

## Carlisle Construction Materials GmbH

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Agrément Certificate  
**06/4329**  
Product Sheet 3

### RESITRIX ROOF WATERPROOFING SYSTEMS

### ALUTRIX 600 AND ALUTRIX FR VAPOUR CONTROL LAYERS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Alutrix 600 and Alutrix FR Vapour Control Layers, reinforced aluminium foil with polymer bitumen backing, for use as self-adhesive vapour control layers in all types of roof waterproofing systems.

(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

**Resistance to water and water vapour** — the products provide an effective barrier to the passage of liquid water and water vapour (see section 6).

**Properties in relation to fire** — in the opinion of the BBA, the products, when used in a suitable specification, will enable a roof to be unrestricted under the Building Regulations (see section 7).

**Resistance to wind uplift** — when correctly specified and installed, the products will resist the effects of wind suction likely to occur in practice (see section 8).

**Resistance to foot traffic** — the products will accept, without damage, the limited foot traffic and loads associated with installation and maintenance of the roof (see section 9).

**Durability** — under normal service conditions the products will have a life at least as long as that of the roof waterproofing (see section 11).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 3 June 2014

Simon Wroe  
Head of Approvals — Materials

Claire Curtis-Thomas  
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](http://www.bbacerts.co.uk)*

*Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.*

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# Regulations

In the opinion of the BBA, Alutrix 600 and Alutrix FR Vapour Control Layers, if installed, used and maintained in accordance with this Certificate, will meet or contribute to meeting 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: | C2(c) | Resistance to moisture  |
| Comment:     |       | The products can contribute to enabling a roof to satisfy the requirements of this Regulation. See section 6 of this Certificate. |
| Regulation:  | 7     | Materials and workmanship   |
| Comment:     |       | The products are acceptable. See section 11 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 products can satisfy the requirements of this Regulation. See section 11 and the <i>Installation</i> part of this Certificate.  |
| Regulation: | 9      | Building standards applicable to construction   |
| Standard:   | 3.15   | Condensation  |
| Comment:    |        | The products can contribute to enabling a roof to satisfy this Standard, with reference to clauses 3.15.1 <sup>(1)(2)</sup> , 3.15.3 <sup>(1)(2)</sup> , 3.15.5 <sup>(1)(2)</sup> and 3.15.6 <sup>(1)(2)</sup> . See section 6 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: | 12     | Building standards applicable to conversions  |
| Comment:    |        | All comments given for these systems 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> .<br>(1) Technical Handbook (Domestic).<br>(2) Technical Handbook (Non-Domestic). |



## The Building Regulations (Northern Ireland) 2012

|             |                     |   |
|-------------|---------------------|---|
| Regulation: | 23(a)(i)(iii)(b)(i) | Fitness of materials and workmanship  |
| Comment:    |                     | The products are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.             |
| Regulation: | 29                  | Condensation  |
| Comment:    |                     | The products can contribute to enabling a roof to satisfy the requirements of this Regulation. See section 6. |

## 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 sections: 1 *Description* (1.2) and 3 *Delivery and site handling* (3.3) of this Certificate.

# Additional Information

## NHBC Standards 2014

NHBC accepts the use of Alutrix 600 and Alutrix FR Vapour Control Layers, provided they are installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs and balconies*.

## CE marking

The Certificate holder has taken the responsibility of CE marking the products, in accordance with harmonised European Standard EN 13970 : 2004. An asterisk (\*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

## 1 Description

1.1 Alutrix 600 and Alutrix FR Vapour Control Layers consist of an aluminium foil, glass scrim reinforcement, a polymer modified bitumen adhesive and a release film.

1.2 The vapour control layers have the nominal characteristics given in Table 1.

*Table 1 Nominal characteristics*

| Nominal characteristic (unit)  | Alutrix 600 | Alutrix FR |
|--|-------------|------------|
| Thickness (mm)   | 0.6         | 0.4        |
| Length (m)   | 40          | 40         |
| Width (m)  | 1.08        | 1.08       |
| Mass per unit area (g·m <sup>-2</sup> )                                      | 700         | 300        |
| Tensile strength* (N per 50 mm)  |             |            |
| longitudinal   | ≥ 500       | ≥ 500      |
| transverse   | ≥ 500       | ≥ 500      |
| Elongation* (%)  |             |            |
| longitudinal   | ≥ 2         | ≥ 2        |
| transverse   | ≥ 2         | ≥ 2        |
| Nail tear* (N)   |             |            |
| longitudinal   | ≥ 100       | ≥ 100      |
| transverse   | ≥ 100       | ≥ 100      |
| Water vapour diffusion-equivalent air layer thickness — S <sub>d</sub> * (m) |             |            |
| control  | > 1500      | > 1500     |
| chemical resistance  | > 1500      | > 1500     |
| Watertightness*  | pass        | pass       |
| Shear resistance of joints* (N per 50 mm)                                    | ≥ 200       | ≥ 200      |
| Resistance to impact* (mm)   |             |            |
| Method A   | ≥ 150       | ≥ 150      |
| Method B   | ≥ 1500      | ≥ 1500     |
| Reaction to fire*  | Class E     | Class E    |

1.3 Ancillary items necessary for installation of these products and included in this Certificate are:

- FG 35 — a quick-drying primer consisting of synthetic rubber and resins in an organic halogen-free solvent
- G500 Cleaner — for degreasing of metal surfaces, cleaning of lap joint area and general cleaning of lightly soiled substrates.

## 2 Manufacture

2.1 The products are manufactured by coating one side of the aluminium foil and glass reinforcement film with polymer-modified bitumen.

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 Carlisle Construction Materials GmbH has been assessed and registered as meeting the requirements of EN ISO 9001 : 2008 and EN ISO 14001 : 2004 by DQS GmbH (Certificate 502001QM08UM).

2.4 The products are manufactured in Germany by Carlisle Construction Materials GmbH and marketed in the UK by Carlisle Construction Materials Ltd, Eleven Arches House, Leicester Road, Rugby, Warwickshire CV21 1FD, tel: 01788 551294, e-mail: info.uk@ccm-europe.com.

## 3 Delivery and site handling

3.1 The products are delivered to site in individually-wrapped rolls on a pallet. The wrapper bears the Certificate holder's name and address, product name, product description, article number, product dimensions, CE marking and the BBA logo incorporating the number of this Certificate.

3.2 Rolls must be stored vertically on a clean, dry, level surface, under cover out of strong sunlight and in a cool environment. Rolls can be stored for up to 12 months prior to use.

3.3 Ancillary items classified under *The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009* (CHIP4)/*Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) 2009* are given in Table 2 along with flashpoints. These products bear the appropriate hazard warning.

Table 2 Flashpoint and hazard classification

| Material                               | Flashpoint (°C) | Classification            |
|--|-----------------|---------------------------|
| FG 35 Surface Primer <sup>(1)(2)</sup> | -20             | Highly flammable          |
| G 500 Thinner <sup>(1)(2)</sup>        | -15             | Highly flammable, Harmful |

(1) These components should be stored in accordance with the *Dangerous Substances and Explosive Atmospheres Regulations 2002*.

(2) These components are harmful to aquatic organisms.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Alutrix 600 and Alutrix FR Vapour Control Layers.

## Design Considerations

### 4 General

4.1 Alutrix 600 and Alutrix FR Vapour Control Layers are satisfactory for use in roof systems as vapour control layers where a high resistance to water vapour is required, as defined in the relevant recommendations of BS 6229 : 2003, in conjunction with the following products and systems:

- mechanically-fastened single-ply roof waterproofing
- fully-adhered single-ply roof waterproofing
- built-up felt roof waterproofing
- asphalt roof waterproofing
- liquid-applied roof waterproofing
- profile metal sheeting
- insulated panels
- standing seam systems.

4.2 The products are for use on the following substrates:

- metal decks
- plywood
- OSB
- concrete
- brickwork
- blockwork
- plaster board
- cement particle board.

4.3 Decks to which the products are to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards 2014*, Chapter 7.1.

### 5 Practicability of installation

The products are designed to be installed only by competent roofing contractors.

### 6 Resistance to water and water vapour



The products provide an effective control to the passage of liquid water and water vapour and contribute to limiting the risk of interstitial condensation.

### 7 Properties in relation to fire

The fire rating of a roof containing the products will depend on the insulation and/or roof covering and is unlikely to be adversely affected by the presence of the vapour control layer.

## 8 Resistance to wind uplift

8.1 The adhesion of the bonded products is sufficient to resist the effects of wind suction, elevated temperature and thermal shock conditions likely to occur in practice.

8.2 On tall buildings or in areas subject to higher wind forces the Certificate holder's advice should be sought.

## 9 Resistance to foot traffic

The products can accept, without damage, the limited foot traffic associated with installation and roof maintenance operations. Reasonable care should be taken to avoid sharp objects or concentrated loads.

## 10 Maintenance

The products have suitable durability (see section 11), and, when used as part of a built-up roof specification, do not require maintenance. However, any damage occurring before enclosure must be repaired (see section 14).

## 11 Durability



Accelerated laboratory tests confirm that satisfactory retention of physical properties is achieved. The products will have a life at least as long as that of the roof covering.

# Installation

## 12 General

12.1 Installation of Alutrix 600 and Alutrix FR Vapour Control Layers is carried out in accordance with the Certificate holder's instructions and the relevant clauses of BS 8217 : 2005.

12.2 Deck surfaces must be dry, frost-free, clean and free from sharp projections such as nail heads and concrete nibs. At temperatures below 5°C precautions must be taken against condensation on the substrate.

12.3 The products have satisfactory low-temperature flexibility and may be laid in all acceptable weather conditions for roofing work.

12.4 The products should always line up with the waterproofing system to ensure that the insulation is enveloped at all times.

12.5 When used on timber boards of wider than 500 mm and movement is anticipated in the boards, the board joints must be taped in accordance with the Certificate holder's instructions.

## 13 Procedure

13.1 The substrate is primed using FG 35 Surface Primer at a rate of 100% coverage at an approximate rate of 200 g·m<sup>-2</sup>. Porous substrates may require a second coat at the same rate. Metal decks do not require priming if they are clean and free from grease and oil; in cases of doubt the substrate is primed.

13.2 When the primer is dry (a minimum of 35 minutes), the membrane is laid out flat onto the substrate without folds or ripples, with minimum 50 mm overlaps. On profiled metal decks the membrane is laid in the direction of the deck with the side laps fully supported on the corrugations.

13.3 The membrane is either rolled or folded back to the centre of the membrane and the release film is carefully scored with a knife along the centre line and removed.

13.4 The membrane is applied to the substrate and pressed down, ensuring a good bond between membrane and substrate. The operation is repeated for the other half of the sheet.

### Joints

13.5 If required, the aluminium foil in the area of the lap joint is cleaned using G500 Cleaner on a clean cloth prior to forming the lap.

13.6 Side and end laps are a minimum of 50 mm wide and sealed using a hand roller. At installation temperatures below 10°C the laps should be pre-heated using a hot air welding gun.

13.7 On profiled metal decks the end lap in the membrane is supported by a 200 mm strip of the membrane over the corrugations and the end lap is 150 mm wide.

## 14 Repairs

In the event of damage, repairs must be carried out by cleaning the area around the damage and applying a patch as described in the Certificate holder's instructions.

## 15 Tests

Tests were carried out on Alutrix 600 and Alutrix FR Vapour Control Layers and the results assessed to determine:

- dimensions
- mass per unit area
- water vapour transmission
- watertightness
- tear resistance (nail)
- dynamic impact
- static loading
- tensile shear strength of joints
- peel strength of joints
- fatigue cycling — control and heat aged
- peel strength from concrete — control and heat aged.

## 16 Investigations

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

16.2 Reaction to fire test data to EN ISO 11925-2 : 2002 were assessed.

## Bibliography

BS 6229 : 2003 *Flat roofs with continuously supported coverings — Code of practice*

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

EN 13970 : 2004 *Flexible sheets for waterproofing — Bitumen water vapour control layers — Definitions and characteristics*

EN ISO 9001 : 2008 *Quality management systems — Requirements*

EN ISO 11925-2 : 2002 *Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Single-flame source test*

EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*

## 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.