

EcoTherm Insulation (UK) Ltd

Burnt Mills Industrial Estate
Harvey Road
Basildon
Essex SS13 1QJ
Tel: 01702 520166 Fax: 01702 420636
e-mail: info@ecotherm.co.uk
website: www.ecotherm.co.uk



Agrément Certificate
14/5157
Product Sheet 2

ECOTHERM ECO RANGE FOR FLOORS, WALLS AND PITCHED ROOFS

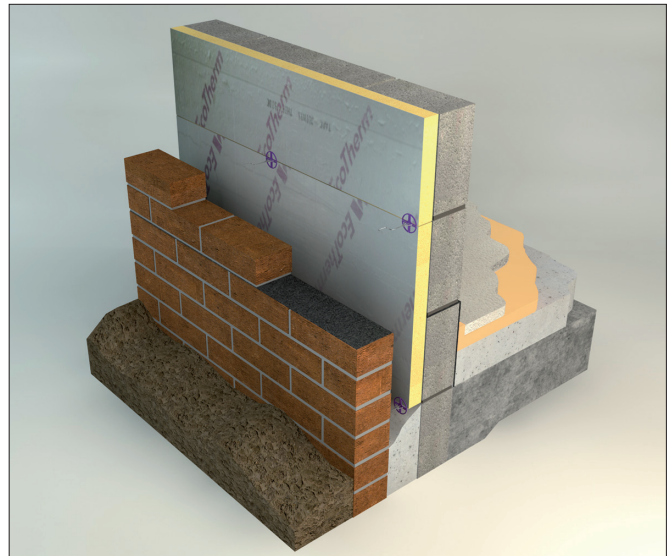
ECOTHERM ECO-CAVITY

This Agrément Certificate Product Sheet⁽¹⁾ relates to EcoTherm Eco-Cavity, a foil-faced rigid urethane insulation for use as partial fill insulation to reduce the thermal transmittance of cavity walls in new domestic or non-domestic buildings with masonry inner and outer leaves.

(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 thermal conductivity* (λ_D value) of $0.022 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (see section 6).

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

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

Behaviour in relation to fire — the product has an D-s2, d0 reaction to fire classification to BS EN 13501-1 : 2007 (see section 9).

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

A stylized signature of John Albon.

Date of First issue: 12 February 2016

John Albon — Head of Approvals
Construction Products

A stylized signature of Claire Curtis-Thomas.

Claire Curtis-Thomas
Chief Executive

Certificate amended on 10 April 2019 to include Regulation 7(2) for England and associated text.

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

British Board of Agrément

Bucknalls Lane
Watford
Herts WD25 9BA

©2016

tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

Regulations

In the opinion of the BBA, EcoTherm Eco-Cavity, 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:	B3(4)	Internal fire spread (structure)
Comment:		The product is restricted by this Requirement. See section 9.1 to 9.3 of this Certificate.
Requirement:	C2(a)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See section 7.1 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See section 7.2 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See sections 8.1 and 8.4 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	Materials and workmanship (applicable to Wales only)
Regulation:	7(1)	Materials and workmanship (applicable to England only)
Comment:		The product is acceptable. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	7(2)	Materials and workmanship (applicable to England only)
Comment:		The product is restricted by this Regulation. See sections 9.1 to 9.3 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)
Comments:		The product can contribute to satisfying these Regulations. See section 6 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The product can contribute to a construction satisfying this Regulation. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to constructions
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product is restricted by this Standard with respect to clauses 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See sections 9.1, 9.4 and 9.5 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The product is restricted by this Standard with respect to clause 2.7.2 ⁽²⁾ . See sections 9.1, 9.4 and 9.5 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 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⁾ , provided it complies with 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 and 8.5 of this Certificate.
Standard:	6.1(a)(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 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⁾ . 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⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾], 7.1.6 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾] and 7.1.7 ⁽¹⁾⁽²⁾ [Aspect 1 ⁽¹⁾⁽²⁾]. See section 6.1 of this Certificate.
Regulation:	12	Building standards applicable to conversions
Comment:		All comments made in relation to the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.0 ⁽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 acceptable. 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 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 section 8.1 of this Certificate.
Regulation:	35(4)	Internal fire spread – Structure
Comment:		The product is restricted by this Regulation. See section 9.1, 9.3 and 9.5 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 section 6 of this Certificate.

Construction (Design and Management) Regulations 2015

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

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

See section: 3 *Delivery and site handling* (3.4) of this Certificate.

Additional Information

NHBC Standards 2016

Subject to a 50 mm residual cavity being maintained, NHBC accepts the use of EcoTherm Eco-Cavity, provided it is installed, used and maintained in accordance with this Certificate, in relation to the relevant clauses of *NHBC Standards*, Chapter 6.1 *External masonry walls*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 13165 : 2012. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 EcoTherm Eco-Cavity is a rigid urethane foam insulation manufactured with a foil-facing on both sides.

1.2 The product has the nominal characteristics shown in Table 1 of this Certificate.

Table 1 *Nominal characteristics*

Length (mm)	1200
Width (mm)	450
Thickness (mm)	25 to 120
Density (kg·m ⁻³)	30
Edge detail	Plain

1.3 Only insulation-retaining clips and wall ties conforming to BS EN 845-1 : 2013, BS DD 140-2 : 1987 and BS 5628-3 : 2005 (section 4.4, table 1 and section 5.3.5, table 9) should be used.

2 Manufacture

2.1 The product is manufactured by blending polyol and MDI in a continuous foaming process, aided by a blowing agent, and sandwiched between two aluminium foil-facings. After formation, the boards are left to cure and are cut to size.

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 EcoTherm Insulation (UK) Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by the Loss Prevention Certification Board (LPCB) (Certificate 388).

3 Delivery and site handling

3.1 The boards are delivered to site shrink-wrapped in polythene on pallets. Each pack contains a label incorporating the manufacturer's name, board type and thickness, and the BBA logo incorporating the number of this Certificate. The batch number is also marked on each pack.

3.2 It is essential that the boards are raised off the ground and stored inside or under cover on a dry, level surface in a well-ventilated area. The boards must be protected from rain, snow and prolonged exposure to sunlight; any that have been allowed to get wet should not be used.

3.3 Dry materials, such as adhesives, should be stored in the same way as plaster. Metal components should also be stored in dry conditions.

3.4 The boards must not be exposed to a naked flame or other ignition sources.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on EcoTherm Eco-Cavity.

Design Considerations

4 Use

4.1 EcoTherm Eco-Cavity is satisfactory for use as a partial fill cavity wall insulation and is effective in reducing the U value (thermal transmittance) of new external cavity walls with masonry inner and outer leaves (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. It is essential that such walls are designed and constructed to incorporate the normal precautions to prevent moisture penetration.

4.2 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 respective UK National Annexes
- BS EN 845-1 : 2013 and BS 8000-3 : 2001.

4.3 Buildings not subject to these Regulations should also be built in accordance with the Standards given in section 4.2 of this Certificate.

4.4 Cavity wall ties with insulation-retaining fixings and, if required, any additional ties to BS EN 845-1 : 2013 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.

4.5 The use of cavity battens or boards is strongly recommended to prevent thermal bridging by mortar droppings.

Buildings up to and including 25 metres high

4.6 The minimum residual cavity width to be maintained during construction must be 25 mm. To achieve this, a greater nominal residual cavity width may need to be specified at the design stage (to allow for inaccuracies inherent in the building process). The specifier may either:

- design a nominal residual cavity width of 50 mm (a residual cavity nominally at least 50 mm wide will be required by the NHBC), or
- design a cavity width which takes into account the dimensional tolerances of the components which make up the wall (by reference to the British Standards relating to the bricks, blocks and boards, or by using the data from the respective manufacturers). Allowances may need to be made for the quality of building operatives and the degree of site supervision or control available. The limitations in respect of exposure of the proposed building as set out in Table 2 must also be observed.

Table 2 Maximum allowable total exposure factors of different constructions

Construction	Maximum allowable exposure factor (E) ⁽¹⁾
All external masonry walls protected by rendering (to BS EN 13914 : 2005), tile hanging, slate hanging, or timber, plastic or metal weatherboarding or cladding	No restriction
One or more external masonry walls constructed from facing clay brickwork or natural stone, the porosity of which exceeds 20% by volume. Mortar joints must be flush pointed or weatherstruck	100
One or more external masonry wall constructed from calcium silicate bricks, concrete blocks, reconstituted stone, or natural stone, the porosity of which is less than 20% by volume, or any material with raked mortar joints	88

(1) To BS 5618 : 1985.

4.7 An external render coat or other suitable finish should be applied in locations where such application would be normal practice; care should be taken to ensure that the residual cavity is not bridged by mortar.

Buildings over 25 metres in height

4.8 The width of the residual clear cavity to be achieved is to be in excess of 50 mm, and the following requirements 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 specifier must take extra care when detailing to ensure that the introduction of the insulation does not affect the weather resistance of the wall. Above average site supervision is recommended during installation of the product
- where, for structural reasons, the cavity width is reduced, eg by the intrusion of ring beams, a minimum residual cavity width of 25 mm must be maintained and extra care must be taken with fixings and weatherproofing, eg by the inclusion of cavity trays with weepholes.

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 : 1997 and BRE Report BR 443 : 2006, using the declared thermal conductivity* (λ_D value) of 0.022 W·m⁻¹·K⁻¹ for the boards and an aged emissivity value of 0.05 for the foil-facings.

6.2 The U value of a completed wall construction will depend on the cavity width and the insulating value of the substrate masonry and internal finish. Example U values are given in Table 3 of this Certificate.

Table 3 Example U values⁽¹⁾ — partial fill insulation (50 mm residual cavity)

U value (W·m ⁻² ·K ⁻¹)	Insulation thickness (mm)	
	13 mm dense plaster 100 mm dense block	Plasterboard on dabs 100 mm AAC block
0.18	110	90
0.19	100	80
0.25	70	50
0.26	65	50
0.27	65	50
0.30	60	35
0.35	50	25

(1) The above U value calculations are based on the following:

- standard product thicknesses
- wall ties — mild steel, 2.5 per m², 12.5 mm² cross-section
- 102 mm brick with conductivity 0.77 W·m⁻¹·K⁻¹
- 50 mm low e cavity
- 100 mm dense block with conductivity 1.13 W·m⁻¹·K⁻¹ or
- 100 mm AAC block with conductivity 0.12 W·m⁻¹·K⁻¹ bridged by mortar (6.7%) with conductivity 0.88 W·m⁻¹·K⁻¹
- 13 mm dense plaster with conductivity 0.57 W·m⁻¹·K⁻¹ or
- 12.5 mm plasterboard with conductivity 0.21 W·m⁻¹·K⁻¹, on 15 mm dabs (20%) with conductivity 0.43 W·m⁻¹·K⁻¹.

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

7 Water resistance



7.1 Where the product is 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:

England and Wales — Approved Document C, Section 5

Scotland — Mandatory Standard 3.4, clauses 3.4.1⁽¹⁾⁽²⁾ and 3.4.5⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet C, Sections 6.3 to 6.6.

7.2 Constructions incorporating the product, and built in accordance with the Standards listed in section 4.2, will resist the transfer of precipitation to the inner leaf and satisfy the national Building Regulations:

England and Wales — Approved Document C, Section 5

Scotland — Mandatory Standard 3.10, clauses 3.10.1⁽¹⁾⁽²⁾ and 3.10.3⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet C, Section 6.

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

- 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 boards
- insulation boards are properly installed and either butt jointed, or interlocked using the tongue-and-groove or rebated edges
- installation is carried out to the highest level on each wall, or the top edge of the insulation is protected by a cavity tray
- at lintel level, a cavity tray, stop ends and weep holes are provided
- cavity battens and/or boards are used during construction to prevent bridging by mortar droppings
- dpc's at ground level do not project into the cavity as they can form a trap for mortar bridging
- raked or recessed mortar joints are avoided in very severe exposure areas.

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 : 2011, Annexes D and G, and the relevant guidance.

8.2 The foil-facings have a water vapour resistance exceeding $111 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}$ and the insulation core has a water vapour resistivity of $52 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}\cdot\text{m}^{-1}$ and, therefore, will provide significant resistance to water vapour transmission. Joints between boards will facilitate the passage of water vapour under normal conditions of temperature and humidity.

8.3 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



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 of this Certificate.



8.5 For buildings in Scotland, wall constructions will be acceptable when 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 : 2011, Annex G. 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 an D-s2, d0 reaction to fire classification* to BS EN 13501-1 : 2007. It is not classified as non-combustible or of limited combustibility.



9.2 In England, the product should not be used on buildings with a storey 18 m or more above ground level that contains: one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools.



9.3 In England, Wales and Northern Ireland, the product is unrestricted in terms of proximity to a boundary and, for constructions complying with section 9.5, is unrestricted in terms of height, other than those described in section 9.2. For other constructions, the product should not be used in buildings with a floor more than 18 m above the ground.



9.4 In Scotland, the product may be used without restriction on height or proximity to a relevant boundary, provided it is installed in a cavity that is between two leaves of masonry at least 75 mm thick, and which has a cavity barrier around all openings in the wall and at the top of the wall head. For other constructions, the product should not be used 1 m or less from a boundary or in a building with a floor more than 18 m above the ground.



9.5 Cavity barriers are required in accordance with the relevant provisions of the national Building Regulations, unless the construction complies with:

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

Northern Ireland — Technical Booklet E, Diagram 4.5

Scotland — Technical Handbook – Domestic – Clauses 2.4.1, 2.4.2 and 2.4.7, or Technical Handbook – Non-Domestic – Clauses 2.4.1 and 2.4.2.

9.6 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

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

England and Wales — Approved Document J, sections 1 to 4

Scotland — Mandatory Standard 3.19, clauses 3.19.1⁽¹⁾⁽²⁾ to 3.19.9⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet L, sections 1 to 6.

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 stable, rot-proof and durable, and will remain effective as an insulation system for the life of the building.

Installation

13 General

13.1 It is recommended that the inner leaf be constructed ahead of the outer leaf as the boards are fastened to the cavity face of the inner leaf. It is essential that the spacing of the wall ties/clips allows the long edge of each board to be secured at a minimum of three points.

13.2 All building involving the boards, particularly work which is interrupted, must conform to BS 5628-3 : 2005, Sections A4.1.3.2, A4.1.3.9, A5.1.1.3 and A5.4.4.

Supervision requirements for buildings over 25 m in height

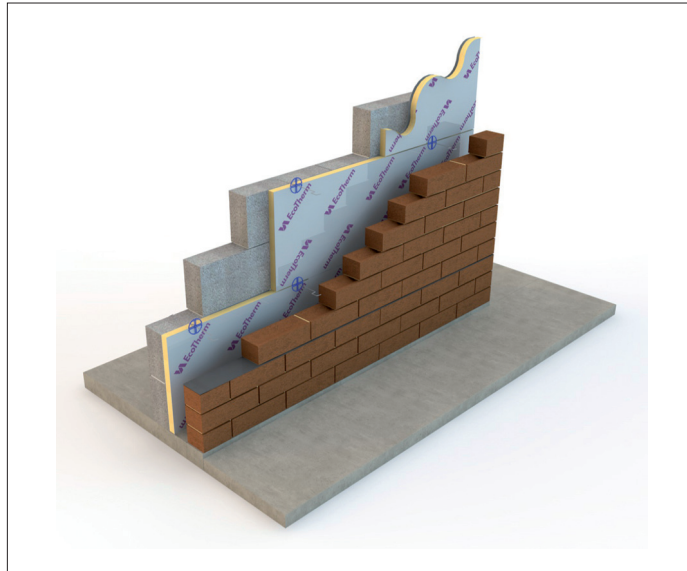
13.3 To comply with this Certificate, the Certificate holder's specialists will attend the site to provide demonstrations, to ensure correct installation from the outset.

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

14 Procedure

14.1 A section of the inner leaf is built with the first row of wall ties, at approximately 600 mm horizontal spacing, where the installation is to begin. The wall ties should not be placed directly on the dpc. The first run of boards may commence below the dpc level to provide some edge insulation for the floor (see Figure 1).

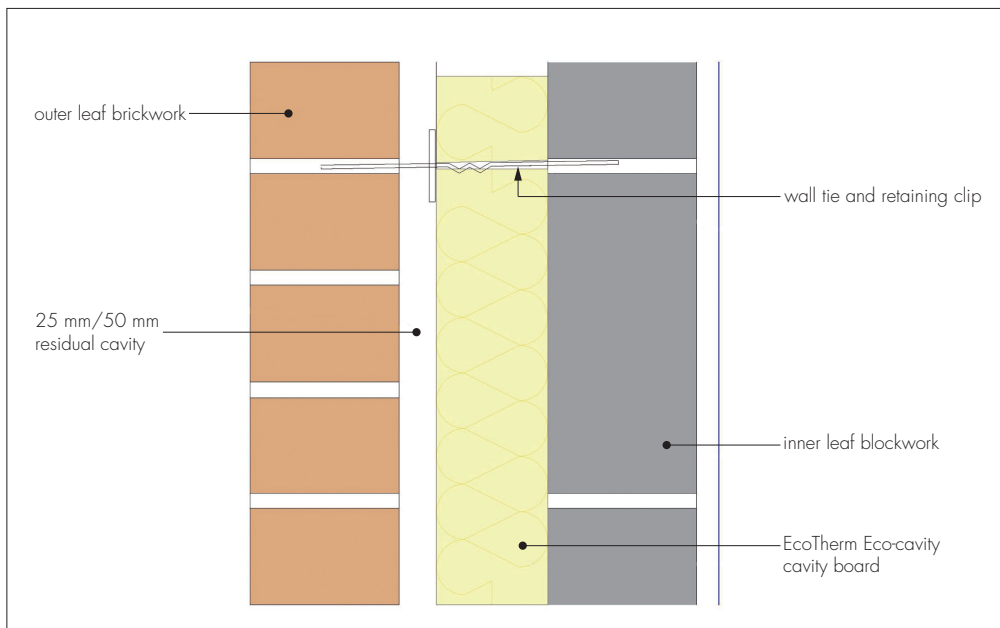
Figure 1 Installation of EcoTherm Eco-Cavity



14.2 The leading leaf is built up to the required height, with wall ties placed at a vertical height of 450 mm ensuring the drip of the tie is located halfway across the residual cavity width. Excess mortar is cleaned from the cavity face of the leading leaf, and the boards are placed on wall ties, behind the retaining clips, to form a closely butt-jointed run.

14.3 The second row of wall ties is fitted to retain the tops of the boards. It is essential that all wall ties slope downwards towards the outer leaf (see Figure 2) and at centres not exceeding 900 mm to ensure that each board is secured at a minimum of three points. Additional ties may be required to satisfy the structural requirements of BS 5628-3 : 2005 and/or to ensure adequate retention of boards or cut pieces.

Figure 2 Installation of wall ties



14.4 The outer leaf is then built up to the level of the top of the boards.

14.5 All boards should be butted with vertical joints staggered. Installation boards and wall ties should be staggered as construction proceeds and carried up to the highest level of the wall, except where protected by a cavity tray.

14.6 After each section of the leading leaf is built, excess mortar should be removed from the cavity face and mortar droppings cleaned from exposed edges of the installed board, before installation of the next run of boards. Use of a cavity board or a cavity batten will protect the installed boards and help to keep the cavity clean as the following leaf is built (see Figures 3 and 4).

Figure 3 Use of cavity board

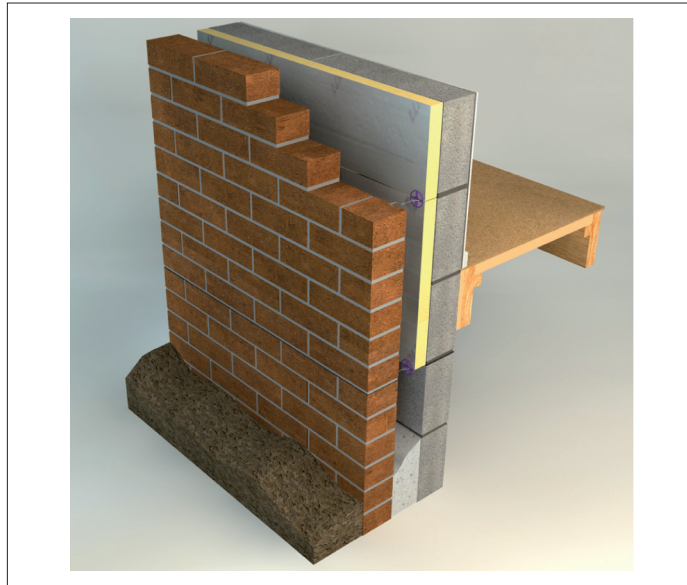
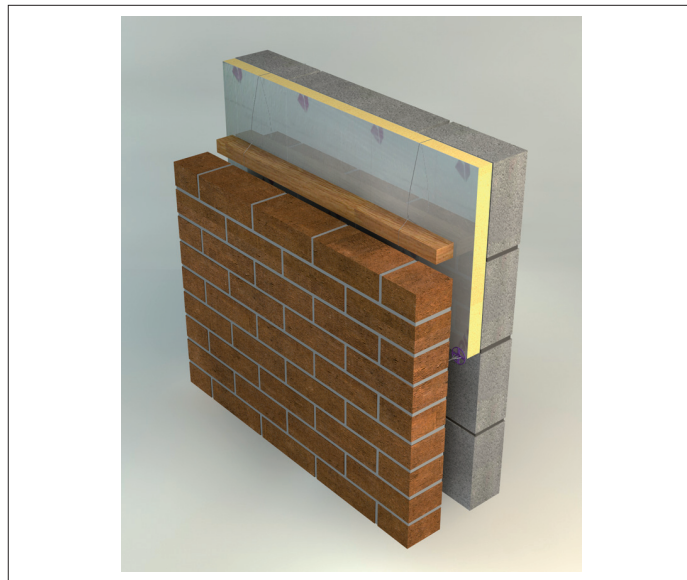


Figure 4 Use of cavity batten



14.7 Where openings such as doors and windows are in close proximity, it is recommended that a continuous lintel or cavity tray is used. Individual lintels or cavity trays should have stop ends and be adequately drained.

14.8 The boards can be cut, using a sharp knife or fine-toothed saw, to fit around windows, doors and air bricks. It is essential that cut pieces completely fill the spaces for which they are intended and are adequately secured; gaps should not be left in the insulation.

Technical Investigations

15 Investigations

15.1 An examination was made of data relating to:

- water vapour resistance
- density
- thermal conductivity (fresh and aged)
- closed cell count
- compressive strength
- water absorption
- dimensional accuracy.

15.2 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

- BS 5250 : 2011 *Code of practice for control of condensation in buildings*
- BS 5618 : 1985 *Code of practice for thermal insulation of cavity walls (with masonry or concrete inner and outer leaves) by filling with urea-formaldehyde (UF) foam systems*
- 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 DD 140-2 : 1987 *Wall ties — Recommendations for design of wall ties*
- BS EN 845-1 : 2013 *Specification for ancillary components for masonry — Ties, tension straps, hangers and bracket*
- BS EN 1996-1-1 : 2005 *Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- NA to BS EN 1996-1-1 : 2005 UK National Annex to Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures
- BS EN 1996-1-2 : 2005 *Eurocode 6 : Design of masonry structures — General rules — Structural fire design*
- NA to BS EN 1996-1-2 : 2005 UK National Annex to Eurocode 6 : Design of masonry structures — General rules — Structural fire design
- BS EN 1996-2 : 2006 *Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- NA to BS EN 1996-2 : 2006 UK National Annex to Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry
- BS EN 1996-3 : 2006 *Eurocode 6 : Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*
- NA to BS EN 1996-3 : 2006 UK National Annex to Eurocode 6 : Design of masonry structures — Simplified calculation methods for unreinforced masonry structures
- BS EN 13165 : 2012 *Thermal insulation products for buildings — Factory made rigid polyurethane foam (PU) products — 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 13914 : 2005 *Design, preparation and application of external rendering and internal plastering — External rendering*
- BS EN ISO 6946 : 1997 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*
- BS EN ISO 9001 : 2008 *Quality management systems — Requirements*
- BRE Report (BR 262 : 2002) *Thermal insulation — avoiding risks*
- BRE Report (BR 443 : 2006) *Conventions for U-value calculations*

16 Conditions

16.1 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.

16.2 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.

16.3 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.

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

16.5 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.

16.6 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.