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Agrément Certificate
15/5272
Product Sheet 1

TEKSEAL ROOF WATERPROOFING SYSTEM

TEKSEAL ROOFING SYSTEM

This Agrément Certificate Product Sheet⁽¹⁾ relates to the Tekseal Roofing System, a glass-reinforced, liquid-applied waterproofing system for use on balconies, walkways and flat and pitched 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 the building (see section 6).

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

Resistance to wind uplift — the system will resist the effects of any likely wind suction acting on the roof (see section 8).

Resistance to mechanical damage — the system will accept, without damage, the limited foot traffic and loads associated with installation and maintenance, and pedestrian traffic on defined walkways (see section 9).

Slip resistance — Tekseal Topcoat, when dry or wet, has a satisfactory slip resistance to enable its use in pedestrian areas (see section 10).

Durability — under normal service conditions, the system will provide a durable waterproof covering with a service life of at least 25 years (see section 12).

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 Second issue: 15 February 2016

John Albon — Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

Originally certificated on 26 November 2015

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, the Tekseal Roofing 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(2)	External fire spread
Comment:		On suitable non-combustible substructures, the system can enable a roof to be unrestricted under this Requirement. See section 7 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The system will enable a roof to meet this Requirement. See section 6.1 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The system is acceptable. See section 12 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Durability, workmanship and fitness of materials
Comment:		The system satisfies the requirements of this Regulation. See sections 11 and 12 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	2.8	Spread from neighbouring buildings
Comment:		On suitable non-combustible substructures the system can be regarded as having low vulnerability under clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard. See section 7 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The use of the system will enable a roof to meet 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:		All comments given for 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 12 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The system can enable a roof to meet the requirements of this Regulation. See section 6.1 of this Certificate.
Regulation:	36(b)	External fire spread
Comment:		On suitable non-combustible substructures the use of the system will be unrestricted by the requirement of this Regulation. See section 7 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, Principal Designer/CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 3 *Delivery and site handling* and 14 *Precautions* of this Certificate.

Additional Information

NHBC Standards 2016

NHBC accepts the use of the Tekseal Roofing System provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs and balconies*.

Technical Specification

1 Description

1.1 The Tekseal Roofing System is a liquid-applied, glass-reinforced, flexible modified polyester system, comprising:

- Tekseal Resin A — a flexible, modified polyester resin
- Tekseal Catalyst — for use with Tekseal Topcoat and Tekseal Resin A
- Tekseal 450g CSM — a 450 g·m⁻² chopped strand glass mat, for use in reinforcing the system
- Tekseal Topcoat — surface finish available in various colours.

1.2 Ancillary material used with the system includes Preformed Trims.

2 Manufacture

2.1 The system components are manufactured by mixing raw materials in a conventional 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 liquid components of the system are delivered to site in sealed containers labelled with the manufacturer's name, product description and appropriate hazard and risk labels.

3.2 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).

3.3 The pack sizes and the shelf-lives of the system components are given in Table 1.

Table 1 Pack sizes and shelf-lives

Component	Pack size	Shelf-life (months)
Tekseal Resin A	20 kg and 25 kg	6
Tekseal Catalyst	1 litre and 5 litre canisters	6
Tekseal 450g CSM	30 kg and 35 kg	–
Tekseal Topcoat	20 kg and 25 kg	6

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Tekseal Roofing System.

Design Considerations

4 General

4.1 The Tekseal Roofing System is satisfactory for use as a liquid-applied roof waterproofing system on new or existing flat and pitched roofs with limited access in:

- inverted roof specifications
- protected warm and cold roof specifications, eg covered by pavers or other suitable protection
- exposed warm and cold roof specifications
- balconies and walkways.

4.2 The system is suitable for use on substrates of:

- concrete
- glass-faced PIR insulation board
- OSB.

4.3 For the purpose of this Certificate, limited access roofs are defined as those subject 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.

4.4 For the purpose of this Certificate, flat roofs are defined as those having a minimum finished fall of 1:80 (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). Pitched roofs are defined as those having falls in excess of 1:6.

4.5 Structural decks to which the system is to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards 2016*, Chapter 7.1.

4.6 Imposed loads, dead loads and wind loading are calculated in accordance with BS EN 1991-1-1 : 2002, BS EN 1991-1-3 : 2003, BS EN 1991-1-4 : 2005 and their respective UK National Annexes.

4.7 In inverted roof specifications, the ballast requirements should be calculated in accordance with the relevant parts of BS EN 1991-1-4 : 2005 and its UK National Annex.

4.8 Insulation materials used in conjunction with the membrane must be in accordance with the manufacturer's instructions and be either:

- as described in the relevant clauses of BS 8217 : 2005, or
- the subject of a current BBA Certificate and used in accordance with, and within the scope of, that Certificate.

5 Practicability of installation

The system is only installed by specialist roofing contractors who have been trained and approved by the Certificate holder.

6 Weathertightness



6.1 The system will adequately resist the passage of moisture to the inside of the building and enable a structure to meet or comply with the relevant requirements of the national Building Regulations.

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

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 A system comprising an 18 mm OSB deck, two layers of 450 g·m² CSM chopped strand mat reinforcement and 500-600 microns of polyester coating, tested to ENV 1187 : 2002, Test 4, achieved a classification under BS EN 13501-5 : 2005 of B_{ROOF}(t4).

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

7.3 The designation of other specifications, eg when used on combustible substrates, should be confirmed by:

England and Wales — test or assessment in accordance with Approved Document B, Appendix A, clause 1

Scotland — test to conform to Mandatory Standard 2.8, clause 2.8.1

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

8 Resistance to wind uplift

8.1 The adhesion of the system to OSB, concrete and PIR insulation board is sufficient to resist the effects of any wind suction, elevated temperatures, thermal shock or minor movement likely to occur in practice.

8.2 When the system is bonded to insulation boards, the resistance to wind uplift will be dependent on the cohesive strength of the insulation and the method by which it is secured to the roof deck. This must be taken into account when selecting a suitable insulation material.

9 Resistance to mechanical damage

The system can accept, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance, and pedestrian traffic on defined walkways. However, care must be taken to avoid puncture by sharp objects or concentrated loads. Results of testing for dynamic and static indentation are given in Table 2.

Table 2 Dynamic and static indentation on PIR insulation board

Test	Result	Method
Dynamic indentation control at -20°C	I ₄	EOTA TR 006
heat aged ⁽¹⁾ at -10°C	I ₄	
UV aged ⁽²⁾ at -10°C	I ₄	
Static indentation control	L ₄	EOTA TR 007
water exposure ⁽³⁾	L ₄	

(1) Heat aged for 100 days at 80°C.

(2) UV aged to EOTA TR 010 with a total energy of 1000 MJ·m⁻² at 50°C.

(3) Water exposure for 60 days at 60°C, tested at 80°C.

10 Slip resistance

Tekseal Topcoat has a satisfactory slip resistance in dry and wet conditions, to allow it to be used in areas of pedestrian access.

11 Maintenance



Maintenance should include checks and operations to ensure that, where applicable:

- protection layers are in good condition
- the exposed membrane is free from the build-up of silt and other debris, and unwanted vegetation is cleared.

12 Durability



Under normal conditions, the system will have a service life in excess of 25 years.

Installation

13 General

13.1 Installation of the Tekseal Roofing System must be carried out only by specialist roofing contractors trained and approved by the Certificate holder in accordance with the installation manual.

13.2 The system must not be installed in rain, snow, fog or misty conditions. The ambient temperature at the time of laying the system must be between 10°C and 30°C, and the surface to be coated must be at least 5°C above the dew-point.

13.3 Detailing, such as upstands, penetrations and joints, must be carried out in accordance with the Certificate holder's instructions before proceeding with the main roof area.

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

13.5 Previously-coated areas must be checked for integrity and adequate adhesion to the substrate. Defects such as cracks and blisters should be repaired prior to application of the system in accordance with the Certificate holder's instructions.

13.6 When the system is to be applied on plywood boards (typically OSB3 sterling board), these must be laid to adequate falls to allow good drainage, so that there is no standing water on the roof after completion.

14 Precautions

Vapours from the system may cause sensitisation and irritation to the respiratory system, eyes and skin. The system must only be used in areas with sufficient ventilation to prevent the build-up of vapours. Contact with the skin, eyes and clothing must be avoided. The supplier's instruction and the relevant safety regulations for working procedures must be adhered to at all times.

15 Procedure

15.1 The trims should be fixed with clout nails to form the required edge detail, mitring corners where necessary. The rear upstand fillet trim should be fixed to the deck but not fixed to the abutting wall, to allow for expansion.

15.2 Tekseal 450g CSM is prepared by cutting to size prior to installation.

15.3 Tekseal Resin A is mixed with the correct ratio of Tekseal Catalyst, as advised in the Catalyst Usage Chart which is supplied with the product. Before the mix is applied to the substrate, the surface must be clean and dry.

15.4 The initial coat of resin is applied at a rate of 600 g per m² by brush or roller to the clean, prepared surface and the Tekseal 450 g CSM is immediately laid to the wet surface. Another coat of resin is applied, ensuring that 1 kg

of resin is used per m² of CSM, followed by the second layer of mat. The second layer of CSM should be wet out, again using 1 kg of resin per m² of CSM. Both layers are consolidated using a metal roller, making sure that there is at least a 50 mm lap on all joints to avoid any section becoming too thick. Any trapped air and wrinkles must be removed using a metal roller.

15.5 The surface must be allowed to cure for approximately 1 to 2 hours before applying Tekseal Topcoat. When cured, the surface should be lightly sanded and any dust or debris removed.

15.6 To ensure a good bond, Tekseal Topcoat should be applied soon after the curing time has elapsed. Tekseal Topcoat is applied to the surface with a roller, aiming for a coverage rate of 600 g per m².

16 Repairs

16.1 If repairs to the system are required, the Certificate holder's advice should be sought for suitable repair materials.

16.2 Damage to the system must be repaired as soon as possible to ensure that the waterproofing integrity is maintained.

Technical Investigations

17 Tests

Tests were carried out on the Tekseal Roofing System and the results assessed to determine:

- mass per unit area
- density
- tensile strength and elongation
- water vapour permeability
- resistance to water penetration
- resistance to static indentation
- resistance to dynamic impact
- flexural strength
- heat ageing at 80°C for 100 days
- UV ageing at 1000 MJ·m⁻²
- slip resistance
- viscosity
- effect of day joints.

18 Investigations

18.1 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.

18.2 Visits were made to a site in progress to assess the practicability of installation.

18.3 Data on fire performance were evaluated.

Bibliography

BS 6229 : 2003 *Flat roofs with continuously supported coverings — Code of practice*

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

BS 13501-5 : 2005 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roofs tests*

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 *Eurocode 1: Actions on structures — General actions — Snow loads*

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

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

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

ENV 1187 : 2002 *Test methods for external fire exposure to roofs*

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.