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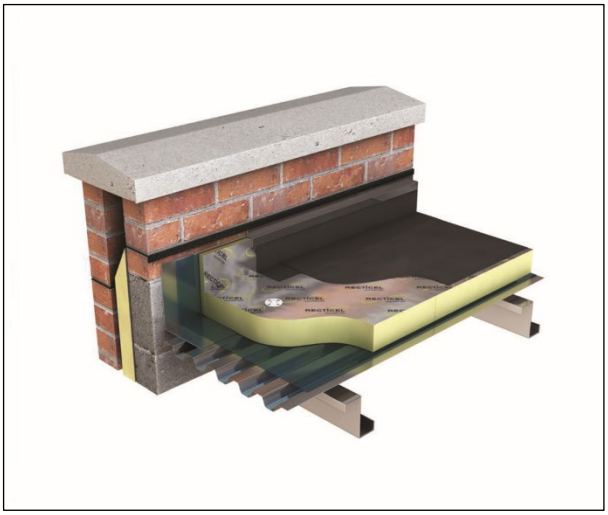
Agrément Certificate
24/7146
Product Sheet 1 Issue 1

EUROTHANE INSULATION

EUROTHANE EURODECK

This Agrément Certificate Product Sheet(1) relates to Eurothane Eurodeck, a rigid thermoset polyisocyanurate (PIR) foil-faced insulation board for use as thermal insulation on limited access concrete, metal or timber flat roof decks in conjunction with an air and vapour control layer (AVCL) and a single ply mechanically fixed roof waterproofing membrane, in new and existing, domestic and non-domestic buildings.

(1) Hereinafter referred to as 'Certificate'.



The assessment includes

Product factors:

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

Process factors:

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

Ongoing contractual Scheme elements†:

- regular assessment of production
- formal 3-yearly review

KEY FACTORS ASSESSED

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

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of issue: 4 June 2024

Hardy Giesler
Chief Executive Officer

This BBA Agrément Certificate is issued under the BBA's Inspection Body accreditation to ISO/IEC 17020. Sections marked with † are not issued under accreditation.

The BBA is a UKAS accredited Inspection Body (No. 4345), Certification Body (No. 0113) and Testing Laboratory (No. 0357).

Readers MUST check that this is the latest issue of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

The Certificate should be read in full as it may be misleading to read clauses in isolation.

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

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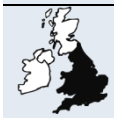
SUMMARY OF ASSESSMENT AND COMPLIANCE

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

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that Eurothane Eurodeck, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations:



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	**A1**	**Loading**
Comment:		The product can contribute to satisfying this Requirement. See section 1 of this Certificate.
Requirement:	**B3(2)**	**Internal fire spread (structure)**
Comment:		The product may be restricted by this Requirement in some circumstances. See section 2 of this Certificate.
Requirement:	**B4(2)**	**External fire spread**
Comment:		The product may be restricted by this Requirement. See section 2 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The product can contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement:	**L1(a)(i)**	**Conservation of fuel and power**
Comment:		The product can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**25B**	**Nearly zero-energy requirements for new buildings**
Regulation:	**26**	**CO_2 emission rates for new buildings**
Regulation:	**26A**	**Fabric energy efficiency rates for new dwellings (applicable to England only)**
Regulation:	**26A**	**Primary energy rates for new buildings (applicable to Wales only)**
Regulation:	**26B**	**Fabric performance values for new dwellings (applicable to Wales only)**
Regulation:	**26C**	**Target primary energy rates for new buildings (applicable to England only)**
Regulation:	**26C**	**Energy efficiency rating (applicable to Wales only)**
Comment:		The product can contribute to satisfying these Regulations. See section 6 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Fitness and durability of materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**9**	**Building standards – construction**
Standard:	1.1(b)	Structure
Comment:		The product can contribute to satisfying this Standard, with reference to clause 1.1.1[(1)(2)]. See section 1 of this Certificate.

Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Comment:		The product may be restricted under clauses 2.1.15(2), 2.2.7(2) and 2.2.10(1) of these Standards. See section 2 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		The product may be restricted by this Standard, with reference to clause 2.8.1(1)(2). See section 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), 3.15.3(1)(2), 3.15.4(1)(2), 3.15.5(1)(2) and 3.15.6(1)(2). See section 3 of this Certificate.
Standard:	6.1(b)(c)	Energy demand
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 6.1.1(1) and 6.1.2(2). See section 6 of this Certificate.
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 6.2.1(1)(2), 6.2.3(1), 6.2.4(2), 6.2.6(1), 6.2.7(1)(2), 6.2.8(1)(2), 6.2.9(1)(2), 6.2.10(1)(2) and 6.2.12(1). See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The product can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting at least 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 7.1.2(1), 7.1.3(2), 7.1.4(1), 7.1.6(1)(2) 7.1.7(1), 7.1.8(2), 7.1.9(2) and 7.1.10(2). See section 6 of this Certificate.
Regulation:	**12**	**Building standards – conversion**
Comment:		Comments in relation to the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1(1)(2) and Schedule 6(1)(2).

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).

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

Regulation:	**23(1)(a)(i) (iii)(b)(i)(ii)**	**Fitness of materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**29**	**Condensation**
Comment:		The product can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	**30**	**Stability**
Comment:		The product can contribute to satisfying this Regulation. See section 1 of this Certificate.
Regulation:	**35(2)**	**Internal fire spread – structure**
Comment:		The product may be restricted by this Regulation in some circumstances. See section 2 of this Certificate.
Regulation:	**36(b)**	**External fire spread**
Comment:		The product may be restricted by this Regulation. See section 2 of this Certificate.

Regulation:	**39(a)(i)**	**Conservation measures**
Comment:		The product can contribute to satisfying this Regulation. See section 6 of this Certificate.
Regulation:	**40(2)**	**Target carbon dioxide emission rate**
Regulation:	**43(1)(2)**	**Renovation of thermal elements**
Regulation:	**43(b)**	**Nearly zero-energy requirements for new buildings**
Comment:		The product can contribute to satisfying these Regulations. See section 6 of this Certificate.

Additional Information

NHBC Standards 2024

In the opinion of the BBA, Eurothane Eurodeck, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs, terraces and balconies.*

Fulfilment of Requirements

The BBA has judged Eurothane Eurodeck to be satisfactory for use as described in this Certificate. The product has been assessed for use as a thermal insulation layer on limited access concrete, metal or timber roof decks in conjunction with an AVCL and a single ply mechanically fixed roof waterproofing membrane, in new and existing domestic and non-domestic buildings.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the product under assessment. Eurothane Eurodeck is a rigid thermoset PIR insulation board, incorporating a composite foil facing on both sides.

The product has the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Value
Length and width (mm)	1200 x 1200 and 2400 x 1200
Thickness (mm)	30 to 160
Edge profile	Square

Ancillary items

The Certificate holder recommends the following ancillary items for use with the product, but these materials have not been assessed by the BBA and are outside the scope of this Certificate:

- waterproofing membrane
- AVCL
- fixings, incorporating a countersunk washer.

The product is intended for use with single-ply waterproofing membranes (mechanically fixed) which are the subject of a current BBA Certificate, laid in accordance with, and within the limitations imposed by, that Certificate

The product is intended for use on flat concrete, metal or timber roofs, with access limited to maintenance only, on new and existing domestic and non-domestic buildings.

Definitions for products and applications inspected

The following terms have been defined for the purpose of this Certificate as:

- limited access roofs — those subject only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc
- flat roofs — those having a roof pitch of no more than 10°.

Product assessment – key factors

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

1 Mechanical resistance and stability

Data were assessed for the following characteristics.

1.1 Behaviour under loading

1.1.1 The results of behaviour under loading tests are given in Table 2.

Table 2 Compressive strength and behaviour on exposure to mechanical stress

Product assessed	Assessment method	Requirement	Result
Eurothane Eurodeck	Compressive strength to BS EN 826 : 1996	150 kPa	Pass
	Compressive strength, after immersion to BS EN 826 : 1996	150 kPa	Pass
	Behaviour on exposure to mechanical stress under distributed static load to MOAT 50 : 1992	≤ 10 % deformation	Pass
	Behaviour on exposure to mechanical stress under concentrated loads in middle of free span to MOAT 50 : 1992	No breakage	See Table 3

1.1.2 The product was tested for resistance to loading when spanning ribs on profiled decks and the results are given in Table 3.

Table 3 Clear span

Clear span range (mm)		Minimum roofboard thickness (mm)
> 75	≤ 100	30
> 100	≤ 150	40
> 150	≤ 200	50
> 200	≤ 250	60

1.1.3 The product must not exceed the maximum permissible spans given in Table 3.

1.1.4 The insulation boards have not been assessed for use with permanent distributed or concentrated loads, such as air conditioning units, mechanical plants, water tanks, etc. Such loads must be supported directly on the roof construction or on suitably designed support systems.

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 External fire spread

2.1.1 The resistance to fire exposure of a built-up roofing system will be dependent on the fire performance of the combined individual components and cannot be predicted from the classification of the insulation alone. The classification of a specific roof system must be confirmed by reference to the requirements of the documents supporting the national Building Regulations.

2.2 Reaction to fire

2.2.1 The product was tested for reaction to fire and the classification is given in Table 4.

Table 4 Reaction to fire classification(1)

Product assessed	Assessment method	Requirement	Result
Eurothane Eurodeck	EN 13501-1 : 2007	Value achieved	F

(1) WarringtonFire Gent. Report No. 18060B. 30 November 2016. Copies can be obtained from the Certificate holder.

2.3 Resistance to fire

2.3.1 Where the roof forms a junction with compartment walls, the junction must maintain the required period of fire resistance.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Water vapour permeability

3.1.1 The water vapour resistivity/resistance values may be taken as in Table 5.

Table 5 Water vapour resistivity/resistance

Material	Assessment method	Requirement	Result
PIR insulation	BS EN ISO 10456 : 2007	Value achieved	300 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$
Composite foil facing	BS 5250 : 2021		1000 $MN \cdot s \cdot g^{-1}$

3.2 Condensation

3.2.1 The BBA has assessed the product for the risk of interstitial condensation, and the following factors must be implemented.

3.2.2 An assessment of the risk of interstitial condensation for the specific construction must be carried out in accordance with BS 5250 : 2021 and the relevant guidance, using the water vapour resistivity/resistance values in Table 5 of this Certificate.

3.2.3 To minimise moisture vapour entering the roof, an AVCL with sealed and lapped joints should be used below the product, which must be turned up around the insulation and bonded to the waterproofing finish.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

6.1 Thermal conductivity

6.1.1 The product was tested for thermal conductivity and the results are given in Table 6.

Table 6 Thermal conductivity

Product assessed	Assessment method	Requirement	Result
Eurothane Eurodeck	BS EN 13165 : 2012	Declared value (λ_D)	0.022 $W \cdot m^{-1} \cdot K^{-1}$

6.2 Conservation of fuel and power

6.2.1 Example U values are given in Table 7.

Table 7 Example U values

U value ($W \cdot m^{-2} \cdot K^{-1}$)	Eurothane Eurodeck insulation thickness (mm)(1)(2)		
	Concrete deck(3)	Timber deck(4)	Metal deck(5)
0.09	120 + 110(6)	110 + 110(6)	120 + 110(6)
0.11	100 + 90(6)	90 + 90(6)	100 + 90(6)
0.12	90 + 80(6)	90 + 80(6)	90 + 90(6)
0.13	160	160	160
0.15	140	140	140
0.16	130	130	140
0.18	120	110	120
0.20	110	100	110

(1) Nearest available thickness.
(2) Thermally broken tube fixings installed – therefore no fixing correction applied.
(3) 150 mm concrete deck (λ = 1.33 $W \cdot m^{-1} \cdot K^{-1}$), AVCL, insulation, mechanically fixed single-ply waterproofing membrane.
(4) 12.5 mm plasterboard (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$), AVCL, 150 mm timber joists (12.5%)/air cavity (87.5%), 18 mm plywood decking (λ = 0.17 $W \cdot m^{-1} \cdot K^{-1}$), AVCL, insulation, mechanically fixed waterproofing membrane.
(5) Metal deck (λ = 50 $W \cdot m^{-1} \cdot K^{-1}$), AVCL, insulation, mechanically fixed waterproofing membrane.
(6) Two layers of insulation boards used.

6.2.2 The U value of a completed roof will depend on the insulation thickness, its structure, the fixings if used and its internal finish.

6.2.3 The product can contribute towards a construction satisfying the national Building Regulations in respect of energy economy and heat retention.

7 Sustainable use of natural resources

Not applicable.

8 Durability

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

8.2 Specific test data were assessed as shown in Table 8

Table 8 Dimensional stability, bowing under the effects of a thermal gradient and flatness after one-sided wetting

Product assessed	Assessment method	Requirement	Result
Eurothane Eurodeck	Dimensional stability to BS EN 1604 : 1997 (70°C and 90-100% RH for 48 hours)	Length and width ≤ 2 % change Thickness ≤ 6 % change	Pass
	Dimensional stability to BS EN 1604 : 1997 (-20°C for 48 hours)	Length and width ≤ 1 % change Thickness ≤ 2 % change	Pass
	Bowing under the effects of a thermal gradient to MOAT 50 : 1992	Maximum deformation ≤ 10 mm	Pass
	Flatness after one-sided wetting to BS EN 825 : 1995	Change in deviation from flatness ≤ 20 mm	Pass

8.3 Service life

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

PROCESS ASSESSMENT

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

9 Design, installation, workmanship and maintenance

9.1 Design

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

9.1.2 Decks to which the product is to be applied must comply with the relevant requirements of BS 6229 : 2018, BS 8217 : 2005 and, where appropriate, *NHBC Standards* 2024, Chapter 7.1.

9.1.3 Imposed loads, dead loading and wind loads must be calculated by a suitably experienced and competent individual in accordance with BS EN 1991-1-1 : 2002, BS EN 1991-1-3 : 2003 and BS EN 1991-1-4 : 2005, and their UK National Annexes.

9.1.4 For design purposes on flat roofs, twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available, including overall and local deflections, direction of falls etc.

9.1.5 The design wind resistance must be determined by using the appropriate partial factors, to be calculated by a suitably experienced and competent individual in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. The insulation boards, when used in accordance with the design wind resistance and properly installed on suitable flat roof decks, can adequately transfer negative and positive (suction and pressure) wind loads to the roof deck.

9.1.6 The suitability of the substrate to accept the mechanical fixings must be established before installation. Mechanical fixings must be checked before installation by carrying out in-situ pull-out or pull-through tests to determine the minimum safe working load the fixings can resist. The advice of the Certificate holder must also be sought in respect of suitable mechanical fixings, but such advice is outside the scope of this Certificate.

9.1.7 On multi-storey buildings or in areas subject to high wind loads, additional mechanical fixings may be required.

9.1.8 Roofs must incorporate an AVCL below the product which is compatible both with the product and the waterproofing system. Design and installation must be in accordance with BS 5250 : 2021.

9.1.9 Roof waterproof covering systems must be applied in accordance with the relevant BBA Certificates or manufacturer's guidance.

9.1.10 In England and Wales, roofs will limit the risk of surface condensation adequately where the thermal transmittance (U value) does not exceed 0.35 $W \cdot m^{-2} \cdot K^{-1}$ at any point and the junctions with other elements are designed in accordance with the guidance referred to in section 6 of this Certificate.

9.1.11 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) of the roof does not exceed 1.2 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and roofs are designed and constructed in accordance with the relevant parts of BS 5250 : 2021. Further guidance may be obtained from BRE Report BR 262 : 2002.

9.2 Installation

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

9.2.2 Installation must be carried out in accordance with this Certificate, the relevant clauses of BS 6229 : 2018, BS EN 13956 : 2012, BS 8000-0 : 2014, BS 8000-4 : 1989 and BS 8217 : 2005 and the Certificate holder's instructions. A summary of instructions and guidance is provided in Annex A of this Certificate.

9.2.3 Care must be taken to ensure the substrate deck is graded to the correct falls, and is dry, clean and free from any projections or gaps.

9.2.4 The suitability of the substrate deck to accept a mechanical fixing must be checked prior to the work commencing.

9.2.5 Each fixing must incorporate a head or washer which is a minimum of 50 mm diameter if round or 50 by 50 mm if square. Typical locations of fixings installed are shown in Figures 1 and 2.

9.2.6 In areas where high wind speeds can be expected, additional mechanical fixings must be considered, particularly at corners and perimeters. If mechanical fixing is impractical, suitable ballasting may be required. In all cases, the advice of a suitably competent and experienced individual must be sought with regards to the relevant clauses of BS EN 1991-1-4 : 2005 and its UK National Annex, but such advice is outside the scope of this Certificate.

9.2.7 When profiled metal decking is used, boards will be required to span ribs. Maximum permissible spans between ribs for various board thicknesses are shown in Table 3.

9.2.8 Boards must be protected during laying and before the application of the roof waterproofing, or the roof covering must be laid at the same time as laying the boards. Boards accidentally wetted must be replaced.

9.2.9 Where multi-layer application of boards is required, the subsequent layers must be installed offset from the previous layer.

9.2.10 Boards must not be installed when the ambient temperature is below 5°C, to prevent condensation.

9.2.11 The product can be cut with a sharp knife or fine-toothed saw, to fit around projections through the roof.

9.2.12 Once installed, access to the roof must be restricted.

9.3 Workmanship

9.3.1 Practicability of installation was assessed on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, the product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

9.4 Maintenance and repair

9.4.1 The product, once installed, does not require any regular maintenance and has suitable durability provided the roof waterproof layers are inspected and maintained at regular intervals.

9.4.2 When maintenance of the roof waterproofing is required, protective boarding must be laid over the roof surface to avoid concentrations of loads.

10 Manufacture

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

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

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

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

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

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

† 10.2 The BBA has undertaken to review the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

11 Delivery and site handling

11.1 The Certificate holder stated that the product is delivered to site in packs, shrink-wrapped in polythene, containing a label with the product description and characteristics, the Certificate holder's name, and the BBA logo incorporating the number of this Certificate.

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

11.2.1 The product must be protected from prolonged exposure to direct sunlight and UV and should be stored either under cover or protected with opaque polythene sheets. Where possible, packs should be stored inside. If stored outside, the product must be raised above ground level out of contact with ground moisture and must be protected from rain.

11.2.2 The product must not be exposed to naked flame or other ignition sources. Care must be taken to avoid contact with solvents and with materials containing volatile organic compounds. If damaged, the product must be discarded.

ANNEX A – SUPPLEMENTARY INFORMATION †

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

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

CE marking

The Certificate holder has taken the responsibility of CE marking the product, in accordance with harmonised European Standard EN 13165 : 2012 + A2 : 2016.

Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of ISO 9001 : 2015 and ISO 14001 : 2015 by Lloyd's Register Quality Assurance (Certificates 00008940 and 00005756 respectively.

Additional information on installation

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

Procedure

A.1 The number of mechanical fixings required to fix the product will vary depending on the geographical location of the building, the topographical data, and height and width of the roof concerned etc.

A.2 The requirements for an additional number of fixings above those specified in section A.4 should be assessed in accordance with BS 6399-2 : 1997 or BS EN 1991-1-4 : 2005.

A.3 A 0.25 mm thick polythene AVCL should be laid, with 150 mm sealed laps. The AVCL should be turned up around the insulation and sealed to the waterproof finish at all edges and penetrations such as roof lights. Advice may be sought from the Certificate holder, but such advice is outside the scope of this Certificate.

A.4 The product is laid over the AVCL in a brick-bonded pattern. On profiled metal decks, the long edges of the product should be laid at right angles to the ribs and all product ends must be fully supported on a rib. The product is secured to the deck with a minimum of four or six mechanical fixings placed within the individual product area (1200 by 1200 mm) and (2400 by 1200 mm) respectively and are sited from all edges as shown in Figures 1 and 2. Countersunk washers with square or circular plates of at least 50 by 50 mm or 50 mm diameter should be used with each fixing.

Figure 1 Fixing layout for 1200 by 1200 mm board – minimum fixing numbers

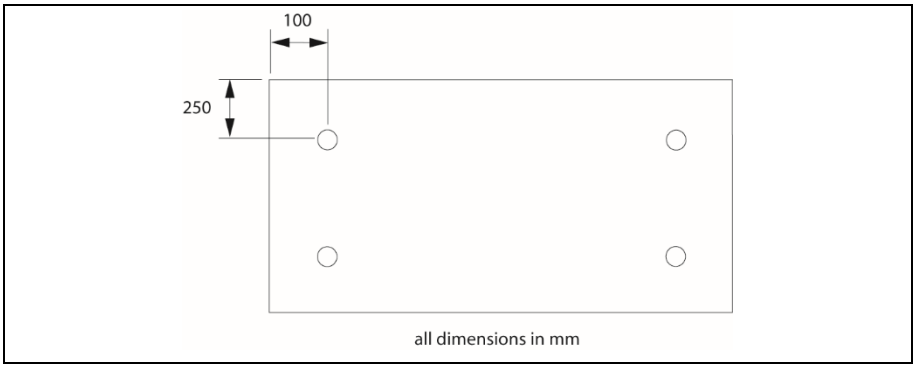
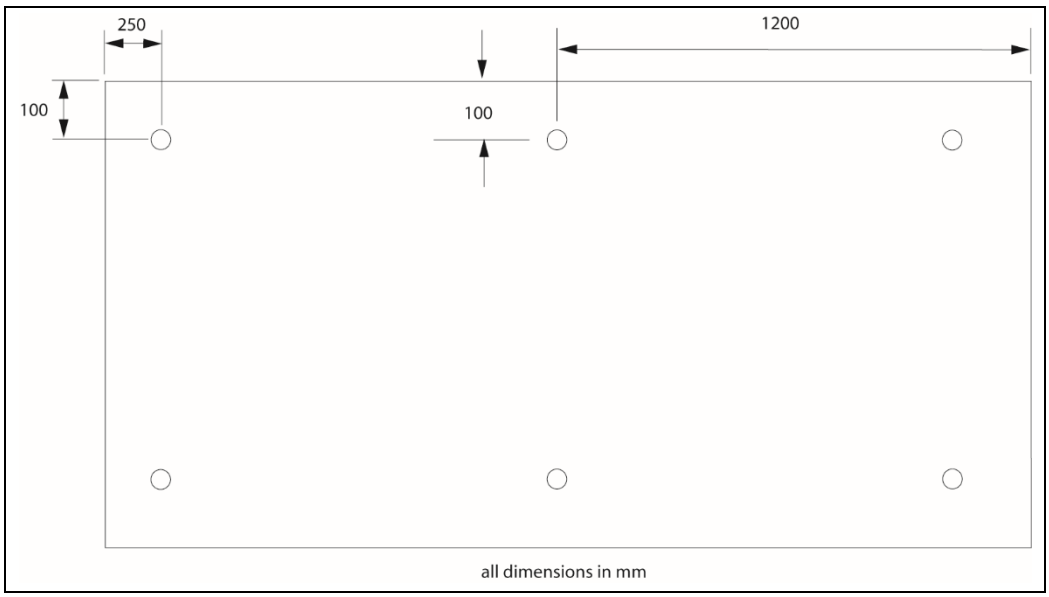


Figure 2 Fixing layout for 2400 mm by 1200 mm board – minimum fixing numbers



A.5 A single-ply membrane is mechanically fixed to the deck through the product, with joints overlapped prior to sealing of the joint, in accordance with the manufacturer's instructions and the relevant BBA Certificate.

Multi layers (when required)

A.6 Where multiple layers of boards are required to make up the thicknesses needed to meet specific U value requirements (see Table 7), board joints on multiple layer systems should ideally be staggered by half a board. If not possible to stagger by half a board, the boards should be staggered by at least 200 mm.

A.7 Boards are to be mechanically fixed. The bottom layer may be fixed with only one central fixing per board, to keep the boards in place during installation. The top layer is fixed with the appropriate number of fixings, as described above, as if it was the only layer in the build-up. These fixings are installed through the complete insulation package into the supporting deck, thereby fixing all underlying layers.

Bibliography

BRE Report BR 262 : 2002 *Thermal insulation: avoiding risks*

BS 5250 : 2021 *Management of moisture in buildings — Code of practice*

BS 6229 : 2018 *Flat roofs with continuously supported coverings — Code of practice*

BS 8217 : 2005 *Reinforced bitumen membranes for roofing — Code of practice*

BS 8000-0 : 2014 *Workmanship and construction on sites — Introduction to general principles*

BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*

BS EN 825 : 1995 *Thermal insulating products for building applications — Determination of flatness*

BS EN 826 : 1996 *Thermal insulating products for building applications — Determination of compression behaviour*

BS EN 1604 : 1997 *Thermal insulating products for building applications – Determination of dimensional stability under specified temperature and humidity conditions*

BS EN 1991-1-1 : 2002 Eurocode 1 *Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
NA to BS EN 1991-1-1 : 2002 UK National Annex to Eurocode 1 *Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
BS EN 1991-1-3 : 2003 + A1 : 2015 Eurocode 1 *Actions on structures — General actions — Snow loads*
NA + A2 : 18 to BS EN 1991-1-3 : 2003 + A1 : 2015 UK National Annex to Eurocode 1 *Actions on structures — General actions — Snow loads*
BS EN 1991-1-4 : 2005 + A1 : 2010 Eurocode 1 *Actions on structures — General actions — Wind actions*
NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to Eurocode 1 *Actions on structures — General actions — Wind actions*

EN 13165 : 2012 + A2 : 2016 *Thermal insulation products for buildings — Factory made rigid polyurethane foam (PU) products —Specification*

BS EN 13956 : 2012 *Flexible sheets for waterproofing. Plastic and rubber sheets for roof waterproofing — Definitions and characteristics*

BS EN ISO 10456 : 2007 *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values*

EN 13501-1 : 2007 + A1 : 2009 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

ETAG 006 : 2000 *Guideline for European Technical Approval of Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes*

ISO 9001 : 2015 *Quality management systems — Requirements*

ISO 14001 : 2015 *Environmental management systems —Requirements with guidance for use*

MOAT 50 : 1992 *Technical guidelines for the assessment of thermal insulation systems intended for supporting waterproof coverings on flat and sloping roofs*

Conditions of Certificate

Conditions

1 This Certificate:

- relates only to the product 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
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3 This Certificate will be displayed on the BBA website, and the Certificate Holder is entitled to use the Certificate and Certificate logo, provided that the product 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.

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

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:

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- any works and constructions in which the product is installed, including their nature, design, methods, performance, workmanship and maintenance
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- any claims by the manufacturer relating to UKCA marking and CE marking.

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