

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-17/0686**  
**of 9 November 2017**

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

FLAMRO BHF

Product family  
to which the construction product belongs

Construction product for fire sealing and fire stopping  
purposes

Manufacturer

FLAMRO  
Brandschutz Systeme GmbH  
Am Sportplatz 2  
56291 Leiningen  
DEUTSCHLAND

Manufacturing plant

FLAMRO  
Brandschutz Systeme GmbH  
Am Sportplatz 2  
56291 Leiningen  
DEUTSCHLAND

This European Technical Assessment  
contains

11 pages including 6 annexes which form an integral part  
of this assessment

This European Technical Assessment is  
issued in accordance with Regulation (EU)  
No 305/2011, on the basis of

EAD 350005-00-1104

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## Specific Part

### 1 Technical description of the product

The present European Technical Assessment (ETA) covers the construction product "FLAMRO BHF", a cover or cap formed of an intumescent composite.

When exposed to high temperatures in case of fire, the intumescent component expands creating a foam which seals joints and gaps as well as recesses and cavities. It thus prevents the passage and spread of fire and/or smoke.

Detailed specifications and fire safety related performance criteria in relation to the construction product are given in Annex 1.

#### NOTE:

The characteristics listed are suitable both for identifying the construction product as well as for performing the manufacturer's factory production control.

### 2 Specification of the intended use in accordance with the applicable European Assessment Document

"FLAMRO BHF" was assessed as an intumescent product for fire-sealing and fire-stopping purposes in accordance with EAD 350005-00-1104<sup>1</sup>. It is designed for sealing recessed luminaires installed in suspended ceilings (IU 5).

The suspended ceiling consists of a metal substructure, the lining of the suspended ceiling (planking layers) and, as the case may be, an insulation made from mineral wool in the area of the recessed luminaire.

When exposed to high temperatures in case of fire, the construction product expands and thus prevents the passage of heat as well as the spread of fire in the area where the suspended ceiling is penetrated.

This ETA has served to verify the resistance to fire of penetration seals which consist of the construction product listed in Annex 1 and is used for recessed luminaires installed in fire-resistant suspended ceilings.

The performances given in Section 3 are only valid if "FLAMRO BHF" is used in compliance with the specifications and the conditions given in Annex 3.3.

The test and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of "FLAMRO BHF" of at least 10 years in end use conditions. The specified working life cannot be interpreted as a guarantee given by the manufacturer, but shall be regarded only as a means for choosing the right product in relation to the expected economically reasonable working life of the construction works.

<sup>1</sup> Official Journal of the European Union No C 378/02 (volume 58) of 13 November 2015

### 3 Performance of the product and references to the methods used for its assessment

#### 3.1 Safety in case of fire (BWR 2)

##### 3.1.1 Reaction to fire

Essential characteristic	Performance
Reaction to fire	Class E in accordance with EN 13501-1

"FLAMRO BHF", which expands under fire, meets the reaction to fire requirements for class E in accordance with EN 13501-1<sup>2</sup>.

##### 3.1.2 Resistance to fire

Essential characteristic	Performance
Resistance to fire of a penetration seal containing the product/kit	The resistance to fire depends on the design and installation of the penetration seal and on the other components forming the penetration seal. More details on the assessed penetration seals and the related fire resistance classes are given in Annexes 1 to 6.

#### 3.2 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Content and release of dangerous substances	No dangerous substances <sup>3</sup>

#### 3.3 General aspects

The verification of durability is part of the assessment of the basic requirements for construction works and is necessary to ensure that the performance assessed can be reached. The durability is only ensured if the following special provisions regarding the intended use are adhered to.

The performance criteria relevant for fire protection were tested and assessed in accordance with EOTA Technical Report 024, Sections 4.2.7 and 4.3.<sup>4</sup> for type Z<sub>2</sub> applications (the product is applied under dry internal conditions without frost (relative humidity between 50 % and 85 % and temperatures between +5 °C and 90 °C ± 5 °C)).

Result:

"FLAMRO BHF", which expands under fire, can be used for type Z<sub>2</sub> applications without compromising the expansion characteristics of the construction product when exposed to fire and the performances resulting from it.

<sup>2</sup> EN 13501-1 Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests

<sup>3</sup> In accordance with Regulation (EC) No 1272/2008 of the European Parliament and the European Council of 16 December 2008 (published in the Official Journal of the European Communities L 353 of 31 December 2008, p. 1)

<sup>4</sup> EOTA TR 024 Characterisation, aspects of durability and factory production control for reactive materials, components and products, edition as amended July 2009

**4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base**

According to EAD 350005-00-1104, the applicable legal act for determining the AVCP system is: Commission Decision No 1999/454/EC of 22 June 1999 (OJ L 178 of 14 July 1999, p. 42), as amended by Commission Decision No 2001/596/EC of 8 January 2001 (OJ L 209 of 2 August 2001, p. 33).

The applicable system of assessment and verification of constancy of performance (see Annex V in connection with Article 65 Paragraph 2 of Regulation (EU) No 305/2011) is system 1 as given in the following table.

Product	Intended use	Property	System
FLAMRO BHF	Intumescent product for fire-sealing and fire-stopping purposes used for sealing recessed luminaires installed in suspended ceilings	Reaction to fire, fire-sealing and fire-stopping effects – relevant characteristics	1

**5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD**

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 9 November 2017 by Deutsches Institut für Bautechnik

Prof. Gunter Hoppe  
Head of Department

*beglaubigt:*  
Bisemeier

### Properties and performances criteria of the construction product "FLAMRO BHF"

	Property	Test method <sup>1</sup>	Values and tolerances
1	Thickness tolerance	EOTA TR 024:2009, clause 3.1.2	Covertop: 18,0 mm to 24,0 mm Coverside: 14,0 mm to 20,0 mm
2	Mass loss during heating	EOTA TR 024:2009, clause 3.1.8	48,0 % ± 5 % (tested at 350 °C over 30 minutes)
3	Expansion ratio	EOTA TR 024:2009, clause 3.1.11	2,0 to 8,0 (tested at 350 °C over 30 minutes with a top load with samples of a thickness of approx. 19,7 mm)

<sup>1</sup> Implementation details for the factory production control are included in the inspection plan and deposited at DIBt.

The properties listed can be used both for the identification of the construction product and for the implementation of the factory production control of the manufacturer.

### Performances of penetration seals, comprising the construction product "FLAMRO BHF"

	Essential requirement	Test method	Construction of the sample	Performance acc. to EN 13501-2
1	Resistance to fire	EN 1366-3	Cover used in conjunction with a suspended ceiling in accordance with P-3400/4965-MPA-BS (national technical test certificate; AbP); linings consisting of 2 x 12,5 mm gypsum plasterboards; flame application from the bottom side of the suspended ceiling (see Annex 4)	EI 30
2	Resistance to fire	EN 1366-3	Cover used in conjunction with a suspended ceiling in accordance with P-3400/4965-MPA-BS (national technical test certificate; AbP); linings consisting of 1 x 18 mm gypsum plasterboards used in conjunction with an insulation made from mineral wool; flame application from the bottom side of the suspended ceiling (see Annex 4)	EI 30
3	Resistance to fire	EN 1366-3	Cover used in conjunction with a suspended ceiling in accordance with P-3400/4965-MPA-BS (national technical test certificate; AbP); linings consisting of 2 x 12,5 mm gypsum plasterboards used in conjunction with an insulation made from mineral wool; flame application from the top side of the suspended ceiling (see Annexes 5 and 6)	EI 30
4	Resistance to fire	EN 1366-3	Cover used in conjunction with a suspended ceiling in accordance with P-3400/4965-MPA-BS (national technical test certificate; AbP); linings consisting of 1 x 18 mm gypsum plasterboards used in conjunction with an insulation made from mineral wool; flame application from the top side of the suspended ceiling (see Annexes 5 and 6)	EI 30

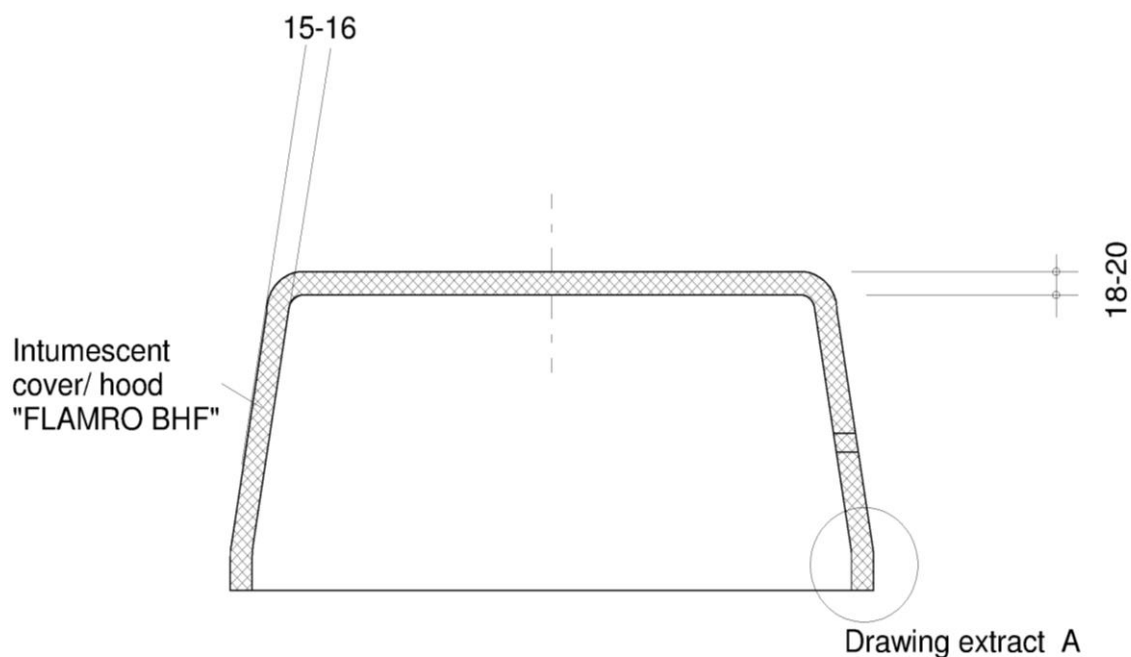
Illustrations in annexes 2 to 6 without guarantee for completeness.

The use of the construction product "FLAMRO BHF" in penetration seals shall be in accordance with national requirements for planning, design and execution and in accordance with the installation instruction of the manufacturer. The tested/illustrated seals are only examples for the use.

FLAMRO BHF

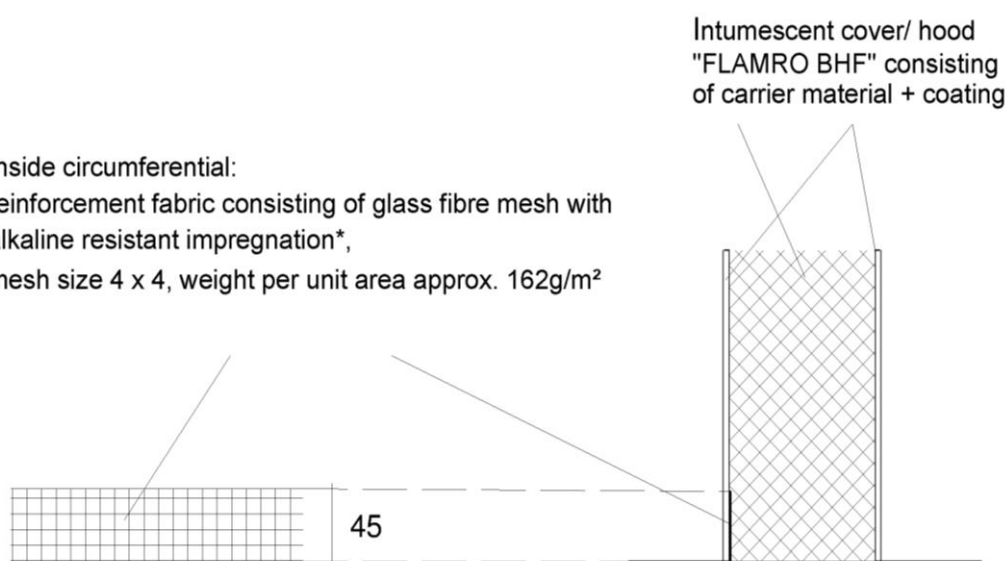
Properties and performances

Annex 1



### Drawing extract A, enlargement:

Inside circumferential:  
reinforcement fabric consisting of glass fibre mesh with  
alkaline resistant impregnation\*,  
mesh size 4 x 4, weight per unit area approx. 162g/m<sup>2</sup>



\* The composition of the material is deposited at DIBt.

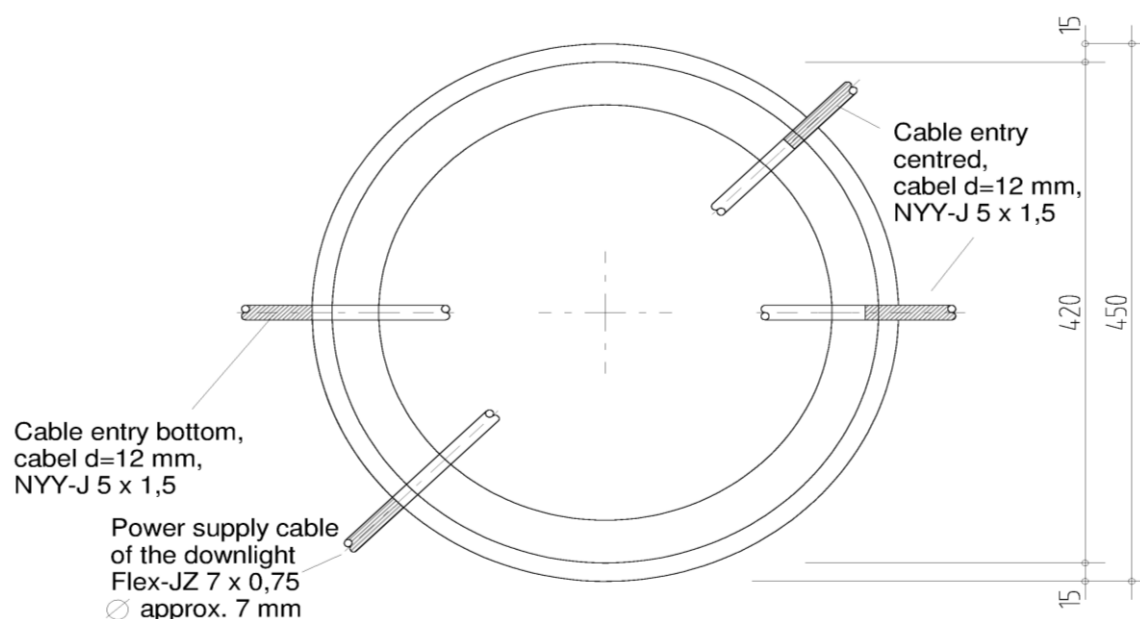
All dimension in mm

FLAMRO BHF

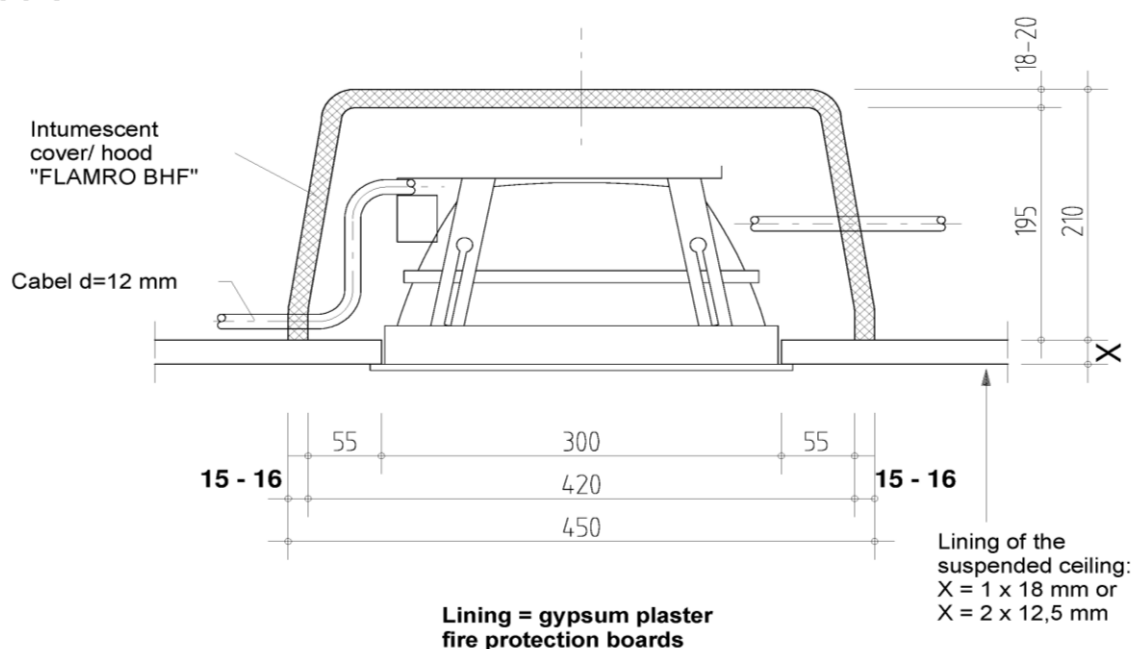
Design of the construction product "FLAMRO BHF"

Annex 2

## Top View



## Section



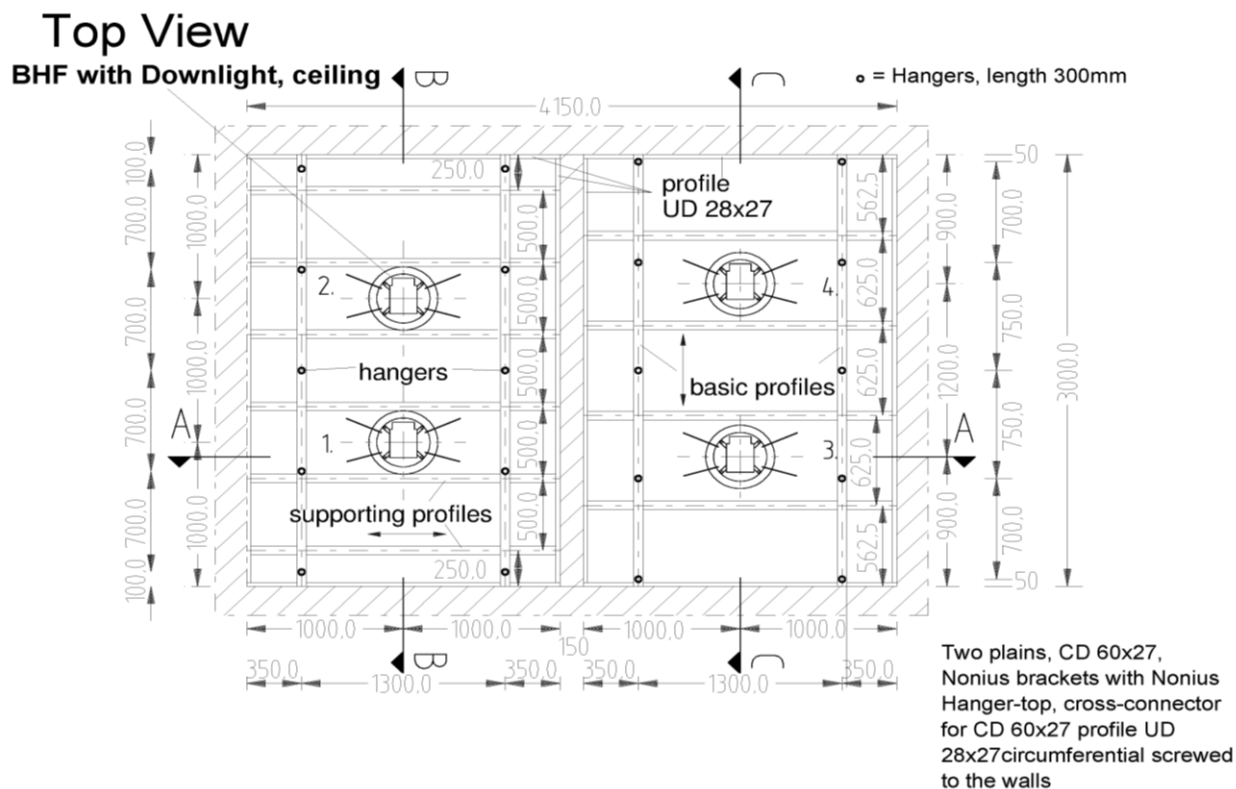
All dimension in mm

FLAMRO BHF

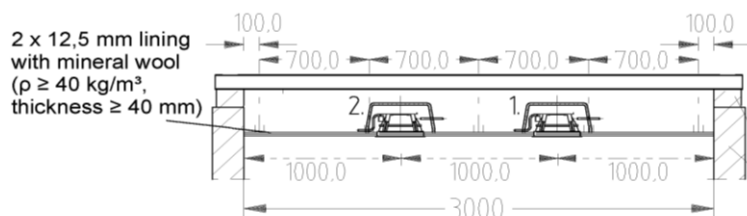
Example of the application of the construction product "FLAMRO BHF"

Annex 3

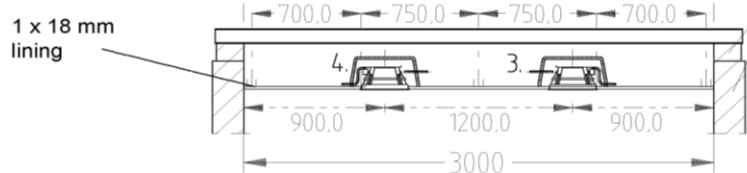




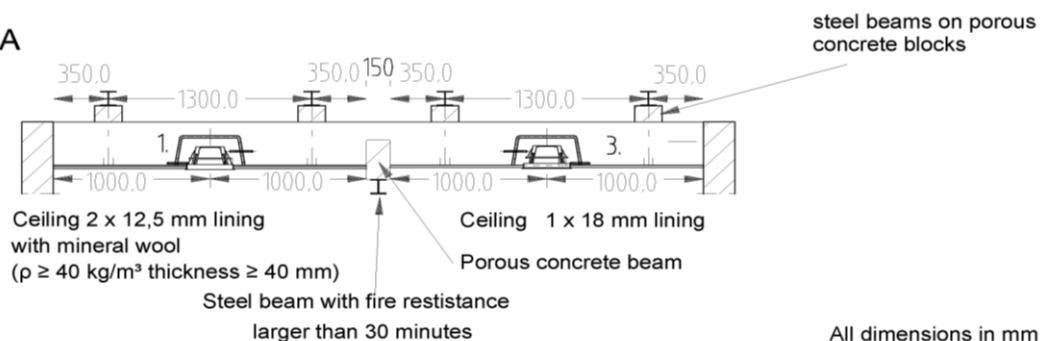
#### Section B-B



#### Section C-C



#### Section A-A

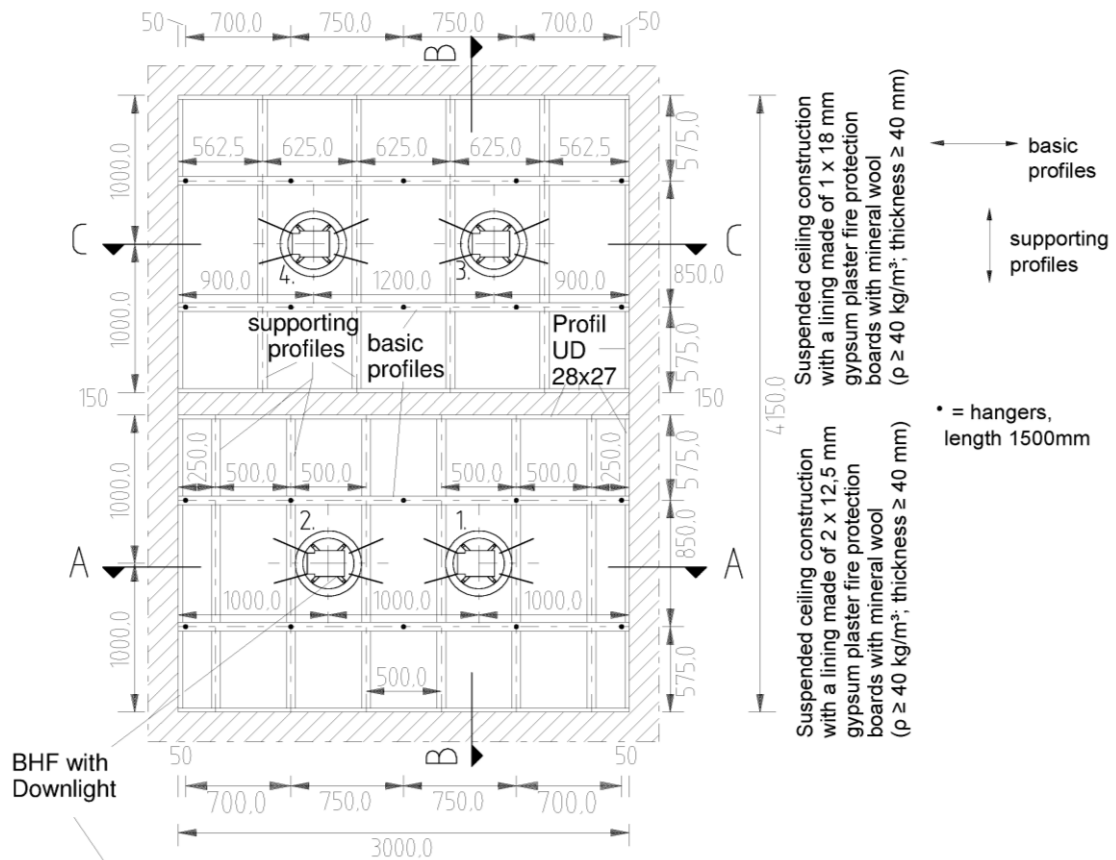


FLAMRO BHF

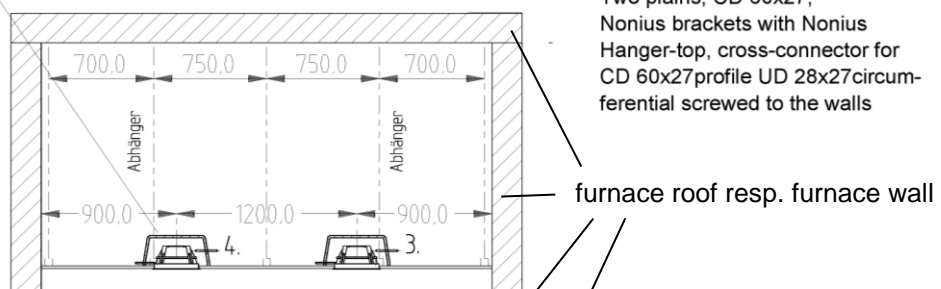
Examples of the installation of recessed luminaires and the construction product "FLAMRO BHF" installed in suspended ceilings with a lining made of 2x12,5 mm resp. 1x18 mm gypsum plasterboards in case of flame impingement from the bottom of the suspended ceiling

Annex 4

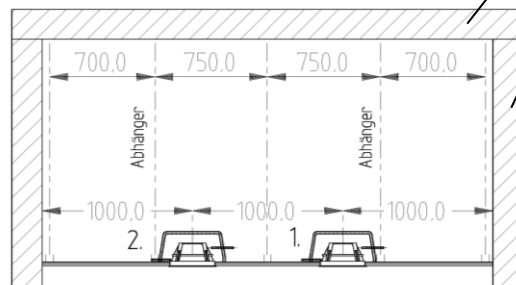
## Top View



### Section C-C



### Section A-A



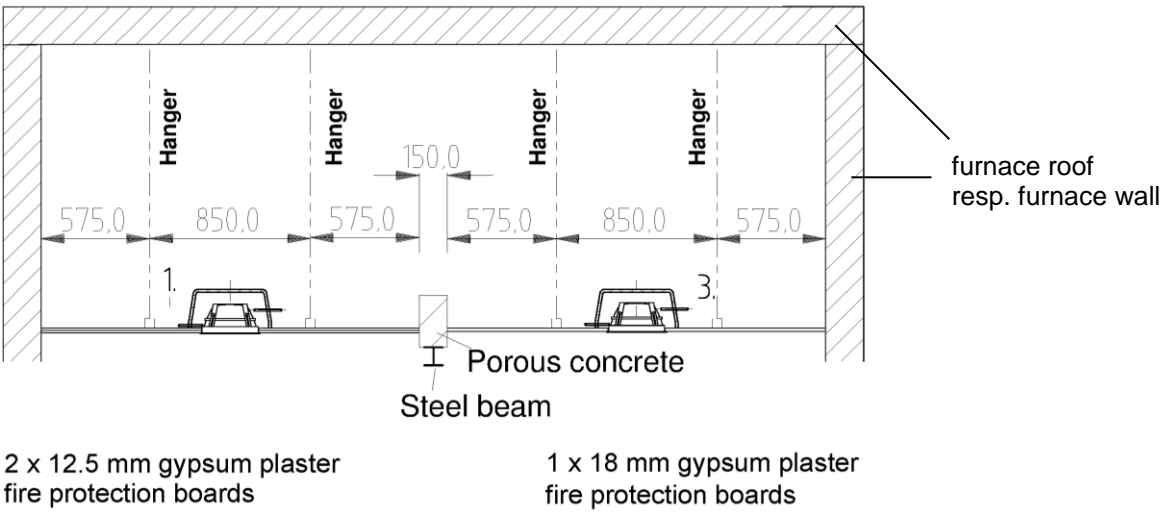
All dimensions in mm

FLAMRO BHF

Examples of the installation of recessed luminaires and the construction product "FLAMRO BHF" installed in suspended ceilings with a lining made of 2x12,5 mm resp. 1x18 mm gypsum plasterboards in case of flame impingement from the top of the suspended ceiling

Annex 5

Section B-B



All dimension in mm

FLAMRO BHF	Annex 6
Examples of the installation of recessed luminaires and the construction product "FLAMRO BHF" installed in suspended ceilings with a lining made of 2x12,5 mm resp. 1x18 mm gypsum plasterboards in case of flame impingement from the top of the suspended ceiling	