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CLASSIFICATION OF FIRE RESISTANCE
FIRES-CR-186-24-AUPE

Roof made of sandwich panels, type HPTTD 5, 60 mm thick, with PIR core

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CLASSIFICATION OF FIRE RESISTANCE IN ACCORDANCE WITH EN 13501-2: 2023

with direct field of application

FIRES-CR-186-24-AUPE

Name of the product: Roof made of sandwich panels, type HPTTD 5, 60 mm thick, with PIR core

Sponsor:
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1. INTRODUCTION

This classification report defines the resistance to fire classification assigned to element Roof made of sandwich panels, type HPTTD 5, 60 mm thick, with PIR core, in accordance with the procedures given in EN 13501-2: 2023.

The testing laboratory FIRES, s.r.o. issued Classification of fire resistance No. FIRES-CR-050-19-AUPE for the classified product on 26. 02. 2019.

The name of classified product was changed against the name of tested product at a request of the sponsor, whereupon the manufacturer declared that the product is identical to that tested.

The commercial name of the manufacturer has changed
from Marcegaglia Poland Sp. z o.o., to ISOPAN POLAND Sp. z. o.o.

Compared to the previous document, the possibility to increase the thickness of panels has been withdrawn.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element Roof made of sandwich panels, type HPTTD 5, 60 mm thick, with PIR core, is defined as a loadbearing roof with a separating function from below in accordance with EN 14509.

2.2 PRODUCT DESCRIPTION

The element is a roof made of self-supporting double skin metal faced insulating HPTTD 5 panels with a thickness of 60 mm (valley), with a PIR core.

Dimensions

modular panel width	1000 mm
panel thickness at valley	60 mm
panel thickness on rib	100 mm
height / width of rib	38 mm / 25 mm
distance between ribs	250 mm

Panel core
Polyisocyanurate foam, type STEPANFOAM RL 3922, with a bulk density of 40 kg/m^3 (manufacturer: STEPAN COMPANY).

Panel covering
- exterior face: steel sheet 0,6 mm thick, grade of metal S220GD, with organic coating SP 25 µm thick (manufacturer: ISOPAN POLAND Sp. z. o.o.);
  profile geometry: trapezoidal, as described above;
- interior face: steel sheet 0,4 mm thick, grade of metal S220GD, with organic coating SP 25 µm thick, (manufacturer: ISOPAN POLAND Sp. z. o.o.);
  profile geometry: LINIE.

Stitching
The joints of panels are stitched by means of steel self-drilling screws SL2-T-A14-4.8x20 mm, spaced each 250 mm on the upper roof face and 300 mm on the bottom face.

Sealing
An intumescent tape SEALBIFIRE with dimensions of (40 x 1,5) mm (manufacturer: Bifire S.r.l., Italy) is applied on the panel edge (panel core) inside the joint of panels.

2.3 PRODUCT FIXATION

The product is laid on a supporting structure made of supports with width of top surface min. of 82 mm and thickness min. of 7,4 mm, placed at an axis distance (span) of 3000 mm. The product was tested on three supports as a two-span (continuous) structure.

Each sandwich panel is fixed to the supporting structure (supports) by steel self-drilling screws (5,5 x 142) mm with washers with EPDM sealing and with saddle washers, 3 pcs on each support.

More detailed information on the product construction is shown in the drawings to test report [1] according to cl. 3.1.

3. TEST REPORTS IN SUPPORT OF CLASSIFICATION

3.1 TEST REPORTS

No.	Name of laboratory	Name of sponsor	Test report No.	Date of the test	Test method	Type of the test
[1]	FIRES, s.r.o., Batizovce, SR	Marcegaglia Poland Sp. z o.o., Praszka, PL	FIRES-FR-235-11-AUNE	15. 11. 2011	EN 1365-2: 1999	A

Type of the test: A – accredited, N – non-accredited

Despite the fact that the test standard has changed since the test was carried out, all the test results used correspond to the test standard EN 1365-2:2014 valid on the day of issue of this document.

[1] Test specimens were conditioned according to EN 1363-1 before the fire resistance test

3.3 TEST RESULTS

No./ Test method	Parameter		Results
[1] EN 1365-2: 1999	applied load		continuous static load 0,30 kN.m^{-2} applied on the specimen surface between supports
	supporting construction		three steel profiles IPE 160 placed in axis distances of 3000 mm and 1000 mm width of the support: 82 mm, thickness of the flange: 7,4 mm
	temperature curve		standard temperature/time curve
	loadbearing capacity	maximum limit for deflection	91 minutes no failure
		rate of deflection	91 minutes no failure
	integrity	cotton pad	91 minutes no failure
		gap gauges	91 minutes no failure
		sustained flaming	91 minutes no failure
	thermal insulation	average temperature (140 K)	23 minutes
		maximal temperature (180 K)	20 minutes
	test specimen		loadbearing roof made of sandwich panels Marcegaglia, PIR core, thickness 60 mm

[1] The test was discontinued in 92nd minute at the request of test sponsor

4. CLASSIFICATION AND FIELD OF APPLICATION

4.1 REFERENCE OF CLASSIFICATION

This classification has been carried out in accordance with clause 7.3.3 of EN 13501-2: 2023.

4.2 CLASSIFICATION

The element, **Roof made of sandwich panels, type HPTTD 5, 60 mm thick, with PIR core**, is classified according to the following combinations of performance parameters and classes as appropriate.

Fire resistance classification:

REI 20; RE 90

4.3 FIELD OF APPLICATION

This classification is valid according to EN 1365-2: 2014 for the following end use applications:

Type of structure	- the product is used as a continuous beam with two or more spans (it is not allowed to use the product as a simply supported beam);
Loading	- the maximum bending moments and maximum normal forces calculated on the same basis as during the fire test may not be higher than the bending moments and normal forces arisen at fire test [1] acc. to cl. 3 of the document;
Slope of the roof	- an inclination within the range from 0° to 15° is allowed.

5. LIMITATIONS

This classification document does not represent type approval or certification of the product.

The classification is valid provided that the product, field of application and standards and regulations are not changed.

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