

Classification report for roofs/roof coverings exposed to external fire No. 22053T

Owner of the classification report

PRINCIPAL BUILDING PRODUCTS
Barbot Hall Industrial Estate
Mangham Road
Rotherham
S61 4RJ

Introduction

This classification report defines the classification assigned to the roof/roof covering **«BULLET ROOF MONO SYSTEMS»** in accordance with the procedures given in the standard EN 13501-5:2016: Fire classification of construction products and building elements – Part 5: Classification using data from external fire exposure to roofs tests: Test 4: Method with two stages incorporating burning brands, wind and supplementary radiant heat.

This classification report consists of 9 pages

1. DESCRIPTION OF THE ROOF/ROOF COVERING

This description is based on information given by the sponsor.

	Nominal values (1)	Measured values (2)
SUBSTRATE DECK		
Material	Fibre cement board	
Thickness (mm)	8	
Density (kg/m ³)	1600 ± 50	
BITUMINOUS MEMBRANE (OPTIONAL)		
Material	Bituminous membrane substrate	
Thickness (mm)	5	
Application method	Adhering by fire	
PRIMER (OPTIONAL)		
Material	One component polyurethane-based primer	
Trade name	QUICK PRIME	
Manufacturer/supplier	PRINCIPAL BUILDING PRODUCTS	
Applied amount (g/m ²)	150	
Solid content (V%)	40	
Flame retardants	No	
Application method	Application by roller	
Curing time (minutes)	20 – 60	
ROOF COVERING		
1.1 <u>First layer</u>		
Material	One-component thixotropic moisture curing liquid polyurethane membrane	
Trade name	BULLET ROOF MONO	
Manufacturer / Supplier	PRINCIPAL BUILDING PRODUCTS	
Thickness (mm)	0,74 (DFT)	(3)
Surface weight (g/m ²)	1500	(3)
Flame retardants	Yes	(3)
Application method	Roller / Brush / Airless spray	
1.2 <u>Reinforcement layer</u>		
A) <u>BULLET MAT GM 100</u>		
Material	Glass fibre reinforcement layer	
Manufacturer / Supplier	PRINCIPAL BUILDING PRODUCTS	
Thickness (mm)	0,5	(3)
Surface weight (g/m ²)	225	(3)
Flame retardants	No	(3)
Applied method	Embedded onto the first layer	

B) BULLET MAT NW		
Material	Non-woven polyester reinforcement layer	
Manufacturer / Supplier	PRINCIPAL BUILDING PRODUCTS	
Thickness (mm)	0,5	(3)
Surface weight (g/m ²)	60	(3)
Flame retardants	No	(3)
Applied method	Embedded onto the first layer	
1.3 <u>Top layer</u>		
Material	One-component thixotropic moisture curing liquid polyurethane membrane	
Trade name	BULLET ROOF MONO	
Manufacturer / Supplier	PRINCIPAL BUILDING PRODUCTS	
Colour	Grey	
Thickness (mm)	0,50 (DFT)	(3)
Surface weight (g/m ²)	1000	(3)
Flame retardants	Yes	(3)
Application method	Roller / Brush / Airless spray	

(1) Based on the information given by the sponsor

(2) Values verified by the laboratory

(3) Unverifiable by the laboratory

(4) Known by the laboratory

Summary of parameters and tested systems:

	A-1	A-2	A-3
Top coat	BULLET ROOF MONO	BULLET ROOF MONO	BULLET ROOF MONO
Application method	Roller/brush/roller applied/ Airless spray	Roller/brush/roller applied/ Airless spray	Roller/brush/roller applied/ Airless spray
Reinforcement	Bullet Mat GM 100	Bullet Mat GM 100	Bullet Mat NW
Base coat	BULLET ROOF MONO	BULLET ROOF MONO	BULLET ROOF MONO
Application method	Roller/brush/roller applied/ Airless spray	Roller/brush/roller applied/ Airless spray	Roller/brush/roller applied/ Airless spray
Primer	Bituminous membrane	N/A	Bituminous membrane
Separating layer	N/A	PU-primer	N/A
Substrate	Fibre cement board (8 mm ; 1600 ± 50 kg/m ³)		

2. TEST REPORTS AND TEST RESULTS IN SUPPORT OF THIS CLASSIFICATION

a) Test reports

Name of the laboratory	Name of the sponsor	Test report ref. no.	Test method
WFRGENT nv Ghent - Belgium	MIXER SRL – MPM DIVISION	22053A	CEN/TS 1187:2012: Test 4
WFRGENT nv Ghent - Belgium	PRINCIPAL BUILDING PRODUCTS	22053S	CEN/TS 1187:2012: Test 4
WFRGENT nv Ghent - Belgium	MIXER SRL – MPM DIVISION	22053C	CEN/TS 16459:2019

b) Test results

Test conditions: 22053A

Specimen No.	A-1'	A-2'	A-3'
Date of test	19/15/2022	19/15/2022	20/07/2022
Roof pitch	0°	0°	0°
Room temperature at start of test (°C):	21	20	21
Substrate	Fibre cement board (8 mm ; 1600 ± 50 kg/m ³)		

(¹) The results of preliminary test correspond with the obtained results of the penetration test.

Specimen No.	A-1	A-2	A-3
Date of test	04/05/2022	04/05/2022	20/07/2022
Roof pitch	0°	0°	0°
Room temperature at start of test (°C):	21	20	21
Substrate	Fibre cement board (8 mm ; 1600 ± 50 kg/m ³)		

PRELIMINARY IGNITION TEST WITH BURNING BRANDS (STAGE 1)

Specimen No:	A-1'(*)	A-2'	A-3'
Duration of flaming after withdrawal of the test flame (min:sec)	00:00	00:00	00:00
Maximum flame spread distance (mm)	80	75	75
Time to fire penetration (min:sec)	Did not penetrate	Did not penetrate	Did not penetrate
Nature of the penetration	N.a.	N.a.	N.a.

(*) The results of preliminary test correspond with the obtained results of the penetration test.

(*) Reused in the official test 22053S.

PENETRATION TEST WITH BURNING BRANDS, WIND AND SUPPLEMENTARY RADIANT HEAT (STAGE 2)

Specimen No:	A-1(*)	A-2	A-3	Average
Time to fire penetration (min:sec)	Did not penetrate	Did not penetrate	Did not penetrate	Did not penetrate
Nature of the penetration	N/A	N/A	N/A	-
Additional observations: All specimens ignited. Carbonization and melting of the top layer were visible for all specimens. Specimen A-1 extinguished after 35:31, specimen A-2 extinguished after 09:43 and specimen A-3 extinguished after 40:15.				

(*) Reused in the official test 22053S.

Test conditions: 22053S

Specimen No.	1	2	3	4
Date of test	19/05/2022	04/05/2022	20/07/2022	20/07/2022
Roof pitch	0°	0°	0°	0°
Room temperature at start of test (°C):	21	21	21	21
Substrate	Fibre cement board (8 mm ; 1600 ± 50 kg/m ³)			

Build-up: Fibre cement board + Bituminous membrane + BULLET ROOF MONO + Bullet Mat GM 100 + BULLET ROOF MONO

PRELIMINARY TEST (STAGE 1)

Parameter	Criteria				Test ^(a) results	Compliance			
	Class BROOF(t4)	Class CROOF(t4)	Class DROOF(t4)	Class EROOF(t4)	Spec. 1	Class BROOF(t4)	Class CROOF(t4)	Class DROOF(t4)	Class EROOF(t4)
Burn time	< 5 min	< 5 min	< 5 min	≥ 5 min	00:00	Yes	Yes	Yes	Yes
Flame spread distance	< 0,38 m	< 0,38 m	< 0,38 m	No limit	0,80	Yes	Yes	Yes	Yes
Penetration	None	None	None	None	None	Yes	Yes	Yes	Yes

(a) Not for extended application.

PENETRATION TEST (STAGE 2)

Parameter	Criteria			
	Class B _{ROOF} (t4)	Class C _{ROOF} (t4)	Class D _{ROOF} (t4)	Class E _{ROOF} (t4)
Penetration	≥ 60 min	< 60 min ≥ 30 min	< 30 min	< 30 min
Parameter	Test ^(a) results			
	Spec. 1	Spec. 2	Spec. 3	Mean ^a
Penetration	None	None	None	None
Parameter	Compliance			
	Class B _{ROOF} (t4)	Class C _{ROOF} (t4)	Class D _{ROOF} (t4)	Class E _{ROOF} (t4)
Penetration	Yes	Yes	Yes	Yes

(a) If one or two of the specimens have not failed at one hour, a time of 60 min shall be used in calculating the mean time of penetration.

3. CLASSIFICATION AND FIELD OF APPLICATION

a) Reference

This classification has been carried out in accordance with clause 9 test 4 of EN 13501-5:2016 and EAD 030350-00-0402:2018 & EN 1504-2:2004. Harmonised product standard EN 1504-2:2004 has no reference relating the external fire performance and does not mention any required testing in conformity with CEN/TS 1187:2012.

b) Classification

The roof / roof covering «**BULLET ROOF MONO systems**» in relation to its external fire performance is classified:

B_{ROOF} (t4)

c) Direct field of application

The classification is valid for the system as described in §1 for the following conditions:

- Range of pitches: ≤ 10°

d) Extended field of application

➤ Range of layer 0: The top layer: BULLET ROOF MONO

Material:	One-component thixotropic moisture curing liquid polyurethane membrane
Thickness:	0,50 mm (DFT)
Surface weight:	1000 g/m ²
Colour:	Grey
Flame retardants:	Yes
Application method:	Roller / Brush / Airless spray

➤ Range of layer 1: The reinforcement: Bullet Mat GM 100

Material:	Glass fibre reinforcement layer
Surface weight:	225 g/m ² or more

OR

➤ Range of layer 1: The reinforcement: Bullet Mat NW

Material:	Non-woven polyester reinforcement layer
Surface weight:	60 g/m ² or less

➤ Range of layer 2: The base layer: BULLET ROOF MONO

Material:	One-component thixotropic moisture curing liquid polyurethane membrane
Thickness:	0,74 mm (DFT)
Surface weight:	1500 g/m ²
Colour:	Grey
Flame retardants:	Yes
Application method:	Roller / Brush / Airless spray

➤ Range of layer 3: The primer, as tested and described in §1.2. (OPTIONAL)

➤ Range of layer 4: The bituminous membrane (OPTIONAL)

Material:	Bituminous membrane substrate
Thickness:	5
Application method:	Adhering by fire

➤ Range of layer 5: Substrate deck

Range of substrate deck:	Non-combustible substrates (A1/A2) (8 mm or more ; 1550 kg/m ³ or more)
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4. LIMITATIONS

At the time the standard EN 13501-5:2016 was published, no decision was made concerning the duration of validity of a classification document.

Provisions of Regulation (EU) 305/2011, commonly known as the Construction Products Regulation (CPR), prevail over any conflicting provisions in the harmonized standards and technical specifications.

5. WARNING

This classification report does not represent type approval nor certification of the product.

6. CONCERNING DECLARATION OF PERFORMANCE (DoP) ACCORDING TO THE CONSTRUCTION PRODUCT REGULATION (CPR)

According to EAD 030350-00-0402:2018 (§3.1) the applicable legal acts for liquid applied roof waterproofing kits are Decision 98/599/EC and amended by Commission Decision 2001/596/EC. The system of Assessment and Verification of Constancy of Performance (AVCP) for a Declaration of Performance (DoP) under the Construction Products Regulation (CPR: EU 305/2011) is System 3.

The classification assigned to the product in this report is appropriate to such a Declaration of Performance of the essential characteristics of the construction product by the manufacturer within the context of a System 3 Assessment and Verification of Constancy of Performance. Under the Construction Products Regulation a Declaration of Performance (DoP) is a requirement for affixing the CE marking.

PREPARED BY

APPROVED BY

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