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Agrément Certificate
24/7148
Product Sheet 1 Issue 1

GARLAND LIQUID-APPLIED ROOF WATERPROOFING SYSTEMS

DURA-COAT

This Agrément Certificate Product Sheet(1) relates to Dura-Coat, a polyurethane modified methacrylate system, for use as roof waterproofing on new and existing flat and pitched roofs with limited and pedestrian access and protected zero fall roofs in inverted and green roof specifications.

(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 system described herein. This system has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of issue: 13 May 2024

Hardy Giesler
Chief Executive Officer

This BBA Agrément Certificate is issued under the BBA's Inspection Body accreditation to ISO/IEC 17020. Sections marked with † are not issued under accreditation.

The BBA is a UKAS accredited Inspection Body (No. 4345), Certification Body (No. 0113) and Testing Laboratory (No. 0357).

Readers MUST check that this is the latest issue of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

The Certificate should be read in full as it may be misleading to read clauses in isolation.

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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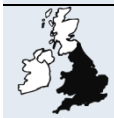
SUMMARY OF ASSESSMENT AND COMPLIANCE

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 Dura-Coat, 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 system is restricted by this Requirement in some circumstances. See section 2 of this Certificate.
Requirement:	**B4(2)**	**External fire spread**
Comment:		On a suitable substructure, the system may enable a roof to be unrestricted by this Requirement. See section 2 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The system will enable a roof to satisfy this Requirement. See section 3 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The system is 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 system satisfies this Regulation. See sections 8 and 9 of this Certificate.
Regulation:	**9**	**Building standards – construction**
Standard:	2.8	Spread from neighbouring buildings
Comment:		When applied to a suitable substructure, the system may enable a roof to be unrestricted by this Standard, with reference to clause 2.8.1[(1)(2)]. See section 2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The system 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 system 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 given for the system under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1[(1)(2)] and Schedule 6[(1)(2)]

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).

The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	**23(1)(a)(i)(ii)**	**Fitness of materials and workmanship**
Comment:	**(iii)(iv)(b)(i)**	The system is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The system will enable a roof to satisfy this Regulation. See section 3 of this Certificate.
Regulation:	**36(a)**	**External fire spread**
Comment:		The system is restricted by this Regulation in some circumstances. See section 3 of this Certificate.
Regulation:	**36(b)**	**External fire spread**
Comment:		On a suitable substructure, the system may enable a roof to be unrestricted by this Regulation. See section 2 of this Certificate.

Additional Information

NHBC Standards 2024

In the opinion of the BBA, Dura-Coat, 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 system, when installed and used in accordance with this Certificate can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standard for Conversions and Renovations*, taking account of other relevant guidance within the chapter and the suitability of the substrate to receive the system.

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

Fulfilment of Requirements

The BBA has judged Dura-Coat to be satisfactory for use as described in this Certificate. The system has been assessed for use as roof waterproofing on new and existing flat and pitched roofs with limited and pedestrian access and protected zero fall roofs in inverted and green roof specifications.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the system under assessment. Dura-Coat consists of:

- Dura-Systems Membrane — a two-component, liquid-applied, polyurethane modified methacrylate resin based waterproofing coating
- Dura-Systems Membrane Thix — a thixotropic version of Dura-Systems Membrane for use in detailing and upstands
- Dura-Systems Concrete Primer — a two-component, polymethyl methacrylate (PMMA) primer, for use on porous substrates prior to application of Dura-Systems Membrane
- Dura-Systems Metal Primer — a two-component PMMA primer, for use on non-porous substrates prior to application of Dura-Systems Membrane
- Grip Soft Polyester Fabric — a 110 $g \cdot m^{-2}$ non-woven polyester fabric, for use as an embedded reinforcement in Dura-Systems Membrane
- Dura-Systems Coloured Topcoat — a two-component, liquid-applied polyurethane modified methacrylate, for use over Dura-Systems Membrane
- Dura-Systems Clear Sealcoat — a two-component, liquid-applied, polyurethane modified methacrylate, for use over Dura-Systems Membrane
- Dura-Systems Catalyst — a 50% dibenzoyl peroxide catalyst for use with the system
- Dura-Systems Cleaner — a general cleaning agent used for cleaning tools and metal and plastic substrates and for reactivating previously applied cured system coatings when work is interrupted for periods in excess of 12 hours.

Ancillary Items

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

- proprietary specialist primers and sealants
- proprietary concrete repair products.

Applications

The system is intended for use on the following substrates:

- concrete
- steel
- PVC
- mastic asphalt
- bituminous membranes.

Definitions for products and applications inspected

- limited access roof — a roof subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc
- pedestrian access roof — a roof subjected to increased access to that defined for a limited access roof, but not open to vehicular traffic
- 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
- zero fall roof — a roof having a minimum finished fall between 0 and 1:80(1)
- green roof — a roof with a shallow layer of growing medium planted with low-maintenance plants such as mosses, sedums, grasses and some wildflower species
- 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
- root barrier – a root resistant membrane meeting the requirements of BS EN 13948 : 2007.

Product assessment – key factors

The system was assessed for the following key factors, and the outcome of the assessment 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 construction given in Table 1 achieved B_{ROOF}(t4) for slopes below 10°.

Table 1 Tested construction

Layer	System(1)
Substrate	18 mm OSB3 board(2)
Primer	Garland SA Contact Primer (2) at a coverage rate of 250 g·m^{-2}
Air and vapour control layer (AVCL)	Garland SA-105 SA Flex Vapour Barrier(2)
Adhesive	Garland Insul-lock(2) at a coverage rate of 300 g·m^{-2}
Insulation	120 mm Recticel Powerdeck F(2)
Primer	Garland SA Contact Primer (2) at a coverage rate of 250 g·m^{-2}
Carrier membrane	Garland SA-104 SA Flex Carrier Membrane(2)
Waterproofing first coating	Dura-Systems Membrane at a coverage rate of 1.2 kg·m^{-2}
Reinforcement	Grip Polyester Fabric
Waterproofing second coating	Dura-Systems Membrane at a coverage rate of 1.6 kg·m^{-2}
Waterproofing third coating	Dura-Systems Coloured Topcoat at a coverage rate of 0.5 kg·m^{-2}

(1) Fire test and classification reports, 22564K and 22564L respectively, issued by Warringtonfire. Copies of the reports are available from the Certificate holder on request.
(2) These components are outside the scope of this Certificate.

2.1.2 On the basis of data assessed, the construction listed in Table 1 will be unrestricted by the documents supporting the national Building Regulations with respect to proximity to a relevant boundary.

2.1.3 A roof incorporating the system will also be unrestricted under the national Building Regulations with respect to a relevant boundary in the following circumstances:

- when protected by an inorganic covering (eg gravel or paving slabs) listed in the Annex of Commission Decision 2000/553/EC
- irrigated green roofs.

2.1.4 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.

2.1.5 If allowed to dry, plants used may allow flame spread 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.

2.2 Reaction to fire

2.2.1 The Certificate holder has not declared a reaction to fire classification for the system to BS EN 13501-1 : 2018.

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

2.2.3 In England, the system, 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, the system, when used in pitches greater than 70°, excluding upstands, must not be used less than 1 m from a relevant boundary, or on 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 Northern Ireland, when used in pitches greater than 70°, excluding upstands, the system does not achieve the minimum Class E reaction to fire classification to BS EN 13501-1 : 2018, and designers must seek guidance on the proposed use of the system from the relevant Building Control Body.

2.2.6 In Scotland, the use of the system 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 complete system, 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 Results of weathertightness tests are given in Table 2.

Table 2 Weathertightness

Product assessed	Assessment method	Requirement	Result
Dura-Systems Membrane (embedded with Grip Soft Polyester Fabric)	Watertightness under 10 kPa pressure to EOTA TR-003 : 2004	No leakage	Pass
Dura-Coat system, with Dura-Systems Coloured Topcoat	Water vapour diffusion - equivalent air layer thickness (s_d) to BS EN 1931 : 2000 (23°C, 0% / 75% RH)	Value achieved	27 m
Dura-Systems Membrane	Water absorption to BS EN ISO 62 : 2008 (by weight, after 192 hours)	Value achieved	1.81%
Dura-Coat system, with Dura-Systems Coloured Topcoat	Delamination to EOTA TR-004 : 2004	≥ 50 kPa	
- on concrete			Pass
- on mastic asphalt			Pass
- on PVC			Pass
- on bitumen membrane			Pass
- day joint on steel			Pass

3.1.2 On the basis of data assessed, the system will adequately resist the passage of moisture to the interior of a building and so satisfy the requirements of the national Building Regulations.

3.1.3 The adhesion of the system is sufficient to resist the effects of wind suction, elevated temperature and thermal shock conditions likely to occur in practice and remain weathertight.

3.1.4 The resistance to wind uplift for warm roofs 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.

3.2 Resistance to mechanical damage

3.2.2 Results of resistance to mechanical damage tests are given in Table 3.

Table 3 Resistance to mechanical damage

Product assessed	Assessment method	Requirement	Result
Grip Soft Polyester Fabric	Tensile strength to BS EN 29073-3 : 1992	Value achieved	24 N
Grip Soft Polyester Fabric	Elongation to BS EN 29073-3 : 1992	Value achieved	30%
Dura-Coat system, with Dura-Systems Coloured Topcoat	Tensile strength to BS EN ISO 527-1 : 2012 Control Cured at 0°C	Value achieved	 565 N·(50 mm)$^{-1}$ 495 N·(50 mm)$^{-1}$
Dura-Coat system, with Dura-Systems Coloured Topcoat	Elongation to BS EN ISO 527-1 : 2012 Control Cured at 0°C		 24% 24%
Dura-Coat system, with Dura-Systems Coloured Topcoat - on steel	Dynamic indentation to EOTA TR-006 : 2004 Control, tested at 23°C Control, tested at –10°C Cured at 0°C, tested at –10°C	Value achieved	 I_4 I_4 I_4
- on carrier membrane on insulation	Control, tested at 23°C		I_4
Dura-Coat system, with Dura-Systems Coloured Topcoat - on steel	Static indentation to EOTA TR-007 : 2004 Control, tested at 23°C Control, tested at 80°C	Value achieved	 L_4 L_4
- on carrier membrane on insulation	Control, tested at 23°C		L_3
Dura-Coat system, with Dura-Systems Coloured Topcoat - on concrete	Fatigue cycling to EOTA TR-008 : 2004 Tested at 23°C, 1000 cycles	Watertight and less than 75 mm delamination from the substrate	Pass

3.2.3 On the basis of data assessed, the system can accept, without damage, the limited foot traffic and light concentrated loads associated with installation, maintenance and pedestrian traffic on defined walkways and the effects of minor structural movement while remaining weathertight.

3.2.4 Where traffic in excess of the examples given in section 3.2.2 is envisaged, such as for maintenance of lift equipment, a walkway must be provided (for example, using concrete slabs supported on bearing pads). Reasonable care must be taken to avoid puncture of the system by sharp objects or concentrated loads.

3.3 Resistance to root penetration

3.3.1 In green roofs using plants with non-invasive roots, the roof waterproofing layer will adequately resist root penetration, subject to routine maintenance being carried out in accordance with this Certificate and as recommended by the Green Roof Organisation (GRO) Code of Best Practice.

3.3.2 For green roofs in inverted roof specifications, when installed in accordance with this Certificate, the inverted roof insulation and water-flow-reducing layer (WFRL) will be adequately protected against root damage, subject to routine maintenance being carried out in accordance with this Certificate and as recommended by the Green Roof Organisation (GRO) Code of Best Practice.

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

Not applicable.

8 Durability

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

8.2 Specific test data were assessed as follows.

Table 4 Durability

Product assessed	Assessment method	Requirement	Result
Dura-Coat system, with Dura-Systems Coloured Topcoat	Delamination to EOTA TR-004 : 2004 Water soak at 60°C for 216 days	≥ 50 kPa	
- on concrete			Pass
- on mastic asphalt			Pass
- on PVC			Pass
- on bitumen membrane			Pass
- day joint on steel			Pass
Dura-Coat system, with Dura-Systems Coloured Topcoat	Tensile strength to BS EN ISO 527-1 : 2012 Heat aged at 80°C for 120 days	Value achieved	744 N·(50 mm)$^{-1}$
	Water soak at 60°C for 216 days to EOTA TR-012 : 2004		1038 N·(50 mm)$^{-1}$
	UV aged for 1200 MJ·m^{-2} at 50°C to EOTA TR-010 : 2004		472 N·(50 mm)$^{-1}$
Dura-Coat system, with Dura-Systems Coloured Topcoat	Elongation to BS EN ISO 527-1 : 2012 Heat aged at 80°C for 120 days		20%
	Water soak at 60°C for 216 days to EOTA TR-012 : 2004		17%
	UV aged for 1200 MJ·m^{-2} at 50°C to EOTA TR-010 : 2004		28%
Dura-Coat system, with Dura-Systems Coloured Topcoat	Dynamic indentation to EOTA TR-006 : 2004	Value achieved	
- on steel	Heat aged at 80°C for 120 days, tested at –10°C		I_4
			I_4

Table 4 Durability

Product assessed	Assessment method	Requirement	Result
	UV aged for 1200 $MJ \cdot m^{-2}$ at 50°C to EOTA TR-010 : 2004, tested at –10°C		
Dura-Coat system, with Dura-Systems Coloured Topcoat - on steel	Static indentation to EOTA TR-007 : 2004 Water soak at 60°C for 216 days to EOTA TR-012 : 2004, tested at 80°C	Value achieved	L_4
Dura-Coat system, with Dura-Systems Coloured Topcoat - on concrete	Fatigue cycling to EOTA TR-008 : 2004 Heat aged at 70°C for 240 days, tested at –10°C, 50 cycles	Watertight and less than 75 mm delamination from the substrate	Pass
Dura-Systems Coloured Topcoat	Colour measurement to BS 3909 : D9 : 1986 UV aged for 2000 hours (4 hours UVB-313 at 50°C / 4 hours condensation at 50°C cycles)	Satisfactory result	Pass

8.3 Service life

8.3.1 Under normal service conditions, the system will have a life of at least 30 years, provided it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

8.3.2 When fully protected and subjected to normal service conditions, the system will provide an effective barrier to the transmission of liquid water and water vapour for the life of the roof in which it is incorporated, provided it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

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 specified in this Certificate.

9.1.2 Decks to which the system is to be applied must comply with the relevant requirements of BS 6229 : 2018, BS 8217 : 2005 and, where appropriate, *NHBC Standards* 2024, Chapter 7.1.

9.1.3 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, and direction of falls.

9.1.4 Structural decks to which the system is 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 Imposed loads, dead loading and wind loads must be calculated by a suitably experienced and competent individual in accordance with the principles of BS EN 1991-1-1 : 2002, BS EN 1991-1-3 : 2003 and BS EN 1991-1-4 : 2005, and their UK National Annexes.

9.1.6 The ballast requirements for inverted roof specifications must be calculated by a suitably experienced and competent individual in accordance with the principles of BS EN 1991-1-4 : 2005 and its UK National Annex. The system must be ballasted with a minimum depth of 50 mm of aggregate. In areas of high wind exposure, the Certificate holder's advice must be sought, but this is outside the scope of this Certificate. Alternatively, concrete slabs on suitable supports can be used.

9.1.7 The growing medium used in green roofs 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.

9.1.8 For green roofs, invasive non-native alien plant species as defined by UK Government guidance must not be used.

9.1.9 For green roofs finishes, to protect the roof waterproofing and any system components above the waterproofing, such as insulation or water flow reducing layer, 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.

9.1.10 The Green Roof Organisation (GRO) can provide guidance on species not included in section 9.1.9 but such advice is outside the scope of this Certificate.

9.1.11 The drainage systems for inverted roofs, protected zero fall roofs and green roofs must be correctly designed, and the following points must be addressed:

- provision made for access for maintenance purposes
- for zero fall roofs, it is particularly important to identify the correct drainage points, to ensure that drainage is sufficient and effective in accordance with the relevant clauses of BS 6229 : 2018
- dead loads for green roofs can increase if the drains become partially or completely blocked causing waterlogging of the drainage layer.

9.1.12 Insulation materials to be used in conjunction with the system 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 limitations 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 must be carried out in accordance with the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989, this Certificate and the Certificate holder's instructions.

9.2.3 Substrates to which the system is to be applied must be properly prepared in accordance with the Certificate holder's instructions.

9.2.4 Adhesion to substrates will depend on the condition and cleanness of the substrate. Substrates must be visibly dry, sound and free from loose materials or contamination (eg moss or algae).

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

9.2.6 Deck surfaces must be free from sharp projections such as concrete nibs.

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

9.2.8 Dura-Systems Concrete primer can be applied by brush or roller and Dura-Systems Metal Primer must be applied by a short-pile roller in accordance with the Certificate holder's instructions.

9.2.9 Dura-Systems Membrane must be applied using a short-pile roller in accordance with the Certificate holder's instructions and at the application rates given in Table 6.

Table 6 System build-up and application rates

Primer	Dura-Systems Concrete or Metal Primer at 0.5 $kg \cdot m^{-2}$
Base coat	Dura-Systems Membrane at 1.2 $kg \cdot m^{-2}$
Reinforcement	Grip Soft Polyester Fabric
Second coat	Dura-Systems Membrane at 1.6 $kg \cdot m^{-2}$
Topcoat	Dura-Systems Clear Sealcoat or Coloured Topcoat at 0.5 $kg \cdot m^{-2}$

9.2.10 The Grip Soft Polyester Fabric must be rolled onto the wet base coat, using a roller and ensuring that the fabric is fully saturated. There must not be any air bubbles between the first layer and the reinforcement fabric. There must be a 50 mm overlap on the edges of the reinforcement fabric.

9.2.11 Once the base coat of Dura-Systems Membrane has cured, the second coat must be applied using a short-pile roller and left to cure.

9.2.12 Dura-Systems Clear Sealcoat or Coloured Topcoat must be applied with a short-pile roller and in accordance with the Certificate holder's instructions.

9.2.13 Detailing (eg upstands) is carried out in accordance with the Certificate holder's instructions.

9.2.14 The NHBC requires that the system, once installed, be inspected in accordance with *NHBC Standards* 2024, Chapter 7.1, Clause 7.1.11, including undergoing an appropriate integrity test, where required. Any damage to the system assessed in this Certificate must be repaired in accordance with section 9.4 of this Certificate and reinspected, in order to maintain system performance.

9.3 Workmanship

Practicability of installation was assessed by the BBA and on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, installation of the system must be carried out by specialist roofing contractors trained and approved by the Certificate holder.

9.4 Maintenance and repair

9.4.1 Ongoing satisfactory performance of the system in use requires that it is 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 satisfy the performance assessed in this Certificate.

9.4.3 The system must be the subject of six-monthly inspections and maintenance in accordance with BS 6229 : 2018, and the Certificate holder's own maintenance requirements. For green roof and drainage 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 9.1.9.

9.4.4 Green roofs 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*.

9.4.5 For green roofs, to protect the waterproofing and any system components above the waterproofing, such as insulation or water flow reducing layer, invasive plant species (see clauses 9.1.9 and 9.1.10 of this Certificate) must be eliminated through maintenance.

9.4.6 The control and removal of invasive plant species is carried out by hand. Where this is not possible, any chemicals used must be checked for compatibility with the roof waterproofing layer and any system components above the waterproofing, such as insulation or water flow reducing layer. 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, 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.

9.4.7 The chemical fertiliser used on green roofs and roof gardens must be checked for compatibility with the roof waterproofing layer and any system components above the waterproofing, such as insulation or water flow reducing layer. The Certificate holder can advise on the suitability of a particular product, but such advice is outside the scope of this Certificate.

9.4.8 If a leak occurs in the roof waterproof membrane, it must be repaired following removal of the gravel ballast, paving ballast, green roof or roof garden layer, water-flow-reducing layer and the insulation boards. Correct reinstatement of these layers must be carried out with particular care and the advice of the Certificate holder must be sought, but such advice is outside the scope of this Certificate.

9.4.9 The repair of minor damage to the system can be achieved effectively by abrading and cleaning back to the unweathered material and recoating the damaged area with the system components, in accordance with the Certificate holder's instructions.

10 Manufacture

10.1 The production processes for the system 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 system components are delivered to site in packaging bearing the component name, Certificate holder's name, batch number, health and safety information and weight of contents in kilograms.

11.2 The system components' packaging are given in Table 6.

Table 6 Packaging of the system components

Component	Packaging
Dura-Systems Membrane	25 kg pails
Dura-Systems Membrane Thix	25 kg pails
Dura-Systems Concrete Primer	10 kg pails
Dura-Systems Metal Primer	10 kg pails
Dura-Systems Coloured Topcoat	20 kg pails
Dura-Systems Clear Sealcoat	5 kg pails
Dura-Systems Catalyst	100g, 1 kg, and 25 kg plastic bags
Dura-Systems Cleaner	10 kg pails

11.2 .1 Delivery and site handing must be performed in accordance with the Certificate holder's instructions and this Certificate, including:

11.2.2 The system components must be stored in dry and frost-free conditions, out of direct sunlight, away from ignition sources, and between 15 and 20°C.

11.2.3 Containers must be kept closed when the materials are not in use.

ANNEX A – SUPPLEMENTARY INFORMATION †

Supporting information in this Annex is relevant to the system 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 system components under the *GB CLP Regulation* 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).

Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of DIN EN ISO 9001 : 2015 and DIN EN ISO 14001 : 2015 by TÜV Hessen (Certificates 73 100 663 and 73 104 663, respectively).

Additional Guidance

A.1 Reference relating to zero fall roofs must also be made to the appropriate clauses in Liquid Roofing and Waterproofing Association (LRWA) Note 7 – *Specifier Guidance for Flat Roof Falls*.

A.2 Additional guidance for inverted roof specifications is given in BBA Information Bulletin No 4 *Inverted roofs – Drainage and U value corrections.*

A.3 Additional guidance on the design and maintenance for green roofs is available within the latest edition of *The GRO Green Roof Code – Green Roof Code of Best Practice for the UK*.

Bibliography

BS 3909 : D9 : 1986 *Methods of Test for Paints Group D: Optical Tests on Paint Films Part D9: Determination of Colour and Colour Difference Measurement*

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 1931 : 2000 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of water vapour transmission properties*

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 + 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 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*

BS EN 13948 : 2007 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of resistance to root penetration*

BS EN 29073-3 : 1992 *Methods of test for nonwovens — Methods of test for nonwovens — Determination of tensile strength and elongation*

BS EN ISO 62 : 2008 *Plastics — Determination of water absorption*

BS EN ISO 527-1 : 2012 *Plastics — Determination of tensile properties — General principles*

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

DIN EN ISO 9001 : 2015 *Quality Management Systems — Requirements with guidance for use*

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

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

EOTA TR-003 : 2004 *Determination of the watertightness*
EOTA TR-004 : 2004 *Determination of the resistance to delamination*
EOTA TR-007 : 2004 *Determination of the resistance to static indentation*
EOTA TR-008 : 2004 *Determination of the resistance to fatigue movement*
EOTA TR-010 : 2004 *Exposure procedure for artificial weathering*
EOTA TR-012 : 2004 *Exposure procedure for accelerated ageing by hot water*

Conditions of Certificate

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
- is subject to English Law.

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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