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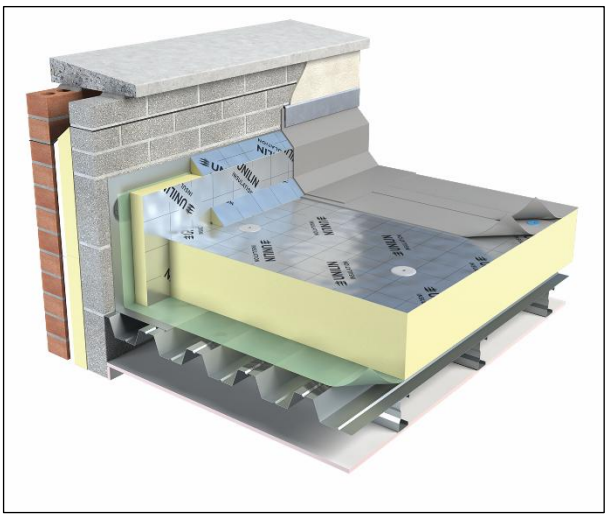
Agrément Certificate
24/7307
Product Sheet 1 Issue 1

UNILIN THIN-R INSULATION

UNILIN THIN-R FLAT ROOF INSULATION BOARD (FR/ALU AND TR/ALU)

This Agrément Certificate Product Sheet(1) relates to Unilin Thin-R Flat Roof Insulation Board (FR/ALU and TR/ALU), a rigid thermoset polyisocyanurate (PIR) foil-faced board, for use as thermal insulation and/or to create or improve falls on limited access concrete, metal or timber flat roof decks in domestic and non-domestic buildings. It is used in conjunction with an air and vapour control layer (AVCL) and a mechanically fixed single ply roof waterproofing membrane.

(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: 18 March 2025

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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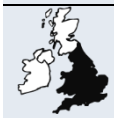
SUMMARY OF ASSESSMENT AND COMPLIANCE

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 Unilin Thin-R Flat Roof Insulation Board (FR/ALU and TR/ALU), 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 a roof 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; however, compensating fabric/service measures may be required. 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 1.1.2[(1)(2)]. See section 1 of this Certificate.

Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Comment:		The product may be restricted by these Standards, with reference to 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); however, compensating fabric/service measures will be required. 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), 6.2.11(1)(2) and 6.2.12(1); however, compensating fabric measures may be required. 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 7.1.4(1), 7.1.6(1) 7.1.7(1), 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.
Requirement:	**35(2)**	**Internal fire spread – structure**
Comment:		The product may be restricted by this Requirement 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:	**43B(1)(2)**	**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 2025

In the opinion of the BBA, Unilin Thin-R Flat Roof Insulation Board (FR/ALU and TR/ALU), 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 Unilin Thin-R Flat Roof Insulation Board (FR/ALU and TR/ALU) to be satisfactory for use as described in this Certificate. The product has been assessed for installation as a thermal insulation layer and to create or improve falls on limited access concrete, timber or metal flat roof decks in domestic and non-domestic buildings.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the product under assessment. Unilin Thin-R Flat Roof Insulation Board (FR/ALU and TR/ALU) is a rigid thermoset PIR insulation board, incorporating a foil facing on both sides.

The product has the nominal characteristics given in Table 1.

Table 1 Nominal characteristics of Unilin Thin-R Flat Roof Insulation Board (FR/ALU)

Characteristic (unit)	Value
Length and width (mm)	1200 x 600 1200 x 1200 2400 x 1200
Thickness (mm)	25 to 165 (in 5 mm increments)
Edge profile	Squared, rebated

The TR/ALU boards are available in a tapered version (1200 x 1200 mm) for falls of 1:120, 1:80, 1:60 and 1:40.

The product is intended for use with single ply membranes (mechanically fixed) which are the subject of a current BBA Certificate and 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 are 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 with 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 assessment 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, bending strength and shear strength

Product assessed	Assessment method	Requirement	Result
Unilin Thin-R Flat Roof Insulation Board (FR/ALU), 50 mm thick	Compressive strength to BS EN 826 : 1996	Minimum 150 kPa	Pass
Unilin Thin-R Flat Roof Insulation Board (FR/ALU), 25 mm thick	Bending strength to BS EN 13165 : 2012 and BS EN 12089 : 2013(1)	Declared minimum value	430 kPa
	Shear strength to BS EN 13165 : 2012 and BS EN 12090 : 2013(2)		100 kPa
Unilin Thin-R Flat Roof Insulation Board (FR/ALU), 50 mm thick	Bending strength to BS EN 13165: 2012 and BS EN 12089 : 2013(1)	Declared minimum value	620 kPa
	Shear strength to BS EN 13165 : 2012 and BS EN 12090 : 2013(2)		60 kPa
Unilin Thin-R Flat Roof Insulation Board (FR/ALU), 100 mm thick	Bending strength to BS EN 13165 : 2012 and BS EN 12089 : 2013(1)	Declared minimum value	550 kPa
	Shear strength to BS EN 13165 : 2012 and BS EN 12090: 2013(3)		65 kPa
Unilin Thin-R Flat Roof Insulation Board (FR/ALU), 160 mm thick	Bending strength to BS EN 13165 : 2012 and BS EN 12089 : 2013(1)	Declared minimum value	370 kPa
	Shear strength to BS EN 13165 : 2012 and BS EN 12090: 2013(3)		35 kPa

(1) To BS EN 12089 : 2013, Method B.
(2) Single test method to BS EN 12090 : 2013.
(3) Double test method to BS EN 12090 : 2013.

1.1.2 Results of tests for characteristic pull-through resistance of washers with 25 mm thick insulation are given in Table 3 of this Certificate.

Table 3 Characteristic pull-through resistance of washers

Product assessed	Assessment method	Requirement	Result
50 mm diameter washer, 6.1 mm diameter fastener	Characteristic pull-through resistance per fixing to EAD-090062-01-0404	Value achieved	0.98 kN
70 x 70 mm square washer, 6.1 mm diameter fastener			0.79 kN

1.1.3 On the basis of the data assessed, the values in Table 3 can be taken to apply to all product thicknesses.

1.1.4 When profiled decking is used, the product will need to span across the ribs. Maximum permissible spans between ribs for the different product thicknesses are given in BS 4841-4 : 2006, Table B.1, reproduced in Table 4 of this Certificate.

Table 4 Clear span range

Clear span range (mm)		Minimum roofboard thickness (mm)
< 75	—	25
> 75	≤ 100	30
> 100	≤ 125	35
> 125	≤ 150	40
> 150	≤ 175	45
> 175	≤ 200	50
> 200	≤ 225	55
> 200	≤ 250	60

1.1.5 The product must not exceed the permissible spans given in Table 4.

1.1.6 The product has 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 When tested for resistance to external fire exposure to DD CEN/TS 1187 : 2002, Test 4 and classified to BS EN 13501-5 : 2005, the constructions given in Table 5 of this Certificate achieved of B_{ROOF}(t4) for slopes below 10°.

Table 5 External fire exposure test constructions

Layer	Build-up	
Substrate	0.7 mm profiled metal deck	
AVCL	250 µm polythene	
Insulation	Unilin Thin-R Flat Roof Insulation Board (FR/ALU), 100 mm thick	
Waterproofing membrane	1.2 mm thick PVC membrane, Ruberoid Xenith, grey colour	1.5 mm thick PVC membrane, Sikaplan 15VG, light grey colour
Fixings	120 mm mechanical fixings through cap sheet through insulation and AVCL into substrate	

2.1.2 On the basis of data assessed, the constructions listed in Table 5 will be unrestricted by the documents supporting the national Building Regulations with respect to proximity to a relevant boundary. Restrictions may apply at junctions with compartment walls.

2.1.3 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 and permissible areas of use of other specifications must be confirmed by reference to the requirements of the documents supporting the national Building Regulations.

2.2 Reaction to fire

The result for the reaction to fire classification is given in Table 6.

Table 6 Reaction to fire classification

Product assessed	Assessment method	Requirement	Result
Unilin Thin-R Flat Roof Insulation Board (FR/ALU), 25 to 165 mm thick	NF EN 13501-1 : 2018	Declared value	E(1)

(1) Details of the classification can be found in test report DO-20-2090\A-R1 issued by CSTB; available from the Certificate holder.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Water vapour permeability

For the purpose of assessing the risk of interstitial condensation, water vapour resistance/resistivity values may be taken as given in Table 7.

Table 7 Water vapour resistivity/resistance

Product assessed	Assessment method	Requirement	Result
Unilin Thin-R Flat Roof Insulation Board (FR/ALU and TR/ALU) core	BS EN 12086 : 1997	Value achieved	272 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$
Unilin Thin-R Flat Roof Insulation Board (FR/ALU and TR/ALU) aluminium foil facing			> 1030 $MN \cdot s \cdot g^{-1}$

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 7 of this Certificate.

3.2.3 To minimise moisture entering the roof, an AVCL with sealed and lapped joints must 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

Data were assessed for the following characteristics.

6.1 Thermal conductivity

The product was tested for thermal conductivity and the result is given in Table 8.

Table 8 Thermal conductivity

Product assessed	Thickness	Assessment method	Requirement	Result
Unilin Thin-R Flat Roof Insulation Board (FR/ALU and TR/ALU)	25 to 165 mm	BS EN 13165 : 2008	Declared value (λ_D)	0.022 $W \cdot m^{-1} \cdot K^{-1}$

6.2 Thermal performance

6.2.1 The U value of a completed roof will depend on the insulation thickness, its structure, the fixings and its internal finish. Example U-values are given in Tables 9 and 10.

Table 9 Example U values for constructions with galvanized steel fixings ($W \cdot m^{-2} \cdot K^{-1}$)

U Value ($W \cdot m^{-2} \cdot K^{-1}$)	Unilin Thin-R Flat Roof Insulation Board (FR ALU) thickness (mm)[1][2]		
	Concrete deck[3]	Timber deck[4]	Metal deck[5]
0.09	—[6]	—[6]	—[6]
0.11	—[6]	—[6]	—[6]
0.12	—[6]	—[6]	—[6]
0.13	—[6]	165	—[6]
0.15	145	140	150
0.16	140	130	140
0.18	120	115	125
0.20	110	105	110

(1) Nearest available thickness.
(2) Includes 5.55 galvanized steel insulation fixings per m^2 and 3.55 galvanized steel waterproofing fixings per m^2, with a 4.8 mm cross-sectional diameter.
(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 $W \cdot m^{-1} \cdot K^{-1}$), 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) See section 6.2.3.

Table 10 Example U values for constructions with stainless steel fixings ($W \cdot m^{-2} \cdot K^{-1}$)

U Value ($W \cdot m^{-2} \cdot K^{-1}$)	Unilin Thin-R Flat Roof Insulation Board (FR ALU) thickness (mm)[1][2]		
	Concrete deck[3]	Timber deck[4]	Metal deck[5]
0.09	—[6]	—[6]	—[6]
0.11	—[6]	—[6]	—[6]
0.12	—[6]	—[6]	—[6]
0.13	165	155	165
0.15	140	135	140
0.16	130	125	135
0.18	115	110	120
0.20	105	100	105

(1) Nearest available thickness.
(2) Includes 5.55 stainless steel insulation fixings per m^2 and 3.55 stainless steel waterproofing fixings per m^2, with a 4.8 mm cross-sectional diameter.
(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 $W \cdot m^{-1} \cdot K^{-1}$), 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) See section 6.2.3.

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

6.2.3 For improved energy or carbon savings, designers should consider appropriate fabric and/or service measures.

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 given in Table 11.

Table 11 Dimensional stability

Product assessed	Assessment method	Requirement	Result
Unilin Thin-R Flat Roof Insulation Board (FR/ALU)	Dimensional stability to BS EN 1604 : 1996 (70°C and 90-100% RH for 48 hours)	Length and width ≤ 1 % change, thickness ≤ 4 % change	Pass
	Dimensional stability to BS EN 1604 : 1996 (-20°C for 48 hours)	Length and width ≤ 0.5 % change, thickness ≤ 2 % change	Pass
	Bowing under a thermal gradient to MOAT 50 : 1992, Part 4.3.2	< 10 mm	Pass

8.3 Service Life

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 either BS 6229 : 2018 or BS EN 13956 : 2012 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 TR/ALU tapered product may be used where appropriate, to achieve minimum finished falls of between 1:120 to 1:40.

9.1.6 The suitability of the substrate for any specified adhesive bond or 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.

9.1.7 The number and type of mechanical fixings required will vary depending on the geographical location of the building, the topographical data, and height and width of the roof concerned, etc.

9.1.8 The Certificate holder recommends a minimum number of fixings for each board (see Annex A, Figures 1 to 3) but the requirement for additional fixings must be assessed by a suitably experienced and competent individual in accordance with BS EN 1991-1-4: 2005. Fixings and washers must not overlap board joints.

9.1.9 Fixings must be self-sealing and incorporate a minimum 50 mm diameter or 50 by 50 mm square head or washer. Fixings installed along the edges or at corners of boards should be situated between 50 and 150 mm from the board edge, 210 mm for tapered boards.

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

9.1.11 When installed on suitable flat roof decks, using appropriate fixings, the product must be designed to adequately transfer maintenance traffic loads and negative and positive (suction and pressure) wind loads to the roof deck, using the values in Tables 2 and 3.

9.1.12 Roofs must incorporate an AVCL below the product that is compatible both with the product and the waterproofing system. Design and installation must be in accordance with BS 5250 : 2021. In the case of single-ply membranes, the recommendations of the *SPRA Design Guide* must be followed.

9.1.13 Roof waterproof covering systems must be applied in accordance with the relevant BBA Certificates.

9.1.14 Calculations of thermal transmittance (U-value) must be carried out in accordance with BS EN ISO 6946 : 2017 and BRE Report BR 443 : 2019.

9.1.15 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.

9.1.16 Roof design, construction and maintenance must limit opportunities for vapour migration by diffusion and by convection through gaps, cracks and laps in AVCLs (where required) and through penetrations.

9.1.17 Roofs will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2021 and BRE Report BR 262 : 2002 and the relevant guidance.

9.1.18 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 sections 9.1.14 to 9.1.17 of this Certificate.

9.1.19 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 8000-0 : 2014, BS 8000-4 : 1989 and BS EN 13956 : 2012, and the Certificate holder's instructions. A summary of instructions and guidance is provided in Annex A of this Certificate.

9.2.3 Care should be taken to ensure the substrate deck is graded to the correct falls, is dry and clean, and free from any projections or gaps. Any hollows, depressions and backfalls found in the roof deck must be rectified prior to laying the insulation.

9.2.4 For a tapered product to be effective in providing a uniform fall, it is essential that the substrate deck is true and even.

9.2.5 The suitability of the substrate to accept and retain mechanical fixings must be checked prior to work commencing.

9.2.6 The boards must be protected while laying, and before the application of, the roof waterproofing, or the roof covering must be laid at the same time as laying the boards. However, boards accidentally wetted must be replaced or allowed to dry fully before application of the waterproof layer.

9.2.7 The boards must not be installed when the ambient temperature is below 5°C, to prevent condensation.

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

9.2.9 Once installed, access to the roof should be restricted in accordance with the *Product description and intended use* section of this Certificate.

9.3 Workmanship

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 to the requirements of BS 6229 : 2018.

9.4.2 When maintenance of the roof waterproofing is required, protective boarding should 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 the 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 will 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 manufacturer's name, and the BBA logo incorporating the number of this Certificate.

11.2 It is essential that the boards are stored off the ground, inside or under cover on a flat, dry, level surface in a well-ventilated area, and with nothing stored on top. The product must be protected from rain, snow and prolonged exposure to sunlight. Boards that have been allowed to get wet, or that are damaged, must not be used.

11.3 The boards must not be exposed to a naked flame or other ignition sources, or to solvents or other chemicals.

†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.

Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015, BS EN ISO 14001 : 2015 and BS ISO 45001 : 2018 by BRE (Certificates 718, 718EMS and 718HS respectively).

Additional information on installation

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

Concrete decks

A.1 Before applying the AVCL, an appropriate levelling screed should be applied where necessary.

Metal decks

A.2 The boards are laid with the long edges at right angles to the ribs and all board ends must be fully supported on a rib.

A.3 The thickness of the roof board used depends on the width of the rib openings of the metal deck as indicated in Table 4.

AVCL

A.4 A minimum 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.

Mechanical fixings

A.5 The boards can be secured to concrete, metal and timber decks by means of self-sealing mechanical fixings.

A.6 The advice of the Certificate holder should be sought in respect of suitable mechanical fixings and laying patterns.

A.7 The boards are laid over the AVCL in a brick-bonded pattern. On profiled metal decks, the boards are secured to the deck with a minimum of four fixings for 1200 by 600 mm boards or six fixings for 2400 by 1200 mm boards placed within the individual board area and sited between 50 and 150 mm from all edges (see Figures 1 and 2). A minimum of four fixings per 1200 by 1200 mm tapered board are recommended, sited 210 mm from all edges (see Figure 3). Countersunk washers of at least 50 mm diameter or 50 by 50 mm square should be used with each fixing. The requirement of additional fixings should be assessed in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex.

Figure 1 Fixing layout 1200 by 600 mm board — minimum number of fixings (all dimensions in mm)

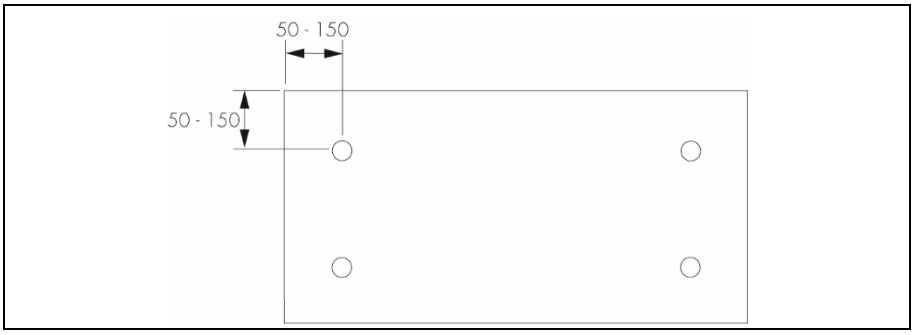


Figure 2 Fixing layout 2400 by 1200 mm board — minimum number of fixings (all dimensions in mm)

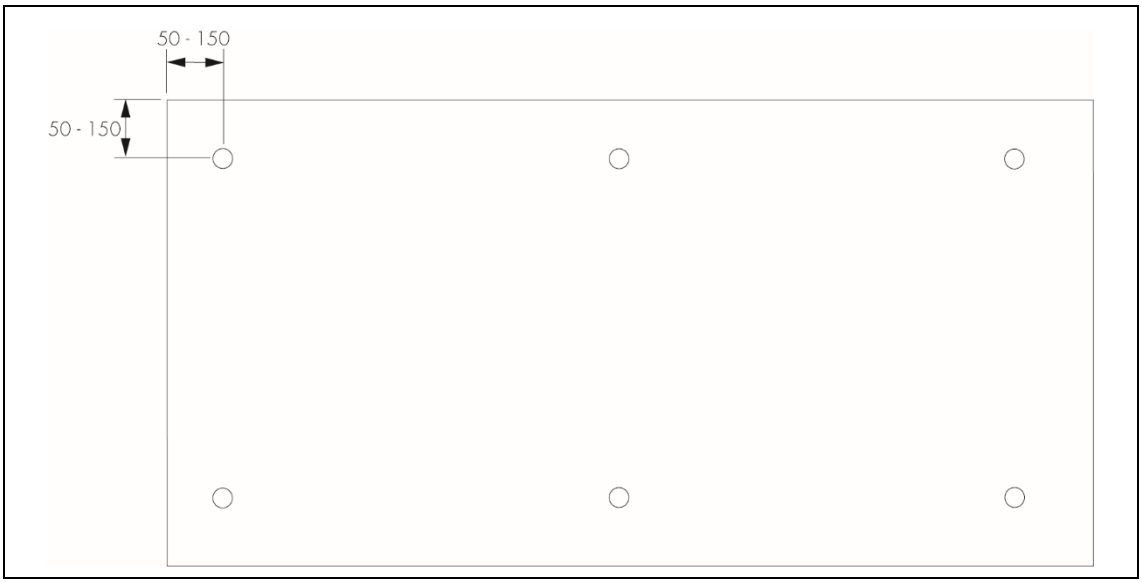
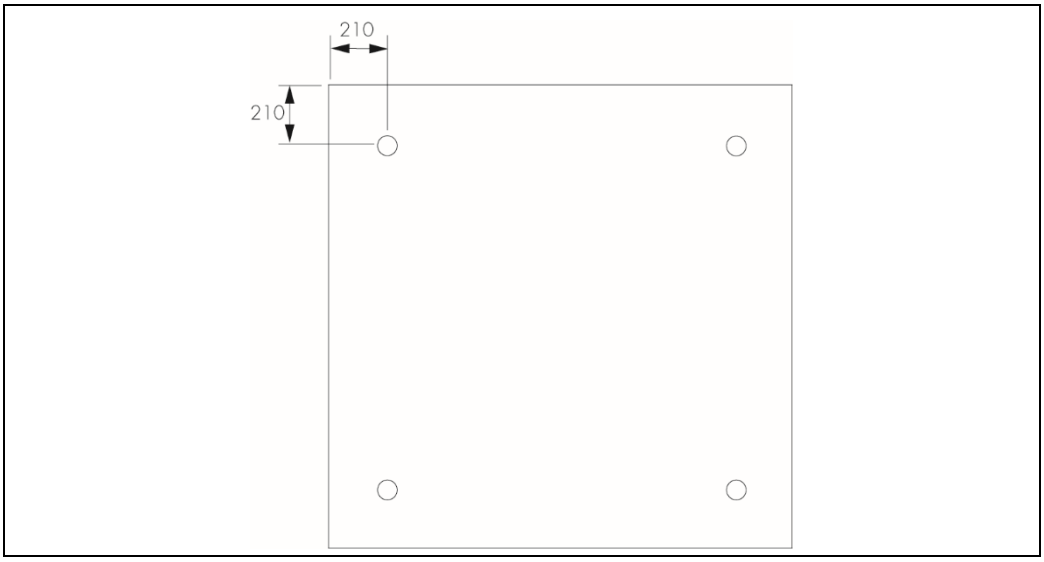


Figure 3 Fixing layout 1200 by 1200 mm tapered board — minimum fixing numbers (all dimensions in mm)



Weatherproofing (all systems)

A.8 The waterproofing system is applied above the boards and fixed in accordance with the manufacturer's instructions.

Bibliography

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BRE Report BR 443 : 2019 *Conventions for U-value calculations*

BS 3177 : 1959 *Method for determining the permeability to water vapour of flexible sheet materials used for packaging*

BS 4841-4 : 2006 *Rigid polyurethane (PUR) and polyisocyanurate (PIR) products for building end-use applications — Specification for laminated insulation boards (roofboards) with auto-adhesively or separately bonded facings for use as roofboard thermal insulation under non-bituminous single-ply roofings membranes*

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

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

BS 8000-0 : 2014 + A1 : 2024 *Workmanship on construction sites — Introduction and general principles*
BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*

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

BS EN 1604 : 1996 *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 — Densities, self-weight, imposed loads for buildings*
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BS EN 13165 : 2008 *Thermal insulation products for buildings — Factory made rigid polyurethane foam (PUR) products — Specification*
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BS EN 13501-5 : 2005 *Fire classification of construction products and building elements*

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

BS EN ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*

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NF EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*

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
- 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
- and any matter arising out of or in connection with it or its subject matter (including non-contractual disputes or claims) is governed by and construed in accordance with the law of England and Wales.
- the courts of England and Wales shall have exclusive jurisdiction to settle any matter arising out of or in connection with this Certificate or its subject matter (including non-contractual disputes or claims).

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.

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:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product or any other product
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product
- actual installations of the product, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to UKCA marking and CE marking.

6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product which is contained or referred to in this Certificate is the minimum required to be met when the product 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.

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