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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
10/4721
Product Sheet 1

IKO NON-BREATHER MEMBRANE

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to IKO Non-Breather Membrane, for use in tiled and slated ventilated pitched roofs in unsupported applications.

AGRÉMENT CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Weathertightness — as part of a complete roof, the product will resist the passage of water and wind-blown snow and dust into the interior of the building (see section 5).

Wind loading — when installed on appropriately spaced battens the product's physical properties are deemed adequate to resist the wind loads imposed on the underlay. The product will reduce the wind uplift forces acting on the roof covering (see section 7).

Strength — the product has adequate strength to resist the loads associated with the installation of the roof (see section 8).

Durability — under the normal conditions found in a roof space the product will have a service life comparable to a traditional roof tile underlay (see section 11).

The BBA has awarded this Agrément Certificate to the company named above for the product described herein. The 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 First issue: 25 February 2010

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

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Regulations

In the opinion of the BBA, IKO Non-Breather Membrane, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:

The Building Regulations 2000 (as amended) (England and Wales)

Requirement:	C2(b)	Resistance to moisture
Comment:		The product will contribute to a roof meeting this Requirement. See section 5.1 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is acceptable. See section 11 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The use of the product satisfies the requirements of this Regulation. See section 11 and the *Installation* part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	3.10	Precipitation
Comment:		The product will contribute to a roof satisfying clauses 3.10.1[1][2] and 3.10.7[1][2] of this Standard. See section 5.1 of this Certificate.
Regulation:	12	Building standards — conversions
Comment:		All comments given for this product under Regulation 9, also apply to this Regulation, with reference to clause 0.12.1[1][2] and Schedule 6[1][2].

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

The Building Regulations (Northern Ireland) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The product is an acceptable material. See section 11 and the *Installation* part of this Certificate.
Regulation:	C4(b)	Resistance to ground moisture and weather
Comment:		The product will contribute to a roof satisfying this Regulation. See section 5.1 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 1 *Description* (2.1).

Non-regulatory Information

NHBC Standards 2008

NHBC accepts the use of IKO Non-Breather Membrane, when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 7.2 *Pitched roofs*.

Technical Specification

1 Description

1.1 IKO Non-Breather Membrane is manufactured by thermally bonding two spunbonded polypropylene fabrics with a non-breathable polyolefin film in the middle to form a waterproof membrane.

1.2 The product has the nominal characteristics of:

Thickness (mm)	0.4
Weight per unit area ($g \cdot m^{-2}$)	135
Roll length (m)	15 and 45
Roll width (m)	1

1.3 Quality control checks are carried out on the incoming materials, during production and on the finished product. Quality control checks on the finished product include:

- weight
- tear strength
- water penetration
- tensile strength and elongation.

2 Delivery and site handling

2.1 Rolls are delivered to site in packages that carry a label bearing the marketing company's name, the grade identification and the BBA identification mark including the number of this Certificate.

2.2 The rolls should be stored flat on their sides, on a smooth, clean, dry surface, under cover and protected from sunlight.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on IKO Non-Breather Membrane.

Design Considerations

3 Use

IKO Non-Breather Membrane is satisfactory for use as unsupported or supported or on uninsulated timber sarking underlays in tiled and slated pitched roofs constructed in accordance with the relevant Clauses of BS 5534 : 2003.

4 Practicability of installation

The product is designed to be installed by competent slaters/tilers experienced with this type of product.

5 Weathertightness

5.1 Tests indicate that the product 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 : 2003.

5.2 The product should not be used for prolonged periods as temporary waterproof covering prior to installation of slates or tiles. The period prior to the installation of the roof covering should be kept to a minimum.

6 Risk of condensation

6.1 The product should be regarded as an impermeable underlay when considering ventilation of a roof space.

6.2 For design purposes, the product's water vapour resistance may be taken as 133 $MN \cdot s \cdot g^{-1}$, and for roofs designed in accordance with BS 5534 : 2003 or BS 5250 : 2002, Section 8.4, it may be regarded as a Type HR membrane.

6.3 Care should be taken in the overall design and installation to minimise the risk of water vapour coming into contact with cold parts of the roof construction. Factors to be considered and minimised include, moisture diffusion through the ceiling, infiltration through unsealed openings/penetrations in the ceilings and services evaporating or venting moisture into cold spaces.

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

7 Wind loading

7.1 Project design wind speeds should be determined and wind uplift forces calculated, in accordance with BS 6399-2 : 1997.

7.2 When used in unsupported applications, draped, wind loading on the underlay should be calculated in accordance with BS 5534 : 2003, Section 5.5.2.7. For acceptable wind loads with specific batten spacings for the draped product, using a 25 mm deep tiling batten see section 16, Table for *Physical Properties — general*.

7.3 When used on timber sarking with counter battens, the product has adequate resistance to wind uplift forces.

8 Strength

The product will resist the loads associated with installation of the roof (see section 16, Table for *Physical properties — directional*).

9 Properties in relation to fire

9.1 The product will have similar properties in relation to fire to those of traditional polyethylene roof tile underlays.

9.2 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 should be taken during building and maintenance to avoid the material becoming ignited.

10 Maintenance

As the product is confined within the roof space, and it has suitable durability (see section 11), maintenance is not required. However, it must be ensured that damage occurring before enclosure is repaired (see section 14).

11 Durability

The product will be virtually unaffected by the normal conditions found in a roof space and will have a life comparable with that of traditional roof tile underlays, provided they are not exposed to sunlight for long periods (see section 12.4). Advice regarding exposure can be obtained from the Certificate holder.

Installation

12 General

12.1 IKO Non-Breather Membrane must be installed and fixed in accordance with the Certificate holder's instructions provisions of this Certificate and the relevant recommendations of BS 5534 : 2003 and BS 8000-6 : 1990. Installation can be carried out under all conditions normal to roofing work.

12.2 Laps should be installed to shed water out and down the slope.

12.3 Overlaps must be provided with the minimum dimensions given in Table 1.

Table 1 Minimum overlaps

Roof pitch (°)	Horizontal lap (mm)		Vertical laps (mm)
	Not fully supported	Fully supported	
12.5 to 14	225	150	100
15 to 34	150	100	100
35+	100	75	100

12.4 Where necessary, eaves constructions, eaves guards should be used to protect the product from sunlight and to direct water into the gutter.

13 Procedure

13.1 The product should not be laid directly onto sarking board but can be laid on sarking board in conjunction with counter battens.

13.2 The product, when installed as a cold ventilated roof system, is fixed in the traditional method for roof tile underlays, ie draped between the rafters, or used in conjunction with counter battens.

13.3 When used in a hybrid warm roof specification, a ventilation gap of at least 20 mm between the insulation and the underlay should be allowed. A vapour control layer should be used on the underside of the insulation.

14 Repair

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

15 Finishing

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

15.2 The tiling and slating must be carried out in accordance with the relevant Clauses of BS 5534 : 2003, BS 8000-6 : 1990 and the slating/tiling manufacturer's instructions, especially when using tightly-jointed slates or tiles.

16 Tests

Samples of IKO Non-Breather Membrane were obtained from the Certificate holder for testing. The results of the tests carried out by, or on behalf of, the BBA are summarised in Tables 2 and 3.

Table 2 Physical properties — directional

Test (units)	Mean results	Method[1]
Tensile strength (N per 50 mm)		EN 12311-1
longitudinal	265	
transverse	230	
aged[2]		
longitudinal	235	
transverse	210	
wet strength[3]		
longitudinal	280	
transverse	233	
Elongation at break (%)		EN 12311-1
unaged		
longitudinal	57	
transverse	65	
aged[2]		
longitudinal	35	
transverse	39	
wet strength[3]		
longitudinal	60	
transverse	57	
Tear resistance (nail) (N)		BS EN 12310-1
unaged		
longitudinal	181	
transverse	202	

(1) The test documents are detailed in the *Bibliography*. Numbers in the table refer to sections/parts of the various documents.
(2) UVA aged for 336 hours at 50°C/heat aged for 90 days at (70±2)°C.
(3) Wet strength soak at 23°C for 24 hours — tested surface wet.

Table 3 Physical properties —general

Test (units)	Mean results	Method[1]
Water vapour transmission at 25°C/75% RH ($g \cdot m^{-2} \cdot day^{-1}$)	1.54	BS 3177
Vapour resistance ($MN \cdot s \cdot g^{-1}$)	133	BS 3177
Dimensional stability (%)		BS EN 1107-2
longitudinal	–0.3	
transverse	0.1	
Slip resistance (coefficient of friction)		T1/10[2]
dry	0.94	
wet	0.71	
Resistance to water penetration		EN 1928[3]
unaged	Class W1	
aged[4]	Class W1	
Resistance to streaming water		MOAT 69 : 4.2.2
unsupported	Pass	
Mullen burst strength ($kN \cdot m^{-2}$)	571	BS 3137
Resistance to wind loads (kPa)[5]		MOAT 69 : 4.2.1
batten spacing 350 mm	1.0	
batten spacing 330 mm	1.5	
batten spacing 300 mm	2.0	
batten spacing 250 mm	2.5	

(1) The test documents are detailed in the *Bibliography*. Numbers in the table refer to sections/parts of the various documents.
(2) BBA Test Method.
(3) As modified in accordance with EN 13859-1 : 2005.
(4) UVA aged for 336 hours at 50°C/heat aged for 90 days at (70±2)°C.
(5) Test carried out using 25 mm thick battens and a 600 mm rafter spacing.

17 Investigations

17.1 The condensation risk in warm roof constructions, and specifically those containing sarking boards, incorporating the products was examined.

17.2 The manufacturing process was assessed, including the method adopted for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

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

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

BS 5250 : 2002 *Code of practice for control of condensation in buildings*

BS 5534 : 2003 *Code of practice for slating and tiling (including shingles)*

BS 6399-2 : 1997 *Loading for buildings — Code of practice for wind loads*

BS 8000-6 : 1990 *Workmanship on building sites — Code of practice for slating and tiling of roofs and claddings*

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

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

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

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

EN 13859-1 : 2005 *Flexible sheets for waterproofing — Definitions and characteristics of underlays — Underlays for discontinuous roofing*

MOAT No 69 : 2004 *UEAtc Technical Report for the Assessment of Discontinuous Roofing Underlay Systems*

18 Conditions

18.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- 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.

18.2 Publications and documents referred to in this Certificate are those that the BBA deems to be relevant at the date of issue or re-issue of this Certificate and include any: Act of Parliament; Statutory Instrument; Directive; Regulation; British, European or International Standard; Code of Practice; manufacturers' instructions; or any other publication or document similar or related to the aforementioned.

18.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant 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.

18.4 In granting this Certificate, the BBA is not responsible for:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

18.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date 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. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.

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