Łukasiewicz
Institute of Ceramics
and Building Materials

Łukasiewicz Research Network – Institute of Ceramics and Building Materials
31-983 Krakow, Cementowa 8 Str., Poland

DIVISION OF GLASS AND BUILDING MATERIALS IN KRAKOW

30-702 Krakow, Lipowa 3 Str., Poland www.icimb.lukasiewicz.gov.pl
phone: +48 12 423 67 77 info.krakow@icimb.lukasiewicz.gov.pl

GLASS RESEARCH GROUP

phone: +48 12 257 12 00 magda.kosmal@icimb.lukasiewicz.gov.pl

CLASSIFICATION OF THE FIRE RESISTANCE ACCORDING TO PN-EN 13501-2:2016-07

Sponsor: **Norgips Sp. z o.o.**

Address: ul. Racławicka 93, 02-634 Warszawa

Prepared by: **Łukasiewicz Research Network - Institute of Ceramics and Building Materials**,
Division of Glass and Building Materials in Cracow,
Glass Research Group
ul. Lipowa 3, 30-702 Cracow (Poland)

Notified Body No. Not applicable

Name of the product: **Non-loadbearing wall**
SD-2x12,5 GKB A + GKF DF/CW 75 W 75

Classification report no.: 024.BO.21.K

Issue number: 1

Issue date: 22.12.2021

This classification report consists of 11 pages and may only be used or reproduced in its entirety

Table of contents

1. Introduction

This classification report defines the resistance to fire classification assigned to element non-loadbearing wall SD-2x12,5 GKB A + GKF DF/CW 75 W 75 in accordance with the procedures given in PN-EN 13501-2:2016-07.

2. Details of classified product

2.1. General

The element non-loadbearing wall SD-2x12,5 GKB A + GKF DF/CW 75 W 75 is defined as a type of product in accordance with EAD 210005-00-0505 (March 2019) entitled „Internal partition kits for use as non-loadbearing walls".

2.2. Description

The product is non-loadbearing wall SD-2x12,5 GKB A + GKF DF/CW 75 W 75 with following construction:
- perimeter framing horizontal: Norgips UW 75 profile (steel thickness: 0.6 mm),
- *perimeter framing vertical:* Norgips CW 75 profile (steel thickness: 0.6 mm),
- studs: Norgips CW 75 profile (steel thickness: 0.6 mm),
- *cladding (first layer):* plasterboard 1200 x 2600 mm Norgips GKB type A with a thickness of 12.5 mm (vertical orientation),
- *cladding (second layer):* plasterboard 1200 x 2600 mm Norgips GKF type DF with a thickness of 12.5 mm (vertical orientation),
- *fixings:* the first layer of plates fixed with Norgips WFM ø3.5x25 mm screws with a spacing of 75 cm; the second layer of plates fixed with Norgips WFM screws ø3.5x35 mm with a spacing of about 25 cm;
- *insulation:* glass wool Isover Aku-Plate with a thickness of 75 mm;
- *finishing:* the joints between the plates were puttyed with Norgips Start putty. In addition, the joints of the second layer of plates were reinforced with a tape reinforcing Norgips from physeline.

Full description of product is presented in test report listed in point 3.1 below.

3. Test reports/extended application reports and test results in support of the classification

3.1. Test reports/extended application reports

Name of laboratory	Name of sponsor	Report ref. no	Test standard and date/field of extended application standards and dates
Łukasiewicz Research Network - Institute of Ceramics and Building Materials, Division of Glass and Building Materials in Cracow, Glass Research Group ul. Lipowa 3, 30-702 Cracow (Poland)	Norgips Sp. z o.o. ul. Racławicka 93, 02-634 Warszawa	Test Report No. 027.BO.21.AK	PN-EN 1364-1:2015-08 Date of test: 09-12-2021 Issue date: 20-12-2021
Łukasiewicz Research Network - Institute of Ceramics and Building Materials, Division of Glass and Building Materials in Cracow, Glass Research Group ul. Lipowa 3, 30-702 Cracow (Poland)	Norgips Sp. z o.o. ul. Racławicka 93, 02-634 Warszawa	Extended Application Report No. 018.BO.21.EA	PN-EN 15254-3:2019-12 "Extended application of results from fire resistance tests – Non-loadbearing walls – Part 3: Lightweight partitions". Issue date: 21-12-2021

3.2. Results

Test method, number and date	Parameter	Results
PN-EN 1364-1:2015-08 Test Report No. 026.BO.21.AK Date of test: 15-12-2021	**supporting construction**	The test element was made in a steel test frame. Norgips CW75 profiles were placed in Norgips UW75 profiles attached to a plinth made of autoclaved aerated concrete (AAC) with a thickness of 24 cm and a density of 600 kg / m3 and reinforced concrete lintel with a width of 24 cm and a density of 2450 kg / m3. The circumferential profiles were attached to the supporting structure with WTZ ø8x50 mm screws in a spacing of about 100 cm. Between the circumferential profiles and the frame structure, a polyethylene Sealing Tape Norgips 75 mm wide and 3 mm thick was used. Free edge - the gap between the unfixed edge of the wall and the vertical part of the fastening structure is filled with 30 mm thick Steprock HD mineral wool plates.
	test specimen	Non-loadbearing wall SD-2x12,5 GKB A + GKF DF/CW 75 W 75 Test specimen height: 3000 mm Test specimen width: 3000 mm with free edge
	integrity	
	- cotton pad ignition	No failure 103 minutes
	- gap gauges	No failure 103 minutes
	- sustained flaming	No failure 103 minutes
	thermal insulation	
	- The average temperature increase above the initial average temperature by more than 140 K	101 minutes
	- The average temperature increase above the initial average temperature by more than 180 K	92 minutes
	deflection	The measurement of the deflection was carried out by 95 minutes. Deflection exceeding 100 mm was not recorded. The maximum occurred in 85-90 minute at 1/4 of width and was 100 mm.

4. Classification and field of application

4.1. Reference of classification

The classification has been carried out in accordance with Clause 7 of PN-EN 13501-2:2016-07.

4.2. Classification

The element non-loadbearing wall SD-2x12,5 GKB A + GKF DF/CW 75 W 75 is classified according to the example of the following combinations of performance parameters and classes as appropriate.

R	E	I	W		t	t	-		M	S	C	IncSlow	sn	ef	r	G	K

Fire resistance classification:

EI 15 | **EI 20** | **EI 30** | **EI 45**

EI 60| **EI 90**

4.3. Field of application

The classification is valid for the following end use applications in accordance with standard PN-EN 1364-1:2015-08 and PN-EN 15254-3:2019-12 "Extended application of results from fire resistance tests – Non-loadbearing walls – Part 3: Lightweight partitions".

The results of the fire test are directly applicable to similar constructions where one or more of the changes listed below are made and the construction continues to comply with the appropriate design code for its stiffness and stability.

Parameter	Permitted changes	Rule
Increase of wall height*	For partitions with fire resistance classification EI 15, EI 20, EI 30 maximum wall height is: **12 m**	EXAP § 6.4.1
** the maximum extended height shall be lower than or equal to the maximum allowed height in ambient conditions declared by the manufacturer*	For partitions with fire resistance classification EI 45, EI60 maximum wall height is: **5 m** (expansion allowances are increased pro rata) **6 m** (expansion allowances are increased pro rata and increase the thickness of the lining at each side with a minimum of 50% by adding supplementary layer(s) of the tested boards or by increasing the thickness of the tested boards)	
	For partitions with fire resistance classification EI 90 maximum wall height is: **4 m** (expansion allowances are increased pro rata)	
Wall width	Reducing and increasing the width of the wall without limitation.	EXAP § 6.4.2
Wall thickness	No possibility of reducing wall thickness. Increasing wall thickness without limitation.	PN-EN 1364-1
Exchange of linings	Exchange (replacement) is not allowed.	EXAP § 6.1.1
Plasterboards thickness	No possibility of reducing plasterboards thickness of less than 12.5 mm. Increasing plasterboards thickness without limitation.	PN-EN 1364-1

Parameter	Permitted changes	Rule
Increase/decrease of the number of layers of boards	For partitions with fire resistance classification EI 15, EI 20, EI 30, EI 45, EI 60: An increase of the number of layers of tested boards is permitted on the condition that the length of the fixings are increased in function of the total thickness of the tested lining. An increase of the number of layers of the tested boards combining a decrease of the thickness of the individual tested boards is only permitted if all the following conditions are fulfilled: - the density shall be at least the density of the tested board (minimum 572,8 kg/m^3 for Norgips GKB typu A, minimum 819,2 kg/m^3 for Norgips GKF typu DF); - the thickness of an individual board is decreased with a maximum of 25% (9.38 mm is maximum allowable individual board decrease); - the total thickness of the lining is increased with a minimum of 10% (minimum increase of total thickness is to 27.5 mm); - the length of the fixings is increased in function of the total thickness of the lining. A decrease of the number of layers of the tested boards is not permitted. A decrease of the number of layers of the tested boards is not permitted. For partitions with fire resistance classification EI 90: An increase of the number of layers of tested boards is permitted on the condition that the length of the fixings are increased in function of the total thickness of the tested lining. An increase of the number of layers of the tested boards combining a decrease of the thickness of the individual tested boards is not permitted. A decrease of the number of layers of the tested boards is not permitted.	EXAP § 6.1.2
Plasterboards dimensions	For partitions with fire resistance classification EI 15, EI 20, EI 30, EI 45, EI 60: A decrease of the dimensions of the tested boards is always permitted on the condition that the position of the joints of the boards located at the studs has not changed. An increase of the dimensions of the tested boards is permitted up to 25% in length (up to 3250 mm) and 5% in width (up to 1260 mm) on the condition that the position of the joints of the boards located at the studs has not changed. For partitions with fire resistance classification EI 90: A decrease of the dimensions of the tested boards is always permitted on the condition that the position of the joints of the boards located at the studs has not changed. An increase of the dimensions of the tested boards is not permitted.	EXAP § 6.1.3

Parameter	Permitted changes	Rule
Change in board orientation	Lightweight partition is limited to the vertical boards orientation.	EXAP § 6.1.4
Change of position of layers of the boards	The position of the layers of boards cannot be changed.	EXAP § 6.1.5
Change in shape of the steel profiles	A change in shape of the steel profiles is not permitted.	EXAP § 6.2.2
Increase/decrease of the nominal thickness of the steel profiles	The nominal thickness of steel profiles can be increased without limitations. A decrease is not permitted.	EXAP §6.2.3
Increase/decrease of the nominal steel profiles depth (web)	For partitions with fire resistance classification EI 15, EI 20, EI 30, EI 45, EI 60: The nominal steel profile depth can be decreased within a 10% margin (minimum allowable depth is 67,5 mm) on the condition that the shape of the steel profile has not changed. The thickness of the insulation material may also be decreased pro rata. The nominal steel profile depth can be increased without limitations on the condition that the shape of the steel profile has not changed. The thickness of the insulation material may be increased pro rata but in any way the insulation material shall be supported as tested. For partitions with fire resistance classification EI 90: The nominal steel profile depth decreasing is not permitted. The nominal steel profile depth can be increased without limitations on the condition that the shape of the steel profile has not changed. The thickness of the insulation material may be increased pro rata but in any way the insulation material shall be supported as tested.	EXAP §6.2.4
Increase/decrease of the nominal steel profiles width (flange)	The nominal steel profile width onto which the lining is fixed can be increased without limitations on the condition that the shape of the steel profile has not changed. A decrease is not permitted.	EXAP §6.2.5

Parameter	Permitted changes	Rule
Stud spacing	For partitions with fire resistance classification EI 15, EI 20, EI 30, EI 45, EI 60: An increase in the stud spacing (i.e. centre distance between studs) is permitted up to 5% (permitted up to 630 mm) on the condition that the vertical joints of the boards are located at the studs. A decrease in the stud spacing is always permitted. For partitions with fire resistance classification EI 90: An increase in the stud spacing is not permitted. A decrease in the stud spacing is always permitted.	EXAP § 6.2.6
Removal of mineral wool	The removal of a mineral wool of a tested insulated lightweight partition is not permitted.	EXAP §6.3.3
Exchange of mineral wool	The exchange (replacement) of glass wool by stone wool is permitted, but not vice versa. The rules for density and thickness mentioned in the relevant clauses also apply on the stone wool.	EXAP §6.3.4
Increase/decrease of the tested density of the mineral wool	For partitions with fire resistance classification EI 15, EI 20, EI 30, EI 45, EI 60: Any increase of the tested density of the tested mineral wool insulation is permitted (density is 18.4 kg/m^3). A decrease of the tested density of the tested mineral wool insulation is permitted within a 10% margin (minimum permitted density is 13.64 kg/m^3). For partitions with fire resistance classification EI 90: Any increase of the tested density of the tested mineral wool insulation is permitted. A decrease of the tested density of the tested mineral wool insulation is not permitted.	EXAP §6.3.5

Parameter	Permitted changes	Rule
Increase/decrease of the thickness of the mineral wool	For partitions with fire resistance classification EI 15, EI 20, EI 30, EI 45, EI 60: An increase of the thickness of the tested mineral wool insulation is permitted. A decrease of the thickness of the tested mineral wool insulation is permitted within a 10% margin (minimum allowable wool thickness is 67.5 mm) For partitions with fire resistance classification EI 90: An increase of the thickness of the tested mineral wool insulation is permitted. A decrease of the thickness of the tested mineral wool insulation is not permitted.	EXAP §6.3.6
Distance of fixing centres	Decrease in distance of fixing centres without limitation. No possibility of increasing distance of fixing centres.	PN-EN 1364-1
Number of horizontal joints	Any number of horizontal joints.	PN-EN 1364-1
Number of vertical joints	Any number of vertical joints.	PN-EN 1364-1

5. Limitations

This classification document does not represent type approval or certification of the product.

SIGNED

M. Sc. Eng. Sławomir Pabian

APPROVED

Lider Grupy Badawczej Szkło
dr inż. Magda Kosmal

Ph.D. Eng. Magda Kosmal