

## REPORT

<b>Contract no:</b>	509/2017/01 – BB	03/03/2017 MAI/PIK
<b>Customer:</b>	KLH Massivholz GmbH Katsch an der Mur 202 8842 Teufenbach-Katsch	
<b>Subject:</b>	Extension of the classification report (contract no. 2369/2010) on the fire resistance of a load-carrying cross-laminated timber element "KLH 94 / 3 s DQ"	
<b>Date of contract:</b>	13/02/2017 (letter)	
<b>Date of sample delivery:</b>	--	
<b>Date/Period of service:</b>	February 2017	
<b>Period of validity:</b>	March 2017 to March 2022	
<b>Pages:</b>	6	
<b>Enclosures:</b>	--	

## 1. Contract

By way of the letter dated 13/02/2017, the company KLH Massivholz GmbH, AT-8842 8842 Teufenbach-Katsch, charged Holzforschung Austria with the extension of the classification report (contract no. 2369/2010) on the fire resistance according to ÖNORM EN 13501-2 of a load-carrying cross-laminated timber wall. The structures were not altered as compared to the classified structures.

## 2. Details of the classified components

### 2.1. General information

The load-carrying cross-laminated timber wall is defined as type-classified component. Its function is to resist the fire with a view to load-carrying capacity, thermal insulation, room closure and resistance to mechanical stress. Fasteners and gaps between fasteners according to approval or respective standard.

### 2.2. Wall structure

Fire zone

GKF (according to ÖNORM B 3410, DIN 18180; type DF according to ÖNORM EN 520)

2 x 18 mm

Cross-laminated timber element KLH 94 / 3 s DQ 94 mm (30 34 30)

Side turned away from the fire

The cladding of the KLH boards with 2 x 18mm GKF has to be affixed according to the processing instructions of the company KLH Massivholz GmbH (differ from the usual instructions of the plaster board- manufacturers).

## 3. Test reports/Reports on the extended area of application and test result for verification of the classification

The following test and classification report is used as a basis for the classification of the structure described in section 2.2.:

**ÖNORM EN 13501-2** Fire classification of construction products and building elements

### 3.1. Test report MA 39 – VFA 2011-0339.01

The test report on which this classification report is based was prepared by the test centre MA 39 accredited for that purpose, Magistrate of the City of Vienna, magistrate department 39 - VFA laboratory for structural engineering, test, monitoring and certification centre of the City of Vienna, with report number MA 39 – VFA 2011-0339.01 "Test report on the fire resistance of a load-carrying, multi-layer wall element made of cross-laminated timber with a total thickness of 130 mm" according to ÖNORM EN 1365-1, ÖNORM EN 1363-1 and ÖNORM EN 1363-2.

#### 3.1.1. Set-up:

Fire zone

GKF (according to ÖNORM B 3410, DIN 18180; type DF according to ÖNORM EN 520)

2 x 18 mm

Cross-laminated timber element KLH 94 / 3 s DQ 94 mm (30 34 30)

Cross-laminated timber wall consisting of 1 element

Overall dimensions: 3000 mm x 2950 mm x 130 mm (w x h x h)

Side turned away from the fire

#### 3.1.2. Test result

**Table 1: Load conditions**

Fire scenario:	Unit temperature curve
Load applied: Two-point load on steel beam	35 kN/running metre

**Table 2: Results**

<b>Test duration [min]</b>	94
<b>Load-carrying capacity</b>	94
Time until collapse [min]	--
Deformation criteria exceeded after [min]	--
Buckling or buckling speed – limit exceeded after [min]	--
<b>Room closure</b>	94
Time until ignition of the cotton ball [min]	--
Time until development of constant flames [min]	--
Time until failure of the column criterion [min]	--
<b>Thermal insulation</b>	94
Time, mean temperature increase on the side not exposed to flames exceeds 140 °C [min]	--
Time, maximum temperature increase on the side not exposed to flames exceeds 180 °C [min]	--
<b>Resistance to mechanical stress</b>	compliant



**Table 3: Total result**

Test method	Parameter	Test result
		(min)
ÖNORM EN 1365 - 1	R	90
	E	90
	I	90
	M	compliant

Based on the tests in the scope of the research project "Fundamental studies on the fire resistance of timber frame components", the following can be stated in coordination with the Austrian fire test centres MA 39 test, monitoring and certification centre of the City of Vienna VFA – laboratory for structural engineering and the IBS Institute for Fire Protection and Safety Research:

- Minimum equivalent fire resistance with use of a gypsum fibre board according to ÖNORM EN 15283-2 instead of a plaster board (GKF) according to ÖNORM B 3410, DIN 18180; type DF according to ÖNORM EN 520
- Minimum equal fire resistance with additional façade structures on the side facing away from the fire

#### 4. Classification and area of application

The classification is based on ideal load conditions without pre-buckling deflection, the static system of the test configuration roughly represents Euler problem 2.

The classification was carried out in compliance with section 7.3.2. of ÖNORM EN 13501-2.

##### 4.1. Classification

The component as described in section 2.2. is classified as follows with reference to its fire resistance characteristics:

**Table 4: Classification of the component**

Component	Structure [mm]	Test load $E_{d,fi} \hat{=}$ kN/m	Report number	Classification
Wall structure	94 (30 34 30)	35	VFA 2011-0339.01	REI-M 90

#### 4.2. Direct area of application

The results of the fire test can be applied directly to similar structures on which one or several of the changes described below are carried out and on which the design continues to fulfil the requirements of the respective design standard with a view to their stiffness and strength:

- Reduction of the height of the wall
- Increase in wall thickness
- Increase in thickness of the associated materials
- Reduction of the measures of length of boards and panels, but not of the thickness
- Reduction of the gaps between fasteners
- Reduction of the applied load
- Structural engineering calculations have to be submitted. The maximum torques and transverse forces that are calculated on the same basis as the ones that resulted from the test load must not exceed the ones of the tested ones.
- Reduction of the gaps between the fastening points

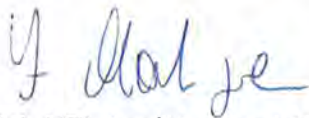
This classification is valid for the structure described in section 2.2.

#### 5. Validity

The validity of this classification report is fixed to five years from March 2017 to March 2022.

**This document is no type approval or certification of the product.**

HOLZFORSCHUNG AUSTRIA




Dipl.-HTL-Ing.<sup>in</sup> Irmgard Matzinger  
*Authorised signatory*



Dr. Bernd Nusser  
*Head of Unit*

Accreditation is given for the following procedures.  
 It is not allowed to use included accreditation marks for own purposes.

Accreditation mark	Type of accreditation	Method
	Inspection	<ul style="list-style-type: none"> <li>• ÖNORM EN 13501-2</li> </ul>

The results and statements given in this document relate only to the tested materials, the present information and the state of the art at the time of investigation.  
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