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Agrément Certificate
08/4586
Product Sheet 1

FIBERTITE SINGLE-PLY ROOFING MEMBRANES

FIBERTITE ROOFING MEMBRANES

This Agrément Certificate Product Sheet(1) relates to FiberTite Roofing Membranes, a range of polyester-reinforced ketone-ethylene-ester (KEE) alloy single layer waterproofing membranes for use on limited access flat and pitched roofs, including roof gardens and green 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 products will resist the passage of moisture to the interior of a building (see section 6).

Properties in relation to fire — as part of a suitable specification, the products may enable a roof to be unrestricted under the national Building Regulations (see section 7).

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

Resistance to mechanical damage — the products will accept the limited foot traffic and loads associated with installation and maintenance, and minor structural movements occurring in service (see section 9).

Resistance to penetration by roots — the products will adequately resist plant root penetration (see section 10).

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

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for its intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Fourth issue: 19 January 2021

Originally certificated on 14 October 2008

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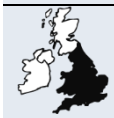
Regulations

In the opinion of the BBA, FiberTite Roofing Membranes 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**
		The products are restricted by this Requirement in some circumstances. See section 7.4 of this Certificate.
Requirement:	**B4(2)**	**External fire spread**
Comment:		On a suitable substructure, the products may enable a roof to be unrestricted under this Requirement. See sections 7.1 to 7.3 of this Certificate.
Requirement:	**C2(b)**	**Resistance to Moisture**
Comment:		The products, including joints, will enable a roof to satisfy this Requirement. See section 6 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The products are acceptable. See section 12 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 products satisfies the requirements of this Regulation. See sections 11.1 and 12 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	2.6	Spread to neighbouring buildings
Comment:		The products are restricted under clause 2.6.4(1)(2) of this Standard in some circumstances. See section 7.5 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		When applied to a suitable substructure, the products may enable a roof to be unrestricted under clause 2.8.1(1)(2) of this Standard. See sections 7.1 to 7.3 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The products, including joints, will enable a roof to satisfy the requirements of this Standard with references to clauses 3.10.1(1)(2) and 3.10.7(1)(2). See section 6 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The products 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 products 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 products are acceptable. See section 12 and the *Installation* part of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The products, including joints, will enable a roof to satisfy the requirements of this Regulation. See section 6 of this Certificate.
Regulation:	**36(b)**	**External fire spread**
Comment:		On suitable substructures, the use of the systems may enable a roof to be unrestricted under this Regulation. See sections 7.1 to 7.3 of this Certificate.

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

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

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

Additional Information

NHBC Standards 2022

In the opinion of the BBA, FibreTite Roofing Membranes, 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 products in the refurbishment of existing roofs.

CE marking

The Certificate holder has taken the responsibility of CE marking the products, in accordance with harmonised European Standard EN 13956 : 2012.

Technical Specification

1 Description

1.1 FiberTite Roofing Membranes are polyester-reinforced roofing membranes coated with ketone-ethylene-ester (KEE) alloy and comprise FiberTite, FiberTite -SM, FiberTite -FB, Style 80 and FibreTite XT. All products are suitable for loose-laid and ballasted, and fully adhered applications, and FiberTite, FiberTite -SM, FibreTite XT and Style 80 may also be used mechanically fastened. Fleece-backed versions are also available.

1.2 The product is manufactured to the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	FiberTite	FiberTite -SM	FiberTite -FB	FiberTite XT	Style 80
Thickness (mm)	0.9	1.2	1.1	1.27	1.39
Mass per unit area ($kg \cdot m^{-2}$)	1.2	1.3	1.5	1.42	1.79
Width (m)(1)	0.71, 0.94, 1.42, 1.88	0.71, 0.94, 1.42, 1.88	1.37, 1.83	0.71, 0.94, 1.42, 1.88	0.94,1.83,1.88
Length (m)(1)	≥30.5	≥30.5	≥30.5	≥30.5	≥24.3
Tensile strength (N per 50 mm)	≥2100	≥2100	≥2100	≥3000	≥2100
Elongation (%)	≥15	≥15	≥50	≥15	≥15
Tear strength (N)	≥110	≥110	≥110	≥110	≥110
Low temperature flexibility (°C)	≤-20	≤-20	≤-20	≤-20	≤-20
Watertightness	Pass	Pass	Pass	Pass	Pass

(1) Other lengths and widths are available by special order.

1.3 Ancillary items necessary for installation of the products, and included in this assessment, are:

- FTR-190e — a solvent-based adhesive, applied to membrane and substrate, for use in detail work for non-fleece backed membranes
- FTR-290 — a solvent-based adhesive, applied to the substrate, for use with fleece-backed membranes in fully adhered applications
- FTR-390 — a non-solvent, asphalt and butyl water-borne adhesive for use with fleece-backed membranes in fully adhered applications
- FTR-490 — a water-based, polymeric adhesive, applied to the substrate, for use with fleece-backed membranes in fully adhered applications
- FTR-SP60 — 60 mm diameter, barbed stress plates for use in mechanically fastened applications.

1.4 Other items or components which may be used with the membranes, but which are outside the scope of this Certificate, are:

- FTR-Clad — Fiberclad coated metal for use in perimeter and edge detailing applications
- FTR-Detail — unreinforced FiberTite membrane for use in welded detailing applications
- FTR-Boot — a universal internal and external prefabricated pipe boot of diameter 20 to 150 mm
- FTR-Corner — a universal prefabricated corner
- FTR-Walkway/FTR-Protection Pads — a walkway protection roll and individual protection pads.

2 Manufacture

2.1 FiberTite Roofing Membranes are manufactured by coating specially primed polyester reinforced fabrics with a KEE alloy. For the fleece-backed product, a non-woven polyester fleece is heat bonded to the underside of the membrane.

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 products are delivered to site in rolls with cardboard cores. The rolls are wrapped in a polythene sleeve bearing the product name, thickness, manufacturer's name and the BBA logo incorporating the number of this Certificate.

3.2 Rolls should be stored on their side, on a clean, level surface and under cover.

3.3 The Certificate holder has taken the responsibility of classifying and labelling the products 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 FiberTite Roofing Membranes.

Design Considerations

4 General

4.1 FiberTite Roofing Membranes are satisfactory for use as:

- fully adhered waterproofing layers, mechanically fastened at perimeters and upstands, on flat and pitched roofs with limited access
- mechanically fastened waterproofing layers on flat roofs with limited access
- loose-laid and ballasted coverings on flat roofs with limited access (eg inverted roofs, roof gardens and green roofs), mechanically fastened at perimeters and upstands and ballasted with gravel or any other material such as paving slabs on paving supports approved by the manufacturer.

4.2 Decks to which the products are to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards* 2021, Chapter 7.1.

4.3 The structural decks to which the products are to be applied must be suitable to transmit the dead and imposed loads experienced in service. Allowance needs to be made for loading deflections to ensure that the free drainage of water is maintained.

4.4 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 wildflower species.

4.5 Limited access roofs are defined for the purpose of this Certificate as those subjected only to pedestrian traffic for the maintenance of the roof covering and cleaning of gutters etc. Where traffic in excess of this is anticipated, special precautions, such as additional protection to the membrane, must be taken.

4.6 Flat roofs are defined for the purpose of this Certificate 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.

(1) *NHBC Standards* 2021 require a minimum fall of 1:60 for green roofs and roof gardens.

4.7 Pitched roofs are defined for the purpose of this Certificate as those having falls greater than 1:6.

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

4.9 Recommendations for the design of green roofs and roof gardens 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 system for inverted and green roofs 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 layers
- additional guidance for inverted roof specifications is given in BBA Information Bulletin No *4 Inverted roofs – Drainage and U value corrections*.

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

- as described in the relevant clauses of BS 6229 : 2018, or
- the subject of a current BBA Certificate and be used in accordance with, and within the limitations of, that Certificate.

4.12 Contact with bituminous, coal tar and oil-based products must be avoided as the membranes are not compatible with lower grades of bitumen. If contact with such products is likely, a separating layer should be interposed before installing the waterproof sheet. Where necessary, the advice of the Certificate holder should be sought.

4.13 The NHBC requires that the waterproofing membranes, once installed, are inspected in accordance with *NHBC Standards* 2021, 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 products must only be carried out by installers trained and approved by the Certificate holder.

6 Weathertightness

The products, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture to the inside of a building and so satisfy the requirements of the national Building Regulations.

7 Properties in relation to fire

7.1 When tested in the flat position to DD CEN/TS 1187 : 2012, Test 4 and classified to BS EN 13501-5 : 2016, the systems below achieved B_{ROOF}(t4) and so are unrestricted for roof pitches up to and including 10° with respect to proximity to a boundary by the documents supporting the national Building Regulations.

- a trapezoidal steel deck, a layer of a 0.5mm thick self-adhesive bitumen-based air and vapour control layer (AVCL) with an aluminium core, a mechanically fastened 100 mm polyisocyanurate insulation board with aluminium facings and a mechanically fastened layer of 1.4mm style 80 membrane(1).
- a trapezoidal steel deck, a layer of a 0.5mm thick self-adhesive bitumen based AVCL with an aluminium core, a mechanically fastened 100 mm polyisocyanurate insulation board with glass mineral facings, a layer of FTR 490 water based adhesive and a layer of 2.0 mm style 80 fleece backed membrane(2).

(1) Test and classification reports, reference 21003A and 21003B respectively, issued by Warrington Fire. Copies are available from the Certificate holder on request.
(2) Test and classification reports, reference 21003C and 21003D respectively, issued by Warrington Fire. Copies are available from the Certificate holder on request.

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

- protected with an inorganic covering listed in the Annex of Commission Decision 2000/553/EC,
- a roof garden covered with a drainage layer of gravel 100 mm thick and a soil layer 300 mm thick
- irrigated green roofs and roof gardens.

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

7.4 In England and Wales, the products, when used in pitches of greater that 70°, excluding upstands, should not be used on buildings that have a storey more than 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.

7.5 In Scotland, the products, 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.

8 Resistance to wind uplift

8.1 On substrates with high cohesive strength the adhesion of the products is sufficient to resist the effect of wind suction, thermal suction or minor structural movements occurring in practice. However, in areas of high wind exposure, consideration should be given to the use of additional fixings.

8.2 Where the products are fully 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 should be taken into account when selecting insulation material.

8.3 In mechanically fastened systems, the number of fixings and their position will depend on:

- wind uplift forces to be resisted
- pull-out strength of fasteners
- elastic limit of the membrane
- appropriate safety factors.

8.4 The number of fixings should be established by reference to the wind uplift forces calculated by a suitably experienced and competent individual in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. On this basis, the number of fixings required should be established using a maximum permissible load of 0.6 kN per fixing.

8.5 The ballast requirements for loose-laid and ballasted and inverted roof systems must be calculated by a suitably experienced and competent individual in accordance with the relevant parts of BS EN 1991-1-4 : 2005 and its UK National Annex. When using gravel ballast, the system must always be loaded with a minimum depth of 50 mm of aggregate. In areas of high-wind exposure, the use of concrete slabs placed on suitable paving slabs should be considered. Advice on additional protection is available from the Certificate holder.

8.6 When used, soil and ballast must not be of a type that will be removed or become delocalised by wind scour experienced on site.

8.7 It should be recognised that the type of plants used in a roof garden could significantly affect the expected wind loads likely to be experienced in service.

9 Resistance to mechanical damage

9.1 The products can withstand, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance. Where traffic in excess of this is envisaged, the use of FTR-Walkway/FTR-Protection Pads

should be considered, and the advice of the Certificate holder should be sought. Reasonable care should be taken to avoid puncture by sharp objects or concentrated loads.

9.2 A green roof or roof garden may be regarded as suitable protection for the underlying membrane.

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

10 Resistance to penetration by roots

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

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

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

12 Durability

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

Installation

13 General

13.1 Installation of FiberTite Roofing Membranes must be carried out by trained and approved installers working in accordance with, BS 6229 : 2018, BS 8000-0 : 2014, BS 8000-4 : 1989, the Single Ply Roofing Association (SPRA) *Single Ply – Design Guide*, the Certificate holder's instructions, and this Certificate.

13.2 Conditions on site should be those for normal roof waterproofing work. Deck surfaces must be dry, clean and free from sharp projections such as nail heads and concrete nibs.

13.3 When the products are to be laid on a rough deck, a loose-laid, non-woven geotextile fleece (minimum 200 $g \cdot m^{-2}$) should be laid first.

13.4 Installation should not be carried out during wet weather (eg rain, fog or snow), nor when the temperature is below 0°C. Special precautions in accordance with the Certificate holder's instructions should be taken if the fully adhered system is to be installed at temperatures below 5°C, due to the risk of condensation contaminating the bonding adhesive.

13.5 The membranes must be mechanically fastened around perimeters of the roof at 150 mm maximum centres or secured by similar or better means.

13.6 The membranes must be unrolled into position and allowed to adapt prior to fixing and/or lap jointing. Care must be taken to avoid ripples or folds in the sheets.

13.7 Membranes may be prefabricated prior to application to reduce the amount of on-site lap jointing.

14 Procedure

Loose-laid and ballasted applications

14.1 The membrane is unrolled onto the substrate and loose-laid with 125 mm side laps welded using hot-air welding as described in section 15.

14.2 The ends of the rolls should be staggered to prevent adjacent laps coinciding.

14.3 The products should be covered by at least a 50 mm depth of 20 to 40 mm grade well-rounded gravel. If crushed stone ballast is used, a protective mat of non-woven polyester fleece should be laid between the membrane and the aggregate. In areas of high wind exposure, paving slabs may be considered for use for a distance of one metre from the perimeter to prevent damage to the products from wind uplift.

14.4 An alternative method of ballasting is by use of concrete paving, maximum size 600 by 600 mm by 50 mm thick. A non-woven polyester fleece (minimum 200 $g \cdot m^{-2}$) must be laid between the membrane and the supports.

14.5 When using a loose-laid application, normal account should be taken in the design of the deck of the extra dead load resulting from the weight of the aggregate.

14.6 When the products are to be laid directly onto a concrete deck, a separating layer of 12 mm thick wood fibreboard or a non-woven polyester fleece (minimum 200 $g \cdot m^{-2}$) must first be laid on the deck. This is not required if a minimum thickness of 19 mm of insulation is laid immediately under the membrane. When used as the waterproofing layer in a roof designed to the inverted roof concept, a separating layer of non-woven polyester fleece must be laid between the concrete deck and the membrane.

14.7 For roof garden applications, the Certificate holder's instructions should be strictly followed.

Fully adhered applications

14.8 All insulation boards must be attached to the structural deck in accordance with the board manufacturer's instructions. 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.

14.9 When used as a fully bonded system, the resistance to wind uplift will be limited by the cohesive strength of the insulation and the method of attachment. These factors should be taken into account when selecting the insulation material. Faced polyurethane should be mechanically fastened to prevent bowing.

14.10 The fully bonded application may not be used directly onto insulation materials that will be adversely affected by the solvent in the adhesive (eg polystyrene). The width of the membrane should not exceed 6.1 m for this type of application.

14.11 When used over expansion joints, bridging strips unbounded for a minimum of 250 mm should be installed over all joints.

14.12 When installing the non-fleece-backed membranes, FTR-190e adhesive should be applied to both the substrate and the products by means of a roller or spray at an approximate application rate of 0.5 litres per square metre (the exact rate is dependent on the porosity of the substrate) on both surfaces. When the adhesive has become tacky, the membrane should be applied to the substrate and rolled to ensure a full bond and that air has not been trapped beneath the membrane.

14.13 When installing the fleece-backed membrane, FTR-290, FTR-390 or FTR-490 is applied to the substrate by roller or spray at an approximate rate of 0.5 litres per square metre (the exact rate is dependent on the porosity of the substrate). The membrane should be applied to the substrate whilst the adhesive is still wet and rolled to ensure a full bond and that air has not been trapped beneath the membrane.

14.14 Surplus adhesive must be removed from the joint areas prior to welding. Lap welding should be completed as described in section 15.

Mechanically fastened applications

14.15 The membrane should be unrolled over the substrate, taking care to avoid any folds or ripples. Edge overlaps to adjacent sheets must be a minimum of 125 mm. End laps for the membrane should also be a minimum of 125 mm.

14.16 The position of the fixings, and the number required, will depend upon the type used, the type of deck and the wind uplift forces to be resisted.

14.17 The first sheet is fastened to the substrate with the fastening plates positioned 10 mm from the sheet edge. The adjacent sheet should be laid over the first sheet and the lap jointed by welding along the final 40 mm, as described in section 15.

14.18 Perimeter fixings at sheet edges should be waterproofed using 150 mm wide strips of the membrane welded to the membrane, as described in section 15.1.

14.19 A range of prefabricated accessories is available from the Certificate holder. Advice on the selection of accessories should be sought from the Certificate holder.

15 Details

Hot air welding

15.1 Welding may be achieved by automatic or hand-operated hot air welding machines in accordance with the manufacturer's instructions. Care must be taken to avoid wrinkles, ripples or folds.

15.2 Lap joint areas on both sheets must be cleaned to a minimum width of 50 mm and dried.

15.3 The weld joint must be a minimum width of 38 mm. When using a hand-held welding machine, the seam must be rolled immediately using a silicone rubber or steel seam roller, to ensure an even bond.

15.4 On completion of the weld, the seam should be tested by running a metal probe down the junction to check for continuity.

Flashing

15.5 All flashings should be fully adhered using FTR-190e in accordance with the Certificate holder's instructions.

15.6 Corner details should be completed with FTR-Corners.

15.7 For specific flashing requirements, the advice of the Certificate holder should be sought.

16 Repair

Any damage can be repaired by cleaning the affected area and applying a patch of the products in accordance with section 15.

Technical Investigations

17 Tests

17.1 An assessment was made of data to EN 13956 : 2012 in relation to:

- thickness
- width
- mass per unit area
- tensile strength and elongation

- dimensional stability
- resistance to impact
- resistance to static loading
- watertightness
- tear resistance
- joint peel resistance
- joint shear resistance
- low temperature foldability.

17.2 Resistance to UV ageing and heat ageing tests were conducted in order to assess durability.

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 Existing data on the fire performance of the products and resistance to root penetration were assessed.

18.3 An assessment of the durability of the products was made based on results of tests conducted on unaged and naturally aged material taken from a 10 year old existing site in the USA.

Bibliography

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

BS 6399-2 : 1997 *Loading for buildings — Code of practice for wind loads*

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 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 + A1 : 2015 to BS EN 1991-1-3 : 2003 + A1 : 2015 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Snow loads*
BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 : Actions on structures — General actions — Wind actions*
NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Wind actions*

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

EN 13956 : 2012 *Flexible sheets for waterproofing — Plastic and rubber sheets 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.