

## **CLASSIFICATION OF FIRE RESISTANCE FIRES-CR-096-15-AURE**

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**Non-loadbearing sandwich wall made of insulating panels, type FEI,  
120 mm thick with mineral wool core**

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# CLASSIFICATION OF FIRE RESISTANCE IN ACCORDANCE WITH EN 13502-1: 2007 + A1: 2009 with extended field of application

## FIRES-CR-096-15-AURE

**Name of the product:** Non-loadbearing sandwich wall made of insulating panels, type FEI, 120 mm thick with mineral wool core

**Sponsor:** Pflaum&Söhne Bausysteme GmbH,  
Ganglgutstr. 89, A-4050 Traun, Austria

**Prepared by:** FIRES, s.r.o.  
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**Tested property:** Fire resistance  
**Test method:** EN 1364-1: 1999  
**Type of test:** Accredited / Notified (NB 1396)

**Task No.:** PR-15-0083

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## 1. INTRODUCTION

This classification report defines the resistance to fire classification assigned to element Non-loadbearing sandwich wall made of insulating panels, type FEI, 120 mm thick with mineral wool core in accordance with the procedures given in EN 13502-1: 2007 + A1: 2009.

## 2. DETAILS OF CLASSIFIED PRODUCT

### 2.1 GENERAL

The element, Non-loadbearing sandwich wall made of insulating panels, type FEI, 120 mm thick with mineral wool core, is defined as a non-loadbearing wall with fire separating function used as external wall according to EN 14509.

### 2.2 PRODUCT DESCRIPTION

Product is non-loadbearing wall made of horizontally oriented double skin metal faced insulating panels FEI, 120 mm thick with mineral wool core and un-symmetrical joints.

#### Dimensions

|  |         |
|--|---------|
| modular panel width  | 1000 mm |
| overlap of joints on interior wall face (measured by testing laboratory) | 18,9 mm |
| overlap of joints on exterior wall face (measured by testing laboratory) | 48,3 mm |

#### Panel core

Mineral wool boards made of lamellas, type Isover SP 60, 120 mm thick, with bulk density 94 kg/m<sup>3</sup> (measured by testing laboratory) (bulk density declared by manufacturer is 100 kg/m<sup>3</sup>), melting point 1000°C, reaction to fire class A1, horizontally oriented fibres, perpendicular to the sheet surface (manufacturer: Isover Saint Gobain, Division Isover SGCP CZ a.s.).

#### Panel covering

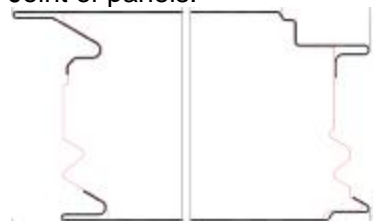
: Interior galvanized steel sheet 0,5 mm thick, grade of metal S320GD Z275 with polyester coat DU, 12 μ thick (manufacturer: Arcelor Mittal), profile geometry: line profiled,

: Exterior galvanized steel coated sheet, 0,5 mm thick, grade of metal S350GD Z275 with polyester coat HAIRPLUS, 25 μ thick (manufacturer: Arcelor Mittal), profile geometry: micro profiled.

Panel covering is glued to the core by means of isocyanate glue DOW Voramer TM MA 5025 (manufacturer: Dow Chemicals).

The joints of panels are not stitched.

Joint of panels:



More detailed information about product construction is shown in drawings of the test report specified in the report [1].



## 2.3 PRODUCT FIXING

Panels are fixed to the supporting construction (steel L profiles) by steel self-drilling screws EJOT JZ3-6,3X150-E19 and EJOT JZ3-6,3X125. Position of the screws:  $\leq 90$  mm from the panel corners and next in spacing 275 mm.

Supports are located in distance (span) 3000 mm. Distance between the supports can be increased according to conditions specified in clause No. 4.

## 3. EXTENDED APPLICATION REPORTS AND TEST RESULTS IN SUPPORT OF CLASSIFICATION

### 3.1 EXTENDED APPLICATION REPORTS

| No. | Name of laboratory           | Name of sponsor                              | Extended application report No. | Date of issue |
|-----|------------------------------|--|---------------------------------|---------------|
| [1] | FIRES, s.r.o., Batizovce, SR | Pflaum&Söhne Bausysteme GmbH, Traun, Austria | FIRES-ER-021-15-NURE            | 09. 06. 2015  |

## 4. CLASSIFICATION AND FIELD OF APPLICATION

### 4.1 REFERENCE OF CLASSIFICATION

Classification of external wall has been carried out in accordance with EN 13501-2 + A1: 2009, clause 7.5.3.

### 4.2 CLASSIFICATION

#### 4.2.2 CLASSIFICATION OF EXTERNAL WALL

The element, **Non-loadbearing sandwich wall made of insulating panels, type FEI, 120 mm thick with mineral wool core**, is classified according to the following combinations of performance parameters and classes as appropriate.

| Fire resistance classification:  | Condition:              |
|--|-------------------------|
| <b>E15 (i<sup>®</sup>o) / EI 15 (i<sup>®</sup>o)</b>                           | <b>B, C</b> (12 000 mm) |
| <b>EW 20 (i<sup>®</sup>o)<sup>1)</sup></b>                                     | <b>B, C</b> (12 000 mm) |
| <b>E 30 (i<sup>®</sup>o) / EI 30 (i<sup>®</sup>o) / EW 30 (i<sup>®</sup>o)</b> | <b>B</b>                |

Note: <sup>1)</sup> EN 13501-2, paragraph 7.5.3.4 does not define class E20 (i<sup>®</sup>o), EI 20 (i<sup>®</sup>o) but the product meets criteria of integrity and insulation during 20 minutes

Condition B means: Classification is valid for product with vertically or horizontally oriented panels and there is allowed to increase the span length up to 4 000 mm without stitching of joints provided that expansion allowances are increased pro-rata (in accordance with EN 1364-1).

Condition C means: Maximum allowed span without stitching of joints and with horizontally oriented panels (obtained by calculation according to annex B of EN 15254-5).



### 4.3 FIELD OF APPLICATION

This classification is valid according for the following end use applications:

|                                       |   |
|---------------------------------------|---|
| Metal facings                         | changes in thickness of metal facing is allowed up to $\pm 50\%$ ;  |
|                                       | changes in geometry of metal facing is allowed;   |
|                                       | changes in type of material of metal facing is allowed for all grades of tested normal steel;   |
| Core                                  | decrease in density of mineral wool core is allowed down to $-10\%$ ;<br>increase in density of mineral wool core is allowed up to $150 \text{ kg/m}^3$ ;   |
|                                       | change in orientation of mineral wool fibres is not allowed;  |
|                                       | decrease in binder amount is allowed;   |
| Joint construction                    | increase in overlap of the metal facing at the panel to panel joint is allowed provided that others dimensions are not changed;   |
|                                       | increase in the depth of tongue and groove within the panel core is allowed but no decrease;  |
|                                       | changes in thickness of the tongue and groove within the panel core are allowed up to $\pm 50\%$ ;  |
|                                       | the panels joint can be sealed in the metal joint on the exposed side. For E classified structures at least A2-s1, d0 classified sealants shall be used on non exposed side;  |
| Panel orientations                    | changes in orientation of panels (vertical or horizontal) are allowed in compliance with clause No. 5.1 of the report [1];  |
| Change of the dimensions              | decrease in the panels width is allowed;  |
|                                       | increase in the panels width is allowed up to $1\,200 \text{ mm}$ ;   |
|                                       | increase in the thickness of panel core is allowed;   |
|                                       | in case of wall made of vertically oriented sandwich panels the length (width) of the wall can be increased;  |
|                                       | in case of wall made of horizontally oriented sandwich panels the height of the wall can be increased on condition that each panel is fixed to the bearing structure in such a way that the load is not accumulated from above to the lower parts of the wall;  |
| Span length                           | decrease in distance between supports is allowed ( $< 3\,000 \text{ mm}$ );   |
|                                       | increase in distance between supports is allowed ( $> 3\,000 \text{ mm}$ ) in compliance with clause No. 5.1 of the report [1];   |
| Fixing to the supporting construction | <p>wall is fixed to the supports which are located in compliance with clause No. 5.1 of the report [1];</p> <p>each of panels is fixed to two pairs of supports</p> <ul style="list-style-type: none"> <li>- oriented vertically (in case of horizontal installation of panels),</li> <li>- oriented horizontally (in case of vertical installation of panels),</li> </ul> <p>by steel self-drilling screws EJOT JZ3-6,3X150-E19 and EJOT JZ3-6,3X125, position of the screws: <math>\leq 90 \text{ mm}</math> from the wall corners and joints of panels and next in spacing <math>275 \text{ mm}</math>,</p> <p>increase in amount of self-drilling screws is allowed,</p> <p>wall can be fixed to the other supports than tested under the following conditions:</p> <ul style="list-style-type: none"> <li>- the support structure has at least the same fire resistance classification time for loadbearing capacity as the panel assembly has for insulation and/or integrity;</li> <li>- the thermal movements of the support structure does not impose any loads on the panel assembly that can affect the integrity properties of the tested wall;</li> <li>- the fixing system has the same loadbearing capacity in the support structure as in the supports used in the reference test.</li> </ul> |



### 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.

Approved:

Signed:

Ing. Štefan Rástocký  
leader of the testing laboratory



Michaela Gorlická  
technician of the testing laboratory