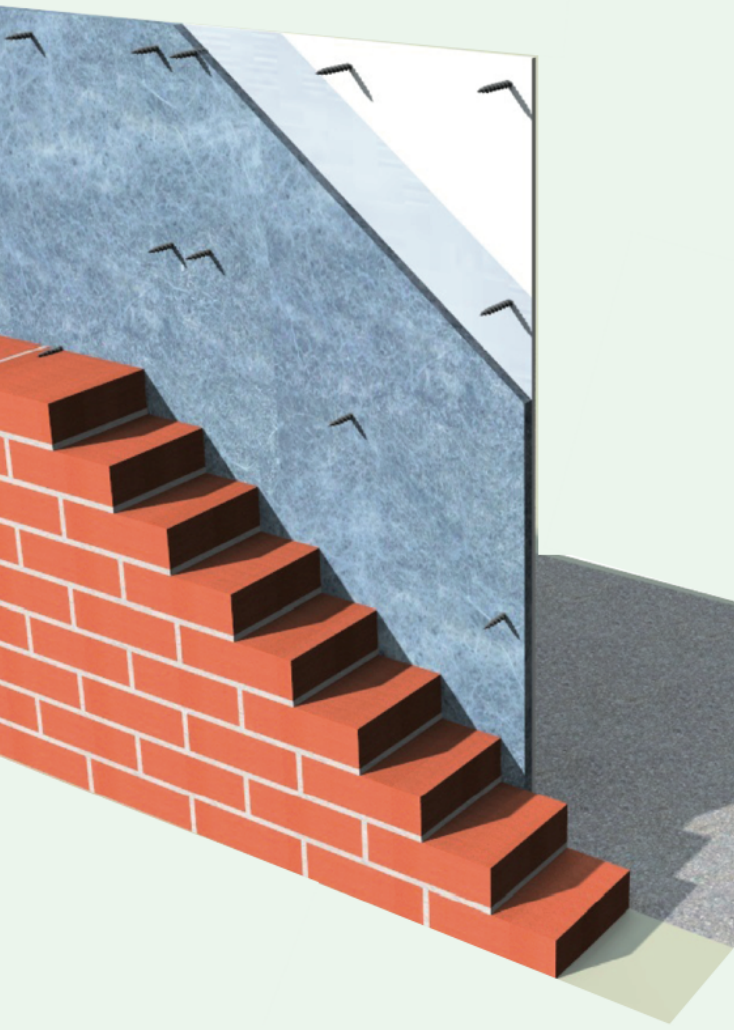


Thermablok Aerogel ThermaSlim IWI Board

Internal Wall Insulation (IWI) Board

Ultra Thin Internal Solid Wall Insulation Systems for New Build & Refurbishment



- Unique insulation with the lowest Thermal Conductivity of any insulation product.
Thermablok - C 0.015 W/mK
- Fire Classification.
Thermablok Aerogel - C - s1,d0
Particle Facing Board - A1
- Thermablok Aerogel A2 rated Blanket available on request -
(Fire Classification - A2-s1,d0)
(Thermal Conductivity - 0.016W/mK)
- Hydrophobic, extremely vapour permeable but non hydroscopic offering no transport for liquid.
- Breathable (Vapour Open) or Non-Breathable (Vapour Closed with vapour control layer - VCL)
- Hydroscopic Buffer Facia.
- Hostile environment to mould offering no bacterial platform.
- Thermablok Aerogel Blanket contains no resins, binders or performance enhancing gases which may be released through service.
- 100% Recyclable.
- Environmentally Friendly.
- Rodent / Vermin Resistant.



Introduction

Thermablok Aerogel Advanced Insulation an Environmentally Friendly Solution to Thermal Bridging

Thermablok Aerogel Insulation is an advanced, ultra high performance fibre reinforced silica aerogel blanket insulation suitable for thermal upgrades of solid walls, floors and roofs and associated thermal bridges in new, modern and historic buildings.

The material uses the insulating power of trapped air in a nano-porous silica matrix to achieve its excellent thermal performance and represents the most thermally efficient bridging treatment available today.

Unlike competing solutions, *Thermablok Aerogel* can be mechanically fixed to substrates such as concrete, brick, wood and metal and is ideal for use in building construction and energy efficiency retrofits.

Most heat transmission through walls is passed directly through the building envelope, be it masonry, block or stud frame to the internal facia in a process known as *Thermal Bridging*.

Thermablok Aerogel, which has the highest insulation value of any known material with the lowest thermal conductivity value of any solid (0.015W/mK to 0.016W/mK), works by breaking this thermal bridging link.

Products

- *Thermablok Aerogel Insulation Blanket*
- *Thermablok Aerogel A2 Insulation Blanket*
- *Thermablok Aerogel ThermaSlim Internal Wall / Reveal / Return Insulation Board Systems (IWI)*
- *Thermablok Aerogel ThermaSlim Reveal / Return Insulation Board System*
- *Thermablok Aerogel ThermaSlim Impact Panel Internal Floor Insulation (IFI)*
- *Thermablok Aerogel ThermaSlim External Insulation Finishing System (EIFS)*
- *Thermablok Aerogel Strips (Standard & Custom)*

The material is totally breathable, ensuring a healthy, durable working building with a natural ability to repel liquid whilst allowing the passage and release of moisture vapour - a major factor in historical build.

Thermablok Aerogel does **not** rely on a vacuum or heavy molecular gases to insulate. It is hydrophobic and is therefore not affected by moisture or age and is a hostile environment, offering no bacterial platform, for mould growth. It also provides major energy savings for the life of the building.

A single 10mm thickness of *Thermablok Aerogel Insulation Blanket* increases the insulation factor by up to 67% whilst maximising Gross Internal Area (GIA) -(nb. guidance only / dependant on substrate).

It is 100% recyclable.

Thermablok Aerogel material carries a European Technical Approval (ETA) governing its use as a thermal insulation in various Building & Construction applications - ETA11_0471, an Environmental Product Directive (EPD) and until mid 2022 held a British Board of Agreement (BBA) approval for the composite board systems of *Thermablok Aerogel ThermaSlim Board System* and installation as instructed.

Applications

- *Solid Wall (IWI)*
- *Partition Wall Returns*
- *Window & Door Reveals / Headers*
- *Floors*
- *Ceilings / Roofs*
- *Timber Frame, Steels, I Beams, Columns*
- *Soffits*
- *Balconies*
- *Joist Ends*
- *Pipe Lagging*

Design Considerations

Heritage Solutions

Where a breathable upgrade is required, for example in historic or heritage projects, a hydroscopic, vapour open variant - *Thermablok Aerogel* / *ThermaSlim Aerogel Board* should be selected.

ThermaSlim Aerogel Board can be part of a complete natural lime based wall insulation upgrade designed to offer a heritage finish in an easy to install and finish system.

WUFI Consultancy

Hygrothermal simulation software / data package available where required.

Breathability / Vapour Control

Thermablok Aerogel is available in breathable and non breathable forms. Product variants should be selected based on an appropriate condensation risk assessment.

Interstitial Condensation / Moisture

It may be assumed that any permeable structure with warm humid air on one side and cold air on the other will be subject to interstitial condensation and precautions need to be taken.

Thermablok Aerogel ThermaSlim Board offers a hydroscopic buffer.

Thermal Bridging / Thermal Creep

Thermablok Aerogel can be used to reduce surface condensation at window and door openings where conventional insulations would obscure the window frame or provide insufficient thermal resistance.

Window & Door Reveals

A 10mm thickness of *Thermablok Aerogel Blanket* is typically sufficient to increase the surface temperature factor F_{rsi} above the critical limit (0.75) necessary to avoid surface condensation.

Joist Ends

Thermablok Aerogel JoistTherm offers heat loss and vapour control in this critical location, not addressed with conventional insulation methods.

Partition Walls

Thermablok Aerogel ThermaSlim IWI Board's ultra slim form represents an excellent treatment for the classic thermal bridge or partition walls to external solid wall junction.

Fire Classification

Thermablok Aerogel Blanket : C - s1,d0

Thermablok Aerogel A2 Blanket : A2 - s1,d0 in accordance with DIN EN 13501-1

The specific fire performance criteria required for each element of design within any given project should be firmly established by specifiers.

NBS Specification

H11, H20, K10, K11 K40, K45,
M40, M21, P10

Durability

Under normal conditions, the board systems are dimensionally stable, durable and will have a service life equal to the building in which they are installed. The *Thermablok Aerogel* component is expected to perform for a minimum of 60 years.

Emissions

Thermablok Aerogel meets the highest requirements of the interior emissions M1 Test (Finland)

Thermablok Aerogel does not contain any resins, binders or performance enhancing gases which may be released during service.

Environmental Impact, Sustainability and Responsibility

Thermablok Aerogels and *Aspen Aerogels* operate a sustainable supply chain management and responsible sourcing system. With a long term commitment to sustainability and responsibility: as a manufacturer and supplier of insulation products; as an employer and as a member of its neighbouring communities.

An Environmental Product Declaration (EPD) is available on request.

Specification Terms

The specific insulation will be:

Thermablok Aerogel Insulation Blanket

Thermablok Aerogel A2 Insulation Blanket

Thermablok Aerogel Isolation Strips (Blanket)

Thermablok Aerogel ThermaSlim Wall (IWI),

Thermablok Aerogel ThermaSlim Reveal / Return,

Thermablok Aerogel ThermaSlim Impact Floor (IFI)

Thermablok Aerogel ThermaSlim Basement Rail

Thermablok Aerogel Insulation Slab and Frame

Ozone Depletion Potential (ODP) - 0

Global Warming Potential (GWP) less than 5

Product Description

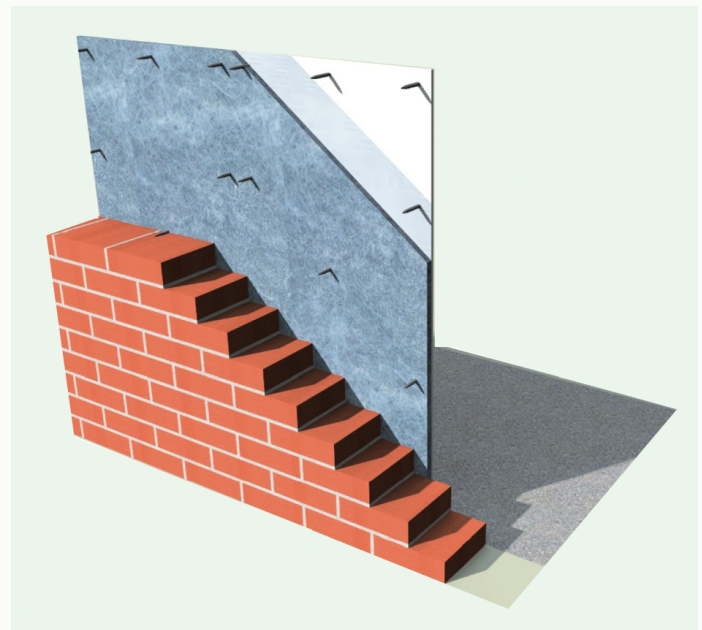
Thermablok Aerogel ThermaSlim IWI Board

Thermablok Aerogel ThermaSlim IWI Board is a unique ultra thin, ultra high performance, direct fix internal wall insulation system for new and refurbishment properties. It delivers outstanding thermal insulation upgrades while maximising gross internal area (GIA) for home owners, occupants, developers and investors. BBA Certified.

Thermablok Aerogel ThermaSlim IWI Board combines - *Thermablok Aerogel Insulation Blanket* as standard - (10mm increments), a thin super insulation material with the lowest thermal conductivity of any known material, with a particle facing board (6mm and 9mm thicknesses). This enables designers to maximise thermal standards whilst maintaining optimum internal dimensions/ increased Gross Internal Area (GIA).

The particle facing panel functions as a hydroscopic buffer at times of peak humidity and offers increased fire and acoustic performance. Each element of the system is designed to integrate seamlessly to deliver either a vapour open or vapour closed / air tight upgrade envelope.

Thermablok Aerogel ThermaSlim IWI Board offers the thinnest robust internal wall and floor insulation available and is also manufactured in window and door reveal systems where space saving is crucial, making it an ideal solution for both new build and refurbishment projects.



ThermaBlok Aerogel	MS Board	Laminate Board TOTAL	R value of laminate (m ² K/W)	Installed U value* (W/m ² K)
10mm	6mm	16mm	0.687	0.85
10mm	9mm	19mm	0.696	0.85
20mm	6mm	26mm	1.353	0.54
20mm	9mm	29mm	1.362	0.54
30mm	9mm	39mm	2.03	0.40
40mm	9mm	49mm	2.696	0.31
50mm	9mm	59mm	3.362	0.26

*Calculations based on standard 220mm BRE U 2.15 rated wall assembly.

NB - Establish if the existing assembly is Vapour Open (Breathable) or Vapour Closed (Non Breathable) and specify the appropriate open or closed system / solution.

NB - Establish which fire classification is required for each and every application.

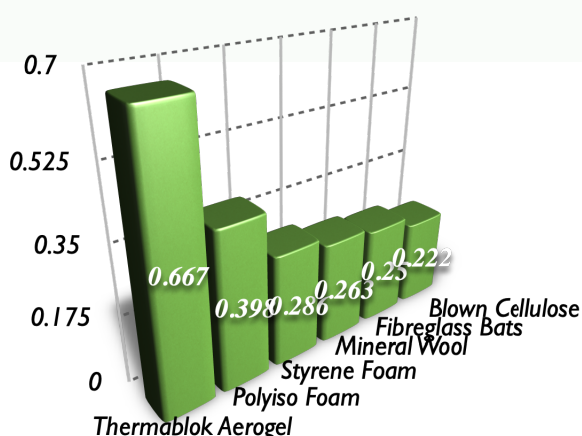
NB - Product variants should be selected based on an appropriate condensation risk assessment.

NB - *Thermablok Aerogel Insulation Blanket* is a direct fix solution without the need for a ventilation cavity and as such it is advised to prepare the area in such a way to ensure a flat and even surface for 100% contact of aerogel to substrate. It is also further advised to wash any existing substrate with an anti microbial solution to remove any bacterial / mould spores and deposits.

NB - The figures quoted are for guidance only. A detailed U-value calculation and a condensation risk analysis should be completed for each project.

NB - It is assumed that a good level of workmanship has been attained in all installations and thus eliminating repeat bridges and thermal loops.

R Value Comparisons of 10mm Thickness



Product Details

Thermablok Aerogel ThermaSlim IWI Board

Thermablok Aerogel ThermaSlim IWI Board is a rigid composite board available in breathable (vapour open or non breathable (vapour closed) forms. Product variants should be selected based on an appropriate condensation risk assessment.

A comprehensive characterisation file for *Thermablok Aerogel ThermaSlim IWI Board* system is available on request for commonly used hygro-thermal simulation software programmes such as WUFI.

Standards & Approvals

ETA - European Technical Approval
EPD - Environmental Product Directive

Green Deal Certified
ECO Registered
Certificated Silver C2C
RoHS (Restriction of Hazardous Substances) - Compliant
REACH - Compliant

Ozone Depletion Potential - Zero
Global Warming Potential - Less than 5

Thermal Conductivity

- Thermablok Aerogel: 0.015W/mK
- Magnesium Oxide Board: 0.307W/mK

Fire

- Thermablok Aerogel: C - s1,d0 Fire rated to BS EN ISO 1182
- Magnesium Oxide Board: BS EN: ISO 1182 - Euro Class A1 Non Combustible EN13501-1

Impact Strength (Brinell)

- Thermablok Aerogel: 80kPa / 80 kN/m² at 10%
- Magnesium Oxide Board: 34Nmm²

Density (Dry) (ex works)

- Thermablok Aerogel: 150kg/m³
- Magnesium Oxide Board: 1050kg/m³ (+/- 10%)

Vapour Permeability

- Thermablok Aerogel: ISO 12572: 5to 5.5mu
- Magnesium Oxide Board: BSEN 12086: 100mg/m²/h

Mould / Bacteria

- Thermablok Aerogel: NIL / Hostile Platform
- Magnesium Oxide Board: NIL / Hostile Platform

Specific Heat

- Thermablok Aerogel: 1000 J/kg/K

Embodied Energy (10mm)

- Thermablok Aerogel: 5.4kgs / CO² per m²

Laminate Board Thickness	Board Dimensions Size	Magnesium Oxide Weight	Thermablok Aerogel Weight	Combined Board Weight
16mm	1200mm x 1200mm	6.28kg/m ²	1.5kg/m ²	7.78kg/m ²
19mm	1200mm x 1200mm	9.44kg/m ²	1.5kg/m ²	10.94kg/m ²
26mm	1200mm x 1200mm	6.28kg/m ²	3.0kg/m ²	9.28kg/m ²
29mm	1200mm x 1200mm	9.44kg/m ²	3.0kg/m ²	12.44kg/m ²
39mm	1200mm x 1200mm	9.44kg/m ²	4.5kg/m ²	13.94kg/m ²
49mm	1200mm x 1200mm	9.44kg/m ²	6.0kg/m ²	15.44kg/m ²
59mm	1200mm x 1200mm	9.44kg/m ²	7.5kg/m ²	16.94kg/m ²

Product Details

Thermablok Aerogel Insulation Blanket

Thermablok Aerogel Blanket Insulation is a flexible material available in differing thicknesses. Typically our 5mm system is used within industry, and our 10mm system more widely used in building and construction.

Product variants should be selected based on an appropriate condensation risk assessment.

<i>Essential Characteristic</i>	<i>Value</i>	<i>Test Standard</i>
Colour	Blue / Grey	
Thickness	5mm / 10 mm	DIN EN 823
Thermal Conductivity (λ_D)	$\lambda_{D(23,50)} = 0.015 \text{ W/m.K}$ $u_{23/50} = 0.003, u_{23,80} = 0.006$ $F_{m1} = 1.005, F_{m2} = 1.059$ $R_{D(23/50)} = 0.60 \text{ m}^2\text{K/W}$	EN 12667
Water Vapour Permeability, μ -Value	$\mu \leq 5.0$	EN 12086
Short Term Water Absorption by Partial Immersion	$W_p \leq 1 \text{ kg/m}^3$	EN 1609 (A)
Apparent Density	$150 \text{ kg/m}^3 \pm 20\%$	EN 1602
Dimensional Stability	Length $ \Delta \epsilon_l \leq 1\%$, Width $ \Delta \epsilon_b \leq 1\%$, Thickness $ \Delta \epsilon_d \leq 1\%$	EN 1604
Geometry	Length -300mm / + no limit Width $\pm 25\text{mm}$ Thickness $\pm 1\text{mm}$	EN 822, EN 823
Reaction to Fire Classification	C,s1,d0	DIN EN 13501-1
<i>Values given for characteristics are average values.</i>		

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