

Proteus Waterproofing Limited

Charter House,
105 Leigh Road
Leigh-On-Sea
Essex SS9 1JL

Tel: +44 (0)1268 777871

email: enquiries@proteuswaterproofing.co.uk

website: proteuswaterproofing.co.uk



Agrément Certificate

21/5980

Product Sheet 1

PROTEUS LIQUID-APPLIED ROOF WATERPROOFING SYSTEMS

PROTEUS PRO-SYSTEM PLUS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Proteus Pro-System⁽²⁾ Plus, a moisture-triggered, glass fibre-reinforced polyurethane membrane for use on new and existing, flat and pitched limited access roofs.

(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 systems will resist the passage of moisture to the interior of a building (see section 6).

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

Adhesion — the adhesion of the systems 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 systems will accept, without damage, the limited foot traffic and loads associated with installation and maintenance (see section 9).

Durability — under normal service conditions, the systems will provide a durable waterproof covering with a service life of at least 25 or 30 years depending on the specification used (see section 11).

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 First issue: 11 January 2022

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. 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.

British Board of Agrément

Bucknalls Lane
Watford
Herts WD25 9BA

tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

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Regulations

In the opinion of the BBA, Proteus Pro-System Plus, 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: Comment:	B4(1)	External fire spread The systems are restricted by this Requirement in some circumstances. See section 7.3 of this Certificate.
Requirement: Comment:	B4(2)	External fire spread On suitable substructures, the use of the systems can enable a roof to be unrestricted under this Requirement. See sections 7.1 and 7.2 of this Certificate.
Requirement: Comment:	C2(b)	Resistance to moisture The systems will enable a roof to satisfy this Requirement. See section 6.1 of this Certificate.
Regulation: Comment:	7(1)	Materials and workmanship The systems are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: Comment:	8(1)(2)	Durability, workmanship and fitness of materials The systems are acceptable and satisfy the requirements of this Regulation. See sections 10.1 and 11 and the <i>Installation</i> part of this Certificate.
Regulation: Standard: Comment:	9 2.6	Building standards applicable to construction Spread to neighbouring buildings The systems are restricted under clause 2.6.4 ⁽¹⁾⁽²⁾ of this Standard in some circumstances. See section 7.4 of this Certificate.
Standard: Comment:	2.8	Spread from neighbouring buildings The systems can be regarded as having low vulnerability under clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 7.1 and 7.2 of this Certificate.
Standard: Comment:	3.10	Precipitation The systems can 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: Comment:	7.1(a)	Statement of sustainability 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.
Regulation: Comment:	12	Building standards applicable to conversions 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 ⁽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)	Fitness of materials and workmanship
Comment:	(b)(i)	The systems are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The systems can enable a roof to satisfy the requirements of this Regulation. See section 6.1 of this Certificate.
Regulation:	36b	External fire spread
Comment:		On suitable substructures, the use of the systems can enable a roof to be unrestricted under the requirements of this Regulation. See sections 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 2022

In the opinion of the BBA, Proteus Pro-System Plus, 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 Proteus Pro-System Plus Roof Waterproofing Systems have a finished thickness of 1.8 or 2.2 mm, and consist of:

- Proteus Pro-System Plus — a single-component, liquid-applied, moisture-triggered, aliphatic polyurethane. Available in standard colours of Mid Grey and Light Grey.
- Pro-Prime⁽¹⁾ SA — a primer for concrete substrates
- Pro-Epoxy Primer — a two-part primer for the treatment of previously untreated metal surfaces and for spot priming of areas of corroded metal after preparation
- Pro-Force — a non-woven glass fibre reinforcing mat which is embedded in the polyurethane while still wet, and available for use in strips to cover individual cracks, joints or details
- Pro-Carrier Membrane SA — a self-adhesive membrane for fully bonding over substrates with open joints, such as insulation boards, as a supporting layer
- Pro-Aggregate — to provide a non-slip finish to the final coat.

(1) Pro-Prime is a registered trademark of Proteus Waterproofing Limited.

2 Manufacture

2.1 The liquid components of the systems 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 the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 and BS EN ISO 14001 : 2015.

3 Delivery and site handling

3.1 Proteus Pro-System Plus components are delivered to site in 15-litre tins bearing the product name, batch number and the BBA logo incorporating the number of this Certificate.

3.2 Proteus Pro-System Plus components and primers 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 product 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 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 Proteus Pro-System Plus Roof Waterproofing Systems.

Design Considerations

4 General

4.1 Proteus Pro-System Plus Roof Waterproofing Systems are satisfactory for use as a waterproofing layer on new and existing, flat and pitched limited access roofs.

4.2 The systems are suitable for use on the following substrates:

- concrete (primed)
- bituminous roofing felt, including mineral surfaced
- single-ply membranes including PVC, TPO and EPDM (the Certificate holder can recommend an appropriate primer)
- metal (primed)
- Pro-Carrier SA
- existing coatings/roof paints
- timber in conjunction with Pro-Carrier SA
- polyisocyanurate (PIR) foam insulation boards in conjunction with Pro-Carrier SA.

4.3 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.

4.4 Flat roofs are defined for the purpose of this Certificate as those having a minimum finished fall of 1:80.

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

4.6 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.

4.7 Decks to which the systems are to be applied must comply with the relevant requirements of BS 6229 : 2018 and BS 8217 : 2005.

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

4.9 Detailing requirements (eg at service penetrations, movement joints) must be evaluated on a case-by-case basis. The Certificate holder has standard details or can advise on suitable details for a particular application.

4.10 The NHBC requires that the roof membranes, once installed, be inspected in accordance with of *NHBC Standards 2022*, Chapter 7.1, Clause 7.1.12, including the use of an appropriate integrity test, where required. Any damage to the membrane is repaired in accordance with section 15 of this Certificate and reinspected.

5 Practicability of installation

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

6 Weathertightness



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

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

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

- a first coat of Proteus Pro-System Plus applied at 1.0 litre per m² reinforced with Pro-Force reinforcement, and a topcoat of Proteus Pro-System Plus applied in two coats at 0.7 litres per m²
- Pro-Carrier Membrane SA
- a layer of Primer 600
- 80 mm thick PIR insulation board adhered using polyurethane adhesive
- self-adhesive vapour control layer
- 18 mm plywood substrate.

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 In England and Wales the system, when used in pitches of greater than 70°, 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.



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

7.5 Roofs incorporating the components have been tested to DD CEN/TS 1187 : 2012, Test 1.

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

The systems 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.

10 Maintenance



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

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

11 Durability



Proteus Pro-System Plus will achieve an initial life expectancy of at least 25 or 30 years depending on the specification used (see section 14.5).

Installation

12 General

12.1 Installation of Pro-System Plus must be carried out only by specialist roofing contractors trained and approved by the Certificate holder.

12.2 The systems 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 systems are 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).

13.3 The surface must be prepared to remove loose or flaking materials, but the substrate must be visibly dry before application of the systems.

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

13.5 Deck surfaces must be free from sharp projections such as protruding fixing bolts and concrete nibs.

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

13.7 All points of potential weakness such as splits, cracks, joints and crazed surfaces must be reinforced with additional Pro-Force Reinforcing Mat prior to application of the systems. The Pro-Force Reinforcing Mat must first be embedded in an initial application of Proteus Pro-System Plus applied at a rate of 1.25 litre per m².

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

14 Application

14.1 Application can be by brush, roller or spray. Brush application is normally used only for small roof areas and 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
- Pro-System Plus components are 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·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 substrate is primed, where required, and areas requiring extra Pro-Force Reinforcing Mat, eg cracks, should be treated as described in sections 13.7 and 13.8. The substrate, once dry, will be ready for the main application of the systems.

14.5 The systems are applied at the coverage rate for a smooth texture substrate given in Table 1. The advice of the Certificate holder on coverage rates for intermediate, rough, porous and undulating substrates must be sought. Pro-Force Reinforcing Mat 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 1 System build-up and finished thickness

Layer	System	
	25 years	30 years
First layer (coverage rate in litres per m ²)	1.25	1.50
Reinforcement	Proteus Pro-Force	Proteus Pro-Force
Second layer (coverage rate in litres per m ²)	0.75	1.00
Finished thickness (mm)	1.8	2.2

14.6 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 coverage rates stated in Table 1.

Technical Investigations

16 Tests

16.1 Tests were conducted on Proteus Pro-System Roof Waterproofing Systems 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 -20°C and 23°C
- resistance to fatigue movement
- 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.

16.2 Characterisation tests were conducted on Proteus Pro-System as follows:

- infrared spectrum
- viscosity
- density.

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.

17.3 An assessment of durability based on related systems was used in assessing the Proteus Pro-System to give a life expectancy of at least 30 years.

Bibliography

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

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

BS 8579 : 2020 *Guide to the design of balconies and terraces*

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*

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

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

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

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.