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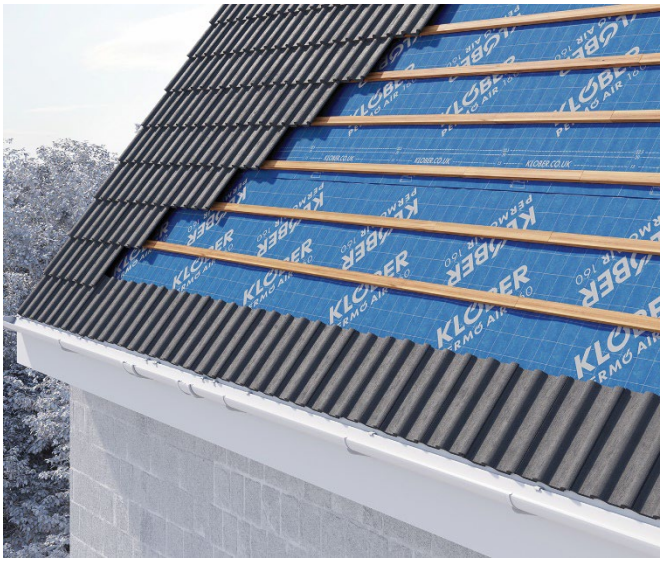
Agrément Certificate
07/4435
Product Sheet 2 Issue 6

PERMO AIR 160 AIR OPEN ROOFING MEMBRANE

FOR USE IN COLD NON-VENTILATED PITCHED ROOF SYSTEMS

This Agrément Certificate Product Sheet(1) relates to Permo Air 160 Air Open Roofing Membrane, a polyolefin laminate composite for use in cold non-ventilated pitched roof systems.

(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 Sixth issue: 15 November 2023
Originally certificated on 12 July 2007

Hardy Giesler
Chief Executive Officer

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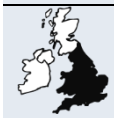
SUMMARY OF ASSESSMENT AND COMPLIANCE

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 Permo Air 160 Air Open Roofing Membrane for use in Cold Non-Ventilated Pitched Roof Systems, 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:	**B3(4)**	**Internal fire spread**
Comment:		The product can contribute to satisfying this Requirement. See section 2 of this Certificate.
Requirement:	**B4(1)**	**External fire spread**
Comment:		The product is restricted by this Requirement in some circumstances. See section 2 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The product will contribute to a roof satisfying this Requirement. See section 3 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The product can contribute to a roof satisfying this Requirement. See section 3 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Fitness and durability of materials and workmanship**
Comment:		The product can contribute to a construction satisfying this Regulation. See sections 8 and 9 of this Certificate.
Regulation:	**9**	**Building standards - construction**
Standard:	2.4	Cavities
Comment:		The product can contribute to satisfying this Standard with respect to clause 2.4.2$^{(1)(2)}$. See section 2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product is restricted under clauses 2.6.4$^{(1)(2)}$, 2.6.5$^{(1)}$ and 2.6.6$^{(2)}$ of this Standard in some circumstances. See section 2 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The product is restricted under clause 2.7.1$^{(1)}$ of this Standard. See section 2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The product will contribute to a roof satisfying clause 3.10.1$^{(1)(2)}$ of this Standard. See section 3 of this Certificate.

Standard: Comment:	3.15	Condensation The product can contribute to limiting the risk of interstitial condensation, with reference to clauses 3.15.1[(1)(2)], 3.15.3[(1)(2)] and 3.15.7[(1)(2)] of this Standard. See section 3 of this Certificate.
Standard: Comment:	7.1(a)	Statement of sustainability The product can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation: Comment:	**12**	**Building standards applicable to conversions** All comments given for the product under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1[(1)] and Schedule 6[(1)].

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

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

Regulation: Comment:	**23(1)(a)(i) (iii)(b)(i)**	**Fitness of materials and workmanship** The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation: Comment:	**28(b)**	**Resistance to moisture and weather** The product can contribute to a roof satisfying this Regulation. See section 3 of this Certificate.
Regulation: Comment:	**29**	**Condensation** The product can enable a roof to satisfy this Regulation. See section 3 of this Certificate.
Regulation: Comment:	**35(4)**	**Internal fire spread – structure** The product can contribute to satisfying this Regulation. See section 2 of this Certificate.
Regulation: Comment:	**36(a)**	**External fire spread** The product is restricted by this Regulation, in some circumstances. See section 2 of this Certificate.

Additional Information

NHBC Standards 2023

In the opinion of the BBA, that Permo Air 160 Air Open Roofing Membrane for use in cold non-ventilated pitched roof systems, 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 7.2 *Pitched roofs.*

Fulfilment of Requirements

The BBA has judged Permo Air 160 Air Open Roofing Membrane for use in cold non-ventilated pitched roof systems to be satisfactory for use as described in this Certificate. The product has been assessed as roof tile underlay for use in cold non-ventilated pitched roof systems.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the product under assessment. Permo Air 160 Air Open Roofing Membrane for use in cold non-ventilated pitched roof systems in dwellings is a thermally bonded film laminate composite made of polyolefins.

The product has the nominal characteristics given in Table 1.

Table 1 Nominal characteristics of Permo Air 160 Air Open Roofing Membrane

Characteristic (unit)	Value
Mass per unit area ($g \cdot m^{-2}$)	160
Roll length (m)	50
Roll width (m)	1.0 and 1.5
Colour	Dark blue

Ancillary Items

The Certificate holder recommends the following ancillary item for use with the product, but this material has not been assessed by the BBA and is outside the scope of this Certificate:

- TR Plus Tape.

Applications

The product is intended for use in dwellings with non-ventilated tiled or slated roofs of any conventional plan and of any size. Features(1) successfully assessed include:

- duo pitched
- hipped
- gable ends
- abutments
- room-in-roof(2)
- timber sarking boards (3)(4)(5)
- mono-pitched
- verges
- mansard
- dormers
- valleys.

(1) For roofs incorporating other features, unconventional roof geometries or construction materials, the advice of the Certificate holder should be sought.
(2) Where a room-in-roof results in part of a pitch being insulated (ie a warm roof), design and detailing of that part of the roof should comply with the relevant guidance given in Product Sheet 1 of this Certificate.
(3) Timber sarking planks, Scottish practice: the membrane is laid over open-jointed timber planks (nominally 150 mm wide with a 2 mm gap) and fixed with galvanized clout nails. Slates are nailed through the membrane onto the sarking without battens.
(4) Timber sarking planks, tiled roofs: Counter battens of 12 mm minimum thickness should be used to provide a drainage path beneath the tiling battens. The membrane may be laid directly over the timber planks or draped over the counter battens.
(5) Sheet sarking materials should not be used.

Definitions for products and applications inspected

The following term is defined for the purpose of this Certificate as:

- pitched roof — a roof having a fall in excess of 1:6.

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 Resistance to wind uplift

1.1.1 Results of resistance to wind uplift tests to BS 5534 : 2014, Annex A, and consequent Zone of applicability are given in Tables 2 and 3 of this Certificate.

Table 2 Wind uplift resistance (Pa)

Product	≤345 mm batten gauge with battened laps(1)	≤250 mm batten gauge with battened laps(1)(2)	≤345 mm batten gauge with lap taped with TR Plus Tape(1)
Permo Air 160 Air Open Roofing Membrane	1190	2080	2064

(1) Mean of test results.

(2) Underlays with a wind uplift resistance at a 250 mm batten gauge that meet the minimum design wind pressure of 820 Pa for Zone 1 are deemed to satisfy the requirements for use at a 100 mm batten gauge in all wind zones.

Table 3 Zones of applicability of the product, according to BS 5534 : 2014, clause A.8

Product	≤345 mm batten gauge with battened laps	≤250 mm batten gauge with battened laps	≤345 mm batten gauge with lap taped with TR Plus Tape
Permo Air 160 Air Open Roofing Membrane	Zones 1 to 3	Zones 1 to 5	Zones 1 to 5

Unsupported

1.1.2 On the basis of data assessed, the product is satisfactory for use in unsupported systems, in the Geographical Wind Zones given in Table 3, where a well-sealed ceiling, as defined in BS 9250 : 2007, Clause 3.7, is present and the roof has a ridge height ≤15m, a pitch between 12.5 and 75°, and a site altitude ≤100m, and where topography is not significant. For all other cases, the required uplift resistance must be determined using BS 5534 : 2014 and the Certificate holder's declared wind uplift resistances in Table 2 of this Certificate.

Supported

1.1.3 On the basis of the data assessed, the product, when fully supported, has adequate resistance to wind uplift forces.

1.1.4 Timber sarking, such as square-edged butt-jointed planks, is not considered to be airtight and the underlay must be treated as unsupported.

1.2 Resistance to mechanical damage

1.2.1 Results of resistance to mechanical damage tests are given in Table 4.

Table 4 Results of mechanical damage tests

Product assessed	Assessment method	Requirement	Result
Permo Air 160 Air Open Roofing Membrane	Tensile strength to BS EN 12311-1 : 2000 - Control Longitudinal direction	Declared value 280 N·(50 mm)$^{-1}$	 Pass
Permo Air 160 Air Open Roofing Membrane	Tensile strength to BS EN 12311-1 : 2000 - Control Transverse direction	Declared value 200 N·(50 mm)$^{-1}$	 Pass
Permo Air 160 Air Open Roofing Membrane	Elongation to BS EN 12311-1 : 2000 - Control Longitudinal direction Transverse direction	Values achieved	 58% 109%
Permo Air 160 Air Open Roofing Membrane	Nail tear to BS EN 12310-1 : 2000 Longitudinal direction Transverse direction	≥50N	 Pass Pass
Permo Air 160 Air Open Roofing	Mullen burst strength to BS 3137 : 1972	Value achieved	778 kN·m^{-2}

1.2.2 On the basis of data assessed, the product has adequate strength to resist the loads associated with the installation of the roof.

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 Reaction to fire

2.1.1 When tested to BS EN ISO 11925-2 : 2020 and classified to BS EN 13501-1 : 2007, the product achieved a reaction to fire classification, E(1).

(1) Classification report reference H.K-07e/23, issued by FIW München. The report is available form the Certificate holder upon request.

2.1.2 On the basis of data assessed, the product will be restricted in use under the documents supporting the national Building Regulations in some cases.

2.1.3 In England, Wales and Northern Ireland, the product, when used in pitches of greater than 70°, must not be used on buildings that have a storey at least 18 m above ground level and which contain one or more dwellings, an institution, a room for residential purposes (excluding, in Wales and Northern Ireland only, any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools and, additionally in Northern Ireland, nursing homes and places of lawful detention.

2.1.4 In Scotland, the product, when used in pitches of greater than 70°, excluding upstands, must not be used on domestic or shared residential buildings that have a storey of more than 11 m above ground level or are less than 1 m from a boundary.

2.1.5 Designers must refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, cavity barriers, service penetrations and combustibility limitations for other materials and components used in the overall construction.

2.1.6 When the product is used unsupported, there is a risk that fire can spread if they are accidentally ignited during maintenance works, eg, by a roofer's or plumber's torch. As with all types of underlay, care must be taken during building and maintenance to avoid ignition.

2.1.7 When the product is used with timber sarking, such as square-edged butt-jointed planks, the reaction to fire will be primarily determined by the sarking.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Weathertightness

3.1.1 Results of weather tightness are given in Table 5.

Table 5 Weathertightness

Product assessed	Assessment method	Requirement	Result
Permo Air 160 Air Open Roofing Membrane	Water resistance to BS EN 1928 : 2000	No leakage	Pass
	Resistance to streaming water to MOAT 69 : 2004	No dampness	Pass
	Unsupported	No dampness	Pass
	Supported		

3.1.2 On the basis of data assessed, the products can be used supported without affecting their water resistance.

3.1.3 The product is Class W1 in accordance with BS EN 13859 : 2010 and will resist the passage of water, wind-blown snow and dust into the interior of a building, under all conditions to be found in a roof constructed in accordance with the relevant clauses of BS 5534 : 2014.

3.1.4 The product resists penetration of liquid water and consequently may be used as temporary waterproofing prior to the installation of slates or tiles. The period of such use must, however, be kept to a minimum as is given in BBA Information Bulletin No. 2 *Permeable Roof Tile Underlay — Guide to Good Site Practice*.

3.2 Condensation

3.2.1 Results of water vapour resistance and air permeability tests are given in Table 6.

Table 6 Water vapour resistance test results

Product assessed	Assessment method	Requirement	Result
Permo Air 160 Air Open Roofing Membrane	Water vapour resistance to BS EN 12572 : 2001 – Condition C	Value achieved	0.0319 $MNsg^{-1}$
	Water vapour diffusion – equivalent air thickness to BS EN 12572 : 2001 – Condition C		s_d= 0.006 m
Permo Air 160 Air Open Roofing Membrane	Air permeability to BS EN 13141-2 : 2004	Value achieved	
	Air flow per unit area at 1 Pa test pressure		2.87 $m^3 \cdot h^{-1} \cdot m^{-2}$
	Air flow per unit area at 50 Pa test pressure		63.19 $m^3 \cdot h^{-1} \cdot m^{-2}$

3.2.2 On the basis of data assessed, the product is suitable for use in cold non-ventilated pitched roof systems.

3.2.3 For the purposes of condensation calculations, the product's water vapour resistance may be taken as not more than 0.1 $MN \cdot s \cdot g^{-1}$ and for roofs designed in accordance with BS 5534 : 2014 or BS 5250 : 2021, it may be regarded as a Type LR underlay.

3.2.4 The product is also air permeable, allowing a significant additional mechanism for water vapour egress by convection.

4 Safety and accessibility in use

4.1 Slip Resistance

Data were assessed for the following characteristics.

4.1.1 Results of slip resistance tests are given in Table 7.

Table 7 Results of coefficient of dynamic friction tests

Product assessed	Assessment method	Requirement	Result
Permo Air 160 Air Open Roofing Membrane	BBA Internal Test Specification T1/10 Coefficient of friction - Dry	Value achieved	
	Machine		1.03
	Cross		1.00
	BBA Internal Test Specification T1/10 Coefficient of friction - Wet		
	Machine		0.67
	Cross		0.64

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Not applicable.

7 Sustainable use of natural resources

The product contains polyolefins, which can be recycled.

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 and are given in Table 8.

Table 8 Results of durability tests

Product assessed[1]	Assessment method	Requirement	Result
Permo Air 160 Air Open Roofing Membrane	Dimensional stability to BS EN 1107-2 : 2001 Longitudinal direction Transverse direction	≤2%	 Pass Pass
Permo Air 160 Air Open Roofing Membrane	Tensile strength to BS EN 12311-1 : 2000 -336h UVA at 50°C followed by 90 days heat ageing at 70°C Longitudinal direction Transverse direction	< 30% change	 Pass Pass
Permo Air 160 Air Open Roofing Membrane	Elongation to BS EN 12311-1 : 2000 -336h UVA at 50°C followed by 90 days heat ageing at 70°C Longitudinal direction Transverse direction	Values achieved	 40% 68%
Permo Air 160 Air Open Roofing Membrane	Resistance to water penetration to BS EN 1928 : 2000 -336h UVA at 50°C followed by 90 days heat ageing at 70°C	No leakage	Pass

8.3 Service life

8.3.1 Under normal service conditions, the product will have a service life comparable with that of traditional roof tile underlays, provided it is exposed to sunlight for long periods, and it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

8.3.2 The exposure of the product prior to completion of the roof must be kept to a minimum. Advice regarding exposure can be obtained from the Certificate holder, but such advice is outside of the scope of this Certificate.

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 Project design wind speeds for the roof in which the product is installed must be determined, and wind uplift forces calculated, by a suitably experienced and competent individual, in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex.

9.1.3 Designers, planners, contractors and/or installers must ensure that the roof and ceiling are constructed in accordance with the Certificate holder's instructions and the information given in this Certificate.

9.1.4 When used in direct contact with treated timber, the advice of the Certificate holder must be sought on compatibility, but such advice is outside of the scope of this Certificate.

9.1.5 The complete roof construction, ceiling boards to roof tiles, must be considered as a complete system with regard to condensation risk. It is important that the product is laid in accordance with the Certificate holder's instructions and this Certificate to minimise the risk of condensation.

9.1.6 All penetrations into and out of the roof space must be properly sealed in accordance with the Certificate holder's instructions which include the use of the Certificate holder's recommended sealing tape. In addition, such features as vent stacks and boiler flues passing through the roof space must be sealed.

9.1.7 It is essential to minimise water vapour transfer into the loft space from the dwelling below, with a well-sealed ceiling as defined in BS 9250 : 2007, Clause 3.7. Appropriate measures include:

- ventilating the dwelling below in accordance with national Building Regulations and Standards for the dispersal and rapid dilution of water vapour, particularly from rooms that may experience high humidity (such as kitchens, utility rooms and bathrooms)
- covering all water tanks in the loft space and lagging pipework
- sealing penetrations in the ceiling and making loft hatches convection-tight by using a compressible draught seal
- ensuring that there is continuity of jointing with walls (and behind wall linings) at ceiling perimeters
- ensuring that masonry wall cavities do not interconnect with roof cavities.

9.1.8 For additional protection, the use of a vapour control layer/vapour check plasterboard can be considered.

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 and the Certificate holder's instructions and the relevant recommendations of BS 5534 : 2014, BS 8000-0 : 2014 and BS 8000-6 : 2023. Installation must be carried out under all conditions normal to roofing work. A summary of instructions and guidance is provided in Annex A of this Certificate.

9.2.3 The NHBC requires that the product, once installed, must be inspected in accordance with of *NHBC Standards* 2023, Chapter 7.2 *Pitched roofs.* Any damage to the product assessed in this Certificate must be repaired in accordance with section 9.4 of this Certificate and reinspected, in order to maintain product performance.

9.2.4 The product must be installed with the coloured or printed side uppermost and lapped to shed water out and down the slope.

9.2.5 Overlaps must be provided with the minimum dimensions given in Table 9. The Certificate holder's advice must be sought when using TR Plus Tape for sealing laps, but such advice is outside of the scope of this Certificate.

Table 9 Minimum overlaps

Roof pitch (°)	Horizontal laps (mm) untaped and taped		Vertical laps (mm)
	Not fully supported	Fully supported	
12.5 - 15	225	150	100
≥15	150	100	100

9.2.6 Hips must be covered with a 600 mm wide strip of the product.

Procedure

Unsupported

9.2.7 The product, when installed as an unsupported system, is fixed in the traditional method for roof tile underlays, ie, draped between the rafters to allow drainage of liquid water under the tiling battens.

Fully supported

9.2.8 For fully supported roofs (traditional Scottish practice), the slates can be nailed through the product into the timber sarking board, normally 150 mm wide with a 2 mm gap.

9.3 Workmanship

Practicability of installation was assessed by the BBA on the basis of the Certificate holder's information and BS 5534 : 2014. To achieve the performance described in this Certificate, the product can be installed by a competent general builder, or a contractor, experienced with this type of product.

9.4 Maintenance and repair

9.4.1 As the product is confined in a roof structure and has suitable durability, maintenance is not required. However, any damage occurring before enclosure must be repaired.

9.4.2 Damage to the product can be repaired prior to the installation of slates or tiles, by replacing the damaged areas or by patching and sealing correctly. Care must be taken to ensure that the watertightness of the roof is maintained.

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 packaging bearing the Certificate holder's marketing company's name, the grade identification 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 Rolls must be stored on their sides, on a level, clean surface, under cover and protected from sunlight.

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.

UKCA marking

The Certificate holder has taken the responsibility of UKCA marking the product in accordance with Designated Standard EN 13859-1 : 2010.

CE marking

The Certificate holder has taken the responsibility of CE marking the product, in accordance with harmonised European Standard EN 13859-1 : 2010.

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 by TÜV Hessen (Certificate 73100176).

Additional information on installation

A.1 Where possible, eaves guards should be used to protect the product from sunlight and to direct water into the gutter.

Condensation

A.2 The risk of condensation is highest in new-build construction during the first heating period, where there is high moisture loading owing to wet trades, such as in-situ cast concrete slabs or plaster. The risk of condensation diminishes as the building dries out. See BBA Information Bulletin No 1 — *Roof Tile Underlays in Cold Roofs during the Drying-out Period.*

Finishing

A.3 Detailing of abutments, verges and hips must be in accordance with the Certificate holder's instructions.

A.4 To minimise the risk of condensation, it is important that the following details are maintained:

- all penetrations, eg pipework, electrical fittings to the loft space, must be sealed
- the loft hatch must be securely sealed to ensure a draught-free fit
- the insulation must be pushed into the eaves and against the underlay to avoid gaps.

A.5 The tiling and slating must be carried out in accordance with the relevant clauses of BS 5534 : 2014, BS 8000-0 : 2014, BS 8000-6 : 2023 and the Certificate holder's instructions, especially when using tightly jointed slates or tiles.

Bibliography

BS 3137 : 1972 *Methods for determining the bursting strength of paper and board*

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

BS 5534 : 2014 + A2 : 2018 *Slating and tiling for pitched roofs and vertical cladding — Code of practice*

BS 8000-0 : 2014 + A1 : 2023 *Workmanship on construction sites — Introduction and general principles*
BS 8000-6 : 2023 *Workmanship on construction sites — Slating and tiling of roofs and walls — Code of practice*

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

BS EN 1107-2 : 2001 *Flexible sheets for waterproofing — Determination of dimensional stability — Plastic and rubber sheets for roof waterproofing*

BS EN 1928 : 2000 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of watertightness*

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*

BS EN 12310-1 : 2000 *Flexible sheets for waterproofing — Determination of resistance to tearing (nail shank) — Bitumen sheets for roof waterproofing*

BS EN 12311-1 : 2000 *Flexible sheets for waterproofing — Determination of tensile properties — Bitumen sheets for roof waterproofing*

BS EN 13141-2 : 2004 *Ventilation for buildings — Performance testing of components/products for residential ventilation — Exhaust and supply air terminal devices*

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

BS EN 13859-1 : 2010 *Flexible sheets for waterproofing. Definitions and characteristics of underlays - Underlays for discontinuous roofing*

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

BS EN ISO 11925-2 : 2020 *Reaction to fire tests. Ignitability of products subjected to direct impingement of flame — Single-flame source test*

BS EN ISO 12572 : 2001 *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties*

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 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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