

## EcoTherm Insulation (UK) Ltd

Harvey Road  
Burnt Mills Industrial Estate  
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 3

## ECOTHERM ECO RANGE FOR FLOORS, WALLS AND PITCHED ROOFS

### ECOTHERM ECO-LINER

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to EcoTherm Eco-Liner, a rigid urethane board factory-laminated to 9.5 mm, 12.5 mm or 15 mm thick gypsum plasterboard, for use as an insulating dry lining system to improve the thermal insulation of new and existing solid or cavity masonry walls of dwellings and non-dwellings or buildings of similar occupancy, type and conditions.

(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.

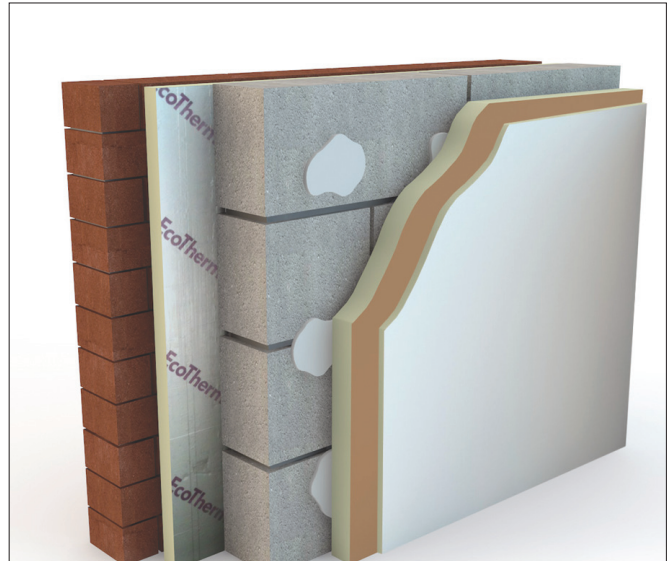
#### KEY FACTORS ASSESSED

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

**Condensation risk** — the system can limit the risk of surface condensation; the risk of interstitial condensation should be assessed for each case (see section 7).

**Behaviour in relation to fire** — the system has a classification of Bs1, d0 in accordance with BS EN 13501-1 : 2011 (see section 9).

**Durability** — under normal conditions, the system is rot-proof, dimensionally stable and durable and will have a service life equal to the building in which it is installed (see section 14).



The BBA has awarded this Certificate to the company named above for the system described herein. This system 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 handwritten signature in black ink, appearing to read 'John Albon'.

A handwritten signature in black ink, appearing to read 'Claire Curtis-Thomas'.

Date of First issue: 3 September 2014

John Albon — Head of Approvals  
Energy and Ventilation

Claire Curtis-Thomas  
Chief Executive

*The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at [www.bbacerts.co.uk](http://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.*

British Board of Agrément  
Bucknalls Lane  
Watford  
Herts WD25 9BA

©2014

tel: 01923 665300  
fax: 01923 665301  
e-mail: [customerservices@bba.star.co.uk](mailto:customerservices@bba.star.co.uk)  
website: [www.bbacerts.co.uk](http://www.bbacerts.co.uk)

# Regulations

In the opinion of the BBA, EcoTherm Eco-Liner, 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)

<b>Requirement:</b>	B2(1)	Internal fire spread (linings)
<b>Comment:</b>		The system is unrestricted under this Requirement. See section 9.1 of this Certificate.
<b>Requirement:</b>	B3(4)	Internal fire spread (structure)
<b>Comment:</b>		The system can contribute to satisfying this Requirement. See section 9.3 of this Certificate.
<b>Requirement:</b>	C2(c)	Resistance to moisture
<b>Comment:</b>		The system can contribute to satisfying this Requirement. See section 7.1 and 7.4 of this Certificate.
<b>Requirement:</b>	L1(a)(i)	Conservation of fuel and power
<b>Comment:</b>		The system can contribute to satisfying this Requirement. See section 6 of this Certificate.
<b>Regulation:</b>	7	Materials and workmanship
<b>Comment:</b>		The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	26	CO <sub>2</sub> emission rates for new buildings
<b>Regulation:</b>	26A	Fabric energy efficiency rates for new dwellings (applicable to England only)
<b>Regulation:</b>	26A	Primary energy consumption rates for new buildings (applicable to Wales only)
<b>Regulation:</b>	26B	Fabric performance values for new dwellings (applicable to Wales only)
<b>Comment:</b>		The system can contribute to satisfying these Regulations. See section 6 of this Certificate.



## The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	8(1)(2)	Durability, workmanship and fitness of materials
<b>Comment:</b>		The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	9	Building standards applicable to construction
<b>Standard:</b>	2.4	Cavities
<b>Comment:</b>		The system can contribute to satisfying this Standard, with reference to clause 2.4.2 <sup>(1)</sup> . See section 9.3 of this Certificate.
<b>Standard:</b>	2.5	Internal linings
<b>Comment:</b>		The system is unrestricted under this Standard, with reference to clause 2.5.1 <sup>(1)</sup> . See section 9.1 of this Certificate.
<b>Standard:</b>	3.15	Condensation
<b>Comment:</b>		The system can contribute to satisfying this Standard, with reference to clauses 3.15.1 <sup>(1)</sup> , 3.15.4 <sup>(1)</sup> and 3.15.5 <sup>(1)</sup> . See sections 7.1 and 7.5 of this Certificate.
<b>Standard:</b>	6.1(b)	Carbon dioxide emissions
<b>Standard:</b>	6.2	Building insulation envelope
<b>Comment:</b>		The system can contribute to satisfying clauses or parts of 6.1.1 <sup>(1)(2)</sup> , 6.1.2 <sup>(1)(2)</sup> , 6.1.3 <sup>(1)(3)</sup> , 6.1.4 <sup>(2)</sup> , 6.1.6 <sup>(1)</sup> , 6.1.8 <sup>(2)</sup> , 6.1.10 <sup>(2)</sup> , 6.2.1 <sup>(1)(2)</sup> , 6.2.3 <sup>(1)</sup> , 6.2.4 <sup>(1)</sup> , 6.2.5 <sup>(1)(2)</sup> , 6.2.6 <sup>(2)</sup> , 6.2.7 <sup>(2)</sup> , 6.2.9 <sup>(1)</sup> , 6.2.11 <sup>(1)</sup> and 6.2.13 <sup>(2)</sup> of these Standards. See section 6 of this Certificate.
<b>Standard:</b>	7.1(a)(b)	Statement of sustainability
<b>Comment:</b>		The system 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 system can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 <sup>(1)(2)</sup> [Aspects 1 <sup>(1)(2)</sup> and 2 <sup>(1)</sup> ], 7.1.6 <sup>(1)(2)</sup> [Aspects 1 <sup>(1)(2)</sup> and 2 <sup>(1)</sup> ] and 7.1.7 <sup>(1)(2)</sup> [Aspect 1 <sup>(1)(2)</sup> ]. See section 6.1 of this Certificate.
<b>Regulation:</b>	12	Building standards applicable to conversions
<b>Comment:</b>		All comments given for this system under Regulation 9, also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



## The Building Regulations (Northern Ireland) 2012

<b>Regulation:</b>	23	Fitness of materials and workmanship
<b>Comment:</b>		The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	29	Condensation
<b>Comment:</b>		The system can contribute to satisfying this Regulation. See section 7.1 of this Certificate.
<b>Regulation:</b>	34	Internal fire spread – Linings
<b>Comment:</b>		The system is unrestricted under this Regulation. See section 9.1 of this Certificate.
<b>Regulation:</b>	35(4)	Internal fire spread – Structure
<b>Comment:</b>		The system can contribute to satisfying this Regulation. See section 9.3 of this Certificate.
<b>Regulation:</b>	39(a)(i)	Conservation measures
<b>Regulation:</b>	40(2)	Target carbon dioxide emission rate
<b>Comment:</b>		The system can contribute to satisfying these Regulations. See section 6 of this Certificate.

Information in this Certificate may assist the client, 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 2014

NHBC accepts the use of EcoTherm Eco-Liner, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapters 6.3 Internal Walls and 8.2 *Wall and ceiling finishes*.

### CE marking

The Certificate holder has taken the responsibility of CE marking the system in accordance with harmonised European Standard BS EN 13950 : 2005. An asterisk (\*) appearing in this Certificate indicates that data shown is given in the manufacturer's Declaration of Performance.

## Technical Specification

### 1 Description

1.1 EcoTherm Eco-Liner consists of PIR insulation bonded to plasterboard (complying with BS EN 520 : 2004). It features a bilaminate foil/kraft paper facing, allowing it to be installed either by direct bonding to the wall using plaster dabs adhesive or by being mechanically-fixed, either directly to the wall or onto timber battens/framing or metal furring/framing systems.

1.2 The system is available as taper-edge board or square-edge board in the following nominal standard sizes<sup>(1)</sup>:

Width* (mm)	1200
Length* (mm)	2400
Thickness* (plasterboard) (mm)	9.5, 12.5, 15
Thickness* (insulation) (mm)	25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80

(1) Other sizes may be available by special order.

1.3 Ancillary items for use with the system (to be CE marked where appropriate), which are outside the scope of this Certificate:

- gypsum-based dry-lining adhesive compound (plaster dabs) to BS EN 14496 : 2005
- metal component furring systems to BS EN 14195 : 2005
- mechanical fasteners including dry wall screws, plasterboard nails and nailable plugs to BS EN 14566 : 2008
- metal edge and corner beads to BS EN 14353 : 2007
- jointing materials including scrim tape and jointing compound to BS EN 13963 : 2005
- pre-treated timber softwood battens to BS 5534 : 2003.

1.4 Details of suitable system specifications may be obtained from the Certificate holder.

### 2 Manufacture

2.1 Insulation boards are manufactured using conventional techniques for urethane products. The boards are then laminated to plasterboard.

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

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

2.3 The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by 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 identification mark 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 and 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 for EcoTherm Eco-Liner.

### Design Considerations

#### 4 General

4.1 The EcoTherm Eco-Liner system is for use as an insulating dry lining board to improve the thermal insulation of new and existing solid or cavity masonry walls of dwellings and non-dwellings or buildings of similar occupancy, type and conditions. They should be installed in accordance with the Certificate holder's instructions.

4.2 Since insulating dry linings are not intended to offer resistance to rain penetration, walls to be insulated must already be rain-resistant and show no signs of water ingress or rising damp.

4.3 Services that penetrate the dry lining, for example light switches and power outlets, should be kept to a minimum to limit damage to vapour checks.

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

4.5 The walls of new buildings should be designed and constructed in accordance with the relevant codes of practice, BS EN 1996-3 : 2006, BS EN 1996-2 : 2006, BS EN 1996-1-2 : 2005 and BS 8000-3 : 2001. It is essential that such walls are constructed having regard to the local wind-driven rain index.

4.6 When using the adhesive system, the surfaces of the walls should be smooth and flat to within 3 mm when measured with an 1800 mm straight edge in accordance with BS EN 13914-2 : 2005 and BS 8481 : 2006. Should any irregularity be greater than 6 mm, other methods of installation should be considered.

4.7 The installation of insulated dry lining systems requires careful detailing around doors and windows to achieve a satisfactory surface for finishing. In addition, every attempt should be made to minimise the risk of cold bridging at reveals and where heavy party walls are attached to the external wall. In new work, the construction must be designed to accommodate the thickness of the dry lining, particularly at reveals, heads and sills and in relation to ceiling height. On existing walls, consideration should be given to lining the reveals with a board incorporating a thinner layer of insulation.

4.8 With dry lining installations that form a void of 25 mm or more, services can be incorporated behind the dry lining, making the chasing of the wall unnecessary. Where the services have a greater depth than the void, the wall should be chased rather than the insulation.

4.9 When the boards are to be installed in existing buildings, a small reduction in room size will occur and permanent fixtures, eg baths, may present difficulties.

4.10 Provided the boards are installed neatly, the jointing and finishing system specified is capable of providing a satisfactory surface for direct decoration without the need for further plastering.

4.11 Where fixing methods rely on adhesives, it is essential to establish before installation that a satisfactory bond can be achieved between the surface and the adhesive. Backgrounds of high suction will behave very differently to those of low suction. If difficulty is experienced with adhesion, the Certificate holder's advice should be sought before proceeding.

#### 5 Practicability of installation

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

#### 6 Thermal performance

6.1 Calculations of thermal transmittance (U value) of a specific construction using insulated dry lining should be carried out in accordance with BS EN ISO 6946 : 2007, BRE Report BR 443 : 2006 and BRE Digest 465 : 2002, using the Declared thermal conductivity ( $\lambda_D^*$  value) of  $0.022 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  for the insulation component and a default value of  $0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  for the plasterboard (12.5 mm).

6.2 The U value of a typical wall construction will depend on the insulation value of the wall, fixing method and its finish. Example U values are given in Tables 1 and 2.

**Table 1 Insulation thickness required to achieve U value<sup>(1)</sup> — adhesive system**

U value (W·m <sup>-2</sup> ·K <sup>-1</sup> )	Thickness of insulation <sup>(2)</sup> (mm)	
	215 mm brickwork $\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$	200 mm dense blockwork $\lambda = 1.75 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$
0.18	110 <sup>(3)</sup>	110 <sup>(3)</sup>
0.19	105 <sup>(3)</sup>	105 <sup>(3)</sup>
0.25	75	80
0.26	75	75
0.30	60	65
0.35	50	55

(1) Wall construction inclusive of 12.5 mm plasterboard and 15 mm cavity (20% dabs).

(2) Based upon incremental insulation thickness of 5 mm.

(3) Non-standard thickness (special order).

**Table 2 Insulation thickness required to achieve U value<sup>(1)(2)</sup> — fixing system**

U value (W·m <sup>-2</sup> ·K <sup>-1</sup> )	Thickness of insulation <sup>(3)</sup> (mm)	
	215 mm brickwork $\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$	200 mm dense blockwork $\lambda = 1.75 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$
0.18	145 <sup>(4)</sup>	150 <sup>(4)</sup>
0.19	135 <sup>(4)</sup>	140 <sup>(4)</sup>
0.25	100 <sup>(4)</sup>	105 <sup>(4)</sup>
0.26	95 <sup>(4)</sup>	100 <sup>(4)</sup>
0.30	80	85 <sup>(4)</sup>
0.35	65	70

(1) Wall construction inclusive of 12.5 mm plasterboard and 15 mm cavity (10% timber or 0.5% steel).

(2) Fixings — 18.2 mm<sup>2</sup> area with  $\lambda = 50 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  and 10 per m<sup>2</sup>.

(3) Based upon incremental insulation thickness of 5 mm.

(4) Non-standard thickness (special order).

6.3 Designers must limit heat loss at junctions between the wall and other elements. Detailed guidance on limiting heat loss by air infiltration can be found in:

**England and Wales** — Approved Documents to Part L and for new thermal elements to existing buildings, Accredited Construction Details (version 1.0). For new-build, see also SAP 2009 Appendix K and the *iSBEM User Manual*

**Scotland** — Accredited Construction Details (Scotland)

**Northern Ireland** — Accredited Construction Details (version 1.0).

## 7 Condensation risk

### Interstitial condensation



7.1 Walls will limit the risk of interstitial condensation adequately when they are designed and constructed in accordance with BS 5250 : 2011, Annexes D and G and the relevant guidance.

7.2 Where calculations to Annex D of BS 5250 : 2011 indicate a risk of persistent condensation, a site-specific dynamic analysis to BS EN 15026 : 2007 should be considered.

7.3 Provided all joints between the system are sealed (see section 6.3 of this Certificate and the Installation section) in accordance with the Certificate holder's instructions, the system can offer a significant resistance to water vapour transmission.

### Surface condensation



7.4 Walls incorporating the system 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 relevant requirements of *Limiting thermal bridging and air leakage : Robust construction details for dwellings and similar buildings* (TSO 202) or BRE Information Paper IP 1/06.



7.5 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed  $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  at any point. Guidance may be obtained from Annex G of BS 5250 : 2011 and BRE Report BR 262 : 2002.

## 8 Infestation

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

## 9 Behaviour in relation to fire



9.1 The system is classified as B-s1, d0 in accordance with BS EN 13501-1 : 2011 and is unrestricted with respect to surface spread of flame under the Building Regulations.

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



9.3 Any cavities formed by the system (such as those formed between the thermal liner and the substrate wall) must have appropriate fire stopping in accordance with the relevant national Building Regulations.

*England and Wales* — Approved Document B, Volume 1, section 6

*Scotland* — Mandatory Standard 2.4, clause 2.4.2<sup>(1)</sup>

(1) Technical Handbook (Domestic).

*Northern Ireland* — Technical Booklet E, paragraph 3.35 to 3.38.

## 10 Proximity of flues and appliances

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

*England and Wales* — Approved Document J

*Scotland* — Mandatory Standard 3.19, clause 3.19.1<sup>(1)</sup> to 3.19.4<sup>(1)</sup>

(1) Technical Handbook (Domestic).

*Northern Ireland* — Technical Booklet L.

## 11 Materials in contact — wiring installations

11.1 Electrical cables that are likely to come into contact with the insulation component of the thermal liner are not required to be protected by a suitable conduit or PVC-U trunking. The installation of electrical services must be carried out in accordance with BS 7671 : 2008.

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

## 12 Wall-mounted fittings

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

## 13 Maintenance

If the system is damaged during use, it can be readily removed and replaced.

## 14 Durability



Provided the system is fixed to a satisfactory stable and durable wall, it will have a life equal to the building in which it is installed.

## 15 Reuse and recyclability

Once installed, EcoTherm Eco-Liner will perform for the lifetime of the assembly into which it is placed without need for ongoing maintenance. When used in mechanically fixed applications, if the boards are carefully removed from the substrate and remain in good condition, they can be re-used. When removed from their plasterboard lining, the insulation component is suitable for landfill. Plasterboard should be disposed of through an approved plasterboard recycling company. All packaging used with EcoTherm Eco-Liner is either recyclable or reusable.



## 16 General

16.1 Installation should be carried out in accordance with BS 8212 : 1995, good dry lining practice and the Certificate holders instructions.

16.2 The fixing method is dependent on the substrate.

16.3 Before fixing the system, sufficient time must be allowed for the dispersion of solvents contained in some wood preservatives and damp-proofing treatments where applied. Backgrounds should be allowed to dry-out before fixing insulation dry lining, particularly where vapour checks are part of the lining system.

16.4 All installations of insulated dry lining require careful planning and setting out.

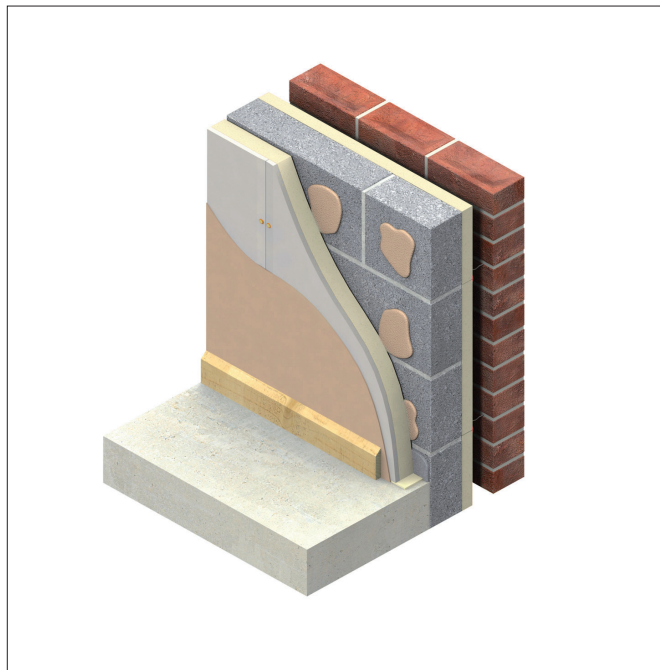
16.5 Dabs, furring and battens should be continuous at skirting and ceiling level and around openings to minimise air movement.

## 17 Procedure

### Dot and dab method

17.1 This method is for application to brick, block or concrete walls (see Figure 1). A continuous fillet of gypsum-based adhesive is applied by trowel to the perimeter of the wall and around such details as services. In the board width, three vertical rows of adhesive dabs are applied by trowel; those near the edges should be set-in by at least 25 mm to avoid bridging the joint. Boards are applied, starting from a window or door reveal. Once set, a minimum of two nailable fixings should be applied at the mid-point of the board, approximately 25 mm from the board edge.

Figure 1 Plaster dab method



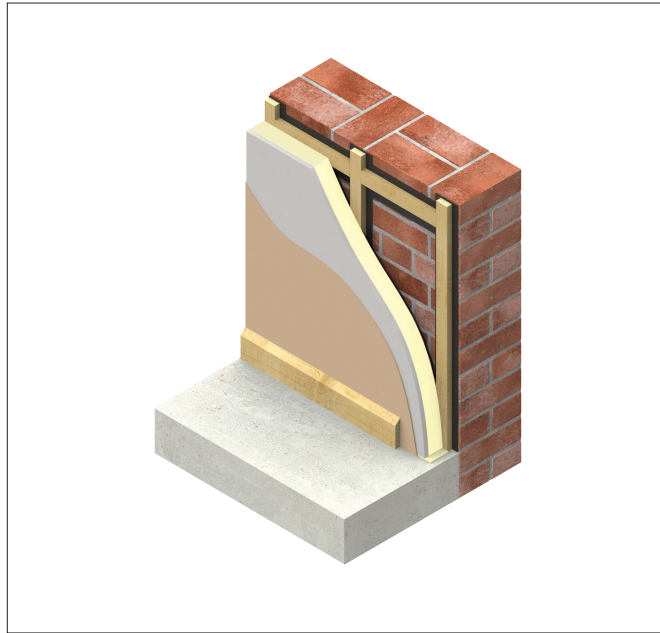
### Adhesive bonding

17.2 This method is for application to good plaster or fair-faced masonry walls where no irregularity exists. After surface preparation and setting out, flexible acrylic sealant adhesive is applied to either the substrate or the back of the insulation component of EcoTherm Eco-Liner at 300 mm centres horizontally and vertically. Boards are applied, starting from a window or door reveal. After the adhesive has set, a minimum of two nailable fixings should be applied at the mid-point of the board, approximately 25 mm from the board edge. Jointing and finishing are then carried out using conventional good practice.

### M/F (metal furring) method

17.3 This method is for application to brick, block or concrete walls. Metal furring is applied to the wall in a defined pattern using gypsum-based adhesive, and aligned whilst the adhesive is still workable. When the adhesive has set, the boards are fixed to the furring using drywall screws. Jointing and finishing are then carried out using conventional good practice.

Figure 2 Timber batten method



### Timber batten method

17.4 The EcoTherm Eco-Liner system may be used on any stable, dry wall capable of taking the fixings for pre-treated timber battens or metal framing. Vertical timbers or metal lining channels are installed at a maximum of 600 mm centres, with additional horizontal timbers/metal framing members to coincide with horizontal board joints, if required. Timbers/metal channels must provide a minimum of 20 mm bearing to each system at joints and be of sufficient depth to accommodate the fixings for the system. The system is to be fixed to the timber/metal framing with drywall screws located at 300 mm centres, reducing to 200 mm centres for external corners. Alternatively, for timber the system can be fixed with plasterboard nails located at 150 mm centres around the system perimeter and on intermediate timbers (see Figure 2).

### Board type

17.5 When the taper-edge wall board is used, all the methods of installation described are capable of providing a suitable base for the application of paint or wallpaper decorative finishes. Alternatively, square-edge board with an exposed grey face may be fixed using the same methods, and finished using traditional plastering techniques.

## Technical Investigations

### 18 Tests

The following tests were carried out:

- density
- compressive strength
- thermal conductivity (fresh and aged)
- laminate bond strength
- vapour resistance.

### 19 Investigations

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.



## Bibliography

- BS 5250 : 2011 *Code of practice for control of condensation in buildings*
- BS 5534 : 2003 *Code of practice for slating and tiling (including shingles)*
- BS 7671 : 2008 *Requirements for electrical installations. IEE Wiring Regulations. Seventeenth Edition*
- BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*
- BS 8212 : 1995 *Code of practice for dry lining and partitioning using gypsum plasterboard*
- BS 8481 : 2006 *Design, preparation and application of internal gypsum, cement, cement and lime plastering systems — Specification*
- BS EN 520 : 2004 *Gypsum plasterboards — Definitions, requirements and test methods*
- BS EN 1996-1-2 : 2005 *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*
- BS EN 1996-3 : 2006 *Eurocode 6 : Design of masonry structures : Simplified calculation methods for unreinforced masonry structures*
- BS EN 13501-1 : 2011 *Fire classification of construction products and building elements. Classification using test data from reaction to fire tests*
- BS EN 13950 : 2005 *Gypsum plasterboard thermal/acoustic insulation composite panels — Definitions, requirements and test methods*
- BS EN 13914-2 : 2005 *Design, preparation and application of external rendering and internal plastering — Design considerations and essential principles for internal plastering*
- BS EN 13963 : 2005 *Jointing materials for gypsum plasterboards — Definitions, requirements and test methods*
- BS EN 14195 : 2005 *Metal framing components for gypsum plasterboard systems — Definitions, requirements and test methods*
- BS EN 14353 : 2007 *Metal beads and feature profiles for use with gypsum plasterboards — Definitions, requirements and test methods*
- BS EN 14496 : 2005 *Gypsum based adhesives for thermal/acoustic insulation composite panels and plasterboards — Definitions, requirements and test methods*
- BS EN 14566 : 2008 *Mechanical fasteners for gypsum plasterboard systems — Definitions, requirements and test methods*
- BS EN 15026 : 2007 *Hygrothermal performance of building components and building elements — Assessment of moisture transfer by numerical simulation*
- BS EN ISO 6946 : 2007 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*
- BS EN ISO 9001 : 2008 *Quality management systems — Requirements*
- BRE Digest 465 : 2002 *U-values for light steel-frame construction*
- BRE Information Paper IP 1/06 *Assessing the effects of thermal bridging at junctions and around openings*
- BRE Report (BR 262 : 2002) *Thermal insulation: avoiding risks*
- BRE Report (BR 443 : 2006) *Conventions for U-value calculations*

## 20 Conditions

20.1 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.

20.2 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.

20.3 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.

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

20.5 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.

20.6 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.