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Agrément Certificate
13/5042
Product Sheet 1

BRITANNIA PAINTS ROOF WATERPROOFING SYSTEMS

POLYSHIELD 15 ROOF WATERPROOFING SYSTEM

This Agrément Certificate Product Sheet(1) relates to the Polyshield 15 Roof Waterproofing System, a single-pack, rubber-based, cold liquid-applied reinforced coating for use on limited access flat and pitched roofs and protected zero fall cold roofs.

(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

Weathertightness — the system will resist the passage of moisture into a building (see section 6).
Properties in relation to fire — the system may enable a roof to be unrestricted under the national Building Regulations (see section 7).
Adhesion — the adhesion of the system is sufficient to resist the effects of any likely wind suction and the effects of thermal or other minor movement likely to occur in practice (see section 8).
Resistance to mechanical damage — the system will accept the limited foot traffic and loads associated with installation and maintenance (see section 9).
Durability — under normal service conditions, the system will provide a durable roof waterproofing with a service life of at least 15 years (see section 11).

The BBA has awarded this Certificate to the company named above for the system described herein. This system 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 Fourth issue: 31 March 2021

Originally certificated on 27 September 2013

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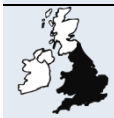
Regulations

In the opinion of the BBA, the Polyshield 15 Roof Waterproofing System, 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:	**B4(1)**	**External fire spread**
Comment:		The system, in some circumstances, is restricted by this Requirement. See section 7.4 of this Certificate.
Requirement:	**B4(2)**	**External fire spread**
Comment:		On a suitable substructure, the use of the system can enable a roof to be unrestricted under this Requirement. See sections 7.1 to 7.3 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The system will enable a roof to satisfy this Requirement. See section 6.1 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The system is acceptable. See section 11 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Durability, workmanship and fitness of materials**
Comment:		The system is acceptable and satisfy the requirements of this Regulation. See sections 10.1 and 11 and the Installation part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	2.6	Spread to neighbouring buildings
Comment:		The system is restricted under clause 2.6.4(1)(2) of this Standard in some circumstances. See section 7.5 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		The system can be regarded as having low vulnerability under clause 2.8.1(1)(2) of this Standard. See sections 7.1 to 7.3 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The use of the system 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 section 6.1 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The system 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 system 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)(b)(i)**	**Fitness of materials and workmanship**
Comment:		The system is acceptable. See section 11 and the *Installation* part of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The system will enable a roof to satisfy the requirements of this Regulation. See section 6.1 of this Certificate.
Regulation:	**36(b)**	**External fire spread**
Comment:		On a suitable substructure, the use of the system can enable a roof to be unrestricted under the requirements of this Regulation. See sections 7.1 to 7.3 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: 3 *Delivery and site handling (3.1 and 3.3)* of this Certificate.

Technical Specification

1 Description

1.1 The Polyshield 15 Roof Waterproofing System is a single-pack, rubber-based, cold liquid-applied, reinforced coating comprising:

- Polyshield Primer — a rubber-based primer for preparation of substrates such as concrete, asphalt, timber and mineral felt
- Britannia Zinc Phosphate Metal Primer — a primer for the preparation of metal substrates
- Britannia QD Universal Primer-Sealer — a primer for the preparation of single-ply membranes
- Polyshield 15 Basecoat — a single-pack, rubber-based, cold liquid-applied embedment and saturation layer, available in grey
- Polyshield 15 Topcoat — a single-pack, rubber-based, cold liquid-applied roof waterproofing, available in grey, black and solar-reflective white
- Polyshield Scrim — a stitch-bonded polyester mesh for embedding into the basecoat and additional reinforcement for detailing, expansion joints and construction joints.

1.2 Polyshield Scrim has the characteristics given in Table 1.

Table 1 Polyshield Scrim — characteristics

Characteristic (unit)		**Value**	
Mass per unit area ($g \cdot m^{-2}$)		100	
Width (m)	0.1, 0.2	0.5	1.0
Length (m)	50	100	33, 100

1.3 Ancillary components which may be used with the system, but which are outside the scope of this Certificate, are:

- Britannia Fungicidal Wash — for use in cleaning the substrate of moss and algae prior to the application of the system
- white spirit — for use in cleaning application equipment.

2 Manufacture

2.1 The system components are manufactured by batch-blending raw materials.

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 Britannia Paints Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by ISOQAR Ltd Manchester (Certificate 8516-QMS-001).

3 Delivery and site handling

3.1 The Polyshield waterproofing component is delivered to site in metal cans bearing the Certificate holder's name, product name, colour, volume, batch number, Health and Safety data, and the BBA logo incorporating the number of this Certificate. The can size and shelf-life (unopened) of each of the liquid components are given in Table 2.

Table 2 Liquid component — can size and shelf-life

Component	Can size (litres)	Shelf-life (years)
Polyshield 15 Basecoat/Topcoat	5 and 20	2
Polyshield Primer	5 and 20	2
Britannia Zinc Phosphate Metal Primer	1 and 5	1
Britannia QD Universal Primer-Sealer	5 and 20	1

3.2 Polyshield Scrim should be stored under cover in a dry and clean environment.

3.3 The Certificate holder has taken the responsibility of classifying and labelling the system components under the *CLP Regulation (EC) No 1272 / 2008 on the classification, labelling and packaging of substances and mixtures*. Users must refer to the relevant Safety Data Sheet(s).

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Polyshield 15 Roof Waterproofing System.

Design Considerations

4 General

4.1 The Polyshield 15 Roof Waterproofing System is satisfactory for use as a liquid-applied waterproofing layer on limited access flat and pitched roofs, and protected zero fall cold roofs.

4.2 The system is suitable for use on substrates of:

- concrete
- mastic asphalt
- bituminous roofing felt
- steel
- timber
- PVC plastisol coated metal
- PVC single-ply waterproofing membrane.

4.3 Decks to which the system is to be applied must comply with the relevant requirements of BS 6229 : 2018, BS 8217 : 2005 and, where appropriate, NHBC Standards 2021, Chapter 7.1.

4.4 Limited access roofs are defined for the purpose of this Certificate as those subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc. Where traffic in excess of this is envisaged, special precautions, such as additional protection to the membrane, must be taken: for example, Skid-inhibiting Grit incorporated into the final coat or paving with paving supports.

4.5 Flat roofs are defined for the purpose of this Certificate as those having a minimum finished fall of 1:80. When designing flat roofs, 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.

4.6 Pitched roofs are defined for the purpose of this Certificate as those having falls in excess of 1:6.

4.7 Zero fall roofs are defined for the purpose of this Certificate as those having a finished fall between 0 and 1:80 degrees. Recommendations for the design of roof falls are available in the Liquid Roofing and Waterproofing Association (LRWA) Note 7 — *Specifier Guidance for Flat Roof Falls*.

4.8 Detailing requirements, eg at service penetrations and movement joints, must be evaluated on a case-by-case basis. The Certificate holder has standard details or can advise of suitable details for a particular application. Reference should also be made to the appropriate clauses in *Liquid Roofing and Waterproofing Association (LRWA) Note 7 – Specifier Guidance for Flat Roof Falls*.

4.9 The adhesion of the system has been assessed as suitable for substrates listed in section 4.2. Acceptable adhesion of the system to other substrates should be confirmed by test, further advice is available from the Certificate holder.

5 Practicability of installation

Installation of the system must be carried out only by specialist roofing contractors trained and approved by the Certificate holder.

6 Weathertightness

6.1 The system will adequately resist the passage of moisture into a building and will enable a roof to comply with the requirements of the national Building Regulations.

6.2 To achieve a weathertight coating it is essential that the application rate is as quoted in the Certificate holder's literature for the relevant system.

7 Properties in relation to fire

7.1 A system comprising an 18 mm plywood substrate, a 1.6 mm layer of bitumen felt, one layer of Polyshield 15 Basecoat applied at a rate of 1 $\ell \cdot m^{-2}$ with Polyshield Scrim embedded in the coat, and one layer of Polyshield Topcoat applied at a rate of 0.5 $\ell \cdot m^{-2}$, achieved an EXT.F.AC classification(1) to BS 476-3 : 2004 and so is unrestricted under the national Building Regulations.

(1) Fire test report, reference 317117 conducted by Bodycote Warringtonfire. Report available from the Certificate holder.

7.2 The system, when used in protected specifications, including an inorganic covering listed in the Annex of Commission Decision 2000/553/EC, can also be considered to be unrestricted under the national Building Regulations.

7.3 The designation of other specifications should be confirmed by reference to the requirements of the documents supporting the national Building Regulations.

7.4 The system, when used in pitches of greater than 70°, excluding upstands, should not be used on buildings in England and Wales that have a storey at least 18 m above ground level and which 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.

7.5 The system, 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.

8 Adhesion

The adhesion of the systems to the substrates indicated in section 4.2 is sufficient to resist the effects of any wind suction, elevated temperatures, thermal shock or minor movement likely to occur in practice.

9 Resistance to mechanical damage

9.1 The system can accept the limited foot traffic and light concentrated loads associated with installation and maintenance, but reasonable care must be taken to avoid puncture by sharp objects or concentrated loads. Where traffic in excess of this is envisaged, such as maintenance of lift equipment, a walkway should be provided, for example, using concrete slabs supported on bearing pads. Results of dynamic and static indentation tests are given in Table 3.

Table 3 Dynamic and static indentation

Test	Result	Method
Dynamic indentation on steel		EOTA TR006
control tested at 23°C	I_4	
heat aged(1) tested at –20°C	I_4	
UV aged(2) tested at –10°C	I_4	
Static indentation on steel		EOTA TR007
control tested at 23°C	L_4	
control tested at 80°C	L_1	
water exposure(3)		
tested at 23°C	L_4	
tested at 60°C	L_1	

(1) Heat aged for 100 days at 80°C.
(2) UV aged using UVA lamps at an exposure of 400 $MJ \cdot m^{-2}$ at 50°C.
(3) Water exposure at 60°C for 108 days.

9.2 The system is impervious to water and will achieve a weathertight roof capable of accepting minor structural movement.

10 Maintenance

10.1 The system must be the subject of six-monthly inspections and maintenance in accordance with BS 6229 : 2018, Chapter 7 to ensure satisfactory performance.

10.2 Where damage has occurred, it should be repaired in accordance with section 14 of this Certificate and the Certificate holder's instructions.

10.3 Should the system become contaminated by oil, grease or other chemicals the advice of the Certificate holder must be sought.

11 Durability

Under normal conditions, the Polyshield 15 Roof Waterproofing system will achieve a life expectancy of at least 15 years.

Installation

12 General

12.1 Installation of the system must be carried out in accordance with the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989, Liquid Roofing and Waterproofing Association (LRWA) Note 7 – Specifier Guidance for Flat Roof Falls, the Certificate holder's instructions and this Certificate, and only by specialist roofing contractors trained and approved by the Certificate holder in accordance with their installation instructions.

12.2 Installation must not be carried out during inclement weather (eg rain, fog or snow). Application of the system is carried out at a minimum temperature of 2°C and a maximum of 35°C. When the temperature is below 5°C, suitable precautions against surface condensation on the substrate must be taken.

12.3 Substrates on which the system is to be applied must be sound, dry, frost-free, clean and free from sharp projections such as nail heads and concrete nibs. The Certificate holder's advice should be sought on suitable cleaning procedures and the use of a proprietary surface cleaner/fungicidal wash.

12.4 Adhesion checks must be carried out on all substates prior to the installation of the system to ensure that the system is compatible with the substrate and to determine whether the surface requires priming before application.

12.5 Prior to application of the system, some features must be treated or prepared in accordance with the Certificate holder's instructions, including:

- defects in existing waterproofing layers, eg cracks and blisters
- expansion or construction joints (these must be additionally reinforced prior to the application of the main waterproofing layer)
- detailing, such as upstands and penetrations
- large cracks in the substrate.

13 Procedure

13.1 Concrete, mastic asphalt, timber and mineral felt substrates are primed using Polyshield Primer prior to the application of the main waterproofing. The primer is applied by brush or roller at a rate of up to 5 $m^2 \cdot \ell^{-1}$, depending on the porosity of the substrate. Application of the main waterproofing can take place once the primer is touch dry.

13.2 Metal substrates are primed using Britannia Zinc Phosphate Metal Primer prior to the application of the main waterproofing. The primer is applied by brush or roller at a rate of up to 13 $m^2 \cdot \ell^{-1}$ and an approximate thickness of 35 µm. Application of the main waterproofing can take place a minimum of two hours after priming.

13.3 PVC single-ply membranes are primed using Britannia QD Universal Primer-Sealer prior to the application of the main waterproofing. The primer is applied by brush or roller at a rate of up to 10 $m^2 \cdot \ell^{-1}$.

13.4 The waterproofing layers are applied using either a brush or roller.

13.5 The basecoat is applied at the application rates given in section 13.8 and may require a two-coat application, depending on the roughness of the substrate.

13.6 Polyshield Scrim is embedded into the wet basecoat, using a roller to ensure that the scrim is well saturated and there are no wrinkles in the scrim. If the scrim has a dry appearance when embedded, additional Polyshield 15 Basecoat is applied with a roller until the scrim is saturated. Adjacent runs of the scrim are overlapped by 75 mm.

13.7 When the basecoat is completely dry, the topcoat is applied at the application rates given in section 13.8. The basecoat must be clean prior to the application of the topcoat. Where it is not, the advice of the Certificate holder must be sought on cleaning.

13.8 Application rates for different substrate types are given in Table 4.

Table 4 Application rates for different substrate types

Substrate type	Application rate ($\ell \cdot m^{-2}$)	
	Basecoat	Topcoat
Smooth	1.00	0.75
Intermediate	1.25 in two coats	0.75
Rough	1.5 in two coats	0.50 (first coat), 0.75 (second coat)

13.9 At each stage of coating, a check must be made for the presence of pinholing and uncoated areas, which must be rectified by applying additional Polyshield 15 Topcoat as necessary.

14 Repair

Should minor damage occur, it can be rectified by cleaning back to unweathered material and applying the system to the damaged area at the appropriate application rate stated in section 13.8. In cases of doubt, the advice of the Certificate holder should be sought.

Technical Investigations

15 Tests

Tests were conducted on the Polyshield 15 Roof Waterproofing System and the results assessed to determine:

- tensile strength and elongation (control and after heat ageing and UV ageing)
- delamination strength (control and after heat ageing and surface water exposure). Substrates tested were:
  - concrete
  - unprimed asphalt
  - steel
  - mineral finished bitumen felt
  - PVC plastisol
  - plywood
- dynamic indentation (control and after heat ageing and UV ageing)
- static indentation (control and after heat ageing and surface water exposure)
- fatigue cycling (control and after heat ageing)
- resistance to sliding
- water vapour transmission
- watertightness.

16 Investigations

16.1 A site in progress was visited to assess the practicability of installation of the system.

16.2 An assessment was made of independent fire test reports relating to the system's performance in respect of external fire performance.

16.3 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 476-3 : 2004 *Fire tests on building materials and structures — Classification and method of test for external fire exposure to roofs*

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

BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*
BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*

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

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

EOTA TR006 *Determination of the resistance to dynamic indentation*

EOTA TR007 *Determination of the resistance to static indentation*

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 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.