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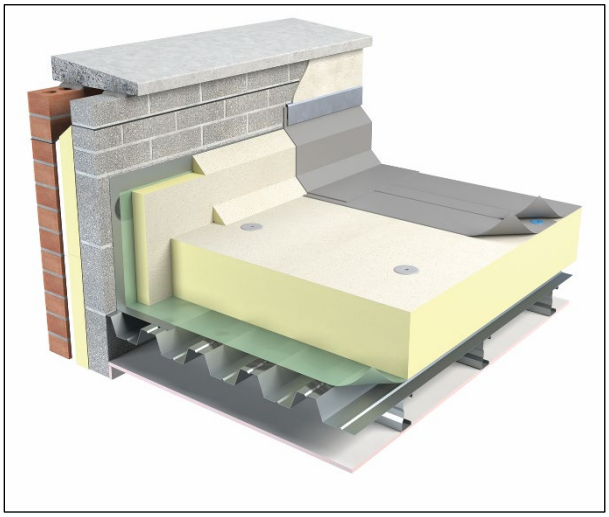
Agrément Certificate
24/7235
Product Sheet 2 Issue 1

UNILIN THIN-R

UNILIN THIN-R FLAT ROOF INSULATION BOARD (FR-MG)

This Agrément Certificate Product Sheet(1) relates to Unilin Thin-R Flat Roof Insulation Board (FR-MG), a rigid thermoset polyisocyanurate mineral-coated glass fibre faced board. The product is for use as thermal insulation, and to create or improve falls on limited access concrete, metal, or timber flat warm roof decks with a mechanically fixed or adhesively bonded roof waterproofing membrane, in 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: 22 August 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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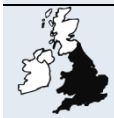
SUMMARY OF ASSESSMENT AND COMPLIANCE

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 Unilin Thin-R Flat Roof Insulation Board (FR-MG), 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; however, compensating fabric/services 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 clauses $1.1.1^{(1)(2)}$. 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) (d)	Energy demand and carbon dioxide emissions
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/services measures may 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), 6.2.11(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.
Regulation:	**12**	**Building standards - conversions**
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; however, compensating fabric measures may be required. 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 2024

In the opinion of the BBA, Unilin Thin-R Flat Roof Insulation Board (FR-MG), 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-MG) to be satisfactory for use as described in this Certificate. The product has been assessed for use as a thermal insulation layer and to create or improve falls on limited access concrete, timber or metal flat warm roof decks with a mechanically fixed or adhesively bonded roof waterproofing membrane, 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-MG) is a rigid thermoset polyisocyanurate (PIR) insulation board, incorporating a mineral-coated glass fibre 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 600, 1200 x 1200, 2400 x 1200
Thickness (mm)	25 to 150 (in 5 mm increments)
Compressive strength at 10% compression (kPa)	150
Edge profile	Squared or rebated

Boards measuring 1200 by 1200 mm are also available in a tapered version for falls of 1:120, 1:80, 1:60 and 1:40.

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:

- air and vapour control layer (AVCL)
- fixings — for use with waterproof membrane incorporating a countersunk washer with circular plates of at least 75 mm diameter or 75 by 75 mm square
- bitumen, polyurethane or solvent-based adhesive — adhered systems
- primer — for concrete and metal decks.

Applications

The product is for use with the following waterproofing systems, in conjunction with an AVCL:

- built-up specifications including reinforced bitumen membranes to BS 8747 : 2007, and installed to the relevant clauses of BS 8217 : 2005
- mastic asphalt membrane to BS 8218 : 1998
- liquid applied systems, which are the subject of a current BBA Certificate, laid in accordance with, and within, the limitations imposed by, that Certificate
- single ply membranes (adhesive or mechanically fixed), which are the subject of a current BBA Certificate, laid in accordance with, and within, the limitations imposed by, that Certificate.

Definitions for products and applications inspected

- Limited access roofs are defined for the purpose of this Certificate as those roofs subject only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc.
- Flat roofs are defined as for the purpose of this Certificate as 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 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 Wind loading

1.1.1 Results of the wind uplift performance of the product are given in Table 2.

Table 2 Wind uplift resistance

Product assessed[1]	Assessment method	Requirement	Result
Unilin Thin-R Flat Roof Insulation Board (FR-MG), mechanically fixed to steel deck[2][3]	Large scale wind uplift test to ETAG 006 : 2000	Peak load for completed wind uplift cycle without damage	3.0 kPa
Unilin Thin-R Flat Roof Insulation Board (FR-MG), adhesively bonded to the AVCL on a steel deck[4][5]			5.5 kPa

(1) 50 mm insulation boards in brickwork pattern.
(2) Thermally broken insulation fasteners (75 mm diameter) to steel deck, with 4.8 x 50 mm screws, 11 per full sized insulation board.
(3) External finish: adhered membrane backed single ply membrane.
(4) 3 mm AVCL torched to primed steel deck (35 mm profile, 0.7 mm gauge).
(5) External finish: torch on bituminous roofing membrane.

1.1.2 On the basis of data assessed, 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.

1.2 Behaviour under loading

1.2.1 The results of the behaviour under loading tests are given in Table 3.

Table 3 Compressive strength, tensile strength perpendicular to faces and behaviour on exposure to mechanical stress

Product assessed	Assessment method	Requirement	Result
Unilin Thin-R Flat Roof Insulation Board (FR-MG)	Compressive strength to BS EN 826 : 1996	≥ 150 kPa	Pass
	Compressive strength after immersion to BS EN 826 : 1996	≥ 150 kPa	Pass
	Tensile strength perpendicular to faces, (control) to BS EN 1607 : 1997	Declared minimum value	80 kPa
	Tensile strength perpendicular to faces, after immersion to BS EN 1607 : 1997 and MOAT 50 : 1992	Declared minimum value	50 kPa
	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 4

1.2.2 The product was tested for resistance to loading when spanning ribs on profiled decks and the results are given in Table 4.

1.2.3 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 shown in Table 4.

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
> 225	≤ 250	60

1.2.4 The product should not exceed the permissible spans given in Table 4.

1.2.5 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 result for the reaction to fire classification is given in Table 5.

Table 5 External fire performance classification(1)

Product assessed(2)	Assessment method	Requirement	Result(1)
18 mm OSB/3 supporting deck, primer (IKOpro Quick Dry Primer), 3 mm bitumen base layer (IKO SBS Premium Underlay, torch bonded), 50 or 150 mm thick Unilin Thin-R Flat Roof Insulation Board (FR-MG) (adhered), 4 mm reinforced bitumen underlay (IKO Systems H-A Underlay, self-adhered), and 3 mm bitumen water proofing membrane (IKO Ultra Prevent, torched on)	BS EN 13501-5 : 2016	Classification achieved	B_{Roof} (t4)

(1) Details of the classification can be found in test report WF report No. 21157J, issued on 12 August 2021 by WarringtonFire, available from the Certificate holder.

(2) All outside the scope of the Certificate, with exception of the 50 or 150 mm thick Unilin Thin-R Flat Roof Insulation Board (FR-MG) (adhered).

2.1.2 Based on data assessed, the system defined in Table 5 will be unrestricted in terms of proximity to a relevant boundary by the documents supporting the national Building Regulations.

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. Other than the system defined in Table 5, the classification and permissible areas of use 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

The reaction to fire classification of the product is given in Table 6.

Table 6 Reaction to fire classification

Product assessed	Assessment method	Requirement	Result(1)
Unilin Thin-R Flat Roof Insulation Board (FR-MG)	BS EN 13501-1 : 2007	Classification achieved	E

(1) Details of the classification can be found in test report RA13-0035, issued by CSTB, available from the Certificate holder. This classification is valid for thicknesses of between 30 and 150 mm.

2.3 Resistance to fire

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 product was tested/assessed for water vapour permeability to BS EN 12086 : 1997 and the result is given in Table 7.

Table 7 Water vapour permeability to BS EN 12086 : 1997

Product assessed	Assessment method	Requirement	Result
Unilin Thin-R Flat Roof Insulation Board (FR-MG) core	Water vapour resistivity to BS EN 12086 : 1997, method A	Value achieved	344 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$

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 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

Data were assessed for the following characteristics.

6.1 Thermal conductivity

6.1.1 The product was tested for thermal conductivity and the results are given in Table 8.

Table 8 Thermal conductivity

Insulation thickness (mm)	Assessment method	Requirement	Thermal conductivity ($W \cdot m^{-1} \cdot K^{-1}$)
< 80	BS EN 13165 : 2012	Declared value (λ_D)	0.027
80 to 120			0.025
≥ 120			0.024

6.2 Conservation of fuel and power

6.2.1 Example U-values are given in Table 9.

Table 9 Example U values

U Value ($W \cdot m^{-2} \cdot K^{-1}$)	Unilin Thin-R Flat Roof Insulation Board (FR-MG) thickness (mm)[1][2]		
	Concrete[3]	Timber[4]	Metal[5]
0.09	—[6]	—[6]	—[6]
0.11	—[6]	—[6]	—[6]
0.12	—[6]	—[6]	—[6]
0.13	—[6]	—[6]	—[6]
0.15	150	145	155
0.16	140	135	145
0.18	125	125	130
0.20	120	110	120

(1) Nearest available thickness.

(2) Thermally broken tube fixings installed – therefore no fixing correction applied.

(3) 150 mm concrete decking (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%) to 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 6.2.4.

6.2.2 The U value of a completed roof will depend on the insulation thickness, the number and type of fixings, its structure, 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.

6.2.4 For improved energy or carbon savings, designers must consider appropriate fabric and/or services 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, and the results are given in Table 10.

8.2 Specific test data were assessed as given in Table 10.

Table 10 Dimensional stability, bowing under the effects of a thermal gradient and flatness after one-sided wetting

Product assessed	Assessment method	Requirement	Result
Unilin Thin-R Flat Roof Insulation Board (FR-MG)	Dimensional stability to BS EN 1604 : 1996 (70°C and 90-100% RH for 48 hours)	Length and width <2 % change Thickness <6 % change	Pass
	Dimensional stability to BS EN 1604 : 1996 (-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	≤ 20 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 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 suitability of the substrate to accept the 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. The advice of the Certificate holder should also be sought in respect of suitable mechanical fixings.

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

9.1.7 When adhesively bonded, adhesion between the insulation board component and AVCL, and between the boards and overlay, is adequate to resist the effects of wind suction and thermal cycling likely to be experienced under normal conditions. Metal deck profiles should give a bonding area of at least 33% of the total projected surface area. In areas where high wind speeds can be expected, mechanical fixing should be considered, and the advice of the Certificate holder should be sought as to the method of fixing. Reference should be made to BS EN 1991-1-4 : 2005 where a calculation is required for a specific building project.

9.1.8 Roofs must incorporate a 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 the Certificate holder'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 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 For tapered products to be effective in providing a uniform fall, it is essential that the substrate deck is true and even. Any hollows, depressions and backfalls found in the roof deck must be rectified prior to laying the insulation.

9.2.5 The suitability of the substrate deck to accept an adhesive bond or mechanical fixing must be checked prior to the work commencing.

9.2.6 The substrate deck to which the AVCL is to be applied must be even, dry, sound and free from dust and grease and other defects which may impair the bond. All deck joints must be taped to prevent moisture being trapped on or in the insulation.

9.2.7 The bond between the insulation and the AVCL must be adequate to resist the effects of wind suction and thermal cycling likely to be experienced. 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 regard 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.

9.2.8 When profiled decking is used, boards will be needed to span ribs. Maximum permissible spans between ribs for various board thicknesses are shown in Table 4.

9.2.9 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. However, boards accidentally wetted must be replaced or allowed to dry fully before application of the waterproof 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

Practicability of installation was assessed by the BBA, 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 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 Certificate holder'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:

Timber decks (eg tongue-and-groove boards, plywood)

A.1 An AVCL is nailed to the deck, in accordance with BS 8217 : 2005. Laps of 150 mm are sealed using the appropriate grade of bitumen, a polyurethane adhesive or a suitable solvent-based adhesive in accordance with BS 8217 : 2005.

A.2 The AVCL should be turned up around the insulation and sealed to the waterproof finish at all edges and penetrations such as roof lights.

A.3 Hot bitumen adhesive or a polyurethane(1) adhesive or a suitable solvent-based(1) adhesive is applied over the AVCL and the roofing boards are fully embedded into it, in a brick bonded pattern.

(1) Mineral coated glass fibre facing (MG) side facing down.

Concrete decks

A.4 Before applying the AVCL, an appropriate levelling screed should be applied where necessary and, if adhering the AVCL and insulation boards, the whole deck treated with a suitable primer. The advice of the Certificate holder should also be sought in respect of a suitable primer.

A.5 For adhered systems, the AVCL is fully bonded with hot bitumen, a polyurethane adhesive or a suitable solvent-based adhesive and the laps sealed, and the boards applied in the manner described for timber decks (see sections A.2 and A.3).

Metal decks

A.6 If adhering the AVCL and insulation boards, the deck should be prepared and treated with a suitable primer before applying the AVCL. The advice of the Certificate holder should also be sought in respect of a suitable primer.

A.7 For adhered systems, a reinforced AVCL is fully bonded to the metal deck using a polyurethane adhesive or a suitable solvent-based adhesive, and the product applied in the manner described for timber decks (see sections A.2 and A.3).

A.8 The product is laid with the long edges at right angles to the ribs and all board ends must be fully supported on a rib.

A.9 The thickness of the roof board used depends on the width of the rib openings of the metal deck as indicated in Table 3.

Mechanical fixings

A.10 The boards can be secured to concrete, metal and timber decks by means of mechanical fixings.

A.11 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.

A.12 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, six or eleven mechanical fixings placed within the individual board area 1200 by 600 mm, 1200 by 1200 mm and 2400 by 1200 mm respectively, sited between 50 and 150 mm from all edges (see Figures 1 to 3). A minimum of six fixings per 1200 by 1200 mm tapered board are recommended, sited 210 mm from all edges (see Figure 4). Countersunk washers with circular plates of at least 75 mm diameter or 75 by 75 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.

Figure 1 Fixing layout 1200 by 600 mm board — minimum number of fixings

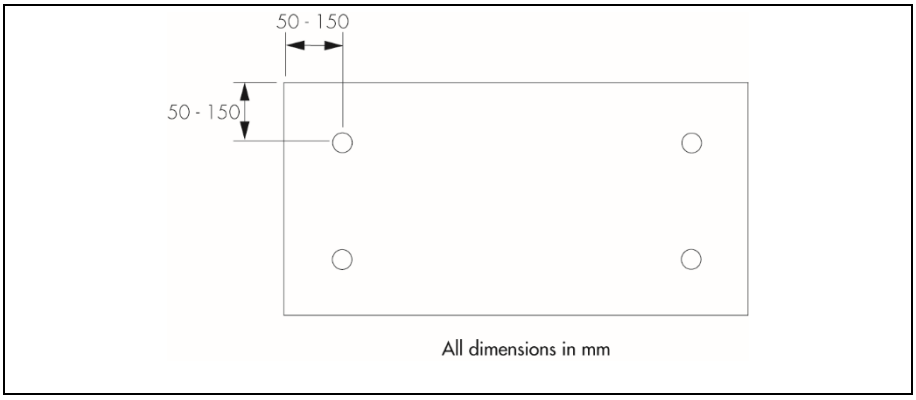


Figure 2 Fixing layout 1200 by 1200 mm board — minimum number of fixings

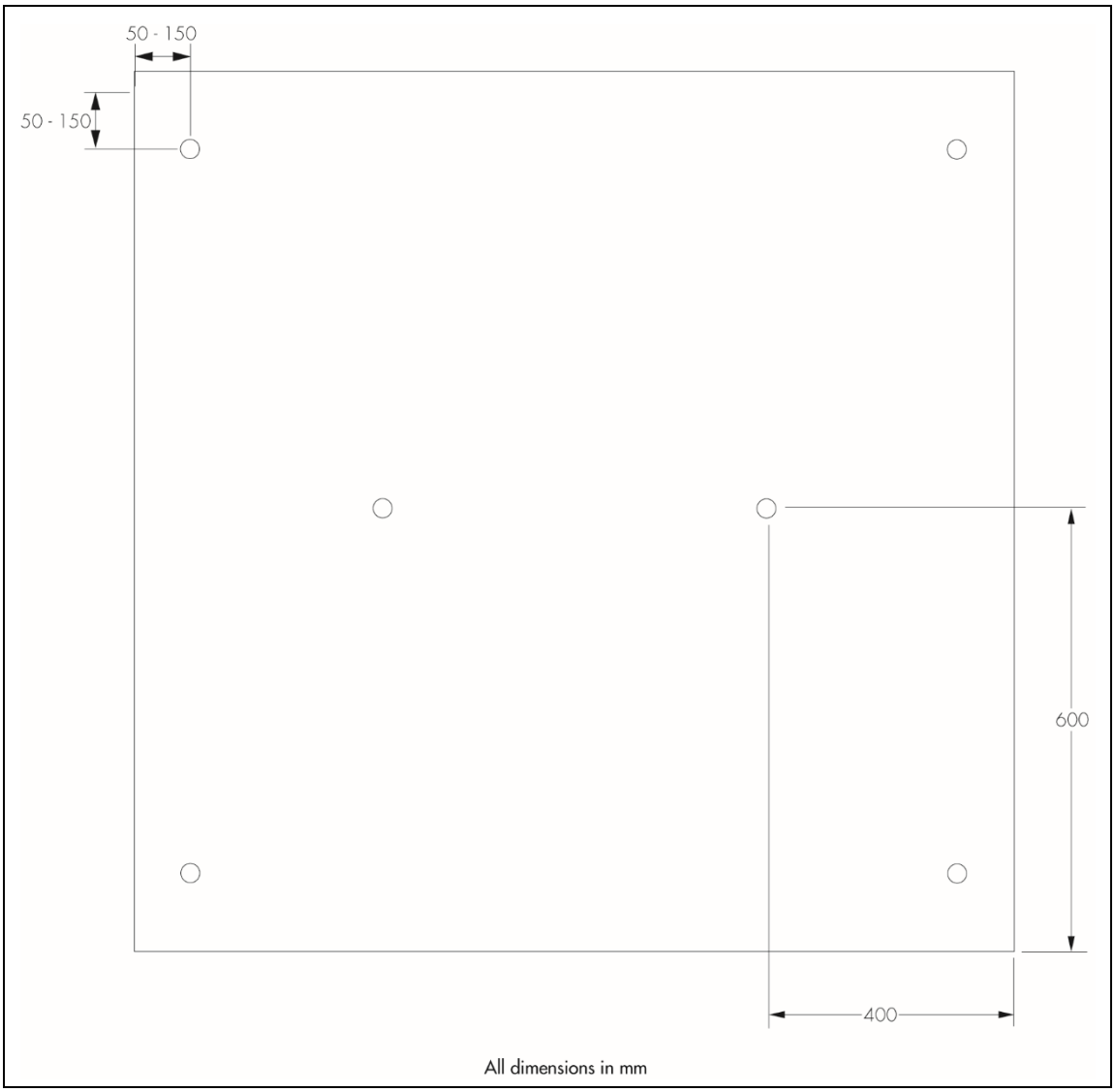


Figure 3 Fixing layout 2400 by 1200 mm board — minimum number of fixings

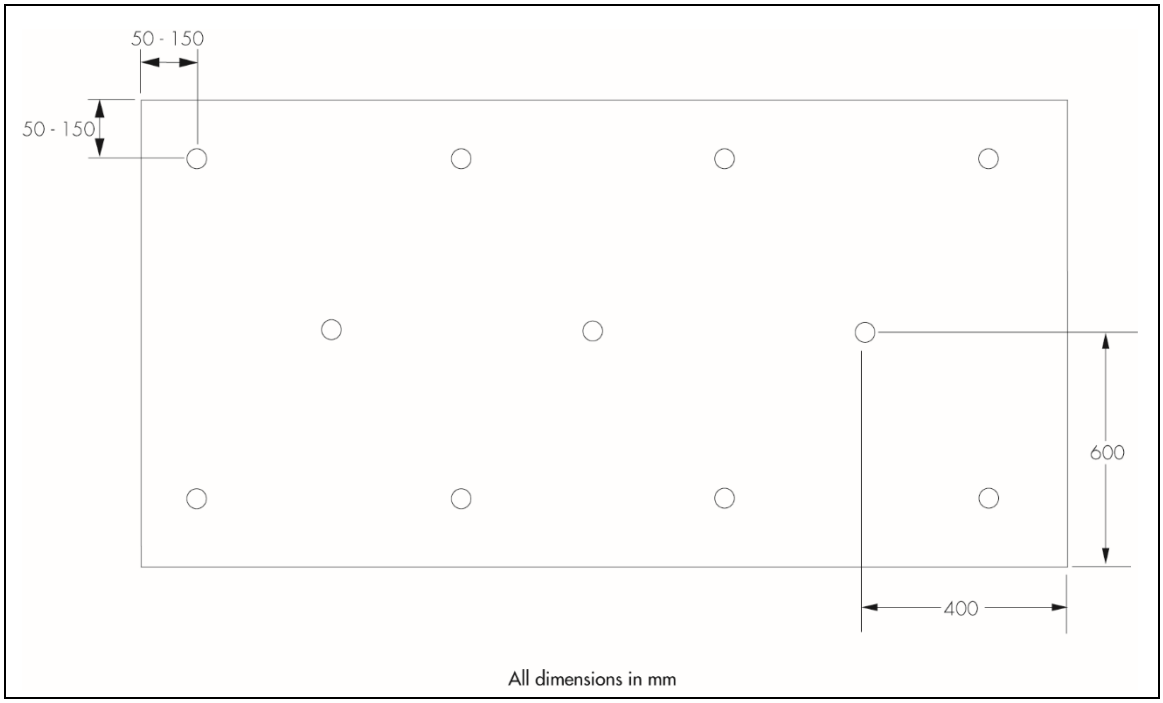
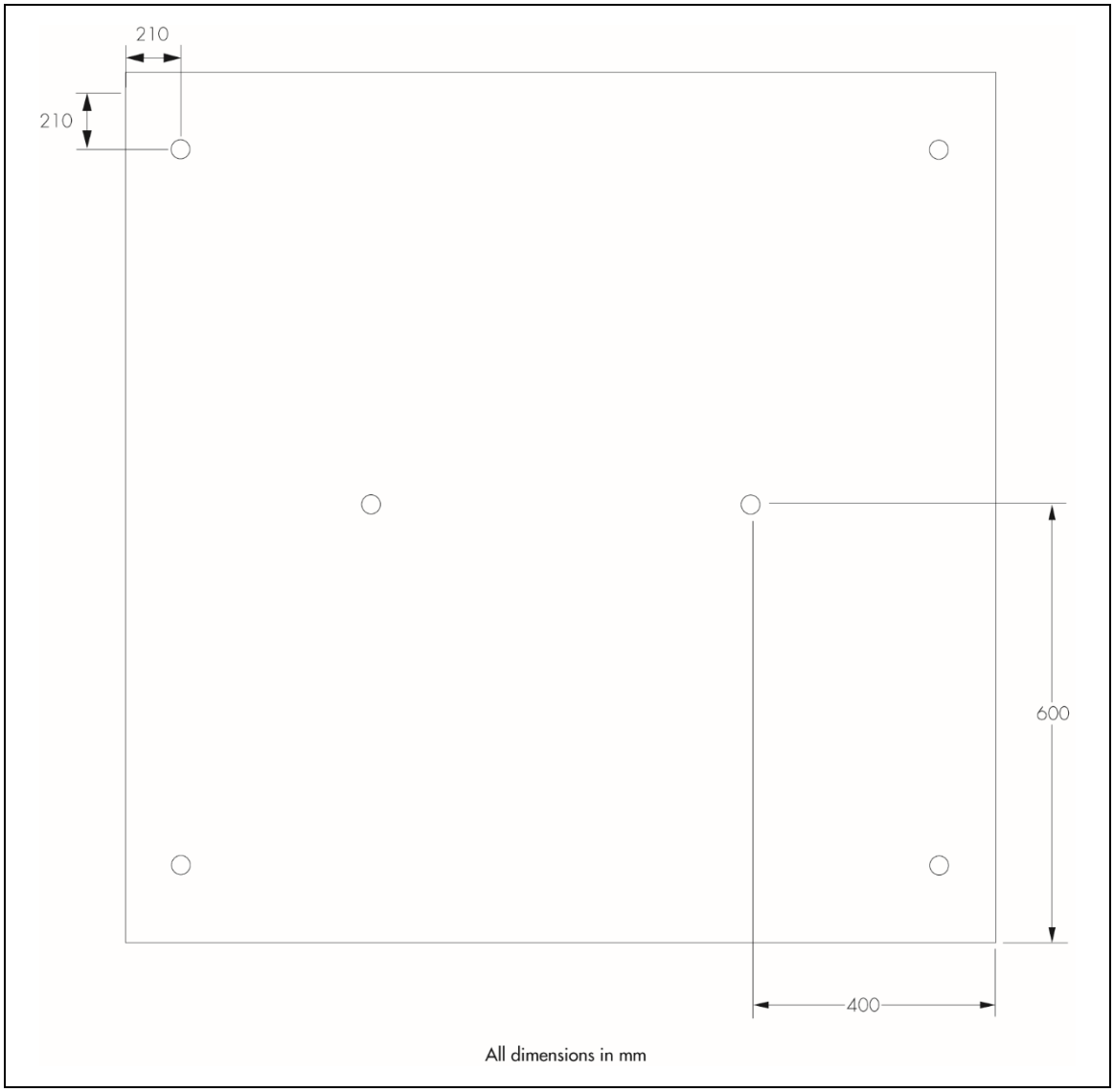


Figure 4 Fixing layout 1200 by 1200 mm board — minimum number of fixings



Weatherproofing (all systems)

A.13 The waterproofing system is applied above the boards in accordance with the Product description and intended use of this Certificate.

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

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
- 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.

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 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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