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Agrément Certificate
09/4624
Product Sheet 2 Issue 5

URSA CAVITY WALL INSULATION

URSA CAVITY BATT 32 INSULATION FOR FULL FILL APPLICATION

This Agrément Certificate Product Sheet(1) relates to URSA Cavity Batt 32 Insulation for Full Fill Application, a lightweight, unfaced glass mineral wool slab, for use as full fill thermal insulation in new external masonry cavity walls up to 25 metres in height in domestic and non-domestic buildings. Additional requirements apply for buildings above 12 metres in height.

(1) Hereinafter referred to as 'Certificate'.

The assessment includes

Product factors:

- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

Process factors:

- compliance with Scheme requirements
- installation, delivery, handling and storage
- production and quality controls
- maintenance and repair

Ongoing contractual Scheme elements†:

- regular assessment of production
- formal 3-yearly review

KEY FACTORS ASSESSED

Section 1. Mechanical resistance and stability
Section 2. Safety in case of fire
Section 3. Hygiene, health and the environment
Section 4. Safety and accessibility in use
Section 5. Protection against noise
Section 6. Energy economy and heat retention
Section 7. Sustainable use of natural resources
Section 8. Durability

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 Fifth issue: 25 April 2024

Hardy Giesler
Chief Executive Officer

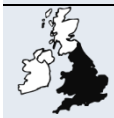
Originally certified on 7 August 2009
Certificate amended on 24 June 2024 to update Section 9.1.9.

SUMMARY OF ASSESSMENT AND COMPLIANCE

This section provides a summary of the assessment conclusions; readers should refer to the later sections of this Certificate for information about the assessments carried out.

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that URSA Cavity Batt 32 Insulation 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 Building Regulations 2010 (England and Wales) (as amended)

Requirement:	**B3(4)**	**Internal fire spread (structure)**
Comment:		The product can contribute to satisfying this Requirement. See section 2 of this Certificate.
Requirement:	**B4(1)**	**External fire spread**
Comment:		The product is unrestricted by this Requirement. See section 2 of this Certificate.
Requirement:	**C2(a)**	**Resistance to moisture**
Comment:		The product can contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The product can contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The product can contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement:	**L1(a)(i)**	**Conservation of fuel and power**
Comment:		The product can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**7(2)**	**Materials and workmanship**
Comment:		The product is unrestricted by this Regulation. See section 2 of this Certificate.
Regulation:	**25B**	**Nearly zero-energy requirements for new buildings**
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 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)**
Regulation:	**26C**	**Energy efficiency rating (applicable to Wales only)**
Comment:		The product can contribute to satisfying these Regulations. See section 6 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Fitness and durability of materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.

Regulation:	**9**	**Building standards – construction**
Standard:	2.4	Cavities
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 2.4.2(1)(2), 2.4.4(1) and 2.4.6(2). See section 2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product is unrestricted by this Standard, with reference to clauses 2.6.5(1) and 2.6.6(2). See section 2 of this Certificate.
Standard:	3.4	Moisture from the ground
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.4.1(1)(2) and 3.4.5(1)(2). See section 3 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 3 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 section 3 of this Certificate.
Standard:	6.1(b)(c)	Energy demand
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 6.1.1(1) and 6.1.2(2). See section 6 of this Certificate.
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 6.2.1(1)(2), 6.2.3(1), 6.2.4(2), 6.2.8(1), 6.2.9(2) and 6.2.12(1). See section 6 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), 7.1.6(1)(2), 7.1.7(1), 7.1.9(2) and 7.1.10(2). See section 6 of this Certificate.
Regulation:	**12**	**Building standards – conversion**
Comment:		All comments given for 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(1)(a)(i)**	**Fitness of materials and workmanship**
Comment:	**(iii)(b)(i)(ii)**	The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**23(2)**	**Fitness of materials and workmanship**
Comment:		The product is unrestricted by this Regulation. See section 2 of this Certificate.
Regulation:	**28(a)**	**Resistance to moisture and weather**
Comment:		The product can contribute to satisfying this Regulation. See section 3 of this Certificate.

Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The product can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	**29**	**Condensation**
Comment:		The product can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	**35(4)**	**Internal fire spread – structure**
Comment:		The product can contribute to satisfying this Regulation. See section 2 of this Certificate.
Regulation:	**36(a)**	**External fire spread**
Comment:		The product is unrestricted by this Regulation. See section 2 of this Certificate.
Regulation:	**39(a)(i)**	**Conservation measures**
Comment:		The product can contribute to satisfying this Regulation. See section 6 of this Certificate.
Regulation:	**40(2)**	**Target carbon dioxide emission rate**
Regulation:	**43(1)(2)**	**Renovation of thermal elements**
Regulation:	**43B**	**Nearly zero-energy requirements for new buildings**
Comment:		The product can contribute to satisfying these Regulations. See section 6 of this Certificate.

Additional Information

NHBC Standards 2024

In the opinion of the BBA, URSA Cavity Batt 32 Insulation 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*.

Fulfilment of Requirements

The BBA has judged URSA Cavity Batt 32 Insulation for Full Fill Application to be satisfactory for use as described in this Certificate. The product has been assessed as full fill thermal insulation in new external masonry cavity walls up to 25 metres in height in domestic and non-domestic buildings. Additional requirements apply for buildings above 12 metres in height.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the product under assessment. URSA Cavity Batt 32 Insulation for Full Fill Application comprises an olive green, glass mineral wool slab of homogeneous texture which has been treated with a silicon-based, water-repellent additive.

The product has the nominal characteristics given in Table 1.

Table 1 Nominal characteristics of URSA Cavity Batt 32 Insulation for Full Fill Application

Characteristic (unit)	Value
Length (mm)	1350
Width (mm)	455
Thickness (mm)	75, 85, 100, 125, 150, 175 and 200
Density (kg·m^3)	32

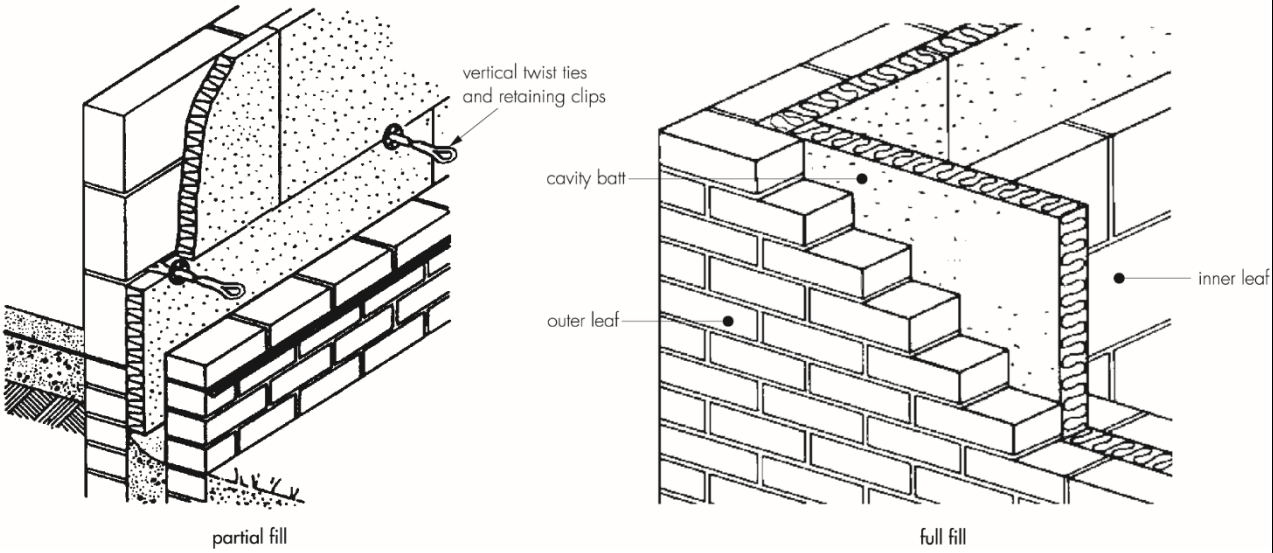
Ancillary Items

The Certificate holder recommends cavity wall ties with insulation-retaining fixings to BS EN 845-1 : 2013 as ancillary items for use with the product, but these materials have not been assessed by the BBA and are outside the scope of this Certificate.

Applications

The product is intended for use as full fill thermal insulation in external cavity walls with masonry inner and outer leaves (where masonry includes clay and calcium silicate bricks, concrete blocks, reinforced concrete, and natural and reconstituted stone blocks), as shown in Figure 1.

Figure 1 Full fill cavity insulation



Product assessment – key factors

The product was assessed for the following key factors, and the outcome of the assessments is shown below. Conclusions relating to the Building Regulations apply to the whole of the UK unless otherwise stated.

1 Mechanical resistance and stability

Not applicable.

2 Safety in case of fire

Data were assessed for the following characteristic.

2.1 Reaction to fire

2.1.1 The product was tested for reaction to fire and the classification is given in Table 2.

Table 2 Reaction to fire classification

Product assessed	Assessment method	Requirement	Result
URSA Cavity Batt 32(1)	BS EN 13501-1 : 2018	Value achieved	A1

(1) Fire classification report RA20-0276, issued by CSTB, 22 April 2022. The classification is valid for the following product parameters: nominal thickness ≥ 20 mm, nominal density 11 – 32 kg·m^{-3}.

2.1.2 On the basis of data assessed, the product will be unrestricted in terms of building height and proximity to a relevant boundary under the documents supporting the national Building Regulations.

2.1.3 Designers must 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.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Effectiveness against rising damp

3.1.1 The product was tested for short term water absorption by partial immersion and the result is given in Table 3.

Table 3 Short term water absorption by partial immersion

Product assessed	Assessment method	Requirement	Result
URSA Cavity Batt 32	BS EN 1609 : 2013	≤ 1.0 $kg \cdot m^{-2}$	Pass

3.1.2 On the basis of data assessed, the product may be used in situations where it bridges the damp-proof course (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.

3.2 Weathertightness

3.2.1 A rain penetration test was carried out and the result is given in Table 4.

Table 4 Rain penetration test

Product assessed	Assessment method	Requirement	Result
URSA Cavity Batt 32	BBA wet wall test method	No water transfer to inner skin	Pass

3.2.2 On the basis of data assessed, constructions incorporating the product, and built in accordance with the Standards and requirements listed in section 9 of this Certificate, will resist the transfer of precipitation to the inner leaf and satisfy the requirements of the national Building Regulations.

3.3 Water vapour permeability

3.3.1 The product was assessed for water vapour permeability and the result is given in Table 5.

Table 5 Water vapour resistivity

Product assessed	Assessment method	Requirement	Result
URSA Cavity Batt 32	BS EN ISO 10456 : 2007	Declared value	5 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$

3.3.2 For the purposes of assessing the risk of interstitial condensation, the water vapour resistivity value may be taken as stated in Table 5.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Data were assessed for the following characteristics.

6.1 Thermal conductivity

The product was tested for thermal conductivity and the result is given in Table 6.

Table 6 Thermal conductivity

Product assessed	Assessment method	Requirement	Result
URSA Cavity Batt 32 (all thicknesses)	BS EN 13162 : 2012	Declared value (λ_D)	0.032 $W \cdot m^{-1} \cdot K^{-1}$

6.2 Conservation on fuel and power

6.2.1 The U value of a completed wall construction will depend on the insulation thickness, its location, the number and type of fixings, the wall structure, and its internal finish. Example U values are given in Table 7.

Table 7 Example U Values – full fill insulation(1)

Target U value ($W \cdot m^{-1} \cdot K^{-1}$)	Insulation thickness (mm)	
	13 mm dense plaster 100 mm dense block(2)	Plasterboard on dabs 100 mm AAC block(3)
0.13	225(4)	210(4)
0.15	200	170(4)
0.17	170(4)	150
0.18	160(4)	150
0.21	150	125
0.26	125	85
0.28	100	85
0.30	100	75
0.35	85	75

(1) The U value calculations are based on the following:
- wall ties: stainless steel (λ = 17 $W \cdot m^{-1} \cdot K^{-1}$), 2.5 per m^2, 12.5 mm^2 cross-section
- 103 mm brick (λ = 0.77 $W \cdot m^{-1} \cdot K^{-1}$) bridged by mortar (17.3%, λ = 0.94 $W \cdot m^{-1} \cdot K^{-1}$).

(2) 100 mm dense block (λ = 1.13 $W \cdot m^{-1} \cdot K^{-1}$) bridged by mortar (6.6%, λ = 0.88 $W \cdot m^{-1} \cdot K^{-1}$) and 13 mm dense plaster (λ = 0.57 $W \cdot m^{-1} \cdot K^{-1}$).

(3) 100 mm AAC block (λ = 0.12 $W \cdot m^{-1} \cdot K^{-1}$) bridged by mortar (6.6%, λ = 0.88 $W \cdot m^{-1} \cdot K^{-1}$) and 12.5 mm plasterboard (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$) on 15 mm air cavity (R = 0.170 $m^2 \cdot K \cdot W^{-1}$) bridged by adhesive dabs (20%, λ = 0.43 $W \cdot m^{-1} \cdot K^{-1}$).

(4) Thicknesses achieved with two layers of insulation.

6.2.2 On the basis of data assessed, the product can contribute towards a construction satisfying the national Building Regulations in respect of energy economy and heat retention.

7 Sustainable use of natural resources

Not applicable.

8 Durability

8.1 The potential mechanisms for degradation and the known performance characteristics of the materials in the product were assessed.

8.2 Specific test data were assessed as given in Table 8.

Table 8 Dimensional stability

Product assessed	Assessment method	Requirement	Result
URSA Cavity Batt 32	BS EN 1604 : 2013 (23°C and 90% RH for 48 hours)	Length, width and reduction in thickness ≤ 1% change	Pass

8.3 Service life

Under normal service conditions, the product will have a life at least equivalent to the structure in which it is incorporated, provided it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

PROCESS ASSESSMENT

Information provided by the Certificate holder was assessed for the following factors:

9 Design, installation, workmanship and maintenance

9.1 Design

9.1.1 The design process was assessed by the BBA, and the following requirements apply in order to satisfy the performance assessed in this Certificate.

9.1.2 External masonry cavity walls must be designed and constructed in accordance with the relevant recommendations of:

- BS 5250 : 2021
- BS 8000-3 : 2020
- BS EN 845-1 : 2013
- BS EN 1996-1-1 : 2005 and its UK National Annex
- BS EN 1996-1-2 : 2005 and its UK National Annex
- BS EN 1996-2 : 2006 and its UK National Annex
- BS EN 1996-3 : 2006 and its UK National Annex.

9.1.3 As with other forms of cavity wall insulation, where buildings need to comply with *NHBC Standards* 2024, specifiers should observe the requirements of that document.

9.1.4 Cavity wall ties with insulation-retaining fixings and, if required, any additional ties to BS EN 845-1 : 2013 must be used for structural stability in accordance with the principles of BS EN 1996-1-1 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006, and their UK National Annexes.

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

- cavity trays and DPCs
- cavity barriers and fire stopping
- resistance to the ingress of precipitation, moisture and dangerous gases from the ground
- resistance to sound transmission when flanking separating walls and floors.

9.1.6 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.

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

- from ground level, the maximum height of continuous cavity walls must not exceed 12 m; above 12 m, the maximum height of continuous cavity walls must not exceed 7 m. In both cases, breaks should be in the form of continuous horizontal cavity trays and weepholes discharging to the outside
- the area to be insulated must not be an infill panel in a framed structure
- 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.

9.1.8 Provided that external masonry cavity walls are designed and constructed to incorporate the precautions in this Certificate to prevent moisture penetration, the product will resist the transfer of precipitation to the inner leaf.

9.1.9 This Certificate covers the use of the product 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 exposure zones where such application would be normal practice.

9.1.10 Window and door opening reveals must be constructed incorporating a cavity barrier/closer/DPC, as required.

9.1.11 The detailed provisions given in the documents supporting the national Building Regulations for when the product is installed in close proximity to certain flue pipes and/or heat-producing appliances must be followed.

9.1.12 Calculations of the thermal transmittance (U value) of a wall must be carried out in accordance with BS EN ISO 6946 : 2017 and BRE Report BR 443 : 2019.

9.1.13 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.

Interstitial condensation

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

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

Surface condensation

9.1.16 In England and Wales, walls 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 9.1.13 of this Certificate.

9.1.17 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 : 2021. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 9.1.13 of this Certificate.

9.2 Installation

9.2.1 Installation instructions provided by the Certificate holder were assessed and judged to be appropriate and adequate.

9.2.2 Installation must be carried out in accordance with this Certificate and the Certificate holder's instructions. A summary of instructions and guidance is provided in Annex A of this Certificate.

9.2.3 The wall may be constructed leading with either leaf. It is good practice however to construct the outer leaf first as this allows the mortar joints on the cavity face to be cleaned and to check that the mortar joints are all fully filled.

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

9.2.5 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 of the masonry outer leaf joints raked out to provide adequate drainage of water from the tray.

9.2.6 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 weepholes 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
- insulation slabs are properly installed and butt jointed
- the DPC at ground level does not project into the cavity as it can form a trap for mortar bridging
- raked or recessed mortar joints are avoided in very severe exposure areas.

9.2.7 Partially completed walls must be protected from inclement weather (wind, rain and snow) and covered at the end of a day's work.

9.3 Workmanship

Practicability of installation was assessed by the BBA, on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, installation of the product must be carried out by a competent general builder, or a contractor, experienced with this type of product.

9.4 Maintenance and repair

As the product is contained within the wall cavity and has suitable durability, maintenance is not required.

10 Manufacture

10.1 The production processes for the product have been assessed, and provide assurance that the quality controls are satisfactory according to the following factors:

10.1.1 The manufacturer has provided documented information on the materials, processes, testing and control factors.

10.1.2 The quality control operated over batches of incoming materials has been assessed and deemed appropriate and adequate.

10.1.3 The quality control procedures and product testing to be undertaken have been assessed and deemed appropriate and adequate.

10.1.4 The process for management of non-conformities has been assessed and deemed appropriate and adequate.

10.1.5 An audit of each production location was undertaken, and it was confirmed that the production process was in accordance with the documented process, and that equipment has been properly tested and calibrated.

†10.2 The BBA has undertaken to review 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.

11 Delivery and site handling

11.1 The Certificate holder stated that the product is delivered to site in polythene-wrapped packs bearing a label including the Certificate holder's name, slab dimensions and the BBA logo incorporating the number of this Certificate.

11.2 Delivery and site handing must be performed in accordance with the Certificate holder's instructions and this Certificate, including:

11.2.1 The product must be stored clear of the ground on a clean, level surface and preferably under cover to protect it from prolonged exposure to moisture or mechanical damage.

11.2.2 It is recommended that dust masks, gloves and long-sleeved clothing are worn during cutting and handling the product. Large-scale machining should be connected to a dust-extraction system.

ANNEX A – SUPPLEMENTARY INFORMATION†

Supporting information in this Annex is relevant to the product but has not formed part of the material assessed for the 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.

UKCA marking

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

CE marking

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

Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by LGA (Certificate 01 100 1300949) and BS EN ISO 14001 : 2015 by BQA (Certificate BQA EMS C 2016673).

Additional information on installation

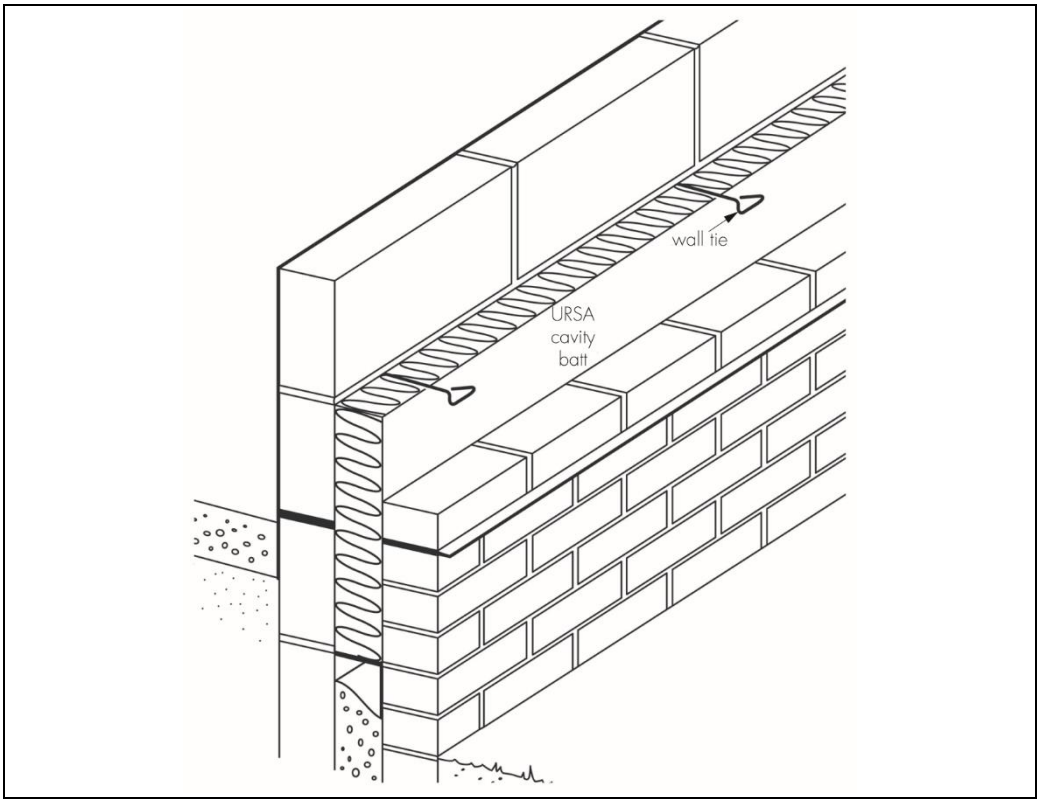
Installation must be in accordance with the Certificate holder's instructions and this Certificate. A summary of precautions and the procedure is provided below:

Procedure

A.1 It is good practice to construct the outer leaf first as this allows the mortar joints on the cavity face to be cleaned and to check that the mortar joints are all fully filled.

A.2 The first run of slabs may commence below DPC level to provide some edge insulation for the floor (see Figure 2).

Figure 2 Building in the first row of slabs



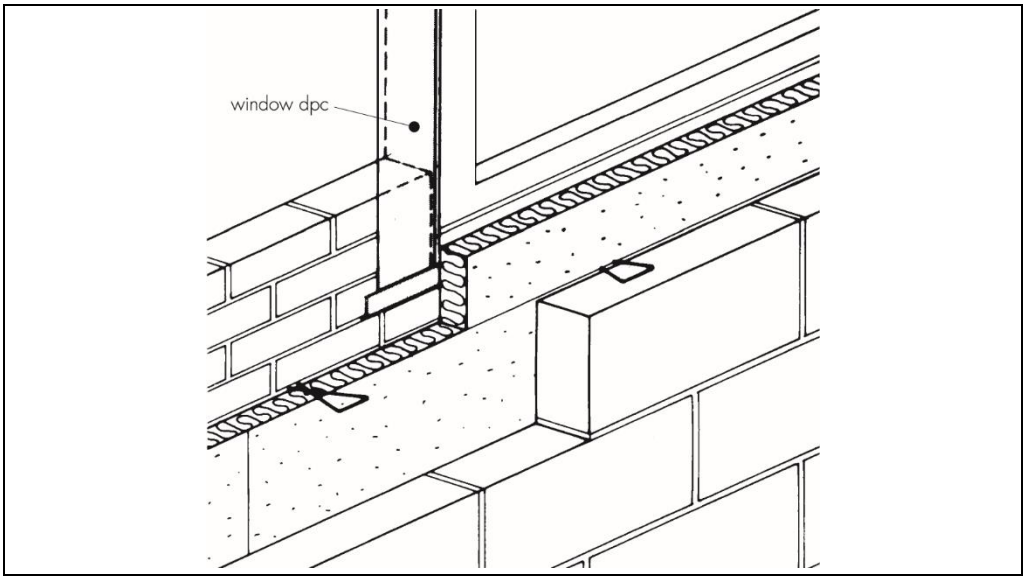
A.3 A section of the wall leaf is built up to a course above the next row of wall ties, which are placed at 450 mm spacing vertically and not more than 900 mm horizontally.

A.4 The product is placed between the upper and lower wall ties to form a closely butt-jointed run. It is essential that all wall ties slope downwards towards the outer leaf.

A.5 Additional ties (see Figure 3) may be required to satisfy the structural requirements of BS EN 845-1 : 2013, BS EN 1996-1-1 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006 to ensure adequate retention of slabs or cut pieces.

A.6 The product can be slit with a sharp knife to allow wall ties through.

Figure 3 Reveal details with double ties



A.7 The product can be cut with a knife, to fit around corners, windows, doors and air bricks. It is essential that it is cut accurately so that the cut pieces completely fill the spaces for which they are intended and that no gaps are left in the insulation.

A.8 The other leaf is then built up to the same level as the product, and the process repeated.

A.9 Walls are constructed in the conventional manner (see section 9).

A.10 Successive sections of wall, incorporating wall ties, are constructed and the product installed as work proceeds up to the required height.

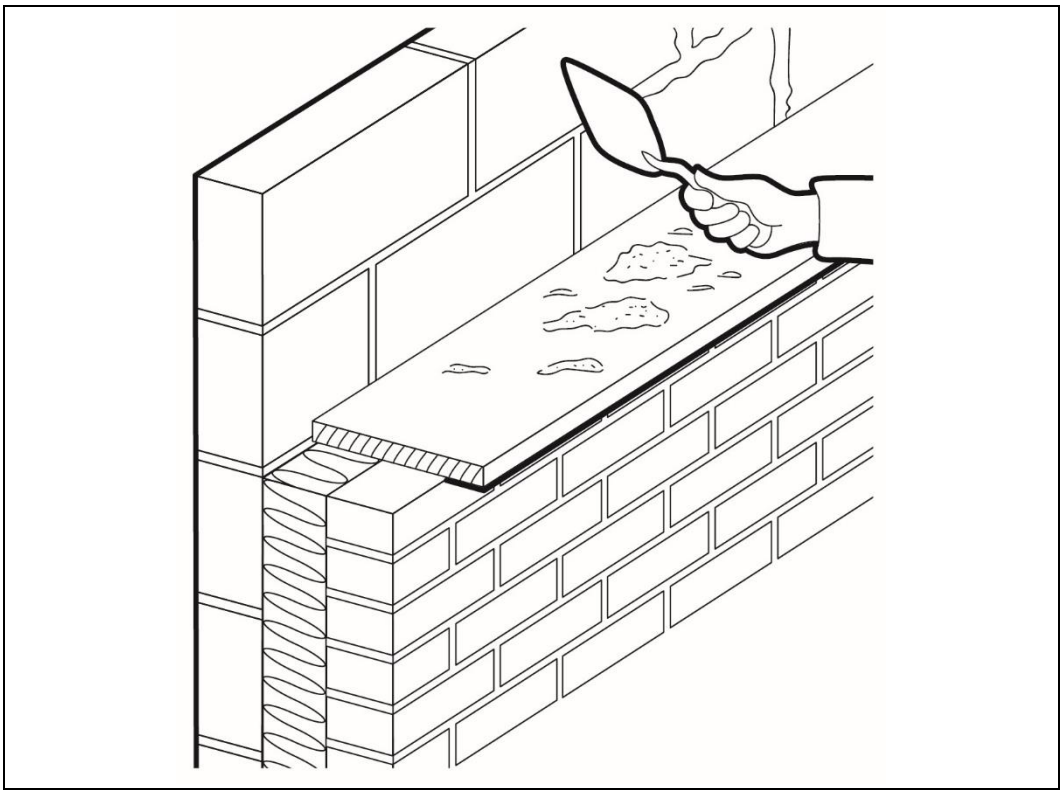
A.11 The two-layer insulation (see Table 7 of this Certificate) is identical to the single-layer insulation, but the vertical joints in the second layer must not coincide with the vertical joints in the first layer.

A.12 Multiple layering of insulation is acceptable if a very low U value is required. The joints in each layer must be staggered to ensure the best thermal performance.

Mortar droppings

A.13 After each section of the wall leaf is built, excess mortar should be removed, and mortar droppings cleaned from exposed edges of the installed product before installation of the next section. Use of a cavity board or a cavity batten will protect the installed board edges and help to keep the cavity clean as the following leaf is built (see Figure 4).

Figure 4 Use of cavity board or batten when cleaning off excess mortar

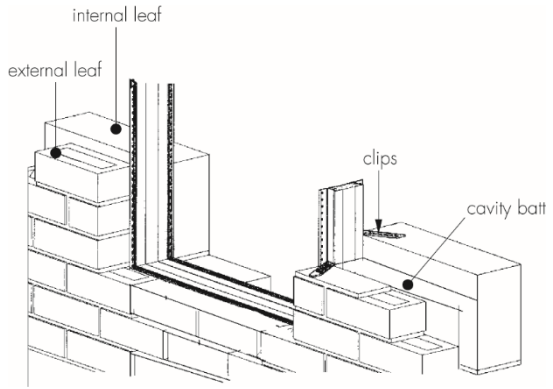


Wall openings

A.14 Where openings such as doors and windows are in close proximity, it is recommended that a continuous lintel or cavity tray is used. Damp-proofing at lintel level must be provided with stop-ends and be adequately drained. Insulation boards must be cut to butt tightly against the cavity barrier/closer/DPC.

A.15 Where required, door and window reveals should incorporate a cavity closer depending on the set-back of the frame (see Figure 5).

Figure 5 Reveal details with cavity closer



A.16 It is recommended that when the outer leaf is built, the inner face is in contact with the product and the permitted deviation in the cavity width is as shown in Table 9.

Table 9 Deviation in cavity width

Insulation thickness (mm)	Permitted deviation (mm)
75	75 to 90
85	85 to 100
100	100 to 115
125	125 to 140
150	150 to 170
175	175 to 195
200	200 to 220

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