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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
16/5290
Product Sheet 1

THERMABLOK AEROGEL LTD – THERMAL INSULATION SYSTEMS

THERMABLOK AEROGEL THERMASLIM INTERNAL WALL INSULATION SYSTEMS

This Agrément Certificate Product Sheet(1) relates to the Thermablok Aerogel ThermaSlim Internal Wall Insulation Systems, magnesium oxide board laminated to Aerogel insulation, and with an integrated vapour control layer (VCL), for use as insulated dry lining on masonry walls of new and existing dwellings.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Thermal performance – the systems can contribute to limiting heat loss through walls. The U values achieved will depend on the overall construction and insulation thickness (see section 6).

Condensation risk – the systems can limit the risk of surface and interstitial condensation; however, an assessment should be made in each case (see section 7).

Behaviour in relation to fire – the magnesium oxide board (MultiPro) has a reaction to fire classification of Class A1 and the Aerogel has a reaction to fire classification of Class C, in accordance with BS EN 13501 : 2007 (see section 8).

Durability – under normal conditions, the boards are rot-proof, dimensionally stable and durable and will have a service life equal to the building in which they are installed (see section 14).

The BBA has awarded this Certificate to the company named above for the systems described herein. These systems have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 9 February 2016

John Albon – Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

The BBA is a UKAS accredited certification body – Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

Regulations

In the opinion of the BBA, the Thermablok Aerogel ThermaSlim Internal Wall Insulation Systems, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):

The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	B2(1)	Internal fire spread (linings)
Comment:		The systems are unrestricted under this Requirement. See section 8.1 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The systems can contribute to satisfying this Requirement. See sections 7.1 and 7.5 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The systems can contribute to a building satisfying this Requirement. See section 6 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The systems are acceptable. See section 14 and the *Installation* part of this Certificate.
Regulation:	26	CO_2 emission rates for new buildings
Regulation:	26A	Fabric energy efficiency rates for new dwellings (applicable to England only)
Regulation:	26A	Primary energy consumption rates for new buildings (applicable to Wales only)
Regulation:	26B	Fabric performance values for new dwellings (applicable to Wales only)
Comment:		The systems can contribute to a building satisfying these Regulations; however, compensating fabric/services measures may be required. See section 6 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The systems are acceptable. See section 14 and the *Installation* part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	2.5	Internal linings
Comment:		The systems are unrestricted under this Standard, with reference to clause 2.5.1[(1)]. See section 8.1 of this Certificate.
Standard:	3.15	Condensation
Comment:		The systems can contribute to satisfying this Standard, with reference to clauses 3.15.1[(1)], 3.15.4[(1)] and 3.15[(1)]. See sections 7.1 and 7.6 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The systems can contribute to satisfying clauses, or parts of, 6.1.1[(1)], 6.1.2[(1)], 6.1.3[(1)], 6.1.6[(1)], 6.2.1[(1)], 6.2.3[(1)], 6.2.4[(1)], 6.2.5[(1)], 6.2.9[(1)] and 6.2.11[(1)] of these Standards. See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The systems can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and, therefore, will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition, the systems can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4[(1)] [Aspects 1[(1)] and 2[(1)]], 7.1.6[(1)] [Aspects 1[(1)] and 2[(1)]] and 7.1.7[(1)] [Aspect 1[(1)]]. See section 6 of this Certificate.
Regulation:	12	Building standards applicable to conversions
Comment:		All comments given for these systems under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1[(1)] and Schedule 6[(1)].

(1) Technical Handbook (Domestic).

The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	23	Fitness of materials and workmanship
Comment:		The systems are acceptable. See section 14 and the *Installation* part of this Certificate.
Regulation:	29	Condensation
Comment:		The systems can contribute to satisfying this Regulation. See section 7.1 of this Certificate.
Regulation:	34	Internal fire spread — Linings
Comment:		The systems are unrestricted under this Regulation. See section 8.1 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Regulation:	40(2)	Target carbon dioxide emission rate
Comment:		The systems can contribute to a building satisfying these Regulations. See section 6 of this Certificate.

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, Principal Designer/CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 3 *Delivery and site handling* (3.2, 3.3 and 3.4) and 15 *General* (15.3 and 15.6) of this Certificate.

Additional Information

NHBC Standards 2016

NHBC accepts the use of the Thermablok Aerogel ThermaSlim Internal Wall Insulation Systems, provided they are installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 9.2 *Wall and ceiling finishes*.

Technical Specification

1 Description

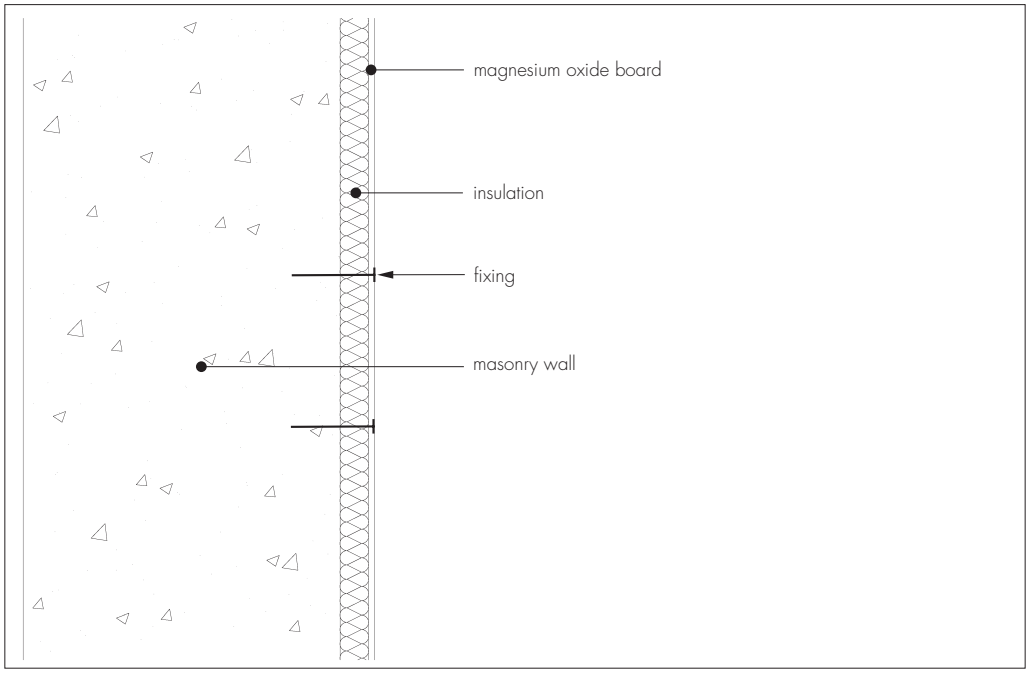
1.1 The Thermablok Aerogel ThermaSlim Internal Wall Insulation Systems are made up of 6 mm or 9 mm magnesium oxide board (MultiPro) laminated to insulation of varying thicknesses. The systems are installed as a Direct Fix (see section 1.5) as insulated dry lining on solid or cavity masonry walls as shown in Figure 1.

1.2 The systems have the nominal characteristic shown in Table 1.

Table 1 Thermablok Aerogel ThermaSlim Internal Wall Insulation Systems — product range and nominal dimensions

Product	MultiPro board thickness (mm)	Insulation type	Insulation thickness (mm)	Overall board/product dimensions (l x w x d) (mm)
Thermablok Aerogel ThermaSlim IWI (Direct Fix)	9	Aerogel	10 to 40	2400 x 1200 x 19 to 49
Thermablok Aerogel ThermaSlim Reveal	3 (x2)	Aerogel	10	2400 x 1200 x 16
Thermablok Aerogel ThermaSlim Return	3 (x2)	Aerogel	10	2400 x 600 x 16

Figure 1 Direct Fix insulated dry lining



1.3 The Thermablok Aerogel ThermaSlim Reveal, used to address cold bridging at windows and door openings, is made up of 10 mm of Aerogel insulation bonded to two 3 mm thick magnesium oxide boards (see the *Installation* section).

1.4 The Thermablok Aerogel ThermaSlim Return is made up of 10 mm Aerogel insulation bonded to two 3 mm thick magnesium oxide boards and is for use at the corners of an external wall and the connecting internal wall to minimise thermal bridging.

1.5 Thermablok Aerogel Thermaslim IWI is directly fixed to the solid wall using stainless steel and/or plastic fixings.

1.6 Ancillary items used with the systems include:

- board punch
- expanding foam — Thermablok VCL sealant.

1.7 Ancillary items used with the systems but which are outside the scope of this Certificate include:

- VCL
- fixtures
- fittings
- self-adhesive scrim tape
- stainless steel or plastic fixings
- primer
- skim coat.

2 Manufacture

2.1 The systems are assembled in the UK.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by BSI (Certificate 983).

3 Delivery and site handling

3.1 The boards are delivered to site shrink-wrapped on pallets with labels bearing the product name and dimensions.

3.2 The Aerogel product weighs 24 kg and lifting requires more than one person due to the shape and size of the product. It is recommended that it is carried in vertical plane, long edges parallel to the ground and not horizontally as self-weight combined with wind may cause them to crack.

3.3 It is advisable to wear face masks and safety goggles when cutting the boards as the dust given off by both the magnesium oxide facing board and the Aerogel is considered an irritant to eyes, nose and throat. The boards should be cut in a ventilated or dust-extracted environment.

3.4 The boards should be stored in a dry place and kept away from solvents, bituminous materials and sources of ignition.

3.5 Broken, damaged or wet boards should not be used.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Thermablok Aerogel ThermaSlim Internal Wall Insulation Systems.

Design Considerations

4 General

4.1 The Thermablok Aerogel ThermaSlim Internal Wall Insulation Systems are for use as an insulating dry lining board for solid or cavity masonry walls of existing and new dwellings. They should be installed in accordance with the Certificate holder's instructions.

4.2 The systems may be installed on masonry construction including clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks. It is essential that such walls are constructed and maintained having regard to the local wind-driven rain index, and are already rain resistant and show no signs of water penetration.

4.3 Walls should be designed and constructed in accordance with the relevant recommendations of:

- BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006, and their respective UK National Annexes
- BS 8000-3 : 2001.

4.4 Services which penetrate the dry lining, eg light switches and power outlets, should be kept to a minimum to limit damage to vapour checks.

4.5 The installation of insulating dry lining systems requires careful detailing around doors and windows to achieve a satisfactory surface for finishing. In addition, every attempt should be made to minimise the risk of thermal bridging at reveals and where heavy separating walls are attached to the external wall. New work must be designed to accommodate the thickness of the dry lining, particularly at reveals, heads and sills and in relation to ceiling height.

4.6 If present, mould or fungal growth should be treated prior to the application of the systems.

5 Practicability of installation

The systems are designed to be installed by a competent general builder, or a contractor experienced with these types of systems.

6 Thermal performance

6.1 Calculations of thermal transmittance (U value) of a specific construction using insulated dry lining should be carried out in accordance with BS EN ISO 6946 : 2007 and BRE Report BR 443 : 2006, using the declared thermal conductivity (λ_D value) of 0.014 $W \cdot m^{-1} \cdot K^{-1}$ for the insulation component and a mean design value of 0.28 $W \cdot m^{-1} \cdot K^{-1}$ for the magnesium oxide board.

6.2 The U value of a wall will depend on the insulation type and thickness, the number/type of fixings and the insulating value of the substrate masonry and its finishes. Example U values are given in Table 2.

6.3 For improved thermal/carbon emissions performance, the designer should consider additional fabric and/or services measures.

Table 2 Example U values for insulated dry lining of walls

Design U value ($W \cdot m^{-2} \cdot K^{-1}$)	Thickness of insulation required
	Aerogel[1] (Direct Fix)
0.18	—[2]
0.19	—[2]
0.25	—[2]
0.28	—[2]
0.30	40
0.35	40

(1) Includes fixing correction if ≥ 3% (steel fixings – λ = 17 $W \cdot m^{-1} \cdot K^{-1}$, 3.125 fixings per m^2, d = 8 mm, and fixings fully penetrate insulation).

(2) See section 6.3.

6.4 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations.

7 Condensation risk

Interstitial condensation

7.1 Walls incorporating the systems will adequately limit the risk of interstitial condensation when designed and constructed in accordance with BS 5250 : 2011, Annexes D and Appendix G.

7.2 For condensation risk analysis, a water vapour transmission factor of 25 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$ for the Aerogel and 280 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$ for the magnesium oxide board is to be used.

7.3 The integrated VCL has an S_d value of 50. Where calculations to Annex D of BS EN ISO 10456 : 2007 indicate a risk of persistent condensation, an additional VCL should be considered unless a site-specific dynamic analysis to BS EN 15026 : 2007 indicates otherwise.

7.4 Provided all joints between the systems are sealed (see sections 1.3 and 1.4 and the *Installation* section) in accordance with the Certificate holder's instructions, the systems can offer significant resistance to water vapour transmission.

Surface condensation

7.5 Walls incorporating the systems will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed 0.7 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and the junctions with other elements are designed in accordance with the guidance referred to in section 6.4 of this Certificate.

7.6 For buildings in Scotland, wall constructions will be acceptable when the thermal transmittance (U value) does not exceed 1.2 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and the junctions with other elements are designed in accordance with the guidance referred to in BS 5250 : 2011 Annex G. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6.4 of this Certificate.

8 Behaviour in relation to fire

8.1 The magnesium oxide board (MultiPro) component of the systems have a reaction to fire classification of Class A1 in accordance with BS EN 13501-1 : 2007 and is unrestricted with respect to surface spread of flame under the national Building Regulations.

8.2 When properly installed, the insulation will be contained between the wall and the magnesium oxide board until one is compromised. Therefore, the insulation will not contribute to the development of a fire or present a smoke or toxic hazard as the fire develops.

8.3 The Aerogel has a reaction to fire classification of Class C, in accordance with BS EN 13501 : 2007.

9 Proximity of flues and appliances

When the systems are installed in close proximity to certain flue pipes and/or heat-producing appliances, the relevant provisions of the national Building Regulations should be met:

England and Wales — Approved Document J

Scotland — Mandatory Standard 3.19, clause 3.19.1(1) to 3.19.4(1)

(1) Technical Handbook (Domestic).

Northern Ireland — Technical Booklet L.

10 Materials in contact — wiring installations

10.1 As with any other form of insulation, de-rating of electrical cables should be considered where the insulation restricts the air cooling of cables.

10.2 If electrical cables are likely to come into contact with the insulation component of the Thermablok Aerogel ThermaSlim system, they are required to be protected by a suitable conduit. The installation of electrical services must be carried out in accordance with BS 7671 : 2008.

11 Infestation

Use of the systems does not in itself promote infestation. The creation of voids within the structure, for example gaps between the wall lining and the systems, may provide habitation for insects or vermin in areas already infested. Care should be taken to ensure, wherever possible, that all voids are sealed, as any infestation may be difficult to eradicate. There is no food value in the materials used.

12 Wall-mounted fittings

The recommendations of the Certificate holder must be followed. Any objects fixed to the wall, other than lightweight items, are outside the scope of this Certificate.

13 Maintenance

The systems, if damaged during use, can be readily removed and replaced.

14 Durability

The durability of the materials is satisfactory. Provided the systems are fixed to a suitably stable and durable wall, it will have a life equal to the building in which it is installed. Under normal conditions of occupancy, it is unlikely to suffer damage but if damage does occur the systems can be repaired or replaced.

Installation

15 General

15.1 A qualified plumber is required to make alterations to heating systems. A qualified electrician must be used to make good the electrical wirings and services.

15.2 The dwelling should be examined for the following:

- suitability of substrate
- detailing around windows and doors
- position and numbers of electrical sockets and switches
- wall fittings and fixtures – including coving and skirting
- areas where flexible sealants must be used
- ventilation plates.

15.3 Before starting to fit the systems, the positions of all main service cable and pipe runs must be clearly marked on the walls to avoid damage. All plaster coving, skirting board and laminate floor angle bead must be removed.

15.4 Before fixing the systems, sufficient time must be allowed for damp-proofing treatments, where applied, to dry out (for information see BS 6576 : 2005 for dry lining in conjunction with a chemical damp-proof course application).

15.5 Care must be taken when exposing electrical cables (see section 10).

15.6 Boards are cut to size using a circular saw. Cutting should be done in a ventilated space, outside or in an area with dust extraction. Appropriate Personal Protective Equipment (PPE) must be used when cutting the boards.

15.7 Once cut, it is recommended that the magnesium oxide board facing should be brushed and wiped clean with a damp cloth before carrying into the house, thus reducing the amount of dust taken into the property. If using public access routes, stairs, lifts etc, it is advisable to wrap the boards in a sheet or cover again to stop dust being taken into the building.

16 Procedure

Preliminary work

16.1 A pre-installation survey of the dwelling should be carried out to determine all site conditions and restrictions and a site specific risk assessment and method statement for installing the systems should be completed.

16.2 The wall should be free from mould growth and must be made good before installation begins. An on-site pull-out test should be carried out to determine the correct type of wall fixing suitable for the wall structure.

Direct Fix for Thermablok Aerogel ThermaSlim to the wall

16.3 For mechanical direct fixings to the wall, sections 16.1 and 16.2 should be followed. Once the systems are in place, stainless steel countersunk screws are used to directly fix the systems to the wall at an interval of 400 mm down the systems until it is securely fixed to the wall.

16.4 The systems are offered to the wall whilst at the same time lifting it to make close contact between the protruding Thermablok Aerogel ThermaSlim Reveal and the ceiling. A door lifter is a recommended tool for this exercise.

16.5 Whilst the systems are being held in place the centre of the board is pushed firmly and a hole drilled for the first fixing. It is possible to drill and reverse the drill slowly out of the hole without snagging the Aerogel/insulation. The first fixing is hammered in tightly.

16.6 Ten fixings per full board size should be applied, a line of three securely across the centreline of the board, with edge fixings approximately 50 mm in from the board edge.

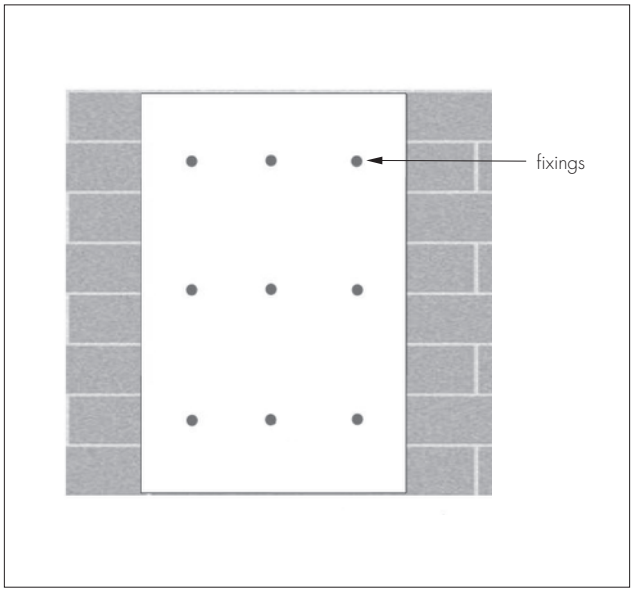
16.7 The use of a board punch for drilling the holes near the edge prevents spalling of the board edge at those points. This pattern is replicated at the top and bottom of the board.

16.8 Once completed, the board is tested at different points to check for any undue springiness. If this is detected another fixing should be used. The fixings must be hammered well home to ensure that the head of the fixing protrudes as little as possible from the facing board surface, to limit the thickness of skim coat needing to be applied.

Fixing

16.9 Nine fixings are used per full systems size (see Figure 2).

Figure 2 Fixing pattern

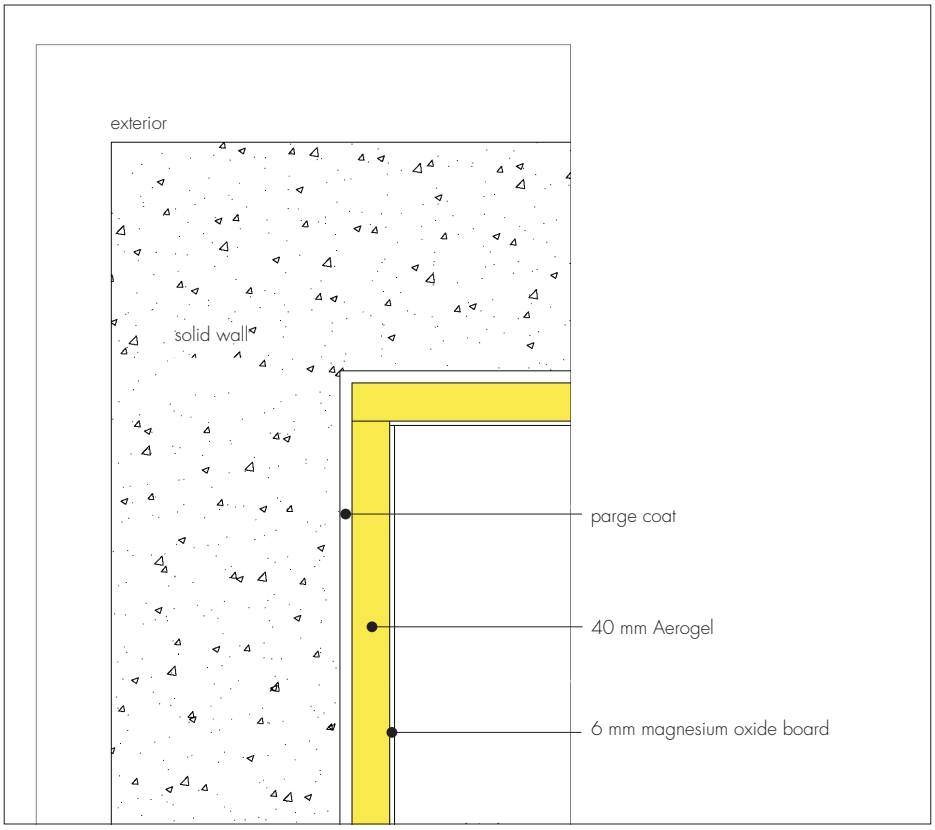


16.10 Any gaps between the ceiling and the wall must be filled using expanded foam.

Corners

16.11 In order to ensure insulated corners, the systems are cut as shown in Figure 3.

Figure 3 Corner detail

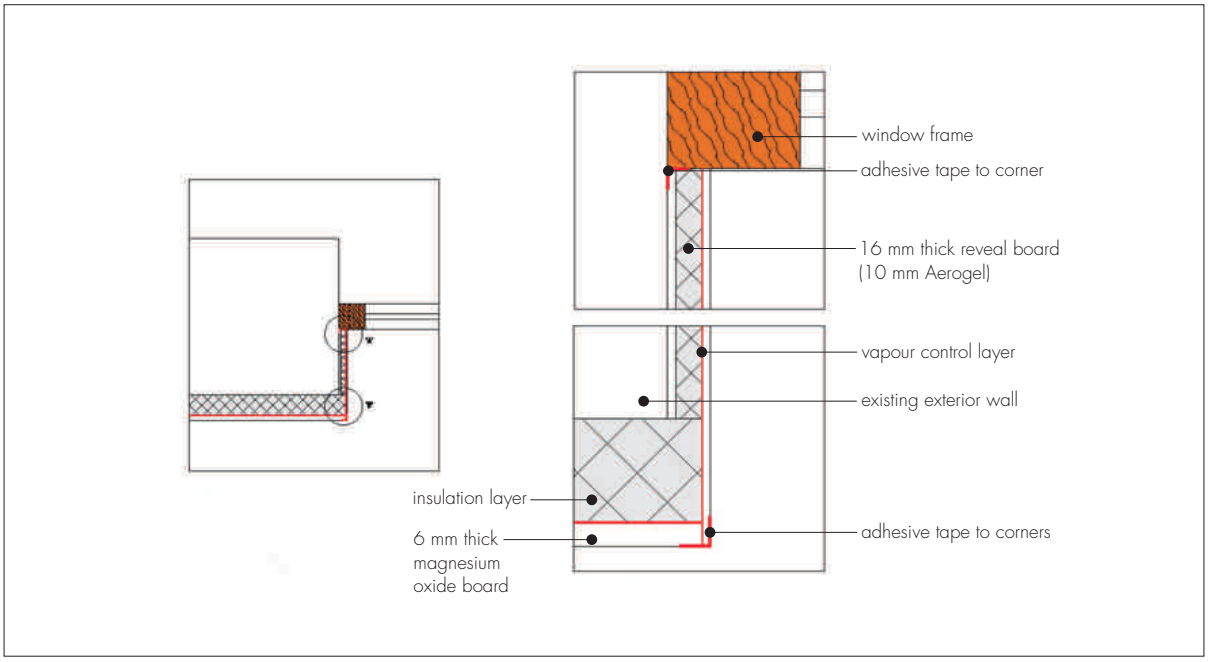


Window reveal

16.12 Where there is a window, it is advisable to start with the straight edge of the systems lining up with the reveal. For extra support the 'L' bracket is fixed around the edge of the window.

16.13 The insulation is fitted flush with the reveal, and the magnesium oxide board is allowed to continue past the reveal by 16 mm to allow for the fitting of the Thermablok Aerogel ThermaSlim Reveal as shown in Figure 4.

Figure 4 Thermablok Aerogel ThermaSlim Reveal



Finishing

16.14 Joints between the systems are treated with a self-adhesive scrim tape, and primer applied. Once the primer coat is dry, the skim coat is applied as soon as possible.

Wet room application

16.15 For use in wet rooms, the Certificate holder's recommendations should be followed. Thermablok Aerogel Thermaslim Systems should be used, following the fixing instructions given in sections 16.3 to 16.10.

Technical Investigations

17 Tests

The following tests were carried out on the Thermablok Aerogel ThermaSlim Internal Wall Insulation Systems:

- adhesion of the insulation to the magnesium oxide board
- bond strength of the systems.

18 Investigations

18.1 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of materials used.

18.2 The fire classifications of each component of the Thermablok systems were investigated.

18.3 The various insulation boards were checked against their respective Standards.

18.4 Thermal performance and condensation risk analyses were carried out.

Bibliography

BS 5250 : 2011 *Code of practice for control of condensation in buildings*

BS 6576 : 2005 *Code of practice for diagnosis of rising damp in walls of buildings and installation of chemical damp-proof courses*

BS 7671 : 2008 *Requirements for electrical installations — IEE Wiring Regulations — Seventeenth Edition*

BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*

BS EN 1996-1-1 : 2005 *Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
NA to BS EN 1996-1-1 : 2005 *UK National Annex to Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
BS EN 1996-1-2 : 2005 *Eurocode 6 : Design of masonry structures — General rules — Structural fire design*
NA to BS EN 1996-1-2 : 2005 *UK National Annex to Eurocode 6 : Design of masonry structures — General rules — Structural fire design*
BS EN 1996-2 : 2006 *Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
NA to BS EN 1996-2 : 2006 *UK National Annex to Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
BS EN 1996-3 : 2006 *Eurocode 6 : Design of masonry structures : Simplified calculation methods for unreinforced masonry structures*
NA to BS EN 1996-3 : 2006 *UK National Annex to Eurocode 6 : Design of masonry structures : Simplified calculation methods for unreinforced masonry structures*

BS EN 13501-1 : 2007 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

BS EN 15026 : 2007 *Hygrothermal performance of building components and building elements — Assessment of moisture transfer by numerical simulation*

BS EN ISO 6946 : 2007 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

BS EN ISO 10456 : 2007 *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values*

BRE Report (BR 262 : 2002) *Thermal insulation: avoiding risks*

BRE Report (BR 443 : 2006) *Conventions for U-value calculations*

19 Conditions

19.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

19.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

19.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

19.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

19.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

19.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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