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### Agrément Certificate

86/1593

Product Sheet 2

## DERBIGUM ROOFING MEMBRANES

### DERBIGUM BLUROOF MEMBRANE

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Derbigum BluRoof Membrane, a waterproofing layer for use in blue roof specifications on zero fall warm roofs with limited access, including green roofs, in combination with a storm water attenuation system<sup>(2)</sup>.

(1) Hereinafter referred to as 'Certificate'.

(2) The storm water attenuation system is outside the scope of this 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 product will resist the passage of moisture into a building (see section 6).

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

**Resistance to wind uplift** — the product will resist the effects of any wind suction likely to occur in practice (see section 8).

**Resistance to mechanical damage** — the product will accept, without damage, the limited foot traffic and loads associated with installation and maintenance, and the effects of thermal or other minor movement likely to occur in service (see section 9).

**Resistance to root penetration** — Derbigum BluRoof Membrane (AR) will resist the penetration of roots (see section 10).

**Durability** — under normal service conditions, the product will provide a durable waterproof covering with a service life in excess of 40 years (see section 12).



The BBA has awarded this Certificate to the company named above for the product described herein. This product 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 First issue: 23 October 2018

John Albon – Head of Approvals  
Construction Products

Claire Curtis-Thomas  
Chief Executive

The BBA is a UKAS accredited certification body – Number 113.

The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at [www.bbacerts.co.uk](http://www.bbacerts.co.uk)  
Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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

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Page 1 of 11

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## Regulations

In the opinion of the BBA, Derbigum BluRoof Membrane, 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)

<b>Requirement:</b>	<b>B4(2)</b>	<b>External fire spread</b>
Comment:		On suitable substructures, the use of the product can enable a roof to be unrestricted under this Requirement. See sections 7.1 to 7.4 of this Certificate.
<b>Requirement:</b>	<b>C2(b)</b>	<b>Resistance to moisture</b>
Comment:		The product will enable a roof to satisfy this Requirement. See section 6.1 of this Certificate.
<b>Regulation:</b>	<b>7</b>	<b>Materials and workmanship</b>
Comment:		The product is acceptable. See section 12 and the <i>Installation</i> part of this Certificate.



### The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:		The use of the product satisfies the requirements of this Regulation. See sections 11.1 and 12 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	2.8	Spread from neighbouring buildings
Comment:		The product, when applied to suitable substrates, can be unrestricted under the requirements of this Standard, with reference to clause 2.8.1 <sup>(1)(2)</sup> . See sections 7.1 to 7.4 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The product will enable a roof to satisfy the requirements of this Standard, with reference to clauses 3.10.1 <sup>(1)(2)</sup> and 3.10.7 <sup>(1)(2)</sup> . See section 6.1 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The product 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.
<b>Regulation:</b>	<b>12</b>	<b>Building standards applicable to conversions</b>
Comment:		Comments in relation to the product under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).



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

<b>Regulation:</b>	<b>23(a)(i)</b>	<b>Fitness of materials and workmanship</b>
Comment:	<b>(iii)(b)(i)</b>	The product is acceptable. See section 12 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>28(b)</b>	<b>Resistance to moisture and weather</b>
Comment:		The product will enable a roof to satisfy the requirements of this Regulation. See section 6.1 of this Certificate.

<b>Regulation:</b>	<b>36(b)</b>	<b>External fire spread</b>
<b>Comment:</b>	On suitable substructures, the use of the product can enable a roof to be unrestricted under the requirements of this Regulation. See sections 7.1 to 7.4 of this Certificate.	

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

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

See sections: 1 *Description* (1.3) and 3 *Delivery and site handling* (3.3) and of this Certificate.

### **Additional Information**

#### **NHBC Standards 2018**

In the opinion of the BBA, Derbigum BluRoof Membrane, 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 and balconies*.

#### **CE marking**

The Certificate holder has taken the responsibility of CE marking the product, in accordance with harmonised European Standard BS EN 13707 : 2013. An asterisk (\*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

### **Technical Specification**

#### **1 Description**

1.1 Derbigum BluRoof Membrane is an atactic polypropylene (APP) polymer-modified bitumen membrane reinforced with a glassfibre mat ( $55 \text{ g}\cdot\text{m}^{-2}$ ) and a non-woven polyester core ( $150 \text{ g}\cdot\text{m}^{-2}$ ). The lower face is a heat-activated adhesive layer.

1.2 Derbigum BluRoof Membrane (AR) is a root resistant version of the standard membrane complying with EN 13948 : 2007.

1.3 The nominal characteristics for the product are given in Table 1.

**Table 1 Nominal characteristics**

Characteristic (unit)	Value
Thickness* (mm)	4.0
Width* (m)	1.1
Roll length* (m)	8
Mass per unit area* ( $\text{kg}\cdot\text{m}^{-2}$ )	4.2
Roll weight (kg)	37
Watertightness*	Pass
Tensile strength* ( $\text{N}\cdot 50\text{ mm}^{-1}$ )	
longitudinal	700
transverse	650
Elongation at break* (%)	
Longitudinal	45
Transverse	45
Resistance to static loading* (kg)	>20
Impact resistance* (mm)	>1250
Low temperature flexibility ( $^{\circ}\text{C}$ )	<-15
Resistance to tearing* (N)	
Longitudinal	$\geq 150$
Transverse	$\geq 150$
Shear resistance of joints* ( $\text{N}\cdot 50\text{ mm}^{-1}$ )	560

1.4 Ancillary items for use with the product, but outside of the scope of this Certificate, are:

- Derbiprimer S — for use in preparation of the substrate prior to the application of the product
- FC6 Drainage Layer — a geo-composite unit, comprising a non-woven geotextile filtration layer that is bonded to a high-density polyethylene (HDPE) studded membrane core
- VF Series Void Former — forming a space for temporary storage of rainwater
- Harmer OF46 — overflow assembly
- BluRoof Patented Flow Restrictor — for use with Harmer AV 400 outlet
- Harmer AV 400 — an aluminium roof drainage outlet
- Blackdown Green Roofs — extensive, biodiverse and intensive green roof systems
- Skyline — a polyester powder coated aluminium coping, soffit and fascia system
- Modulock — a fully engineered raised adjustable pedestal system for paving and decking
- VTherm VIP — a vacuum insulated panel
- Alumasc Multi-fix Dual Density Mineral Wool — non-combustible thermal insulation
- Monoscreed — a quick curing screed comprising PMMA resin.

## 2 Manufacture

2.1 The membrane is manufactured by saturating and coating the reinforcement with a mixture of bitumen, polypropylene resins and small amounts of inert fillers.

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.

2.3 The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 and BS EN ISO 14001 : 2015 by Bureau Veritas (Certificates BE010573-1v2 and BE010266-1 respectively).

### 3 Delivery and site handling

3.1 The membrane is delivered to site in rolls with plastic wrapping bearing the Certificate holder's name and the BBA logo incorporating the number of this Certificate.

3.2 The rolls must be stored on end on a clean, level surface and kept under cover.

3.3 The Certificate holder has taken the responsibility of classifying and labelling the product 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 Derbigum BluRoof Membrane.

### Design Considerations

## 4 Use

4.1 Derbigum BluRoof Membrane is satisfactory for use as a waterproofing layer in a blue roof specification on zero fall warm roofs with limited access, including green roofs, in combination with a storm water attenuation system<sup>(1)</sup>.

(1) The storm water attenuation system is outside the scope of this Certificate.

4.2 The membrane is installed fully bonded using the Derbigum Torch System (covered by Product Sheet 1 of this Certificate).

4.3 Blue roofs are defined for the purpose of this Certificate as flat roofs designed to allow controlled attenuation of rainfall during heavy storm events, as part of sustainable urban drainage systems (SuDS).

4.4 For the purpose of this Certificate, zero fall roofs are defined as those having a finished fall of between 0 and 0.7 degrees. It is particularly important to identify the correct drainage system to ensure that it is effective. Reference should also be made to the appropriate clauses in Liquid Roofing and Waterproofing Association (LRWA) Note 7 – *Specifier Guidance for Flat Roof Falls*.

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

4.6 For the purpose of this Certificate, a green roof is defined as a shallow layer of growing medium, planted with low-maintenance plants such as mosses, sedums, grasses and some wild flower species placed over the insulation and waterproofing components of the roof.

4.7 Structural decks to which the product is to be applied must be suitable to transmit the dead and imposed loads experienced in service. Dead loads, wind loading and imposed loads should 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.

4.8 Insulation materials used in conjunction with the product must be:

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

4.9 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*.

## 5 Practicability of installation

Installation of the membrane must be carried out by installers approved by the Certificate holder.

## 6 Weathertightness



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

6.2 The product is impervious to water and when used as described in this Certificate will achieve a weathertight roof waterproofing capable of accepting minor structural movement without damage.

## 7 Properties in relation to fire



7.1 The product, when used in protected specifications including an inorganic covering listed in the Annex of Commission Decision 2000/553/EC, can be considered to be unrestricted under the national Building Regulations.

7.2 When tested to CEN/TS 1187 : 2012 and classified in accordance with BS EN 13501-5 : 2016, a system comprising a 16 mm wood particle board, Derbiprimer at an application rate of 300 g·m<sup>-2</sup> dry, a self-adhesive, bitumen and aluminium vapour control layer, a 120 mm thick polyisocyanurate insulation board with bituminous facings partially bonded with polyurethane adhesive, a layer of Derbicoat NT modified bitumen underlay and one layer of Derbigum Black modified bitumen cap sheet, achieved a B<sub>ROOF(t4)</sub> rating.

7.3 The designation of other specifications should be confirmed by:

**England and Wales** — test or assessment in accordance with Approved Document B (Volumes 1 and 2), Appendix A, clause A1

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

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

7.4 In the opinion of the BBA, irrigated green roofs and roof gardens will also be unrestricted under the national Building Regulations.

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

## 8 Resistance to wind uplift

The adhesion of the product to these materials is sufficient to resist the effects of wind suction, elevated temperature and thermal shock conditions likely to occur in practice.

## 9 Resistance to mechanical damage

The product can accept, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance operations. Where traffic in excess of this is envisaged, additional protection to the membrane in accordance with the Certificate holder's instructions must be provided. Reasonable care is required, however, to avoid puncture by sharp objects or concentrated loads.

## 10 Resistance to root penetration

Derbigum BluRoof Membrane (AR) will resist penetration by plant roots and can be used as a waterproofing layer in green roof specifications.

## 11 Maintenance



11.1 The product must be the subject of annual inspections and maintenance in accordance with BS 6229 : 2003, Annex B1-B5, to ensure continued performance. Maintenance should include checks and operations to ensure that, where applicable:

- adequate ballast is in place and evenly distributed over the membrane
- protection layers are in good condition
- any exposed membrane is free from the build-up of silt, and other debris and unwanted vegetation is cleared.

11.2 A planned maintenance cycle, including inspections by the Certificate holder at minimum intervals of five years, should be introduced if an extended service life is required. The Certificate holder can advise on methods of extending the service life. These could include specific maintenance requirements or localised replacement and repair.

11.3 Any damage should be repaired in accordance with section 15 and the Certificate holder's instructions.

11.4 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 are cleared from the roof and drainage outlets (see section 4.12). Guidance is available within the latest edition of *The GRO Green Roof Code - Green Roof Code of Best Practice for the UK*.

## 12 Durability



Under normal service conditions, the product will have a service life in excess of 40 years.

## 13 Reuse and recyclability

The product, which contains APP polymer-modified bitumen and glassfibre/polyester reinforcement, can be recycled.

## Installation

### 14 General

14.1 Installation of Derbigum BluRoof Membrane is carried out in accordance with the Certificate holder's instructions and the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989 and BS 8217 : 2005, and this Certificate.

14.2 Deck surfaces must be dry, clean and free from sharp projections such as nail heads and concrete nibs.

14.3 The membrane may be laid in conditions normal to roofing work and must not be laid in rain, snow or heavy fog, nor if the temperature falls below 5°C, unless precautions against condensation have been taken.

14.4 In renovation of existing roofs, blisters should be opened and flattened or removed, and cracks repaired before installation of the top layer.

14.5 When used on roofs with limited access, the membrane does not require further protection.

14.6 The roofing layers must always be installed with staggered overlaps.

14.7 Waterproof upstand details must take into account the additional depth of the void formers and surfacing to achieve sufficient height above the finished roof level.

14.8 On completion of the roof, void formers are installed over the waterproofing to the specified depth followed by the drainage layer and specified top layer, such as precast concrete paving flags.

14.9 All Derbigum BluRoof Membrane installations must be independently leak tested by a recognised leak test provider, prior to the installation of the void formers and surfacings.

## 15 Procedure

15.1 Where required by the Certificate holder's installation instructions, the substrate should be primed using Derbiprimer S.

15.2 Bonding is achieved by melting the lower surface by torching and pressing down.

15.3 When used as a cap sheet in a multi-layer system, the membrane is always bonded to a base layer complying with BS 8747 : 2007 or higher-performance roofing reinforced bituminous membranes. Polyester-reinforced membranes should not be used.

15.4 All laps should be pressure-rolled using a 15 kg long-handled lap roller. All overlaps (side and end) must be a minimum of 150 mm and pressure-rolled.

## 16 Repair

In the event of damage, the membrane can be effectively repaired by cleaning around the damaged area and applying a patch of the membrane in accordance with section 15.

## Technical Investigations

### 17 Tests

An assessment was made of test data for the waterproofing membranes in relation to:

- thickness
- width
- mass per unit area
- tensile strength
- elongation
- nail tear strength
- unrestricted shrinkage (%)
- static indentation (expanded perlite substrate and expanded polystyrene substrate)
- dynamic indentation (expanded perlite substrate and expanded polystyrene substrate)
- fatigue cycling
- low temperature flexibility
- flow temperature
- tensile strength of joints
- peel strength of joints
- heat ageing followed by fatigue resistance, low temperature flexibility, flow temperature, tensile strength of joints and peel strength of joints
- UV ageing followed by low temperature flexibility
- water soak followed by tensile strength of joints and peel strength of joints
- wind uplift
- resistance to water penetration
- water exposure at 60°C for 180 days (joint strength, joint leakage, peel strength repeated).

### 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 Test data on membranes of similar specification were evaluated in relation to:

- shear strength of joints
- peel strength of joints.

18.3 User surveys were carried out to assess the performance in use of the product.

18.4 Existing sites installed between 1974 and 1976 were visited in 1990, 1995 and 2000 to assess the durability of the product.

18.5 Additional sites installed between 1973 and 1990 were visited in 2016 to assess the durability of the product.

18.6 Independent data on durability testing were assessed.

18.7 Data on the coating mass and reinforcements used in the product were evaluated.

## Bibliography

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 8747 : 2007 *Reinforced bitumen membranes (RBMs) for roofing — Guide to selection and specification*

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 — 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*

BS EN 13707 : 2013 *Flexible sheets for waterproofing — Reinforced bitumen sheets for roof waterproofing — Definitions and characteristics*

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

BS EN ISO 14001 : 2015 *Environmental management systems — Requirements*

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

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

### 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.