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CLASSIFICATION OF REACTION TO FIRE
FIRES-CR-183-25-AUPE

Loadbearing wall composed of EcoCocon straw modules

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CLASSIFICATION OF REACTION TO FIRE IN ACCORDANCE WITH EN 13501-1: 2018

with direct field of application

FIRES-CR-183-25-AUPE

Name of the product: Loadbearing wall composed of EcoCocon straw modules

Sponsor:
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1. INTRODUCTION

This classification report defines the reaction to fire assigned to element Loadbearing wall composed of EcoCocon straw modules in accordance with the procedures given in EN 13501-1: 2018.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Loadbearing wall composed of EcoCocon straw modules product name (as described by the sponsor), is defined as a load-bearing wall with fire separating function.

2.2 PRODUCT DESCRIPTION

Dimensions

Overall dimensions of the tested product	3000 x 3000 x 250 mm (height x width x thickness)
Modules dimensions	2900 x 850 x 250 mm (height x width x thickness)
	2900 x 450 x 250 mm (height x width x thickness)

Construction of the module

The double front frame construction of each module consists of studs and transoms made from C24 spruce profiles 45 x 95 mm. The top and bottom edges of the modules are covered with 12,0 mm thick plywood. Each stud is fixed to the plywood with two 8,0 x 100 mm TX40 washer head screws. The transoms at the top and bottom of the module edge are fixed to the plywood with 4,5 x 50 mm TX20 countersunk head screws 65 mm from the edges and at maximum 240 mm centres. The transoms within the module are positioned 970 mm from the top and bottom edges of the module and are fixed between the studs with two 4,5 x 50 mm TX20 countersunk head screws.

The opposing transoms within the module are joined together with two 150 mm wide by 12,0 mm thick plywood strips positioned 80 mm from the studs and fixed to the transoms with a 4,5 x 50 mm TX20 countersunk head screw. In the case of the 450 mm wide module, the transoms within the module are joined together with only one plywood strip positioned at the mid-width of the transoms.

The core of the module is compressed straw with a nominal bulk density of 115 kg.m^{-3}.

Joining of the modules

The modules are fixed together along the vertical edges with 8,0 x 120 mm TX40 washer head screws positioned just above/below the top and bottom transoms and next at maximum 476 mm centres.

Two 100 x 100 mm C24 timber profiles are placed at the top of the wall along the front and rear edges and fixed to the modules with 8,0 x 120 mm TX40 washer head screws at maximum 400 mm centres.

Covering of the wall

External wall face is covered by a 0,45 mm thick SOLITEX MENTO 3000 diffusion-open membrane (manufacturer: Pro Clima) fixed to timber profiles by 6 mm thick and 80 mm wide plywood stripes and 63 mm long steel staples spaced each 150 mm. Wood fibber board type Steico Protect H (manufacturer: STEICO UK Limited, Unit 3 Eden Brae Business Park, Dunstable Road, Caddington LU1 4FF, United Kingdom) with dimensions (1325 x 600 x 60) mm and bulk density 265 kg.m^{-3} are fixed to timber frame construction by steel staples (25 x 100) mm spaced each 70 mm at the perimeter of wall and each 150 mm at wall surface to vertical timber profiles of modules. Boards are joined together by tongue-groove joints on the board edges.

Wood fibber board external surface is covered by base coat StarContact (manufacturer: Baumit Beteiligungen GmbH, Wopfing 156, A-2754 Waldegg, Austria, manufacturing plant Baumit Beteiligungen Gmbh, Wopfing 156, A-2754 Waldegg, Austria), with minimum coverage 4,0 kg.m^{-2} in two layers together with glass-fibre reinforcing mesh R 117 A101 (manufacturing plant Saint-Gobain Adfords CZ, s.r.o., Sokolovská 106, 570 21 Litomyšl, Czech republic) with area density 142 g.m^{-2} ±5 %, mesh size (4,0 x 4,5) mm.

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	Type of the test
[1]	FIRES, s.r.o., Batizovce, SR	EcoCocon UAB, Kybartai, Lithuania	FIRES-RF-037-25-AUNE	11. 07. 2025	EN 13823: 2020 + A1: 2022	A
[2]			FIRES-RF-039-25-AUNE	08. 08. 2025 03. 09. 2025 08. 09. 2025	EN ISO 11925-2: 2020	A
[3]			FIRES-RF-040-25-AUNE	03. 09. 2025	EN ISO 11925-2: 2020	A

Type of the test: A – accredited, N – non-accredited

[1] – [3] Test specimens were conditioned according to EN 13823 before the reaction to fire

[1] Test of Loadbearing wall composed of EcoCocon straw modules with external face covering

[2] Test of Loadbearing wall composed of EcoCocon straw modules with external face covering excluding core. Specimens were exposed with flame to main surface and to bottom edge of base coat with wood fibre board substrate, the bottom edge of the wood fibre board, in the middle of the board thickness (specimen turned 90°), the bottom edge of the plywood and the bottom edge of diffusion membrane with plywood substrate acc. to EN 13238: 2010.

[3] Test of Compressed straw of EcoCocon straw modules. Specimens were exposed with flame to main surface and to bottom edge of the specimens.

3.2 TEST SPECIMENS

Test report No.	Samples information	Conditioning
[1]	-	The specimen was stored in the hall of testing laboratory and conditioned according to EN 13238 under following climatic conditions: Ambient air temperature: 22,4 °C, st. deviation 0,5 °C Relative air humidity: 45,6 %, st. deviation 6,5 %
[2]	-	The specimen was stored in the hall of testing laboratory and conditioned according to EN 13238 under following climatic conditions: 08. 08. 2025 Ambient air temperature: 23,3 °C, st. deviation 2,3 °C Relative air humidity: 45,3 %, st. deviation 5,6 % 03. 09. 2025 Ambient air temperature: 23,1 °C, st. deviation 0,5 °C Relative air humidity: 46,5 %, st. deviation 4,8 % 08. 09. 2025 Ambient air temperature: 23,0 °C, st. deviation 0,6 °C Relative air humidity: 45,3 %, st. deviation 5,0 %
[3]	-	The specimen was stored in the hall of testing laboratory and conditioned according to EN 13238 under following climatic conditions: Ambient air temperature: 23,1 °C, st. deviation 0,7 °C Relative air humidity: 46,5 %, st. deviation 4,8 %

3.3 TEST RESULTS

Test report number and test method	Characteristic value	Number of tests	Results	
			Continuous parameter - mean (m)	Compliance with parameters
[1] STN EN 13823	$FIGRA_{0,2MJ}$ $FIGRA_{0,4MJ}$ LFS<edge of specimen THR_{600s}	3	20,3 19,8 (-) 2,4	(-) (-) compliant (-)
	SMOGRA (m^2/s^2) TSP600s (m^2)		0,0 5,4	(-) (-)
	flaming droplets/particles		occurrence flaming ≤ 10 s flaming >10 s	non-compliant (-) (-)
[2] EN ISO 11925-2 surface/edge of specimen exposed to flame (exposure time 30 s)	F_s ≤ 150 mm	30	(-)	compliant
flaming droplets/particles	ignition of the paper		(-)	non-compliant
[3] EN ISO 11925-2 surface/edge of specimen exposed to flame (exposure time 30 s)	Fs ≤ 150 mm	12	(-)	compliant
flaming droplets/particles	ignition of the paper		(-)	non-compliant

4. CLASSIFICATION AND FIELD OF APPLICATION

4.1 REFERENCE OF CLASSIFICATION

This classification has been carried out in accordance with clause 11.6 of EN 13501-1: 2018.

4.2 CLASSIFICATION

The product, Loadbearing wall composed of EcoCocon straw modules, in relation to its reaction to fire behaviour is classified:

B

The additional classification in relation to smoke production is:

s1

The additional classification in relation to flaming droplets/particles is:

d0

The format of the reaction to fire classification for construction products excluding floorings is:

Fire behaviour		Smoke production			Flaming droplets	
B	-	s	1	,	d	0

Reaction to fire classification: B – s1, d0

4.3 FIELD OF APPLICATION

This classification is valid for the following final use applications:

i) external walls (classification valid from exterior side);
ii) partitions (classification valid from exterior side);
iii) characteristic product orientation: vertical;
iv) edges: protected/closed edges.

This classification is also valid for the following product parameters:

Composition	The classification applies to the products described in the quantities used (clause 2.2), and all products and components which have: - the same or lower content of organic materials; - the same or higher content of flame retardants of the same; - the same or lower PCS value of used materials. The order of the individual layers must not be changed.
Bulk density/mass per surface of area	- bulk density/mass per surface of area of base coat, straw, wood and plywood can be increased only; - change in bulk density/mass per surface of area of wood fibre board is not allowed; - bulk density/mass per surface of area of reinforcing mesh and diffusion membrane can be reduced only.
Thickness	- change in thickness of straw is allowed without limitations; - thickness of diffusion membrane, reinforcing mesh, wood and wood-based materials (plywood, wood fibre board) can be reduced only; - thickness of base coat can be increased only.
Surfaces/finishing	Surfaces/finishing with reaction to fire class A1, or A2 can be used only.

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 by:

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Prepared by:

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