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Agrément Certificate

19/5670

Product Sheet 5

FLEX-R WATERPROOFING SYSTEMS

FIX-R REINFORCED SINGLE PLY ROOF WATERPROOFING SYSTEMS

This Agrément Certificate Product Sheet⁽¹⁾ relates to FIX-R Reinforced Single Ply Roof Waterproofing Systems, for use on flat and pitched roofs in applications including loose-laid and ballasted, fully adhered, inverted and green roofs and roof gardens with limited access.

(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 systems will resist the passage of moisture to the interior of the 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).

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

Resistance to mechanical damage — the systems will accept the limited foot traffic and loads associated with installation and maintenance (see section 9).

Resistance to root penetration — when used with a suitable root barrier, the systems will adequately resist plant root penetration (see section 10).

Durability — under normal service conditions, the systems will provide a durable waterproof covering with a service life in excess of 35 years (see section 12).

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: 9 August 2019

John Albon
Chief Scientific Officer

Claire Curtis-Thomas
Chief Executive



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. 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, FIX-R Reinforced Single Ply 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)

Requirement:	B4(2)	External fire spread
Comment:		On suitable substructures, the systems can enable a roof to be unrestricted under this Requirement. See sections 7.1 to 7.4 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The systems, including joints, will enable a roof to satisfy this Requirement. See section 6.1 of this Certificate.
Regulation:	7	Materials and workmanship (applicable to Wales only)
Regulation:	7(1)	Materials and workmanship (applicable to England only)
Comment:		The systems are 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 systems satisfy the requirements of this Regulation. See sections 11.1 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:		The systems, when applied to a suitable substrate, can be regarded as having low vulnerability under clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 7.1 to 7.4 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The systems, including joints, 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 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:	12	Building standards applicable to conversions
Comment:		Comments given for 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)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The systems are acceptable. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The systems, including joints, 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 systems can enable a roof to be unrestricted under the requirements of this Regulation. See sections 7.1 to 7.4 of this Certificate.	

Construction (Design and Management) Regulations 2015 Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See sections: 1 *Description* (1.1) and 3 *Delivery and site handling* (3.3 and 3.4) of this Certificate.

Additional Information

NHBC Standards 2019

In the opinion of the BBA, FIX-R Reinforced Single Ply 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, 7.1 Flat roofs and balconies*.

CE marking

The Certificate holder has taken the responsibility of CE marking the systems, in accordance with harmonised European Standard EN 13956 : 2005. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 FIX-R Reinforced Single Ply Roof Waterproofing Systems comprise membranes manufactured to the characteristics given in Table 1 and available in two forms: a standard dusted form or a clean membrane to aid joint splicing.

Table 1 Nominal characteristics

Characteristic (unit)	FIX-R Reinforced Single Ply Membrane	
	1.2	1.5
Thickness ⁽¹⁾ (mm)	3.00	3.3
Roll width (m)	1.52 and 3.05	1.52 and 3.05
Length (m)	12.19 (1.52 wide) and 15.25 (3.05 wide)	12.19 (1.52 wide) and 15.25 (3.05 wide)
Mass per unit area (kg·m ⁻²)	1.51	2.11
Tensile strength* (N per 50 mm)	≥ 400	≥ 400
Elongation* (%)	≥ 15	≥ 15
Dimensional stability* (%)	≤ 0.5	≤ 0.5
Colour	grey/black	grey/black

1.2 For an alternative method of splicing, the membranes are available with a factory-applied tape (FAT).

1.3 A white version of the membranes, FIX-R Reinforced Single Ply White, is available where the top laminate is white. It is manufactured to the same specifications and has the same nominal properties as the grey/black versions.

1.4 Other products for use in the systems are:

- FB Adhesive — a polyurethane adhesive for bonding the ethylene-propylene-diene monomer (EPDM) sheet to the substrate
- Splicing Cement EP95 — a cement-based on solvent, butyl rubber and other synthetic resins which is cold-applied to bond laps between EPDM sheets and/or EPDM flashing
- SecurTAPE — a synthetic rubber-based tape for use in lap jointing
- FAT — 75 or 150 mm wide SecurTAPE, applied in a factory-controlled setting and used to splice adjoining sheets together on site
- HP-250 Primer — a primer for use with Splicing Cement EP95, SecurTAPE or pressure-sensitive products in preparation of membrane surface
- LV-600 Primer — an alternative primer for use with Splicing Cement EP95, SecurTAPE or pressure-sensitive products in preparation of membrane surface
- Splice Cleaner — a synthetic rubber/resin solution for cleaning EPDM prior to bonding laps, except when splice tape is used.

1.5 Ancillary items for use with these systems, but outside the scope of this Certificate, are:

- root barrier — which has satisfactory FLL tested root resistance
- EPDM Elastoform and FIX-R White Flashing — non-vulcanised (uncured) EPDM 1.5 mm thick with a polyethylene backing, available in widths between 150 and 450 mm
- pressure-sensitive products — a range of detailing products (such as flashings, corners) with a pressure adhesive incorporated
- in-seam sealant — a rubber-based sealant applied within lap joints made using Splicing Cement EP95 only
- lap sealant — an EPDM mastic to form a feathered edge along lap edges at flashings and details and at field splices when Splicing Cement EP95 is used
- water cut-off mastic — a synthetic rubber/resin sealing mastic to act as a sealing agent between the EPDM or flashing sheets and accessories
- walkway sheeting — a special 8 mm thick styrene butadiene rubber (SBR) sheet, to give additional protection in areas of high accessibility
- colour coating — an acrylic, elastic roof coating to provide optional roof colours
- FIX-R White Accessories — FIX-R White splicing cement, FIX-R White Splice Cleaner and FIX-R White Lap Sealant are used with FIX-R White and serve the same purpose as their counterparts
- pourable sealer — a two-component, solvent-free, polyurethane-based sealant, for use in areas where flashing is difficult to apply
- RUSS Strip — a reinforced EPDM membrane strip which is fastened to the substrate. The membrane is adhered to this at the roof perimeter and penetrations
- fasteners and fastening plates — for use in mechanically fastened applications
- termination bars — for fixing membrane at roof perimeters.

2 Manufacture

2.1 FIX-R Reinforced Single Ply Roof Waterproofing Systems are manufactured by blending, processing oils and other additives. The sheets are produced by calendaring or extruding, then vulcanising.

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 membranes are delivered to site in rolls wrapped in polythene. Provision may be required for load spreading and handling at roof level when large area sheets are used. The wrapper bears the product name, identification and the BBA logo incorporating the number of this Certificate.

3.2 Rolls should be stored on the delivery pallet, horizontally in a cool, dry area and under cover. The membranes should only be unwrapped from the packaging at the time of installation and unused material returned to its packaging until required.

3.3 Accessories are delivered in quantities given in Table 2.

Accessory	Quantity and packaging
FB adhesive	10 litre can
Splicing Cement EP95 and HP-250 Primer	3.8 or 9.5 litre cans
Splice Cleaner, bonding adhesive and colour coating	3.8 or 18.9 litre cans
LV-600 Primer	3.8 litre cans

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

3.5 EPDM flashing rolls should be stored in a clean, dry position and in temperatures between 5 and 25°C. The flashing cures gradually and should not be stored for more than nine months. As the flashing cures it will become less flexible and although this does not affect its waterproofing characteristics it does become more difficult to form at details.

3.6 FB Adhesive, Splicing Cement EP95, lap sealant, in-seam sealant, water cut-off mastic and colour coating should be stored in a dry place in temperatures between 5 and 25°C. Site storage of these products should not exceed six months.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on FIX-R Reinforced Single Ply Roof Waterproofing Systems.

Design Considerations

4 General

4.1 FIX-R Reinforced Single Ply Roof Waterproofing Systems are satisfactory for use as a fully or partially adhered waterproofing layer, mechanically fastened at edges and upstands, on flat and pitched roofs, including green roofs and roof gardens when used with a suitable root barrier, with limited access.

4.2 Decks to which the systems are to be applied must comply with the relevant requirements of BS 6229 : 2018, BS 8217 : 2005 and, where appropriate, *NHBC Standards* 2019, Chapter 7.1.

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

- roof garden (intensive) — a roof with a substantial layer of growing medium with planting that can include shrubs and trees, and generally accessible to pedestrians
- 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.

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 additional protection to the membrane must be provided.

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

(1) NHBC Standards 2019 requires a minimum fall of 1:60 for green roofs and roof gardens.

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

4.7 For green roofing and roof garden specifications, structural decks to which the systems are to be applied must be suitable to transmit the dead and imposed loads experienced in service.

4.8 Imposed loads, dead loading and wind loads specifications are 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.

4.9 Recommendations for the design of green roofs and roof garden specifications are available within the latest edition of *The GRO Green Roof Guide – Green Roof Code of Best Practice for the UK*.

4.10 The drainage systems for inverted roofs, zero fall roofs, blue roofs, green roofs or roof gardens must be correctly designed, and the following points should be addressed:

- provision made for access for maintenance purposes
- dead loads for green roofs and roof gardens can increase if the drains become partially or completely blocked causing waterlogging of the drainage layer.

4.11 Contact with bituminous, coal tar and oil-based products must be avoided as the membrane is incompatible with lower grades of bitumen. If contact with such products is likely, a separating layer must be interposed before installing the waterproof sheet. Where doubt arises, the advice of the Certificate holder should be sought.

4.12 Insulation systems or materials used in conjunction with the product must be approved by the Certificate holder and either:

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

4.13 If rigid glass fibre or mineral wool roof insulation products are used they must be overlaid with 13 mm thick fibreboard unless otherwise authorised by the Certificate holder.

5 Practicability of installation

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

6 Weathertightness



6.1 The systems, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture into the building and enable a roof to comply with the requirements of the national Building Regulations.

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

7 Properties in relation to fire



7.1 When tested to DD CEN/TS 1187 : 2012, Test 4, and classified to BS EN 13501-5 : 2016 the following systems achieved Class B_{ROOF}(t4):

- an 18 mm plywood with a fully adhered 2.54 mm FIX-R Reinforced Single Ply membrane
- an 18 mm thick orientated strand board (OSB) substrate, a 250 µm polyethylene vapour control layer (vcl), a 100 mm mechanically fastened glass-faced polyisocyanurate (PIR) insulation board, and fully-adhered 2.54 mm FIX-R Reinforced Single Ply membrane.
- an 18 mm thick OSB substrate, a 120 mm mechanically fastened PIR insulation board faced with a 6 mm plywood, and fully-adhered 2.54 mm FIX-R Reinforced Single Ply membrane.

7.2 The following systems will be unrestricted under the national Building Regulations:

- a 0.7 mm profiled galvanized steel deck, a 250 µm polyethylene vapour barrier, a 40 mm bitumen-faced polyurethane foam insulation board with 2.54 mm thick FIX-R Reinforced Single Ply membrane bonded in FB Adhesive.
- a 0.7 mm profiled galvanized steel deck, a 250 µm polyethylene vapour barrier, a 40 mm aluminium-faced polyisocyanurate insulation board with 2.54 mm thick FIX-R Reinforced Single Ply membrane bonded in FB Adhesive.

7.3 In the opinion of the BBA, a roof incorporating the systems will also be unrestricted under the national Building Regulations in the following circumstances:

- a roof garden covered with a drainage layer of gravel 100 mm thick and a soil layer 300 mm thick
- when protected by an inorganic covering (eg gravel or paving slabs) listed in the Annex of Commission Decision 2000/553/EC
- irrigated green roofs and roof gardens.

7.4 The designation of other specifications should be confirmed by:

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

Scotland — tests to conform to Mandatory Standard 2.8, clause 2.8.1⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

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

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

8 Resistance to wind uplift

8.1 The adhesion of adhered systems is sufficient to resist the effects of wind suction, thermal cycling or other minor structural movements likely to occur in service. Where any doubt exists regarding the suitability of the substrate, the advice of the Certificate holder should be sought.

8.2 Where the membrane is adhered 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.

8.3 Results of tests on the wind uplift force of the partially adhered system show that a maximum force of 5 kPa can be exerted without failure of the systems.

8.4 The soil used in roof gardens and ballast on inverted / protected roofs must not be of a type that will be removed or become delocalised owing to wind scour experienced on the roof.

8.5 It should be recognised that the type of plants used in roof gardens could significantly affect the expected wind loads experienced in service.

9 Resistance to mechanical damage

The systems can accept the limited foot traffic and light concentrated loads associated with installation and maintenance. Reasonable care should be taken to avoid puncture by sharp objects or concentrated loads. Where traffic in excess of this is envisaged, such as for maintenance of lift equipment, a layer of 8 mm thick SBR Walkway sheeting should be provided in accordance with the Certificate holder's instructions.

10 Resistance to root penetration

When used with a suitable root barrier, the systems and their joints are resistant to root penetration and can be used in a roof waterproofing system for roof gardens and green roofs.

11 Maintenance



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

11.2 Guidance for green roof and roof garden maintenance is available within the latest edition of *The GRO Green Roof Code - Green Roof Code of Best Practice for the UK*.

11.3 In autumn after leaf fall, and in spring, ensure unwanted debris is cleared from the roof and drainage outlets

11.4 Where damage has occurred it should be repaired in accordance with section 16 and the Certificate holder's instructions.

12 Durability



Under normal service conditions, the FIX-R Reinforced Single Ply Roof Waterproofing Systems will have a service life in excess of 35 years.

Installation

13 General

13.1 Installation of FIX-R Reinforced Single Ply Roof Waterproofing Systems must be carried out by trained installers, in accordance with the Certificate holder's instructions and this Certificate. A list of trained and approved operatives is available from the Certificate holder.

13.2 Installation should not be carried out during inclement weather (eg rain, fog or snow). When the temperature is below 5°C suitable precautions against surface condensation must be taken.

14 Procedure

14.1 All insulation boards are attached to the structural deck by the appropriate method for the type and thickness. The method of attachment must be adequate to provide resistance to wind uplift forces as defined in BS EN 1991-1-4 : 2005 and its UK National Annex.

14.2 Polyurethane insulation boards must be mechanically fastened, or bitumen bonded, to prevent bowing.

Fully adhered system

14.3 Adhesive is poured from the can onto the substrate and spread evenly using a squeegee at a rate of 0.25 kg·m⁻² (52 m² per can).

14.4 The membrane is rolled out into the wet adhesive and pressed firmly using a broom or heavy roller. The adhesive has a work time of up to half an hour.

Partially adhered system

14.5 Holes are pierced in the bottom of the adhesive can at the indicated places and the adhesive is applied to the substrate in strips or beads at a rate of 0.15 kg·m⁻² (86 m² per can).

14.6 The membrane is installed according to the procedure given in section 14.4.

15 Details

Seaming procedure (Splicing Cement)

15.1 At laps, the top sheet is folded back by about 300 mm and both surfaces of the lap are cleaned with Splice Cleaner, HP-250 Primer or LV-600 Primer. Splicing Cement EP95 is applied to both surfaces by roller to give an even coverage and must be allowed to dry until tacky. A continuous 4 mm bead of In-seam Sealant is applied 12 mm in from the back edge of the splice. The top sheet is rolled back down towards the bottom sheet and joined by applying firm hand pressure.

15.2 The lap is rolled with a steel or silicone roller, applying positive pressure, towards the outer edge of the lap. The edge is cleaned using Splice Cleaner. After checking that a good seal has been achieved, a bead of Lap Sealant is applied to the exposed edge of the lap.

Seaming procedure (SecurTAPE)

15.3 Dirt and excess dust is cleaned from the area of the splice in accordance with the Certificate holder's instructions. The area is then cleaned using either HP-250 or LV-600 Primer and allowed to dry.

15.4 The bottom sheet is marked 13 mm from the edge of the top sheet along the entire length of the splice. The tape is aligned with the marked line and pressed down using firm, even hand pressure, leaving the top release liner in place.

15.5 The minimum splice width should be 50 mm, with a minimum 3 mm of tape extending beyond the splice edge.

15.6 The top release liner is removed and the top sheet is allowed to fall freely onto the exposed tape. The top sheet is pressed onto the tape using firm, even hand pressure across the splice towards the outer edge of the lap.

15.7 The lap is rolled with either a steel or silicone roller, applying positive pressure, towards the outer edge of the lap, and not parallel to it. For lap joints at details, the edge is cleaned using Splice Cleaner, and a bead of Lap Sealant applied to the exposed edge of the lap.

Seaming procedure (Factory-applied Tape)

15.8 The rolls are laid out in accordance with the Certificate holder's instructions. The release film on the tape is removed and the splice primed prior to consolidation of the joint.

Flashing

15.9 Concurrently with the installation of the EPDM membrane, the EPDM flashing is applied. The flashing is first bonded to the horizontal EPDM membrane and lapped, according to the procedure in sections 15.1 to 15.7, with minimum lap widths of 75 mm. A continuation of the deck membrane may be used for flashing, as is the practice when RUSS Strip is used.

15.10 The flashing is adhered to the vertical surface of the wall using bonding adhesive or, alternatively, using the pressure-sensitive flashings.

15.11 The flashing is mechanically fastened at its upper edge and protected by dressing back to the wall and covering with coping stones, or by the use of a counter-flashing.

15.12 Advice for specific flashing requirements is available from the Certificate holder.

16 Repair

In the event of damage, repairs can be carried out by cleaning the area around the damage and applying a patch of the product as prescribed in the Certificate holder's instructions (see section 14).

Technical Investigations

17 Tests

17.1 Tests on the membranes were conducted and the results assessed to determine:

- water vapour transmission
- tensile strength/elongation
- nail tear strength
- tear strength
- low temperature flexibility
- dimensional stability
- static loading
- dynamic impact
- fatigue cycling
- heat ageing
- ozone resistance
- UV ageing

in order to assess:

- robustness during service
- vapour transmission properties
- durability.

17.2 Tests on joints produced using Splicing Cement EP95, SecurTAPE/HP-250 Primer and SecurTAPE/LV-600 Primer were conducted to determine:

- shear strength of joints
- T-peel for HP-250 Primer and LV-600 Primer.

18 Investigations

18.1 Existing data on fire performance of the membranes were assessed.

18.2 A user survey was performed to assess the performance of the membrane in the UK.

18.3 The manufacturing process was evaluated, including the methods adapted for quality control, and details were obtained of the quality and composition of the materials used.

18.4 A 30-year-old existing site was visited to assess the durability of the EPDM membranes.

Bibliography

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

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

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 *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*

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

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

EN 13956 : 2005 *Flexible sheet for waterproofing — Plastic and rubber sheet for roof waterproofing — Definitions and characteristics*

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.