DE

LEISTUNGSERKLÄRUNG

gemäß Anhang III der Verordnung (EU) Nr. 305/2011 (Bauprodukteverordnung)

Hilti Brandschutzstein CFS-BL P

Nr. Hilti CFS-BL P

1. Eindeutiger Kenncode des Produkttyps:
Hilti Brandschutzstein CFS-BL P

2. Vorgesehener Verwendungszweck:
Abschottungen zum Abdichten und Verschließen von Öffnungen und zum Aufhalten von Feuer im Brandfall in Holzdecken und Holzwänden, siehe ETA 18/1024 (25.01.2019)

Kabeldurchführungen	Kabel, Kabelbündel, Kabelpritschen

3. Hersteller:
Hilti Aktiengesellschaft, Feldkircherstrasse 100, 9494 Schaan, Fürstentum Liechtenstein

4. AVCP-System:
System 1

5. Europäisches Bewertungsdokument:
EAD 350454-00-1104 Abschottungen zum Abdichten und Verschließen von Fugen und Öffnungen und zum Aufhalten von Feuer im Brandfall
Europäische Technische Bewertung:
ETA 18/1024 (25.01.2019)
Technische Bewertungsstelle:
RISE Research Institutes of Sweden AB, RISE Certifiering
Notifizierte Stelle(n):
MPA Braunschweig, Nr. 0761

6. Erklärte Leistung:

Wesentliche Merkmale	Erklärte Leistung / Harmonisierte technische Angaben
Brandverhalten	Klasse E gemäß EN 13501-1.
Feuerwiderstand	Feuerwiderstand und Anwendungsgebiet gemäß EN 13501-2. Siehe Anhang.
Gefährliche Stoffe	Siehe Anhang.
Wärmeschutztechnische Eigenschaften	λ_{10} = 0.089 W/(m^{2}K); Geprüft gemäß EN 12667
Dauerhaftigkeit und Gebrauchstauglichkeit	Y_1 gemäß EAD 350454-00-1104

Die Leistung des vorstehenden Produkts entspricht den erklärten Leistungen. Alleinverantwortlich für das Erstellen der Leistungserklärung gemäß Verordnung (EU) Nr. 305/2011 ist der obengenannte Hersteller.

Unterzeichnet für den Hersteller und in dessen Namen von:

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Leiter Qualitätssicherung
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Schaan, 25.01.2019

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Intended use

Dangerous substances

Essential characteristic	Performance
Content, emission and/or release of dangerous substances	*EN 16516:2017*
The release of semi-volatile organic compounds (SVOC) and volatile organic compounds (VOC) has been determined according to EAD 350454-00-1104 clause 2.2.5.1 and EN 16516:2017. The loading factor used for emission testing was 0.007 m^2/m^3.	
Hilti Firestop Block CFS-BL P	The total emission of SVOC after 3 days is <5 µg/m^3.
	The total emission of SVOC after 28 days is <5 µg/m^3.
	The total emission of VOC after 3 days is 43 µg/m^3.
	The total emission of VOC after 28 days is 5.3 µg/m^3.

Resistance to fire

RESISTANCE TO FIRE CLASSIFICATION OF PENETRATION SEALS "HILTI FIRESTOP BLOCK CFS-BL P"

C.1 General information

C.1.1 Wall/floor constructions

a) Cross laminated timber floor:

Floor type A: The floor construction is a cross laminated timber (type "Leno Brettsperrholz", manufactured by the firm Timber GmbH, D-Aichbach in accordance with ETA-10/0241) element with thickness 220 mm.

The pre-fabricated timber element consisted of seven layers of softwood which were cross-wise adhesively laminated. The exterior layers and the middle layers have a thickness of 34 mm, the remaining two layers have a thickness of 24 mm. The nominal density of the timber element is 410 kg/m^3. Each layer had milled grooves with a width of 2.5 mm and a depth of 18 mm.

b) Closed timber beam floor construction:

Floor type B: the closed timber beam floor construction was a pre-fabricated timber element with thickness 236 mm. The element was constructed from timber beams (w x h 80 x 160 mm, density 440 kg/m^3) in the long span direction of the element at a mutual distance of 1280 mm. Between the beams in the short span direction of the element timber crossbeams (b x h 80 x 160 mm, density 440 kg/m^3) were screw-fixed onto the longitudinal beams, with a distance of 400 mm between the crossbeams.

The underside of the element was covered with a double layer of 18 mm gypsum plasterboards, type F in accordance with EN 520. The boards were fixed onto the main beams and crossbeams with steel screws.

The upper side of the timber element was covered with 22 mm thick „OSB-3" wood-based panels (in accordance with EN 300), and an additional layer of 18 mm gypsum plasterboards, type F in accordance with EN 520. The boards were fixed onto the main beams and crossbeams with steel screws.

The cavity between upper and lower facings was filled with a 160 mm thick insulation layer of mineral wool (Class A1 in accordance with EN 13501-1, melting point > 1000 °C), consisting of two layers of 80 mm, nominal density 35 kg/m^3.

c) Cross laminated timber wall:

Wall type C: The wall construction is a cross laminated timber (type "Leno Brettsperrholz", manufactured by the firm Timber GmbH, D-Aichbach in accordance with ETA-10/0241) element, thickness 148 mm.

The pre-fabricated timber element consisted of six layers of softwood which were cross-wise adhesively laminated. The construction is schematically represented in the drawing. The nominal density of the timber element is 410 kg/m^3. Each layer had milled grooves with a width of 2.5 mm and a depth of 18 mm.

Figure 1. Cross laminated timber wall construction.

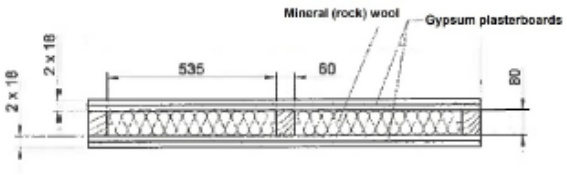
d) Timber stud partition:

Wall type D: The wall construction is a timber frame flexible wall construction with mineral wool insulation between the timber studs and a lining of gypsum plasterboards, thickness 152 mm.

The timber studs were solid timber (in accordance with EN 15497, S10 or better), strength class C24 in accordance with EN 338 (density 440 kg/m^3), dimensions 80 mm x 60 mm, center-to-center distance 595 mm.

Each side was lined with a double layer of gypsum plasterboards, class F in accordance with EN 520, thickness 18 mm. The joints and fixing points were finished with a suitable gypsum plaster finish.

The cavity was filled with rock wool insulation, density ca. 44 kg/m^3.



e) Acceptable variations:

The following variations are acceptable for the elements without a negative effect on the fire resistance performance:

- For the cross laminated timber elements (floor type A and wall type C): the cross laminated timber must be manufactured in accordance with the applicable ETA; the CLT elements (walls / floors) must be classified in accordance with EN 13501-2 for the required fire resistance period or fulfil the requirements of the relevant Eurocode:

-increase in element thickness;

-increase in the thickness of the layers;

- For the timber beam floor construction (floor type B); the floor must be classified in accordance with EN 13501-2 for the required fire resistance period or fulfil the requirements of the relevant Eurocode;

-increase in the cross section of the timber beams (to EN 14081-1);

-increase in the thickness of the floor;

-decrease of the span;

-increase in the thickness of the applied boards (gypsum plasterboards (to EN 570) and/or OSB (OSB 3 to EN 13986).

- For the timber stud partition (wall type D); the wall must be classified in accordance with EN 13501-2 for the required fire resistance period or fulfil the requirements of the relevant Eurocode;

-increase in the cross section of the timber studs;

-use of suitable metal studs

-increase in the thickness of the wall;

-increase in the thickness of the applied boards.

-the test results will also apply to concrete or masonry wall elements of an overall thickness of 152 mm or more.

C.1.2 Penetration seal type

The construction of the penetration seal type "CFS-BL P" is schematically represented in Figures 2 to 5. After fixing the penetrants through the (rectangular) opening the remainder of the opening is filled with Hilti Firestop CFS-BL P blocks. The thickness of the penetration seal is 200 mm (the blocks are used lengthwise). Where necessary parts of the blocks are cut off to make them fitting the opening. Any remaining openings or gaps (up to maximum 10 mm) must be filled with Hilti Firestop Filler CFS-FIL.

In the timber beam floor, the opening was framed with 18 mm thick gypsum plasterboard.

The distance between this penetration and other penetrations needs to be 200 mm or more.

The first support for the cables is at 300 mm (or less) distance from the wall or 500 mm (or less) from the floor.

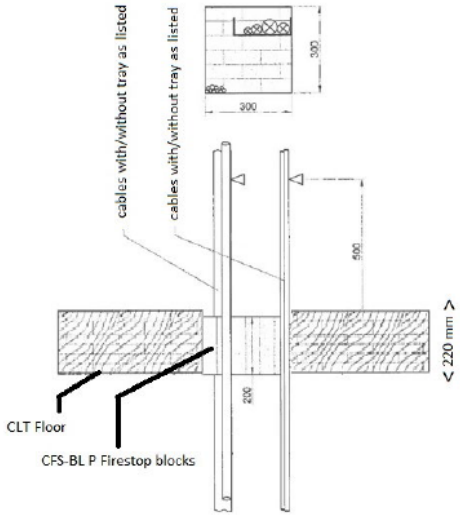


Figure 2. Schematic representation of penetration seal type CFS-BL P in a CLT floor (type A))

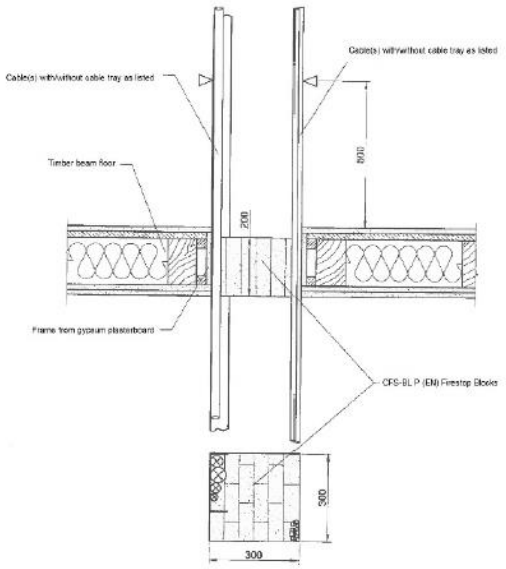


Figure 3. Schematic representation of penetration seal type CFS-BL P in a timber beam floor

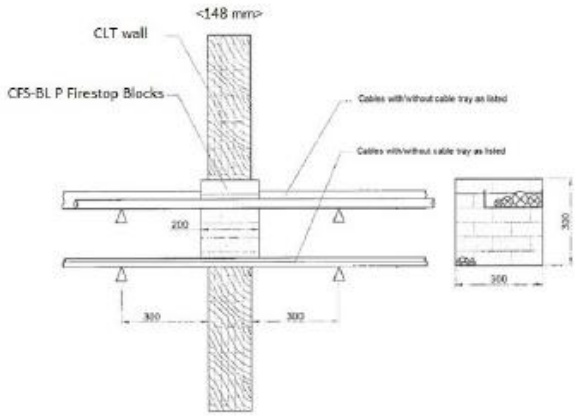


Figure 4. Schematic representation of penetration seal type CFS-BL P in a CLT wall (type C)

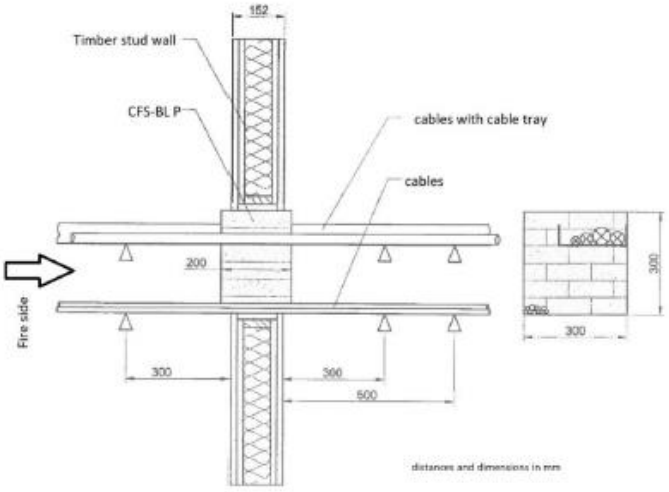


Figure 5. Schematic representation of penetration seal type CFS-BL P in a timber stud partition (type D)

C.1.3 Penetration services and classifications - cables

Function	Construction type	Classification
All sheathed cable types currently and commonly used in building practice in Europe with a diameter of maximum Ø21 mm, without cable tray	CLT floor (Type A) Timber beam floor (Type B) CLT wall (Type C)	EI 90
	Flexible wall (Type D)	EI 60 / E 90
All sheathed cable types currently and commonly used in building practice in Europe with a diameter of maximum Ø50 mm, with or without cable tray	CLT floor (Type A) Timber beam floor (Type B)	EI 90
All sheathed cable types currently and commonly used in building practice in Europe with a diameter of maximum Ø50 mm, with or without cable tray	CLT wall (Type C) Flexible wall (Type D)	EI 60 / E 90