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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
86/1593
Product Sheet 1

DERBIGUM ROOFING MEMBRANES

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate of Confirmation extends and replaces Certificate No 84/1275/C and relates to Derbigum Roofing Membranes, glass and polyester reinforced, polymer-modified bitumen membranes.

AGRÉMENT 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 membranes and joints in the membranes, when completely sealed and consolidated, will resist the passage of moisture to the interior of the building (see section 5).

Properties in relation to fire — tests indicate that the membranes will enable a roof to be unrestricted under the Building Regulations (see section 6).

Resistance to wind uplift — when correctly specified, the membranes will resist the effects of any wind suction likely to occur in practice (see section 7).

Resistance to foot traffic — the membranes will accept the limited foot traffic and loads associated with installation and maintenance of the membranes without damage (see section 8).

Durability — under normal service conditions the membranes will provide a durable waterproof covering with a service life of at least 30 years (see section 10).

The BBA has awarded this Agrément 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 First issue: 3 September 2008
Originally certificated on 17 March 1986

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Derbigum Roofing Membranes, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:

The Building Regulations 2000 (as amended) (England and Wales)

Requirement:	B4(2)	External fire spread
Comment:		Test data to BS 476-3 : 1958 indicate that on suitable substructures the membranes will enable a roof to be unrestricted by this Requirement. See sections 6.1 to 6.3 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		Data for water resistance on the membranes, including joints, indicate that the membranes meet this Requirement. See section 5.1 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The membranes are acceptable. See sections 10.1 and 10.2 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The membranes comply with this Regulation. See sections 9, 10.1, 10.2 and the *Installation* part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	2.8	Spread from neighbouring buildings
Comment:		Test data to BS 476-3 : 1958 indicate that on suitable substructures the use of the membranes will contribute to enable a roof to be unrestricted under the requirements of this Standard, with reference to clause 2.8.1[1][2] of this Standard. See sections 6.1 and 6.3 of this Certificate.
Standard:	3.10	Precipitation
Comment:		Test for water resistance of the membranes, including joints, indicate that the use of the membranes will enable a roof to satisfy the requirements of this Standard, with reference to clauses 3.10.1[1][2] and 3.10.7[1][2] of this Standard. See section 5.1 of this Certificate.
Regulation:	12	Building standards — conversions
Comment:		All comments given for the membranes under Regulation 9, 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) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The membranes are acceptable materials. See sections 10.1 and 10.2 and the *Installation* part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The membranes are acceptable. See section 9 of this Certificate.
Regulation:	C4(b)	Resistance to ground moisture and weather
Comment:		Test for water resistance of the membranes, including joints, indicate that the use of the membranes will enable a roof to satisfy the requirements of this Regulation. See section 5.1 of this Certificate.
Regulation:	E5(b)	External fire spread
Comment:		Test data to BS 476-3 : 1958 indicate that the use of the roof membranes will enable a roof to be unrestricted under the requirements of this Regulation. See sections 6.1 to 6.3 of this Certificate.

Construction (Design and Management) Regulations 2007
Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 1 *Description* (1.4).

Non-regulatory Information

NHBC Standards 2008

NHBC accepts the use of Derbigum Roofing Membranes, when installed and used in accordance with this Certificate, as meeting Technical Requirement R3 in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs*.

Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, Derbigum Roofing Membranes, when installed and used in accordance with this Certificate, satisfy the requirements of the *Zurich Building Guarantee Technical Manual*, Section 4 *Superstructure*, Sub-section *Flat roofs*.

General

This Certificate extends and replaces Certificate 84/1275/C and relates to Derbigum Roofing Membranes, glass and polyester reinforced, polymer-modified bitumen membranes.

Derbigum Roofing Membranes are satisfactory for use as:

- a cap sheet in a multi-layer system based on traditional bitumen felts on flat or pitched roofs with limited access
- a fully bonded repair medium for existing traditional felt or mastic asphalt roofs (ie as a complete overlay).

Confirmation of Belgian Agrément No ATG 1502 of the Union Belge pour l'Agrément Technique dans la construction (UBAtc), issued to Derbit Belgium SA, Parc Industriel, 5920 PERWEZ.

Technical Specification

1 Description

1.1 Derbigum Roofing Membranes are polymer-modified bitumen sheets containing a polyester core and glassfibre mat. The underface is a heat-activated adhesive layer. The membranes are available in two surface finishes, self or mineral.

1.2 The membranes are manufactured by saturating and coating a non-woven polyester (minimum 110 gm^{-2}) and a glass tissue (minimum 50 gm^{-2}) with a mixture of bitumen, polypropylene resins and small amounts of inert fillers.

1.3 The two reinforcing layers are situated in the upper half of the membrane, the glassfibre mat being separated from the polyester with its weave visible on the upper surface.

1.4 The membranes are manufactured to the nominal dimensions given in Table 1.

Table 1 Nominal dimensions

Dimensions (units)	Membrane	
	Derbigum Black	Derbigum Mineral
Thickness (mm)	4	4.5
Length (m)	8	7.27
Width (m)	1.1	1.1
Weight (nominal) (kgm^{-2})	4.2	5.0
Weight per roll (nominal) (kg)	37	40

1.5 The membranes can be installed using four different methods of installation, they are:

- Derbigum Torch System — fully bonded by torching
- Derbigum Rapido System — fully bonded in Derbibond S with laps and details torch bonded
- Derbigum NoFlame System — fully bonded in Derbibond S with laps and details hot-air welded
- Derbigum Cold System — fully bonded by Derbibond S with laps and details sealed with Derbiseal S.

1.6 The following ancillary items are for use with the membranes:

- Derbiprimer S — for use in preparation of the substrate prior to the application of the system
- Derbibond S — a bituminous cold-applied adhesive for use in the Derbigum Rapido, NoFlame and Cold systems
- Derbimastic S — a bituminous cold-applied adhesive for use in detailing with the NoFlame and Cold System
- Derbiseal S — a bituminous cold adhesive for sealing laps in the Derbigum Cold System.

1.7 Quality control tests include checks on the characteristics of the polyester, glassfibre mat, coating compound and finished product.

2 Delivery and site handling

2.1 The membranes are delivered to site in rolls with plastic wrappings bearing the manufacturer's name and the BBA identification mark incorporating the number of this Certificate.

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

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Derbigum Roofing Membranes.

3 General

3.1 Derbigum Roofing Membranes are satisfactory for use as:

- a cap sheet in a multi-layer system based on traditional bitumen felts on flat or pitched roofs with limited access
- a fully bonded repair medium for existing traditional felt or mastic asphalt roofs (ie as a complete overlay).

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

3.3 Flat roofs are defined for the purpose of this Certificate as those roofs having a minimum finished fall of 1:80. For design purposes, twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available, including overall and local deflection, direction of falls, etc. Pitched roofs are defined as those having falls in excess of 1:6.

3.4 Decks to which the product is to be applied must comply with the relevant requirements of BS 6229 : 2003 , BS 8217 : 2005 and, where appropriate, *NHBC Standards* 2008, Chapter 7.1 or the *Zurich Building Guarantee Technical Manual* 2007, Section 4, *Superstructure*, Sub-section *Flat roofs* (pages 260–270).

3.5 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 be used in accordance with and within the limitations of that Certificate.

4 Practicability of installation

Installation must be carried by installers approved by the Certificate holder.

5 Weathertightness

5.1 Data confirm that the membranes and the joints in the membrane, when completely sealed and consolidated, will adequately resist the passage of moisture to the inside of the building and so meet the requirements of the national Building Regulations:

England and Wales — Approved Document C, Requirement C2(b), Section 6

Scotland — Mandatory Standard 3.10, clauses 3.10.1[(1)(2)] and 3.10.7[(1)(2)]

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Regulation C4(b).

5.2 The membranes are impervious to water and when used as described will achieve a weathertight roof capable of accepting minor structural movement without damage.

6 Properties in relation to fire

6.1 When tested in accordance with BS 476-3 : 1958 a system comprising a 19 mm thick plywood deck with one layer of glass-based felt and one layer of Derbigum Mineral, achieved a rating of EXT.F.AA.

6.2 When used for flat roofs with one of the surface finishes defined in the Building Regulations (and listed in this section) the roof is deemed to be of designation AA:

England and Wales — Approved Document B, Appendix A, Table A5, Part iii

Northern Ireland — Technical Booklet E, Table 4.6 of Part IV.

Surface finishes:

- bitumen-bedded stone chippings covering the whole surface to a depth of not less than 12.5 mm
- bitumen-bedded tiles of a non-combustible material
- sand and cement screed, or
- macadam.

6.3 The designation of other specifications (eg on combustible substrates) should be confirmed by:

England and Wales — Test or assessment in accordance with Approved Document B, Appendix A, Clause A1

Scotland — Test to conform to Mandatory Standard 2.8, clause 2.8.1[(1)(2)]

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Test or assessment carried out by a UKAS accredited laboratory or an independent consultant with appropriate experience.

7 Resistance to wind uplift

The membranes can be used as a cap sheet for systems based on traditional bitumen felts, or as a repair medium for such roofs. The adhesion to these materials is sufficient to resist the effects of wind suction, elevated temperatures and thermal shock likely to occur in practice.

8 Resistance to foot traffic

Tests indicate that the membranes can accept, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance operations. Reasonable care should be taken, however, to avoid puncture by sharp objects or concentrated loads (see section 14, *Table for Physical properties — general*).

9 Maintenance

Roofs covered with the product should be the subject of annual inspections, as is good practice with all waterproofing membranes, to ensure continued security and performance.

10 Durability

10.1 Derbigum Roofing has been in use throughout Europe since 1966 and has performed satisfactorily, requiring minimal maintenance.

10.2 Accelerated weathering tests confirm that satisfactory retention of physical properties is achieved. Available evidence indicates that when installed on stable substrates subjected to regular maintenance the product can have a life in excess of 30 years.

Installation

11 General

11.1 Installation of Derbigum Roofing is carried out in accordance with the Certificate holder's instructions and the relevant clauses of BS 8000-4 : 1989 and BS 8217 : 2005.

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

11.3 The membranes 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.

11.4 If the roof is likely to be subjected to uncontrolled pedestrian access, the substructure must meet the requirements of Clause 8.3 of BS 8217 : 2005, and to prevent damage to the roof covering one of the appropriate surface finishes referred to in Clauses 8.11 and 8.13 of the code must be used.

11.5 At falls in excess of 5° (1:11), the nominal precautions against slippage and the provision for mechanical fixings as required by BS 8217 : 2005 should be observed.

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

11.7 The membranes, when used on roofs with limited access requires no further protection.

11.8 The roofing layers must always be installed with staggered overlaps and in such a manner that no counter-seams in the direction of outlets are made.

11.9 On completion of the roof, the self-finished membrane, when used as a top layer, may have a surface finish applied in accordance with BS 8217 : 2005, Clauses 8.11 and 9.17. Surface finishes in the *Code of Practice* include:

- stone aggregate in dressing compound
- proprietary tiles in bonding compound.
- precast concrete paving flags

12 Procedure

Derbigum Torch System

12.1 Where required, the substrate should be primed using Derbiprimer S.

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

12.3 When used as a cap sheet in a multi-layer system the membranes are always bonded to a base layer complying with BS 8747 : 2007 or higher performance glassfibre roofing sheets. Polyester reinforced felts should not be used.

12.4 When used in a partially bonded specification, a type 3G felt to BS 8747 : 2007 or equivalent should be used beneath the base layer.

12.5 Side laps should be a minimum overlap of 75 mm and end laps a minimum overlap of 100 mm. All laps should be pressure rolled using a lap roller.

Derbigum Rapido System

12.6 Derbibond S is applied to the substrate at a rate of 1 kgm^{-2} (unless otherwise indicated by the specification). The membranes are unrolled into the freshly applied mastic.

12.7 Lap joints are sealed by torching, and should be a minimum overlap of 75 mm at sides and 150 mm at ends. Care should be taken to avoid getting Derbibond S on the lap area. All laps should be pressure rolled with a lap roller.

Derbigum NoFlame System

12.8 The main installation is carried out by the same procedure as the Rapido System (see section 12.6).

12.9 Lap joints are sealed by hot-air welding. Side laps should be a minimum overlap of 100 mm and end laps a minimum overlap of 150 mm. Care should be taken to avoid getting Derbibond S on the lap area. All laps should be pressure rolled using a lap roller.

12.10 Flashing pieces are applied using Derbimastic S, with angles and overlaps formed by hot-air welding.

Derbigum Cold System

12.11 The main installation is carried out by the same procedure as the Rapido System (see section 12.6).

12.12 Lap joints are sealed with Derbiseal S, with overlap of 100 mm at sides and 150 mm at ends. Care should be taken to avoid getting Derbibond S on the lap area. All laps should be pressure rolled with a lap roller.

13 Repair

In the event of accidental damage, repairs can be carried out by cleaning around the damaged area and applying a patch of the membrane.

Technical Investigations

14 Tests

The technical data in UBAtc Agrément ATG 1502 were evaluated in the context of UK roofing practice and building regulations. These data are summarised in Tables 2 to 3.

Table 2 Physical properties — directional

Test (units)	Mean result		Method[1]
	Longitudinal	Transverse	
Tensile strength (N per 50 mm)	544	511	MOAT 30 : 6C
Elongation at break (%)	72	67	MOAT 30 : 6C
Tear strength (N)	210	210	MOAT 27 : 5.4.1
Unrestricted shrinkage (%)	+0.14	–0.10	MOAT 27 : 5.1.6

(1) The test documents are detailed in the *Bibliography*. Numbers in the table refer to sections/parts of the various documents.

Table 3 Physical properties — general

Test (units)	Result	Method[1]
Dynamic impact		MOAT 27 : 5.1.10
expanded perlite substrate	I_2	
expanded polystyrene substrate	I_2	
Static indentation		MOAT 27 : 5.1.9
concrete substrate	L_2	
expanded perlite substrate	L_3	
expanded polystyrene substrate	L_3	
Fatigue resistance		MOAT 64
unaged	pass	
aged (28 days at 80°C)	pass	
Low temperature flexibility (°C)		MOAT 30 : 6D
unaged	no cracks at −3	
aged for 2 months at 70°C	no cracks at −5	
aged for 4 months at 70°C	no cracks at −2	
aged for 6 months at 70°C	no cracks at −2	
exposed to UV light for 1000 hours	no cracks at −10	
exposed to UV light for 2000 hours	no cracks at −7	
Flow temperature (°C)		MOAT 30 : 6E
unaged	155	
aged for 6 months at 70°C	155	
μ factor	~30 000	MOAT 27 : 5.1.11
Wind uplift (KPa)[2]	5	MOAT 64
Tensile strength/shearing (N per 50mm)		
in the new condition	520	MOAT 27 : 5.2.2
aged for 28 days at 80°C	770	MOAT 27 : 5.2.3
aged for 7 days, in water, at 60°C	640	MOAT 27 : 5.2.4

(1) The test documents are detailed in the *Bibliography*. Numbers in the table refer to sections/parts of the various documents.

(2) Wind uplift carried out on torched and cold-applied adhesive systems.

15 Investigations

15.1 Test data on the following properties were also examined on membranes of similar specification:

- shear strength of joints
- peel strength.

15.2 Existing data on fire performance of the product were examined.

15.3 User surveys have been carried out to assess the performance in use of the product.

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

15.5 Data from BDA Dakadvies B.V. on durability testing were examined.

15.6 Data on the coating mass and reinforcements used in the product were examined.

Bibliography

BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*

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

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*

MOAT No 27 : 1983 *General Directive for the Assessment of Roof Waterproofing Systems*

MOAT No 30 : 1984 *Special Directives for the Assessment of Reinforced Waterproof Coatings in Atactic Polypropylene (APP) Polymer Bitumen*

MOAT No 64 : 2001 *UEAtc Technical Guide for the assessment of Roof Waterproofing Systems made of Reinforced APP or SBS Polymer Modified Bitumen Sheets*

16 Conditions

16.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- 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.

16.2 References in this Certificate to any Act of Parliament, Statutory Instrument, Directive or Regulation of the European Union, British, European or International Standard, Code of Practice, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

16.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- remain covered by a valid Belgian Agrément; and
- are reviewed by the BBA as and when it considers appropriate.

16.4 In granting this Certificate, the BBA is not responsible for:

- 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
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

16.5 Any information relating to the manufacture, supply, installation, use and maintenance 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 and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date 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. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.

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