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**Agrément Certificate**

**23/6839**

Product Sheet 1 Issue 1

### BULLET ROOF MONO SYSTEMS

### BULLET ROOF MONO ROOF WATERPROOFING SYSTEMS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to BULLET ROOF MONO Roof Waterproofing Systems, for use on new and existing flat and pitched roofs with limited access or pedestrian access, including balconies and terraces.

(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 systems described herein. These systems 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 issue: 4 July 2023

Hardy Giesler  
Chief Executive Officer

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

*The BBA is a UKAS accredited Inspection Body (No. 4345), Certification Body (No. 0113) and Testing Laboratory (No. 0537).*

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

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

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

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## SUMMARY OF ASSESSMENT AND COMPLIANCE

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

### Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that BULLET ROOF MONO Roof Waterproofing Systems, 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)

<b>Requirement:</b>	<b>B4(1)</b>	<b>External fire spread</b>
Comment:		The systems are restricted by this Requirement in some circumstances. See sections 2 of this Certificate.
<b>Requirement:</b>	<b>B4(2)</b>	<b>External fire spread</b>
Comment:		On suitable substructures, the systems may enable a roof to be unrestricted under this Requirement. See sections 2 of this Certificate.
<b>Requirement:</b>	<b>C2(b)</b>	<b>Resistance to moisture</b>
Comment:		The systems will enable a roof to satisfy this Requirement. See section 3 of this Certificate.
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship</b>
Comment:		The systems are acceptable. See sections 8 and 9 and Annex A of this Certificate.
<b>Regulation:</b>	<b>7(2)</b>	<b>Materials and workmanship</b>
Comment:		Use of the systems on balconies is restricted under this Regulation. See section 2 of this Certificate.



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

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Fitness and durability of materials and workmanship</b>
Comment:		The systems can satisfy the requirements of this Regulation. See sections 8 and 9 and Annex A of this Certificate.
<b>Regulation:</b>	<b>8(3)</b>	<b>Fitness and durability of materials and workmanship</b>
Comment:		The systems are restricted under this Regulation. See section 2 of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	2.2	Separation
Comment:		Use of the system on balconies is restricted under clause 2.2.7 <sup>(1)</sup> of this Standard. See section 2 of this Certificate.
Standard:	2.6	Spread on neighbouring buildings
Comment:		The systems are restricted under clause 2.6.4 <sup>(1)(2)</sup> of this Standard in some circumstances. See section 2 of this Certificate.
Standard:	2.7	Spread to external walls
Comment:		Use of the systems are restricted under clauses 2.7.1 <sup>(1)(2)</sup> and 2.7.2 <sup>(1)(2)</sup> of this Standard in some circumstances. See section 2 of this Certificate.

Standard:	2.8	Spread from neighbouring buildings
Comment:		The systems, when applied to a suitable substructure, may enable a roof to be unrestricted by clause 2.8.1 <sup>(1)(2)</sup> of this Standard. See section 3 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The use of the systems 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 systems 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 systems 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(1)(a)(i)</b>	<b>Fitness of materials and workmanship</b>
Comment:	<b>(ii)(iii)(iv)</b> <b>(b)(i)</b>	The systems are acceptable. See sections 8 and 9 and Annex A of this Certificate.
<b>Regulation:</b>	<b>23(2)</b>	<b>Materials and workmanship</b>
Comment:		Use of the systems on balconies is restricted under this Regulation. See section 2 of this Certificate.
<b>Regulation:</b>	<b>28(b)</b>	
Comment:		The systems will enable a roof to satisfy the requirements of this Regulation. See section 3 of this Certificate.
<b>Regulation:</b>	<b>36(a)</b>	<b>External fire spread</b>
Comment:		The systems are restricted by this Regulation in some circumstances. See section 2 of this Certificate.
<b>Regulation:</b>	<b>36(b)</b>	<b>External fire spread</b>
Comment:		On suitable substructures, the use of the systems may enable a roof to be unrestricted by this Regulation. See section 2 of this Certificate.

## Additional Information

### NHBC Standards 2023

In the opinion of the BBA, BULLET ROOF MONO Roof Waterproofing Systems, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs, terraces and balconies*.

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

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

## Fulfilment of Requirements

The BBA has judged, BULLET ROOF MONO Roof Waterproofing Systems to be satisfactory for use as described in this Certificate. BULLET ROOF MONO Roof Waterproofing Systems have been assessed as a waterproofing system on new and existing flat and pitched roofs with limited or pedestrian access, including balconies and terraces as described in this Certificate.

## ASSESSMENT

### Product description and intended use

The Certificate holder provided the following description for the product under assessment. BULLET ROOF MONO Roof Waterproofing Systems consist of:

- BULLET ROOF MONO — a single component, moisture curing, thixotropic hybrid polyurethane-polyurea membrane installed by brush, roller or airless spray
- BULLET ROOF MONO TOP — a single component, elastic aliphatic polyurethane, UV resistant top coat, installed by brush, roller or airless spray, for use over the other membranes in exposed uses
- BULLET MAT NW — a  $60 \text{ g}\cdot\text{m}^{-2}$  polyester reinforcement for the systems
- BULLET MAT GM — a  $225 \text{ g}\cdot\text{m}^{-2}$  glass reinforcement for the systems
- QUICK PRIME — a single component, solvent based, moisture curing polyurethane primer for use on concrete and bituminous membrane substrates.
- BULLET ROOF 5/A — a two-component, water-based, epoxy primer for use on bitumen membranes and porous substrates.

#### Ancillary items

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

- BULLET ROOF CMF — a proprietary self-adhesive carrier membrane, including a glass facing on the top face, used over modular substrates with joints and as separating layer underneath (carrying) BULLET ROOF MONO Roof Waterproofing Systems. Also suitable for cracked mineral substrates. Contact the Certificate holder's Technical Services for further advice
- BULLET ROOF CMA — a proprietary self-adhesive carrier membrane used over modular substrates with joints and as separating layer underneath (carrying) BULLET ROOF MONO Roof Waterproofing Systems. Also suitable for cracked mineral substrates. Contact the Certificate holder's Technical Services for further advice
- BULLET ROOF REINFORCED TAPE — a self-adhesive reinforcing tape for specific points of weakness such as joints, cracks, protrusions, and junctions and coupling of same or different materials
- quartz aggregate (0.5 – 1.0 mm) or emery aggregate (0.25 – 0.5 mm) — may be used in conjunction with BULLET ROOF MONO or BULLET ROOF MONO TOP to provide an anti-slip surface for pedestrian access areas in accordance with the Certificate holder's instructions, this has not been assessed by the BBA and is outside the scope of this Certificate.

The systems are intended for use on new and existing flat and pitched roofs with limited or pedestrian access, including balconies and terraces. The systems are suitable for use on the following substrates:

- concrete
- reinforced bitumen membranes (including sanded and mineral surfaced).

## Definitions for product and applications inspected

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

- flat roof — a roof having a minimum finished fall of 1:80
- pitched roof — a roof having a fall in excess of 1:6
- limited access roof — a roof subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc
- pedestrian access roof — a roof that is not subjected to vehicular traffic.

## Product assessment – key factors

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

### 1 Mechanical resistance and stability

Not applicable.

### 2 Safety in case of fire

Data were assessed for the following characteristics.

#### 2.1 External fire spread.

2.1.1 When tested to CEN/TS 1187 : 2012, Test 4 and classified to EN 13501-5 : 2016, the constructions given in Table 1 of this Certificate achieved BROOF(t4) for slopes below 10°.

*Table 1 Systems given B<sub>ROOF(t4)</sub> classification*

Substrate	Base coat	Reinforcement	Top coat	UV protection coat
Fibre cement board 5 mm to 20 mm thick	BULLET ROOF MONO applied at a rate of 1.5 kg·m <sup>-2</sup>	BULLET MAT GM	BULLET ROOF MONO applied at a rate of 1.8 kg·m <sup>-2</sup>	—
Fibre cement board ≥ 8 mm thick	BULLET ROOF MONO applied at a rate of 2.0 kg·m <sup>-2</sup>	BULLET MAT NW or BULLET MAT GM	BULLET ROOF MONO applied at a rate of 3.9 kg·m <sup>-2</sup>	—
	BULLET ROOF MONO applied at a rate of 1.5 kg·m <sup>-2</sup>		BULLET ROOF MONO applied at a rate of 1.0 kg·m <sup>-2</sup>	BULLET ROOF MONO TOP applied at a rate of 0.3 kg·m <sup>-2</sup>

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

2.1.3 When used in conjunction with one of the inorganic coverings listed in the Annex of Commission Decision 2000/553/EC, the systems will be similarly unrestricted.

2.1.4 The designation and permissible areas of use of other specifications should be confirmed by reference to the requirements of the documents supporting the national Building Regulations.

## 2.2 Reaction to fire

2.2.1 The Certificate holder has not declared a reaction to fire classification for BULLET ROOF MONO Roof Waterproofing Systems.

2.2.2 On the basis of data assessed, BULLET ROOF MONO Roof Waterproofing Systems will be restricted in use under the documents supporting the national Building Regulations in some cases.

2.2.3 In England, the systems, when used for roof pitches of greater than 70°, excluding upstands, should not be used less than 1 m from a boundary, or on residential buildings more than 11 m in height or on other buildings more than 18 m in height. These constructions should also be included in calculations of unprotected area.

2.2.4 In Wales, the systems, when used for roof pitches greater than 70°, excluding upstands, should not be used less than 1 m from a boundary, or on other buildings more than 18 m in height or in some cases, on assembly and recreation buildings. These constructions should also be included in calculations of unprotected area.

2.2.5 In Scotland and Northern Ireland, the systems used in pitches greater than 70°, excluding upstands, which do not achieve the minimum Class E reaction to fire classification to BS EN 13501-1 : 2018, designers should seek guidance on the proposed use of the system from the relevant Building Control Body.

2.2.6 In England, the systems should not be used exposed on balconies on residential buildings with a storey 11 m or more in height or on buildings that have a storey more than 18 m above ground level and which contain: one or more dwelling, an institution, a room for residential purposes, a room in a hostel, hotel or boarding house, student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools.

2.2.7 In Wales and Northern Ireland, the systems should not be used exposed on balconies on buildings that have a storey at least 18 m above ground level and which contain one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools and additionally, in Northern Ireland, nursing homes and places of lawful detention.

2.2.8 In Scotland, the systems should not be used on balconies of buildings with a storey 11 m or more above the ground.

## **3 Hygiene, health and the environment**

Data were assessed for the following characteristics.

### 3.1 Weathertightness

3.1.1 Results of weathertightness tests are given in Table 2.

**Table 2 Weathertightness results**

Product assessed	Assessment method	Requirement	Result (Mean)
BULLET ROOF (Glass mat system)	Watertightness by exposure to 60 kPa BS EN 1928 : 2000 (method B)	No evidence of water leakage	Pass
BULLET ROOF	Water vapour transmission properties BS EN 1931 : 2000	Value achieved	S <sub>d</sub> (equivalent air layer thickness): 0.815 m
BULLET ROOF (Glass mat system)	Delamination to EOTA TR 004 : 2004 (on concrete)	≥50 kPa	Pass
BULLET ROOF (Glass mat system)	Delamination to EOTA TR 004 : 2004 (mineral on insulation)	≥50 kPa	Pass
BULLET ROOF (glass mat system)	Delamination to EOTA TR 004 : 2004 (mineral on Concrete)	≥50 kPa	Pass
BULLET ROOF (Polyester mat system)	Crack bridging to EOTA TR 013 : 2004 (on concrete) Control	Water leakage	Pass

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

3.1.3 On the basis of data assessed, the adhesion of the systems is sufficient to resist the effects of wind suction, elevated temperature and thermal shock conditions likely to occur in practice and remain weathertight.

3.1.4 The resistance to wind uplift for warm roofs will be dependent on the cohesive strength of the insulation and the method by which it is secured to the roof deck. This must be taken into account when selecting a suitable insulation material.

### 3.2 Resistance to mechanical damage

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

**Table 3 Mechanical resistance results**

Product assessed	Assessment method	Requirement	Result
BULLET ROOF	Tensile strength and Elongation to BS EN ISO 527-1 : 2019 and BS EN ISO 527-4 : 1997 Control Control cured for 21 days at 5°C Control cured for 21 days at 35°C	Value achieved	979 N per 50 mm/2.97 % 945 N per 50 mm/3.50 % 1317 N per 50 mm/2.97 %
BULLET ROOF (Glass mat system)	Dynamic indentation to EOTA TR 006 (on steel) Control tested at 21°C Control tested at -30°C Control cured for 21 days at 5°C Tested at 21°C Control cured for 21 days at 35°C Tested at 21°C	Value achieved	 I <sub>4</sub> I <sub>4</sub>  I <sub>4</sub> I <sub>4</sub>
BULLET ROOF (Glass mat system)	Dynamic indentation to EOTA TR 006: 2004 ((on mineral and insulation) Tested at 20°C	Value achieved	 I <sub>4</sub>
BULLET ROOF (Polyester mat system)	Dynamic indentation to EOTA TR 006: 2004 ((on mineral and insulation) Tested at 20°C	Value achieved	 I <sub>4</sub>
BULLET ROOF (Glass mat system)	Static indentation to EOTA TR 007 : 2004 (on steel) Control tested at 20°C Control tested at 90°C	Value achieved	 L <sub>4</sub> L <sub>4</sub>
BULLET ROOF (Glass mat system)	Static indentation to EOTA TR 007 : 2004 (on mineral and insulation) Tested at 20°C	Value achieved	 L <sub>4</sub>
BULLET ROOF (Polyester mat system)	Static indentation to EOTA TR 007 : 2004 (on mineral and insulation) Tested at 20°C	Value achieved	 L <sub>4</sub>
BULLET ROOF (Glass mat system)	Fatigue to EOTA TR 008 : 2004 (on concrete) (1000 cycles at -10°C)	No evidence of leakage after 24 hours exposure to 100 mm head of water. No debonding, or if any not exceeding 75 mm in total or 50 mm on one side of the gap	Pass

3.2.2 On the basis of data assessed, the systems can accept, without damage, the foot traffic and light concentrated loads associated with installation, maintenance and pedestrian traffic on defined walkways and the effects of minor movement likely to occur in practice while remaining weathertight.

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

#### 4 Safety and accessibility in use

Not applicable.

## **5 Protection against noise**

Not applicable.

## **6 Energy economy and heat retention**

Not applicable.

## **7 Sustainable use of natural resources**

Not applicable.

## **8 Durability**

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

8.2 Specific test data were assessed as given in Table 4.

*Table 4 Results of durability tests*

Product assessed	Assessment method	Requirement	Result
BULLET ROOF (Glass mat system)	Tensile strength/Elongation to BS EN ISO 527-1 : 2019 and BS EN ISO 527-4 : 1997 Heat aged for 240 days at 80°C UV aged for 1200 MJm <sup>2</sup> (60°C) as defined in EOTA TR-010 21 days cure at 5°C and then stored at 23°C/50 % humidity 21 days cure at 35°C and then stored at 23°C/50 % humidity	Value achieved	1389 N per 50 mm/2.63 % 1345 N per 50 mm/2.61 %  945 N per 50 mm/3.5%  1317 N per 50 mm/2.97%
BULLET ROOF (Glass mat system)	Delamination to EOTA TR 004 : 2004 (On concrete) Water exposure 96 days (Dried at ambient for 59 days prior to testing	≥50 kPa	Pass
BULLET ROOF (Glass mat system)	Delamination to EOTA TR 004 : 2004 (Mineral on insulation) Water exposure 96 days (Dried at ambient for 59 days prior to testing	≥50 kPa	Pass
BULLET ROOF (Glass mat system)	Delamination to EOTA TR 004 : 2004 (Mineral on insulation) Water exposure 60 days	≥50 kPa	Pass
BULLET ROOF (Glass mat system)	Dynamic indentation to EOTA TR 006 : 2004 (on steel) UV aged (Exposure condition 'S' (60°C) as defined in EOTA TR-010) tested at -10°C Heat aged at 80°C for 240 days tested at -10°C	Value achieved	I <sub>4</sub>  I <sub>4</sub>
BULLET ROOF (Glass mat system)	Static indentation to EOTA TR 007 : 2004 (on steel) Water exposure at 60°C for 96 days tested at 90°C	Value achieved	L <sub>4</sub>
BULLET ROOF (Glass mat system)	Fatigue to EOTA TR 008 : 2004 (on concrete) Heat aged at 80°C for 240 days (50 cycles)	No evidence of leakage after 24 hours exposure to 100 mm head of water. No debonding, or if any not exceeding 75 mm in total or 50 mm on one side of the gap	Pass
BULLET ROOF (Polyester mat system)	Crack bridging to EOTA TR 013 : 2004 (on concrete) Heat aged at at 70°C for 91 days	Water leakage	Pass

### 8.3 Service life

8.3.1 Under normal service conditions, the systems will have a life of at least 30 Years, provided they are designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

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, and the following requirements apply in order to satisfy the performance assessed in this Certificate.

9.1.2 Decks to which the systems are to be applied must comply with the relevant requirements of BS 6229 : 2018 and, where appropriate, *NHBC Standards 2023*, 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 Balconies and terraces, to which the systems are to be applied, must be designed in accordance with BS 8579 : 2020.

9.1.5 In areas of pedestrian access, appropriate precautions against slip, such as the installation of paviours, must be taken.

9.1.6 Dead loads, wind loads and imposed 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.

9.1.7 Insulation materials to be used in conjunction with the systems must be in accordance with the Certificate holder's instructions and be either:

- as described in the relevant clauses of BS 6229:2018, or
- the subject of a current BBA Certificate and be used in accordance with, and within the limitations of, that Certificate.

#### 9.2 Installation

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

9.2.2 Installation of BULLET ROOF MONO waterproofing system must be carried out in accordance with the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989, the Certificate holder's instructions and this Certificate. Additional instructions and guidance are provided in Annex A of this Certificate.

9.2.3 The systems' components must be applied when the air and substrate temperatures are greater than 5°C, rising to a maximum air temperature of 35°C. The systems must not be installed in rain, snow, fog or misty conditions.

9.2.4 Detailing (eg upstands) must be carried out in accordance with the Certificate holder's instructions.

9.2.5 Substrates on which the systems are to be applied must be properly prepared in accordance with the Certificate holder's instructions.

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

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

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

9.2.9 The primers are applied at the coverage rates given in Table 5.

Primer	Application rate ( $\text{g}\cdot\text{m}^{-2}$ )
QUICK PRIME	150
BULLET ROOF 5/A	100 to 150 <sup>(1)</sup>

(1) QUICK PRIMER diluted at a ratio of 1:1 with water.

9.2.10 When using an airless spray, the wind speed must be such that it does not interfere with the application or cause overspray. No attempt to spray should be made if the wind speed exceeds  $6.7 \text{ m}\cdot\text{s}^{-1}$  (15 mph), unless precautions such as the use of wind barriers are taken.

9.2.11 The systems are applied at the application rates given in Table 6.

Layer	Systems	
	BULLET ROOF MONO <sup>(1)</sup>	BULLET ROOF MONO / BULLET ROOF MONO TOP S
Base coat	BULLET ROOF MONO at $1.50 \text{ kg}\cdot\text{m}^{-2}$ ( $1.00 \text{ l}\cdot\text{m}^{-2}$ ) minimum	BULLET ROOF MONO at $1.50 \text{ kg}\cdot\text{m}^{-2}$ ( $1.00 \text{ l}\cdot\text{m}^{-2}$ ) minimum
Reinforcement	BULLET GM or BULLET NW	BULLET GM or BULLET NW
Top coat	BULLET ROOF MONO TIX at $1.80 \text{ kg}\cdot\text{m}^{-2}$ ( $1.20 \text{ l}\cdot\text{m}^{-2}$ ) minimum	BULLET ROOF MONO at $1.00 \text{ kg}\cdot\text{m}^{-2}$ ( $0.65 \text{ l}\cdot\text{m}^{-2}$ ) minimum
Protection coat	N/A	BULLET ROOF MONO TOP S at $0.30 \text{ kg}\cdot\text{m}^{-2}$ ( $0.25 \text{ l}\cdot\text{m}^{-2}$ )
Finished thickness (mm)	2.2 <sup>(2)</sup>	1.9

(1) When the  $5.9 \text{ kg}\cdot\text{m}^{-2}$  application rate is used the top coat ( $3.9 \text{ kg}\cdot\text{m}^{-2}$ ) can be applied either in one coat or two coats.

(2) Finished thickness of the  $5.9 \text{ kg}\cdot\text{m}^{-2}$  application rate is 3.5 mm.

9.2.12 The NHBC requires that the BULLET ROOF MONO Roof Waterproofing Systems, once installed, be inspected in accordance with *NHBC Standards 2023*, Chapter 7, Clause 7.1.11, including the use of appropriate integrity, where required. Any damage to the systems assessed in this Certificate must be repaired in accordance with section 9.4 of this Certificate and reinspected, in order to maintain product performance.

9.2.13 The Certificate holder's Technical Services can provide further advice, but such advice is outside of the scope of this Certificate.

### 9.3 Workmanship

9.3.1 Practicability of installation was assessed by the BBA on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, the systems must only be installed 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 systems in use requires that they are suitably maintained. The guidance provided by the Certificate holder was assessed by the BBA and found to be appropriate and adequate.

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

9.4.2.1 The systems must be the subject of six-monthly inspections and maintenance in accordance with the recommendations of BS 6229 : 2018, Chapter 7, and the Certificate holder's own maintenance requirements, where relevant, to ensure continued satisfactory performance.

9.4.2.2 Should minor damage occur, it must be rectified by cleaning back to unweathered material and an appropriate remedial product applied in accordance with the Certificate holder’s instructions to the damaged area.

## 10 Manufacture

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

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

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

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

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

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

†10.1.6 The BBA has undertaken to review the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

## 11 Delivery and site handling

11.1 The Certificate holder stated that the system’s components are delivered to site in packaging bearing Certificate holder’s name, logo, product name, batch number and health and safety data.

11.2 The packaging of the product is given in Table 7.

*Table 7 Packaging*

Component/item	Package type	Size	Shelf life
BULLET ROOF MONO	metal cans	8 or 25 kg	12 months
BULLET ROOF MONO TOP	Tins- 2 Packs	7.2 Kg & 2.8kg	12 months
QUICKPRIME	metal cans	0.8 and 3kg	12 months
BULLET ROOF 5/A	plastic cans	3 and 16 kg	12 months
BULLET MAT NW	rolls	20 and 100 m <sup>2</sup>	—
BULLET MAT GM	rolls	20, 125 and 200 m <sup>2</sup>	—

Supporting information in this Annex is relevant to the product 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 systems or systems components under the *GB CLG Regulation* and 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).

### Additional information on installation

#### **General**

A.1 Installation should also be in accordance with the relevant clauses of Liquid Roofing and Waterproofing Association (LRWA) Note 7 – *Specifier Guidance for Flat Roof Falls*

A.2 Existing bituminous membranes may not require the application of primer. In such cases the advice of the Certificate holder's technical office should be sought, but such advice is outside of the scope of this Certificate.

A.3 Application can be by brush, roller or airless spray. Brush application is normally used for small roof areas and for embedding the reinforcement into the waterproofing.

A.4 The top coats are either applied wet-on-wet or as soon as the previous layer has cured allowing trafficking of the surface up to a maximum of seven days. After this period the membrane is cleaned and the surface reactivated using QUICK PRIMER, prior to application.

A.5 If BULLET ROOF MONO 100 is being applied as a protection coat, it is applied a maximum of 24 hours after the application of the top coat.

## Bibliography

- BS 6229 : 2018 *Flat roofs with continuously supported flexible waterproof coverings — Code of practice*
- BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*  
BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*
- BS 8579 : 2020 *Guide to the design of balconies and terraces*
- BS EN 1991-1-1 : 2002 Eurocode 1 : *Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*  
NA to BS EN 1991-1-1 : 2002 UK National Annex to Eurocode 1 : *Actions on structures — General actions— Densities, self-weight, imposed loads for buildings*  
BS EN 1991-1-3 : 2003 + A1 : 2015 Eurocode 1 : *Actions on structures — General actions — Snow loads*  
NA to BS EN 1991-1-3 : 2003 + A1 : 2015 UK National Annex to Eurocode 1 : *Actions on structures — General actions — Snow loads*  
BS EN 1991-1-4 : 2005 + A1 : 2010 Eurocode 1 : *Actions on structures — General actions — Wind actions*  
NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to Eurocode 1 : *Actions on structures — General actions — Wind actions*
- CEN/TS 1187 : 2012 *Test methods for external fire exposure to roofs*
- EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*  
BS EN 13501-5 : 2016 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roof tests*
- BS EN ISO 527-1 : 2019 *Plastics — Determination of tensile properties — General principles*  
BS EN ISO 527-4 : 2021 *Plastics — Determination of tensile properties — Test conditions for isotropic and orthotropic fibre-reinforced plastic composites*
- BS EN 1928 : 2000 Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roof waterproofing. Determination of watertightness
- BS EN 1931 : 2000 Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roof waterproofing. Determination of water vapour transmission properties
- EOTA TR004 *Determination of the resistance to wind loads of partially bonded roof waterproofing membranes*  
EOTA TR006 *Determination of the resistance to dynamic indentation*  
EOTA TR007 *Determination of the resistance to static indentation*  
EOTA TR008 *Determination of the resistance to fatigue movement*  
EOTA TR013 *Determination of crack bridging capability*

## Conditions of Certificate

### Conditions

1 This Certificate:

- relates only to the product that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

3 This Certificate will be displayed on the BBA website, and the Certificate Holder is entitled to use the Certificate and Certificate logo, provided that the product and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

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

5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

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

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

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