CLASSIFICATION OF FIRE RESISTANCE
FIRES-CR-153-19-AUPE

Loadbearing external wall made of timber framework covered by boards CETRIS Basic 16,0 mm thick on external face and boards Fermacell 12,5 mm thick on internal face

Reg. No. 041/S-159

The Experts on Fire Safety

CLASSIFICATION OF FIRE RESISTANCE IN ACCORDANCE WITH EN 13501-2: 2016

with direct field of application

FIRES-CR-153-19-AUPE

Name of the product: Loadbearing external wall made of timber framework covered by boards CETRIS Basic 16,0 mm thick on external face and boards Fermacell 12,5 mm thick on internal face

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1. INTRODUCTION

This classification report defines the resistance to fire classification assigned to element Loadbearing external wall made of timber framework covered by boards CETRIS Basic 16,0 mm thick on external face and boards Fermacell 12,5 mm thick on internal face in accordance with the procedures given in EN 13501-2: 2016.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Loadbearing external wall made of timber framework covered by boards CETRIS Basic 16,0 mm thick on external face and boards Fermacell 12,5 mm thick on internal face, is defined as a loadbearing wall with fire separating function.

2.2 PRODUCT DESCRIPTION

Product is a loadbearing external wall made of timber framework covered by boards CETRIS Basic 16,0 mm thick on external face and boards Fermacell 12,5 mm thick on internal face.

Dimensions

Maximum dimensions of board CETRIS Basic (width x height x thickness)	(1250 x 2500 x 16,0) mm
Maximum dimensions of board Fermacell (width x height x thickness)	(1250 x 2350 x 12,5) mm

Timber framework is made of spruce joists with bulk density >450 kg.m^{-3} and dimensions (60 x 160) mm placed around the perimeter of wall and vertically (studs) in axis spacing of 625 mm. Individual studs are fixed to horizontal joists by two woodscrews (5,5 x 160) mm. Inner wall corners are reinforced by L-shaped steel sheets (50 x 50 x 1,5) mm fixed to joists by 4 woodscrews (5 x 50) mm.

Internal wall face is covered by 12,5 mm thick gypsum fibreboards Fermacell (producer: Fermacell) with bulk density of 1150 kg.m^{-3} and external wall face by 16,0 mm thick cement bonded particleboard CETRIS Basic (producer: CIDEM Hranice, a.s.) with nominal bulk density 1350 kg.m^{-3}. Fire resistant mastic type FP Acrylic (producer: Den Braven) is used at joints of CETRIS Basic boards. Boards are fixed to timber framework by steel staples (50 x 11 x 1,8) mm spaced each 100 mm.

Cavity of the wall is fitted by two layers 80 mm thick of mineral wool type Superrock (producer: Rockwool) with bulk density 37,3 kg.m^{-3}.

More detailed information about product construction is shown in test reports [1, 2].

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	Národní Dřevařský Klastr, z.s., Ostrava, CZ	FIRES-FR-095-19-AUNS	19. 06. 2019	STN EN 1365-1: 2013/ AC: 2013
[2]			FIRES-FR-097-19-AUNS	21. 06. 2019	

[1, 2] Test specimens were conditioned according to EN 1363-1 before the fire resistance test

3.2 TEST RESULTS

No./ Test method	Parameter		Results
[1] STN EN 1365-1: 2013/ AC: 2013 **(o→i)**	applied load		axial load 30,7kN/m
	temperature curve		**external fire exposure curve**
	loadbearing capacity		92 minutes no failure
	integrity	cotton pad	92 minutes no failure
		gap gauges	92 minutes no failure
		sustained flaming	92 minutes no failure
	thermal insulation	average temperature (140 K)	92 minutes no failure
		maximum temperature (180 K)	92 minutes no failure
	radiation		92 minutes no failure
	mechanical action		-
	specimen orientation		External face of wall (CETRIS Basic boards) exposed to fire
[2] STN EN 1365-1: 2013/ AC: 2013 **(i→o)**	applied load		axial load 30,7kN/m
	temperature curve		**standard temperature time curve**
	loadbearing capacity		61 minutes no failure
	integrity	cotton pad	61 minutes no failure
		gap gauges	61 minutes no failure
		sustained flaming	61 minutes no failure
	thermal insulation	average temperature (140 K)	61 minutes no failure
		maximum temperature (180 K)	61 minutes no failure
	radiation		61 minutes no failure
	mechanical action		-
	specimen orientation		Internal face of wall (Fermacell boards) exposed to fire

[1] The test was discontinued in 93rd minute upon the request of test sponsor

[2] The test was discontinued in 62nd minute upon 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 7.3.2 of EN 13501-2: 2016.

4.2 CLASSIFICATION

The element, **Loadbearing external wall made of timber framework covered by boards CETRIS Basic 16,0 mm thick on external face and boards Fermacell 12,5 mm thick on internal face**, is classified according to the following combinations of performance parameters and classes as appropriate.

Fire resistance classification from external face of wall (o→i): RE 90-ef / REI 90-ef / REW 90-ef
Fire resistance classification from internal face of wall (o→i): RE 60 / REI 60 / REW 60

4.3 FIELD OF APPLICATION

This classification is valid for the following end use applications:

Height	increase in the height above 3000 mm is not allowed; decrease in the height is allowed without restrictions;
Width	changes in the wall width is allowed;
Thickness of wall and materials	increase in the thickness of the wall and individual component materials is allowed;
Linear dimensions of boards	it is allowed to decrease the linear dimensions of boards, but not thickness;
Distance between studs	it is allowed to decrease in studs spacing (maximum axis distance is 625 mm);
Fixation of materials	decrease in distance of fixing centres is allowed;
Horizontal joints of boards	it is allowed to increase the number of horizontal joints;
Size and method of loading	maximum load 30,7 kN/m;
	decrease in the applied load is allowed;
	method of loading - axial loading is not allowed to be change for eccentric loading;
Electrical installations	it is not allowed to use of installations such as electrical sockets, switches, etc.

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

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Signed:

Dávid Šubert
technician of the testing laboratory