	0.46 W/m²K
	41mm	0.41 W/m²K
	46mm	0.37 W/m²K
	51mm	0.34 W/m²K
	56mm	0.31 W/m²K
	61mm	0.29 W/m²K
	66mm	0.27 W/m²K
	71mm	0.25 W/m²K
	76mm	0.24 W/m²K
	81mm	0.23 W/m²K
	86mm	0.21 W/m²K
	91mm	0.2 W/m²K
	96mm	0.19 W/m²K
	101mm	0.18 W/m²K

SPACETHERM MULTI U-VALUE - PERFORMANCE READY RECKONER FOR FLOORS

BASE FLOOR CONSTRUCTION	OVERALL THICKNESS	SPACETHERM MULTI
125mm Concrete Slab P/A Ratio = 1 Base Floor Performance = 0.99 W/m²K	16mm	0.63 W/m²K
	21mm	0.54 W/m²K
	26mm	0.48 W/m²K
	31mm	0.42 W/m²K

BASE FLOOR CONSTRUCTION	OVERALL THICKNESS	SPACETHERM MULTI
125mm Concrete Slab P/A Ratio = 0.75 Base Floor Performance = 0.85 W/m²K	16mm	0.57 W/m²K
	21mm	0.5 W/m²K
	26mm	0.44 W/m²K
	31mm	0.39 W/m²K

BASE FLOOR CONSTRUCTION	OVERALL THICKNESS	SPACETHERM MULTI
125mm Concrete Slab P/A Ratio = 0.5 Base Floor Performance = 0.67 W/m²K	16mm	0.48 W/m²K
	21mm	0.42 W/m²K
	26mm	0.38 W/m²K
	31mm	0.35 W/m²K

BASE FLOOR CONSTRUCTION	OVERALL THICKNESS	SPACETHERM MULTI
125mm Concrete Slab P/A Ratio = 0.25 Base Floor Performance = 0.42 W/m²K	16mm	0.32 W/m²K
	21mm	0.3 W/m²K
	26mm	0.27 W/m²K
	31mm	0.26 W/m²K

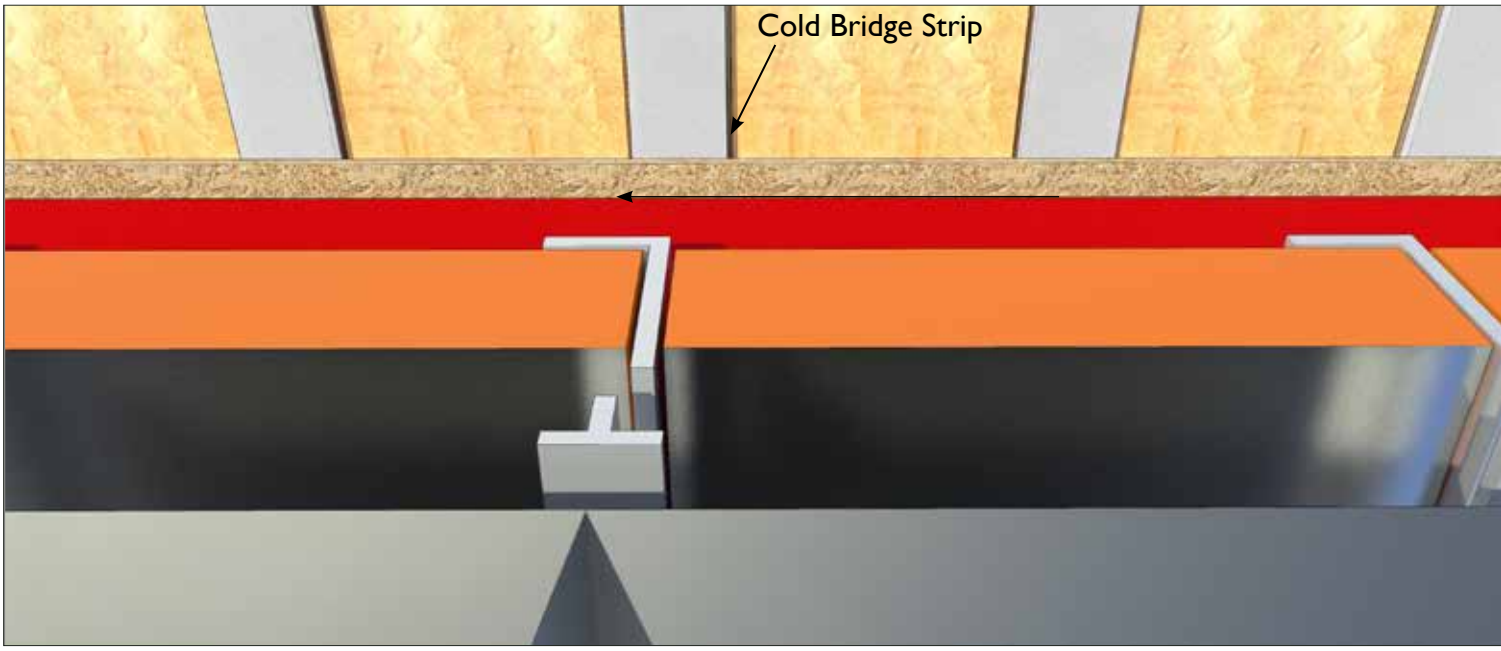
Statement Regarding 'Weeping' Reported in Some MgO Boards

Further to all the controversy regarding MgO-board and failures in Denmark, The A. Proctor Group's suppliers sent boards to BUNCH BYGningsfysik in Denmark for testing. The MgO board, used by The A. Proctor Group for their Spacetherm WL and Multi thermal laminates, is based on MgSO4, which during testing exhibited none of the problems previously experienced with the MgCl2 based boards.

SPACETHERM® CBS

Spacetherm CBS (Cold Bridge Strip) consists of Spacetherm A1 insulation blanket encapsulated in polyethylene, and is used to prevent cold bridging through a component or element of a structure. Spacetherm CBS is an ideal choice for timber or steel frame structures and on request, can be cut to a variety of widths to suit different applications. Spacetherm CBS can be supplied without encapsulation or tape for project specific applications where the enhanced fire performance is required. Spacetherm CBS is an ideal choice for timber or steel frame structures and on request, can be cut to a variety of widths to suit different applications. In addition to timber and steel structures, it can also be used in other applications where cold bridging is an issue.

Full installation guides available to download from the website.

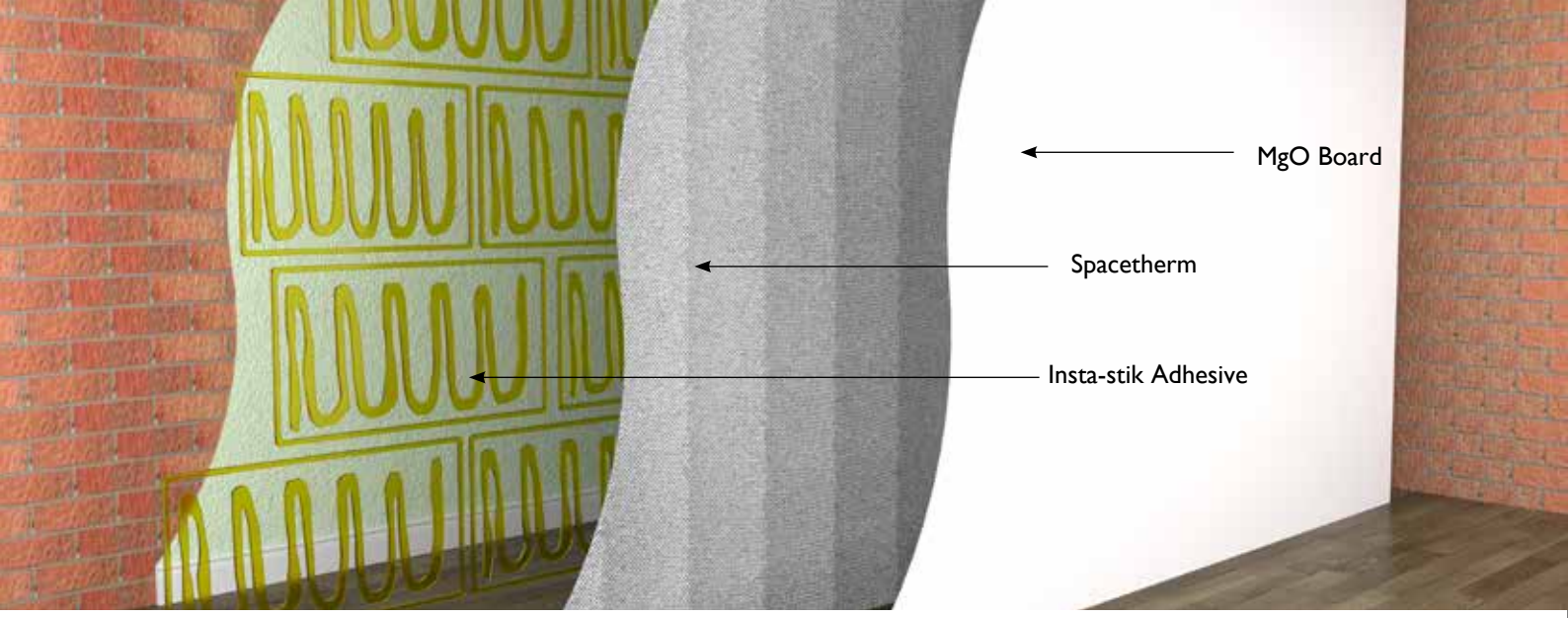


Key Benefits

- Thin thermal bridge insulation, ideal for timber or steel frame structures
- Fully encapsulated
- Available cut to any width, thickness or length
- Class leading fire performance for aerogel insulation

Composition	Spacetherm A1 Blanket Various Materials
Spacetherm CBS length	1.2m or 2.4m
Thickness	10mm or 20mm
Width	38, 50, 75 & 100mm
K-Factor: Aerogel	0.0195 W/mK
Reaction to Fire: Aerogel	Class A1 (insulation only)

NBS



SPACETHERM® WL

Spacetherm WL (Wall Liner) is an insulated laminate specifically to be fixed to internal surfaces of existing solid walls without the need for mechanical fixings. Spacetherm WL consists of Spacetherm A1 aerogel insulation blanket bonded to 3mm Magnesium Oxide Board (MgO), for use in applications where increased thermal performance is required with limited space. Spacetherm WL can achieve similar performance to plasterboard laminates, but at a fraction of the thickness, allowing specifiers greater flexibility and higher performance for refurbishment projects.

Composition	Spacetherm A1 Blanket MgO Board
Dimensions	1200 x 595mm
Thickness	13mm (10mm Aerogel + 3mm MgO)
Weight	4.9 kg/m^2
Fire Resistance	Aerogel (Class A1) Magnesium board (Class A1)
Thermal Conductivity	Aerogel 0.0195 W/mK Magnesium board 0.19 W/mK
Vapour Resistance	Aerogel Sd 0.05m Magnesium board Sd 0.062m

Key Benefits

- Thin insulation system for hard to treat walls
- Class-leading performance
- Minimum loss of room space
- Constant long term thermal performance 50 years+
- Non-hazardous material
- No specialist trades required
- Allows the wall to breathe

Accessories

- MgO Primer
- Insta-stik Adhesive
- Plasterbond
- Spacetherm MgO Filler Adhesive

NBS

SPACETHERM® WRB

Spacetherm WRB (window reveal board) is an insulated laminate to be fixed or glued to the existing solid wall at the window reveals. Spacetherm WRB consists of Spacetherm A1 insulation blanket bonded to plasterboard or Magnesium Oxide board, with or without plywood reinforcement, depending on fixings. It is ideal for use in applications where cold bridges are present, but space is limited. Spacetherm blanket is available in thicknesses from 10mm to 40mm (in multiples of 10).

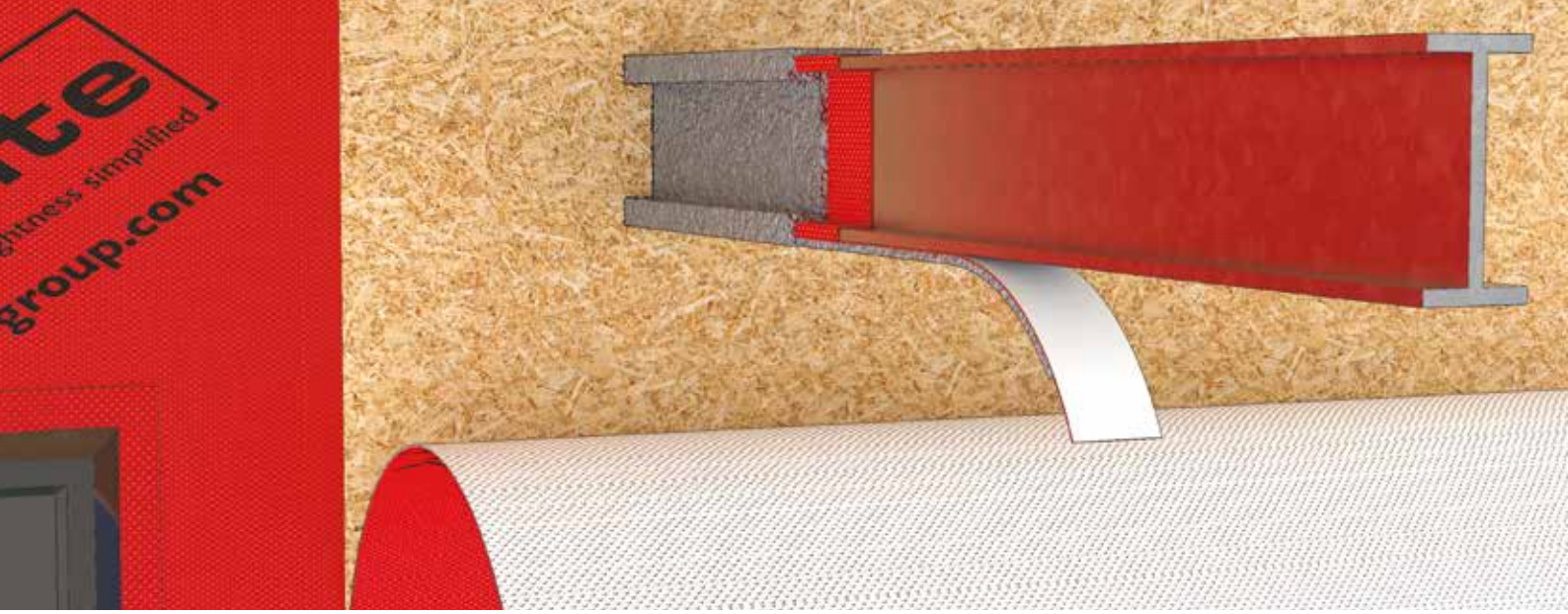
Various solutions available from Spacetherm range depending on application. Please see physical properties tables on previous pages for relevant product chosen.

Image showing Spacetherm® WRB applied internally to a reveal on an existing external wall structure.

Key Benefits

- Ultra thin insulation system for window reveals
- Minimum loss of space around openings
- Can be used in partnership with dry-lining
- Glued or direct fixed depending on substrate
- Class leading fire performance for aerogel insulation

NBS



WRAPTHERM®

Wraptherm is a composite comprising 10mm Spacetherm A1 Aerogel Insulation blanket bonded to the face of Wraptite® vapour permeable, airtight self-adhesive membrane. Use of Wraptherm provides airtightness combined with a reduction in thermal bridging.

Wraptherm was developed for use in the refurbishment of existing buildings where there was a requirement to enhance both the thermal and airtightness performance of the building but can also be used in new build.

Wraptherm can be applied to the internal face of the existing façade, providing a vapour neutral yet airtight layer, fully self-adhered to the substrate layer with the added benefit of a 10mm thick layer of Spacetherm A1 insulation. Over this airtight/thermal composite, framing can be installed with the cold bridging being reduced thanks to the Spacetherm layer. Additional thermal insulation can be included within the frame to meet the u values required for the refurbishment.

The offset nature of the Wraptite component allows sealing of the joints in the panel to ensure the continuity and integrity of the airtight layer.

Composition	Spacetherm A1 Blanket Wraptite
Coverage	2400mm x 1200mm or 1200mm x 1200mm
Nominal Thickness	11.5mm
Weight	2.40kg/m^2 or 1.2 kg/m^2
Thermal Conductivity @ 23°C	0.0195 W/mK
Water Vapour Transmission	242 g/m^2 per day

Key Benefits

- Single product airtightness and thermal bridging solution
- Ideal for Refurbishment and Façade Retention projects
- Water-resistant yet vapour permeable membrane
- Reduces thermal bridging
- Continuous airtightness seal
- Low vapour resistance

Specialist Services and Technical Support

Our products are backed up by a dedicated team of technical experts, able to assist at every project stage from pre-planning to on site. We offer CAD detail reviews, installation guidance, condensation risk analysis, WUFi calculations, U-Value calculations, ground gas system designs, telephone support & more. Our products also have a range of BIM Objects & Performance Specifications.

Customer Focused

- Online Technical Advice
- Members Area / Onsite App
- Thermal bridging calculations
- WUFI & U-Value Calculations
- Condensation Risk Analysis
- CAD Design
- Site Advice
- CPD Presentations
- Accreditations

Expertise and know-how to support your project

CONDENSATION RISK ANALYSIS

Condensation can significantly reduce the effectiveness of insulation, and result in damage to the building fabric. A Condensation Risk Analysis evaluates the likelihood of interstitial condensation in your roof or wall construction. These calculations are regularly required by building control to demonstrate compliance with building regulation requirements. Calculations are performed free of charge when using our products.

THERMAL BRIDGING CALCULATION

This software is designed to support designers and specifiers obtaining Psi values and further address the issue of achieving a healthy building with the output including surface temperature factor, or fRSI. Where the calculated Psi value gives a value for heat loss, the surface temperature factor indicates the internal surface temperature at the junction detail.

Using the Psi value and, in particular, the fRSI calculated by the software, the specialist technical team at A. Proctor Group can then advise on appropriate solutions utilising our ultra-thin Spacetherm® insulation solutions as well as our extensive range of membranes, if required, to contribute to the overall building performance goals.

BIM DATA

Available through NBS Chorus and NBS Source, specifiers can now access a full suite of digital products and technical specifications for many of our product solutions. The collaboration with NBS provides architects and designers with a technical specification writing service. In addition, specifiers have access to the manufacturer's specification data, BIM objects, literature and third-party certifications.

PRODUCT DIVISIONS

We provide a wide range of high quality solutions which meet the continuously evolving requirements of the construction industry.

Product divisions include:

- Condensation Control Membranes
- Acoustic Floor Solutions
- External Airtight Barriers
- Ground Gas Protection
- Thermal Solutions

Get in touch for more information

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Case Study - Grade II listed townhouse in Bath insulated with Spacetherm

The heat efficiency of a Grade II listed Georgian townhouse in the historic city of Bath is set to be dramatically improved as a result of the introduction of Spacetherm Multi insulation.

The challenge of dealing with heating inefficiencies, major heat loss and high heating costs are a common problem with many listed buildings and solid wall dwellings.

Property owner Mike Mower explains, "I obtained planning permission to insulate the top floor of my Grade II listed Georgian townhouse as it is single skin 6" Bath stone (Oolite) and very heat inefficient, all walls have the original lime render and skim and so they need to breathe. The property in Bath was built in 1818 and has been in my family for 101 years since 1919! I am the 3rd generation to live in it and it was last renovated in 1935 so it needs serious upgrading!

"The architect originally specified another insulation but this would have required encroaching 100mm into the room and would necessitate moving door frames and rebuilding window reveals. After extensive research, I identified the Spacetherm Multi aerogel product.

"The architect was so impressed by the thermal efficiency of the Spacetherm Multi. With a total thickness of 20mm when rendered, this will not encroach onto the floor space, and the door frames and windows will not need to be altered. Subsequently we included Spacetherm Multi on the planning application as an alternative to the insulation originally specified, which was approved by the Conservation officer and building control."

The renovation of the house is being managed and installed directly by the owner and a lime plaster finish will be applied professionally by a contractor upon completion of the installation.

Normally, a solid wall will have a U-value of around 2.1 W/m^{2}K. Following the application of Spacetherm Multi, this can be reduced to around 0.8 W/m^{2}K, dependent on the wall structure.

Finally, Mike Mower commented "I think Spacetherm Multi is ideal for listed building insulation as it has a minimal effect on the infrastructure

of the original building. It has the potential to be used extensively in old buildings such as we have in Bath where heat loss is at a maximum, the original walls need to be able to breathe when insulated and insulation has hitherto been impossible due to the visual impact encroaching on the listed building. I am also seeking planning permission to use the product to insulate the basement floor and walls."

Case Study - Space saving A-Rated insulation improves thermal performance of Balfron Tower apartments

Spacetherm® A-Rated Aerogel Blanket has been chosen for its thermal performance, flexibility and suitability for space-critical applications in the refurbishment of 146 high-rise apartments in Poplar, East London.

The Balfron Tower project involves the upgrading and refurbishment of the Grade II* listed 1960's building in the London Borough of Tower Hamlets, originally designed by the renowned architect Ernö Goldfinger. The re-design of the 27 storey tower block is part of a development led by architects Studio Egret West, with the interior design coordinated in partnership with Ab Rogers Design. Balfron Tower Developments LLP is a Joint Venture between Poplar HARCA, Londonewcastle and Telford Homes.

In their concept for the refurbishment Egret West has sought to bring the fabric of the building up to modern-day standards in terms of fire, acoustic and thermal performance.

Alisan Dockerty, project architect at Egret West explains: "The existing wall construction of the Grade II* listed buildings meant that space for insulation was limited in some instances. We chose to apply Spacetherm A-Rated Aerogel Blanket, a high-performance insulation blanket with A-Rated fire rating, capable of achieving the BRE's surface condensation analysis target temperatures of 16°C, whilst providing us with a minimum loss of space.

The concrete walls around the stairways in each apartment were particularly space critical and identified as a weak point for cold bridging. The original specification would have required an additional insulated wall lining of 145mm, whilst using Spacetherm A1 blanket, the required high-performance insulation was achieved in less than 60mm."

In addition to the Spacetherm A-Rated blanket, foil encased Spacetherm A-Rated (CBS) Cold Bridge Strip was also included at window and door junctions to address areas susceptible to cold bridging.

" I believe the success of the A. Proctor Group is down to a solid foundation of innovation backed up by an excellent, loyal and committed team, every one of them playing an important role in our continued success. Scotland provides us with a unique platform to launch our ideas, systems and products. I am fiercely proud of this heritage and our brand."

Keira Proctor
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