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Agrément Certificate
96/3215
Product Sheet 1

VENCEL RESIL FULFIL CAVITY WALL INSULATION

JABFILL PREMIUM

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Jabfill Premium, an expanded polystyrene beadboard for use as thermal insulation in new external masonry cavity walls up to 12 m in height in domestic and non-domestic buildings.

AGRÉMENT 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 thermal conductivity ($\lambda_{90/90}$ value) of $0.030 \text{ Wm}^{-1}\text{K}^{-1}$ and calculations for 'typical' wall constructions indicate U values between $0.44 \text{ Wm}^{-2}\text{K}^{-1}$ and $0.27 \text{ Wm}^{-2}\text{K}^{-1}$ (see section 5).

Rain penetration — the product will resist water transfer across the cavity and may be used in any exposure zone in suitably constructed walls (see sections 3 and 6).

Condensation — the product will contribute to limiting the risk of condensation (see section 7).

Behaviour in relation to fire — the product is classified as 'combustible', but can be used in suitably designed walls. The boards are classified as class E reaction to fire in accordance with BS EN 13501-1 : 2007 and contain a flame-retardant additive (see section 8).

Durability — the product will have a life equivalent to that of the wall structure in which it is incorporated (see section 11).

The BBA has awarded this Agrément 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

Chris Hunt
Head of Approvals — Physics

Greg Cooper
Chief Executive

Date of First issue: 15 October 2008

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.

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In the opinion of the BBA, Jabfill Premium, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



The Building Regulations 2000 (as amended) (England and Wales)

Requirement:	C2(a)	Resistance to moisture
Comment:		The product does not absorb water by capillary action and, therefore, may be used in situations where it bridges the dpcs of the inner and outer leaves. See section 6.2 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		Tests by the BBA indicate that a wall incorporating this product can resist rain penetration and satisfy this Requirement. See sections 3.2 and 6.3 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See sections 7.1 and 7.3 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The product can contribute to meeting this Requirement. See sections 5.3 to 5.6 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The product can contribute to a construction satisfying this Regulation. See sections 10 and 11 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	2.6	Spread to neighbouring buildings
Comment:		This product is combustible but may be used in walls of buildings in accordance with the exceptions permitted in this Standard, with reference to clauses 2.6.0 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See section 8.4 of this Certificate.
Standard:	3.4	Moisture from the ground
Comment:		The product does not absorb water by capillary action and, therefore, may be used where it bridges the dpc of the inner or outer leaf, with reference to clauses 3.4.1 ⁽¹⁾ and 3.4.5 ⁽¹⁾⁽²⁾ . See section 6.2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		Walls incorporating the product can satisfy this Standard, with reference to clause 3.10.1 ⁽¹⁾⁽²⁾ . See sections 3.2, 3.5 and 6.3 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾ , 3.15.3 ⁽¹⁾ and 3.15.4 ⁽¹⁾ . See sections 7.2 and 7.3 of this Certificate.
Standard:	6.1	Carbon dioxide emission
Standard:	6.2	Building insulation envelop
Comment:		The product can contribute to satisfying clauses, or parts of clauses, 6.1.1 ⁽¹⁾ , 6.1.2 ⁽²⁾ , 6.1.6 ⁽¹⁾ , 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾ , 6.2.9 ⁽¹⁾ , 6.2.10 ⁽²⁾ , 6.2.11 ⁽¹⁾ and 6.2.12 ⁽²⁾ . See sections 5.3 to 5.6 of this Certificate.
Regulation:	12	Building standards — conversions
Comment:		All comments given for this product under Regulation 9, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾ and Schedule 6 ⁽¹⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The product does not normally require maintenance. See section 10 of this Certificate.
Regulation:	C4(a)	Resistance to ground moisture and weather
Comment:		The product does not absorb water by capillary action and, therefore, may be used where it bridges the dpc of the inner or outer leaf. See section 6.2 of this Certificate.
Regulation:	C4(b)	Resistance to ground moisture and weather
Comment:		Walls incorporating the product can satisfy this Regulation. See sections 3.2 and 6.3 of this Certificate.
Regulation:	C5	Condensation
Comment:		The product can contribute to satisfying this Regulation. See section 7.3 of this Certificate.
Regulation:	F2(a)(i)	Conservation measures
Comment:		The product can satisfy or contribute to satisfy this Regulation. See sections 5.3 to 5.6 of this Certificate.
Regulation:	F3	Target carbon dioxide Emissions Rate
Comment:		The product can contribute to a building satisfying its target emission rate. See section 5.3 of this Certificate.

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

In the opinion of the BBA, there is no information in this Certificate which relates to the obligations of the client, CDM co-ordinator, designer and contractors under these Regulations.

Non-regulatory Information

NHBC Standards 2008

NHBC accepts the use of Jabfill Premium, when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 6.1 *External masonry walls*.

In very severe exposure locations fair-faced masonry with full fill cavity insulation is not permitted. In Scotland it is not permissible to fill the full width of the cavity with any thermal insulation at the time of construction.

Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, Jabfill Premium, when installed and used in accordance with this Certificate, satisfies the requirements of the *Zurich Building Guarantee Technical Manual*, Section 4 *Superstructure*, Sub-sections *External Walls – masonry* and *External walls – thermal insulation*.

General

This Certificate relates to Jabfill Premium, an expanded polystyrene beadboard for use as thermal insulation in new external masonry cavity walls up to 12 m in height in domestic and non-domestic buildings.

Technical Specification

1 Description

1.1 Jabfill Premium comprises EPS 70 expanded polystyrene board manufactured to BS EN 13163 : 2001 and has a class E reaction to fire classification to BS EN 13501-1 : 2007.

1.2 The boards have the nominal characteristics of:

Size (mm) 1200 x 450 (nominal)
Thickness⁽¹⁾ (mm) 75 and 100.

(1) Includes projecting flutes (see Figure 2 and section 5.1).

1.3 Each board incorporates a specially designed tongue-and-groove edging on all four edges, enabling the boards to interlock when installed.

1.4 The external face of the board incorporates tapered flutes to provide a drainage plane and shed water away from the internal leaf and act as a guide to the construction of the outer leaf. Each board is marked to identify the correct orientation for installation (see Figures 1 and 2).

Figure 1 Jabfill Premium panel

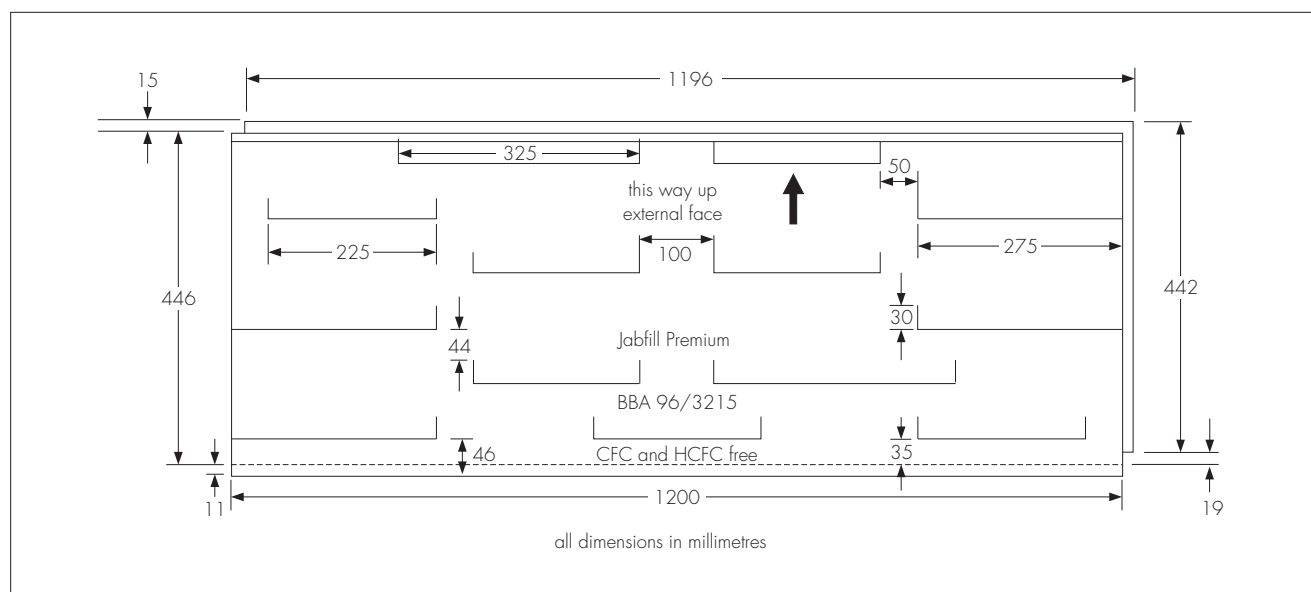
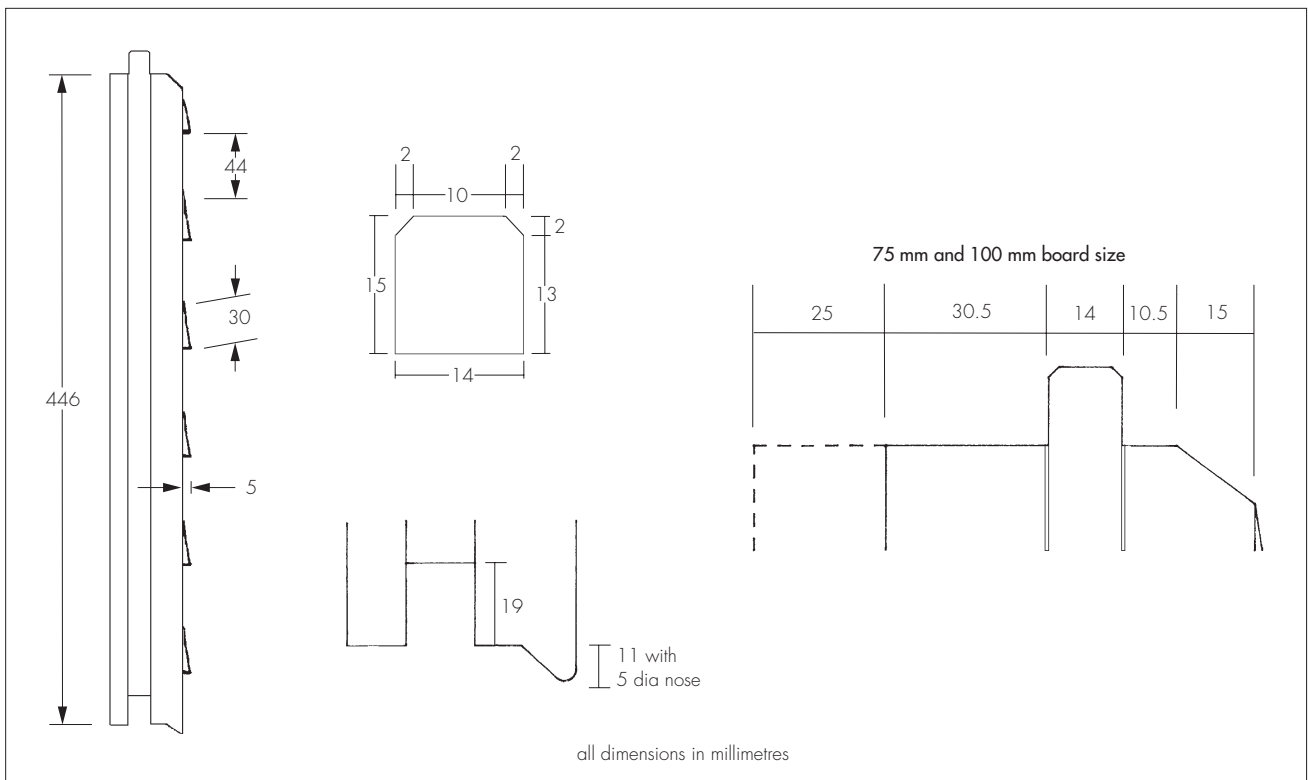


Figure 2 Jabfill Premium panel — side elevation



2 Delivery and site handling

2.1 The boards are delivered to site in packs wrapped in polythene. Each pack contains a label bearing the manufacturer's trade name and the BBA identification mark incorporating the number of this Certificate.

2.2 The product should be protected from prolonged exposure to sunlight and should be stored either under cover or protected with opaque polythene. Care should be taken to avoid contact with solvents and with materials containing volatile organic components such as coal tar, pitch, timber newly treated with creosote.

2.3 The boards must be stored flat, protected from high winds and raised above damp surfaces.

2.4 The boards must not be exposed to open flame or other ignition sources.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Jabfill Premium.

Design Considerations

3 Use

3.1 Jabfill Premium is effective in reducing the U value (thermal transmittance) of cavity walls with masonry inner and outer leaves, where masonry includes clay and calcium silicates bricks, concrete blocks, natural and reconstituted stone blocks, in new buildings up to 12 m in height.



3.2 New buildings subject to national Building Regulations and Standards should be suitable when assessed in accordance with the relevant recommendations of:

- BS 5628-3 : 2005. In particular, Clause 5.5.2 *Exclusion of water* of the Code of practice should be followed in that the designer selects a construction appropriate to the local wind-driven rain index paying due regard to the design detailing, workmanship and materials to be used
- BS 8000-3 : 2001.

3.3 Other new buildings not subjected to any of the above should also be built in accordance with BS 5628-3 : 2005 and BS 8000-3 : 2001.

3.4 As with any other form of cavity wall insulation, where buildings need to comply with *NHBC Standards 2008* or *Zurich Building Guarantee Technical Manual 2007*, specifiers should observe the requirements of these Standards.



3.5 The product is for use in any exposure zone. However, the use of the product does not preclude the need to apply an external render coat or other suitable finish in severe exposure zones where such application would be normal practice.

3.6 To reduce the risk of water penetration, raked or recessed mortar joints should be avoided in severe or very severe exposure zones.

3.7 The use of cavity battens and/or boards is strongly recommended to prevent bridging by mortar droppings.

4 Practicability of installation

The product must be installed by operatives trained and approved by the Certificate holder (see sections 12.1 and 12.2).

5 Thermal performance

5.1 Calculations of the thermal transmittance (U value) of specific external wall constructions should be carried out in accordance with BS EN ISO 6946 : 1997, BRE report (BR 443 : 2006) *Conventions for U-value calculations* and:

- 0.038 Wm⁻¹K⁻¹ thermal conductivity ($\lambda_{90/90}$ value) of the product
- 70 mm or 95 mm board thickness (see section 1.3).

5.2 The U value of a wall depends largely on the thickness of the board and the insulating value of the internal block leaf and its finish. Example U values are given in Table 1.

Width (mm)	13 mm dense plaster 100 mm dense block ⁽²⁾	Plasterboard on dabs 100 mm AAC block ⁽³⁾
75	0.36	0.28
100	0.28	0.23

(1) Assume 102 mm thick brick outer leaf.

(2) Block and plaster thermal conductivity 1.13 Wm⁻¹K⁻¹.

(3) Block and mortar thermal conductivity 0.12 Wm⁻¹K⁻¹.



5.3 Subject to the selection of an appropriate insulation thickness and construction, walls can contribute to achieving the following design U values:

England and Wales and Northern Ireland

- 0.30 Wm⁻²K⁻¹ standard for new thermal elements such as those constructed as part of an extension specified in Approved Documents L1B, Table 4, and L2B, Table 6
- 0.35 Wm⁻²K⁻¹ thermal elements constructed as replacements for existing elements as specified in Approved Documents L1B, Table 4, and L2B, Table 6
- 0.35 Wm⁻²K⁻¹ required for 'notional' buildings in SAP 2005 and buildings other than dwellings in SBEM
- 0.35 Wm⁻²K⁻¹ limit average value specified in Approved Documents L1A, Table 2, and L2A, Table 4, and Technical Booklets F1, Table 2.2, and F2, Table 2.4 (see also section 5.1)
- 0.70 Wm⁻²K⁻¹ limit for an individual element specified in Approved Documents L1A, Table 2, and L2A, Table 4, and Technical Booklets F1, Table 2.2, and F2, Table 2.4.

Scotland

- 0.20 Wm⁻²K⁻¹ required for the 'simplified approach — solid fuel package 6' 'notional' dwelling in Mandatory Standard 6.1, clause 6.1.6⁽¹⁾ (see also section 5.3)
- 0.25 Wm⁻²K⁻¹ required for 'notional' buildings in SAP 2005 (Scotland) and the 'simplified approach — packages 1 to 5' in Mandatory Standard 6.1, clause 6.1.6⁽¹⁾
- 0.27 Wm⁻²K⁻¹ maximum U value for building elements of the insulation envelope for extensions or reconstruction of elements in Mandatory Standard 6.2, clauses 6.2.9⁽¹⁾, 6.2.10⁽²⁾, 6.2.11⁽¹⁾ and 6.2.12⁽²⁾
- 0.30 Wm⁻²K⁻¹ limit average specified in Mandatory Standard 6.2, clause 6.2.1⁽¹⁾⁽²⁾
- 0.70 Wm⁻²K⁻¹ limit for an individual element specified in Mandatory Standard 6.2, clauses 6.2.1⁽¹⁾⁽²⁾, 6.2.9⁽¹⁾ and 6.2.10⁽²⁾.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

5.4 Where a proposed wall U value is not better than (or is greater than in Scotland) the relevant 'notional' value specified in section 5.2, additional energy measures will be required in the building envelope and/or services to achieve the required overall carbon dioxide emission rate reduction of about 20% in dwellings (18% to 25% in Scotland) and 23% to 28% in buildings other than dwellings.

5.5 The product can maintain or contribute to maintaining continuity of thermal insulation at junctions between the external wall and the other building elements. Guidance in this respect, and on limiting heat loss by air infiltration, can be found in:

England and Wales — *Limiting thermal bridging and air leakage: Robust construction details for dwellings and similar buildings* TSO 2002

Scotland — Accredited Construction Details (Scotland)

Northern Ireland — Accredited Construction Details (version 1.0).

5.6 Compliance with the guidance referred to in section 5.5 will allow the use of the default psi values from BRE Information Paper IP/06 *Assessing the effects of thermal bridging at junctions and around openings*, Table 3, and *The Government's Standard Assessment Procedure for Energy Rating of Dwellings* (SAP 2005), Table K1, in Target Emission Rate calculations to SAP 2005 or the Simplified Building Energy Model (SBEM) ('simplified approach' in Scotland).

6 Liquid water penetration

6.1 The product will not allow water to cross the wall construction via the insulation.



6.2 Tests by the BBA demonstrate that when the product is 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:

England and Wales — Approved Document C, Section 5

Scotland — Mandatory Standard 3.4, clause 3.4.1⁽¹⁾

(1) Technical Handbook (Domestic).

Northern Ireland — Technical Booklet C, Section 1.6.

6.3 Tests by the BBA confirm that constructions built in accordance with BS 5628-3 : 2005, will prevent water reaching the inner leaf in damaging amounts. Water penetrating the outer leaf of the wall, will drain down the cavity face of the outer leaf and the product will contribute to satisfy the national Building Regulations:

England and Wales — Requirement C2(b)

Scotland — Mandatory Standard 3.10, clause 3.10.1⁽¹⁾

(1) Technical Handbook (Domestic).

Northern Ireland — Regulation C4(a)(b).

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

- installation is to be carried out to the highest level on each wall or the top edge of the insulation is protected by a cavity tray
- wall ties are installed correctly and are thoroughly clean
- excess mortar is cleaned from the cavity face of the leading leaf
- mortar droppings are cleaned from the exposed edges of installed boards.

7 Condensation

Surface condensation



7.1 Walls will limit the risk of surface condensation adequately when the thermal transmittance (U value) does not exceed $0.7 \text{ Wm}^{-2}\text{K}^{-1}$ at any point, and the junctions with floors, roofs and openings are designed in accordance with TSO 2002 or BRE Information Paper IP 1/06.



7.2 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) of the wall does not exceed $1.2 \text{ Wm}^{-2}\text{K}^{-1}$ at any point and openings and junctions with other elements comply with the guidance given in BS 5250 : 2002, Section 8, BRE report (BR 262 : 2002) *Thermal insulation : avoiding risks*.

Interstitial condensation



7.3 Walls will limit the risk of interstitial condensation adequately when they are designed and constructed in accordance with BS 5250 : 2002, Section 8 and Annex D.

7.4 The product has a nominal vapour resistivity exceeding $145 \text{ MNsg}^{-1}\text{m}^{-1}$ and, therefore, will provide a significant resistance to water vapour transmission.

7.5 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 in the internal wall leaf.

8 Behaviour in relation to fire

8.1 The product is classified as 'combustible' and has a Class E reaction-to-fire classification to BS EN 13501-1 : 2007. It does not prejudice the fire-resistance properties of the wall. It is unlikely to become ignited within the cavity when used in the context of this Certificate. If fire does penetrate into an unventilated cavity, the amount of air present will be insufficient to support combustion and flame spread will be minimal.

8.2 The requirements of the Building Regulations relating to fire spread in cavity walls can be met in buildings of all purpose groups without the need for cavity barriers, provided the construction complies with the provisions detailed in:

England and Wales — Approved Document B, Volume 1, Diagram 13, and Volume 2, Diagram 34

Northern Ireland — Technical Booklet E, Diagram 3.5.

A summary of these provisions is given here:

England and Wales and Northern Ireland

- the wall must consist of masonry inner and outer leaves, each at least 75 mm thick
- the cavity must be closed at the top of the wall and at the top of any opening
- domestic meter cupboards may be installed provided there are not more than two to a dwelling, the opening in the outer leaf is not more than 800 mm by 500 mm for each cupboard, and the inner leaf is not penetrated except by a sleeve not more than 80 mm by 80 mm, which is fire-stopped.
- combustible materials may be placed within the cavity (England and Wales only)
- the cavity must not be more than 300 mm wide (Northern Ireland only)
- in addition to the insulation, in Northern Ireland, only the following should be placed in, or exposed to, the cavity:
 - timber lintels, window or door frames, or end of timber joists
 - pipe, conduit or cable
 - dpc, flashing, cavity closer or wall tie.

8.3 For constructions not covered by section 8.2, cavity barriers must be provided to comply with:

England and Wales — Approved Document B, Volume 1, Section 6, and Volume 2, Section 9

Scotland — Mandatory Standard 2.4, clauses 2.4.1⁽¹⁾⁽²⁾, 2.4.2⁽¹⁾⁽²⁾, 2.4.7⁽¹⁾⁽²⁾ and 2.4.9⁽¹⁾⁽²⁾.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet E, Paragraphs 3.35 to 3.38.



8.4 The product is combustible but may be used not more than one metre from a boundary, in walls with two leaves of masonry/concrete at least 75 mm thick, with barriers around all openings and at the top of the wall in accordance with Mandatory Standards 2.4 and 2.6, clauses 2.4.1⁽¹⁾⁽²⁾, 2.6.0⁽¹⁾⁽²⁾, 2.6.5⁽¹⁾ and 2.6.6⁽²⁾.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

9 Proximity of flues and appliances

When installing the product in close proximity to certain flue pipes and/or heat producing appliances, the relevant provisions of the national Building Regulations are applicable:

England and Wales — Approved Document J

Scotland — Mandatory Standard 3.19, clauses 3.19.1⁽¹⁾⁽²⁾ to 3.19.4⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet L.

10 Maintenance



As the product is confined within the wall cavity and it has suitable durability (see section 11), maintenance is not required.

11 Durability



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

Installation

12 General

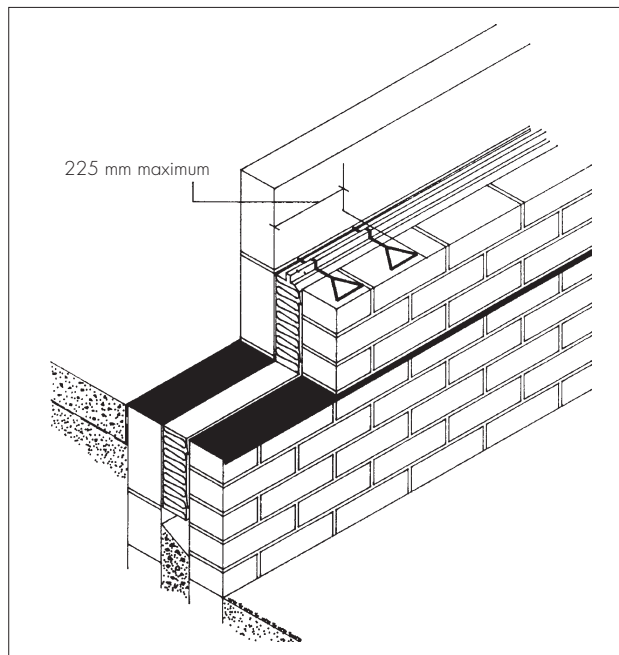
12.1 To comply with this Certificate, the Certificate holder's specialists experienced in site practice and installation, on request, will attend the site to provide demonstrations to ensure correct installation from the outset.

12.2 Adequate supervision of the installation shall be maintained and the Certificate holder's specialists should have right of access to site to ensure correct installation.

12.3 The internal leaf is constructed ahead of the external leaf. Any mortar protruding into the cavity space from the back of the internal leaf shall be cleaned off before installing the product.

12.4 Additional wall ties at 300 mm vertical centres within 225 mm of all openings are recommended in BS 5628-3 : 2005. For this product, this would involve piercing the boards and may introduce an unacceptable risk of water penetration. Therefore, it is recommended that an additional wall tie is included within 225 mm of the opening on each board course level to satisfy the structural requirements of the wall (see Figure 3).

Figure 3 Reveal detail with double ties

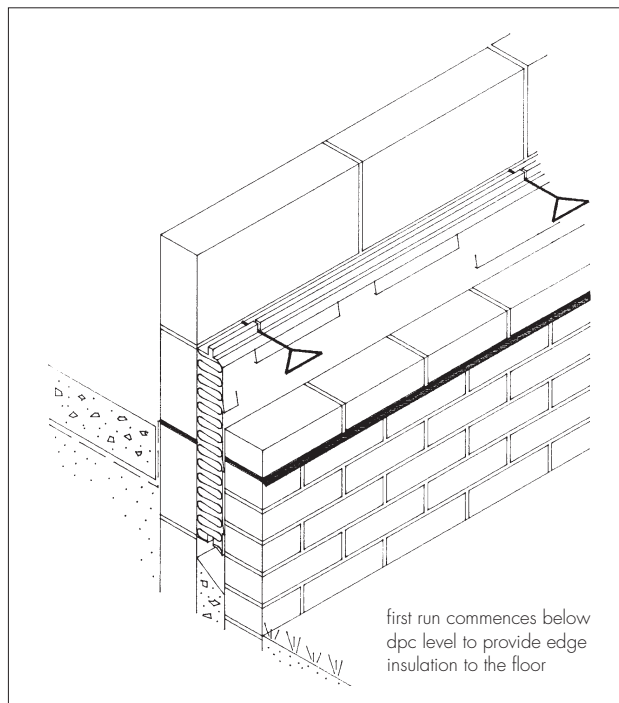


12.5 Double-triangle wall ties, without drips, but otherwise conforming to BS EN 845-1 : 2003, are suitable for use with this product. Other ties approved by the Certificate holder may also be suitable.

13 Procedure

13.1 Walls are constructed in the conventional manner, with the first row of wall ties where the insulation is to begin, but not on the damp-proof course, and at approximately 600 mm horizontal spacing. The first run of boards may commence below damp-proof course level to provide some edge insulation for the floor (see Figure 4).

Figure 4 Building in the first row of boards



13.2 A section of the wall leaf is built up to a course above the next row of wall ties which are placed at the usual spacing of 450 mm vertically and not more than 900 mm horizontally (see BS 5628-3 : 2005, Table 9).

13.3 The boards are 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.

13.4 The boards incorporate a specially designed tongue-and-groove edging and are faced on one side with projecting tapered flutes. For this design to function correctly it is essential that the boards are positioned with the horizontal tongued edge uppermost and the fluted face against the outer leaf.

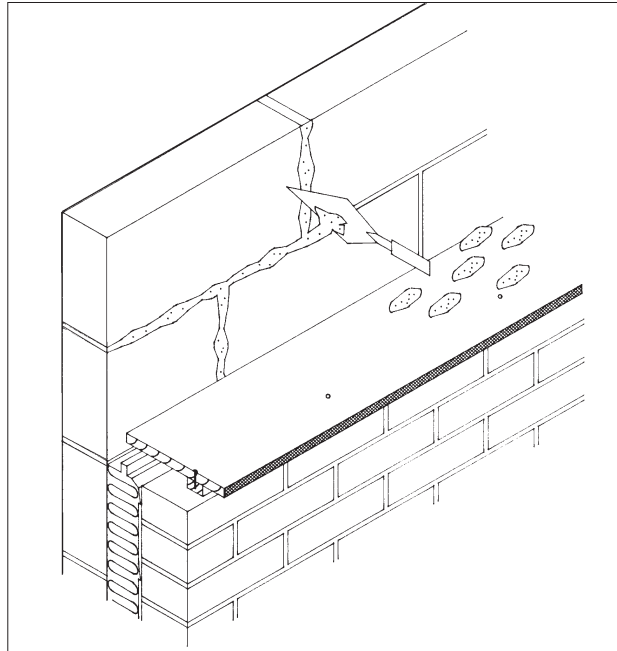
13.5 The tongued edge is cut with a sharp knife or fine-tooth saw to allow insertion of the double-triangle wall ties. Care must be taken to ensure that only minimal damage is incurred during this process.

13.6 The other leaf is built up to the same level as the boards, with its inner face in contact with the boards.

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

13.8 After each section of the wall leaf is built, excess mortar should be removed and mortar droppings cleaned from exposed edges of the installed board before installation of the next section. Use of a cavity board is recommended to protect board edges and make cleaning easier (see Figure 5).

Figure 5 Use of cavity board when cleaning off excess mortar



13.9 Boards can be cut using a fine-tooth saw, to fit around windows, doors, air bricks. It is essential that they are 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.

13.10 Where openings such as doors and windows are in close proximity, it is recommended that a continuous lintel is used. Damp-proofing at lintel level must be provided with stop ends and weepholes.

13.11 Where required, door and window reveals should incorporate a cavity closure depending on the set-back of the frame (see Figure 6). It is recommended that BBA-approved cavity closers are used.

13.12 Corner details are formed by interlocking the boards. It is important that they are closely butt-jointed and, therefore, the tongue should be carefully removed where necessary so that all interfaces are uninterrupted. The tapered flutes are removed at internal corners only. All corner details incorporate a vertical dpc (see Figure 7).

13.13 The boards should always be installed to the highest level of each wall.

13.14 If installation of boards is terminated at any other levels, the top edge of the insulation must be protected by a cavity tray and alternate perpendicular joints raked out to provide adequate drainage of water from this tray.

Protection

13.15 All building involving the product, particularly interrupted work, must conform to BS 5628-3 : 2005, Sections 4.3 *Storage on site*, 4.13 *Protection against damage during construction*, and 4.14 *Supervision*.

Figure 6 Reveal details

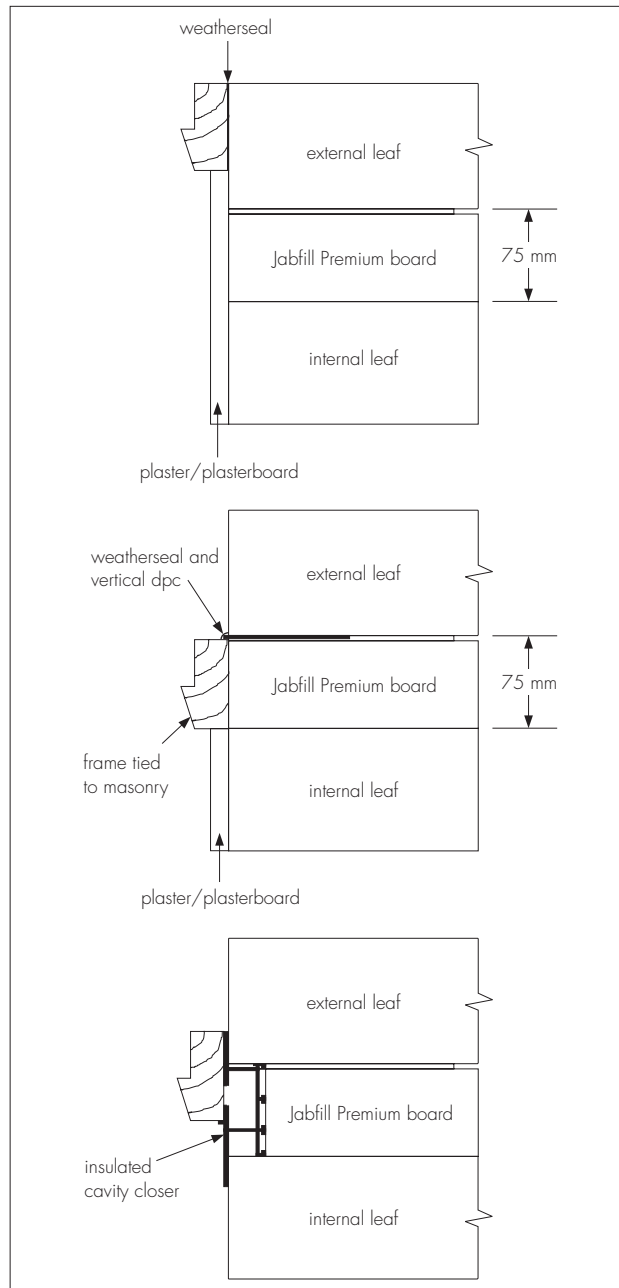
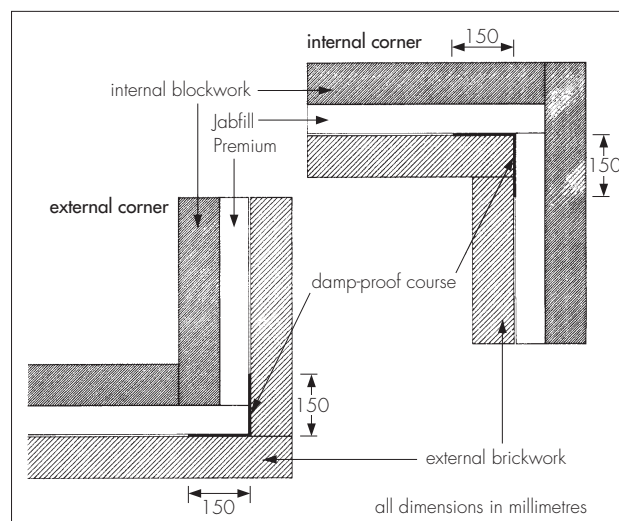


Figure 7 Corner detail



14 Investigations

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

14.2 As part of the assessment, tests were carried out to determine:

- density
- dimensional accuracy.

14.3 An examination was made of data relating to:

- water resistance of a cavity wall with the boards
- cross-breaking strength
- water vapour permeability
- compressive strength
- dimensional stability
- behaviour in fire.

14.4 An assessment of the thermal and hygrothermal properties of the product was made including U value and condensation risk calculations for typical constructions.

Bibliography

BS 5250 : 2002 *Code of practice for control of condensation in buildings*

BS 5628-3 : 2005 *Code of practice for the use of masonry — Materials and components, design and workmanship*

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

BS EN 845-1 : 2003 *Specification for ancillary components for masonry — Ties, tension straps, hangers and brackets*

BS EN 13163 : 2001 *Thermal insulation products for buildings — Factory made products of expanded polystyrene (EPS) — Specification*

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

BS EN ISO 6946 : 1997 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

15 Conditions

15.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- 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.

15.2 References in this Certificate to any Act of Parliament, Statutory Instrument, Directive or Regulation of the European Union, British, European or International Standard, Code of Practice, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

15.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant 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.

15.4 In granting this Certificate, the BBA is not responsible for:

- 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
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

15.5 Any information relating to the manufacture, supply, installation, use and maintenance 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 and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date 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. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.