

CLASSIFICATION OF FIRE RESISTANCE FIRES-CR-015-18-AUPE

Loadbearing wall composed of EcoCocon straw modules with clay plaster

This is an electronic version of a classification report which was made as a copy of classification report officially issued in a paper form. The electronic version of a classification report shall be used only for informative purpose. Any information listed in this classification report is the property of the sponsor and shall not be used or published without written permission. Contents of this file may only be modified by the editor i.e. FIRES, s.r.o., Batizovce. Sponsor is allowed to publish this classification report in parts only with written permission of the editor.



**CLASSIFICATION OF FIRE RESISTANCE
IN ACCORDANCE WITH
EN 13501-2: 2016
with direct field of application
FIRES-CR-015-18-AUPE**

Name of the product: Loadbearing wall composed of EcoCocon straw modules with clay plaster

Sponsor: Ecococon UAB
Odminių street 10-10
Vilnius
Lithuania

Prepared by: FIRES, s.r.o.
Notified Body No. 1396
Osloboditeľov 282
059 35 Batizovce
Slovak Republic

Task No.: PR-18-0027

Date of issue: 23. 02. 2018

Reports: 3
Copy No.: 2

Distribution list:

Copy No. 1 FIRES, s. r. o., Osloboditeľov 282, 059 35 Batizovce, Slovak Republic
(electronic version)
Copy No. 2 Ecococon UAB, Odminių street 10-10, Vilnius, Lithuania (electronic version)
Copy No. 3 Ecococon UAB, Odminių street 10-10, Vilnius, Lithuania

This classification report may only be used or reproduced in its entirety.

This report includes accreditation mark SNAS with additional mark ILAC-MRA. SNAS is signatory of ILAC-MRA, Mutual recognition agreement (of accreditation), which is focused on promoting of international acceptance of accredited laboratory data and reducing technical barriers to trade, such as the retesting of products on markets of signatories. More information about ILAC-MRA is on www.ilac.org. Signatories of ILAC-MRA are e.g. SNAS (Slovakia), CAI (Czech Republic), PCA (Poland), DakKS (Germany) or BMWA (Austria). Up to date list of ILAC-MRA signatories is on <http://ilac.org/ilac-mra-and-signatories/>. FIRES, s.r.o. Batizovce is full member of EGOLF also, more information www.egolf.org.uk. Classification reports with direct field of application issued by FIRES, s.r.o. are valid in United Arab Emirates based on list of laboratories approved by United Arab Emirates Ministry of Interior Civil Defence (up-to-date list is available on: www.dcd.gov.ae/eng/).



1. INTRODUCTION

This classification report defines the resistance to fire classification assigned to element Loadbearing wall composed of EcoCocon straw modules with clay plaster in accordance with the procedures given in EN 13501-2: 2016.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Loadbearing wall composed of EcoCocon straw modules with clay plaster, is defined as a loadbearing wall with fire separating function.

2.2 PRODUCT DESCRIPTION

Product is the Loadbearing wall composed of EcoCocon straw modules with clay plaster.

Dimensions of individual modules	(2900 x 1000 x 250) mm (height x width x thickness)
	(2900 x 1200 x 250) mm (height x width x thickness)
	(2900 x 800 x 250) mm (height x width x thickness)

Construction of wall

The wall is assembled of EcoCocon straw modules.

Frame construction of the module

Double frame construction of each module is made of timber profiles with cross-section (45 x 95) mm. Modules with width 1000 mm or more includes two additional vertical timber profiles placed at mid-width. Top and bottom module edge is covered by 12,0 mm thick plywood. Individual components are fixed together by screws (8 x 100) mm and (4,5 x 50) mm.

Modules are reinforced by transverse timber profiles (45 x 45) mm placed on both vertical edges at maximum distances 960 mm. Boards 20,0 mm thick are placed between vertical edges and fixed to transverse profiles by screws (6 x 60) mm and (8 x 80) mm.

Individual modules are fixed together by screws (8 x 100) mm placed in maximum spacing of 470 mm. Two wooden profiles C24 with dimensions (100 x 100) mm are placed on the top wall edge to ensure balanced loading of wall.

Core of the wall is pressed straw with bulk density 100kg.m^{-3} .

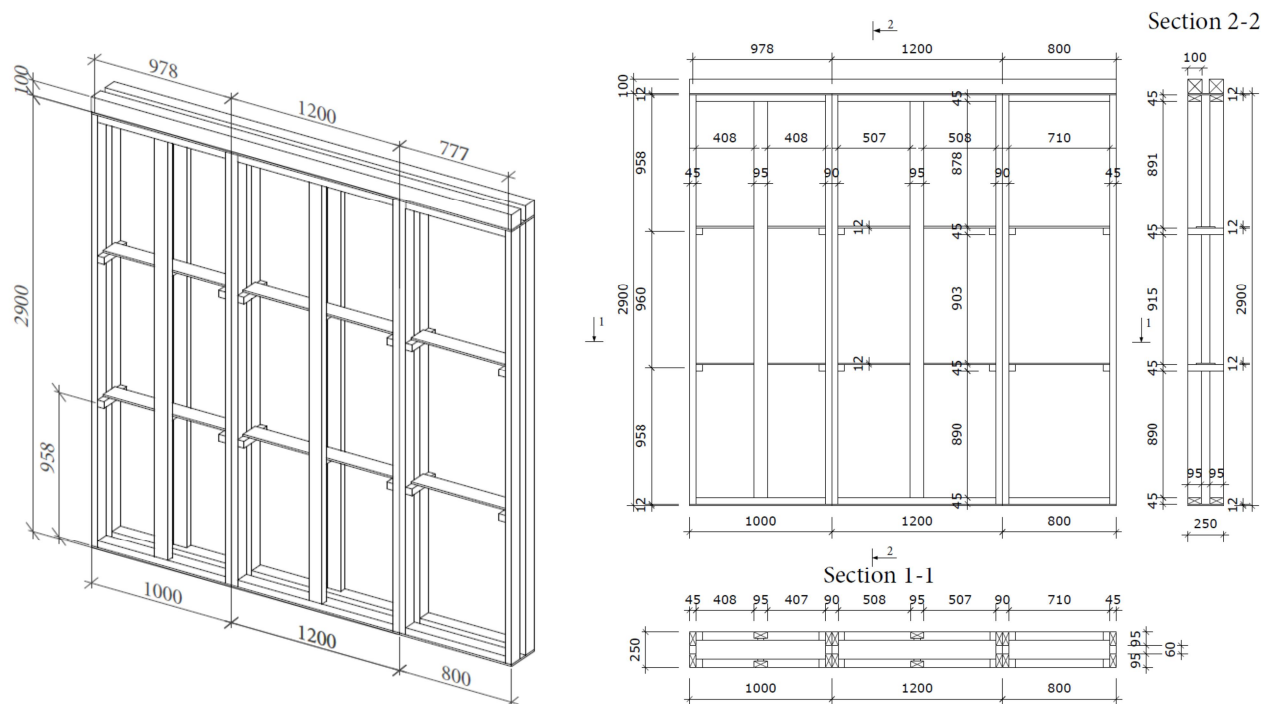
Covering of the wall

Timber elements are covered from exterior face by waterproof membrane (producer: Tyvek) fixed to the timber posts by staples 20,0 mm long applied through plywood strips (8 x 45/90) mm. A wood fibre boards Steico Protect H (producer: Steico) with dimensions (535 x 1300 x 60) mm and bulk density of 265kg.m^{-3} are fixed to wooden construction by steel staples 90,0 mm long spaced each 150 mm. The wood fibre boards are fixed together by tongue-groove joints on edges. No additional plaster used on external face of wall.

Timber elements are covered from interior face by clay base plaster applied two layers (together 20 – 25 mm thick) with a reinforced glass fibre mesh (producer: Vertex). An additional fine clay plaster approx. 5,0 mm thick is added as a finish.

The clay plaster is applied directly on the straw surface and timber studs.

More detailed information about product construction is shown in test report.



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	Ecococon UAB, Odminių street 10-10, Vilnius, Lithuania	FIRES-FR-021-18-AUNE	29. 01. 2018	EN 1365-1: 2012/AC: 2013
[2]			FIRES-FR-022-18-AUNE	30. 01. 2018	

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

3.2 TEST RESULTS

No./ Test method	Parameter	Results	
[1] EN 1365-1: 2012/AC: 2013	applied load	axial load 70,0 kN/m	
	temperature curve	standard temperature/time curve	
	loadbearing capacity	121 minutes no failure	
	integrity	cotton pad	121 minutes no failure
		gap gauges	121 minutes no failure
		sustained flaming	121 minutes no failure
	thermal insulation	average temperature (140 K)	121 minutes no failure
		maximal temperature (180 K)	121 minutes no failure
	radiation		121 minutes no failure ¹⁾
mechanical action		-	
specimen orientation		Internal face of wall exposed to fire – clay plaster exposed to fire	



No./ Test method	Parameter	Results	
[2] EN 1365-1: 2012/AC: 2013	applied load	axial load 70,0 kN/m	
	temperature curve	external fire exposure curve	
	loadbearing capacity	121 minutes no failure	
	integrity	cotton pad	121 minutes no failure
		gap gauges	121 minutes no failure
		sustained flaming	121 minutes no failure
	thermal insulation	average temperature (140 K)	121 minutes no failure
		maximal temperature (180 K)	121 minutes no failure
	radiation	121 minutes no failure ¹⁾	
	mechanical action	-	
specimen orientation	External face of wall exposed to fire – clay plaster outside the testing furnace		

1) Regarding to low temperatures on unexposed specimen surface below 300°C the performance criteria of radiation is to be complied as satisfied.

[1], [2] The fire test was terminated in the 122nd minute upon 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 wall composed of EcoCocon straw modules with clay plaster**, is classified according to the following combinations of performance parameters and classes as appropriate.

<p>Fire resistance classification from interior side (i→o): RE 120 / REI 120 / REW 120</p> <p>Fire resistance classification from exterior side (o→i): RE 120-ef / REI 120-ef / REW 120-ef</p>
--



4.3 FIELD OF APPLICATION

Height	<ul style="list-style-type: none"> – increase in the height above 3000 mm is not allowed; – decrease in the height is allowed;
Width	<ul style="list-style-type: none"> – change in the wall width is allowed; – extension in the width of wall is allowed only as a replication of modules as tested; – decrease in the module width is allowed, but not increase; – maximum width of module is 1200 mm;
Thickness of wall and materials	<ul style="list-style-type: none"> – increase in the thickness of the wall and individual component materials is allowed;
Linear dimensions of boards	<ul style="list-style-type: none"> – it is allowed to decrease the linear dimensions of boards, but not thickness;
Fixation of materials	<ul style="list-style-type: none"> – decrease in distance of fixing centres is allowed;
Size and method of loading	<ul style="list-style-type: none"> – maximum load 70,0 kN/m;
	<ul style="list-style-type: none"> – decrease in the applied load is allowed;
	<ul style="list-style-type: none"> – method of loading - axial loading is not allowed to be change for eccentric loading;

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



Dávid Šubert
technician of the testing laboratory