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Agrément Certificate

11/4859

Product Sheet 1

PURE ASPHALT ROOF WATERPROOFING SYSTEM

PACOFLEX

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Pacoflex, a polymer-modified mastic asphalt for use as a waterproofing layer on conventional flat roofs with limited access.

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 — the product will resist the passage of moisture into a building (see section 5).

Properties in relation to fire — the use of the product can enable a roof to be unrestricted under the current Building Regulations (see section 6).

Resistance to wind uplift — the product will resist the effects of any likely wind suction acting on the roof (see section 7).

Resistance to mechanical damage — the product will accept the limited foot traffic and loads associated with the installation and maintenance operations and the effects of thermal or other minor movement likely to occur in practice without damage (see section 8).

Durability — under normal service conditions the product will provide a durable waterproof surfacing with a service life in excess of that of conventional grades of mastic asphalt (see section 10).

The BBA has awarded this Agrément 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

A handwritten signature in black ink, appearing to read 'Simon Wroe'.

A handwritten signature in black ink, appearing to read 'Greg Cooper'.

Date of First issue: 14 September 2011

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

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, Pacoflex, 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 2010 (England and Wales)

Requirement: B4(2)	External fire spread
Comment:	On flat roofs incorporating the product and with one of the supporting structures prescribed in Approved Document B, Table A5, part iv, the roof shall be deemed to be of designation AA. See sections 6.1 to 6.3 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	The product will enable a roof to meet this Requirement. See sections 5.1 and 5.2 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The product is acceptable. See sections 10.1, 10.2 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: 8(1)(2)	Fitness and durability of materials and workmanship
Comment:	The product satisfies the requirements of this Regulation. See sections 9, 10.1, 10.2 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards – construction
Standard: 2.8	Spread from neighbouring buildings
Comment:	In the opinion of the BBA, a roof incorporating the product will have similar properties in relation to fire as the traditional grades of mastic asphalt described in BS 8218 : 1998 and therefore satisfy this Standard, with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ . See sections 6.1 and 6.3 of this Certificate.
Standard: 3.10	Precipitation
Comment:	The product will enable a roof to satisfy the requirements of this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.7 ⁽¹⁾⁽²⁾ . See sections 5.1 and 5.2 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.
Standard: 12	Building standards – conversions
Comment:	Comments made 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) 2000 (as amended)

Regulation: B2	Fitness of materials and workmanship
Comment:	The product is acceptable. See sections 10.1, 10.2 and the <i>Installation</i> part of this Certificate.
Regulation: B3(2)	Suitability of certain materials
Comment:	The product is acceptable. See section 9 of this Certificate.
Regulation: C4(b)	Resistance to ground moisture and weather
Comment:	The product will enable a roof to satisfy the requirements of this Regulation. See sections 5.1 and 5.2 of this Certificate.
Regulation: E5(b)	External fire spread
Comment:	On flat roofs incorporating the product and with one of the supporting structures prescribed in Technical Booklet E, Table 4.6, part iii, the roof shall be deemed to be of designation AA. See sections 6.1 to 6.3 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 sections: 2 *Delivery and site handling* (2.1) and the *Installation* part of this Certificate.

Non-regulatory Information

NHBC accepts the use of Pacoflex, when installed and used in accordance with this Certificate, as meeting technical requirement R3 in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs and balconies*.

Technical Specification

1 Description

- 1.1 Pacoflex is a polymer-modified blend of bitumen, mixed together with fine and coarse limestone aggregates for use as a waterproofing membrane on flat roofs and completely flat roofs.
- 1.2 Quality control checks are performed on incoming materials, during production and on the final product.

2 Delivery and site handling

- 2.1 The product is supplied in blocks (similar to traditional mastic asphalt) with labels bearing the product name and the BBA identification mark incorporating the number of this Certificate. Alternatively, the product in molten form may be delivered to site by purpose-built transporters. In such cases, the product information/identification is supplied on the relevant delivery notices.
- 2.2 Pacoflex blocks should be stored in the same manner as traditional mastic asphalt.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Pacoflex.

Design Considerations


3 General

- 3.1 Pacoflex is satisfactory for use as a waterproofing layer on conventional flat roofs including completely flat roofs with limited access in accordance with BS 8218 : 1998.
- 3.2 Limited access roofs are defined for the purpose of this Certificate as those roofs subjected only to pedestrian traffic for maintenance of the roof covering and cleaning of gutters. Where traffic in excess of this is envisaged, special precautions such as additional protection (eg by tiling or paving) to the product should be considered.
- 3.3 Flat roofs are defined for the purpose of this Certificate as those roofs having a minimum finished fall of 1:80. Completely flat roofs are defined for the purpose of this Certificate as those roofs having a finish fall of less than 1:80.
- 3.4 When designing flat roofs, twice the minimum fall should be assumed, unless a detailed analysis of the roof is available, including overall and local deflection of falls.
- 3.5 Decks to which the product is to be applied must comply with the relevant requirement of BS 8218 : 1998 and BS 6229 : 2003.
- 3.6 Due to high application temperatures, insulation materials to be used in conjunction with the product must be approved by the Certificate holder.
- 3.7 Normal good practice in respect of water vapour barriers and/or ventilation of existing insulation must be followed to control interstitial condensation.

4 Practicability of installation

The product can be installed readily by operatives experienced with this type of material.

5 Weathertightness

 5.1 Results of tests confirm that the product will adequately resist the passage of moisture to the inside of the building and so meet or comply with the relevant requirements of the national Building Regulations:


England and Wales — Approved Document C2, Requirement C2(b), Section 6.

Scotland — Mandatory Standard 3.10, clauses 3.10.1 and 3.10.7.

Northern Ireland — Regulation C4(b).

5.2 The product is impervious to water and, when used in the systems described, will give a weathertight roofing capable of accepting minor structural movements without damage.

6 Properties in relation to fire

 6.1 In the opinion of the BBA, the product will have similar properties in relation to fire as the traditional grades of mastic asphalt described in BS 8218 : 1998.



6.2 When used on flat roofs with one of the supporting structures prescribed in the national Building Regulations, the roof is deemed or considered to be of designation AA:

England and Wales — Approved Document B, Volumes 1 and 2, Table A5 Part (iv)

Northern Ireland — Technical Booklet E, Table 4.6, Part (iii).



6.3 The designation of other specifications (eg on combustible substrates) should be confirmed by:

England and Wales — Test or assessment in accordance with Clause A1, Appendix A of Approved Document B

Scotland — Test to conform with Mandatory Standard 2.8

Northern Ireland — Test or assessment by a UKAS accredited laboratory or an independent consultant with appropriate experience.

7 Resistance to wind uplift

When applied to an air impermeable deck, the product resists the effects of wind suction likely to occur in practice.

8 Resistance to mechanical damage

8.1 The product can accept, without damage, the thermal movement likely to occur in practice and the limited foot traffic and light concentrated loads associated with the installation and maintenance operations. Where access exceeding this is envisaged, this should be taken in to account when determining the application thickness and surface protection.

8.2 Reasonable care is required, however, to avoid prolonged point loading by heavy and/or sharp objects.

8.3 In areas of public access, suitable surface protection of tiles, pavements or paving grade mastic asphalt must be used.

9 Maintenance



A roof waterproofed with Pacoflex will not normally require maintenance other than annual inspections, preferably in the autumn, to clear leaves, debris and dirt, to ensure sufficient drainage and for identifying damaged areas.

10 Durability



10.1 On the basis of available data and BRE Digest 144 : 1972 *Asphalt and built-up felt roofings — Durability*, Pacoflex should have a life expectancy of at least 50 years.

10.2 When fully protected and subject to normal service conditions, the product will provide an effective barrier to the transmission of liquid water and water vapour for the design life of the roof/substrate on which it is incorporated.

11 Repair

Should accidental damage occur, or alterations to the roof structure be required, then the recommendations of BS 8218 : 1998, Section 11 *Maintenance and Repair*, should be followed. The product should be reinstated to the original specification.

12 Procedure

12.1 Deck surfaces must be dry, clean and free from sharp projections such as nail heads and concrete nibs.

12.2 Installation should be carried out using traditional techniques for laying mastic asphalt described in the relevant Clauses of BS 8218 : 1998 and in accordance with the Certificate holders' instructions.

12.3 Where applicable, details are to be worked in accordance with traditional methods.

12.4 On completion of the roof the final coat should be sand rubbed with coarse sharp sand using a wooden float. For solar protection, or for protection against foot traffic, Pacoflex should have one of the following surface finishes which are included in BS 8218 : 1998:

- (a) stone chippings of limestone, granite, gravel, calcined flint, calcite, feldspar, or similar, of 14 mm nominal size, free from dust, bedded in a suitable compound
- (b) stone aggregate of 20 mm nominal size, loose-laid, but secured around outlets
- (c) a suitable mastic asphalt paving designed in accordance with BS EN 13108-6 : 2006 or other polymer-modified mastic asphalt paving approved by the Certificate holder
- (d) light-coloured pedestrian tiles bedded in a compound in accordance with the tile manufacturer's recommendations, particularly where continuous foot traffic is expected
- (e) concrete paving slabs bedded in cement/sand mortar bed or loose-laid isolating membrane
- (f) solar reflective paint, applied and maintained in accordance with the Certificate holder's and paint manufacturer's recommendations.

12.5 Before a solar protection is applied, the roof should be completely dry and free of dirt.

12.6 Where continuous foot traffic is expected, surface finishes described in section 12.4(c), (d) and (e) are recommended.

Technical Investigations

The following is a summary of the Technical investigations carried out on Pacoflex.

13 Tests

Tests were carried out on samples of Pacoflex and the results were assessed by the BBA in the context of UK roofing practice.

Physical properties

- fines content
- density
- weight per unit area
- tensile strength and elongation on unaged and heat aged samples
- water vapour permeability.

Service performance

- hardness on unaged and heat aged samples
- resistance to water pressure (6 m)
- resistance to sliding (90°)
- static indentation on soft and hard substrates
- tensile bond strength on unaged and aged samples
- hard body impact at -10°C and at +20°C.

14 Investigations

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 6229 : 1982 *Code of practice for flat roofs with continuously supported coverings*

BS 8218 : 1998 *Code of practice for mastic asphalt roofing*

BS EN 13108-6 : 2006 *Bituminous mixtures — Material specifications — Mastic asphalt*

15 Conditions

15.1 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.

15.2 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.

15.3 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.

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

15.5 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
- individual 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.

15.6 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.