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Agrément Certificate
20/5810
Product Sheet 1

PROTEUS LIQUID APPLIED WATERPROOFING SYSTEMS

PROTEUS PRO-SYSTEM

This Agrément Certificate Product Sheet(1) relates the Proteus Pro-System(2), consisting of a moisture triggered aliphatic polyurethane, for use as a glass fibre-reinforced waterproofing on flat roofs with limited access.

(1) Hereinafter referred to as 'Certificate'
(2) Proteus Pro-System is a registered trademark of Proteus Waterproofing Limited.

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 to the interior of a building (see section 6).

Properties in relation to fire — the system can 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, without damage, 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 waterproof covering with a service life of at least 25 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

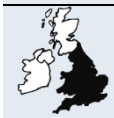
Date of First issue: 14 December 2020

Hardy Giesler
Chief Executive Officer

Certificate amended on 15 August 2021 to update the company name and to include trademark reference.

Regulations

In the opinion of the BBA, the Proteus Pro-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 is restricted by this Requirement in some circumstances. See section 7.3 of this Certificate.
Requirement:	**B4(2)**	**External fire spread**
Comment:		On a suitable substructure, the system can enable a roof to be unrestricted under this Requirement. See section 7.1 and 7.2 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 use of the system satisfies 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:	2.8	Spread from neighbouring buildings
Comment:		The system, when applied to a suitable structure, can be regarded as having low vulnerability under clause 2.8.1[(1)(2)] of this Standard. See section 7.1 and 7.2 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 suitable substructures, the use of the system can enable a roof to be unrestricted under this Regulation. See section 7.1 and 7.2 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* of this Certificate.

Additional Information

NHBC Standards 2021

In the opinion of the BBA, the Proteus Pro-System, 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 and balconies*.

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

Technical Specification

1 Description

1.1 Proteus Pro-System consists of:

- Proteus Pro-System — a one-part, moisture-triggered, aliphatic based polyurethane
- Pro-Force — a non-woven glass reinforcement.

1.2 A proprietary carrier membrane is used over substrates with joints, such as insulation boards or plywood decking, and beneath the waterproofing system. The Certificate holder's Technical Services should be contacted for further advice.

2 Manufacture

2.1 The liquid components of the system 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.

3 Delivery and site handling

3.1 The Proteus Pro-System liquid component is delivered to site in 15 litre tins bearing the product's name, batch number and the BBA logo incorporating the number of this Certificate.

3.2 The liquid component should be stored in a dry, shaded area, above freezing point and away from ignition

sources. Storage temperatures of between 10°C and 25°C will give the component a shelf-life of 9 months; at higher temperatures the shelf-life will reduce progressively. Once opened, tins should be used within two or three days.

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 Proteus Pro-System.

Design Considerations

4 General

4.1 The Proteus Pro-System is satisfactory for use as a system on flat roofs with limited access on:

- concrete (primed and unprimed)
- asphalt
- bituminous roofing membranes, including mineral surfaced
- galvanized steel
- non-mineralised bitumen roofing membranes on plywood
- liquid-applied bituminous roof coating
- aluminium paint
- polyisocyanurate (PIR) foam insulation boards in conjunction with a specified carrier membrane
- existing polyurethane roofs.

4.2 Decks to which the system is to be applied must comply with the relevant requirements of BS 6229 : 2018 and, where appropriate, *NHBC Standards* 2020, Chapter 7.1.

4.3 The system must not be applied directly to, nor come into contact with, polystyrene insulation products.

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, must be taken.

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.

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 the interior of a building and so satisfy the relevant requirements of the national Building Regulations.

6.2 The system is impervious to water and, when used as described, will give a weathertight roofing capable of accepting minor movement without damage.

7 Properties in relation to fire

7.1 When tested to DD CEN/TS 1187 : 2012, Test 4, and classified in accordance with BS EN 13501-5 : 2016, the following specifications achieved a $B_{ROOF}(t4)$ classification:

- a 12 mm thick primed plywood substrate, 0.6 mm thick self-adhesive vapour control layer, a 80 mm thick glass faced, polyisocyanurate insulation board adhered with a polyurethane adhesive and primed, a 0.6 mm thick self-adhesive carrier membrane, a base coat of Proteus Pro-System at an application rate of 1.0 $l \cdot m^{-2}$, a layer of Pro-Force, and a top coat of Proteus Pro-System at an application rate of 1.0 $l \cdot m^{-2}$ and so is unrestricted by the national Building Regulations
- a system comprising a 6 mm calcium silicate board, a 2.6 mm thick SBS modified bitumen roofing membrane, a base coat of Proteus Pro-System at an application rate of 1.0 $l \cdot m^{-2}$, a layer of Pro-Force and a top coat of Proteus Pro-System at an application rate of 1.0 $l \cdot m^{-2}$ and so is unrestricted by the national Building Regulations
- a system comprising a 6 mm calcium silicate board, a base coat of Proteus Pro-System at an application rate of 1.0 $l \cdot m^{-2}$, a layer of Pro-Force and a top coat of Proteus Pro-System at an application rate of 1.0 $l \cdot m^{-2}$ and so is unrestricted by the national Building Regulations.

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

7.3 The products, when used in pitches of greater that 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 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.

8 Adhesion

The adhesion of the system to the substrates and finishes indicated in section 4.1 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

The system can accept, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance. However, reasonable care should be taken to avoid puncture by sharp objects or concentrated loads, see table 1.

Table 1 Dynamic and Static indentation tests (unaged)

Test	Results	Method
Dynamic Indentation	I_3	EOTA TR 006
Static Indentation	L_3	EOTA TR 007

10 Maintenance

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

10.2 Any damage should be repaired in accordance with section 15 of this Certificate and the Certificate holder's instructions.

11 Durability

The system will provide a durable waterproof covering with a service life of at least 25 years.

Installation

12 General

12.1 Installation of the Proteus Pro-System must be carried out only by specialist roofing contractors 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 Certificate holder's instructions and this Certificate.

12.2 The system components must be at a temperature of, or greater than, 10°C for airless spray applications. All components must be applied when the air and substrate temperatures are greater than 5°C. Special precautions may be necessary when temperatures exceed 35°C, as shown in the Certificate holder's Technical Data Sheets.

12.3 Detailing (eg upstands) is carried out in accordance with the Certificate holder's instructions.

13 Site and surface preparation

13.1 Substrates on which the system is to be applied must be properly prepared in accordance with the Certificate holder's instructions.

13.2 Adhesion to substrates will depend on the condition and cleanness of the substrate. Substrates must be visibly dry, sound and free from loose materials or contamination (eg moss or algae). The surface must be prepared to remove loose or flaking materials, but the substrate must be visibly dry before application of the system.

13.3 Damaged areas of the substrate (eg blistered membrane) must be removed, replaced or repaired. Substrate defects (eg shallow-bottomed cracks and indentations) are filled in accordance with the Certificate holder's instructions.

13.4 Deck surfaces must be free from sharp projections such as concrete nibs.

13.5 Gutters and outlets must be checked to ensure that they are, and remain, clear of all debris.

13.6 All points of potential weakness such as splits, cracks, joints and crazed surfaces must be additionally reinforced in accordance with the Certificate holder's instructions prior to application of the main system.

13.7 Priming requirements of the substrate should be checked and carried out in accordance with the Certificate holder's instructions.

14 Procedure

14.1 Application can be by brush, roller or spray. Brush application is normally used only for small roof areas and, when used, for embedding Pro-Force Reinforcing Mat into the waterproofing at areas of detailing.

14.2 Prior to application, checks must be made to ensure the substrate is dry (ie free from rainwater, surface condensation and frost) and that the prevailing weather and site conditions are correct. The following normal limitations apply:

- application must not take place when the relative humidity is in excess of 95%, or in fog. The temperature/humidity must be such that there is no risk of surface condensation occurring before or during application
- air and substrate temperatures must be in excess of 5°C
- Proteus Pro-System is conditioned at a temperature of 10°C or greater, for use in airless spray applications
- the primer, where used, must be cured
- the wind speed must be such that it does not interfere with the application or cause overspray. No attempt to spray should be made if the wind speed exceeds 6.7 $m \cdot s^{-1}$ (15 mph), unless precautions such as the use of wind barriers are taken.

14.3 Only areas that can be applied to the full thickness before weather changes occur should be attempted.

14.4 The system is applied at the coverage rate for a smooth texture substrate given in Table 2. The advice of the Certificate holder on coverage rates for intermediate, rough, porous and undulating substrates must be sought. When using the Pro-Force reinforcing mat, this is embedded in the first coat while the membrane is still wet. Once the first coat is partially cured the second coat is applied.

Table 2 System coverage rates and finished thickness

Layer (unit)	Full reinforcement system
Base coat ($l \cdot m^{-2}$)	1.0
Reinforcement	Pro-Force
Top coat ($l \cdot m^{-2}$)	1.0
Finished thickness (mm)	1.5

14.5 Random tests are carried out on the finished coating surface by cutting out small areas to measure finished cured thickness. Test areas must be repaired after the sample is taken.

15 Repair

The repair of minor damage to the system can be achieved effectively by cleaning back to the unweathered material and recoating the damaged area with the membrane at the recommended coverage rates given in section 14.4.

Technical Investigations

16 Tests

Tests were carried out and the results assessed to determine:

- water vapour transmission
- resistance to water penetration
- tensile strength and elongation
- tensile bond strength
- static indentation at 23°C and 90°C
- dynamic indentation at -30°C and 20°C
- resistance to fatigue movement
- crack bridging
- UV ageing for 25 year equivalent, followed by tensile strength and dynamic indentation
- heat ageing for 25 year equivalent, followed by tensile strength, dynamic indentation and fatigue cycling
- water exposure for 25 year equivalent, followed by tensile bond strength and static indentation.

17 Investigations

17.1 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.

17.2 Data on fire performance were evaluated.

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

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

BS EN ISO 14001 : 2015 *Environmental management systems — Requirements with guidance for use*

ETAG 005 : 2000 Part 1 *Liquid applied roof waterproofing kits — General*
ETAG 005 : 2000 Part 6 *Liquid applied roof waterproofing kits — Specific stipulations*

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

18 Conditions

18.1 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.

18.2 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.

18.3 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.

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

18.5 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.

18.6 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.

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