## **IKO Insulations UK**

**Appley Lane North Appley Bridge** Wigan

e-mail: info.uk@iko.com website: www.ikogroup.co.uk

APPROVAL INSPECTION TESTING Lancashire WN6 9AB PPROVALS FOR CONSTRUCTION Tel: 01257 255771 Fax: 01257 252514

**Agrément Certificate** 15/5283

**Product Sheet 2** 

## **IKO INSULATIONS**

# **IKO ENERTHERM ALU INSULATION BOARD FOR PITCHED ROOFS**

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to IKO enertherm ALU Insulation Board for Pitched Roofs, comprising a rigid polyisocyanurate (PIR) foam board with composite foilfacings, for use as pitched roof insulation above, between and/or below rafters, in tiled or slated pitched roofs, or between and over ceiling joists, in new and existing domestic or non-domestic buildings.

(1) Hereinafter referred to as 'Certificate'.

#### **CERTIFICATION INCLUDES:**

- · factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

## **KEY FACTORS ASSESSED**

**Thermal performance** — the product has a declared thermal conductivity  $(\lambda_D)^*$  of 0.022 W·m<sup>-1</sup>·K<sup>-1</sup> (see section 6).

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

Behaviour in relation to fire — the product has a reaction to fire classification\* of Class E to BS EN 13501-1: 2007 (see section 8).

Resistance to moisture — the product will not be adversely affected by rain showers during installation, nor by winddriven snow or rain penetrating the tiling in service (see section 11).

Durability — the product is durable, rot proof, water resistant and sufficiently stable to remain effective as an insulation for the life of the building (see section 13).

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. ann

(ROTO)

On behalf of the British Board of Agrément

Date of First issue: 4 March 2016

John Albon – Head of Approvals **Construction Products** 

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 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

tel: 01923 665300 fax: 01923 665301 clientservices@bba.star.co.uk

www.bbacerts.co.uk

©2016

# Regulations

In the opinion of the BBA, IKO enertherm ALU Insulation Board for Pitched Roofs, 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: C2(c) Resistance to moisture

Comment: The product can contribute to satisfying this Requirement. See sections 7.1 and 7.5 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

Comment: The product is acceptable. See section 13 and the *Installation* part of this Certificate.

Regulation: 26 CO<sub>2</sub> 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) Comment:

The product can contribute to satisfying these Regulations. See section 6 of this

Certificate.



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

Durability, workmanship and fitness of materials Regulation: 8(1)

Comment: The product is acceptable. See section 13 and the *Installation* part of this Certificate.

**Building standards applicable to construction** Regulation: 9

3.15 Standard: Condensation

Comment: The product can contribute to satisfying this Standard, with reference to clauses

 $3.15.1^{(1)(2)}$ ,  $3.15.4^{(1)}$  and  $3.15.7^{(1)(2)}$ . See sections 7.1 and 7.6 of this Certificate.

Standard: 6.1(b) Carbon dioxide emissions

Standard: 6.2 Building insulation envelope

The product can contribute to satisfying these Standards, with reference to clauses, or Comment: parts of,  $6.1.1^{(1)}$ ,  $6.1.6^{(1)}$ ,  $6.2.1^{(1)(2)}$ ,  $6.2.3^{(1)}$ ,  $6.2.4^{(1)(2)}$ ,  $6.2.5^{(2)}$ ,  $6.2.6^{(1)(2)}$ ,  $6.2.7^{(1)}$ ,  $6.2.8^{(2)}$ ,

 $6.2.9^{(1)(2)}$ ,  $6.2.10^{(1)}$ ,  $6.2.11^{(1)(2)}$   $6.2.12^{(2)}$  and  $6.2.13^{(1)(2)}$ . See section 6 of this Certificate.

Standard: Statement of sustainability 7.1(a)(b)

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<sup>(1)(2)</sup> [Aspects  $1^{(1)(2)}$  and  $2^{(1)}$ ], 7.1.6<sup>(1)(2)</sup> [Aspects  $1^{(1)(2)}$  and  $2^{(1)}$ ]

and 7.1.7 $^{(1)(2)}$  [Aspect  $1^{(1)(2)}$ ]. See section 6 of this Certificate.

Regulation: 12 **Building standards applicable to conversions** 

Comment: Comments made in relation to this product under Regulation 9, Standards 1 to 6, also

apply to this Regulation, with reference to clause  $0.12.1^{(1)(2)}$  and Schedule  $6^{(1)(2)}$ .

(1) Technical Handbook (Domestic)

(2) Technical Handbook (Non-Domestic)



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

Regulation: 23 Fitness of materials and workmanship

Comment: The product is acceptable. See section 13 and the *Installation* part of this Certificate.

Regulation: 29 Condensation

Comment: The product can contribute to satisfying this Regulation. See section 7.1 of this

Certificate.

Regulation: 39(a)(i) Conservation measures

Regulation: 40(2) Target carbon dioxide emission rate

Comment: The product can contribute to satisfying these Regulations. See 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 sections: 3 Delivery and site handling (3.4) and 14 General (14.2) of this Certificate.

## **Additional Information**

#### **NHBC Standards 2016**

NHBC accepts the use of IKO enertherm ALU Insulation Board for Pitched Roofs, provided it is installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 7.2 *Pitched roofs*.

## **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 is given in the manufacturer's Declaration of Performance.

# **Technical Specification**

## 1 Description

IKO enertherm ALU Insulation Board for Pitched Roofs comprises a rigid polyisocyanurate (PIR) board with composite foil-facings, with the nominal characteristics given in Table 1.

#### Table 1 Nominal characteristics

Size (mm)	1200 x 600	
	1200 x 2400	
Thickness (mm)	30, 40, 50, 60, 70, 75, 80, 90, 100, 110, 120 and 140	
Edge detail	Plain square edge	
Minimum compressive stress at 10% deformation (kPa)*	175	
Foil-facings	Printed composite foil-facing both sides	

## 2 Manufacture

2.1 IKO enertherm ALU Insulation Board for Pitched Roofs is manufactured by blending together polyol and MDI in a continuous foaming process aided by a blowing agent, and sandwiched between two composite 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 the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 14001 : 2004 by Stichting QualityMasters (Certificate NL 6397uk).

# 3 Delivery and site handling

- 3.1 The product is delivered to site in packs, wrapped in polythene. Each pack of boards contains a label with the manufacturer's trade name, product description, board dimensions, and the BBA logo incorporating the number of this Certificate.
- 3.2 The product must be protected from prolonged exposure to sunlight, and should be stored under cover or protected with opaque polythene sheeting. Where possible, packs should be stored inside. If stored outside, the product should be stacked flat, and raised above ground level and not in contact with ground moisture.
- 3.3 The product is light and easy to handle and care should be exercised to avoid crushing the edges or corners. If damaged the product should be discarded.
- 3.4 The product must not be exposed to open flame or other ignition sources, or to solvents or other chemicals.

# **Assessment and Technical Investigations**

The following is a summary of the assessment and technical investigations carried out on IKO enertherm ALU Insulation Board for Pitched Roofs.

#### **Design Considerations**

## 4 Use

- 4.1 IKO enertherm ALU Insulation Board for Pitched Roofs is suitable for use as insulation within tiled or slated pitched roofs, for use above, between and/or below rafters in conjunction with internal lining board, roof tile underlay, timber counter battens and tiling battens, or between and over ceiling joists, in new and existing domestic or non-domestic buildings.
- 4.2 Roofs should be designed and constructed in accordance with the relevant clauses of BS 5250 : 2011, BS 5534 : 2014, BS 8212 : 1995 and BS EN 1995-1-1 : 2004.
- 4.3 The product is for use in constructions where the ceiling follows the pitch of the roof and encloses a habitable space, or where the ceiling is horizontal and encloses a loft space.
- 4.4 The product is not a structural component.
- 4.5 During installation, care should be exercised to ensure that the product is not subjected to any construction, or foot traffic, loads. Roof timbers of adequate strength should be used to support such loads.
- 4.6 It is essential that detailing and jointing of the boards achieves a convection-free envelope of high vapour resistance. Any gaps should be filled and/or taped. Ridges, abutments and penetrations should also be sealed. Flue pipes passing through the insulation should be suitably sleeved.
- 4.7 The provision of fire stops should be carried out in accordance with the requirements of the national Building Regulations.

# 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 roof constructions should be carried out in accordance with BS EN ISO 6946 : 2007 and BRE Report BR 443 : 2006, using the declared thermal conductivity ( $\lambda_D$ )\* value of 0.022 W·m<sup>-1</sup>·K<sup>-1</sup> for the insulation, and an aged emissivity ( $\epsilon_D$ ) (to BS EN 15976 : 2011) of 0.9 for the printed foil-facings.

6.2 The U value of a completed roof will depend on the insulation thickness, number and type of fixings, and the roof structure and its internal finish. Calculated U values for example constructions in accordance with the national Building Regulations are given in Table 2.

Table 2 Example U values — pitched roof<sup>(1)</sup>

Insulation Thickness <sup>(2)</sup> (mm)			
Target U value (W·m <sup>-2</sup> ·K <sup>-1</sup> )	Over rafters	Between rafters	Between and under rafters
0.13	155 (80 and 75)	_	100 + 90
0.15	140	_	100 + 70
0.16	140	_	100 + 60
0.18	110	_	90 + 50
0.20	100	_	90 + 40
0.25	80	140	75 + 30

- (1) Plasterboard taken as 12.5 mm at 0.25 W·m<sup>-1</sup>·K<sup>-1</sup> and all timber % taken from BRE Report BR 443 : 2006.
- (2) Nearest available thickness.

## **Junctions**

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 Condensation risk

#### Interstitial condensation



- 7.1 Roofs will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250: 2011 Annex H and the relevant guidance.
- 7.2 The risk of interstitial condensation will be minimal under normal conditions of use. The foil-facings have a water vapour resistance of 1000 MN·s·g<sup>-1</sup> and the insulation core has a water vapour resistivity of approximately 183 MN·s·g<sup>-1</sup>·m<sup>-1</sup>. The product, therefore, when installed with tightly-butted joints, filled/sealed gaps and joints, will provide a continuous convection-free envelope of high vapour resistance. Therefore, a suitable vapour-permeable (LR) roof tile underlay may be laid over the insulation boards without ventilated air space. When using a high-resistance (HR) underlay, the space below it must be ventilated in accordance with BS 5250: 2011 Annex H.
- 7.3 Where the product is installed in a roof with either a horizontal or sloping ceiling (ie room-in-the-roof), a 'warm roof' space is created and ventilation should be designed in accordance with BS 5250: 2011 Annex H. However, any insulation in a horizontal ceiling should be removed.

7.4 Where high humidity may be expected, a vapour control layer (VCL) should also be used unless a construction-specific condensation risk analysis in accordance with BS 5250 : 2011 shows that it is not necessary.

#### **Surface condensation**



7.5 Roofs will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed  $0.35~\rm W\cdot m^{-2}\cdot K^{-1}$  at any point and the junctions with walls are designed in accordance with section  $6.3~\rm of$  this Certificate.



7.6 Roofs will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed 1.2 W·m $^{-2}$ ·K $^{-1}$  at any point. Guidance may be obtained from BS 5250 : 2011 Annex H. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6.3 of this Certificate.

## 8 Behaviour in relation to fire

- 8.1 The product has a reaction to fire classification\* of Class E to BS EN 13501-1: 2007.
- 8.2 When installed between, under or over rafters, with an internal lining board securely fixed to timber, eg 12.5 mm thick plasterboard, the product will be contained between the element and internal lining board until one is destroyed. Therefore, the product will not contribute to the development stages of a fire until the lining is compromised.
- 8.3 Elements must incorporate cavity barriers at edges, around openings, at junctions with fire-resisting elements and in cavities, in accordance with the relevant provisions of the national Building Regulations.
- 8.4 The use of the product will not affect the fire rating obtained by tiled or slated roofs when evaluated by assessment or test to BS 476-3 : 2004 or BS EN 13501-5 : 2005.

# 9 Strength

The product, when installed in accordance with the manufacturer's instructions and this Certificate, will resist the loads likely to be met during installation and in service.

# 10 Structural stability (over rafter application only)

- 10.1 Resistance to wind uplift will depend largely on the building geometry and its geographical location and should be calculated in accordance with BS EN 1991-1-3: 2003 and its UK National Annex. Snow loadings should be calculated in accordance with BS EN 1991-1-3: 2003 and its UK National Annex.
- 10.2 When calculating the fixing spacing required to resist the calculated loadings, the requirements of BS EN 1995-1-1: 2004 and its National Annex should be followed where possible. Further guidance can be obtained from the Certificate holder. The Certificate holder and fixing manufacturer must advise on the use of the correct proprietary fixings and approved nails and fixing capacity in accordance with BS EN 1995-1-1: 2004 and its UK National Annex.

## 11 Resistance to moisture

An effective roof tile underlay will protect the product from wind-driven snow or rain penetrating the tiling in service.

#### 12 Maintenance

As the product is confined within the pitched roof by the underlay and has suitable durability (see section 13), maintenance is not required.

## 13 Durability



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

#### Installation

#### 14 General

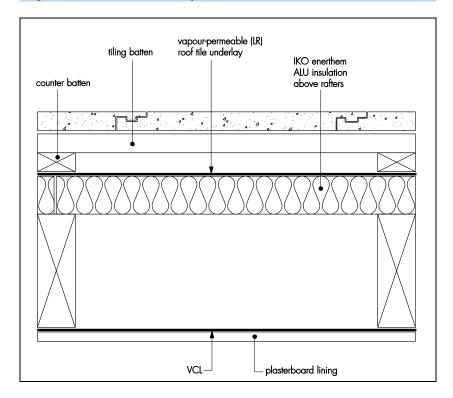
- 14.1 Installation of IKO enertherm ALU Insulation Board for Pitched Roofs must be in accordance with the relevant clauses of BS 5534: 2014, and the manufacturer's instructions. Installation can be carried out in all conditions normal to roofing work.
- 14.2 The product is light to handle but some handling difficulties may be experienced in windy conditions. Since the product will not support the weight of operatives, appropriate care must be taken during installation and tiling.
- 14.3 The product can be cut easily using a sharp knife or fine tooth saw. Care must be taken to prevent damage, particularly to edges. Damaged boards should not be used. Small areas of damaged facing may be repaired with self-adhesive aluminium foil tape.
- 14.4 It is important to fill/seal gaps and joints in the insulation envelope, including at all service penetrations.
- 14.5 For installation of roof tiles or slates and internal lining boards, see sections 15.13 and 15.14 of this Certificate.

## 15 Procedure

#### **Above rafters**

- 15.1 A treated timber stop batten, the same thickness as the insulation board, is fixed to the rafters close to the eaves to provide a firm fixing point for the counter battens. The product is laid over the rafters commencing at the stop batten. The product should be tightly butted and positioned in a staggered pattern with all the joints running from eaves to ridge positioned over the rafters. The procedure is continued until the whole area is covered.
- 15.2 Any gaps must be sealed with flexible sealant or expanded foam. Large-headed clout nails can be used as a temporary securing measure until the counter battens are secured into place.
- 15.3 A vapour-permeable (LR) roofing underlay should be installed on top of the insulation and secured with counter battens, followed by tiling battens.

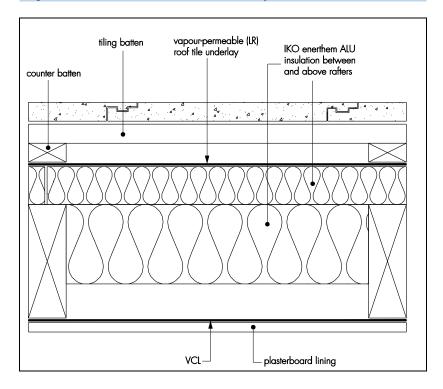
Figure 1 — Insulation above rafters



## Between and above rafters

- 15.4 The product is cut to fit tightly within the space between the rafters, and can be restrained using proprietary clips or timber sections.
- 15.5 The product is installed flush with the top of the rafters.
- 15.6 A second layer of insulation board is then fixed above the rafters, installed as described in sections 15.1 to 15.3. See Figure 2.

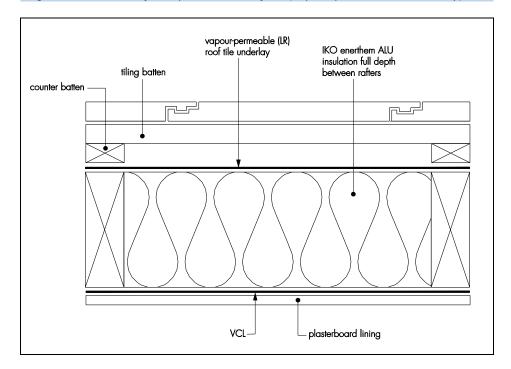
Figure 2 — Insulation between and above rafters



#### **Between rafters**

- 15.7 The product is cut to fit tightly within the space between the rafters and restrained using proprietary clips or timber battens, allowing sufficient depth for the insulation to sit flush with the underside of the rafters.
- 15.8 A ventilation gap of 50 mm must be maintained between the top of the insulation and roof tile underlay to minimise the risk of condensation, unless a vapour-permeable (LR) underlay is used.
- 15.9 When using a vapour-permeable (LR) roofing underlay on top of the rafters, the insulation can be installed full depth between the rafters ie flush with the top and bottom of the rafters. Counter battens are then installed over the underlay, followed by tiling battens. See Figure 3.

Figure 3 — Insulation full depth between rafters (vapour-permeable LR underlay)



15.10 When using a high-resistance (HR) roofing underlay on the top of the rafters, the insulation should be installed part depth between the rafters ie flush with the bottom of the rafters and set to create a 50 mm void between the top of the insulation and the top of the rafter for ventilation. Tiling battens are applied over the roofing underlay. See Figure 4.

high resistance (HR) insulation part depth between rafters

50 mm vent gap

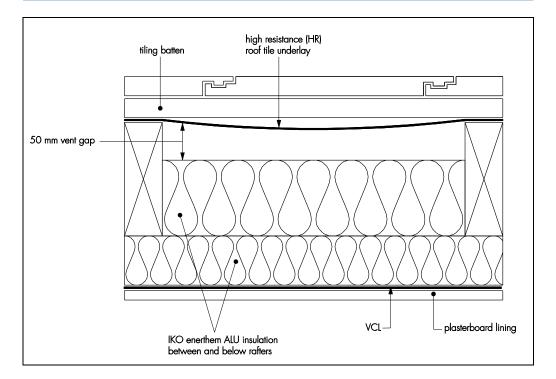
VCL plasterboard lining

Figure 4 — Insulation part depth between rafters (high-resistance HR underlay)

## Between and below rafters

- 15.11 If required, after installation between rafters as described in sections 15.9 or 15.10, a second layer of the product may be added below the rafters, running at right angles to the rafters and insulation fill, in a staggered pattern, and fixed accordingly. See Figure 5.
- 15.12 The product should be butted tightly against each other to prevent gaps. Taping the joints with a self-adhesive aluminium foil tape provides an effective air permeability barrier. To achieve an adequate bond, the product should be clean and free from any contamination.

Figure 5 — Insulation between and below rafters



#### **Finishing**

15.13 Roof tiles or slates are installed in accordance with the relevant clauses of BS 5534 : 2014. When applying roof tiles or slates to a warm roof construction, the recommendations of the manufacturer should be followed.

15.14 A sealed polythene VCL with a minimum thickness of 0.125 mm with lapped and sealed joints is placed over the internal rafter face before applying the internal finishing plasterboard lining to BS EN 520: 2004, fixed in accordance with BS 8212: 1995, to ensure a well-sealed ceiling in accordance with BS 9250: 2007.

#### Technical Investigations

## 16 Tests

An examination was made of data relating to:

- fire rating
- thermal conductivity
- compressive stress at 10% deformation
- dimensional accuracy
- diffusion tight property of facings
- water vapour resistance.

# 17 Investigations

- 17.1 A condensation risk analysis was carried out.
- 17.2 A series of U value calculations were carried out.
- 17.3 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 476-3 : 2004 Fire tests on building materials and structures — Classification and method of test for external fire exposure to roofs

BS EN 520: 2004 Gypsum plasterboards — Definitions, requirements and test methods

BS 5250: 2011 Code of practice for control of condensation in buildings

BS 5534: 2014 Slating and tiling for pitched roofs and vertical cladding — Code of practice

BS 8212: 1995 Code of practice for dry lining and partitioning using gypsum plasterboard

BS 9250: 2007 Code of practice for the design of the airtightness of ceilings in pitched roofs

BS EN 1991-1-3 : 2003 Eurocode 1 : Actions on structures — General actions — Snow loads
NA to BS EN 1991-1-3 : 2003 UK National Annex to Eurocode 1 : Actions on structures — General actions — Snow loads

BS EN 1995-1-1 : 2004 Eurocode 5 : Design of timber structures — General — Common rules and rules for buildings NA to BS EN 1995-1-1 : 2004 UK National Annex to Eurocode 5 : Design of timber structures — General — Common rules and rules for buildings

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 13501-5 : 2005 Fire classification of construction products and building elements — Classification using data from external fire exposure to roof tests

BS EN 15976: 2011 Flexible sheets for waterproofing — Determination of emissivity

BS EN ISO 6946 : 2007 Building components and building elements — Thermal resistance and thermal transmittance — Calculation method

BS EN ISO 14001: 2004 Environmental Management systems — Requirements with guidance for use

BRE Report (BR 262: 2002) Thermal insulation: avoiding risks

BRE Report (BR 443: 2006) Conventions for U-value calculations

# **Conditions of Certification**

#### 18 Conditions

#### 18.1 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 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.
- 18.2 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.
- 18.3 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.
- 18.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.
- 18.5 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.

18.6 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.