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Agrément Certificate
18/5563
Product Sheet 1 Issue 2

DERBIGUM ROOF WATERPROOFING SYSTEMS

DERBIGUM ROOFING SYSTEM

This Agrément Certificate Product Sheet(1) relates to the Derbigum Roofing System, for use as a warm roof waterproofing system incorporating a range of glass- and polyester-reinforced, atactic polypropylene (APP) polymer-modified bitumen waterproofing membranes, insulation boards and air and vapour control layers (AVCLs), for use fully bonded on flat, pitched or protected zero fall roofs, green roofs and roof gardens with limited or pedestrian access with suitable protection.

(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

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Originally certified on 18 September 2018

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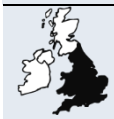
SUMMARY OF ASSESSMENT AND COMPLIANCE

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 the Derbigum Roofing System, 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:	**A1**	**Loading**
Comment:		The system can contribute to satisfying this Requirement. See section 1 of this Certificate.
Requirement:	**B3(2)**	**Internal fire spread (structure)**
Comment:		The system may be restricted by this Requirement in some circumstances. See section 2 of this Certificate.
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, including joints, will enable a roof to satisfy this Requirement. See section 3 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The system can contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement:	**L1(a)(i)**	**Conservation of fuel and power**
Comment:		The system can contribute to satisfying this Requirement; however compensating fabric measures may be required. See section 6 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The system is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**7(2)**	**Materials and workmanship**
Comment		The system is restricted by this Regulation in some circumstances. See section 2 of this Certificate.
Regulation:	**25B**	**Nearly zero-energy requirements for new buildings**
Regulation:	**26**	**CO_2 emission rates for new buildings**
Regulation:	**26A**	**Fabric energy efficiency rates for new dwellings (applicable to England only)**
Regulation:	**26A**	**Primary energy consumption rates for new buildings (applicable to Wales only)**
Regulation:	**26B**	**Fabric performance values for new dwellings (applicable to Wales only)**
Regulation:	**26C**	**Target primary energy rates for new buildings (applicable to England only)**
Regulation:	**26C**	**Target primary energy rates for new buildings (applicable to Wales only)**
Comment:		The system can contribute to satisfying these Regulations; however, compensating fabric/service measures may be required. See section 6 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Fitness and durability of materials and workmanship**
Comment:		The system is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**8(3)**	**Fitness and durability of materials and workmanship**
Comment:		The system is restricted by this Regulation in some circumstances. See section 2 of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	1.1	Structure
Comment:		The system can contribute to satisfying this Standard, with reference to clauses 1.1.1(1)(2), 1.1.2(1)(2) and 1.1.3(1)(2). See section 1 of this Certificate.
Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Comment:		The system may be restricted by these Standards, with reference to clauses 2.1.15(2), 2.2.7(2) and 2.2.10(1). See section 2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Standard:	2.7	Spread on external walls
Comment:		The system is restricted by these Standards, with reference to clauses 2.6.4(1)(2) and 2.7.1(1)(2). See section 2 of this Certificate.
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, including joints, will enable a roof to satisfy this Standard, with reference to clauses 3.10.1(1)(2) and 3.10.7(1)(2). See section 3 of this Certificate.
Standard:	3.15	Condensation
Comment:		The system can contribute to satisfying this Standard, with reference to clauses 3.15.1(1), 3.15.3(1)(2), 3.15.5(1)(2) and 3.15.6(1)(2). See section 3 of this Certificate.
Standard:	6.1(b)(c)	Energy demand
Comment:		The system can contribute to satisfying this Standard, with reference to clauses 6.1.1(1) and 6.1.2(2); however compensating fabric/service measures may be required. See section 6 of this Certificate.
Standard:	6.2	Building insulation envelope
Comment:		The system can contribute to satisfying this Standard, with reference to clauses 6.2.1(1)(2), 6.2.3(1), 6.2.4(2), 6.2.5(2), 6.2.6(1), 6.2.7(1), 6.2.8(1)(2), 6.2.9(1)(2), 6.2.10(1)(2), 6.2.11(1)(2), 6.2.12(2) and 6.2.13(1)(2), but compensating fabric measures may be required. See section 6 of this Certificate.
Standard:	7.1(a)(b)	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 at least a bronze level of sustainability as defined in this Standard. In addition, the system can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4(1), 7.1.6(1)(2), 7.1.7 (1), 7.1.9(2) and 7.1.10(2). See section 6 of this Certificate.

Regulation:	**12**	**Building standards – conversion**
Comment:		All 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) (iii)(b)(i)(ii)**	**Fitness of materials and workmanship**
Comment:		The system is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**23(2)**	**Fitness of materials and workmanship**
Comment:		The system is restricted by this Regulation. See section 2 of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The system, including joints, will enable a roof to satisfy this Regulation. See section 3 of this Certificate.
Regulation:	**29**	**Condensation**
Comment:		The system can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	**30**	**Stability**
Comment:		The system can contribute to satisfying this Regulation. See section 1 of this Certificate.
Regulation:	**35(2)**	**Internal fire spread – Structure**
Comment:		The system is restricted by this Regulation in some circumstances. See section 2 of this Certificate.
Regulation:	**36(a)**	**External fire spread**
Comment:		The system is restricted by this Regulation in some circumstances. See section 2 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.
Regulation:	**39(a)(i)**	**Conservation measures**
Comment:		The system can contribute to satisfying this Regulation; however, compensating fabric measures may be required. See section 6 of this Certificate.
Regulation:	**40(2)**	**Target carbon dioxide Emissions Rate**
Regulation:	**43(1)(2)**	**Renovation of thermal elements**
Regulation:	**43B**	**Nearly zero-energy requirements for new buildings**
Comment:		The system can contribute to satisfying these Regulations; however, compensating fabric/service measures may be required. See section 6 of this Certificate.

Additional Information

NHBC Standards 2025

In the opinion of the BBA, the Derbigum Roofing System, 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*.

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.

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

Fulfilment of Requirements

The BBA has judged the Derbigum Roofing System to be satisfactory for use a described in this Certificate. The system has been assessed as a warm roof waterproofing system incorporating reinforced polymer-modified bitumen waterproofing membranes, insulation boards and AVCLs as described in this Certificate. The system has been assessed for use fully bonded on flat, pitched or protected zero fall roofs, green roofs and roof gardens with limited or pedestrian access with suitable protection.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the system under assessment. The Derbigum Roofing System consists of:

- Derbigum Black(1) — an APP polymer-modified bitumen membrane reinforced with a glass fibre mat (55 g·m^{-2}) and a non-woven polyester core (150 g·m^{-2})
- Derbigum Anti-Root(1)(2) — a root-resistant APP polymer-modified bitumen membrane reinforced with a glass fibre mat (55 g·m^{-2}) and a non-woven polyester core (150 g·m^{-2})
- Derbigum Mineral(1) — an APP polymer-modified bitumen membrane reinforced with a mixed composite glass/polyester (170 g·m^{-2}). Available in two finishes: slated and granular
- Derbigum NT(1) — an APP polymer-modified bitumen membrane reinforced with a glass fibre mat (55 g·m^{-2}) and a non-woven polyester core (150 g·m^{-2})
- Derbigum Olivine(1) — an APP polymer-modified bitumen membrane reinforced with a mixed composite glass/polyester of 170 g·m^{-2}, finished with olivine granules
- Derbicoat NT(1) — a polymer modified bitumen base sheet with mixed glass/polyester reinforcement
- Derbicoat HP Selfix — an SBS self-adhesive base sheet with composite glass/non-woven polyester reinforcement
- Alumasc BGT PIR Insulation — a rigid polyisocyanurate (PIR) foam board with a composite bitumen/glass fibre facing on both sides
- Derbicoat Alu Selfix — a polymer modified bitumen self-adhesive AVCL reinforced with glass fibre mat and aluminium, sanded upper surface
- Derbicoat Alu — APP polymer modified torch-applied AVCL with aluminium reinforcement.

(1) Contain materials obtained from recycled old bituminous waterproofing membranes.
(2) Anti-Root version of Derbigum Black.

The system has the nominal characteristics given in Tables 1 and 2.

Table 1 Nominal characteristics of the membranes

Characteristic (unit)	Membrane							
	Derbigum Black/ Derbigum Anti-Root	Derbigum NT	Derbigum Mineral	Derbigum Olivine	Derbicoat Alu Selfix	Derbicoat NT	Derbicoat Alu	Derbicoat HP Selfix
Thickness (mm)	4.0	4.0	4.0	4.0	2.3	2.5	3.0	2.0
Length (m)	8	7.27	7.27	7.27	15	7.27	10	10
Width (m)	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.0
Mass per unit area ($kg \cdot m^{-2}$)	4.2	4.5	5.5(1), 6(2)	5.6	2.5	2.85	3.9	2.5
Roll weight (kg)	37	35	44(1), 48(2)	48	37.5	23	41	25

(1) Slated finish.
(2) Granular.

Table 2 Nominal characteristics of the insulation board

Characteristic (unit)	Alumasc BGT PIR Insulation(1)(2)
Length (mm)	1200
Width (mm)	600
Thickness (mm)	30 to 150 in 5 mm increments
Edge detail	Square
Facing	Composite bitumen/glass fibre tissue

(1) Thicknesses greater than 150 mm can be achieved by combining two boards.
(2) Thermal conductivity values (λ_D) are given in Table 12.

Ancillary Items

The following ancillary items are essential to use with the system, and have been assessed with the system:

- Derbiprimer S — a cold bituminous impregnation primer for use in preparation of the deck prior to the application of the AVCL
- Derbitech FA — a two-component PU insulation adhesive used to bond Alumasc BGT PIR Insulation to the AVCL.

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:

- Monoscreed — a curing screed comprising polymethyl methacrylate (PMMA) resin
- V-Therm VIP — a vacuum insulated panel
- Harmer AV — a range of metal roof outlets
- Alumasc Multi-fix Dual Density Mineral Wool — thermal insulation
- Skyline — a polyester powder coated aluminium coping, soffit and fascia system
- Modulock — a raised adjustable pedestal system for paving and decking
- Blackdown Green Roofs — an extensive, biodiverse and intensive green roof system
- fasteners — for use with a mechanically fixed membrane
- walkway sheets.

Applications

The Derbigum Roofing System is satisfactory for use as a warm roof waterproofing system, incorporating insulation boards and AVCLs in:

- fully adhered waterproofing specifications on flat or pitched roofs with limited access
- protected roof specifications, eg covered by pavers or other suitable protection on flat roofs or zero fall roofs with limited access
- pedestrian access roofs with additional protection on flat roofs or zero fall roofs
- green roof and roof garden specifications.

The built-up specifications are given in Table 3.

Table 3 Built-up specifications

Primer	AVCL	Adhesive	Insulation	Underlay	Cap sheet
Derbiprimer S	2.3 mm Derbicoat Alu Selfix self-adhesive	Derbitech FA	> 30 mm Alumasc BGT PIR fully bonded	2.5 mm Derbicoat NT torch-applied	4 mm Derbigum Black torch-applied
	3 mm Derbicoat Alu torch-applied			2 mm Derbicoat HP Selfix self-adhesive	4 mm Derbigum Mineral torch-applied
					4 mm Derbigum NT torch-applied
					4 mm Derbigum Olivine torch-applied

Definitions for products and applications inspected

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

- limited access roofs — those subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc
- pedestrian access roofs — those not subjected to vehicular traffic
- zero fall roofs — those having a finished fall which can vary between 0 and 1:80(1)
- flat roofs — those having a minimum finished fall of 1:80(1)
- pitched roofs — those having a fall in excess of 1:6
- roof garden (intensive) — a roof with a substantial layer of growing medium with planting that can include shrubs and trees, generally accessible to pedestrians
- green roof (extensive) — a roof with a shallow layer of growing medium planted with low-maintenance plants such as mosses, sedums, grasses and some wild flower 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.

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

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

Data were assessed for the following characteristics.

1.1 Wind loading

1.1.1 Results of wind loading tests are given in Table 4:

Table 4 Wind loading

Product assessed	Assessment method	Requirement	Result
Built-up system: - 18 mm plywood deck - Derbiprimer S - 2.3 mm Derbicoat Alu Selfix AVCL - Derbitech FA adhesive - 120 mm Alumasc BGT PIR insulation - 2.5 mm Derbicoat NT underlay - 4 mm Derbigum Black cap sheet	Resistance to wind uplift (pull-off under suction) to MOAT 64 : 4.3.2 : 2001	Maximum suction pressure not causing failure of the specimen	7.0 kPa
Alumasc BGT PIR Insulation	Resistance to peel of mineral coated glass fleece facing from insulation to MOAT 27 : 5.1.3 : 1983	≥ 25 N·(50 mm)$^{-1}$	Pass

1.1.2 On the basis of data assessed, the system, when properly installed on suitable flat roof decks, can adequately transfer negative and positive (suction and pressure) wind loads to the roof deck.

1.2 Behaviour under loading

1.2.1 The results of behaviour under loading tests are given in Table 5.

Table 5 Behaviour under loading

Product assessed	Assessment method	Requirement	Result
Alumasc BGT PIR Insulation	Compressive strength to BS EN 826 : 1996	Value achieved Control Soaked	 180 kPa 170 kPa
	Deformation under distributed load and increased temperature to MOAT 50 : 4.5.1 : 1992	Value achieved	$\delta t < 1.5\%$
	Concentrated load on cantilevered parts to MOAT 50 : 4.5.2 : 1992	Declared value	No residual deformation
	Concentrated load in the centre of a free span to MOAT 50 : 4.5.3 : 1992	Declared value	No residual deformation

1.2.2 On the basis of data assessed, the insulation boards can accept, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance.

1.2.3 The insulation boards were tested for resistance to loading when spanning ribs on profiled decks and the results were used to assess the maximum span that may be achieved. The conclusions are shown in Table 6.

Table 6 Clear spans for insulation thicknesses

Clear span range (mm)		Minimum roofboard thickness (mm)
	≤ 75	25
> 75	≤ 100	30
> 100	≤ 125	35
> 125	≤ 150	40
> 150	≤ 175	45
> 175	≤ 200	50
> 200	≤ 225	55
> 225	≤ 250	60

1.2.4 The insulation must not exceed the maximum permissible spans given in Table 6.

1.2.5 The insulation boards have not been assessed for use with permanent distributed or concentrated loads, such as air conditioning units, mechanical plants, water tanks, etc. Such loads must be supported directly on the roof construction or on suitably designed support systems.

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 External fire spread

2.1.1 When tested to DD CEN/TS 1187 : 2012, Test 4, and classified to BS EN 13501-5 : 2016, the systems given in Table 7 of this Certificate achieved B_{ROOF}(t4) for slopes below 10°:

Table 7 External fire spread

Product assessed	System(1)	System(2)
Substrate(3)	16 mm wood particle board	16 mm wood particle board
Primer	Derbiprimer S	Derbiprimer S
AVCL(3)	0.25 mm Derbicoat Alu Selfix SKT	0.25 mm Derbicoat Alu Selfix SKT
Adhesive	Derbitech FA	Derbitech FA
Insulation	120 mm Alumasc BGT PIR Insulation	130 mm Alumasc BGT PIR Insulation
Underlay	2.5 mm Derbicoat NT	2.5 mm Derbicoat NT
Waterproofing membrane	4 mm Derbigum Black	4 mm Derbigum Mineral

(1) Fire classification and test report, reference 18601C and 18601B, conducted by Warringtonfiregent, available from the Certificate holder on request.
(2) Fire classification and test report, reference 18906B and 18906A, conducted by Warringtonfiregent, available from the Certificate holder on request.
(3) These components are outside the scope of this Certificate.

2.1.2 On the basis of data assessed, the constructions listed in Table 7 will be unrestricted by the documents supporting the national Building Regulations with respect to proximity to a relevant boundary. Restrictions apply at junctions with compartment walls.

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
- a roof garden covered with a drainage layer of gravel 100 mm thick and a growing medium layer 300 mm thick (only Derbigum Black with anti-root additive)
- irrigated roof gardens and green roofs.

2.1.4 In Wales and Northern Ireland, when used on flat roofs using a substrate designated in the supporting documents with the surface finishes listed below, the roof is also deemed to be unrestricted with respect to a relevant boundary:

- 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.

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

2.1.6 If allowed to dry, the plants used may allow the spread of flame across the roof. This must be taken into consideration when selecting suitable plants. Appropriate planting, irrigation and/or protection must be applied to ensure the overall fire-rating of the roof is not compromised. Further guidance is available in the Department for Communities and Local Government publication *Fire Performance of Green Roof and Walls.*

2.2 Reaction to fire

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

2.2.2 On the basis of data assessed, 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 or in some cases, on assembly and recreation buildings. These constructions must also be included in calculations of unprotected area.

2.2.5 In Northern Ireland, for systems used in pitches greater than 70°, excluding upstands, that do not achieve the minimum Class E reaction to fire classification to BS EN 13501-1 : 2018, designers must seek guidance from the relevant Building Control Body.

2.2.6 In Scotland, the system, when used in roof pitches greater than 70°, must not be used less than 1 m from a relevant boundary or on buildings that have a storey 11 m or more above ground level.

2.3 Resistance to fire

Where the roof forms a junction with the compartment walls, the junction must maintain the required period of fire resistance.

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 8.

Table 8 Weathertightness

Product assessed	Assessment method	Requirement	Result
4 mm Derbigum Black	Watertightness to EN 1928 : 2000	No leakage after 24 hour exposure at 10 kPa	Pass
4 mm Derbigum Mineral			Pass
4 mm Derbigum NT			Pass
2.5 mm Derbicoat NT			Pass
4 mm Derbigum Black	Peel resistance of joints to EN 12316-1 : 2000 Longitudinal direction	≥ 40 N·(50 mm)$^{-1}$	Pass
4 mm Derbigum Mineral			Pass
4 mm Derbigum NT			Pass
4 mm Derbigum Black	Transverse direction		Pass
4 mm Derbigum Mineral			Pass
4 mm Derbigum NT			Pass
4 mm Derbigum Black	Shear resistance of joints to EN 12317-1 : 2000 Longitudinal direction	≥ 500 N·(50 mm)$^{-1}$	Pass
4 mm Derbigum Mineral			Pass
4mm Derbigum NT			Pass
4 mm Derbigum Black	Transverse direction		Pass
4 mm Derbigum Mineral			Pass
4 mm Derbigum NT			Pass

3.1.2 On the basis of data assessed, the system, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture into the interior of a building and so satisfy the requirements of the national Building Regulations.

3.2 Condensation

3.2.1 Water vapour resistivity/resistance values are given in Table 9.

Table 9 Water vapour resistance and water vapour resistivity

Product assessed	Assessment method	Requirement	Result
Derbicoat Alu(1)	BS EN ISO 10456 : 2007	Value declared	15,000 MN·s·g^{-1}
Derbicoat Alu Selfix	BS 5250 : 2021	Value declared	7,500 MN·s·g^{-1}
Derbicoat NT	BS EN ISO 10456 : 2007	Value declared	625 MN·s·g^{-1}
Derbicoat HP Selfix	BS EN 1931 : 2000	Value achieved	500 MN·s·g^{-1}
Alumasc BGT PIR bitumen/glass tissue facer	BS EN 12086 : 2013	Value achieved	6.6 MN·s·g^{-1}
Alumasc BGT PIR insulation core	BS EN 12086 : 2013	Value declared	300 MN·s·g^{-1}·m^{-1}
Derbigum Black Derbigum Mineral Derbigum NT Derbigum Olivine	BS 5250 : 2021	Value declared	1,000 MN·s·g^{-1}

(1) The value is for the 0.1 mm aluminium sheet.

3.2.2 An assessment of the risk of interstitial condensation for the specific construction must be carried out in accordance with BS EN ISO 13788 : 2012, using the water vapour resistance and water vapour resistivity values as shown in Table 9. If a risk of condensation is identified, then an assessment must also be carried out to BS EN 15026 : 2007.

3.3 Resistance to mechanical damage

3.3.1 Results of resistance to mechanical damage tests are given in Table 10.

Table 10 Resistance to mechanical damage

Product assessed	Assessment method	Requirement	Result
	Resistance to static loading to EN 12730 : 2001	Declared value	
4 mm Derbigum Black	Method A (expanded polystyrene (EPS) substrate)	≥ 20 kg	Pass
4 mm Derbigum Mineral		≥ 20 kg	Pass
4 mm Derbigum NT		≥ 20 kg	Pass
2.5 mm Derbicoat NT		≥ 10 kg	pass
4 mm Derbigum Black	Method B (concrete substrate)	≥ 20 kg	Pass
4 mm Derbigum Mineral		≥ 20 kg	Pass
4 mm Derbigum NT		≥ 20 kg	Pass
2.5 mm Derbicoat NT		≥ 10 kg	Pass
2.5 mm Derbicoat NT	Resistance to impact to EN 12691 : 2001	Value achieved	
	EPS substrate		I20
	perlite substrate		I20
	Resistance to impact to EN 12691 : 2006	Declared value	
4 mm Derbigum Black	aluminium substrate (Method A)	≥ 1250 mm	Pass
4 mm Derbigum Mineral		≥ 1750 mm	Pass
4 mm Derbigum Black	EPS substrate (Method B)	≥ 1250 mm	Pass
4 mm Derbigum Mineral		≥ 1750 mm	Pass
4 mm Derbigum NT		≥ 1250 mm	Pass
4 mm Derbigum NT	perlite substrate	Value achieved	1250 mm
	Tensile strength to EN 12311-1 : 2000	Declared value	
4 mm Derbigum Black	Longitudinal direction	700 N·(50mm)$^{-1}$	Pass
4 mm Derbigum Mineral		900 N·(50mm)$^{-1}$	Pass
4 mm Derbigum NT		700 N·(50mm)$^{-1}$	Pass
4 mm Derbigum Black	Transverse direction	650 N·(50mm)$^{-1}$	Pass
4 mm Derbigum Mineral		700 N·(50mm)$^{-1}$	Pass
4 mm Derbigum NT		650 N·(50mm)$^{-1}$	Pass
	Elongation at break to EN 12311-1 : 2000	Declared value	
4 mm Derbigum Black	Longitudinal direction	45%	Pass
4 mm Derbigum Mineral		40%	Pass
4 mm Derbigum NT		45%	Pass
4 mm Derbigum Black	Transverse direction	45%	Pass
4 mm Derbigum Mineral		40%	Pass
4 mm Derbigum NT		45%	Pass
4 mm Derbigum Black	Tear strength (nail shank) to EN 12310-1 : 2000	≥ 150 N	Pass
4 mm Derbigum Mineral	Longitudinal direction		Pass
4 mm Derbigum NT			Pass
4 mm Derbigum Black	Transverse direction	≥ 150 N	Pass
4 mm Derbigum Mineral			Pass
4 mm Derbigum NT			Pass
20 mm Alumasc BGT PIR	Tensile strength perpendicular to faces	≥ 80 kPa declared	Pass
150 mm Alumasc BGT PIR	to BS EN 1607 : 2013		Pass

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

3.3.3 Where traffic in excess of the examples given in section 3.3.2 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 membranes by sharp objects or concentrated loads.

3.4 Resistance to root penetration

3.4.1 The result of a resistance to root penetration test is given in Table 11.

Table 11 Resistance to root penetration

Product assessed	Assessment method	Requirement	Result
4 mm Derbigum Black Anti-Root version	Resistance to root penetration to EN 13948 : 2007	No root penetration after 2 years	Pass

3.4.2 On the basis of data assessed, the system, used with Derbigum Anti-Root, when used in green roof and roof garden applications, will resist penetration by plant roots and remain weathertight.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Data were assessed for the following characteristics.

6.1 Thermal conductivity

The insulation component was tested to BS EN 12667 : 2001 and has the declared thermal conductivities (λ_D *value*) shown in Table 12.

Table 12 Thermal conductivity

Product assessed	Insulation thickness	Assessment method	Requirement	Result
Alumasc BGT PIR Insulation	< 80 mm	BS EN 13165 : 2012	Declared value (λ_D)	0.027 $W \cdot m^{-1} \cdot K^{-1}$
	80 to 119 mm			0.025 $W \cdot m^{-1} \cdot K^{-1}$
	≥ 120 mm			0.024 $W \cdot m^{-1} \cdot K^{-1}$

6.2 Thermal performance

6.2.1 The U value of a completed roof will depend upon the insulation thickness, the roof structure and its internal finish. Example U values are given in Tables 13 and 14.

Table 13 Example U values for fully adhered system

Target U value ($W \cdot m^{-2} \cdot K^{-1}$)	Insulation thickness[1] (mm)		
	Concrete deck[2]	Timber deck[3]	Metal deck[4]
0.09	125 + 125[5]	120 + 120[5]	125 + 125[5]
0.11	105 + 105[5]	105 + 100[5]	110 + 105[5]
0.12	100 + 95[5]	95 + 95[5]	100 + 100[5]
0.13	90 + 90[5]	90 + 85[5]	95 + 90[5]
0.15	150	145	80 + 80[5]
0.16	140	135	145
0.18	125	120	125
0.20	115	110	120

(1) Nearest available thickness.
(2) 150 mm concrete deck (λ = 1.33 $W \cdot m^{-1} \cdot K^{-1}$), AVCL, insulation, 3 mm waterproofing membrane.
(3) 12.5 mm plasterboard (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$), 150 mm timber joists (12.5%)/air cavity (87.5%), 18 mm plywood deck (λ = 0.17 $W \cdot m^{-1} \cdot K^{-1}$), AVCL, insulation, 3 mm waterproofing membrane.
(4) Metal deck (λ = 50 $W \cdot m^{-1} \cdot K^{-1}$), AVCL, insulation, 3 mm waterproofing membrane.
(5) Two layers of insulation boards used.

Table 14 Example U values for constructions with galvanized steel fixings

Target U value ($W \cdot m^{-2} \cdot K^{-1}$)	Insulation thickness[1] (mm)		
	Concrete deck[2][3]	Timber deck[2][4]	Metal deck[2][5]
0.09	145 + 145[6]	140 + 140[6]	145 + 145[6]
0.11	120 + 120[6]	120 + 115[6]	120 + 120[6]
0.12	115 + 110[6]	110 + 110[6]	115 + 115[6]
0.13	105 + 105[6]	100 + 100[6]	105 + 105[6]
0.15	90 + 90[6]	90 + 85[6]	95 + 90[6]
0.16	85 + 85[6]	80 + 80[6]	90 + 85[6]
0.18	145	140	150
0.20	130	125	135

(1) Nearest available thickness.
(2) Includes 5.55 galvanized steel insulation fixings per m^2 with a 4.8 mm cross sectional diameter.
(3) 150 mm concrete deck (λ = 1.33 $W \cdot m^{-1} \cdot K^{-1}$), AVCL, insulation, 3 mm waterproofing membrane.
(4) 12.5 mm plasterboard (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$), 150 mm timber joists (12.5%)/air cavity (87.5%), 18 mm plywood deck (λ = 0.17 $W \cdot m^{-1} \cdot K^{-1}$), AVCL, insulation, 3 mm waterproofing membrane.
(5) Metal deck (λ = 50 $W \cdot m^{-1} \cdot K^{-1}$), AVCL, insulation, 3 mm waterproofing membrane.
(6) Two layers of insulation boards used.

6.2.2 The system can contribute towards a construction satisfying the national Building Regulations in respect of energy economy and heat retention.

6.2.3 For improved energy or carbon savings, designers must consider appropriate fabric/service measures.

7 Sustainable use of natural resources

7.1 Reuse and recyclability

For Derbigum Black, Derbigum Anti-Root, Derbigum Mineral, Derbigum Olivine and Derbigum NT:

The membranes are made from APP polymer-modified bitumen and glass fibre/polyester reinforcement, which can be recycled, and contain up to 25% recycled material obtained from offcuts and/or old bituminous waterproofing membranes."

For Underlayer: Derbicoat NT:

The membrane is made from a hybrid modified bitumen and glass fibre/polyester reinforcement, which can be recycled, and contain up to 30% recycled material obtained from offcuts and/or old bituminous waterproofing membranes.

8 Durability

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

8.2 Specific test data were assessed as given in Table 15.

Table 15 Durability

Product assessed	Assessment method	Requirement	Result
4 mm Derbigum Black	Dimensional stability (free shrinkage)	≤ 0.3%	Pass
4 mm Derbigum Mineral	to EN 1107-1 : 2000		Pass
4 mm Derbigum NT	Longitudinal direction		Pass
4 mm Derbigum Black	Flexibility at low temperature	≤ -5°C	Pass
4 mm Derbigum Mineral	to NBN EN 1109 : 2013		Pass
4 mm Derbigum NT	Control		Pass
2.5 mm Derbicoat NT			Pass
4 mm Derbigum Black	Heat aged for 28 days at 80°C	≤ 0°C	Pass
4 mm Derbigum Mineral			Pass
4 mm Derbigum NT	Heat aged for 6 months at 70°C	≤ 0°C	Pass
4 mm Derbigum Black	Flow resistance at elevated temperature	≥ 120°C	Pass
4 mm Derbigum Mineral	to EN 1110 : 2010		Pass
4 mm Derbigum NT	Control		Pass
2.5 mm Derbicoat NT			Pass
4 mm Derbigum Black	Heat aged for 6 months at 70°C	≥ 110°C	Pass
4 mm Derbigum Mineral			
4 mm Derbigum NT	Heat aged for 3 months at 70 °C	≥ 110°C	Pass
4 mm Derbigum Black	Peel resistance of joints to	≥ 40 N·(50 mm)$^{-1}$	Pass
4 mm Derbigum Mineral	EN 12316-1 : 2000		Pass
4 mm Derbigum NT	Heat aged for 28 days at 80°C		Pass
	Longitudinal direction		
4 mm Derbigum Black	Transverse direction		Pass
4 mm Derbigum Mineral			Pass
4 mm Derbigum NT			Pass
4 mm Derbigum Black	Shear resistance of joints to	≥ 500 N·(50 mm)$^{-1}$	Pass
4 mm Derbigum Mineral	EN 12317-1 : 2000		Pass
4 mm Derbigum NT	Heat aged for 28 days at 80°C		Pass
	Longitudinal direction		
4 mm Derbigum Black	Transverse direction		Pass
4 mm Derbigum Mineral			Pass
4 mm Derbigum NT			Pass
Alumasc BGT PIR Insulation	Dimensional changes due to variations in temperature to MOAT 50 : 4.3.1 : 1992	Value achieved	$\delta L_s < 0.3\%$
	Bitumen pour to BS 4841-3 : 2006, Annex E	Change in any dimension ≤ 0.15%	Pass
	Resistance to peel of mineral coated glass fleece facing from insulation to MOAT 27 : 5.1.3 : 1983 soaked in water for 2 hours at 23°C	≥ 25 N·(50 mm)$^{-1}$	Pass
20 mm Alumasc BGT PIR	Tensile strength perpendicular to faces to BS EN 1607 : 2013 soaked in water for 2 hours at 23°C	≥ 80 kPa declared	Pass
150 mm Alumasc BGT PIR			Pass
80 mm Alumasc BGT PIR	Compressive strength at 10% compression to BS EN 826 : 1996 soaked in water for 2 hours at 23°C	≥ 150 kPa declared	Pass

8.3 Existing sites were visited to assess the durability of the system.

8.4 Service life

8.4.1 Under normal service conditions, the system will have a life in excess of 50 years provided it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

8.4.2 In situations where maintenance or repair of any of the components in the roof structure is necessary (eg the protection layer or insulation), the waterproof integrity of the membrane may be reduced. In these circumstances, the advice of the Certificate holder must be consulted, but such advice is outside the scope of this Certificate.

8.4.3 An estimate cannot be given for the life of the membrane in green roof and roof garden specifications owing to the nature of use. However, under normal circumstances, it must be significantly greater than for open coverings.

8.4.4 The membrane component is resistant to the acidic and alkali conditions it is likely to encounter during its service life, as well as the chemicals, such as liquid fertiliser, it may come into contact with.

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 meet the performance assessed 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* 2025, Chapter 7.1.

9.1.3 For design purposes of flat roofs, twice the minimum finished fall must be assumed, unless a detailed 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 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 If the roof is likely to be subjected to uncontrolled pedestrian access, the substructure must satisfy the requirements of BS 8217 : 2005, and to prevent damage to the roof covering one of the appropriate surface finishes referred to in clause 6.12 of that Standard must be used.

9.1.7 At falls in excess of 5° (1:11), precautions against slippage, and requirements for mechanical fixing as required by BS 8217 : 2005, must be observed. For slopes above 10° (1:5.7), the Certificate holder's Technical Service Department must be contacted for advice, but such advice is outside the scope of this Certificate.

9.1.8 Profiled metal decks must give a bonding area of at least 33% of the total projected surface area. Deck stiffeners cannot be counted as a satisfactory bond area, and this must be allowed for in the calculation of the bonded area for a particular application. Confirmation must be sought from the structural metal deck manufacturer for the specific deck profile installed.

9.1.9 The number of fixings required must be assessed by a suitably experienced and competent individual, taking into account the roof construction, design, height, location and topography, in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. The minimum fixing requirements are given in section A.8 of this Certificate.

9.1.10 The ballast on protected roofs, or growing medium used in green roofs and roof gardens, must not be of a type that will be removed or become delocalised, owing to wind scour experienced on the roof.

9.1.11 It must be recognised that the type of plants used in green roofs and roof gardens could significantly affect the expected wind loads experienced in service. Appropriate mitigation measures must be taken, the advice of the Certificate holder and/or the Green Roof Organisation (GRO) may be sought, but such advice is outside the scope of this Certificate.

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

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

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

9.1.14 The Green Roof Organisation (GRO) can provide guidance on species not included in section 9.1.12 and 9.1.13, but such advice is outside the scope of this Certificate.

9.1.15 The drainage systems for zero fall roofs, green roofs or roof gardens 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 and roof gardens can increase if the drains become partially or completely blocked causing waterlogging of the drainage layer.

9.1.16 Calculations of thermal transmittance (U value) must be carried out in accordance with BS EN ISO 6946 : 2017 and BRE Report BR 443 : 2019.

9.1.17 To limit the risk of interstitial condensation, roofs must be designed and constructed in accordance with the relevant parts of BS 5250 : 2021.

9.1.18 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration in accordance with the documents supporting the national Building Regulations.

9.1.19 In England and Wales, roofs will adequately limit the risk of surface condensation where the thermal transmittance (U value) does not exceed 0.35 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and the junctions with other elements are designed in accordance with section 6 of this Certificate.

9.1.20 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) of the roof does not exceed 1.2 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and roofs are designed and constructed in accordance with the relevant parts of BS 5250 : 2021. Further guidance may be obtained from BRE Report BR 262 : 2002.

9.1.21 Adequate ventilation must be provided, particularly in rooms expected to experience high humidity, and to ensure the integrity of AVCLs against vapour ingress.

9.1.22 To minimise moisture entering the roof, an AVCL must be used with sealed and lapped joints and be turned up around the insulation and bonded to the waterproofing finish.

9.1.23 For design purposes, the insulation boards may be assumed to have an allowable compressive strength of 150 kPa at 10% compression.

9.1.24 Contact with bituminous, coal tar and oil-based products must be avoided as the membranes are not compatible with lower grades of bitumen. If contact with such products is likely, a separating layer must be interposed before installing the waterproofing sheet. Where doubt arises, the advice of the Certificate holder must be sought, but such advice is outside the scope of this 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 this Certificate, the Certificate holder's instructions and the relevant clauses of BS 6229 : 2018, BS 8000-0 : 2014, BS 8000-4 : 1989 and BS 8217 : 2005. A summary of instructions and guidance are provided in Annex A of this Certificate.

9.2.3 Substrates to which the system is to be applied must be sound, dry and clean, and free from sharp projections such as nail heads and concrete nibs. Wet insulation boards must not be used. For the tapered boards to be effective in providing a uniform fall, it is essential that the structural deck is true and even. Any hollows, depressions or backfalls found in the roof deck must be rectified prior to laying the insulation.

9.2.4 The system must be laid in conditions normal to roofing work and must not be laid in rain, snow or heavy fog. If the temperature is below 5°C, suitable precautions must be taken against the formation of condensation on the boards and on the substrate.

9.2.5 Detailing must be formed in accordance with the Certificate holder's instructions.

9.2.6 The suitability of the roof construction, and in particular the immediate substrate, to accept the bonded AVCL or any specified mechanical fixings for the insulation, must be checked before installation. For Derbicoat Alu Selfix, daily pull-off tests must be carried out. In-situ pull-out or pull-through testing must be performed to determine the maximum safe working load the fixings can resist, unless suitable design data are available for a specific fixing to be used on the substrate. The advice of the Certificate holder must be sought in respect of suitable mechanical fixings, but such advice and products are outside the scope of this Certificate.

9.2.7 The bond between the insulation and the AVCL must be adequate to resist the effects of wind suction and thermal cycling likely to be experienced. In areas where high wind speeds can be expected, additional mechanical fixings must be considered, particularly at corners and perimeters. If mechanical fixing is impractical, suitable ballasting may be required. In all cases, the advice of a suitably experienced and competent individual must be sought with regard to the relevant clauses of BS EN 1991-1-4 : 2005 and its UK National Annex, but such advice is outside the scope of this Certificate.

9.2.8 Fixings installed along the edges or at corners of boards must be situated between 50 and 150 mm from the board edge.

9.2.9 Before adhering the Derbicoat Alu Selfix AVCL, the deck must be treated with Derbiprimer S.

9.2.10 The Derbicoat Alu Selfix AVCL is applied by removing the siliconised film and bonding to the deck, with side laps of 100 mm and end laps of 150 mm.

9.2.11 The Derbicoat Alu AVCL is applied by melting the lower surface by torching and pressing down. Side laps must have a minimum overlap of 100 mm and end laps a minimum overlap of 150 mm. All laps must be pressure rolled using a 15 kg long-handled lap roller. On zero fall roofs, all overlaps (side and end) must be a minimum of 150 mm and also pressure rolled.

9.2.12 At perimeters and penetrations, the AVCL is detailed to envelop the insulation boards.

9.2.13 The Certificate holder recommends a minimum number of fixings for each board but the requirement for additional fixings must be assessed by a suitably experienced and competent individual in accordance with the principles of BS EN 1991-1-4 : 2005. Fixings and washers must not overlap board joints.

9.2.14 Each fixing must incorporate a thermally broken head or washer which is a maximum of 50 mm diameter if round, or 50 mm by 50 mm if square. For adhered single-ply roofing membranes, the SPRA Design Guide recommends a 75 mm diameter round head or a 70 x 70 mm washer. Fixings located along the edge or at corners of the boards must be situated no less than 50 mm and no more than 150 mm from the board edge.

9.2.15 On multi-storey buildings or in areas subject to high wind loads, additional mechanical fixings may be required.

9.2.16 Bonding of the waterproofing membranes is achieved by melting the lower surface of the cap sheet by torching and pressing down.

9.2.17 The cap sheet is fully bonded to the Derbicoat NT underlay, which is fully bonded by torching to the Alumasc BGT PIR Insulation.

9.2.18 Side laps must be a minimum overlap of 100 mm and end laps a minimum overlap of 150 mm. All laps must be pressure rolled using a 15 kg long-handled lap roller. On zero fall roofs, all overlaps (side and end) must be a minimum of 150 mm and also pressure rolled.

9.2.19 When used as a cap sheet in a multi-layer system, the membranes are always bonded to the Derbicoat NT underlay complying with BS 8747 : 2007 or high-performance bituminous reinforced membrane. Polyester-reinforced felts must not be used.

9.2.20 The NHBC requires that the system, once installed, is inspected in accordance with *NHBC Standards* 2025, Chapter 7.1, Clause 7.1.11, and undergoes 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 on the basis of the Certificate holder's information, the relevant clauses of BS 8217 : 2005 and a site visit to witness an installation in progress. To achieve the performance described in this Certificate, installation of the system must be carried out by contractors who have been 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 meet the performance assessed in this Certificate:

9.4.2.1 The system must be the subject of visual six-monthly inspections and maintenance in accordance with the recommendations in BS 6229: 2018, Chapter 7, and the Certificate holder's own maintenance requirements. For green roof, roof garden 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 9.1.3 of this Certificate.

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

9.4.2.3 For green roofs, to protect the waterproofing, invasive plant species (see sections 9.1.12 and 9.1.13) must be eliminated through maintenance.

9.4.2.4 The control and removal of invasive plant species is carried out by hand. Where this is not possible, any chemicals used must be checked for compatibility with the roof waterproofing 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 or roof garden rainwater outlets may need to be disconnected from the main drainage system to prevent contamination of the local water system and/or harm to flora and fauna.

9.4.2.5 The chemical fertiliser used on green roofs and roof gardens, must be checked for compatibility with the roof waterproofing layer. The Certificate holder can advise on the suitability of a particular product, but such advice is outside the scope of this Certificate.

9.4.2.6 In the event of damage to the waterproof layer, repairs can be carried out by cleaning the area around the damage and applying a patch of the membrane as described in the Certificate holder's instructions.

9.4.2.7 The other system components, once installed, do not require any regular maintenance provided the roof waterproofing layers are maintained as described above.

10 Manufacture

10.1 The production processes for the system components 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:

11.1.1 The membranes are delivered to site in rolls labelled with the product name, production code, the Certificate holder's address, and the BBA logo incorporating the number of this Certificate. The rolls are packed on pallets and shrink-wrapped in polythene.

11.1.2 The bituminous primer is delivered to site in metal drums labelled with the product name and product code. The drums are packed on pallets and shrink-wrapped in polythene.

11.1.3 The adhesives are delivered to site in cartridges labelled with the product name and production code. The cartridges are packed in cardboard boxes and wrapped in polythene.

11.1.4 The insulation boards are delivered to site shrink-wrapped in plastic.

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

11.2.1 Rolls must be stored upright, on a clean and level surface, away from excessive heat and kept under cover.

11.2.1 Metal drums of primer must be stored upright and out of direct sunlight.

11.2.3 Cartridges of adhesive products must be stored out of direct sunlight.

11.2.4 The insulation boards must be stored on a firm, clean, level base, off the ground and under cover, protected from prolonged exposure to sunlight. Care must be taken to avoid contact with solvents or materials containing volatile organic components. The boards must not be exposed to open flame or other ignition sources.

† 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 under the *GB CLG 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).

CE marking

The Certificate holder has taken the responsibility of CE marking the system components in accordance with harmonised European Standards EN 13165 : 2012, EN 13707 : 2013 and EN 13970 : 2004.

Management Systems Certification for production

The management system of the membrane 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 BE013599 and BE013232 respectively).

Additional information

General

A.1 When designing a zero fall roof, reference should 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 on the design and maintenance for green roofs is available within the latest edition of the *Green Roof Organisation (GRO) Code of Best Practice.*

A.3 Installation of the insulation boards must be carried out in accordance with the Certificate holder's instructions.

A.4 Insulation boards can be cut to fit around projections through the roof, using either a sharp knife or a fine-toothed saw.

A.5 The insulation boards are installed in a close-butted break-bonded pattern.

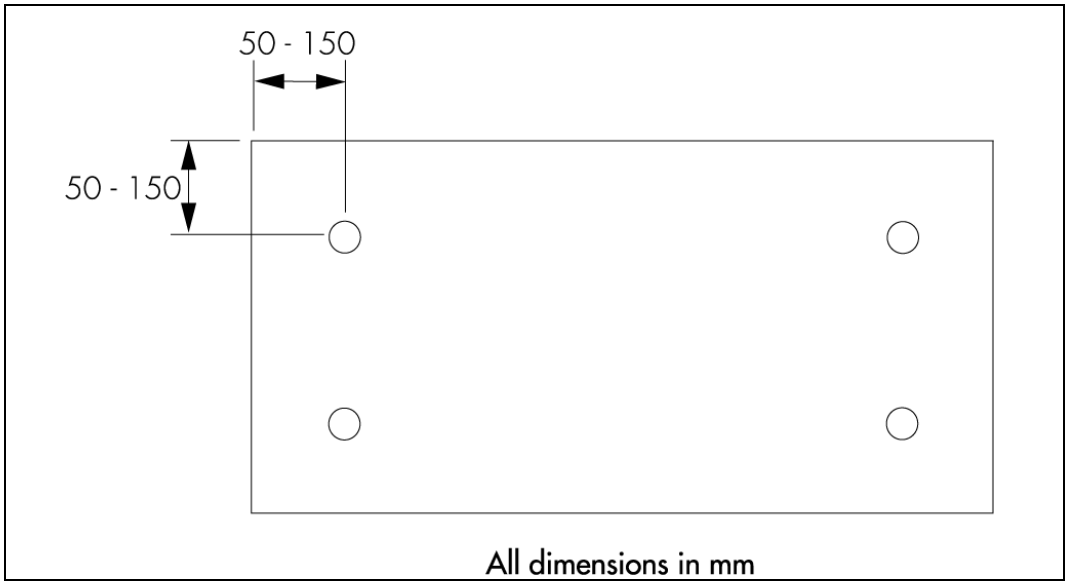
A.6 On metal decks, the boards are laid either with the long axis at right angles to the corrugations of the metal deck or diagonally across the corrugations of the deck, ensuring that all end joints and corners are sufficiently supported on the crown flats of the decking. The thickness of the board to be used is dependent on the width of the trough openings of the metal deck, as indicated in Table 6.

A.7 When fully bonded, the installed boards are bonded to the AVCL using Derbitech FA adhesive.

A.8 The insulation boards are laid over the AVCL in a brick-bonded pattern and secured to the deck with a minimum of four mechanical fixings, each incorporating a 50 mm square or circular washer and positioned within 50 to 150 mm of board edges and corners, as shown in Figure 1.

A.9 The membranes are manufactured by Imperbel-Derbigum nv/sa, Guido Gezellestraat 123 B-1654 Beersel (Huizingen), Belgium, T: +32 (0)2 334 87 00, E: infobe@derbigum.com.

Figure 1 Minimum fixing pattern for 1200 by 600 mm board



A.9 The requirement for additional fixings above those specified in section A.8 is assessed in accordance with BS 6399-2 : 1997 or BS EN 1991-1-4 : 2005.

Bibliography

BRE Report BR 262 : 2002 *Thermal insulation: avoiding risks*

BRE Report BR 443 : 2019 *Conventions for U-value calculations*

BS 4841-3 : 2006 *Rigid polyisocyanurate (PIR) and polyurethane (PUR) products for building end-use applications — Specification for laminated boards (roofboards) with auto-adhesively or separately bonded facings for use as roofboard thermal insulation under built up bituminous roofing membranes*

BS 5250 : 2021 *Management of moisture in buildings — Code of practice*

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

BS EN 826 : 1996 *Thermal insulating products for building applications — Determination of compression behaviour*

BS EN 1607 : 2013 *Thermal insulating products for building applications — Determination of tensile strength perpendicular to faces*

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*
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