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**Agrément Certificate**

**91/2604**

Product Sheet 1

## POLYROOF GRP ROOFING

### POLYROOF 185 AND POLYROOF 185 NON-SLIP ROOF WATERPROOFING SYSTEMS

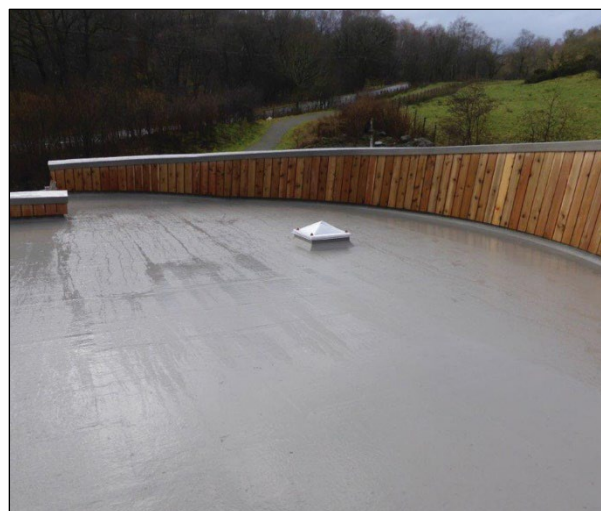
This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Polyroof 185 and Polyroof 185 Non-slip Roof Waterproofing Systems, for use on flat, pitched and protected zero fall roofs with limited access and internal gutters in warm, cold, inverted, green roof specifications and blue roofs, in combination with a storm water attenuation system<sup>(2)</sup>. Polyroof 185 Non-slip is for use on verandas, balconies and terraces, or on walkways on flat roofs.

(1) Hereinafter referred to as 'Certificate'.

(2) The storm water attenuation system is outside the scope of this 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 systems will resist the passage of moisture into a building (see section 6).

**Properties in relation to fire** — the systems may enable a roof to be unrestricted under the national Building Regulations (see section 7).

**Resistance to wind uplift** — the adhesion of the systems is sufficient to resist the effects of any likely wind suction (see section 8).

**Resistance to mechanical damage** — the systems will accept, without damage, the limited foot traffic and loads associated with installation, maintenance, pedestrian traffic and minor structural movements occurring in service (see section 9).

**Resistance to root penetration** — the systems will resist penetration by plant roots and can be used as a waterproofing layer in green roof specifications (see section 10).

**Slip resistance** — Polyroof 185 Non-slip, when dry and wet, has a satisfactory slip resistance to enable its use in pedestrian areas (see section 11).

**Durability** — under normal service conditions, the systems will provide a durable waterproof covering with a service life of at least 25 years (see section 13).

The BBA has awarded this Certificate to the company named above for the systems described herein. These systems 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 Fourth issue: 25 November 2022

Originally certificated on 19 March 1991

Hardy Giesler  
Chief Executive Officer

*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 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.*

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## Regulations

In the opinion of the BBA, Polyroof 185 and Polyroof 185 Non-slip Roof Waterproofing Systems, 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)

<b>Requirement:</b>	<b>B4(1)</b>	<b>External fire spread</b>
Comment:		The systems are restricted by this Requirement in some circumstances. See sections 7.5, 7.6 and 7.8 of this Certificate.
<b>Requirement:</b>	<b>B4(2)</b>	<b>External fire spread</b>
Comment:		On suitable substructures, the systems may enable a roof to be unrestricted under this Requirement. See sections 7.1 to 7.3 of this Certificate.
<b>Requirement:</b>	<b>C2(b)</b>	<b>Resistance to moisture</b>
Comment:		The systems will enable a roof to satisfy this Requirement. See section 6 of this Certificate.
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship</b>
Comment:		The systems are acceptable. See sections 13.1 and 13.2 and the <i>Installation</i> part of this Certificate.



### The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:		The systems can satisfy the requirements of this Regulation. See sections 12.1, 13.1 and 13.2 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	2.2	Separation
Standard:	2.6	Spread to neighbouring buildings
Standard:	2.7	Spread on external walls
Comment:		The systems are restricted under clause 2.2.7 <sup>(1)</sup> , 2.6.4 <sup>(1)(2)</sup> and 2.7.2 <sup>(1)(2)</sup> of these Standards in some circumstances. See sections 7.5, 7.7 and 7.9 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		When applied to a suitable substructure, the systems may enable a roof to be unrestricted under clause 2.8.1 <sup>(1)(2)</sup> of this Standard. See sections 7.1 to 7.3 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The use of the systems will enable a roof to satisfy the requirements of this Standard, with reference to clauses 3.10.1 <sup>(1)(2)</sup> and 3.10.7 <sup>(1)(2)</sup> . See section 6 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The systems 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.
<b>Regulation:</b>	<b>12</b>	<b>Building standards applicable to conversions</b>
Comment:		Comments in relation to the 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> .

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).



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

<b>Regulation:</b>	<b>23(1)(a)</b>	<b>Fitness of materials and workmanship</b>
Comment:	<b>(b)(i)</b>	The systems are acceptable. See sections 13.1 and 13.2 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>28(b)</b>	<b>Resistance to moisture and weather</b>
Comment:		The systems will enable a roof to satisfy the requirements of this Regulation. See section 6 of this Certificate.
<b>Regulation:</b>	<b>36(a)</b>	<b>External fire spread</b>
Comment:		The systems are restricted by this Regulation, in some circumstances. See sections 7.5, 7.6 and 7.8 of this Certificate.
<b>Regulation:</b>	<b>36(b)</b>	<b>External fire spread</b>
Comment:		On suitable substructures, the use of the systems may enable a roof to be unrestricted by 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 section: **3 Delivery and site handling** (3.1 and 3.3) of this Certificate.

## Additional Information

### NHBC Standards 2022

In the opinion of the BBA, Polyroof 185 and Polyroof 185 Non-slip Roof Waterproofing Systems, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 7.1, *Flat roofs, terraces and balconies*.

The NHBC Standards do not cover the use of the systems in the refurbishment of existing roofs.

## Technical Specification

### 1 Description

1.1 Polyroof 185 and Polyroof 185 Non-slip Roof Waterproofing Systems consist of a glass fibre reinforced polyester resin, cold-applied on site by the hand lay-up process to a minimum thickness of 1.5 mm. The non-slip grade incorporates a gritting agent in the topcoat to provide the non-slip surface.

1.2 The systems comprise:

- Polyroof 185 Base Resin — an unsaturated polyester resin for use as Polyroof basecoat
- Polyroof 185 Top Coat — an unsaturated polyester resin for use as Polyroof topcoat, available in unpigmented or pre-pigmented
- Polymat — a glass fibre chopped strand mat reinforcement
- catalyst — an organic peroxide supplied in powder form
- pigment — a thixotropic paste available in a number of colours
- Polygrit — a gritting agent to provide a non-slip surface on trafficked areas
- Polyroof 185 Base Resin/Polyroof 185 Accelerator — an additive to enable low-temperature application down to 1°C
- preformed trims — a range of factory-manufactured GRP trims, including upstand fixing trim, drip trim, fillet trim and flat trim.

1.3 Equipment used with the systems includes:

- calibrated mixing containers
- measuring scoops for catalyst.

1.4 Polyroof 185, when fully cured, has the characteristics of:

hardness after 48 hours (Barcol) 15 to 20  
minimum tensile strength (MPa) 50.

## 2 Manufacture

2.1 The resins are manufactured by a batch-blending process.

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 Polyroof Products Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by the BBA (Certificate 18/Q060).

## 3 Delivery and site handling

3.1 The packaging type and size for the systems components are given in Table 1. Each container bears the component name, size, batch number, Certificate holder's name and the BBA logo incorporating the number of this Certificate.

*Table 1 Component packaging*

Component	Packaging type	Packaging size
Polyroof 185 Base Resin	steel drum	20 kg
Polyroof 185 Top Coat (unpigmented or pre-pigmented)	steel drum	20 kg
Catalyst	plastic container	1 kg in a 2.5 litre container
Pigment	plastic container	1 kg in a 1 litre container
Polyroof 185 Base Resin/Polyroof 185 Accelerator	tin	400 g or 600 g in a 500 ml or 1litre container respectively
Polygrit	plastic container	1 litre

3.2 Glass fibre reinforcement is supplied in rolls wrapped in polythene.

3.3 The Certificate holder has taken the responsibility of classifying and labelling the systems 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 Polyroof 185 and Polyroof 185 Non-slip Roof Waterproofing Systems.

### 4 General

4.1 Polyroof 185 is satisfactory for use as a waterproofing system on flat, pitched and protected zero fall roofs with limited access and internal gutters in warm, cold, inverted, green roof and blue roof specifications. Polyroof 185 Non-slip is satisfactory for use on verandas, balconies, terraces or walkways on flat roofs.

4.2 The systems should only be applied to plywood and OSB3 (orientated strand board) substrates that are approved by the Certificate holder.

4.3 Limited access roofs are defined for the purpose of this Certificate as those subject only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc. Pedestrian access roofs are defined for the purpose of this Certificate as those not subject to vehicular traffic.

4.4 The following terms are defined for the purpose of this Certificate as:

- green roof (extensive) — a roof with a shallow layer of growing medium planted with low-maintenance plants such as mosses, sedums, grasses and some wild flower species
- blue roof — a flat roof designed to allow controlled attenuation of rain fall during storm events as part of a SUDS good practice policy<sup>(1)</sup>. Guidance on the design of blue roofs is available in *NFRC Technical Guidance Note for the construction and design of Blue Roofs – Roofs and podiums with controlled temporary water attenuation*.

(1) The storm water attenuation system is outside the scope of this Certificate.

4.5 Flat roofs are defined for the purpose of this Certificate as those having a minimum finished fall of 1:80<sup>(1)</sup>. 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.

4.6 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 of between 0 and 1:80<sup>(1)</sup> 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.

(1) *NHBC Standards 2022* require a minimum fall of 1:60 for green roofs and roof gardens.

4.8 Terraces, to which the systems are to be applied, must be designed in accordance with BS 8579 : 2020.

4.9 For inverted, green and blue roofs, structural decks to which the systems are to be applied must be capable of transmitting the dead and imposed loads experienced in service.

4.10 Dead loads, wind loads and imposed loads must be calculated by a suitably experienced and competent individual in accordance with BS EN 1991-1-1 : 2002, BS EN 1991-1-3 : 2003 and BS EN 1991-1-4 : 2005, and their UK National Annexes.

4.11 Recommendations for the design of green roofs specifications are available within the latest edition of *The GRO Green Roof Code — Green Roof Code of Best Practice for the UK*.

4.12 The drainage system for zero fall roofs, inverted roofs, green roofs or blue roofs must be correctly designed, and the following points should be addressed:

- provision made for access for maintenance purposes
- for zero fall roofs, it is particularly important to identify the correct drainage points, to ensure that drainage is sufficient and effective
- dead loads for green roofs can increase if the drains become partially or completely blocked causing waterlogging of the drainage layer
- additional guidance for inverted roof specifications is given in BBA Information Bulletin No .4 *Inverted roofs – Drainage and U-value corrections*.

4.13 The NHBC requires that the roof membranes, once installed, are inspected in accordance with *NHBC Standards 2022*, Chapter 7.1, Clause 7.1.11, and undergo an appropriate integrity test, where required. Any damage to the membrane is repaired in accordance with section 16 of this Certificate and reinspected.

## 5 Practicability of installation

The systems must only be installed by contractors who have been trained and approved by the Certificate holder.

## 6 Weathertightness



The systems will adequately resist the passage of moisture to the interior of a building and enable a structure to satisfy the relevant requirements of the national Building Regulations.

## 7 Properties in relation to fire



7.1 A system comprising an 18 mm thick OSB3 substrate, a coat of Polyroof185 Base Resin applied at  $1.2 \text{ l}\cdot\text{m}^{-2}$  with Polymat embedded in the coat and a coat of Polyroof 185 Top Coat applied at  $0.6 \text{ l}\cdot\text{m}^{-2}$  when tested to CEN/TS 1187 : 2012 Test 4 achieved a classification of  $B_{\text{ROOF}}(\text{t4})^{(1)}$  to BS EN 13501-5 : 2016 for slopes  $\leq 10^\circ$  pitch and so is unrestricted with respect to proximity to a boundary by the documents supporting the national Building Regulations

(1) Fire test and classification reports reference 21582A and 21582B, conducted by Warringtonfire Gent NV. The reports are available from the Certificate holder.

7.2 A roof incorporating the systems will also be unrestricted with respect to the proximity from a boundary under the national Building Regulations in the following circumstances:

- when used in protected or inverted roof specifications including an inorganic covering listed in the Annex of Commission Decision 2000/553/EC,
- irrigated green roofs.

7.3 The classification and permissible areas of use of other specifications should be confirmed by reference to the requirements of the documents supporting the national Building Regulations.

7.4 If allowed to dry, plants used in a roof garden may allow flame spread across the roof. This should be taken into consideration when selecting the plants. Appropriate planting irrigation and/or protection must be applied to ensure that the overall fire-rating of the roof is not compromised.



7.5 The Certificate holder has not declared a reaction to fire classification to BS EN 13501-1 : 2018.



7.6 In England, Wales and Northern Ireland, the systems should not be used on balconies on buildings 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 and additionally in Northern Ireland, nursing homes and places of lawful detention.



7.7 In Scotland, the systems should not be used on balconies on buildings that have a storey at least 11 m above ground level.



7.8 In England, Wales and Northern Ireland, the systems, when used in pitches of greater than  $70^\circ$ , excluding upstands, should not be used on buildings 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 and additionally in Northern Ireland, nursing homes and places of lawful detention.



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

## 8 Resistance to wind uplift

8.1 The adhesion of the systems to the substrates and finishes listed 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.

8.2 The ballast requirements for inverted roof systems should be calculated by a suitably experienced and competent individual in accordance with the relevant parts of BS EN 1991-1-4 : 2005 and its UK National Annex. The system should always be ballasted with a minimum depth of 50 mm of aggregate. In areas of high wind exposure, the Certificate holder's advice should be sought. Alternatively, concrete slabs on suitable supports can be used.

## 9 Resistance to mechanical damage

9.1 The systems can accept, without damage, the limited foot traffic and light concentrated loads associated with installation, maintenance and pedestrian traffic on defined walkways. However, care must be taken to avoid puncture by sharp objects or concentrated loads.

9.2 Polyroof 185 can achieve a result of I<sub>3</sub> with respect to dynamic indentation and L<sub>4</sub> with respect to static indentation when tested in accordance with EOTA TR006 and EOTA TR007, respectively.

9.3 The systems are capable of accepting minor structural movement while remaining weathertight.

## 10 Resistance to root penetration

The systems will resist penetration by plant roots and can be used as a waterproofing layer in green roof specifications.

## 11 Slip resistance

Polyroof 185 Non-slip has a satisfactory slip resistance in dry and wet conditions to allow it to be used in areas of pedestrian access.

## 12 Maintenance



12.1 The roof systems must be the subject of six-monthly inspections and maintenance in accordance with the recommendations of BS 6229 : 2018, Chapter 7 and the Certificate holder's own maintenance requirements, where relevant, to ensure continued satisfactory performance.

12.2 Green roofs must be the subject of regular inspections, particularly in autumn after leaf fall and in spring, to ensure unwanted vegetation and other debris are cleared from the roof and drainage outlets (see section 4.12). Guidance is available within the latest edition of *The GRO Green Roof Code – Green Roof Code of Best Practice for the UK*.

12.3 Any damage should be repaired in accordance with section 16 of this Certificate and the Certificate holder's instructions.

## 13 Durability



13.1 Under normal service conditions the systems will have a minimum life expectancy of at least 25 years provided there is no abnormal movement of the roof structure and the roof is subject to the normal regular inspections and maintenance.

13.2 When fully protected and subject to normal service conditions in an inverted roof specification with an open covering (eg aggregate pavers), the systems can provide an effective barrier to the transmission of liquid water and water vapour for the design life of the roof in which they are incorporated. However, in situations where maintenance or repair of any of the components in the roof structure are necessary (eg the protection layer or insulation), the durability of the membrane may be reduced. In these circumstances the Certificate holder should be consulted.

13.3 An estimate cannot be given for the life of green roof specifications owing to the nature of use; however, under normal circumstances, it should be significantly greater than for exposed waterproof coverings.

## Installation

### 14 General

14.1 Application of Polyroof 185 and Polyroof 185 Non-slip Roof Waterproofing Systems must be carried out only by installers trained and approved by the Certificate holder, 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 installation instructions of the Certificate holder and this Certificate.

14.2 The substrate to which the systems are to be applied must be properly prepared in accordance with the Certificate holder’s instructions. Adhesion to the substrate will depend on its condition and cleanliness. The substrate should be dry, sound, and free from loose material or contamination (eg moss or algae).

14.3 All points of potential weakness, such as cracks, joints and other defects in the plywood, should be reinforced using an additional 100 mm wide strip of 450 g·m<sup>-2</sup> glass fibre reinforcement incorporated into the basecoat whilst wet.

14.4 A non-slip finish for use on verandas and terraces, or walkways on flat roofs, is achieved by the addition of Polygrip to the topcoat.

14.5 Polyroof’s preformed glass fibre reinforced trims should be used when roofing details, eg upstands, are required.

### 15 Procedure

15.1 The systems should not be applied if the air or substrate temperature is outside the range of 5 to 30°C, in damp or cold conditions which could cause surface condensation, during frost, or if there is a risk of rain. The curing time of the resin is dependent upon the temperature but may be modified by adjusting the catalyst content (see Table 2). With the inclusion of Polyroof 185 Base Resin/Polyroof 185 Accelerator, application may be carried out with the deck and air temperature as low as 1°C. The amount of catalyst used in the systems must not be less than 2% nor exceed 4%.

Table 2 Catalyst addition

Temperature (°C)	Catalyst addition (%)
5 – 10	4
10 – 15	3
15 – 20	2.5 – 3
20 – 25	2 – 2.5
30	2

15.2 The basecoat is prepared on site by mixing Polyroof 185 Base Resin with the catalyst in the correct proportions immediately prior to application (see Table 2). If Polyroof 185 Base Resin Accelerator is used, a full tin is stirred into the resin prior to the addition of the catalyst. The thoroughly mixed basecoat is applied to the prepared substrate, at a coverage rate of 1.2 litres per m<sup>2</sup> (1.4 kg·m<sup>-2</sup>) using a synthetic lambswool roller to ensure a uniform coating is obtained, sufficient to fully bond the glass fibre reinforcement to the substrate.

15.3 The glass fibre reinforcement is embedded into the freshly applied basecoat by rolling until the reinforcement is thoroughly soaked. Further rolling is carried out, as required, using a metal paddle roller to consolidate and roll out air bubbles. The reinforcement should have a side overlap of at least 50 mm and a 50 mm overlap onto the preformed trims.



15.4 The Polyroof 185 Base Resin application is thoroughly inspected for thin areas and pinholes. If any are found, additional Polyroof 185 Base Resin is applied and consolidated.

15.5 The topcoat is applied as soon as it is possible to walk on the basecoat without disturbing the glass strands.

15.6 The topcoat is prepared on site by mixing Polyroof 185 Top Coat with the catalyst and, if required, a colour-pigmented paste in the correct proportions immediately prior to application. If Polyroof 185 Accelerator is used, a full tin is stirred into the resin prior to the addition of the catalyst. When thoroughly mixed, the topcoat should be applied at a coverage rate of 0.6 litres per m<sup>2</sup> (0.8 kg·m<sup>-2</sup>) using a fresh synthetic lambswool roller.

15.7 When the non-slip finish is required, grit is added to the topcoat after the pigmented paste has been mixed in thoroughly. The grit is added at a rate of 120 g per litre of topcoat (a weight ratio of 1:10) and stirred in well before the catalyst is added. The topcoat including grit should be constantly mixed during application to ensure that the grit is evenly dispersed throughout. Alternatively, the topcoat is applied, and the grit is broadcast onto it whilst it is wet, and then over-rolled to embed the grit.

15.8 The topcoat is checked for uniformity of colour, any signs of pin-holing and uniformity of dispersion of grit for the non-slip finish. Any sub-standard areas should receive a further thin application of topcoat before the top layer of resin is cured.

## 16 Repair

16.1 In the event of damage, repair should be carried out in accordance with the Certificate holder's instructions. Repairs are made by cutting out the damaged section and grinding or sanding the surrounding area to a smooth surface extending 100 mm in each direction from the damaged area. The area to be covered should be thoroughly cleaned before application of the systems. Application should be restricted to the repair area, with care taken not to overcoat existing areas.

16.2 The non-slip grade, where subject to heavy foot traffic, may lose some of the surface grit. This can be repaired by preparing the damaged area as described in section 16.1. The area to be covered should be thoroughly cleaned before the application of the base system. The topcoat, including grit, is then applied.

## Technical Investigations

### 17 Tests

Tests were carried out and the results assessed to determine:

- watertightness
- water vapour transmission
- Barcol hardness
- tensile strength, control heat aged, UV aged and water exposure
- cross breaking strength, control, UV aged and two-hour water boil
- tensile bond strength on plywood, control and heat aged
- dynamic indentation on plywood, control and UV aged
- static indentation on plywood, control and water exposure
- fatigue cycling, control and heat aged
- coefficient of friction
- dimensional stability.

### 18 Investigations

18.1 Existing data on the fire performance of the systems were examined.

18.2 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.

18.3 Visits were made to sites to examine the practicability of installation and performance in use.

18.4 User surveys have been carried out to determine the systems' performance in use.

## Bibliography

BS 6229 : 2018 *Flat roofs with continuously supported flexible waterproof 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 8579 : 2020 *Guide to the design of balconies and terraces*

BS EN 1991-1-1 : 2002 Eurocode 1 : *Actions on structures — General actions— Densities, self-weight, imposed loads for buildings*

NA to BS EN 1991-1-1 : 2002 UK National Annex to Eurocode 1 : *Actions on structures — General actions— Densities, self-weight, imposed loads for buildings*

BS EN 1991-1-3 : 2003 + A1 : 2015 Eurocode 1 : *Actions on structures — General actions — Snow loads*

NA to BS EN 1991-1-3 : 2003 + A1 : 2015 UK National Annex to Eurocode 1 : *Actions on structures — General actions — Snow loads*

BS EN 1991-1-4 : 2005 + A1 : 2010 Eurocode 1 : *Actions on structures — General actions — Wind actions*

NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to Eurocode 1 : *Actions on structures — General actions — Wind actions*

BS EN 13501-5 : 2016 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roof tests*

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

CEN/TS 1187 : 2012 *Test methods for external fire exposure to roofs*

EOTA Technical Report TR 006 (May 2004), *Liquid Applied Roof Waterproofing Kits (LARWK) — Determination of the resistance to dynamic indentation*

EOTA Technical Report TR 007 (May 2004), *Liquid Applied Roof Waterproofing Kits (LARWK) — Determination of the resistance to static indentation*

### 19 Conditions

19.1 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.

19.2 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.

19.3 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.

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

19.5 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.

19.6 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.