AFITI LICOF Centre for Fire Testing and Research

Association for the Promotion of Research and Fire Safety Technology

Classification Report

ilac-MRA ENAC ENSAYOS Nº 41/LE104

Fire Resistance Laboratory

APPLICANT:

METALLEMPORIKI TH.MAKRIS S.A.

CLASSIFICATION OF THE FIRE RESISTANCE
ACCORDING TO STANDARD EN 13501-2:2016

- Specimen: ..... metal sandwich panels roof
  - Manufacturer: ..... METALLEMPORIKI TH.MAKRIS S.A.
  - Reference: ..... "MINERAL WOOL ROOF COVERING PANEL 50mm"

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FIRE RESISTANCE CLASSIFICATION ACCORDING TO EN 13501-2:2016

Applicant: **METALLEMPORIKI TH.MAKRIS S.A.**
6th km Larissa-Sikourio road
41500
Larissa – GREECE

Issuing laboratory: AFITI-LICOF
Notified body nr.: 1168

Building element: **Roof**
Manufacturer: ⊙METALLEMPORIKI TH.MAKRIS S.A.
Reference: ⊙"MINERAL WOOL ROOF COVERING PANEL 50mm"

Classification Report Nr.: 9648/18-2
Date of Issue: 22nd-Feb-2019

Note: The information marked with this symbol (⊙) has been provided by the applicant.

Report Contents

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1. AIM OF THE REPORT

This Classification Report defines the Fire Resistance Classification assigned to roof designated by the applicant as "MINERAL WOOL ROOF COVERING PANEL 50mm" according to the procedures established in the Standard EN 13501-2:2016 *Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services.*"

2. DETAILS OF ELEMENT AS CLASSIFICATION OBJECT

2.1. TYPE OF FUNCTION

The element "MINERAL WOOL ROOF COVERING PANEL 50mm" is defined as "roof".

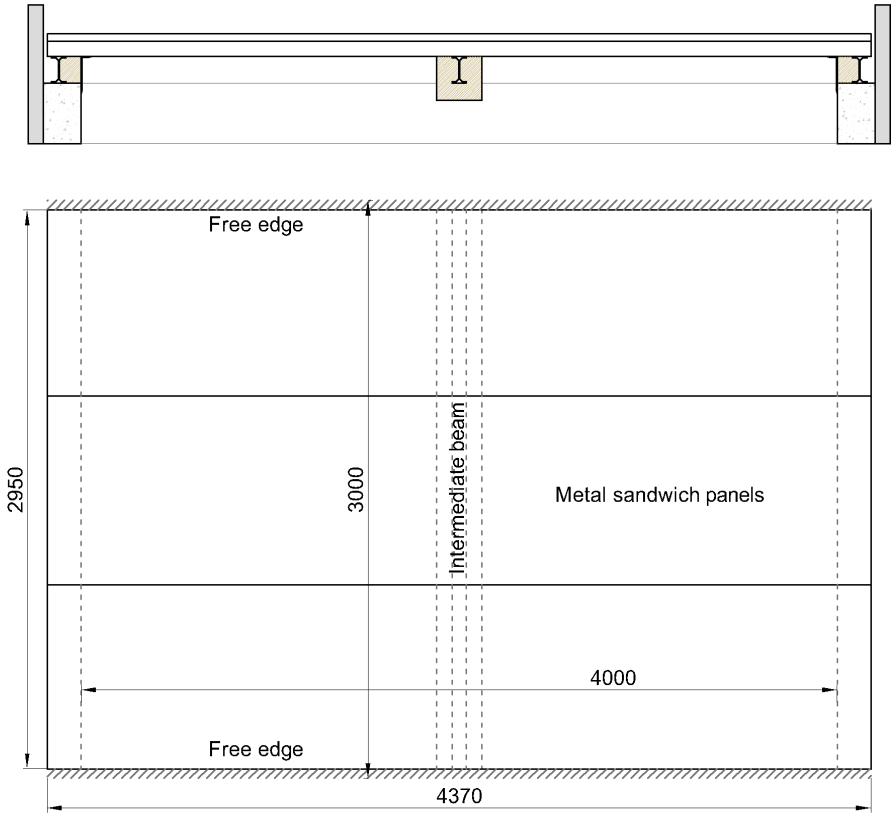
2.2. DESCRIPTION

The main descriptive characteristics of the specimen, as well as the reference of the specimen, have been supplied by the applicant (see annex 6). The data of the specimen checked by the Laboratory have been the following:

Note: Information marked with this symbol (⊙) has been provided by the applicant and it is not possible to contrast it.

- Nominal dimensions of the assembly (mm): .. 4.370 (length) × 3.000 (width) × 50/90 (thickness)
- Basic description of the assembly: ..... roof compound by three metal sandwich panels over protected steel beams

Figure 1 – Test setup - unexposed side
(dimensions in mm)



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- Metal sandwich panels:
  - Dimensions (mm): ..... 4.370 (length) × 1.000 (width) × 50/90 (thickness)
  - Approximate weight per panel(kg): 71
  - Composition:

Steel sheet
  - Location:..... on both faces of the panel
  - Thickness (mm):..... 1 on both faces. (⊙ 0,5 of steel plus 0,5 of polyester coating)

Rock wool (*)
  - Reference:..... ⊙ FIBRANgeo B-001 Stonewool insulation board
  - Location:..... between the two metal sheets
  - Nominal density (kg/m3):..... 110 (⊙100 nominal)
  - Moisture content (% weight):..... 0,48
  - Binder content (% weight):..... 4,79

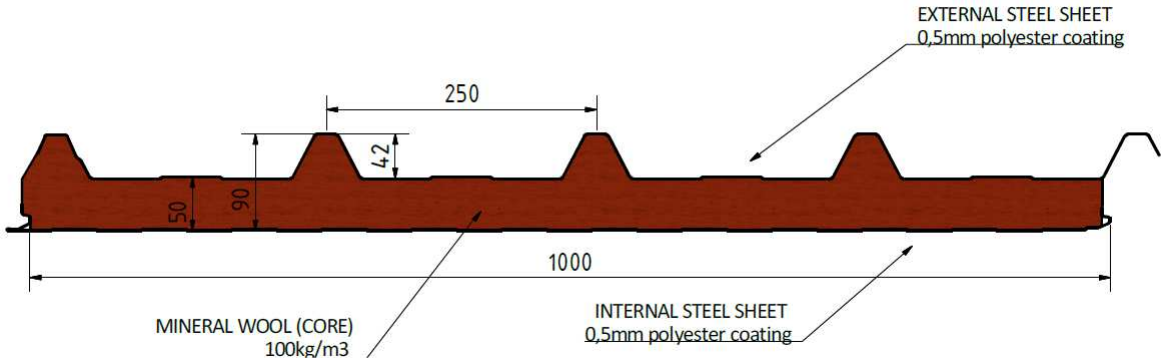
(*) The properties of the rock wool have been evaluated from specimens of material provided by the applicant for the test.

Glue specifications are included in the technical report supplied by the applicant (annex 6)

- Distribution: ..... see figure 1
- Fixation to the beams:..... by ∅ 6,2 mm x 130 mm screws to the lateral beams and ∅ 6,2 mm x 150 mm screws to the intermediate beam, with steel caps
- Joints between panels: ..... groove and tongue joint with intumescent sealant and self-drilling screws ∅ 6,2 mm x 20 mm on the exposed and unexposed side, 200 mm. between them

Figure 2 – Metal sandwich panels
(dimensions in mm)

Sketch supplied by the applicant and
checked by the laboratory



- Intumescent sealant
  - Brand:..... ⊙ SIKA (marked on the product)
  - Reference:..... ⊙ SIKACRYL-620 FIRE WHITE (marked on the product)
  - Location: ..... along both longitudinal joints between panels and endings on the free edges
- Intermediate beam
  - Type..... steel profile - IPE 120
  - Protection..... by rock wool 108 kg/m^3 (⊙100 kg/m^3)nominal density and ceramic blanket

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3. TEST REPORTS AND RESULTS IN SUPPORT OF THIS CLASSIFICATION

3.1.- TESTS PERFORMED

Test reports

Issuing laboratory	Applicant	Report	Test method
AFITI-LICOF Camino del Estrechillo, 8 28500 – ARGANDA DEL REY (Madrid) Notified Body nr.: **1168**	**METALLEMPORIKI TH.MAKRIS S.A.** 6th km Larissa-Sikourio road 41500 Larissa – GREECE	Nr.: **9648/18** Test date: 30th-Jan-19	UNE-EN 1365-2:2014 UNE-EN 1363-1:2015

Conditions of exposure

Temperature curve / time:	Standard
Number. of exposed sides:	One (exposure on the bottom side)

Test results

	Specimen nr. **9648A**
Loadbearing capacity (R)	**91 minutes(F)**
Deflection	91 minutes(F)
Rate of deflection	91 minutes(F)
Integrity (F)	**91 minutes(F)**
Cotton pad	91 minutes(F)
Gap gauges ∅ 6 mm	91 minutes(F)
Gap gauges ∅ 25 mm	91 minutes(F)
Sustained flames > 10 s	91 minutes(F)
Thermal Insulation (I)	**51 minutes**
Average temperature	91 minutes(F)
Maximum temperature	51 minutes

(F): End of specimen evaluation without failure of this criterion

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4. CLASSIFICATION AND FIELD OF APPLICATION

4.1. CLASSIFICATION STANDARD

This classification has been carried out in accordance with the clause 7.3.3 of the standard EN 13501-2:2016.

4.2. CLASSIFICATION

The product "MINERAL WOOL ROOF COVERING PANEL 50mm" is classified according the following combination of performance parameters and classes.

Fire Resistance Classification	**REI 45**

The following classifications are allowed:

RE	-	20	30	-	60	90
REI	15	20	30	45	-	-

4.3. FIELD OF APPLICATION

According to the chapter 13 of the Standard EN 1365-2:2014, the tested element has the following field of application:

The classification obtained is also valid for the following modifications of the specimen characteristics without the need for further testing.

Characteristics	**Permitted modification**	**Reference value** (1)
Structural building member	The maximum moment and shear forces, which when calculated on the same basis as the test load, shall not be greater than those tested.	Without additional load. Aprox. panels weight 16,5 kg/m lenght.
Inclination of roof constructions without glazing	In the 0 - 15º Range	Inclination angle 0º

(1) Reference values of the tested specimen on the basis of which the permitted modifications could be carried out.

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5.- LIMITATIONS

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

Arganda del Rey, 22nd February of 2019

Signed: Carlos Burón Alonso
Technical Director
Fire Resistance Laboratory