

Classification report for roofs/roof coverings exposed to external fire No. 20385D-rev.1

Owner of the classification report

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Introduction

This classification report defines the classification assigned to the roof/roof covering «**BauderFLEX K4E**» 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 8 pages

1. DESCRIPTION OF THE ROOF/ROOF COVERING

This description is based on information given by the sponsor.

	Nominal value (1)	Measured value (2)
SUPPORTING DECK		
Material	OSB (density: 616 kg/m³; thickness: 18 mm)	
VAPOUR BARRIER		
Material	Self-adhesive elastomeric bitumen vapour barrier with a mica finished upper surface and aluminium glass-mat reinforcement	
Trade name	BauderTEC KSD mica	
Manufacturer / Supplier	Bauder GmbH & Co.KG	
Reinforcement (material + g/m²)	PET-aluminium-glass mat, 200 g/m²	
Mineral finish (material + g/m²)	Mica, amount not communicated	
Thickness (mm)	2,5	(3)
Surface weight (g/m²)	2500	(3)
Flame retardants	No	(3)
Fixing method	Completely self-adhesive	
Reaction to fire according to EN 13501-1	E	
ADHESIVE		
Material	PU Adhesive	
Trade name	Bauder Twin Cartridge adhesive	
Manufacturer / Supplier	Bauder GmbH & Co.KG	
Surface weight applied (l/m²)	0,1	
Application method	Partially glued	
INSULATING LAYER		
Material	Mineral wool insulation board	
Trade name	BauderROCK Insulation	
Backing/facing material (g/m²)	Top side: 300 g/m³ glass fibre fleece	
Manufacturer	ROCKWOOL	
Supplier	Bauder GmbH & Co.KG	
Thickness (mm)	Single layer: 60 & 185 Double layer: 60+150	(3)
Density (kg/m³)	160	(3)
Flame retardants	No	(3)
Fixing method	Partially adhered	
Reaction to fire according to EN 13501-1	A2	

(1) Based on the information given by the sponsor

(2) Values verified by the laboratory

(3) Unverifiable by the laboratory

	Nominal value (*)		Measured value (**)
ROOF COVERING			
1.1 <u>First layer</u>			
Material	Cold self-adhesive elastomeric bitumen membrane with a woven glass reinforcement.		
Trade name	BauderSprint DUO		
Manufacturer / Supplier	Bauder GmbH & Co.KG		
Reinforcement (material + g/m²)	Woven glass 120 g/m²		
Thickness (mm)	2,0	(3)	
Surface weight (g/m²)	2600	(3)	
Flame retardants	No	(3)	
Fixing method	Completely self-adhesive		
1.2 <u>Top layer</u>			
Material	Polymeric bituminous waterproofing sheet with a mineral slate finish and polyester fleece reinforcement		
Trade name	BauderFLEX K4E		
Manufacturer / Supplier	Bauder GmbH & Co.KG		
Colour	Charcoal grey		
Reinforcement (material + g/m²)	Polyester fleece 250 g/m²		
Thickness (mm)	4,2	(3)	
Surface weight (g/m²)	5300	(3)	
Surface weight (g/m²) of the mineral finishing	1300	(3)	
Flame retardants	Yes	(3)	
Fixing method	Torchd		

(1) Based on the information given by the sponsor

(2) Values verified by the laboratory

(3) Unverifiable by the laboratory

Summary of tested systems and parameters

	A-1	A-2	A-3
Top layer	BauderFlex K4E	BauderFlex K4E	BauderFlex K4E
Fixation	Torchd	Torchd	Torchd
Under layer	BauderSprint DUO	BauderSprint DUO	BauderSprint DUO
Fixation	Self-adhesive	Self-adhesive	Self-adhesive
Insulation	BauderRock 60 mm	BauderRock 185 mm	BauderRock 60+150 mm
Fixation	Bauder Twin Cartridge Adhesive	Bauder Twin Cartridge Adhesive	Bauder Twin Cartridge Adhesive
Vapour barrier	BauderTEC KSD Mica	BauderTEC KSD Mica	BauderTEC KSD Mica
Fixation	Self-adhesive	Self-adhesive	Self-adhesive
Substrate	OSB (18 mm, 616 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	Bauder GmbH & CO.KG	20385A&B	CEN/TS 1187:2012: Test 4
WFRGENT nv Ghent - Belgium	Bauder GmbH & CO.KG	20385C*	CEN/TS 16459:2019

*The revision-1 of this classification report rephrases the thickness range obtained in the extended application report, in view of testing the maximum thickness in the test apparatus as valid for all greater thicknesses.

b) Test results

Test conditions: 20385A

Test date: 02/07/2020

Room temperature at start of test (°C): 20

Roof pitch: 0°

Substrate: OSB (18 mm, 616 kg/m³)

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	90	100
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.

(ⁱ) Preliminary test corresponding with the penetration test in stage 2

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.	N.a.
Additional observations: panels did not ignite, carbonization, melting Marked variability between the specimen: None				

Test conditions: 20385B

Test date: 02/07/2020 & 06/08/2020

Room temperature at start of test (°C): 20

Roof pitch: 0°

Substrate: OSB (18 mm, 616 kg/m³)

Build-up: OSB + BauderTEC KSD Mica + BauderROCK 60 mm (single layer) +
BauderSprint Duo + BauderFLEX K4E

PRELIMINARY TEST (STAGE 1)

Parameter	Criteria				Test ^(a) results	Compliance			
	Class B _{ROOF} (t4)	Class C _{ROOF} (t4)	Class D _{ROOF} (t4)	Class E _{ROOF} (t4)		Class B _{ROOF} (t4)	Class C _{ROOF} (t4)	Class D _{ROOF} (t4)	Class E _{ROOF} (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	0,08	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 EN13707:2004.

b) Classification

The roof / roof covering «**BauderFLEX K4E**» in relation to its external fire performance is classified:

BR00F (t4)

c) Direct field of application

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

- Range of pitches: $\leq 10^\circ$

d) Extended field of application

➤ Range of layer 0: BauderFLEX K4E

Thickness:	4,2 mm
Total surface weight:	5300 g/m ²
Reinforcement:	Polyester fleece 250 g/m ² or lower
Mineral finish:	Slate, weight incorporated in total surface weight
Fixing method:	Torched

➤ Range of layer 1: BauderSprint DUO

Thickness:	2,0 mm
Surface weight:	2600 g/m ²
Reinforcement:	Woven glass 120 g/m ² or lower
Fixing method:	Self-adhesive

➤ Range of layer 2: The insulation: Mineral Wool

Thickness:	60mm and all greater thicknesses (single or multi-layer).
Density:	160 kg/m ³
Facing (top layer):	Glass fibre 300 g/m ²
Reaction to fire classification:	A2 or better
Fixing method:	Adhered

➤ Range of layer 3: Bauder Twin Cartridge Adhesive

Product type:	PU adhesive
Surface weight applied:	0,1 l/m ²
Application method	Partially glued

➤ Range of layer 4: BauderTEC KSD Mica or SBS vapour barrier

Reaction to fire according to EN13501-1	E or better
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➤ Range of layer 5: Supporting deck

Range of supporting deck:	OSB (18 mm or more, 616 kg/m ³)
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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 harmonised 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)

Annex ZA of the harmonized standard

- EN 13707: 2004 – “Flexible sheets for waterproofing - Reinforced bitumen sheets for roof waterproofing”

declares that a System 3 Attestation of Conformity (AoC) under the Construction Products Directive (CPD: 89/106/EEC) is required for all external fire performance declarations better than class F_{roof} (t1, t2, t3, t4). Under the Construction Products Regulation (CPR: EU 305/2011) this corresponds with a System 3 of Assessment and Verification of Constancy of Performance (AVCP) as basis for a Declaration of Performance (DoP).

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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