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Agrément Certificate

22/6335

Product Sheet 1

ROCKWOOL CAVITY WALL INSULATION

THERMAL INSULATION CAVITY SLAB 032 FOR FULL FILL APPLICATION

This Agrément Certificate Product Sheet⁽¹⁾ relates to Thermal Insulation Cavity Slab 032 for Full Fill Application, unfaced stone mineral wool slabs for use as full fill thermal insulation in external masonry cavity walls up to 25 metres in height, in new domestic and non-domestic buildings (additional requirements apply for buildings above 12 metres). The product is installed during construction.

(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 product has a declared thermal conductivity (λ_D) of $0.032 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (see section 6).

Water resistance — the product will resist the transfer of water across the cavity (see section 7).

Condensation — the product can contribute to limiting the risk of condensation (see section 8).

Behaviour in relation to fire — the product has a reaction to fire classification of A1 to BS EN 13501-1 : 2018 (see section 9).

Durability — the product is durable, rot proof, water resistant and sufficiently stable to remain effective as insulation for the life of the building (see section 12).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 20 September 2022

Hardy Giesler
Chief Executive Officer

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 MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.*

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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Regulations

In the opinion of the BBA, Thermal Insulation Cavity Slab 032 for Full Fill Application, 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: Comment:	B3(4)	Internal fire spread (structure) The product can contribute to satisfying this Requirement. See section 9.1 of this Certificate.
Requirement: Comment:	B4(1)	External fire spread The product is unrestricted by this Requirement. See section 9.1 of this Certificate.
Requirement: Comment:	C2(a)	Resistance to moisture The product can contribute to satisfying this Requirement. See section 7.1 of this Certificate.
Requirement: Comment:	C2(b)	Resistance to moisture The product can contribute to satisfying this Requirement. See section 7.2 of this Certificate.
Requirement: Comment:	C2(c)	Resistance to moisture The product can contribute to satisfying this Requirement. See sections 8.1, 8.2 and 8.4 of this Certificate.
Requirement: Comment:	L1(a)(i)	Conservation of fuel and power The product can contribute to satisfying this Requirement. See sections 6.1 and 6.2 of this Certificate.
Regulation: Comment:	7(1)	Materials and workmanship The product is an acceptable material. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation: Comment:	7(2)	Materials and workmanship The product is unrestricted by this Regulation. See section 9.1 of this Certificate.
Regulation:	26	CO₂ 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)
Regulation:	26C	Target primary energy rates for new buildings (applicable to England only)
Comment:		The product can contribute to satisfying these Regulations. See sections 6.1 and 6.2 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: Comment:	8(1)	Fitness and durability of materials and workmanship The product can contribute to a construction satisfying this Regulation. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation: Comment:	8(3)	Fitness and durability of materials and workmanship The product is unrestricted by this Regulation. See section 9.1 of this Certificate.

Regulation:	9	Building standards applicable to construction
Standard:	2.4	Cavities
Comment:		The product can contribute to a construction satisfying this Standard, with reference to clauses 2.4.2 ⁽¹⁾⁽²⁾ , 2.4.4 ⁽¹⁾ and 2.4.6 ⁽²⁾ . See section 9.1 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product can contribute to satisfying the requirements of this Standard, with reference to clauses 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See section 9.1 of this Certificate.
Standard:	3.4	Moisture from the ground
Comment:		The product can contribute to a construction satisfying this Standard, with reference to clauses 3.4.1 ⁽¹⁾⁽²⁾ and 3.4.5 ⁽¹⁾⁽²⁾ . See section 7.1 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.3 ⁽¹⁾⁽²⁾ . See section 7.2 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.4 ⁽¹⁾⁽²⁾ and 3.15.5 ⁽¹⁾⁽²⁾ . See sections 8.1, 8.2 and 8.5 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying clauses, or parts of, 6.1.1 ⁽¹⁾ , 6.1.2 ⁽²⁾ , 6.1.6 ⁽¹⁾ , 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽²⁾ , 6.2.5 ⁽²⁾ , 6.2.9 ⁽¹⁾ , 6.2.10 ⁽¹⁾ , 6.2.11 ⁽¹⁾⁽²⁾ and 6.2.13 ⁽²⁾ of these Standards. See sections 6.1 and 6.2 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The product 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 product 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 and 2], 7.1.6 ⁽¹⁾ [Aspects 1 and 2], 7.1.7 ⁽¹⁾ [Aspect 1], 7.1.6 ⁽²⁾ [Aspects 1 and 2], 7.1.9 ⁽²⁾ [Aspects 1 and 2] and 7.1.10 ⁽²⁾ [Aspect 1]. See sections 6.1 and 6.2 of this Certificate.
Regulation:	12	Building standards applicable to conversions
Comment:		Comments in relation to the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ .

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).



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

Regulation:	23	Fitness of materials and workmanship
Comment:		The product is an acceptable material. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	28(a)	Resistance to moisture and weather
Comment:		The product can contribute to a construction satisfying this Regulation. See section 7.1 of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The product can contribute to satisfying this Regulation. See section 7.2 of this Certificate.
Regulation:	29	Condensation
Comment:		The product can contribute to satisfying this Regulation. See sections 8.1 and 8.2 of this Certificate.

Regulation:	35(4)	Internal fire spread – structure
Comment:		The product can contribute to satisfying this Regulation. See section 9.1 of this Certificate.
Regulation:	36(a)	External fire spread
Comment:		The product is unrestricted by this Regulation. See section 9.1 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Regulation:	40(2)	Target carbon dioxide emission rate
Comment:		The product can contribute to satisfying these Regulations. See sections 6.1 and 6.2 of this Certificate.

Construction (Design and Management) Regulations 2015 Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.3) of this Certificate.

Additional Information

NHBC Standards 2022

In the opinion of the BBA, Thermal Insulation Cavity Slab 032 for Full Fill Application, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 6.1 *External masonry walls*.

UKCA marking

The Certificate holder has taken the responsibility of UKCA marking the product in accordance with Designated Standard EN 13162 : 2012 + A1 : 2015.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard EN 13162 : 2012 + A1 : 2015.

Technical Specification

1 Description

Thermal Insulation Cavity Slab 032 for Full Fill Application consists of a water-repellent-treated stone mineral wool, formed into slabs using a resin binder, with the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Thermal Insulation Cavity Slab 032
Length (mm)	1200
Width (mm)	455
Thickness (mm)	100, 125, 150 & 200 ⁽¹⁾
Edge profile	Square

(1) Other slab thicknesses within the above range are available on request.

2 Manufacture

2.1 Raw materials, mixed to a controlled formulation, are melted in a furnace to produce molten stone. Stone fibres are produced from the molten stone using a rotary spinning process. The fibres are treated with a resin and formed into a continuous length of insulation to the required thickness. The insulation then passes into an oven which cures the resin. The insulation is then cut to the required dimensions to form the slabs.

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 ISO 9001 : 2015 and ISO 14001 : 2015 by BSI (Certificates FM 02262 and EMS 70301 respectively).

3 Delivery and site handling

3.1 The slabs are delivered to site in polythene-wrapped packs. Each pack contains a label bearing the Certificate holder's name, batten dimensions and the BBA logo incorporating the number of this Certificate.

3.2 The slabs should be stored clear of the ground, on a clean level surface and preferably under cover to protect them from prolonged exposure to moisture or mechanical damage. Packs should be stored under cover until required for use.

3.3 It is recommended that dust masks, gloves and long-sleeved clothing are worn during the cutting and handling of the product.

3.4 Damaged or contaminated products must not be used. Wet slabs must be allowed to fully dry out before use.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Thermal Insulation Cavity Slab 032 for Full Fill Application.

Design Considerations

4 Use

4.1 Thermal Insulation Cavity Slab 032 for Full Fill Application is satisfactory for use as full fill cavity wall insulation and is used to reduce the thermal transmittance (U value) of external cavity walls with masonry inner and outer leaves (where masonry includes clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks). The product is for use in new domestic and non-domestic buildings up to and including 25 metres in height (although additional requirements apply above 12 metres in height). It is essential that walls are designed and constructed to incorporate the precautions given in this Certificate to prevent moisture penetration.

4.2 Two or three layers of slabs can also be installed if necessary, in order to achieve the required U values (see section 6.2). In this case, vertical joints between the outer slabs must be staggered to those of the inner slabs.

4.3 This Certificate covers the use of the product for full fill in any exposure zone. However, use of the product does not preclude the need to apply any external render coat or other suitable finish in severe, or very severe, exposure zones where such application would be normal practice.

4.4 As with other forms of cavity wall insulation, where buildings need to comply with *NHBC Standards 2022*, specifiers should observe the requirements of that document.

4.5 Buildings subject to the national Building Regulations should be 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 UK National Annexes
- BS EN 845-1 : 2013 and BS 8000-3 : 2020.

4.6 New buildings not subject to regulatory requirements should also be built in accordance with the Standards identified in section 4.5.

4.7 Cavity wall ties and, if required, any additional ties to BS EN 845-1 : 2013 and PD 6697 : 2019 should be used for structural stability in accordance with BS EN 1996-1-1 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006.

4.8 Care must be taken in the overall design and construction of walls incorporating the product to ensure the provision of appropriate:

- cavity trays and damp-proof courses (dpc).
- cavity barriers.
- resistance to the ingress of precipitation, moisture and dangerous gases from the ground.
- resistance to sound transmission when flanking separating walls and floors.

Buildings up to and including 12 m in height

4.9 The following design conditions must be ensured:

- the insulation completely fills the cavity
- the insulation thickness remains constant where possible. Should any change in vertical thickness occur, a horizontal damp-proof cavity tray should separate each thickness change
- a minimum thickness of 50 mm is maintained where possible. Where, for structural reasons, the insulation thickness is reduced, eg by the intrusion of ring beams, a minimum thickness of 25 mm insulation should be maintained and the manufacturer's advice on fixing and weatherproofing sought.

Buildings over 12 metres high and up to and including 25 metres high

4.10 Where the walls of a building are between 12 and 25 metres high, the following requirements also apply:

- from ground level, the maximum height of a continuous cavity must not exceed 12 metres. Above 12 metres, the maximum height of a continuous cavity must not exceed 7 metres. In both cases, breaks should be in the form of continuous horizontal cavity trays and weepholes discharging to the outside
- the Certificate holder, in association with the architect, must carry out a detailed programme of assessment of the project including an examination of the quality of installation as work progresses. Above average site supervision is recommended during installation.

5 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

6 Thermal performance



6.1 Calculations of the thermal transmittance (U value) of specific external wall constructions should be carried out in accordance with BS EN ISO 6946 : 2017 and BRE Report BR 443 : 2019, using the declared thermal conductivity (λ_D) of $0.032 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$.

6.2 The U value of a completed wall will depend on the insulation thickness, number and type of fixings, and the insulating value of the substrate masonry and its internal finish. Calculated U values for example constructions are given in Table 2.

Table 2 Example U values⁽¹⁾⁽⁶⁾

U value requirement (W·m ⁻² ·K ⁻¹)	Insulation thickness (mm)	
	100 mm dense block ⁽²⁾ 13 mm dense plaster ⁽³⁾	100 mm AAC block ⁽⁴⁾ Plasterboard on dabs ⁽⁵⁾
0.17	200	150
0.18	200	150
0.20	150	125
0.21	150	125
0.22	150	125
0.23	125	100
0.25	125	100
0.26	125	100
0.27	125	100
0.28	100	100
0.30	100	100
0.35	100	100

(1) Assumes fixing correction for fully penetrating stainless steel fixings ($\lambda = 17 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) at 2.5 per m² with a cross-sectional area of 12.5 mm². Construction includes a 102.5 mm thick brick ($\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) outer leaf.

(2) Dense block ($\lambda = 1.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) and mortar ($\lambda = 0.88 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$), at 6.6%.

(3) Plaster ($\lambda = 0.57 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

(4) AAC block ($\lambda = 0.12 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) and mortar ($\lambda = 0.88 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$), at 6.6%.

(5) 15 mm plaster dabs cavity ($R = 0.17 \text{ m}^2\cdot\text{K}/\text{W}$) 20% bridged with adhesive ($\lambda = 0.43 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$), 12.5 mm plasterboard ($\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

(6) The Certificate holder should be contacted for further information on sizes and specific U value examples.

Junctions

6.3 The product can contribute to maintaining continuity of thermal insulation at junctions with other elements and minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations.

7 Water resistance



7.1 The product may be used in situations where it bridges the dpc in walls; dampness from the ground will not pass through to the inner leaf provided the wall is detailed in accordance with the requirements and provisions of the national Building Regulations.

7.2 Constructions incorporating the product and built in accordance with the Standards listed in section 4.5, will resist the transfer of precipitation to the inner leaf and satisfy the national Building Regulations.

7.3 In all situations, it is particularly important to ensure during installation that:

- installation is carried out to the highest level on each wall, or the top edge of the insulation is protected by a cavity tray
- cavity trays are used with appropriate stop ends and weep holes at lintel level
- cavity battens and/or boards are used during construction to prevent bridging by mortar droppings
- wall ties are installed correctly and are thoroughly clean
- excess mortar is cleaned from the cavity face of the leading leaf and any debris removed from the cavity
- mortar droppings are cleaned from the exposed edges of installed slabs
- the dpc at ground level does not project into the cavity as it can form a trap for mortar bridging
- insulation slabs are properly installed and butt-jointed
- raked or recessed mortar joints are avoided in very severe exposure areas.

7.4 Window and door opening reveals should be constructed incorporating a cavity barrier/closer/dpc, as required.

8 Condensation

Interstitial condensation



8.1 Walls will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2021, and the relevant guidance.

8.2 For the purposes of assessing the risk of interstitial condensation, the insulation vapour resistivity may be taken as approximately $5 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}\cdot\text{m}^{-1}$.

8.3 If the product is to be used in the external walls of rooms expected to have high humidity, care must be taken to provide adequate ventilation to avoid possible problems from the formation of interstitial condensation.

Surface condensation



8.4 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed $0.7 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ at any point and the junctions with other elements are designed in accordance with the guidance referred to in section 6.3.



8.5 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) does not exceed $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ at any point and the junctions with other elements are designed in accordance with the guidance referred to in BS 5250 : 2021. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6.3 of this Certificate.

9 Behaviour in relation to fire



9.1 The product has a reaction to fire classification⁽¹⁾ of A1 to BS EN 13501-1 : 2018.

(1) MPA NRW report No. 231001026-3, dated 9 November 2020, is available from the Certificate holder on request.

9.2 Designers should refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, cavity closers and barriers, fire stopping of service penetrations and combustibility limitations for other materials and components used in the overall wall construction.

10 Proximity of flues and appliances

Detailed guidance can be found in the documents supporting the national Building Regulations for the provisions that are applicable when the product is installed in close proximity to certain flue pipes and/or heat-producing appliances.

11 Maintenance

As the product is confined within the wall cavity and has suitable durability (see section 12), maintenance is not required.

12 Durability



The product is durable, rot proof, water resistant and sufficiently stable to remain effective as insulation for the life of the building.

13 General

13.1 The Certificate holder will provide on-site demonstrations on request, to ensure correct installation from the outset.

13.2 Adequate supervision of the installation should be maintained and the Certificate holder must have right of access to site to ensure correct installation.

13.3 It is recommended that the internal leaf is constructed ahead of the external leaf so that any mortar protruding into the cavity space from the back of the external leaf can be cleaned off before installing the product. Slabs must not be pushed into a completed cavity.

13.4 Vertical joints in the slabs must be staggered and all joints tightly butted. Where penetrations occur in the cavity, the slabs should be carefully cut to fit.

13.5 If installation of the slabs is terminated below the highest level of the wall, the top edge of the insulation must be protected by a cavity tray and alternate perpend joints raked out, to provide adequate drainage of water from the tray.

13.6 Where required, door and window reveals should incorporate a cavity barrier/closer. It is recommended that BBA-approved cavity barriers/closers are used.

14 Procedure

14.1 The first run of slabs should start at least 150 mm below the dpc level to provide some edge insulation for the floor. It is important that the slabs are not in contact with the ground. Slabs must fit flush against the internal leaf, with a maximum 10 mm residual cavity if required, between the insulation slab and the external wall leaf.

Wall ties

14.2 Wall ties should be spaced at maximum 900 mm centres horizontally and 450 mm vertically. The width of the first course of slabs can be cut to suit the height of the next row of wall ties. The width of cut slabs should always be 5 mm greater than the width to be insulated.

14.3 Wall ties should be built in and not pushed into joints; they should be positioned so that they slope downwards towards the outer leaf.

14.4 Additional ties may be required to satisfy the structural requirements and/or to ensure adequate retention of slabs or cut pieces.

14.5 A complete section of the leading leaf is built to one course above the next row of wall ties spaced at a maximum of 900 mm horizontally (Figure 1), to ensure that each slab is secured at a minimum of three points in accordance with BS EN 1996-1-2 : 2005. All mortar joints must be properly filled, particularly the perpend (see Figure 1).

Figure 1 Wall tie positioning



14.6 Slabs are compressed slightly and placed between the upper and lower wall ties to form a closely jointed run.

Mortar droppings

14.7 Before installing each course of slabs, excess mortar must be removed from the inside face of the leading leaf, and mortar droppings cleaned from the exposed edges of the slabs. This is made easier using a cavity board (Figure 2). This cleaning sequence should be maintained progressively until reaching the wall plate or cavity tray. It is important for the insulation to be installed to the highest level of each wall, with all areas of the wall insulated (see section 13.5).

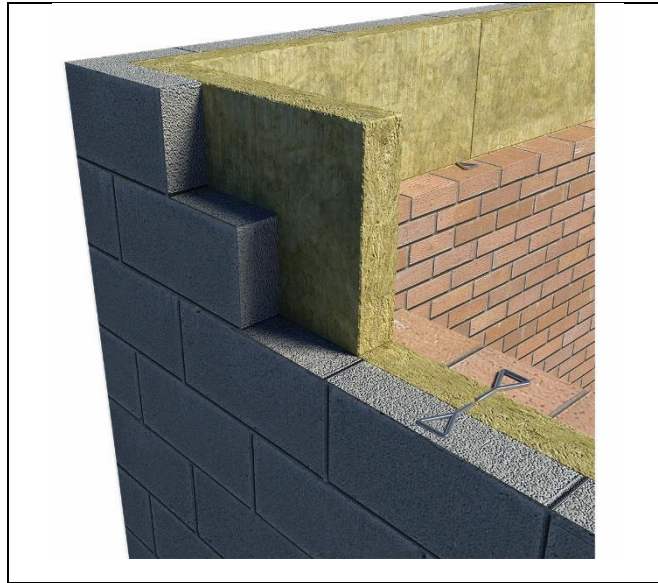
Figure 2 Use of a cavity board when clearing off mortar



Corners

14.8 At corner joints, edges must be cut accurately to ensure close butting (see Figure 3).

Figure 3 Slabs at corner detail



Wall openings

14.9 With openings such as doors and windows, it is recommended that a continuous lintel or cavity tray is used. Individual lintels or cavity trays should have stopends and be adequately drained. Slabs should be cut to butt tightly against the cavity barrier/closer/dpc or wall ties.

Cut pieces

14.10 The slabs must be cut cleanly, using a sharp, long-bladed knife and a straight edge. It is essential that cut pieces of slab completely fill the spaces for which they are intended and are adequately secured; gaps must not be left in the insulation.

14.11 It is essential that all the joints between the insulation slabs are clean and tightly butted.

14.12 The second leaf is built up to the same level as the slabs.

14.13 This sequence is repeated to the top of the wall. Alternatively, the top of the slabs can be protected by using a cavity tray.

Multi layering (when required)

14.14 Where two or three layers of the insulation slabs are used, a similar procedure must be followed as for the single layer (see sections 14.1 to 14.14). The first layer is fitted against the outer masonry leaf followed by the second and, if relevant, third layer.

14.15 When multi layering, the vertical joints between the outer slabs must be staggered to those of the inner slabs.

14.16 For cavities exceeding 150 mm, the Certificate holder's instructions must be followed regarding the type of ties to be used, and the installation should be carried out in accordance with BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006.

Figure 4 Multi layering



Protection

14.17 Exposed areas of slabs should always be covered at the end of the day's work or in driving rain.

14.18 All building involving the product, particularly interrupted work, must conform to BS EN 1996-2 : 2006, clauses 3.2 *Acceptance, handling and storage of materials* and 3.6 *Curing and protective procedures during execution*.

Technical Investigations

15 Tests

Results of tests were assessed to determine:

- resistance to rain penetration of an insulated cavity wall
- reaction to fire
- thermal conductivity
- water absorption
- density of air-dry slabs
- dimensional accuracy
- dimension stability.

16 Investigations

16.1 Existing data on material safety, durability, and properties in relation to fire were evaluated.

16.2 A condensation risk analysis was carried out.

16.3 A series of U value calculations were carried out.

16.4 Calculations were undertaken to confirm the thermal conductivity value (λ_D).

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

Bibliography

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

BRE Report BR 443 : 2019 *Conventions for U-value calculations*

BS 5250 : 2021 *Management of moisture in buildings — Code of practice*

BS 8000-3 : 2020 *Workmanship on building sites — Code of practice for masonry*

BS EN 845-1 : 2013 + A1 : 2016 *Specification for ancillary components for masonry — Wall ties, tension straps, hangers and brackets*

BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

NA to BS EN 1996-1-1 : 2005 + A1 : 2012 *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 : 2018 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

BS EN ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

EN 13162 : 2012 + A1 : 2015 *Thermal insulation products for buildings — Factory made mineral wool (MW) products — Specification*

ISO 9001 : 2015 *Quality management systems — Requirements*

ISO 14001 : 2015 *Environmental Management systems — Requirements with guidance for use*

PD 6697 : 2019 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

17 Conditions

17.1 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.

17.2 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.

17.3 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.

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

17.5 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.

17.6 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.