

BMI Group UK Limited

BMI House
2 Pitfield, Kiln Farm
Milton Keynes MK11 3LW



Tel: 01908 015760

e-mail: technical.uk@bmigroup.com

website: www.bmigroup.com/uk

Agrément Certificate

01/3810

Product Sheet 1

ICOPAL VAPOUR CONTROL LAYERS

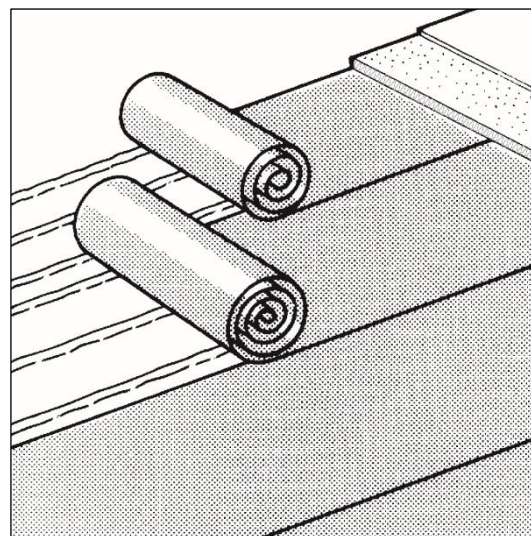
REFLEX 275 VAPOUR CONTROL LAYER

This Agrément Certificate Product Sheet⁽¹⁾ relates to Reflex 275 Vapour Control Layer, a five-layer polyethylene membrane incorporating aluminium foil and a reinforcing grid for use in walls and flat, pitched, and zero fall roofs of buildings with high relative humidity, eg swimming pools.

(1) Hereinafter referred to as 'Certificate'.

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

Condensation — the product provides an effective control to the passage of water vapour (see section 6).

Strength — the product has adequate strength to resist the loads associated with construction and installation (see section 7).

Properties in relation to fire — the Certificate holder has not declared a classification to BS EN 13501-1 : 2018 for the product and its use is restricted in some cases by the national Building Regulations (see section 9).

Durability — under normal service conditions, the product will have a life equal to that of the construction in which it is incorporated (see section 11).

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 Fifth issue: 25 August 2022

Hardy Giesler
Chief Executive Officer

Originally certificated on 27 March 2001

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
Readers MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

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 9YG

tel: 01923 665300

clientservices@bbacerts.co.uk

www.bbacerts.co.uk

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Regulations

In the opinion of the BBA, Reflex 275 Vapour Control Layer, 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 presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



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 8.1 of this Certificate.
Requirement:	B4(1)	External fire spread
Comment:		The product is restricted by this Requirement. See section 8.1 and 8.3 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The product can contribute to enabling a roof to satisfy this Requirement See section 6.3 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The product is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship, and fitness of materials
Comment:		The use of the product satisfies the requirements of this Regulation. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to 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 8.1 of this Certificate.
Standard	2.6	Spread to neighbouring buildings
Comment:		The product is restricted under clause 2.6.4 ⁽¹⁾⁽²⁾ of this Standard in some circumstances. See section 8.4 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product can contribute to enabling a roof to satisfy this Standard, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.3 ⁽¹⁾⁽²⁾ , 3.15.5 ⁽¹⁾⁽²⁾ and 3.15.6 ⁽¹⁾⁽²⁾ . See section 6.3 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		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:	12	Building standards applicable to conversions
Comment:		Comments in relation to the product under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ .

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).



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

Regulation:	23(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The product is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation:	29	Condensation
Comment:		The product can contribute to enabling a roof to satisfy the requirements of this Regulation. See section 6.3 of this Certificate.
Regulation:	35(4)	Internal fire spread - structure
Comment:		The product can contribute to satisfying these Regulations. See section 8.1 of this Certificate.
Regulation:	36(a)	External Fire Spread
Comment:		The product is restricted by this Regulation. See sections 8.1 and 8.3 of this 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.

See sections: 1 *Description* (1.1) and 3 *Delivery and site handling* (3.2) of this Certificate.

Additional Information

NHBC Standards 2022

In the opinion of the BBA, Reflex 275 Vapour Control Layer, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapters 6.2 *External timber framed walls*, 6.9 *Curtain walling and cladding* and 7.1 *Flat roofs, terraces and balconies* and 7.2 *Pitched roofs*.

The NHBC standards do not cover the use of the product in the refurbishment of existing roofs.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 13984 : 2013.

Technical Specification

1 Description

1.1 Reflex 275 Vapour Control Layer is a five-layer polyethylene membrane incorporating aluminium foil and a reinforcing grid. The inward facing is blue, and the outward facing is grey. The membrane has 150 mm overlap guidelines printed on both edges. The nominal characteristics are given in Table 1.

Thickness (mm)	0.275
Roll width (m)	2.0
Roll length (m)	25
Mass per unit area (g·m ⁻²)	300
Tensile strength (N per 50 mm)	
longitudinal	>450
transverse	>380
Elongation (%)	
longitudinal	>15
transverse	>10
Nail tear resistance (N)	
longitudinal	>300
transverse	>300
Dimensional stability(%)	
longitudinal	<2
transverse	<2
Impact resistance(mm)	200 (rigid support)
s _d value (m)	>1500
Watertightness	pass

1.2 Monobond LT Tape is a double-sided adhesive tape for use in sealing lap joints and penetrations in the product.

2 Manufacture

2.1 The product is manufactured by blown film and lamination processes.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out 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.

2.3 The management system of the manufacturer has been assessed and registered as meeting the requirements of EN ISO 9001 : 2015 by TÜV SÜD Slovakia s.r.o (Certificate Q 1243-3).

3 Delivery and site handling

3.1 The membrane is delivered to site in rolls wrapped in polythene film with a label bearing the product name, width, length, and Certificate holder's name. A label bearing the BBA logo incorporating the number of this Certificate is applied to the outer wrapper.

3.2 Rolls should be stored on their side, on a smooth, clean surface, undercover and protected from sunlight.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Reflex 275 Vapour Control Layer.

4 Use

4.1 Reflex 275 Vapour Control Layer is satisfactory for use in flat, pitched and zero fall insulated metal roofs, warm deck single-ply membrane flat roofs, and in conjunction with metal cladding on both new-build and refurbishment projects with high relative humidity, eg swimming pools.

4.2 When used in warm-deck construction, the decks must be designed in accordance with the relevant recommendations of BS 6229 : 2018 and BS 8217 : 2005.

4.3 The membrane must be installed so that joints are airtight.

4.4 Flat roofs are defined for the purpose of this Certificate as those having a minimum finished fall of 1:80. For design purposes, twice the minimum finished fall should be assumed unless a detailed analysis of the roof is available, including overall and local deflection, direction of falls, etc.

4.5 Pitched roofs are defined for the purpose of this Certificate as those having a fall in excess of 1:6.

4.6 Insulation materials to be used in conjunction with the product must be in accordance with the Certificate holder's instructions and be either:

- as described in the relevant clauses of BS 8217 : 2005, or
- the subject of a current BBA Certificate and be used in accordance with, and within the limitations of, that Certificate.

5 Practicability of installation

The product is designed to be installed by operatives experienced with this type of product.

6 Condensation

6.1 The risk of condensation occurring within the roof or wall of a building will depend upon the properties and vapour resistance of other materials used in the construction, the internal and external conditions and the effectiveness of the product's installation.

6.2 Consideration must be given in the overall installation to minimising penetrations by services and fixings. Joints in the membrane and at ceilings/walls must be sealed to offer significant resistance to water vapour transmission. Sealing must be carried out in accordance with the Certificate holder's instructions.



6.3 The construction should comply with the relevant recommendations of BS 5250 : 2021, and calculations of interstitial condensation should use an equivalent air layer thickness (s_d) of 1500 m for the product.

7 Strength

Reflex 275 Vapour Control layer can adequately resist the normal loads associated with construction and installation.

8 Properties in relation to fire



8.1 The Certificate holder has not declared a reaction to fire classification in accordance with BS EN 13501-1 : 2018. Where the product forms the face of a cavity the spacing of cavity barriers may be restricted by the documents supporting the national Building Regulations.

8.2 The fire rating of a roof containing the product will depend on the insulation and roof waterproofing and should be classified in accordance with the documents supporting the national Building Regulations.



8.3 In England, Wales and Northern Ireland, the product should not be used on external walls of buildings that have a storey at least 18 m above ground level and contain: one or more dwellings, an institution, a room for residential purposes (excluding 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.



8.4 The product, when used in pitches of greater than 70°, excluding upstands, should not be used on buildings in Scotland that have a storey at least 11 m above ground level.

9 Maintenance

As the product is confined within a roof or wall structure and has suitable durability (see section 10), maintenance is not required. Any damaged areas should be repaired or replaced before completion in accordance with section 14 of this Certificate.

10 Durability



Under normal service conditions, the product will have a life equal to that of the construction in which it is incorporated.

11 Reuse and recyclability

The product contains polyethylene and aluminium, which can be recycled.

Installation

12 General

Reflex 275 Vapour Control Layer must be installed and fixed in accordance with the Certificate holder's instructions and this Certificate.

13 Procedure

Metal roofing and cladding

13.1 The membrane should be laid with the blue face uppermost, and fully supported by the metal lining on the warm side of the thermal insulation (see Figures 1 to 3).

Figure 1 Metal roof ridge

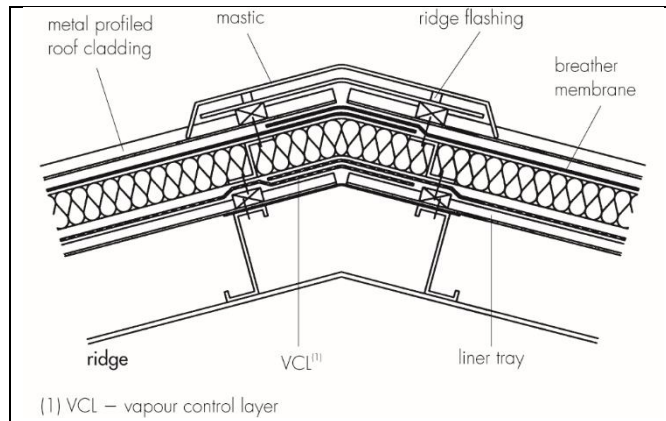


Figure 2 Metal roof verge

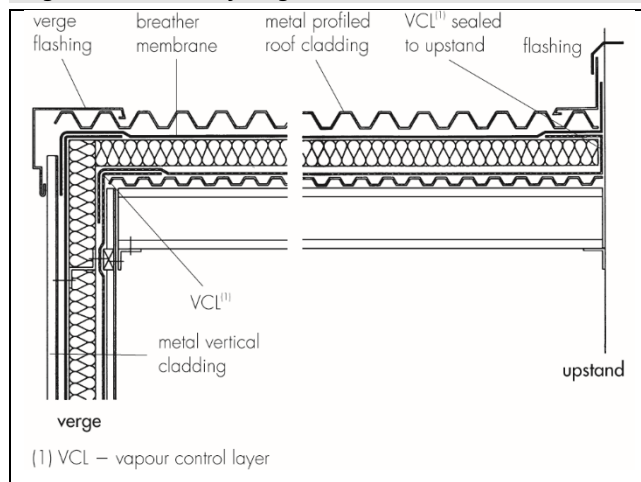
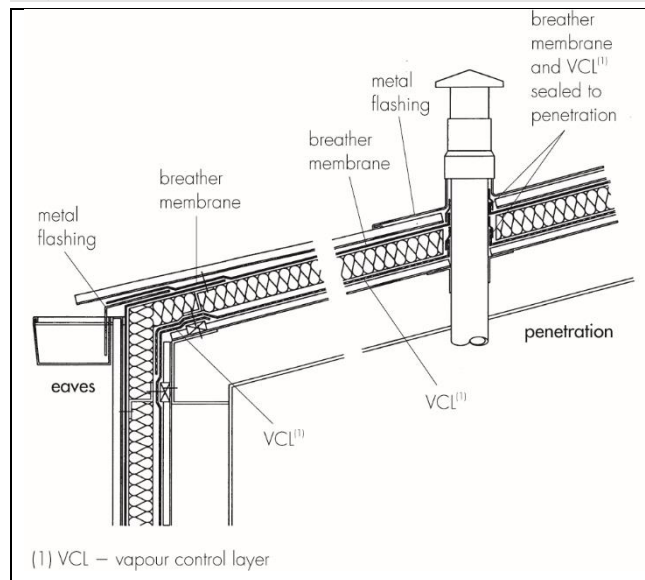


Figure 3 Metal roof eaves and penetrations



13.2 All joints in the vcl must be lapped, to a minimum of 150 mm, and sealed with Monobond LT Tape. A tight seal can be achieved by compressing the lap with a wallpaper roller.

13.3 At perimeters, the vcl should be dressed up at the detailing.

13.4 A vapour-tight seal must be formed wherever the vcl is penetrated by pipes or ducts. Monobond LT Tape should be used to produce a tight fit and seal around the penetration.

Single-ply membranes

13.5 The membrane should be fully supported by the deck on the warm side of the thermal insulation (see Figures 4 to 7).

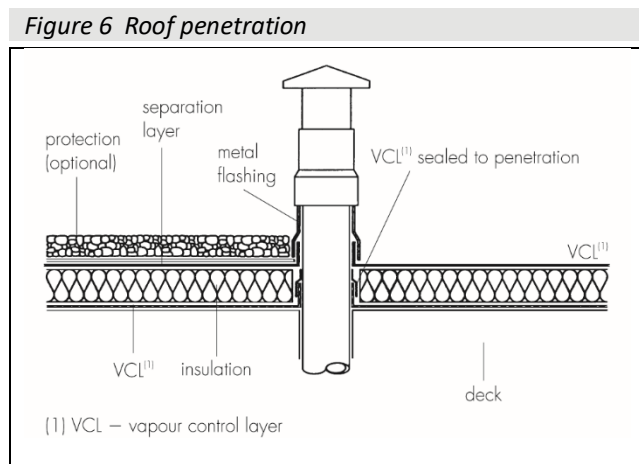
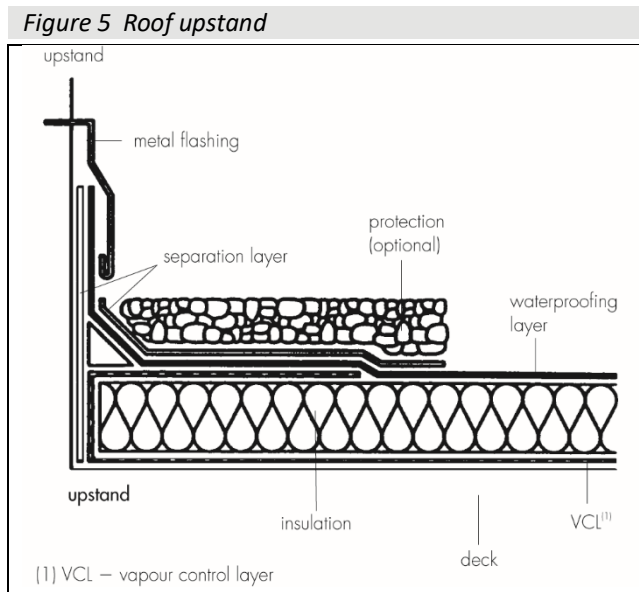
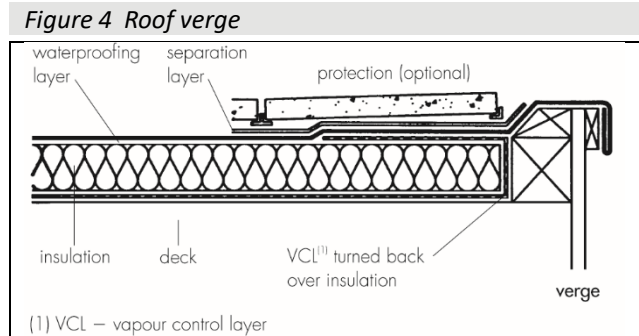
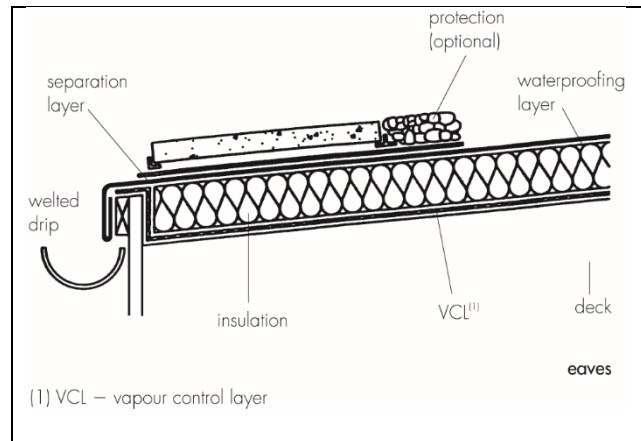


Figure 7 Roof eaves



13.6 All joints in the vcl must be lapped, to a minimum of 150 mm, and sealed with Monobond LT Tape. A tight seal can be achieved by compressing the lap with a roller.

13.7 A vapour-tight seal must be formed wherever the vcl is penetrated by pipes or ducts. Monobond LT Tape should be used to produce a tight fit and seal around the penetration.

14 Repair

Damage to the product can be repaired during installation with a patch of the membrane fixed in place with Monobond LT Tape.

Technical Investigations

15 Tests

Tests were carried out and the results assessed to determine:

- density
- water vapour transmission
- nail tear

16 Investigations

16.1 An assessment was made of data on a material of similar composition to:

- dimensional stability
- tensile strength
- effect of heat ageing
- effect of UV light
- resistance to leakage at joint
- tensile strength of joints.

16.2 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

BS 5250 : 2021 Management of moisture in buildings – Code of practice

BS 6229 : 2018 *Flat roofs with continuously supported flexible waterproof coverings — Code of practice*

BS 8217 : 2005 *Reinforced bitumen membranes for roofing — Code of practice*

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

BS EN 13984 : 2013 *Flexible sheets for waterproofing — Plastic and rubber vapour control layers — Definitions and characteristics*

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

17 Conditions

17.1 This Certificate:

- relates only to the product/system 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.

17.2 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.

17.3 This Certificate will remain valid for an unlimited period provided that the product/system 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.

17.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

17.5 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/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

17.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal 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, 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.