CLASSIFICATION REPORT
2014-A-035 - Rev. 2

in relation to the fire resistance
leading to a specific field of application

SPONSOR

SAINT-GOBAIN EUROCOUSTIC SA

1, Place Victor Hugo

92411 COURBEVOIE CEDEX

FRANCE

SUBJECT

Evaluation of the stability in case of fire according to the Belgian Standard NBN 713.020 (edition 1968) of a suspended ceiling and the fire resistance according to the European Standard EN 13501-2:2016 of a floor/ceiling construction.
Self-supporting straight ceiling tiles of the Eurocoustic Minerval A15 type (thickness: 15 mm; nominal dimensions: max. 1200 x 600 mm).

This document has been drawn up in the framework of an analysis of test results as described in § 2.1-2° -a) 4) of the RD of 13/06/2007.

1. TEST REPORTS

1.1. Reports

Name of the laboratory	Number of the test report	Date of the test report	Owner of the test report	Test standard
WFRGENT	15515A	27/08/2012	Saint-Gobain Eurocoustic	NBN 713.020 (1968)
	15515B	31/05/2013		EN 1363-1:1999 EN 1365-2:1999
	18478A	02/11/2017		NBN 713.020 (1968)
	18478B	02/11/2017		EN 1363-1:2012 EN 1365-2:1999

1.2. Description of the tested elements

Test report No. 15515A gives the description and the results of a orientating fire resistance test carried out according to the Belgian standard NBN 713.020 (edition 1968) on a suspended ceiling (dimensions: 6000 x 3000 mm), composed of a metal framework (trade name according to your declarations: **CMC**; c/c distance main supporting profiles: 1200 mm; c/c distance transversal profiles: 600 mm) and self-supporting straight ceiling tiles of the **Eurocoustic Minerval** type (thickness: 15 mm; nominal dimensions: 1200 x 600 mm; density: approx. 140 kg/m³). The suspended ceiling has been applied underneath a non-loadbearing cellular concrete floor.

Test report No. 15515B gives the description and the results of a fire resistance test carried out according to the European standards EN 1363-1:1999 and EN 1365-2:1999 on a non-loadbearing cellular concrete floor (dimensions: 6000 x 3300 mm; thickness: 150 mm; density: approx. 550 kg/m³; span: 3000 mm), protected from below by means of a suspended ceiling, composed as described in the test report No. 15515A. During the test, no additional load was applied on the floor.

Test report No. 18478A gives the description and the results of a orientating fire resistance test carried out according to the Belgian standard NBN 713.020 (edition 1968) on a suspended ceiling (dimensions: 6000 x 3000 mm), composed of a metal framework (trade name according to your declarations: **Quick-Lock Hook-On**; c/c distance main supporting profiles: 1200 mm; c/c distance transversal profiles: 600 mm) and self-supporting straight ceiling tiles of the **Minerval A15** type (thickness: 15 mm; nominal dimensions: 1200 x 600 mm; density: approx. 114 kg/m³). The suspended ceiling has been applied underneath a non-loadbearing cellular concrete floor.

Test report No. 18478B gives the description and the results of a fire resistance test carried out according to the European standards EN 1363-1:2012 and EN 1365-2:1999 on a non-loadbearing cellular concrete floor (dimensions: 6000 x 3000 mm; thickness: 150 mm; density: approx. 550 kg/m³; span: 3000 mm), protected from below by means of a suspended ceiling, composed as described in the test report No.18478A. During the test, no additional load was applied on the floor.

2. RESULTS

The results obtained during the above-mentioned tests are given in the table below:

Test report No.	**15515A/B**	**18478A/B**
Type of metal framework	CMC	Quick Lock Hook-On
Characteristic temperature in the plenum after 30 minutes	approx. 880 °C	approx. 850 °C
Characteristic temperature in the plenum after 60 minutes	-	approx. 940 °C
Criteria	**Time in minutes**	
Suspended ceiling (according to the criteria of the reference documents described in § 3.1)		
Falling of the 1st ceiling element	14*	14*
Stability of the ceiling	CONFORM	CONFORM
Floor/ceiling construction (according to the criteria of the European standard EN 13501-2:2016)		
Thermal insulation (I)	≥ 35	≥ 63
Integrity (E)	≥ 35	≥ 63
Stability (R)	≥ 35	≥ 63
Test duration	35	63

* The dimensions (and the surface weight) of the falling pieces are inferior to the allowed dimensions (and the surface weight) according to § 4 of the document 1392 SN “Stability in case of fire of lowered ceilings”, approved by the Hoge Raad voor Beveiliging tegen Brand en Ontploffing during their meeting on 15 September 2011.

3. REFERENCE DOCUMENTS

3.1. Basic documents

NBN 713.020 (edition 1968).

Document 1392 SN “Stabiliteit bij brand van verlaagde plafonds”, approved by the Hoge Raad voor Beveiliging tegen Brand en Ontploffing during their meeting on 15 September 2011. This document interprets the specific criteria for the stability in case of fire of a suspended ceiling where these are open to interpretation in the Belgian Standard NBN 713.020 (edition 1968).

3.2. Additional document

Classification Report 2014-A-033 (or the latest version of it) concerning the stability in case of fire of a suspended ceiling according to the Belgian standard NBN 713.020 (edition 1968) and the fire resistance of a floor/ceiling construction according to the European Standard EN 13501-2. The metal framework of the suspended ceiling, described in this classification report, is of the Quick Lock Hook-On or Quick Lock Clip-On type.

4. FIELD OF APPLICATION

4.1. Stability in case of fire of a suspended ceiling

Based on the results mentioned in § 2 and the reference documents described in § 3, we are of the opinion that the **stability in case of fire** of a suspended ceiling, composed as described below, will not be inferior to **30 minutes** according to the Belgian Standard NBN 713.020 (edition 1968).

4.1.1. Floor construction

The suspended ceiling is applied underneath one of the following floor types, placed or not on the supporting beams mentioned in the table below. The plenum height, i.e. the distance between the bottom side of the floor and the upper side of the ceiling tiles, is 385 mm at the least.

Type of supporting beams	Type of floor			
	Aerated concrete	Gravel concrete	Steel/concrete composite	Timber
Gravel concrete	X	X	X*	-
Hot rolled steel	X*	X*	X*	-
Cold formed steel	X*	X*	X*	-
Timber	-	-	-	X*
No supporting beams	X	X	X*	-

* Only allowed if the loadbearing capacity of the floor construction is not inferior to R 30 according to the European standard EN 13501-2:2016.

Important remark:

The stability in case of fire does not give any evaluation of the fire resistance of the floor/ceiling construction.

4.1.2. Suspended ceiling

4.1.2.1. Metal framework

4.1.2.1.1. Metal framework of the CMC type

The metal framework is composed as follows:

- edge profiles of one of the following types, applied around the full perimeter of the ceiling and fixed to a supporting construction out of stony materials (e.g. concrete, cellular concrete, masonry...) by means of nail plugs of the Fischer FNH type (min. ∅ 6 x 30 mm):
  - steel W-profile of the CMC 1466 type (dimensions: 25 x 8 x 15 x 15 mm; thickness: 0,5 mm), fixed every 200 mm at the most;
  - steel W-profile of the CMC 1467 (dimensions: 25 x 8 x 15 x 15 mm; thickness: 0,5 mm), fixed every 150 mm at the most;
- a metal framework of the CMC type, composed as follows:
  - main supporting profiles of the CMC 850 type (steel T-profile; dimensions: 38 x 24 mm; steel thickness: 0.35 mm; c/c distance: max. 1200 mm), provided with a firebreak and suspended as described in § 4.1.2.2.1. The distance between the main supporting profiles and the edge of the ceiling is 300 mm at the most. The extremities of the main supporting profiles rest on the edge profiles;
  - primary transversal profiles of the CMC 854 type (steel T-profile; dimensions: 38 x 24 mm; steel thickness: 0.35 mm; length: 1200 mm; c/c distance: max. 600 mm), applied perpendicularly between the main supporting profiles. The distance between the primary transversal profiles and the edge of the ceiling is 300 mm at the most. The extremities of the primary transversal profiles at the edge of the ceiling rest on the edge profiles;
  - secondary transversal profiles of the CMC 852 type (steel T-profile; dimensions: 38 x 24 mm; steel thickness: 0.35 mm; length: 600 mm), perpendicularly applied between the primary transversal profiles in case of self-supporting straight ceiling tiles with dimensions 600 x 600 mm. The extremities of the secondary transversal profiles at the edge of the ceiling rest on the edge profiles.

4.1.2.1.2. Metal framework of the Quick Lock Hook-On type

The metal framework is composed as follows:

- edge profiles of one of the following types, applied around the full perimeter of the ceiling and fixed every 300 mm at the most to a supporting construction out of stony materials (e.g. concrete, cellular concrete, masonry...) by means of nail plugs of the Fischer FDN type (min. ∅ 6 x 35 mm):
  - steel L-profile of the 87924 type (dimensions: 24 x 24 mm; steel thickness: 0.5 mm);
  - steel U-profile of the 87926 type (dimensions: 19 x 40 x 19 mm; steel thickness: 0.5 mm);
- a metal framework of the Quick Lock Hook-On type, composed as follows:
  - main supporting profiles of the 86282 type (steel T-profile; dimensions: 38 x 24 mm; steel thickness: 0.35 mm; c/c distance: max. 1200 mm), provided with a firebreak and suspended as described in § 4.1.2.2.2. The distance between the main supporting profiles and the edge of the ceiling is 300 mm at the most. The extremities of the main supporting profiles rest on/in the edge profiles;
  - primary transversal profiles of the 86281 type (steel T-profile; dimensions: 32 x 24 mm; steel thickness: 0.35 mm; length: 1200 mm; c/c distance: max. 600 mm), applied perpendicularly between the main supporting profiles. The distance between the primary transversal profiles and the edge of the ceiling is 300 mm at the most. The extremities of the primary transversal profiles at the edge of the ceiling rest on/in the edge profiles;
  - secondary transversal profiles of the 87835 type (steel T-profile; dimensions: 32 x 24 mm; steel thickness: 0.35 mm; length: 600 mm), perpendicularly applied between the primary transversal profiles in case of self-supporting straight ceiling tiles with dimensions 600 x 600 mm. The extremities of the secondary transversal profiles at the edge of the ceiling rest on/in the edge profiles.

4.1.2.1.3. Metal framework of the Quick Lock Clip-On type

The metal framework is composed as follows:

- edge profiles of one of the following types, applied around the full perimeter of the ceiling and fixed every 300 mm at the most to a supporting construction out of stony materials (e.g. concrete, cellular concrete, masonry...) by means of nail plugs of the Fischer FDN type (min. ∅ 6 x 35 mm):
  - steel L-profile of the 87924 type (dimensions: 24 x 24 mm; steel thickness: 0.5 mm);
  - steel U-profile of the 87926 type (dimensions: 19 x 40 x 19 mm; steel thickness: 0.5 mm);
- a metal framework of the Quick Lock Clip-On type, composed as follows:
  - main supporting profiles of the 66413 type (steel T-profile; dimensions: 38 x 24 mm; steel thickness: 0.35 mm; c/c distance: max. 1200 mm), provided with a firebreak and suspended as described in § 4.1.2.2.3. The distance between the main supporting profiles and the edge of the ceiling is 300 mm at the most. The extremities of the main supporting profiles rest on/in the edge profiles;
  - primary transversal profiles of the 66415 type (steel T-profile; dimensions: 32 x 24 mm; steel thickness: 0.35 mm; length: 1200 mm; c/c distance: max. 600 mm), applied perpendicularly between the main supporting profiles. The distance between the primary transversal profiles and the edge of the ceiling is 300 mm at the most. The extremities of the primary transversal profiles at the edge of the ceiling rest on/in the edge profiles;
  - secondary transversal profiles of the 66414 type (steel T-profile; dimensions: 25 x 24 mm; steel thickness: 0.3 mm; length: 600 mm), perpendicularly applied between the primary transversal profiles in case of self-supporting straight ceiling tiles with dimensions 600 x 600 mm. The extremities of the secondary transversal profiles at the edge of the ceiling rest on/in the edge profiles.

4.1.2.2. Suspension hangers

4.1.2.2.1. Suspensions of the metal framework of the CMC type

The metal framework is suspended to the overlying floor construction as follows:

- the main supporting profiles of the CMC 850 type, described in § 4.1.2.1.1, are suspended every 1200 mm at the most by means of quick suspension hangers of the CMC 11000 type ($\varnothing_{wire}$ 3.9 mm);
- the distance between the suspension hangers and the extremities of the main supporting profiles is 700 mm at the most;
- the stability in case of fire of the fixing of the suspended ceiling to the overlying floor construction has to be at least 30 minutes.

4.1.2.2.2. Suspensions of the metal framework of the Quick Lock Hook-On type

The metal framework is suspended to the overlying floor construction as follows:

- the main supporting profiles of the 86282 type, described in § 4.1.2.1.2, are suspended every 900 mm at the most by means of quick suspension hangers of the 87559 type ($\varnothing_{wire}$ 3.8 mm) or of the 87560 type ($\varnothing_{wire}$ 4.0 mm);
- the distance between the suspension hangers and the extremities of the main supporting profiles is 400 mm at the most;
- the stability in case of fire of the fixing of the suspended ceiling to the overlying floor construction has to be at least 30 minutes.

4.1.2.2.3. Suspensions of the metal framework of the Quick Lock Clip-On type

The metal framework is suspended to the overlying floor construction as follows:

- the main supporting profiles of the 66413 type, described in § 4.1.2.1.3, are suspended every 900 mm at the most by means of quick suspension hangers of the 87565 type ($\varnothing_{wire}$ 4.0 mm);
- the distance between the suspension hangers and the extremities of the main supporting profiles is 300 mm at the most;
- the stability in case of fire of the fixing of the suspended ceiling to the overlying floor construction has to be at least 30 minutes.

4.1.2.3. Ceiling tiles

The following self-supporting straight ceiling tiles of the Eurocoustic Minerval type (thickness: 15 mm; nominal dimensions: max. 1200 x 600 mm; density: min. 114 kg/m³) are applied in the metal framework:

- Area;
- Clini'Safe;
- Tonga A15;
- Minerval A15.

We are also of the opinion that the application of identical ceiling tiles with the exception of the colour and/or the textured finishing at the visible side, will not influence the stability in case of fire of the suspended ceiling, composed as mentioned above, negatively.

4.1.2.4. Acoustic membrane

Optionally, an acoustic membrane may be applied on the ceiling tiles.

4.1.2.5. Insulation

The application of insulation is not allowed

4.1.2.6. Accessories in the suspended ceiling

It is possible to apply accessories in the suspended ceiling, provided that these have no negative influence on the obtained classification of the above-mentioned suspended ceiling and that this can be demonstrated by means of additional fire resistance tests.

4.1.2.7. Accessories above the suspended ceiling

It is possible to apply accessories above the suspended ceiling, provided the prescriptions mentioned below are respected:

- the accessories are installed independently from the suspended ceiling, i.e. the accessories are not a part of the suspended ceiling;
- the stability in case of fire of the accessories and the fixing of these accessories to the overlying construction is at least 30 minutes.

4.2. Fire resistance of a floor/ceiling construction

4.2.1. Fire resistance REI 30

Based on the above-mentioned results, Classification Report 2014-A-033 (or the latest version of it) and the European Standard EN 1992-1-2:2004, we are of the opinion that the **fire resistance** of a floor/ceiling construction, composed as described below, will not be inferior to **REI 30** according to the European Standard EN 13501-2:2016.

4.2.1.1. Floor construction

The suspended ceiling is applied underneath one of the following floor types, placed or not on the supporting beams mentioned in the table below. The plenum height, i.e. the distance between the bottom side of the floor and the upper side of the ceiling tiles, is 385 mm at the least.

Type of supporting beams	Type of floor	
	Cellular concrete[1]	Gravel concrete[2]
Gravel concrete	X	X
No supporting beams	X	X

[1] thickness: min. 150 mm; density: min. 550 kg/m³; only the self-weight of the floor is considered as load
[2] thickness: min. 60 mm; density: min. 2300 kg/m³

4.2.1.2. Suspended ceiling

The suspended ceiling, composed as described in § 4.1.2, is applied underneath the floor construction described in § 4.2.1.1.

4.2.2. Fire resistance REI 60

Based on the above-mentioned results, Classification Report 2014-A-033 (or the latest version of it) and the European Standard EN 1992-1-2:2004, we are of the opinion that the **fire resistance** of a floor/ceiling construction, composed as described below, will not be inferior to **REI 60** according to the European Standard EN 13501-2:2016.

In this case, the fire resistance of the floor/ceiling construction, composed as described below, is only realized by the gravel concrete floor construction.

4.2.2.1. Floor construction

The suspended ceiling is applied underneath a gravel concrete floor (thickness: min. 80 mm; density: min. 2300 kg/m³; concrete cover: min. 20 mm).

4.2.2.2. Suspended ceiling

The suspended ceiling, composed as described in § 4.1.2, is applied underneath the floor construction described in § 4.2.2.1.

5. CONDITIONS FOR THE USE OF THE PRESENT CLASSIFICATION REPORT

The present classification report is only valid insofar as the stability of the constructions, composed as described in § 4, is guaranteed under normal conditions according to the standards in force.

This classification report is only valid in case of a closed suspended ceiling, i.e. there are no openings in the ceiling.

This classification report is only valid insofar as the composition of the ceiling components is identical to that of the components subjected to the above-referenced tests.

This classification report is only valid when accompanied by the above-referenced test reports.

This classification report cannot be combined with another classification report, except when mentioned explicitly.

This classification report is issued on the basis of test data and information handed over at the time of the demand by the sponsor. If contradictory evidence becomes available afterwards, the assessment will be unconditionally withdrawn and the sponsor will be notified on this.

The duration of validity of the present classification report is limited to 5 years starting from the issuing date of this classification report and may be extended after a favourable exam.

The sponsor has the right to use the above-referenced test reports and has also confirmed that he has not been informed about any non-public information which could influence this classification report, and in consequence the obtained conclusions.

If the sponsor is informed afterwards about such information, he agrees to withdraw the classification report above and its use for regulated purposes – if applicable.

This document is a translation to English of classification report 2014-A-035 - Rev. 2, initially delivered in French. In case of doubt the initial version in French prevails.

This classification report may be used only literally and completely for publications. For publications of certain texts, in which this classification report is mentioned, the permission of ISIB must be obtained in advance.

The present classification report contains 13 pages.

End date of validity: 18 January 2023

DRAWN UP BY

Sophie Cobbaert (Signature)
Technical consultant
Ghent
2018.01.18 08:54:37 +01'00'

REVIEWED BY

Pieter Poppe (Signature)
Head of the Department
Consultancy
Ghent
2018.01.18 08:56:51 +01'00'

The authenticity of the electronic signatures is assured by Belgium Root CA.