

ROOFS/ROOF COVERINGS EXPOSED TO EXTERNAL FIRE - CLASSIFICATION REPORT No. EUI-24-000843A

1. INTRODUCTION

This classification report defines the classification assigned to roof/roof covering, TERRASMART ALUMINIUM DECKING SYSTEM ON RD FR, in accordance with the procedures given in BS EN 13501-5:2016.

REACTION TO FIRE CLASSIFICATION IN ACCORDANCE WITH BS EN 13501-5:2016

Sponsor: RYNO SYSTEMS LTD
Castlepoint Global Headquarters
Castle Way
AB41 9RG, Ellon
UNITED KINGDOM

Product name: TERRASMART ALUMINIUM DECKING SYSTEM ON RD FR

Classification report No.: EUI-24-000843A

Issue number: 1

Date of issue: 19th of May 2025

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2. DOCUMENT TRACKING

Revision Index.	Modification	Comments	Date	Writer	Approver
0	Original document	/	19 th of May 2025	GRE	MKE

3. DESCRIPTION OF THE PRODUCT

3.1. GENERAL INFORMATION ABOUT THE TESTED PRODUCT

The product, TERRASMART ALUMINIUM DECKING SYSTEM ON RD FR, is defined as an inverted roof system.

The information below were provided by the applicant who attests their accuracy.

Manufacturer / Supplier	RYNO SYSTEMS LTD Castlepoint Global Headquarters Castle Way AB41 9RG, Ellon UNITED KINGDOM	
Identification of the product	TERRASMART ALUMINIUM DECKING SYSTEM ON RD FR	
General description	Description	Inverted roof system, incorporating Aluminium decking board, Aluminium joist, Adjustable pedestal joist, PIR insulation, waterproofing membrane on an OSB substrate decking.
	Thickness	210 mm & 620 mm
	Density	1210 to 1470 kg/m ³
	Mass per unit area	16.4 kg/m ²

3.2. PRODUCT DESCRIPTION

The roof/roof covering, TERRASMART ALUMINIUM DECKING SYSTEM ON RD FR, comprises:

3.2.1. Roof covering details

Layer	Characteristics	Value / Description	Unit
Aluminium decking board	Material	Aluminium 6063 T6 with textured powder coat	-
	Trade name	ADB60	-
	Manufacturer/supplier	RYNO SYSTEMS LTD	-
	Thickness	25 mm	mm
	Colour	Brown	-
	Coating reference and manufacturer/supplier (if applicable)	Qualicoat class 2 polyester high durable matt powder coat	-
	Mass per unit area	9.6	kg/m ²
	Density	1210-1470	Kg/m ³
	Thermal conductivity	Not provided by the sponsor of the test.	W/m.K
	PCS value	2.56 - 3.5	MJ/m ²
	Reaction to fire classification, according to EN 13501-1	A2-s1, d0	-
	Fire retardant treatment (if applicable)	N/A	-
	Fixing/application method	Mechanical fix to joist substructure	-
	Fixing reference and manufacturer/supplier (if applicable)	DSB30 (Ryno)	-

N/A: Not applicable

Layer	Characteristics	Value / Description	Unit
Aluminium joist	Material	Aluminium 6063-T6	-
	Trade name	DS75	-
	Manufacturer/supplier	RYNO SYSTEMS LTD	-
	Thickness	75 mm	mm
	Colour	Mill finished	-
	Coating reference and manufacturer/supplier (if applicable)	N/A	-
	Mass per unit area	2	kg/m ²
	Density	Not provided by the sponsor of the test.	Kg/m ³
	Thermal conductivity	N/A	W/m.K
	PCS value	N/A	MJ/m ²
	Reaction to fire classification, according to EN 13501-1	A1	-
	Fire retardant treatment (if applicable)	N/A	-
	Fixing/application method	Mechanically fixed to pedestals	-
	Fixing reference and manufacturer/supplier (if applicable)	PHS13 (Ryno)	-

N/A: Not applicable

Layer	Characteristics	Value / Description	Unit
Adjustable pedestal joist	Material	Zinc-nickel electroplated mild steel	-
	Trade name	RD-FR – Pedestal joist	-
	Manufacturer/supplier	RYNO SYSTEMS LTD	-
	Thickness	40 mm & 450 mm	mm
	Colour	N/A	-
	Coating reference and manufacturer/supplier (if applicable)	N/A	-
	Mass per unit area	2 - 5.5	kg/m ²
	Density	Not provided by the sponsor of the test.	Kg/m ³
	Thermal conductivity	N/A	W/m.K
	PCS value	N/A	MJ/m ²
	Reaction to fire classification, according to EN 13501-1	A1	-
	Fire retardant treatment (if applicable)	N/A	-
	Fixing/application method	Loose laid onto roofing membrane	-
	Fixing reference and manufacturer/supplier (if applicable)	N/A	-

N/A: Not applicable

Layer	Characteristics	Value / Description	Unit
Insulation	Material	PIR (polyisocyanurate)	-
	Trade name	TR27	-
	Manufacturer/supplier	Kingspan	-
	Thickness	50 mm (25 mm + 25 mm)	mm
	Colour	N/A	-
	Coating reference and manufacturer/supplier (if applicable)	N/A	-
	Mass per unit area	1.75	g/m ²
	Density	70	Kg/m ³
	Thermal conductivity	0.024	W/m.K
	PCS value	Not provided by the sponsor of the test.	MJ/m ²
	Reaction to fire classification, according to EN 13501-1	Not provided by the sponsor of the test.	-
	Fire retardant treatment (if applicable)	N/A	-
	Fixing/application method	Loose laid on top of the waterproofing membrane	-
	Fixing reference and manufacturer/supplier (if applicable)	N/A	-

N/A: Not applicable

Layer	Characteristics	Value / Description	Unit
Waterproofing membrane	Material	Waterproofing membrane	-
	Trade name	Bituminous roof membrane	-
	Manufacturer/supplier	JP Corry	-
	Thickness	2 mm	mm
	Colour	Black	-
	Coating reference and manufacturer/supplier (if applicable)	N/A	-
	Mass per unit area	1.6	kg/m ²
	Density	40	Kg/m ³
	Thermal conductivity	Not provided by the sponsor of the test.	W/m.K
	PCS value	Not provided by the sponsor of the test.	MJ/m ²
	Reaction to fire classification, according to EN 13501-1	Not provided by the sponsor of the test.	-
	Fire retardant treatment (if applicable)	Not provided by the sponsor of the test.	-
	Fixing/application method	Loose laid on top of the OSB decking	-
	Fixing reference and manufacturer/supplier (if applicable)	N/A	-

N/A: Not applicable

3.2.2. Decking/supporting construction

Layer	Characteristics	Value / Description	Unit
Oriented stranded board	Material	Wood	-
	Trade name	18 mm OSB 3 board	-
	Manufacturer/supplier	JP Corry	-
	Thickness	18 mm	mm
	Colour	N/A	-
	Coating reference and manufacturer/supplier (if applicable)	N/A	-
	Mass per unit area	Not provided by the sponsor of the test.	g/m ²
	Density	Not provided by the sponsor of the test.	Kg/m ³
	Thermal conductivity	Not provided by the sponsor of the test.	W/m.K
	PCS value	Not provided by the sponsor of the test.	MJ/m ²
	Reaction to fire classification, according to EN 13501-1	Not provided by the sponsor of the test.	-
	Fire retardant treatment (if applicable)	Not provided by the sponsor of the test.	-
	Fixing/application method	Loose laid	-
	Fixing reference and manufacturer/supplier (if applicable)	N/A	-

N/A: Not Applicable.

These products conform to the following European Standard(s), ETAs or other relevant product specifications:
None

4. REPORTS AND RESULTS IN SUPPORT OF THIS CLASSIFICATION

4.1. REPORTS

Name of Laboratory	Name of sponsor	Report ref. no	Test method
EFFECTIS UK/Ireland	RYNO SYSTEMS LTD	EUI-24-RT4-000843A	CEN/TS 1187:2012 Test 4
EFFECTIS UK/Ireland	RYNO SYSTEMS LTD	EUI-24-000843A-REXAP	CEN/TS 16459:2019

4.2. TEST RESULTS

4.2.1. TERRASmart aluminium decking system with 40 mm RD FR adjustable joist

4.2.1.1. Test conditions:

Test pitch	0°
Deck	18 mm OSB
Supporting structure	N/A

4.2.1.2. Preliminary test (Stage 1):

Parameter	Criteria				Test results ^a	Compliance			
	Class B _{ROOF} (t4)	Class C _{ROOF} (t4)	Class D _{ROOF} (t4)	Class E _{ROOF} (t4)	Specimen 1	Class B _{ROOF} (t4)	Class C _{ROOF} (t4)	Class D _{ROOF} (t4)	Class E _{ROOF} (t4)
Burn time (min:s)	< 5 min	< 5 min	< 5 min	≥ 5 min	< 5 min	Yes	Yes	Yes	Yes
Flame spread distance (mm)	< 0.38 m	< 0.38 m	< 0.38 m	No limit	< 0.38 m	Yes	Yes	Yes	Yes
Penetration	None	None	None	None	None	Yes	Yes	Yes	Yes

4.2.1.3. Penetration test (Stage 2):

Parameter	Criteria				Test results				Compliance			
	Class B _{ROOF} (t4)	Class C _{ROOF} (t4)	Class D _{ROOF} (t4)	Class E _{ROOF} (t4)	Specimen 1	Specimen 2	Specimen 3	Mean ^b	Class B _{ROOF} (t4)	Class C _{ROOF} (t4)	Class D _{ROOF} (t4)	Class E _{ROOF} (t4)
Penetration time (min:s)	≥ 60 min	< 60 min	< 30 min	< 30 min	≥ 60 min	≥ 60 min	≥ 60 min	≥ 60 min	Yes	Yes	Yes	Yes
		≥ 30 min										

^b 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 the penetration.

4.2.1. TERRASMART aluminium decking system with 450 mm RD FR adjustable joist

4.2.1.1. Test conditions:

Test pitch	0°
Deck	18 mm OSB
Supporting structure	N/A

4.2.1.2. Preliminary test (Stage 1):

Parameter	Criteria				Test results ^a	Compliance			
	Class B _{ROOF} (t4)	Class C _{ROOF} (t4)	Class D _{ROOF} (t4)	Class E _{ROOF} (t4)	Specimen 1	Class B _{ROOF} (t4)	Class C _{ROOF} (t4)	Class D _{ROOF} (t4)	Class E _{ROOF} (t4)
Burn time (min:s)	< 5 min	< 5 min	< 5 min	≥ 5 min	< 5 min	Yes	Yes	Yes	Yes
Flame spread distance (mm)	< 0.38 m	< 0.38 m	< 0.38 m	No limit	< 0.38 m	Yes	Yes	Yes	Yes
Penetration	None	None	None	None	None	Yes	Yes	Yes	Yes

4.2.1.3. Penetration test (Stage 2):

Parameter	Criteria				Test results				Compliance			
	Class B _{ROOF} (t4)	Class C _{ROOF} (t4)	Class D _{ROOF} (t4)	Class E _{ROOF} (t4)	Specimen 1	Specimen 2	Specimen 3	Mean ^b	Class B _{ROOF} (t4)	Class C _{ROOF} (t4)	Class D _{ROOF} (t4)	Class E _{ROOF} (t4)
Penetration time (min:s)	≥ 60 min	< 60 min	< 30 min	< 30 min	≥ 60 min	≥ 60 min	≥ 60 min	≥ 60 min	Yes	Yes	Yes	Yes
		≥ 30 min										

^b 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 the penetration.

5. CLASSIFICATION AND FIELD OF APPLICATION

5.1. REFERENCE

This classification has been carried out in accordance with BS EN 13501-5:2016.

5.2. CLASSIFICATION

The roof / roof covering, TERRASMART ALUMINIUM DECKING SYSTEM ON RD FR, in relation to its external fire performance is classified:

B_{ROOF} (t4)

This European Standard does not represent type approval or certification of the product.

5.3. FIELD OF APPLICATION

This classification is only valid for the product parameters and composition, as tested, described in the section 0 test report(s) in support of the classification listed in 4.1.

The classification is valid for the following end-use parameters:

Parameters	Conditions
Range of pitches	Valid only for $0^\circ \leq \text{pitch} \leq 10^\circ$
Decking & supporting construction	18 mm OSB (As tested), with joints.

5.4. EXTENDED FIELD OF APPLICATION

According to the statement of CEN/TS 16459:2019, subclause 5 or D.2 and table D.1, the classification is also valid for the following product and end-use parameters.

- Exposed layer: Aluminium decking board, As tested
- Layer 1: Aluminium joist, As tested
- Layer 2: Adjustable Pedestal joist

Layer	Characteristics	Value / Description	Unit
Adjustable pedestal joist	Material	Zinc-nickel electroplated mild steel	-
	Trade name	RD-FR – Pedestal joist	-
	Manufacturer/supplier	RYNO SYSTEMS LTD	-
	Thickness	Valid for thickness between 40 mm & 450 mm	mm
	Colour	N/A	-
	Coating reference and manufacturer/supplier (if applicable)	N/A	-
	Mass per unit area	2 - 5.5	g/m ²
	Density	Not provided by the sponsor of the test.	Kg/m ³
	Thermal conductivity	N/A	W/m.K
	PCS value	N/A	MJ/m ²
	Reaction to fire classification, according to EN 13501-1	A1	-
	Fire retardant treatment (if applicable)	N/A	-
	Fixing/application method	Loose laid onto roofing membrane	-
	Fixing reference and manufacturer/supplier (if applicable)	N/A	-

N/A: Not applicable

- Layer 3: Rigid insulation: PIR insulation, as tested
- Layer 4: Waterproofing membrane: Bituminous Roof Membrane, as tested
- Supporting deck layer: OSB, as tested



6. LIMITATIONS

6.1. RESTRICTIONS

Consult classification standard and national laws and regulations for limitations on the period of validity of the classification.

6.2. WARNING

This European Standard does not represent type approval or certification of the product. The test laboratory has, therefore, played no part in sampling the product for the test, although it holds appropriate references, supplied by manufacturer, to provide for traceability of the sample tested.

Report	Name	Signature ^a	Date
Prepared by	Guillaume REMY	<div>  </div> <div> X </div> <hr/> <div> Project Leader Signed by: Guillaume REMY </div>	19 th of May 2025
Reviewed by	Maurice McKEE	<div>  </div> <div> X </div> <hr/> <div> Testing Technical Supervisor Signed by: Maurice McKee </div>	19 th of May 2025

^a For and on behalf of Efectis UK/Ireland