# A. Proctor Group Ltd

The Haugh Ashgrove Road Perthshire PH10 7ER

Tel: 01250 872261 e-mail: contact@proctorgroup.com website: www.proctorgroup.com



24/7147

Product Sheet 2 Issue 1

# PROCTOR AIR ROOF TILE UNDERLAYS

# PROCTOR AIR ROOF TILE UNDERLAY FOR USE IN WARM NON-VENTILATED AND COLD VENTILATED PITCHED ROOFS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to the Proctor Air Roof Tile Underlay for use in Warm Non-Ventilated and Cold Ventilated Pitched Roofs of up to 70° pitch.

(1) Hereinafter referred to as 'Certificate'.

#### The assessment includes

#### **Product factors:**

- compliance with Building Regulations
- compliance with additional regulatory or nonregulatory 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<sup>†</sup>:

- 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: 14 May 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  $\dagger$  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.

British Board of Agrément		
1 <sup>st</sup> Floor, Building 3, Hatters Lane		tel: 01923 665300
Croxley Park, Watford		clientservices@bbacerts.co.uk
Herts WD18 8YG	©2024	www.bbacerts.co.uk

# 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 the Proctor Air Roof Tile Underlay for use in Warm Non-Ventilated and Cold Ventilated Pitched Roofs, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations:

ST AND	The Buildi	ng Regulations 2010 (England and Wales) (as amended)
Requirement: Comment:	B3(4)	Internal fire spread The product can contribute to satisfying this Requirement. See section 2 of this Certificate.
<b>Requirement:</b> Comment:	C2(b)	<b>Resistance to moisture</b> The product will contribute to a roof satisfying this Requirement. See section 3 of this Certificate.
<b>Requirement:</b> Comment:	C2(c)	<b>Resistance to moisture</b> 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.
en al and a start and a start	The Buildi	ng (Scotland) Regulations 2004 (as amended)
<b>Regulation:</b> Comment:	8(1)	<b>Fitness and durability of materials and workmanship</b> 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 reference to clause 2.4.2 <sup>(1)(2)</sup> . See section 2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The product will contribute to a roof satisfying this Standard, with reference to clauses $3.10.1^{(1)(2)}$ and $3.10.8^{(1)(2)}$ . See section 3 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses $3.15.1^{(1)(2)}$ , $3.15.3^{(1)(2)}$ and $3.15.7^{(1)(2)}$ . See section 3 of this Certificate.
Standard:	7.1(a)	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 a bronze level of sustainability as defined in this Standard.

Regulation: Comment:	12	<ul> <li>Building standards – conversion</li> <li>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<sup>(1)(2)</sup> and Schedule 6<sup>(1)(2)</sup>.</li> <li>(1) Technical Handbook (Domestic).</li> <li>(2) Technical Handbook (Non-Domestic).</li> </ul>
	The Build	ing Regulations (Northern Ireland) 2012 (as amended)
<b>Regulation:</b>	23(1)(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The product is acceptable. See sections 8 and 9 of this Certificate.
<b>Regulation:</b>	28(b)	Resistance to moisture and weather
Comment:		The product will contribute to a roof satisfying this Regulation. See section 3 of this Certificate.
Regulation:	29	Condensation
Comment:	23	The product can contribute to satisfying this Regulation. See section 3 of this
		Certificate.
Regulation:	35(4)	Internal fire spread – structure
Comment:		The product can contribute to satisfying this Regulation. See section 2 of this
		Certificate.

# **Additional Information**

### **NHBC Standards 2024**

In the opinion of the BBA, the Proctor Air Roof Tile Underlay for use in Warm Non-Ventilated and Cold Ventilated Pitched Roofs, 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 the Proctor Air Roof Tile Underlay for use in Warm Non-Ventilated and Cold Ventilated Pitched Roofs to be satisfactory for use as described in this Certificate. The product has been assessed as a roof tile underlay for use in warm non-ventilated and cold ventilated pitched roofs of up to 70° pitch.

## ASSESSMENT

### Product description and intended use

The Certificate holder provided the following description for the product under assessment. Proctor Air Roof Tile Underlay for use in Warm Non-Ventilated and Cold Ventilated Pitched Roofs is an air and vapour permeable roof tile underlay that consists of a three-layer composite with two layers of nonwoven, spunbonded polypropylene, and a vapour and air permeable film in the middle.

The product has the nominal characteristics given in Table 1.

Table 1 Nominal characteristics		
Characteristic (unit)	Value	
Thickness (mm)	0.67	
Mass per unit area (g·m⁻²)	170	
Roll length (m)	50	
Roll width (m)	1 and 1.5	
Colour		
upper face	Purple	
lower face	Grey	

#### Ancillary Items

The Certificate holder recommends Wraptite Tape for taping laps when required for wind uplift purposes, but this material has not been assessed by the BBA and is outside the scope of this Certificate.

#### **Applications**

The product has been assessed for use as fully supported (and secured with counter battens and tiling battens), or unsupported underlay (installed by draping over rafters and securing with tiling battens), in tiled and slated warm non-ventilated and cold ventilated pitched roof systems, constructed in accordance with the relevant clauses of BS 5534 : 2014.

When used supported, the product must be used over suitable timber-based sarking planks or suitable timber-based sarking (Type 3 particleboards, Type 3 OSB or Type 2 plywood), either with continuous insulation or insulation placed between the rafters (warm roofs).

#### Definitions for products and applications inspected

Pitched roofs are defined for the purpose of this Certificate as those having a fall in excess of 10° and a maximum pitch of 70°.

### **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 Resistance to wind uplift

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

Table 2	Declared	wind	uplift	resistance	(Pa)	
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Product	≤345 mm batten gauge with taped	≤345 mm batten gauge with	≤250 mm batten gauge with
	battened laps <sup>(2)(3)</sup>	untaped battened laps <sup>(3)</sup>	untaped battened laps <sup>(1)(3)</sup>
Proctor Air	3036.7 Pa	1559.4 Pa	3230.6 Pa

(1) Underlays with a wind uplift resistance at a 250 mm batten gauge that satisfy 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.

(2) Tape used is Wraptite Tape. This material has not been assessed by the BBA and is outside the scope of this Certificate.

(3) Mean of test results.

 Table 3 Zones of applicability of Proctor Air Roof Tile Underlays according to BS 5534 : 2014, clause A.8

Product	≤345 mm batten gauge with taped	≤345 mm batten gauge with	≤250 mm batten gauge with	
	battened laps <sup>(3)</sup>	untaped battened laps	untaped battened laps	
Proctor Air	Zone 1 to 5	Zone 1 to 4	Zone 1 to 5	

(1) Tape used is Wraptite Tape. This material has not been assessed by the BBA and is outside the scope of this Certificate. *Unsupported* 

1.1.2 On the basis of the 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  $\leq$ 15 m, a pitch between 12.5 and 70°, and a site altitude  $\leq$ 100 m, 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 given in Table 2 of this Certificate.

### Supported

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

1.1.4 The product may be used at any batten gauge in all Wind Zones when laid over nominally airtight timber-based sarking (Type 3 particleboard, Type 3 OSB or Type 2 plywood), and insulation for warm-roof design. It may also be used in applications where slates are nailed directly onto sarking boards.

1.1.5 Timber sarking, such as square-edged butt-jointed planks, is not considered to be airtight and the underlay is 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	
	Nail tear to BS EN 12310-1 : 2000	≥50 N		
Proctor Air	Longitudinal direction		Pass	
	Transverse direction		Pass	
	Mullen burst strength to	Value achieved		
	BS 3137 : 1972			
	Upper face		1124 kPa	
	Lower face		1115 kPa	

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 Results of reaction to fire tests are given in Table 5.

Table 5 Results of reaction	n to fire test			
Product assessed	Assessment method	Requirement	Result	
Proctor Air	Reaction to fire-tested to EN ISO 11925-2 :	Value achieved	Class F <sup>(2)</sup>	
	2020 and classified in accordance with BS EN			
	13501-1 : 2018 <sup>(1)</sup>			
	2020 and classified in accordance with BS EN 13501-1 : 2018 <sup>(1)</sup>			

(1) Classification report reference Report reference 27/06380/02/24, issued by BTTG Testing & Certification Ltd; available from the Certificate holder upon request.

(2) The classification applies for specimens tested unsupported, with no backing board.

2.1.2 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.

2.1.3 When the product is used unsupported, there is a risk that fire can spread if it is 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.

2.1.4 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 weathertightness tests are given in Table 6.

Table 6 Weathertig	htness		
Product assessed	Assessment method	Requirement	Result
Proctor Air	Water resistance to	No leakage	Pass
	BS EN 1928 : 2000		
	Hydrostatic head to BS EN ISO 811 :	≥1 m	Pass
	2018		

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

3.1.3 The product is Class W1 in accordance with BS EN 13859-1 : 2014 and will resist the passage of water and windblown 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 weather protection prior to the installation of slates or tiles. The period of such use must, however, be kept to a minimum as 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 transmission and air permeability tests are given in Table 7.

Table 7 Water vapo	our transmission and air permeability		
Product assessed	Assessment method	Requirement	Result
Proctor Air	Water vapour transmission properties to EN ISO 12572 : 2016	Declared value s <sub>d</sub> = 0.015 m <sup>(1)</sup>	Pass
	Air permeability to BS EN 12114 : 2000	≥20 m <sup>3</sup> / m <sup>2</sup> ·h at 50Pa	Pass

(1) Water vapour resistance, in  $MN \cdot s \cdot g^{-1}$ , may be taken as 5 x  $s_d$  value.

3.2.2 For roofs designed in accordance with BS 5534 : 2014 and BS 5250 : 2021, the product may be regarded as a low water vapour resistance (Type LR) and air permeable underlay.

3.2.3 On the basis of data assessed, the product is air permeable, allowing a significant additional mechanism for water egress by convection. It is suitable for use in warm non-ventilated and in cold ventilated pitched roof systems, in accordance with section 9.1 of this Certificate.

# 4 Safety and accessibility in use

Data were assessed for the following characteristics.

### 4.1 Slip resistance

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4.1.1 Results of slip resistance tests are given in Table 8.

Table 8 Results of slip resistance tests			
Product assessed	Assessment method	Requirement	Result
Proctor Air	Mean pendulum test value (PTV)	Value achieved	
	BBA Internal Test Specification T1/10		
	tested dry		
	Longitudinal direction		78
Transverse direction		79	
	tested wet		
	Longitudinal direction		64
	Transverse direction		68

4.1.2 On the basis of data assessed, the product has a high coefficient of friction, giving a slip resistant surface for increased safety during the installation of the covering.

## **5** Protection against noise

Not applicable.

## 6 Energy economy and heat retention

Not applicable.

# 7 Sustainable use of natural resources

The product comprises polypropylene, which can be recycled.

## 8 Durability

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

8.2 Specific test data were assessed as given in Table 9.

Product	Assessment method	Requirement	Result
assessed		•	
Proctor Air	Dimensional stability to	≤2%	
	BS EN 1107-2 : 2001		
	Longitudinal direction		Pass
	Transverse direction		Pass
	Tensile strength to	Declared values	
	BS EN 12311-1 : 2000 modified by		
	EN 13859-1 : 2010, Annex A		
	Control		
	Longitudinal direction	330 N·(50mm)⁻¹	Pass
_	Transverse direction	270 N·(50mm)⁻¹	Pass
	Elongation to	Declared values	
	BS EN 12311-1 : 2000 modified by		
	EN 13859-1 : 2010, Annex A		
	Control		
	Longitudinal direction	56%	Pass
	Transverse direction	68%	Pass
	Tensile strength to		
	BS EN 12311-1 : 2000		
	modified by EN 13589-1 : 2014, Annex A and C		
_	Longitudinal direction	Change <30%	Pass
	Transverse direction		Pass
	Elongation to BS EN 12311-1 : 2000		
	modified by EN 13589-1 : 2014, Annex A and C		
	Longitudinal direction	Change <30%	Pass
	Transverse direction		Pass
	Resistance to water penetration to	No leakage	Pass
	BS EN 1928 : 2000 modified by EN 13589-1 : 2014,		
	Annex A and C		

### 8.3 Service life

8.3.1 Under normal service conditions, the product will have a life comparable with that of traditional roof tile underlays, provided it is not 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 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 specified 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 In common with all roofs, care must be taken in the overall design and installation to minimise the risk of water vapour coming into contact with cold parts of the construction. Factors to be considered and minimised include moisture diffusion through the ceiling, infiltration through unsealed openings/penetrations in the ceiling and services evaporating or venting moisture into cold spaces.

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 the scope of this Certificate.

#### 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 can 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 product must be installed with the purple-coloured side uppermost, and lapped to shed water out and down the slope.

Table 10 Minimum overlaps					
Roof pitch (°)	Horizontal lap (mm)		Vertical laps (mm)		
	Not fully supported	Fully supported			
12.5 < 15	225	150	100		
≥15	150	100	100		

9.2.4 Overlaps must be provided with the minimum dimensions given in Table 10.

#### Procedure

9.2.5 The product is to be installed by draping over rafters and securing with tiling battens, or installed taut over rafters and secured with counter battens and tiling battens.

#### Unsupported

9.2.7 The product, when installed as part of an unsupported system, must be fixed in the traditional method for roof tile underlays, ie draped between the rafters to allow drainage of liquid water under the tiling battens, with the coloured and printed side uppermost.

#### Fully supported

9.2.8 The product is used over suitable timber-based sarking (Type 3 particleboards, Type 3 OSB or Type 2 plywood), either with continuous insulation or insulation placed between the rafters (warm roofs).

9.2.9 The product is secured to the support with counter battens at least 12 mm thick, to create drainage and vapour dispersal space<sup>(1)</sup> between the product and the tiles. When using timber sarking, the traditional Scottish practice is employed, with the tiles or slates fixed directly into the boards.

(1) This space must be ventilated in accordance with BS 5250 : 2021 when using tight-fitting roof coverings.

9.2.10 The counter battens are fixed with galvanized clout nails at a maximum of 300 mm centres coinciding with the rafters. Tiling battens are secured to the counter battens and rafters with appropriate fixings.

9.2.11 Care must be taken to minimise the risk of interstitial condensation, particularly for timber sarking which may be below the dew-point for extended periods during winter months.

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

9.2.13 Tiling and slating must be carried out in accordance with the relevant clauses of BS 5534 : 2014, BS 8000-0 : 2014 and BS 8000-6 : 2023 and the tile/slate manufacturer's instructions, especially when using tightly jointed slates or tiles, metal sheet or photovoltaic panels, where a ventilated batten space should be provided.

#### 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 must 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 rolls individually wrapped in polyethene. A label bearing the product and Certificate holder's name, the BBA logo along with UKCA/CE marking, and fixing instructions on the reverse side is included with each roll.

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 flat, on a clean level 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.

# <u>Construction (Design and Management) Regulations 2015</u> 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 13859-1 : 2010.

### Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of DIN EN ISO 9001 : 2015 by TüV Rheinland (Certificate 01 100 2100035).

### Additional information on installation

#### <u>General</u>

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.* 

### Horizontal ceiling and insulation (cold roof)

A.3 Roofs designed and constructed in accordance with BS 5250 : 2021 will adequately limit the risk of interstitial condensation. Alternatively, ridge or high level ventilation<sup>(1)</sup> equivalent to a continuous opening of 5 mm may be used. If this approach is adopted, users must take additional care to limit opportunities for vapour migration and accumulation in the loft spaces (see section 3.2.1 of this Certificate).

(1) The provision of high-level ventilation, when using a Type LR underlay in cold pitched roofs, is a requirement under *NHBC Standards* 2024, Chapter 7.2.

### Inclined ceiling and insulation (warm roof)

A.4 For roofs with an insulated inclined ceiling, ventilation above or below the underlay will not be required provided that the passage of moisture by diffusion and by convection is controlled, eg by a vapour control layer or a continuous envelope of insulation with a high vapour resistance and with sealed joints. Ventilation may be required if specified by the tile manufacturer or where the roof covering is airtight, as described in BS 5250 : 2021.

### Partially inclined ceiling and insulation (warm and cold roof)

A.5 Where an insulated ceiling spans only part of the roof line, resulting cold roof spaces must be in accordance BS 5250 : 2021, Section 4, Subsection 12.

### **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 : 2024 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 — Part 2: 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 Eurocode 1: Actions on structures — Part 1-4: General actions — Wind actions

BS EN 12114 : 2000 Thermal performance of buildings. Air permeability of building components and building elements. Laboratory test methods

BS EN 12310-1 : 2000 Flexible Sheets for Waterproofing — Determination of resistance to tearing (nail shank) — Part 1: 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 13859-1 : 2014 Flexible sheets for waterproofing — Definitions and characteristics of underlays — Underlays for discontinuous roofing

BS EN ISO 811 : 2018 Textiles - Determination of resistance to water penetration - Hydrostatic pressure test

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

EN 13859-1 : 2010 Bitumen and bituminous binders — Determination of the tensile properties of modified bitumen by the force ductility method

EN 13589-1 : 2014 Bitumen and bituminous binders — Determination of the tensile properties of modified bitumen by the force ductility method

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

EN ISO 12572 : 2016 Hygrothermal performance of building materials and products — Determination of water vapour transmission properties — Cup method

EN ISO 9001 : 2015 International standard for quality management systems

### **Conditions of Certificate**

## Conditions

1 This Certificate:

- relates only to the product that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- 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.

**British Board of Agrément** 1<sup>st</sup> Floor, Building 3, Hatters Lane Croxley Park, Watford Herts WD18 8YG

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tel: 01923 665300 clientservices@bbacerts.co.uk www.bbacerts.co.uk