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Member of egolf - European Group of Organisations for Fire Testing, Inspection and Certifications

CLASSIFICATION REPORT
127/23–530–3–EN

CLASSIFICATION OF FIRE RESISTANCE PERFORMANCE IN ACCORDANCE WITH SIST EN 13501-2:2023
of a non-loadbearing wall made of 100 mm thick mineral wool horizontally mounted self-supporting double skin metal faced insulating panels

MW WALL COVERING PANEL 100 mm – hidden fixing (restrained top edge)

Orderer: **METALLEMPORIKI – TH. MAKRIS S.A.**
6th km Larissa-Sikurio, GR-41004 Larissa, Greece

Order/contract: **290/2023 dated 16th March 2023**

Responsible investigator: **Dominik Gerdej, univ. dipl. inž. str.**

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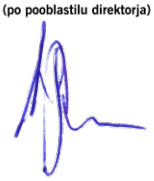
Head of laboratory: **Friderik Knez, univ. dipl. fiz.**

(po pooblastilu direktorja)



Director: **doc. dr. Aleš Žnidarič, univ. dipl. inž. grad.**

Date: 13. 3. 2024

The report was internally reviewed and approved by all listed persons, which is confirmed by the electronic signature. Document authenticity check: www.zag.si/pristnost

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Total number of pages: 7; number of annexes: /.

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1. Introduction

This classification report defines the resistance to fire classification assigned to non-loadbearing wall made of horizontally mounted 100 mm thick self-supporting double skin metal faced insulating mineral wool panels **MW WALL COVERING PANEL 100 mm – hidden fixing** in accordance with the procedures given in SIST EN 13501-2:2023 (identical to EN 13501-2:2023).

2. Information about the product

2.1 General

The non-loadbearing wall made of horizontally mounted 100 mm thick self-supporting double skin metal faced insulating mineral wool panels **MW WALL COVERING PANEL 100 mm – hidden fixing** prevents spread of fire from room of origin considering resistance to fire performance characteristics stated in Clause 5 and 7.5.2 of SIST EN 13501-2:2023.

2.2 Product description

All dimensions in this classification report are in millimetres if not stated otherwise.

2.2.1 Composition of the panel

The composition of 100 mm thick self-supporting double skin metal faced insulating mineral wool wall panels **MW WALL COVERING PANEL 100 mm – hidden fixing** is fully described below and is the following:

- thickness of the panel was 98 mm, nominal thickness was 100 mm; width of the panel was 1000 mm;
- pre-coated galvanized, coloured steel-sheet facing, thickness approximately 0,6 mm (exposed side) – quality DX51D, Z100;
- glue was consisted by two components: isocyanate ONGRONAT 2510 produced by BorsodChem and polyol VORAMER AA 3042 produced by DOW EUROPE GMBH (application amount of 170 g/m per sheet metal, approximately 1 mm thick);
- rock wool lamella core FIBRANgeo BL-50c produced by Fibran S.A. (nominal density 100 kg/m^3, measured average density 101 kg/m^3, measured moisture content 0,32 mass %, measured binder content 5,43 mass %);
- glue was consisted by two components: isocyanate ONGRONAT 2510 produced by BorsodChem and polyol VORAMER AA 3042 produced by DOW EUROPE GMBH (application amount of 170 g/m per sheet metal, approximately 1 mm thick);
- pre-coated galvanized, coloured steel-sheet facing, thickness approximately 0,6 mm (unexposed side) - quality DX51D, Z100.

2.2.2 Sealing materials

Two self-adhesive intumescent strips Promat Promaseal LXSK 30 × 2 mm were placed on the insulation core in the female joint edges of the panels.

One self-adhesive intumescent strip Promat Promaseal LXSK 40 × 2 mm and one self-adhesive intumescent strip Promat Promaseal LXSK 30 × 2 mm were placed on the insulation core in the male joint edges of the panels.

Fire stopping coating Promat Promastop CC was added on the insulation core on the bottom male joint edge at the bottom panel.

Two self-adhesive intumescent strips Promat Promaseal LXSK 30 × 2 mm and one self-adhesive intumescent strip Promat Promaseal LXSK 40 × 2 mm were placed on the insulation core of the panels at each of two vertical fixed edges.

Two self-adhesive intumescent strips Promat Promaseal LXSK 30 × 2 mm and one self-adhesive intumescent strip Promat Promaseal LXSK 40 × 2 mm were placed on the insulation core of the top panel at the top horizontal free edge.

Gaps between the test specimen and the restrained test frame were filled with the ceramic wool.

2.2.3 Fixing of the panels

The test wall was fixed into the restraint test frame in the following manner.

Along bottom horizontal edge and at both vertical edges of the restrained test frame the ceramic wool with a thickness of 25 mm was placed. On the ceramic wool support perforated steel L profiles of dimensions 70 × 210 × 1,5 mm were placed from the exposed side under the horizontal edge and under both fixed vertical edges of the wall. The L profiles were fixed to the concrete test frame at the horizontal bottom edge with five turbo anchor screws of dimensions 7,5 × 52 mm at the distances approximately 853 mm between screws respectively. The L profiles were fixed to the concrete test frame at the both fixed vertical edges with nine turbo anchor screws of dimensions 7,5 × 52 mm at the distances approximately 440 mm between screws respectively. Screws were positioned 165 mm away from the top and bottom horizontal edge of the restrained test frame. Ceramic wool with a thickness of 25 mm was placed on the perforated L profiles of dimensions 70 × 210 × 1,5 mm at the two vertical fixed edges and at the bottom horizontal edge of the wall. The top horizontal edge of the specimen was left free with approximately from 30 to 50 mm wide gap between the restrained test frame and the test specimen, which was entirely filled with the ceramic wool.

2.2.4 Joint fixing

Joints between panels are fixed by means of:

- panels are joint-stitched between each other on both sides;
- self-drilling screws ϕ 4,3 × 19 (exposed side);
- self-drilling screws ϕ 4,8 × 35 (unexposed side);
- the distance between steel bolts on both side of the wall is 300 mm.

The non-loadbearing wall made of horizontally mounted self-supporting double skin metal faced insulating PIR panels **MW WALL COVERING PANEL 100 mm – hidden fixing** is fully described in the test report provided in support of classification detailed in clause 3.1.

3. Test reports and test results in support of the classification

3.1 Test reports

No	Laboratory	Name of sponsor	Test reports No.	Test method
[1]	ZAG	METALLEMPORIKI – TH. MAKRIS S.A	127/23–530–1–EN	SIST EN 1364-1:2015 (identical to EN 1364-1:2015)

3.2 Test results

The wall is not symmetrical because the joint on the unexposed side has joint cavities – hidden fixing joints.

Test report	Parameter	Results
[1]	Direction of fire exposure	The wall is not symetrical over its thickness, it is oriented in such a way that joint cavities of the wall are on the fire unexposed side
	Integrity (E) - sustained flaming on the unexposed side - ignition of cotton pad - cracks or openings in excess of given dimensions	68 minutes no failure 68 minutes no failure 68 minutes no failure 68 minutes no failure
	Insulation (I) - mean temperature rise >140 K - maximum temperature rise >180 K (fixed thermocouples)	64 minutes / 66 minutes 66 minutes 64 minutes
	Radiation (W) - time to exceed 15 kW/m2	-

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with Clause 7.5.2 of SIST EN 13501-2:2023.

4.2 Classification

The non-loadbearing wall made of horizontally mounted self-supporting double skin metal faced insulating mineral wool panels **MW WALL COVERING PANEL 100 mm – hidden fixing** is classified according to the following combinations of performance parameters and classes as appropriate. No other classification is allowed.

NOTE: The following classifications are only valid for a wall where panels are on both sides joint-stitched between each other by means of steel bolts ϕ 4,8 × 35 (unexposed side, side of joint cavities – hidden fixing) and steel bolts ϕ 4,3 × 19 mm (exposed side) at a maximum distance of 300 mm between screws respectively.

The classification for the wall with the restrained top edge in practice (measuring point No. 19 is not taken into account; according to EN 1364-1:2015; Annex B, B.3-e):

E	15	20	30	45	60
EI	15	20	30	45	60
EW	15	20	30	45	60

NOTE: The wall is not symmetrical over its thickness and construction. The classification is valid only for the wall oriented in such a way that joint cavities (hidden fixing) of the wall are on the fire unexposed side.

Fire resistance classification: E 60 / EI 60 / EW 60

4.3 Field of direct application of test results

This classification is valid for non-loadbearing walls made of horizontally mounted self-supporting double skin metal faced insulating mineral wool panels **MW WALL COVERING PANEL 100 mm – hidden fixing**.

According to SIST EN 1364-1:2015 (Annex B) are the results of the fire test directly applicable to similar constructions where one or more of the changes listed below are made and the construction continues to comply with the appropriate design code for its stiffness and stability. Other changes are not allowed.

a) Decrease in height/ of the wall;

b) Increase in the number of horizontal joints, of the type tested, when tested with one joint at a location with an overpressure of minimum 15 Pa. The pressure on the top joint was 15 Pa during the test;

c) Decrease in distance of fixing centres;

d) Increase in the thickness of the wall;

e) Decrease in linear dimensions of boards or panels but not thickness.

4.3.1 Supporting construction:

- the test results are applicable to high density rigid supporting constructions with at least the same fire resistance as the test specimen.

4.3.2 Extension in width:

- the width of an identical construction may be increased up to 5,0 m for classification up to and including EI 45. For classification EI 60 extension of width is not allowed. (EN 1364-1: 2015, Annex B, Clause B.6.3).

4.3.3 Extension in height:

- the height of an identical construction may be increased up to 5,0 m (EN 1364-1:2015 Annex B, Clause B.6.4 – second paragraph).

5. Limitations

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

Person undertaking classification: Dominik Gerdej, univ. dipl. inž. str

Person authorising this report: Simon Grum, mag. inž. str.