

## **CLASSIFICATION OF FIRE RESISTANCE FIRES-CR-135-14-AUPE**

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**LGSF Floor joists – multi-storey buildings, system Frame Factory**

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# CLASSIFICATION OF FIRE RESISTANCE IN ACCORDANCE WITH EN 13501-2: 2007 + A1: 2009 with direct field of application

## FIRES-CR-135-14-AUPE

**Name of the product:** LGSF Floor joists – multi-storey buildings, system Frame Factory

**Sponsor:** FRAME FACTORY Sp. z.o.o.,  
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97-400 Bełchatów,  
Poland

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**Tested property:** Fire resistance  
**Test method:** EN 1365-2:1999  
**Type of test:** Accredited / Notified (NB 1396)

**Task No.:** PR-14-0371  
**Date of issue:** 24.11.2014

Reports: 3  
Copy No.: 2

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## 1. INTRODUCTION

This classification report defines the resistance to fire classification assigned to element LGSF Floor joists – multi-storey buildings, system Frame Factory in accordance with the procedures given in EN 13501-2: 2007 + A1: 2009.

## 2. DETAILS OF CLASSIFIED PRODUCT

### 2.1 GENERAL

The element, LGSF Floor joists – multi-storey buildings, system Frame Factory, is defined as a loadbearing floor.

### 2.2 PRODUCT DESCRIPTION

Overall thickness of the floor: 356 mm

Construction of the specimen from the bottom face:

: two layers of the fire resistance plaster board Rigips RF15 (manufacturer: Rigips), each 15 mm thick, with bulk density  $840 \text{ kg/m}^3$ , fixed to the each steel Rigips R-CD RigiProfil profile by means of steel fasteners Rigips (3,5 x 25) mm – first layer and second layer by steel fasteners Rigips (3,5 x 45) mm (manufacturer: Rigips) placed at the edges of boards and next in spacing 150 mm – 200 mm around the perimeter of boards. The joints of plaster boards are covered by glass tape and standard gypsum mastic Rigips Vario (manufacturer: Rigips).

:the steel Rigips R-CD RigiProfil profiles (KB510191) made of steel zinc coated sheet with dimensions (27 x 60 x 27) mm with overall thickness 1,2 mm after special process of steel hardening (manufacturer: Rigips). These profiles are placed across to the loadbearing C profiles at the edges of C profiles and next in spacing 400 mm. CD profiles are fixed to the loadbearing C profiles by means of moving washers for CD profiles and pair of steel screws SC2/21-H2-4,2x30 (manufacturer: SFS intec).

:the bottom edge of loadbearing steel C profiles is covered by strips of fire resistance plaster board Rigips RF15, 15 mm thick, 60 mm wide

: loadbearing steel construction made of 6 longitudinal steel C profiles (254 x 50 x 15) mm, made of steel zinc coated sheet, 1,96 mm thick (grade of steel S 350 GD Zn 275\_EN 10-346) (manufacturer: Framefactory Sp. Z o.o., Poland), placed in spacing 600 mm. Perforation of profiles (holes for service installation):  $\varnothing 165 \text{ mm}$  in spacing 2000 mm.

Shorter edges of floor are closed by steel profiles U (254 x 70) mm made of steel zinc coated sheet, 1,96 mm thick (grade of steel S 350 GD Zn 275\_EN 10-346) (manufacturer: Framefactory Sp. Z o.o., Poland). Longitudinal C profiles 254 are fixed to the U 254 profiles by screws SD6-H15-5,5x25 (manufacturer: SFS intec.) through the steel plates.

:Cavity between C profiles is filled by blown mineral wool CLIMASTONE, 125 mm thick with bulk density  $45 - 70 \text{ kg/m}^3$  (manufacturer: CIUR a.s.).

: two layers of chipboards OSB/EG OSB-3 4 PD, each 15 mm thick (manufacturer: Egger) with bulk density  $> 600 \text{ kg/m}^3$ . The maximal dimension of one board is (625 x 2500) mm. The second layer of chipboards is fixed to the specimen in such way that cover the joints of first layer of chipboards. The chipboards are fixed to each other by groove-tongue joint and to the C profiles by means of steel fasteners SC3/35-PH2-4,8x45 (manufacturer: SFS intec) placed 50 mm from the edges of boards and next in spacing 150 mm – 200 mm.

More detailed information about product construction is shown in drawings [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
[1]	FIRES, s.r.o., Batizovce, SR	BORABELA s.r.o., Czech Republic FRAME FACTORY Sp. z.o.o., Poland	FIRES-FR- 176-14-AUNE + Supplement No. 1 to test report No. FIRES-FR-176-14- AUNE	03. 09. 2014	EN 1365-2: 1999

[1] Test specimen was conditioned according to EN 1363-1 before the fire resistance test

#### 3.2 TEST RESULTS

No./ Test method	Parameter	Results	
[1] EN 1365-2	applied load	$M_{omax} = 14,63 \text{ kNm}$ was applied on specimen surface by two forces $P = 38,6 \text{ kN}$ ( $3,25 \text{ kN/m}^2$ )	
	supporting construction	two support in spacing 4000 mm (single spam beam)	
	temperature curve	standard temperature time curve	
	loadbearing capacity	90 minutes no failure	
	integrity	cotton pad	90 minutes no failure
		gap gauges	90 minutes no failure
		sustained flaming	90 minutes no failure
	thermal insulation	I	90 minutes no failure
	radiation		90 minutes no failure
other parameters		test from the bottom of specimen	

[1] The fire test was terminated after period of 90 minutes at the request of 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 13501-1+ A1: 2009.

#### 4.2 CLASSIFICATION

The element, **LGSF Floor joists – multi-storey buildings, system Frame Factory**, is classified according to the following combinations of performance parameters and classes as appropriate.

<p><b>Fire resistance classification:</b> <b>REI 90</b></p>
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*Note: Classification is valid from bottom face of product only.*



### 4.3 FIELD OF APPLICATION

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

Thickness of materials	Increase in thickness of used insulation materials and steel loadbearing construction is allowed under condition that the increased thickness is considered by static analysis because of increased dead-weight of the product and the maximal loading and bending moments are not changed as tested;
Construction element (loading)	The maximal bending moments and normal force, calculated on the same basis as testing load may be not greater than those during the test;
Pitch angle of the roof construction	Results are valid for installation in practice $0^{\circ} \pm 25^{\circ}$ relative to plane;
Distance between supports	It is possible to increase or decrease of distance between supports, under condition, that the maximum moments and shear forces, with when calculated on the same basis as the test load, shall not be greater than those tested;
Ceiling	The total area occupied by fixtures and fittings relative to the area of the ceiling lining is not increased;
Cavity	The height of cavity (height of the beam) is the same or larger than those during the test; No combustible or insulating material is added to the cavity;

### 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:

Ing. Štefan Rástocký  
leader of the testing laboratory



Signed:

Michaela Gorlická  
technician of the testing laboratory