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Agrément Certificate
14/5118
Product Sheet 3 Issue 4

DANOSA SINGLE-PLY ROOF WATERPROOFING MEMBRANES

DANOPOL HSF AND DANOPOL+ HSF PVC MEMBRANES

This Agrément Certificate Product Sheet(1) relates to DANOPOL HSF and DANOPOL+ HSF PVC Membranes, a range of reinforced polyvinyl chloride (PVC) membranes, for use in loose-laid and ballasted systems, in fully adhered flat and pitched roofs with limited access, roof gardens on flat roofs and green and brown systems on flat and pitched roofs.

(1) Hereinafter referred to as 'Certificate'.

The assessment includes

Product factors:

- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

Process factors:

- compliance with Scheme requirements
- installation, delivery, handling and storage
- production and quality controls
- maintenance and repair

Ongoing contractual Scheme elements†:

- regular assessment of production
- formal 3-yearly review

KEY FACTORS ASSESSED

Section 1. Mechanical resistance and stability
Section 2. Safety in case of fire
Section 3. Hygiene, health and the environment
Section 4. Safety and accessibility in use
Section 5. Protection against noise
Section 6. Energy economy and heat retention
Section 7. Sustainable use of natural resources
Section 8. Durability

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 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 Fourth issue: 16 July 2025
Originally certified on 03 March 2018
Certificate amended on 5 March 2026 to update company name.

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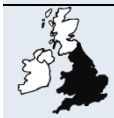
SUMMARY OF ASSESSMENT AND COMPLIANCE

This section provides a summary of the assessment conclusions; readers should refer to the later sections of this Certificate for information about the assessments carried out.

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that DANOPOL HSF and DANOPOL+ HSF PVC 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 Building Regulations 2010 (England and Wales) (as amended)

Requirement:	**B4(1)**	**External fire spread**
Comment:		The products are restricted by this Requirement in some circumstances. See section 2 of this Certificate.
Requirement:	**B4(2)**	**External fire spread**
Comment:		The products are restricted by this Requirement in some circumstances. See section 2 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The products, including joints, will enable a roof to satisfy this Requirement. See section 3 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Fitness and durability of materials and workmanship**
Comment:		The use of the products satisfies the requirements of this Regulation. See sections 8 and 9 of this Certificate.
Regulation:	9	**Building standards - construction**
Standard:	2.8	Spread from neighbouring buildings
Comment:		The products may be restricted by this Standard with reference to clause 2.8.1(1)(2). See section 2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The products, including joints, will enable a roof to satisfy this Standard with reference to clauses 3.10.1(1)(2) and 3.10.7(1)(2). See section 3 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The products can contribute to satisfying 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 - conversion**
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(1)(a)(i) (iii)(b)(i)**	**Fitness of material workmanship**
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The products, including joints, will enable a roof to satisfy this Regulation. See section 3 of this Certificate.
Regulation:	**36(a)**	**External fire spread**
Comment:		The products are restricted by this Regulation in some circumstances. See section 2 of this Certificate.
Regulation:	**36(b)**	**External fire spread**
Comment:		The products are restricted by this Regulation. See section 2 of this Certificate.

Additional Information

NHBC Standards 2025

In the opinion of the BBA, DANOPOL HSF and DANOPOL+ HSF PVC 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.*

In addition, in the opinion of the BBA, the products, when installed and used in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards for Conversions and Renovations*, taking account of other relevant guidance within the Chapter and the suitability of the substrate to receive the products.

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

The opinion of the BBA does not amount to any endorsement or approval by NHBC and does not in any way guarantee that NHBC will approve such product / system as compliant with the NHBC Technical Requirements and Standards.

Fulfilment of Requirements

The BBA has judged DANOPOL HSF and DANOPOL+ HSF PVC Membranes to be satisfactory for use as described in this Certificate. The products have been assessed for use loose-laid and ballasted systems in fully adhered flat and pitched roofs with limited access, roof gardens on flat roofs and or green and brown systems on flat and pitched roofs.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the products under assessment. DANOPOL HSF and DANOPOL+ HSF PVC Membranes(1) are a range of polyester net reinforced PVC membranes, backed with a 300 $g \cdot m^{-2}$ polyester fleece.

(1) DANOPOL FV is Light grey or White and the DANOPOL+ FV is Dark grey.

The products have the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Products	
	DANOPOL HSF 1.5 DANOPOL+ HSF 1.5	DANOPOL HSF 1.8 DANOPOL+ HSF 1.8
Thickness (mm)	1.5	1.8
Width (m)	1.80	1.80
Length (m)	15	13
Mass per unit area ($kg \cdot m^{-2}$)	2.2	2.6

Ancillary Items

Fleecebond Adhesive, a high-grab moisture-curing polyurethane adhesive for bonding the membranes to the substrate is essential to use with the products and has been assessed with the products.

The Certificate holder recommends the following ancillary items for use with the products, but these materials have not been assessed by the BBA and are outside the scope of this Certificate:

- DANOPOL Colaminated Metal — metal coated with Danopol/Danopol+ compound for use in forming details
- DANOPOL H — non-reinforced PVC membrane for use in detailing
- Embossed Surfacing Membrane — a low-profile embossed PVC membrane for use in demarcation of maintenance walkways, plant zones and working areas
- DANOPOL/DANOPOL+ HS 1.5 Coverstrip — a polyester reinforced PVC membrane strip for use in sealing over end butt joints
- 150G Fleece — a needle-punched and calendered polypropylene fleece for use as a separation layer
- PVC Primer — a polyurethane primer for preparing the surface of existing PVC membranes prior to the application of a polyurethane adhesive
- PVC Contact Adhesive — adhesive for bonding the PVC membrane to substrates
- DANOBOND Adhesive — a solvent free adhesive
- pre-formed accessories — a range of corners and pipe collars
- Alpha Profile — a PVC extruded profile for use as a decorative standing seam
- PVC Lightning Clip — a lighting conductor clip to hold a lightning conductor strip, incorporating a PVC membrane flange to allow welding to the waterproofing membrane
- DANODREN JARDIN — a composite board comprising a high-density polyethylene (HDPE), dimple-profiled sheet and non-woven geotextile for use as a drainage layer in roof gardens and green roofs
- DANODREN R-20 — a HDPE, dimple-profiled sheet for use as a water retaining layer in roof gardens and green roofs
- DANOLOSA — a paving slab incorporating an extruded polystyrene insulation
- air and vapour control layer (AVCL)
- stone wool insulation
- polyisocyanurate (PIR) insulation

Definitions for products and applications inspected

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

- limited access roof — a roof subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc
- flat roof — a roof having a minimum finished fall of 1:80(1)
- pitched roof — a roof having a fall in excess of 1:6
- 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
- brown roof- a roof with a growing medium selected to allow indigenous plant species to inhabit the roof over time; no deliberate planting is undertaken
- invasive plant species — vegetation species having vigorous and/or invasive root systems likely to cause damage to components of the inverted roof insulation system and roof waterproofing.

(1) *NHBC Standards* 2025 require a minimum fall of 1:60 for green roofs and roof gardens.

Product assessment – key factors

The products were assessed for the following key factors, and the outcome of the assessments is shown below. Conclusions relating to the Building Regulations apply to the whole of the UK unless otherwise stated.

1 Mechanical resistance and stability

Not applicable.

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 External fire spread

2.1.1 When tested to CEN/TS 1187 : 2012, Test 4 and classified to BS EN 13501-5 : 2016 the constructions given in Table 2 of this Certificate achieved C_{ROOF}(t4) for slopes ≤ 10°and the constructions given in Table 3 of this Certificate achieved B_{ROOF}(t4) for slopes ≤ 10°.

Table 2 External fire spread tests

Layer	Construction 1[1][2]	Construction 2[1]
Substrate[3]	18 mm thick OSB	18 mm thick OSB
Adhesive	Fleecebond Adhesive applied at 0.2 l·m^{-2}	Fleecebond Adhesive applied at 0.2 l·m^{-2}
Waterproofing	1.5 mm Danopol HSF – adhered	1.8 mm Danopol HSF – adhered

(1) Indicative fire test report, classification report and extended application report references 21544A-rev.1 , 21544D- rev 1 and 21544C- rev 1 respectively, conducted by Exova Warringtonfire. Copies are available from the Certificate holder on request.
(2) Fire test report reference 21544B-rev.1, conducted by Exova Warringtonfire. Copies are available from the Certificate holder on request.
(3) These components are outside the scope of this Certificate.

Table 3 External fire spread tests

Layer	System 3[1][2]	System 4[1]
Substrate[3]	18 mm thick OSB	18 mm thick OSB
Primer[3]	A solvent-based, elastomer modified bitumen primer, applied at 0.12 l·m^{-2}	A solvent-based, elastomer modified bitumen primer, applied at 0.12 l·m^{-2}
AVCL[3]	A 0.5 mm thick, bituminous self-adhesive membrane with aluminium facing or A torch applied, 3 mm thick, atactic polypropylene (APP) modified bitumen membrane with non -woven polyester fleece reinforcement and a mineral finish on upper face	A 0.5 mm thick, bituminous self-adhesive membrane with aluminium facing or A torch applied, 3 mm thick, APP modified bitumen membrane with non -woven polyester fleece reinforcement and a mineral finish on upper face
Adhesive[3]	A moisture curing, high foaming polyurethane applied at 0.1 - 0.2 l·m^{-2}	A moisture curing, high foaming polyurethane applied at 0.1 - 0.2 l·m^{-2}
Insulation[3]	PIR insulation board with a glass tissue facing and backing single layer 25 to 100 mm thickness double layer 125 to 200 mm thickness	PIR insulation board with a glass tissue facing and backing single layer 25 to 100 mm thickness double layer 125 to 200 mm thickness
Adhesive	Fleecebond adhesive applied at 0.2 l·m^{-2}	Fleecebond adhesive applied at 0.2 l·m^{-2}
Waterproofing	1.5 mm Danopol HSF	1.8 mm Danopol HSF

(1) Indicative fire test report, classification report and extended application report references 21544E-rev.1 , 21544H- rev 1 and 21544G- rev 1 respectively, conducted by Exova Warringtonfire. Copies are available from the Certificate holder on request.
(2) Fire test report reference 21544F-rev.1, conducted by Exova Warringtonfire. Copies are available from the Certificate holder on request.
(3) These components are outside the scope of this Certificate.

2.1.2 On the basis of data assessed, the constructions listed in Table 2 will be restricted with respect to the proximity to a relevant boundary by the documents supporting the national Building Regulations. The distance to a relevant boundary must be at least 6 m. Restrictions apply at junctions with compartment walls.

2.1.3 The constructions described in Table 3 will be unrestricted by the documents supporting the national Building Regulations with respect to proximity to a relevant boundary. Restrictions may apply at junctions with compartment walls.

2.1.4 A roof incorporating the product will also be unrestricted with respect to proximity to a relevant boundary under the national Building Regulations when used in the following circumstances:

- protected or inverted roof specifications, including inorganic covering (eg gravel or paving slabs) 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 roof gardens, brown roofs and green roofs.

2.1.5 The classification and permissible areas of use of other specifications must be confirmed by reference to the requirements of the documents supporting the national Building Regulations.

2.1.6 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. Further guidance is available in the Department for Communities and Local Government publications, *Fire Performance of Green Roof and Walls*.

2.2 Reaction to fire

2.2.1 The Certificate holder has declared a reaction to fire classification of Class E to UNE EN 13501-1 : 2019 for the products

2.2.2 On the basis of data assessed, the products will be restricted in use under the documents supporting the national Building Regulations in some cases.

2.2.3 In England, the products, when used in pitches greater than 70°, excluding upstands, must not be used less than 1 m from a relevant boundary, or on residential buildings more than 11 m in height or on other buildings more than 18 m in height. Restrictions apply on assembly and recreation buildings. These constructions must also be included in calculations of unprotected area.

2.2.4 In Wales and Northern Ireland, the products, when used in pitches greater than 70°, excluding upstands, must not be used less than 1 m from a relevant boundary, or on other buildings more than 18 m in height. Restrictions apply on assembly and recreation buildings. These constructions must also be included in calculations of unprotected area.

2.2.5 In Scotland, the use of the products is unrestricted with respect to building height and proximity to a relevant boundary. However, restrictions on the overall construction may apply, depending on the reaction to fire classification achieved by the build-up, which must be established on a case-by-case basis.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Weathertightness

3.1.1 The result of a weathertightness test is given in Table 4.

Table 4 Weathertightness

Product assessed	Assessment method	Requirement	Result
DANOPOL HSF 1.5	Peel from support to MOAT 65 : 4.3.3 : 2001	≥ 25 N·(50 mm)$^{-1}$	Pass

3.1.2 Water vapour transmission rate and watertightness were assessed on the basis of testing of a representative related product.

3.1.3 On the basis of data assessed, the products, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture into the interior of a building and will enable a roof to comply with the requirements of the national Building Regulations.

3.1.4 The adhesion of bonded systems is sufficient to resist the effects of wind suction, thermal cycling or other minor structural movement likely to occur in service.

3.1.5 The resistance to wind uplift of the products, when they are adhered to insulation boards, will be dependent on the cohesive strength of the insulation and the method by which they are secured to the roof deck. This must be considered when the insulation material is selected.

3.2 Resistance to mechanical damage

3.2.1 Tensile strength, elongation, resistance to tearing, resistance to impact, static indentation and low temperature foldability of the products were assessed on the basis of testing of a representative related product.

3.2.2 On the basis of data assessed, the products can accept, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance. Reasonable care must be taken to avoid puncture by sharp objects or concentrated loads.

3.2.3 Where regular traffic is envisaged, such as for maintenance of lift equipment, a walkway must be provided eg using concrete slabs supported on bearing pads or a protective walkway with a textured finish. The advice of the Certificate holder must be sought on the most appropriate method to be used with the amount of traffic involved, but such advice is outside the scope of this Certificate.

3.2.4 Systems incorporating the products are capable of accepting minor structural movement while remaining weathertight.

3.3 Resistance to root penetration

3.3.1 Resistance to root penetration of the products were assessed on the basis of testing of a representative related product.

3.3.1 On the basis of data assessed, the products will adequately resist penetration by plant roots and can be used as a waterproofing system in green roof, brown roof and roof garden specifications.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Not applicable.

7 Sustainable use of natural resources

The products contain PVC and glass, which can be recycled.

8 Durability

8.1 The potential mechanisms for degradation and the known performance characteristics of the materials in the products were assessed.

8.2 Specific test data were assessed as given in Table 5.

Table 5 Durability

Product assessed	Assessment method	Requirement	Result
DANOPOL HSF 1.5	Peel from support to MOAT 65 : 4.3.3 : 2001 Heat aged for 28 days at 80°C	≥ 25 N·(50 mm)$^{-1}$ and ≤ 50% of initial value	Pass

8.3 The peel strength of joints and joint shear resistance after long-term heat exposure; low temperature flexibility after long-term heat and UV exposure; and dimensional stability were assessed on the basis of testing of a representative related product.

8.4 Extended durability was assessed using test data for a representative related product taken from an existing site and subjected to additional heat and UV ageing.

8.5 Service life

8.5.1 Under normal service conditions, the products will have a life in excess of 35 years, provided they are designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

8.5.2 In environments where the products are in contact with organic solvents, the life expectancy of the products may be reduced. In cases of doubt, the advice of the Certificate holder must be sought, but such advice is outside the scope of this Certificate.

PROCESS ASSESSMENT

Information provided by the Certificate holder was assessed for the following factors:

9 Design, installation, workmanship and maintenance

9.1 Design

9.1.1 The design process was assessed by the BBA, and the following requirements apply in order to satisfy the performance assessed in this Certificate.

9.1.2 For design purposes of flat roofs, twice the minimum finished fall must be assumed, unless a detailed structural analysis of the roof is available, including overall and local deflection or direction of falls, etc.

9.1.3 Decks to which the products are to be applied must comply with the relevant requirements of BS 6229 : 2018, BS 8217 : 2005 and, where appropriate, *NHBC Standards* 2025, Chapter 7.1.

9.1.4 For loose-laid and ballasted, green roofs, brown roofs and roof gardens, structural decks to which the products are to be applied must be suitable to transmit the dead and imposed loads experienced in service. Allowance must be made for loading deflections to ensure that the free drainage of water is maintained.

9.1.5 The ballast requirements for loose-laid 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. The membranes must always be ballasted with a minimum depth of 50 mm of aggregate. In areas of high-wind exposure, the advice of the Certificate holder must be sought, but such advice is outside the scope of this Certificate. Alternatively, concrete slabs on suitable supports can be used.

9.1.6 Imposed loads, dead loading and wind load specifications must be 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.

9.1.7 Any ballast used in roofing specifications and growing medium used in green roofs, brown roofs and roof gardens must not be of a type that will be removed or become delocalised due to wind scour experienced on the roof.

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

9.1.9 For green roofs, brown roofs and roof gardens, invasive non-native alien plant species as defined by UK Government guidance must not be used.

9.1.10 For green roof, brown roofs and roof garden finishes, to protect the roof waterproofing, invasive plant species must not be used. In particular, the following species must be excluded:

- invasive weeds including buddleia
- plants and grasses with aggressive rhizomes such as bamboo
- self-setting woody weeds such as sycamore and ash seedlings must be removed at early germination stage
- other woody plants which spread aggressively including rhododendron.

9.1.11 The Green Roof Organisation (GRO) can provide guidance on species not included in section 9.1.10 but such advice is outside the scope of this Certificate.

9.1.12 The drainage system for green roofs, brown roofs or roof gardens must be correctly designed, and the following points must be addressed:

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

9.1.13 The products can be adversely affected by contact with bituminous or coal tar products or polystyrene insulation boards. In these cases, a suitable separating layer must be used. Where doubt arises, the advice of the Certificate holder must be sought, but such advice is outside the scope of this Certificate.

9.1.14 Insulation materials to be used in conjunction with the products must be in accordance with the Certificate holder's instructions and 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 scope of, that Certificate.

9.2 Installation

9.2.1 Installation instructions provided by the Certificate holder were assessed and judged to be appropriate and adequate.

9.2.2 Installation of the systems must be carried out in accordance with the relevant clauses of the Certificate holder's instructions, BS 8000-0 : 2014, BS 8000-4 : 1989, BS 6229:2018 and this Certificate.

9.2.3 Surfaces must be clean, dry, and free from sharp projections such as nail heads, concrete nibs. In all cases, an AVCL must be used directly over the deck.

9.2.4 The membranes must be applied over tissue-faced insulation materials and fixed to the sub-structure in such a way as not to impair the performance of the waterproofing.

9.2.5 The products must be laid in conditions normal to roofing work. To prevent the entrapment of moisture under the products, they must not be laid in wet or damp weather conditions, or at temperatures below 5°C.

9.2.6 Soil or other bulk material must not be stored on one area of the roof prior to the installation, to ensure localised overloading does not occur.

9.2.7 All flashings must be formed in accordance with the Certificate holder's instructions.

9.2.8 Thermal insulation must be dimensionally stable and be capable of supporting the imposed loads during the installation and service without undue deflection.

9.2.10 The membranes are laid flat onto the substrate without folds or ripples, with 50 mm minimum side laps and butted at the end of the roll.

9.2.11 For adhered installations, the membranes are folded or rolled back to its centre and Fleecebond Adhesive applied to the substrate in accordance with the Certificate holder's instructions, ensuring that no adhesive is applied to the weld area of the membrane. The membranes are rolled out into the wet adhesive. The process is repeated for the other end of the membranes. The membranes are fully adhered at the perimeter of the roof in accordance with the Certificate holder's instructions.

9.2.12 For ballasted applications, prior to the application of the ballast, a protection layer consisting of at least 0.2 mm thick polyethylene must be laid. The Certificate holder must be consulted for advice on suitable specifications, but such advice and products are outside the scope of this Certificate.

9.2.13 When installed loose laid and ballasted, the membranes must be unrolled over the substrate without folds.

9.2.14 The membranes must be covered by at least a 50 mm depth of well-rounded gravel or other suitable ballast depending on the specification being installed. In areas of high wind exposure, paving slabs set on a suitable support may be considered.

9.2.15 Side laps are produced by hot-air welding in accordance with the Certificate holder's instructions. The weld must have a minimum width of 40 mm.

9.2.16 End laps are covered by a 200 mm wide strip of DANOPOL/DANOPOL+ HS 1.5 Coverstrip and welded in accordance with the Certificate holder's instructions.

9.2.17 When forming welds, overlapped membrane, either salvage side laps or butted and cover-strapped end laps, must be a minimum of 50 mm wide, and welded over the last 40 mm as described in section 9.2.16.

9.2.18 When using a loose-laid application, normal account must be taken in the design of the deck of the extra dead loading due to the weight of the aggregate and/or paving.

9.2.19 In green roof, brown roof and roof garden specifications, subsequent layers such as separation layers, drainage layers and growing medium are installed in accordance with the Certificate holder's instructions. Guidance is also available within The GRO Green Roof Code — *Green Roof Code of Best Practice for the UK.*

9.2.20 Upstands and detailing of the membrane must be in accordance with the Certificate holder's instructions.

9.2.21 The NHBC requires that the products, once installed, are inspected in accordance with *NHBC Standards* 2025, Chapter 7, Clause 7.1.11, and undergo an appropriate integrity test where required. Any damage to the products assessed in this Certificate must be repaired in accordance with section 9.4 of this Certificate and reinspected, in order to maintain product performance.

9.3 Workmanship

Practicability of installation was assessed by the BBA, on the basis of the Certificate holder's information and a site visit to witness an installation in progress. To achieve the performance described in this Certificate, installation of the products must be carried out by installers trained and approved by the Certificate holder.

9.4 Maintenance and repair

9.4.1 Ongoing satisfactory performance of the products in use requires that they are suitably maintained. The guidance provided by the Certificate holder was assessed by the BBA and found to be appropriate and adequate.

9.4.2 The following requirements apply in order to achieve the performance assessed in this Certificate:

9.4.2.1 The products must be the subject of six-monthly inspections and maintenance in accordance with BS 6229 : 2018, Chapter 7 and the Certificate holder's own maintenance recommendations, where relevant. For green roof, brown roof and roof garden systems, these six-monthly inspections must be carried out by a suitably experienced and competent individual (with horticultural knowledge) to ensure continued satisfactory performance. This must include an examination of the overall condition of the roof, ensure that drain outlets and gutters are kept clear and unblocked and, for green roofs and roof gardens, the removal of any self-propagated plants and invasive plant species found. See section 9.1.11.

9.4.2.2 Green roofs , brown roofs and roof gardens must be the subject of regular inspections, particularly in autumn after leaf fall and in spring, to ensure unwanted vegetation and other debris is cleared from the roof and drainage outlets. Guidance is available within the latest edition of *The GRO Green Roof Code of Best Practice*.

9.4.2.3 For green roofs and brown roofs, to protect the roof waterproofing and any product components above the waterproofing, such as insulation or water flow reducing layer, invasive plant species (see sections 9.1.10 and 9.1.11) must be eliminated through maintenance.

9.4.2.4 The control and removal of invasive plant species is carried out by hand. Where this is not possible, any chemicals used, such as chemical fertilisers, must be checked for compatibility with the roof waterproofing layer and any product components above the waterproofing. The Certificate holder can advise on the suitability of a particular product, but such advice is outside the scope of this Certificate.

Note: If using chemicals on a green roof or roof garden rainwater outlets may need to be disconnected from the main drainage system to prevent contamination of the local water system and/or harm to flora and fauna.

9.4.2.5 If a leak occurs in the roof waterproof membranes, it must be repaired following removal of the gravel ballast, paving ballast, green roof, brown roof or roof garden layer, water-flow-reducing layer and the insulation boards.

9.4.2.6 Where damage has occurred it must be repaired in accordance with this Certificate and the Certificate holder's instructions.

9.4.2.7 In the event of damage, repairs can be carried out by cleaning around the damaged area and hot air welding a new patch of membrane. The patch must have rounded corners and be larger than the damaged area by at least 50 mm in each direction.

10 Manufacture

10.1 The production processes for the product have been assessed, and provide assurance that the quality controls are satisfactory according to the following factors:

10.1.1 The manufacturer has provided documented information on the materials, processes, testing and control factors.

10.1.2 The quality control operated over batches of incoming materials has been assessed and deemed appropriate and adequate.

10.1.3 The quality control procedures and product testing to be undertaken have been assessed and deemed appropriate and adequate.

10.1.4 The process for management of non-conformities has been assessed and deemed appropriate and adequate.

10.1.5 An audit of each production location was undertaken, and it was confirmed that the production process was in accordance with the documented process, and that equipment has been properly tested and calibrated.

† 10.2 The BBA has undertaken to review 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.

11 Delivery and site handling

11.1 The Certificate holder stated that the product is delivered to site in rolls wrapped in polythene on pallets. Roll labels bear the Certificate holder's name and address, product identification, batch number, CE marking and the BBA logo incorporating the number of this Certificate.

11.2 Delivery and site handing must be performed in accordance with the Certificate holder's instructions and this Certificate, including:

11.2.1 Rolls must be stored horizontally on a clean, dry, level surface and under cover until required.

11.2.2 Accessories must be stored away from heat and the liquids must be kept away from naked flames.

ANNEX A – SUPPLEMENTARY INFORMATION †

Supporting information in this Annex is relevant to the products but has not formed part of the material assessed for the 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.

CLP Regulations

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

CE marking

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

Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of EN ISO 9001 : 2015 and EN ISO 14001 : 2015 by Bureau Veritas Certification (Certificates ES083321-1 and ES091096-1 respectively).

Additional information on installation

Design

A.1 Recommendations for the design of green roof specifications are available within the latest edition of The GRO Green Roof Code — *Green Roof Code of Best Practice for the UK.*

A.2 Guidance for the design and construction of blue roofs is available in the *NFRC Technical Guidance Note for the construction and design of Blue Roof – Roofs and podiums with controlled temporary water attenuation*.

A.3 Additional guidance for inverted roof specifications is given in BBA Information Bulletin No 4 *Inverted roofs – Drainage and U value corrections*

Installation

A.4 The products may be applied over foil-faced insulation materials and fixed to the sub-structure in such a way as not to impair the performance of the waterproofing. Polystyrene-based insulation products may also be used in conjunction with a suitable isolation layer to separate the insulation from the roof covering, to reduce the risk of plasticiser migration.

Bibliography

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

BS 8000-0 : 2014 *Workmanship on construction sites – Introduction and general principles*
BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*

BS 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 + A2 : 18 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/TS 1187 : 2012 *Test methods for external fire exposure to roofs*

EN 13956 : 2012 *Flexible sheet for waterproofing — Plastic and rubber sheets for roof waterproofing — Definitions and characteristics*

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

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

MOAT 65 : 4.3.3 : 2001 *UEAtc Technical Guide for the Assessment of non-Reinforced, Reinforced and/or Backed Roof Waterproofing Systems made of PVC*

UNE EN 13501-1 : 2019 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*

Conditions

1 This Certificate:

- relates only to the product 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
- and any matter arising out of or in connection with it or its subject matter (including non-contractual disputes or claims) is governed by and construed in accordance with the law of England and Wales.
- the courts of England and Wales shall have exclusive jurisdiction to settle any matter arising out of or in connection with this Certificate or its subject matter (including non-contractual disputes or claims).

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.

3 This Certificate will be displayed on the BBA website, and the Certificate Holder is entitled to use the Certificate and Certificate logo, provided that the product 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.

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

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 or any other product
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product
- actual installations of the product, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to UKCA marking and CE marking.

6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product which is contained or referred to in this Certificate is the minimum required to be met when the product is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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