

Cromar Building Products Ltd
Units 1, 3, 4, 5 Northside Industrial Estate
Selby Road
Whitley Bridge
North Yorkshire DN14 0GH

Tel: 01977 663 133 Fax: 01977 662 186
e-mail: info@cromar.uk.com
website: www.cromar.uk.com



Agrément Certificate
10/4748
Product Sheet 4 Issue 2

CROMAR ROOF TILE UNDERLAYS

CROMAR BREATHABLE MEMBRANES FOR USE IN COLD NON-VENTILATED ROOFS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Cromar Breathable Membranes for use in cold non-ventilated roofs, flexible three-layer polypropylene sheet materials for use as roof tile underlays in dwellings in cold non-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 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 second issue: 8 November 2023
Originally certified on 21 October 2022

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.

British Board of Agrément

1st Floor, Building 3, Hatters Lane
Croxley Park, Watford
Herts WD18 8YG

©2023

tel: 01923 665300
clientservices@bbacerts.co.uk
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 Cromar Breathable Membranes for use in cold non-ventilated 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:



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

| | | |
|---------------------|--------------|--|
| Requirement: | B3(4) | Internal fire spread |
| Comment: | | The products can contribute to satisfying this Requirement. See section 2 of this Certificate. |
| Requirement: | C2(b) | Resistance to moisture |
| Comment: | | The products will contribute to a roof satisfying this Requirement. See section 3 of this Certificate. |
| Requirement: | C2(c) | Resistance to moisture |
| Comment: | | The products will contribute to a roof satisfying this Requirement. See section 3 of this Certificate. |
| Regulation: | 7(1) | Materials and workmanship |
| Comment: | | The products are acceptable. See sections 8 and 9 of this Certificate. |



The Building (Scotland) Regulations 2004 (as amended)

| | | |
|--------------------|----------------|---|
| Regulation: | 8(1)(2) | Fitness and durability of materials and workmanship |
| Comment: | | The products 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 products can contribute to satisfying this Standard, with reference to clause 2.4.2 ⁽¹⁾ . See section 2 of this Certificate. |
| Standard: | 3.10 | Precipitation |
| Comment: | | The products will contribute to a roof satisfying clause 3.10.1 ⁽¹⁾ and 3.10.7 ⁽¹⁾ of this Standard. See section 3 of this Certificate. |
| Standard: | 3.15 | Condensation |
| Comment: | | The products can contribute to limiting the risk of interstitial condensation, with reference to clauses 3.15.1 ⁽¹⁾ , 3.15.3 ⁽¹⁾ and 3.15.7 ⁽¹⁾ of this Standard. See section 3 of this Certificate. |
| Standard: | 7.1(a) | Statement of sustainability |
| Comment: | | The products 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: | 12 | Building standards - conversions |
| Comment: | | All comments given for the products 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). |



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

Regulation: 23(1)(a) Fitness of materials and workmanship
(i)(iii)(b)
(i)

Comment: The products are acceptable. See sections 8 and 9 of this Certificate.

Regulation: 28(b) Resistance to moisture and weather

Comment: The products will contribute to a roof satisfying this Regulation. See section 3 of this Certificate.

Regulation: 29 Condensation

Comment: The products will contribute to a roof satisfying this Regulation. See section 3 of this Certificate.

Regulation: 35(4) Internal fire spread - structure

Comment: The products can contribute to satisfying this Regulation. See section 2 of this Certificate.

Fulfilment of Requirements

The BBA has judged Cromar Breathable Membranes for use in cold non-ventilated roofs to be satisfactory for use as described in this Certificate. The products have been assessed as roof tile underlays in warm non-ventilated and cold ventilated pitched roofs of up to 70° pitch, in dwellings.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the products under assessment. Cromar Breathable Membranes for use in cold non-ventilated roofs are three-layer polypropylene composites, available in four types. The membranes are available with or without an integral self-adhesive tape to allow sealing of overlaps. The products which have integrated tapes have the suffix 'Xtra' in the product name.

The products have the nominal characteristics given in Table 1.

Table 1 Nominal characteristics of Cromar Breathable Membranes

| Characteristic (unit) | Cromar Breathable Membranes | | | |
|---|------------------------------------|--|------------------------|--------------------------------|
| | Vent 3 Light/ Vent 3 Light Xtra | Vent 3 Classic/ Vent 3 Classic Xtra | Vent 3/ Vent 3 Xtra | Vent 3 Pro/ Vent 3 Pro Xtra |
| Thickness (mm) | 0.42 | 0.46 | 0.53 | 0.62 |
| Mass per unit area (g·m ⁻²) | 95 | 115 | 135 | 165 |
| Roll length (m) | 50, 45, 25, 15 | 50, 45, 25, 15 | 50, 45, 25, 15 | 50, 45, 25, 15 |
| Roll width (m) | 1.0, 1.5 | 1.0, 1.5 | 1.0, 1.5 | 1.0, 1.5 |
| Colour | | | | |
| Upper face | dark grey | light grey | dark blue | dark green |
| Lower face | white | white | white | white |

Ancillary Items

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

- double sided Vent 3 adhesive tape.
-

Applications

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

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

(1) For roofs incorporating other features, or 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 (i.e., 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 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)

| Product assessed | ≤ 345 mm batten gauge with battened restrained laps ⁽¹⁾ | ≤ 250 mm batten gauge with battened restrained laps ⁽¹⁾ | ≤ 345 mm batten gauge with taped laps | ≤ 250 mm batten gauge with taped laps | ≤ 345 mm batten gauge with integral taped laps ('Xtra') |
|------------------|--|--|---------------------------------------|---------------------------------------|---|
| Vent 3 Light | 822.0 | 1318.7 | 1419.5 | > 1600.0 ⁽²⁾ | 1419.5 |
| Vent 3 Classic | 982.0 | 1765.4 | 2080.5 | > 1600.0 ⁽²⁾ | 2080.5 |
| Vent 3 | 1165.7 | 2261.1 | 2398.6 | > 1600.0 ⁽²⁾ | 2398.6 |
| Vent 3 Pro | 1188.9 | 2852.2 | 3014.1 | > 1600.0 ⁽²⁾ | 3014.1 |

(1) Mean of test results.

(2) A high enough pressure was not generated to obtain a mean value result. However, the underlay was able to withstand a pressure of at least 1600 Pa without experiencing failure.

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

| Product assessed | ≤ 345 mm batten gauge with battened restrained laps | ≤ 250 mm batten gauge with battened restrained laps | ≤ 345 mm batten gauge with taped laps | ≤ 250 mm batten gauge with taped laps | ≤ 345 mm batten gauge with integral taped laps ('Xtra') |
|------------------|---|---|---------------------------------------|---------------------------------------|---|
| Vent 3 Light | Zone 1 | Zones 1 to 3 | Zones 1 to 4 | Zones 1 to 5 | Zones 1 to 4 |
| Vent 3 Classic | Zones 1 to 2 | Zones 1 to 5 | Zones 1 to 5 | Zones 1 to 5 | Zones 1 to 5 |
| Vent 3 | Zones 1 to 3 | Zones 1 to 5 | Zones 1 to 5 | Zones 1 to 5 | Zones 1 to 5 |
| Vent 3 Pro | Zones 1 to 3 | Zones 1 to 5 | Zones 1 to 5 | Zones 1 to 5 | Zones 1 to 5 |

Unsupported

1.1.2 On the basis of data assessed, the products are 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 ≤ 15 m, a pitch between 12.5 and 70°, and a site altitude ≤ 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 products, when fully supported, have 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 |
|------------------|---|-----------------------------|-----------------------------|
| Vent 3 Light | Tensile strength to BS EN 12311-1 : 2000 – control | Declared values | |
| | | | |
| Vent 3 Classic | Longitudinal direction | 245 N·(50 mm) ⁻¹ | Pass |
| | | Transverse direction | 145 N·(50 mm) ⁻¹ |
| Vent 3 | – control | Declared values | |
| | | | |
| Vent 3 Pro | Longitudinal direction | 285 N·(50 mm) ⁻¹ | Pass |
| | | Transverse direction | 160 N·(50 mm) ⁻¹ |
| Vent 3 Light | Elongation to BS EN 12311-1 : 2000 – control | Declared values | |
| | | | |
| Vent 3 Classic | Longitudinal direction | 60% | Pass |
| | | Transverse direction | 96% |
| Vent 3 | – control | Declared values | |
| | | | |
| Vent 3 Pro | Longitudinal direction | 38% | Pass |
| | | Transverse direction | 78% |
| Vent 3 Light | Nail tear to BS EN 12310-1 : 2000 | Values achieved | |
| | | | |
| Vent 3 Classic | Longitudinal direction | 83 N | |
| | | Transverse direction | 93 N |
| Vent 3 | Longitudinal direction | 106 N | |
| | | Transverse direction | 143 N |
| Vent 3 Pro | Longitudinal direction | 171 N | |
| | | Transverse direction | 227 N |
| Vent 3 Light | Mullen Burst strength to BS 3137 : 1972 | Values achieved | |
| | | | |
| Vent 3 Classic | | | 348 kPa |
| Vent 3 | | | 450 kPa |
| | | | 546 kPa |

1.2.2 On the basis of data assessed, the products have 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 characteristic.

2.1 Reaction to fire

2.1.1 The reaction to fire classifications are given in Table 5.

Table 5 Reaction to fire classifications

| Product assessed | Assessment method | Requirement | Result |
|------------------|--|-------------------------|----------------------|
| Vent 3 Light | BS EN ISO 11925-2 : 2010 and classification to BS EN 13501-1 : 2007 | Classification achieved | F ⁽¹⁾ |
| Vent 3 Classic | | | E, d2 ⁽²⁾ |
| Vent 3 | | | E ⁽³⁾ |
| Vent 3 Pro | | | E ⁽⁴⁾ |

(1) Report reference 10/24412, issued by BTTG. The report is available from the Certificate holder upon request.

(2) Report reference 10/24558A, issued by BTTG. The report is available from the Certificate holder upon request.

(3) Report reference 10/24558B, issued by BTTG. The report is available from the Certificate holder upon request.

(4) Report reference 10/24558C, issued by BTTG. The report is available from the Certificate holder upon request.

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 products are used unsupported, there is a risk that fire can spread if they are accidentally ignited during maintenance works, e.g. 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 products are 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 The result of water resistance tests are given in Table 6.

Table 6 Results of water resistance tests

| Product assessed | Assessment method | Requirement | Result |
|------------------|-------------------|-------------|--------|
| Vent 3 Light | BS EN 1928 : 2000 | No leakage | Pass |
| Vent 3 Classic | | | Pass |
| Vent 3 | | | Pass |
| Vent 3 Pro | | | Pass |

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

3.1.3 The products are Class W1 in accordance with BS EN 13859-1 : 2014 and will resist the passage of water and 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 products resist 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 given in BBA Information Bulletin No. 2 *Permeable Roof Tile Underlay – Guide to Good Site Practice*.

3.2 Condensation

3.2.1 The results of water vapour transmission tests are given in Table 7.

Table 7 Results of water vapour transmission tests

| Product assessed | Assessment method | Requirement | Result |
|------------------|---|-----------------|---|
| Vent 3 Light | Water vapour transmission properties to BS EN ISO 12572 : 2001 – Condition C Upper face | Values achieved | 0.135 MN·s·g ⁻¹ , s _d = 0.027 m |
| Vent 3 Classic | – Condition C Upper face | | 0.175 MN·s·g ⁻¹ , s _d = 0.034 m |
| Vent 3 | – Condition C Upper face | | 0.142 MN·s·g ⁻¹ , s _d = 0.028 m |
| Vent 3 Pro | – Condition C Upper face | | 0.151 MN·s·g ⁻¹ , s _d = 0.030 m |

3.2.2 For roofs designed in accordance with BS 5534 : 2014 and BS 5250 : 2021, the products may be regarded as Type LR underlays.

4 Safety and accessibility in use

Data were assessed for the following characteristics.

4.1 Slip resistance

4.1.1 The results of a slip resistance test are given in Table 8.

Table 8 Results of a coefficient of dynamic friction test

| Product assessed | Assessment method | Requirement | Result |
|------------------|--|-----------------|--------|
| Vent 3 Light | BBA Internal Test Specification T1/10 Coefficient of friction – dry Machine | Values achieved | 0.97 |
| | Cross | | 0.98 |
| | – wet Machine | | 0.66 |
| | Cross | | 0.65 |

4.1.2 On the basis of data assessed, the products have 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

Not applicable.

8 Durability

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

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

Table 9 Results of durability tests

| Product assessed | Assessment method | Requirement | Result | |
|------------------|---|------------------------------|------------------------|------|
| Vent 3 Light | Dimensional stability to BS EN 1107-2 : 2001 | Declared values | Longitudinal direction | Pass |
| | | | Transverse direction | Pass |
| Vent 3 Classic | Dimensional stability to BS EN 1107-2 : 2001 | Declared values | Longitudinal direction | Pass |
| | | | Transverse direction | Pass |
| Vent 3 | Dimensional stability to BS EN 1107-2 : 2001 | Declared values | Longitudinal direction | Pass |
| | | | Transverse direction | Pass |
| Vent 3 Pro | Dimensional stability to BS EN 1107-2 : 2001 | Declared values | Longitudinal direction | Pass |
| | | | Transverse direction | Pass |
| Vent 3 Light | Tensile strength to BS EN 12311-1 : 2000 – 336h UVA at 50°C followed by 90 days heat ageing at 70°C | Change <30% | Longitudinal direction | Pass |
| | | | Transverse direction | Pass |
| Vent 3 Classic | Tensile strength to BS EN 12311-1 : 2000 – 336h UVA at 50°C followed by 90 days heat ageing at 70°C | Change <30% | Longitudinal direction | Pass |
| | | | Transverse direction | Pass |
| Vent 3 | Tensile strength to BS EN 12311-1 : 2000 – 336h UVA at 50°C followed by 90 days heat ageing at 70°C | Change <30% | Longitudinal direction | Pass |
| | | | Transverse direction | Pass |
| Vent 3 Pro | Tensile strength to BS EN 12311-1 : 2000 – 336h UVA at 50°C followed by 90 days heat ageing at 70°C | Change <30% | Longitudinal direction | Pass |
| | | | Transverse direction | Pass |
| Vent 3 Light | Elongation to BS EN 12311-1 : 2000 – 336h UVA at 50°C followed by 90 days heat ageing at 70°C | No significant deterioration | Longitudinal direction | Pass |
| | | | Transverse direction | Pass |
| Vent 3 Classic | Elongation to BS EN 12311-1 : 2000 – 336h UVA at 50°C followed by 90 days heat ageing at 70°C | No significant deterioration | Longitudinal direction | Pass |
| | | | Transverse direction | Pass |
| Vent 3 | Elongation to BS EN 12311-1 : 2000 – 336h UVA at 50°C followed by 90 days heat ageing at 70°C | No significant deterioration | Longitudinal direction | Pass |
| | | | Transverse direction | Pass |
| Vent 3 Pro | Elongation to BS EN 12311-1 : 2000 – 336h UVA at 50°C followed by 90 days heat ageing at 70°C | No significant deterioration | Longitudinal direction | Pass |
| | | | Transverse direction | Pass |
| Vent 3 Light | Resistance to water penetration to EN 1928 : 2000 – 336h UVA at 50°C followed by 90 days heat ageing at 70°C | No leakage | Pass | |
| Vent 3 Classic | | | Pass | |
| Vent 3 | | | Pass | |
| Vent 3 Pro | | | Pass | |

8.3 Service life

8.3.1 Under normal service conditions, the products will have a service life comparable to that of traditional roof tile underlays, provided they are not exposed to sunlight for long periods, and are designed, installed and maintained in accordance with this Certificate and the Certificate holder’s instructions.

8.3.2 The exposure of the products 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 assessed in this Certificate.

9.1.2 Project design wind speeds for the roof in which the products are 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 the scope of this Certificate.

9.1.5 The complete roof construction, ceiling boards to roof tiles, must be considered as a total 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 must 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 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 products must be installed with the coloured or printed side uppermost, and lapped to shed water out and down the slope.

9.2.4 Overlaps must be provided with the minimum dimensions given in Table 10. The Certificate holder's advice must be sought when using tapes for sealing overlaps.

Table 10 Minimum overlaps

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

9.2.5 Minimum overlaps at hips must be 150 mm, and in valleys 300 mm.

Procedure

9.2.6 The products are 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.

Draped and loose laps

9.2.7 The products when installed as part of an unsupported system are fixed in the traditional method for roof tile underlay, ie laid parallel to the eaves and draped between the rafters.

Taut

9.2.8 When laid horizontally, the products must be pulled taut and nailed to hold securely in position. Counter battens (minimum thickness 25 mm) are then fixed to the rafter.

Timber sarking planks

9.2.9 For fully supported roofs (traditional Scottish practice), the slates must be nailed through the underlay into the timber sarking planks, normally 150 mm wide with a 2 mm gap.

9.2.10 For fully supported roofs (where battens are used) counter battens of minimum thickness 12 mm must be installed either above or beneath the underlay for drainage purposes

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 products must be installed by a competent general builder, or a contractor, experienced with these types of products.

9.4 Maintenance and repair

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

9.4.2 Damage to the products 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. 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.

10.1.5 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 name, the grade identification and the BBA logo incorporating the number of this Certificate.

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

11.2.1 Rolls must be stored flat or on end, on a smooth, clean, dry and level surface and kept under cover and protected by sunlight.

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 : 2014.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard En 13859-1 : 2014.

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 the BBA (Certificate 14/Q035).

Additional information on installation

General

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 Energy loss by ventilation in conventionally ventilated cold roofs will be significantly reduced by the non-ventilated system.

A.3 In non-ventilated roof systems, the risk of condensation is equivalent to, or less than, that for conventionally ventilated cold roof systems.

A.4 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 Underlay in Cold Roofs during the Drying-out Period*.

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 *Workmanship on construction sites - Introduction and general principles*

BS 8000-6 : 2023 *Workmanship on building 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 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 : 2014 *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 : 2010 *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 of Certificate

Conditions

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British Board of Agrément

1st Floor, Building 3, Hatters Lane,
Croxley Park, Watford
Herts WD18 8YG

©2023

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