

# FIRE RESISTANCE CLASSIFICATION REPORT No. 24808B Revision 1

## OWNER OF THE CLASSIFICATION REPORT

AGC GLASS EUROPE sa  
Avenue Jean Monnet 4  
BE 1348 Louvain-la-Neuve  
Belgium

## INTRODUCTION

This classification report defines the classification assigned to a(n) non-loadbearing glazed wall, type: Pyrobel 53N VL in a steel frame, in accordance with the procedures given in EN 13501-2:2023: Fire classification of products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services.

This classification report consists of 16 pages and 5 annexes and may only be used or reproduced in its entirety.

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## 1 DETAILS OF CLASSIFIED PRODUCT

### 1.1 General

The element, type: Pyrobel 53N VL in a steel frame, is defined as a non-loadbearing glazed wall with fire resistance characteristics.

### 1.2 Description

The element, Pyrobel 53N VL in a steel frame, is fully described below, in support of this classification. The drawings of the test element as it was tested, are enclosed in the annexes 1 till 3 of this classification report.

#### 1.2.1 Composition of the test specimen as tested

Item	Component	Information
1	<p><b>Panes</b> Supplier: Reference: Description:</p> <p>Overall size (h x w x d):</p> <p>Overall size (w x d):</p> <p>Photo(s):</p>	<p>AGC Glass Pyrobel 53N in Vision Line ** 3No. clear multi-layer glazing panes, each incorporating 10No. clear glazing panes (3/3/8/3/3:3/3/8/3/3) ** with intumescent interlayers between each pane except the central pane interface with PVB **. The glazing panes have chamfered vertical edges and square horizontal edges incorporating edge tape along the fixed and free vertical edges and all horizontal edges and lapping at the horizontal edges onto the faces of the pane by 10. There was no vertical edge tape at the butt joints. The glazing panes were resting on timber setting blocks, positioned diagonally on the frame 100 * from the bottom corners of the glazing. Left hand: 2881 x 885 x 51.7 to 53.3 Centre: 2882 x 1001 x 52.1 to 53.2 Right hand: 2881 x 999 x 51.8 to 52.3 Setting blocks 80 x 30 2.1.3 to 2.1.9, 2.1.11, 2.1.12 (in test report)</p>

Item	Component	Information
2	<p><b>Frame</b> Supplier: Reference: Description:</p> <p>Overall size (h x w): Cross section (h x d x t): Setting blocks (d x w x h): Photo(s):</p>	<p>AGC Glass Steel tube ** A mild steel box section with fully welded mitre joints. Positioned on the top, bottom and left hand vertical edges of the restraint frame using 5No. Ø10 x 112 Hilti 100 HT steel frame anchors per edge at 715 horizontal and 720 vertical centres and central to the frame depth. 5No. calcium silicate setting blocks were positioned at 625 * centres across the base. 2970 x 2945 60 x 40 x 3 200 x 50 x 15 2.1.1, 2.1.2, 2.1.4 to 2.1.7 (in test report)</p>
3	<p><b>Beading</b> Supplier: Reference: Description:</p> <p>Density (kg/m<sup>3</sup>): Overall size (h x d): Photo(s):</p>	<p>AGC Glass Promatect-H or Supalux-S ** 2No. layers of calcium silicate beading are positioned on the fixed edges of the frame with staggered butt joints. The inner layer is affixed to the frame using Ø3.5 x 35 long steel countersunk self drilling screws at 600 centres and the outer layer is affixed to the frame using Ø3.5 x 55 long steel countersunk self drilling screws at 300 centres. Promatect-H: 975 * Supalux: 950 * 70 x 15 (per layer) 2.1.2, 2.1.5 to 2.1.9, 2.1.11, 2.1.12 (in test report)</p>
4	<p><b>Superwool paper 1</b> Supplier: Reference: Description:</p> <p>Overall size (w x t): Photo(s):</p>	<p>AGC Glass Superwool paper X607 ** Superwool paper with self adhesive tape on one face. A strip is adhered to the inner face of the beading, set 5 * from the reveal of the frame. 20 x 5 (uncompressed) 2.1.2, 2.1.4, 2.1.5, 2.1.7 to 2.1.9 (in test report)</p>
5	<p><b>Superwool paper 2</b> Supplier: Reference: Description:</p> <p>Overall size (d x w): Photo(s):</p>	<p>AGC Glass Superwool paper X607 ** Superwool paper with self adhesive tape on one face. A strip is adhered along the full height of each glazing pane edge at the butt joints only, set central to the glazing panes thickness. 4 x 2.5 (uncompressed) 2.1.5, 2.1.6 (in test report)</p>

Item	Component	Information
6	<p><b>Tape</b> Supplier: Reference: Description:</p> <p>Overall size (d x t): Photo(s):</p>	<p>AGC Glass Kerafix FXL 200 ** Intumescent with self adhesive tape of one face. A strip is adhered along the full height of each glazing pane edge at the butt joints only, positioned each side of item 5. 10 x 2 2.1.5 to 2.1.7 (in test report)</p>
7	<p><b>Silicone sealant</b> Supplier: Reference: Description:</p> <p>Photo(s):</p>	<p>AGC Glass Momentive Pensil 300 – grey, Dow Dowsil Firestop 700, Bostik FP402 Fireseal, Soudal Fire silicone B1 FR or Promat Systemglas Silikon. A silicone sealant is applied to fill the butt joint gap between the glazing panes and finished flush. A bead is also applied to fill the gaps at the periphery between glass and calcium silicate bead. 2.1.8, 2.1.10 to 2.1.12 (in test report)</p>
8	<p><b>Insulation</b> Supplier: Reference: Description:</p> <p>Density (kg/m<sup>3</sup>): Photo(s):</p>	<p>AGC Glass Superwool X607 ** Thermal insulating wool is applied to fill the gap between the frame and beading and restraint frame at the fixed edges. 96 ** 2.1.9, 2.1.11, 2.1.12 (in test report)</p>
9	<p><b>Fire stopping detail</b> Supplier: Reference: Description:</p> <p>Density (kg/m<sup>3</sup>): Photo(s):</p>	<p>AGC Glass Thermal insulation Flumroc FP1700 ** Thermal insulation material was positioned between the right hand vertical edge of the glazing and the restraint frame such that it did not restrict the freedom of movement due to frictional forces, but did resist the penetration of hot gases. 120 ** 2.1.11, 2.1.12 (in test report)</p>

Key:

\* Nominal value

\*\* Sponsor declared value or detail, not verified by laboratory that performed the test

### 1.3 Drawings

The present drawings are not to scale.

Annex 1: Front view – unexposed side.

Annex 2: Details – Section A-A and B-B.

Annex 3: Details – Section C-C and D-D.

### 1.4 Sampling of the test specimen

Done by: the sponsor.

The sampling and/or production control was not carried out by the laboratory (nor through subcontracting). The obtained information could not be verified by the laboratory and does not fall under the responsibility nor under the EN ISO/IEC 17025 accreditation scope of the laboratory.

## 2 TEST REPORTS/EXAP REPORTS AND TEST RESULTS IN SUPPORT OF THE CLASSIFICATION

### 2.1 Test reports/EXAP reports

Name of the laboratory	Report ref. no.	Name of the owner	Date of the test	Method
WFRGENT nv	23276A	AGC GLASS EUROPE sa	17/07/2024	EN 1364-1:2015
Cambridge Fire Research Ltd	CFR1205241	AGC GLASS EUROPE sa	24/03/2012	EN 1364-1:1999
Cambridge Fire Research Ltd	CFR1807121 Rev1	AGC GLASS EUROPE sa	12/07/2018	EN 1364-1:2015

### 2.2 Exposure conditions during the fire resistance test:

Temperature/time curve: standard as in EN 1363-1:2020.

Direction of exposure: The test specimen is a symmetrical construction.

No extra load supplementary to the own weight of the non-loadbearing glazed wall was applied during the test.

One vertical edge is free, the other edges are fixed.

### 2.3 Justification of test method

A comparison of the EN 1363-1:2012 and EN 1364-1:1999 compared to the EN 1363-1:2020 and EN 1364-1:2015 shows that the standard temperature/time curve is identical and that the changes have no effect on the validity of the test report.

## 2.4 Test results

The results presented in this report relate only to the item tested and are valid solely for the specific specimen described in § 1.2.

### 2.4.1 Report 23276A: Pyrobel 54 VL Steel frame, Reference test sealants

Parameters	Results
<b>Thermal insulation – I</b>	
$\Delta T_m = 140^\circ\text{C}$	144 minutes <sup>(1)</sup>
$\Delta T_M = 180^\circ\text{C}$	144 minutes <sup>(1)</sup>
<b>Integrity – E</b>	
Spontaneous and sustained flaming	144 minutes
Failure with $\varnothing$ 6 mm gap gauge	144 minutes
Failure with $\varnothing$ 25 mm gap gauge	144 minutes
Ignition of cotton pad	144 minutes <sup>(1)</sup>
<b>Radiation – W</b>	
Radiation intensity = 15 kW/m <sup>2</sup>	144 minutes <sup>(1)</sup>

<sup>(1)</sup> The test was discontinued after 144 minutes for safety reasons.

### 2.4.2 Report CFR1205241: Pyrobel 53N VL Steel frame

Parameters	Results
<b>Thermal insulation – I</b>	
$\Delta T_m = 140^\circ\text{C}$	127 minutes
$\Delta T_M = 180^\circ\text{C}$	127 minutes
<b>Integrity – E</b>	
Spontaneous and sustained flaming	127 minutes
Failure with $\varnothing$ 6 mm gap gauge	128 minutes
Failure with $\varnothing$ 25 mm gap gauge	128 minutes
Ignition of cotton pad	128 minutes, no failure <sup>(1)</sup>
<b>Radiation – W</b>	
Radiation intensity = 15 kW/m <sup>2</sup>	127 minutes

<sup>(1)</sup> The test was discontinued after 128 minutes at the test sponsor's request.

2.4.3 Report CFR1807121 Rev1: Pyrobel 54 VL Steel frame

Parameters	Results
<b>Thermal insulation – I</b>	
$\Delta T_m = 140^\circ\text{C}$	133 minutes, no failure <sup>(1)</sup>
$\Delta T_M = 180^\circ\text{C}$	133 minutes, no failure <sup>(1)</sup>
<b>Integrity – E</b>	
Spontaneous and sustained flaming	133 minutes, no failure <sup>(1)</sup>
Failure with $\varnothing$ 6 mm gap gauge	133 minutes, no failure <sup>(1)</sup>
Failure with $\varnothing$ 25 mm gap gauge	133 minutes, no failure <sup>(1)</sup>
Ignition of cotton pad	133 minutes, no failure <sup>(1)</sup>
<b>Radiation – W</b>	
Radiation intensity = 15 kW/m <sup>2</sup>	133 minutes, no failure <sup>(1)</sup>

<sup>(1)</sup> The test was discontinued after 133 minutes at the test sponsor's request.

### 3 CLASSIFICATION AND FIELD OF APPLICATION

#### 3.1 Reference of classification

This classification has been carried out in accordance with clause 7 of EN 13501-2:2023.

#### 3.2 Classification

The element, type: Pyrobel 53N VL in a steel frame, is classified according to the following combinations of performance parameters and classes as appropriate. No other classifications are permitted.

The classifications are valid for both sides of the non-loadbearing glazed wall.

**EI 120, EI 90, EI 60, EI 45, EI 30, EI 20, EI 15**

**EW 120, EW 90, EW 60, EW 45, EW 30, EW 20, EW 15**

**E 120, E 90, E 60, E 45, E 30, E 20, E 15**

### 3.3 Field of direct application

This classification is valid for the following end use applications according to EN 1364-1:2015.

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:

#### 3.3.1 Glazed element

##### 3.3.1.1 Installation angle

A change in the angle of installation up to  $\pm 10^\circ$  from the vertical plane is allowed, provided the height of the glazed element does not exceed 2970 mm.

##### 3.3.1.2 Height of the glazed element with overrun

For the classification times:

- EI 120;
- EW 120;
- E 120.

An increase in height up to a maximum of 3267 mm is allowed, provided the allowances for thermal expansion of the construction are increased pro-rata.

For the classification times:

- EI 90, EI 60, EI 45, EI 30, EI 20, EI 15;
- EW 90, EW 60, EW 45, EW 30, EW 20, EW 15;
- E 90, E 60, E 45, E 30, E 20, E 15.

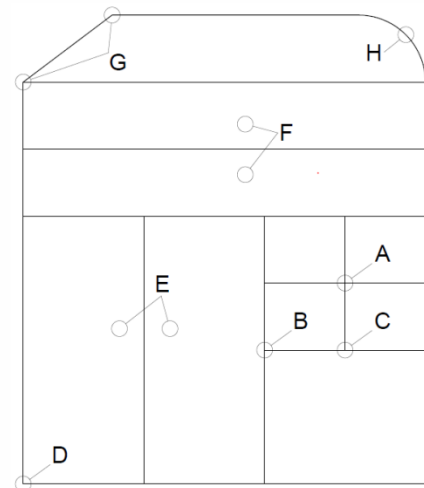
An increase in height up to a maximum of 3564 mm is allowed, provided the allowances for thermal expansion of the construction are increased pro-rata.

### 3.3.1.3 Width of the glazed element

A greater width is allowed by replicating the tested glazed elements or parts thereof, provided the framing system is identical to the one tested and the connection joints between the glazed elements have been tested.

Tested connection joints:

- Type D: corner junction.
- Type E: two full vertical panes side by side.



### 3.3.2 Glazing system

#### 3.3.2.1 Linear dimensions

An unlimited decrease in height and/or width of the panes is allowed.

#### 3.3.2.2 Dimensions and area of individual rectangular glass panes with overrun

For the classification times:

- EI 120;
- EW 120;
- E 120.

The following table shows the calculated extended size/area:

Tested sizes/areas			Extended sizes/areas		
Width (mm)	Height (mm)	Area (m <sup>2</sup> )	Width (mm)	Height (mm)	Area (m <sup>2</sup> )
1001	2882	2.88	1101	3170	3.17

In order to accommodate the increase in glass dimensions, it is permitted to increase the distance between mullions and/or transoms.

The results are given in the following annex:

Annex 4: the maximum allowed dimensions of rectangular shaped glass panes are represented by the outer lines.

For the classification times:

- EI 90, EI 60, EI 45, EI 30, EI 20, EI 15;
- EW 90, EW 60, EW 45, EW 30, EW 20, EW 15;
- E 90, E 60, E 45, E 30, E 20, E 15.

The following table shows the calculated extended size/area:

Tested sizes/areas			Extended sizes/areas		
Width (mm)	Height (mm)	Area (m <sup>2</sup> )	Width (mm)	Height (mm)	Area (m <sup>2</sup> )
1001	2882	2.88	1201	3458	3.49

In order to accommodate the increase in glass dimensions, it is permitted to increase the distance between mullions and/or transoms.

The results are given in the following annex:

Annex 5: the maximum allowed dimensions of rectangular shaped glass panes are represented by the outer lines.

#### 3.3.2.3 Glazing beads

The tested bead width may be increased ( $\geq 15$  mm per layer). The bead depth may not be changed. (according to EN 15254-4:2018, figure 5)

#### 3.3.2.4 Framing system

The distance between mullions and/or transoms may be decreased from that tested.

The distance between fixing centres may be decreased from that tested ( $\leq 720$  mm).

The cross sectional dimensions of the frame profiles may be increased from the dimensions tested ( $\geq 60$  mm x  $\geq 40$  mm).

#### 3.3.2.5 Supporting constructions

The classification is valid for the following standard supporting constructions in accordance with EN 1363-1 with at least the same fire resistance and overall thickness as the test specimen:

- high density rigid standard supporting construction.

### 3.4 Field of extended application

#### 3.4.1 Replacement of glass within the same glass product range

It is allowed to exchange the glass pane Pyrobel 53N with the glass pane Pyrobel 53N EG or Pyrobel 53N DGU variant from the same product range.

No Limitation: The Pyrobel 53N EG variant can be used in a direction indifferent to the fire. As long as the thickness of the added non-fire protection interlayer is smaller than 1 mm.

Limitation: The Pyrobel 53N DGU variant can only be used with the fire side at the side of the fire resistant segment.

#### 3.4.2 Glass shapes

Circular, triangular or 4 sided non-rectangular shapes may be cut from within the extended rectangular pane size defined by the field of direct application.

All other non-rectangular shapes may only be cut from the tested rectangular pane size and shall not be extended further.

#### 3.4.3 Exchange of gaskets / glazing strips / setting blocks

Exchange of a glazing material, e.g. gaskets, is only allowed if it is demonstrated in a reference test and/or pre-existing test data that the exchange does not have a detrimental effect on the fire performance within a comparable glazing system of the same glass product range.

Based on test CFR1807121 Rev1 it is allowed to exchange Momentive Pensil 300 – Grey with Dow Dowsil Firestop 700 for the test set-up in test report CFR1205241 with Pyrobel 53N glass.

Test 23276A: At 144 minutes, the maximum rise in temperature recorded was 104°C at thermocouple 19 at the joint with Dow Dowsil Firestop 700. All other tested sealant types had a lower temperature at 144 minutes.

Reference test 23276A demonstrates that the exchange from Dow Dowsil Firestop 700 to the other tested gasket types (Bostik FP402 Fireseal, Soudal Fire silicone B1 FR, Promat Systemglas Silikon) has no detrimental effect on the fire performance within a comparable glazing system of the same glass product range and is therefore allowed.

#### 3.4.4 Changing or adding surface coverings

Decorative surface coverings of the glazing beads may be added.

##### Limitation

- It must be demonstrated that the covering material achieves at least Class A2 when tested according to EN 13501-1.
- Any coverings on glazed elements classified EI shall be secured using only fixing method(s) proven in the reference test and/or by pre-existing test data.

#### 3.4.5 Metal frames: Frame materials / sections / thickness of chamber walls

Frame section may be changed provided that it has been demonstrated that:

- The inertia of the profiles is not reduced in the cold state.
- The frame section width is not reduced.
- The wall thickness and number of chambers in the frame are not reduced.

Limitation: Without additional test evidence it is not allowed to exchange the tested material for another material.

#### 3.4.6 Changes or adding frame surface coverings

Decorative surface coverings of the framing members may be added.

Limitation: Decorative surface coverings of the framing members may be added where one does not exist, provided it is demonstrated that the covering material achieves at least Class A2 when classified according to EN 13501-1.

If the surface covering is not Class A2 then the rules laid down in the EN 15269-2, EN 15269-3 and EN 15269-5 apply.

## 4 LIMITATIONS

This classification report does not represent type approval nor certification of the product.

SIGNED

APPROVED

Signed for and on behalf of Warringtonfire Gent.

This document is Revision 1 of the classification report, originally issued in English.  
This report supersedes report 24808B.

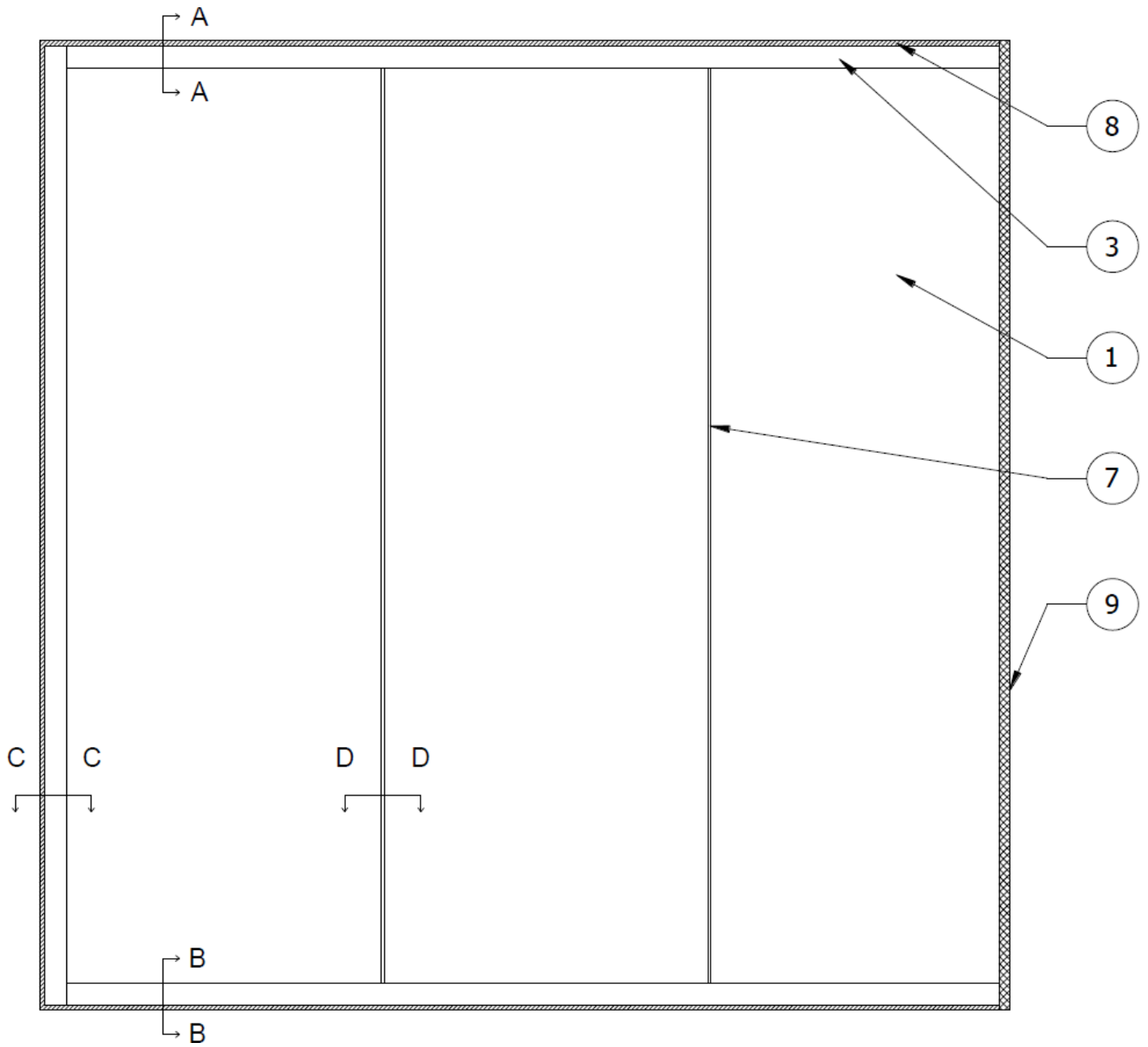
Revision	Date	Changes
1	19/05/2026	Width and height were swapped in § 3.3.2.2

In case of doubt, the most recent version prevails, originally issued in English.

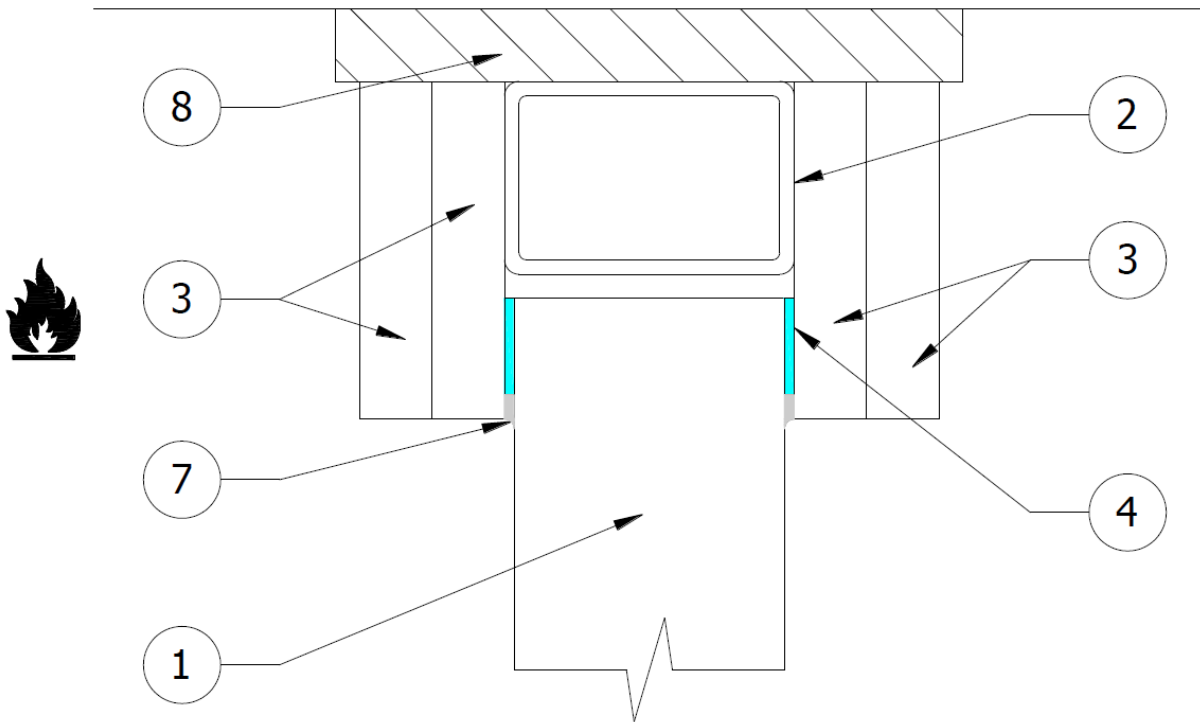
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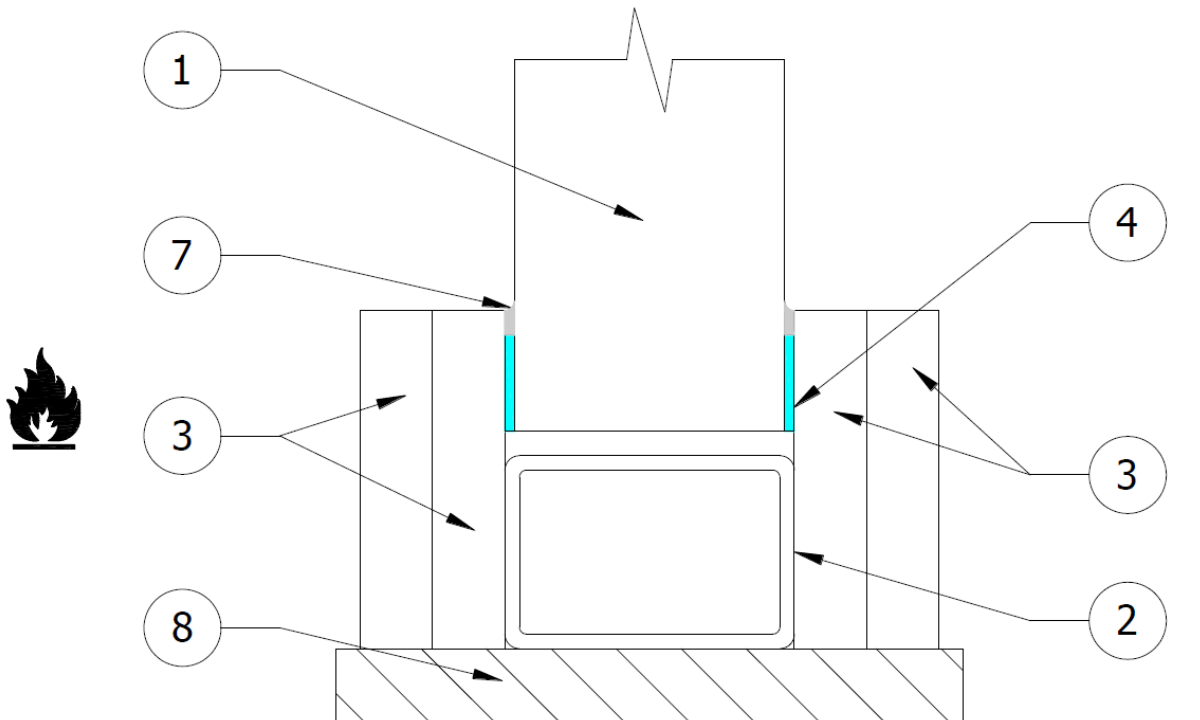
FRONT VIEW - UNEXPOSED SIDE



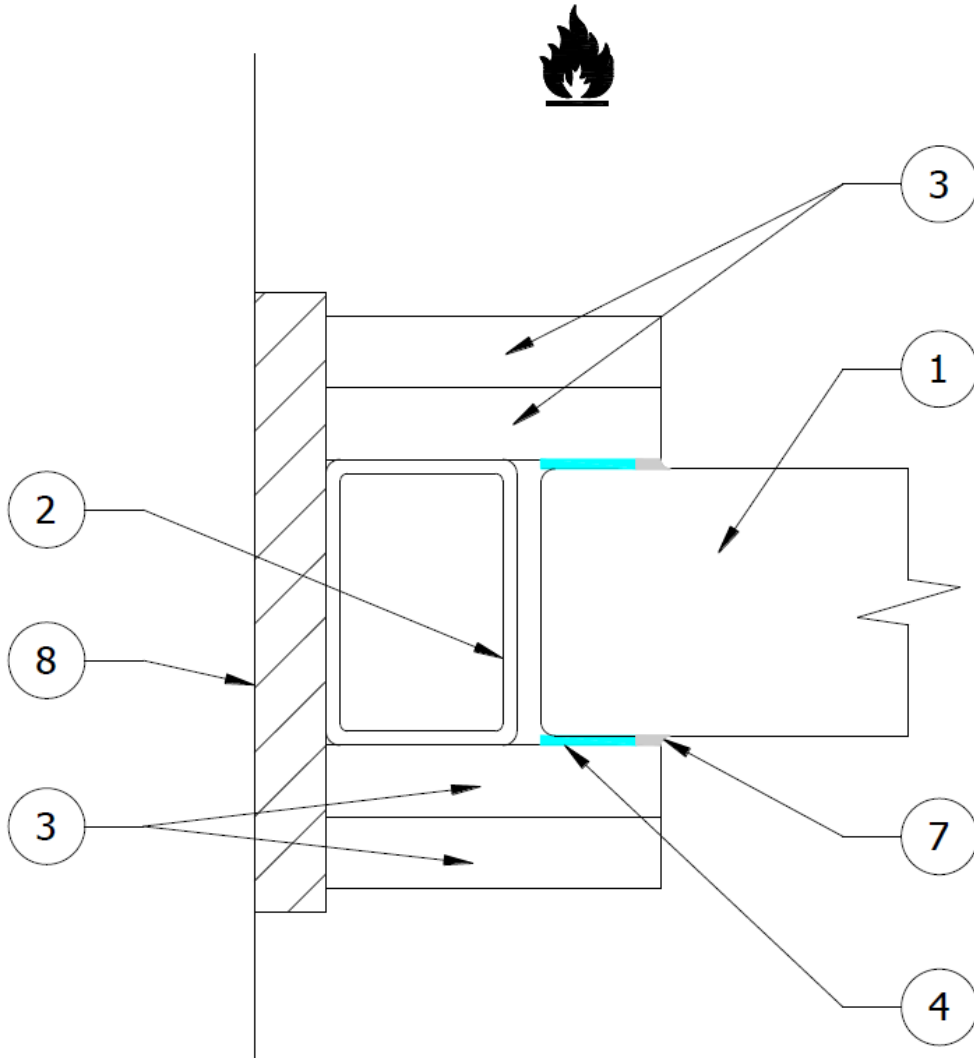
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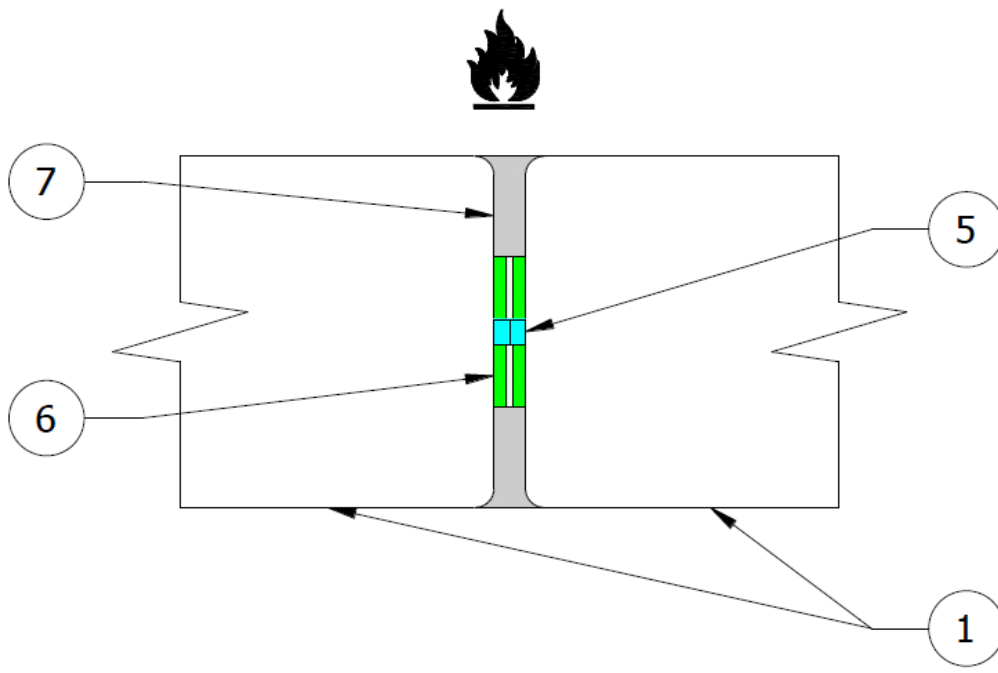
DETAIL – SECTION B-B



DETAIL - SECTION C-C



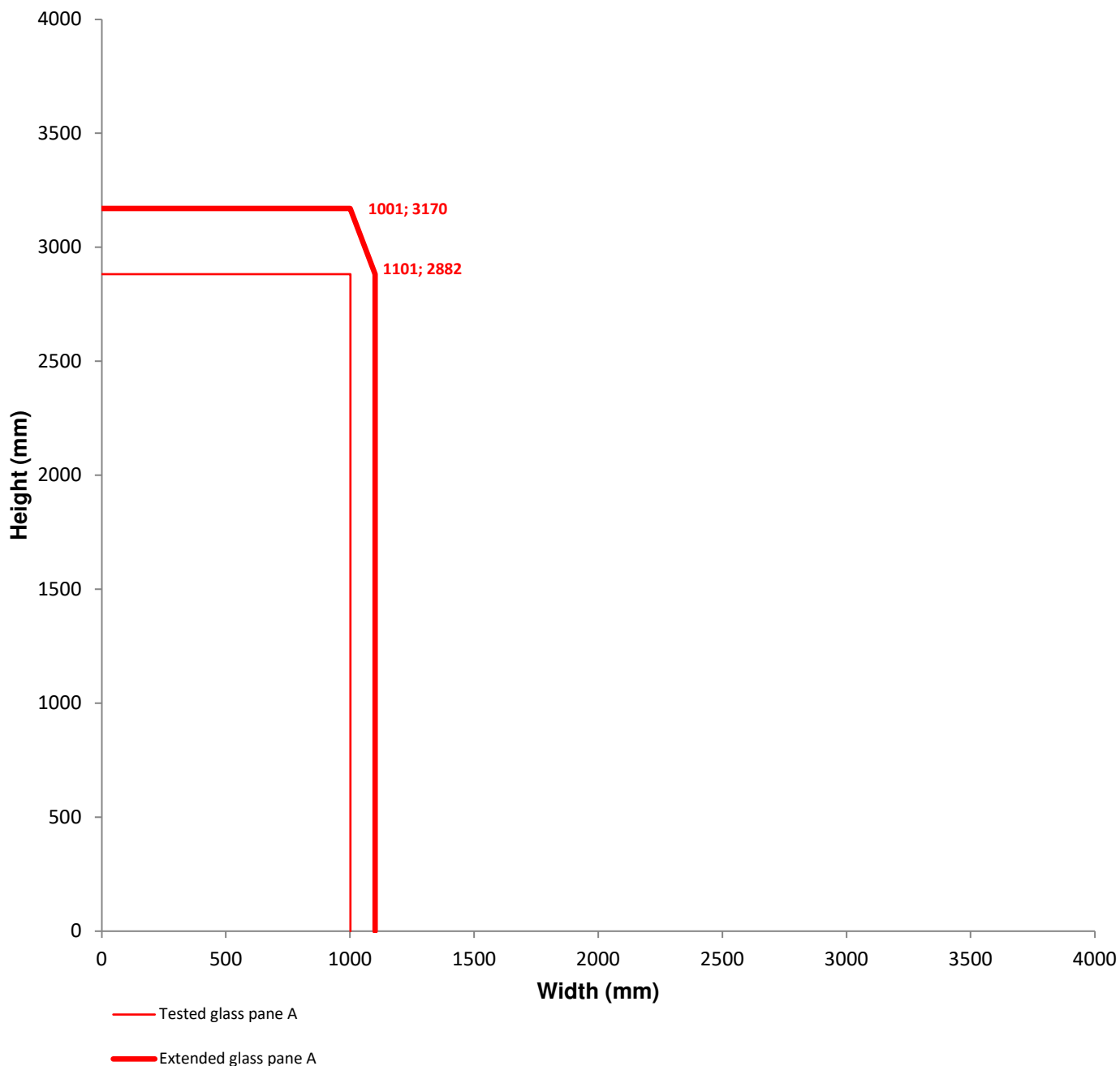
DETAIL - SECTION D-D



**Individual rectangular glass panes: aspect ratio and increase in area**

The extended dimensions are only valid for the following classification times:

- EI 120;
- EW 120;
- E 120.



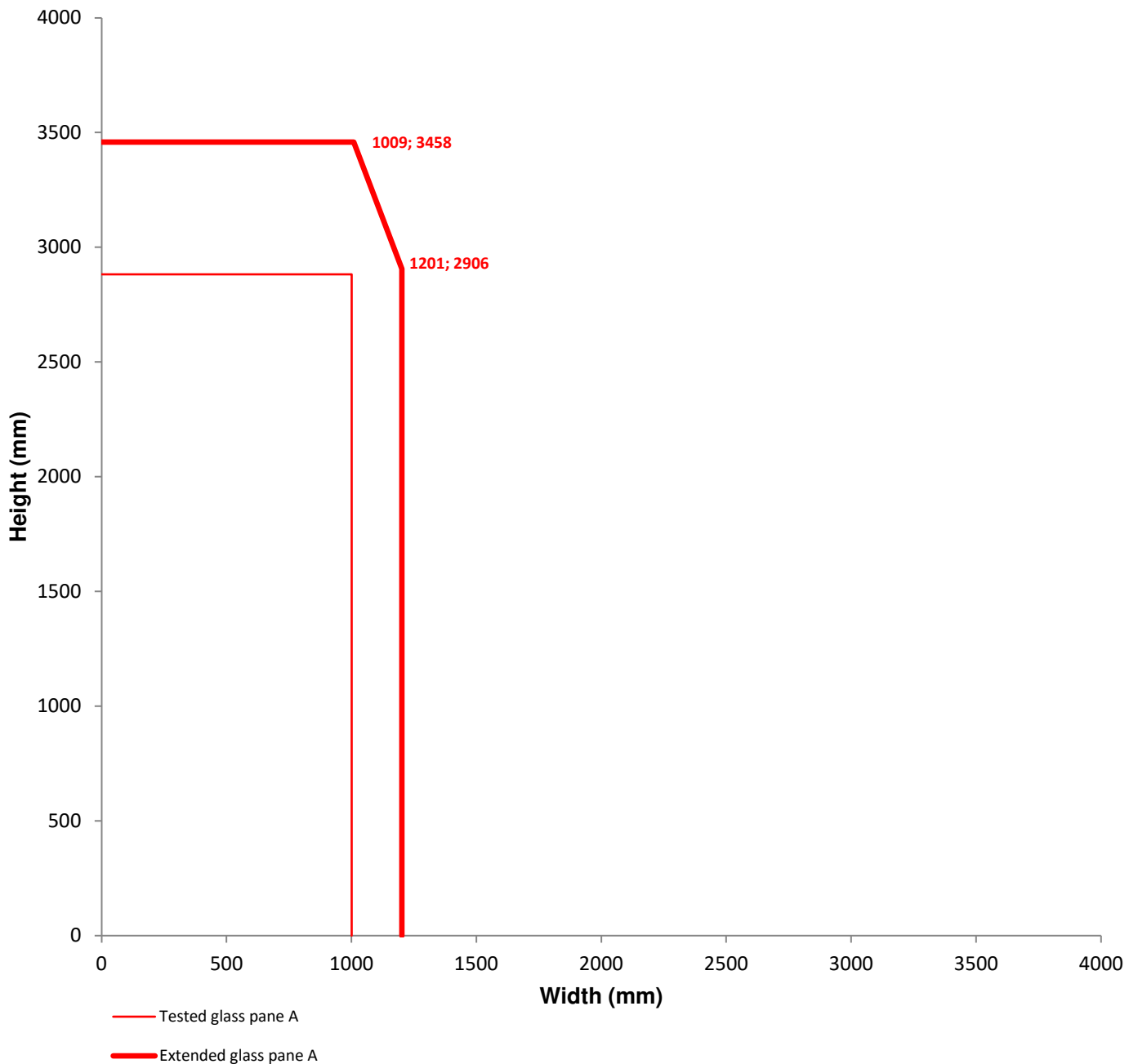
**Note:**

The maximum dimensions of rectangular glass panes are represented by the outer lines.

**Individual rectangular glass panes: aspect ratio and increase in area**

The extended dimensions are only valid for the following classification times:

- EI 90, EI 60, EI 45, EI 30, EI 20, EI 15;
- EW 90, EW 60, EW 45, EW 30, EW 20, EW 15;
- E 90, E 60, E 45, E 30, E 20, E 15.



**Note:**

The maximum dimensions of rectangular glass panes are represented by the outer lines.