

FIRE RESISTANCE CLASSIFICATION REPORT No. 22984C

OWNER OF THE CLASSIFICATION REPORT

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INTRODUCTION

This classification report defines the classification assigned to a non-loadbearing glazed wall (type: Pyrobel 25 in a Jansen Janisol C4 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 14 pages and 5 annexes and may only be used or reproduced in its entirety.

1 Details of classified product

1.1 General

The element, type: Pyrobel 25 in a Jansen Janisol C4 frame, is defined as a(n) non-loadbearing glazed wall with fire resistance characteristics.

1.2 Description

The element, Pyrobel 25 in a Jansen Janisol C4 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 5 of this classification report.

1.2.1 Composition of the test specimen as tested

The test specimen is an asymmetrical non-loadbearing glazed wall in a steel frame.

Outer dimensions of the test construction:

- height: 2960 mm;
- width: 2940 mm;
- thickness: 70 mm.

1.2.1.1 Glazing system

| [1] Glass pane | | | | | |
|----------------|---|------------|-------------|-------------|--------------|
| Manufacturer | AGC | | | | |
| Reference | Pyrobel 25 | | | | |
| Composition | 3/3/8/3/3 | | | | |
| Orientation | symmetrical | | | | |
| Thickness | (26.6 ± 2.0) mm (NV) | | | | |
| Dimensions | | Width (mm) | Height (mm) | Weight (kg) | Reference |
| | [1a] | 1500 | 2848 | 256.32 | 0L001-99-648 |
| | [1b] | 500 | 2848 | 85.44 | 0L001-99-659 |
| | [1c] | 321 | 948 | 18.30 | 0L001-99-679 |
| | [1d] | 321 | 948 | 18.30 | 0L001-99-682 |
| | [1e] | 321 | 948 | 18.30 | 0L001-99-685 |
| | [1f] | 321 | 948 | 18.30 | 0L001-99-683 |
| | [1g] | 704 | 828 | 34.98 | 0L001-99-673 |
| Fixing | clapsed between the rebate of the frame [7] and the glazing beads [6] | | | | |

| [2] Glazing setting block | |
|---------------------------|--|
| Material | hardwood |
| Thickness | 5 mm |
| Dimensions | 80 mm x 26 mm |
| Density | 655 kg/m ³ (NV) |
| Quantity | 2 underneath each glass pane |
| [3] Glazing strip | |
| Manufacturer | Odice |
| Reference | Odice Superwool X607 |
| Material | ceramic paper |
| Section dimensions | 20 mm x 5 mm |
| Density | 230 kg/m ³ (NV) |
| Position | between the glass pane and the frame. |
| Fixing | self-adhesive |
| [4] Sealant | |
| Manufacturer | Dow Corning |
| Reference | Dow Dowsil Firestop 700 |
| Material | neutral silicone (grey) |
| Position | connection of the glass and the framing system, covering the glazing strips. |
| [5] Intumescent strip | |
| Manufacturer | Jansen |
| Reference | Jansen Fire-resistant laminate (Ref. 451.083) |
| Material | Silicate based intumescent product |
| Section dimensions | 40 mm x 1.8 mm |
| Position | against the inside of the frame, at the circumferences the glass panes |
| Fixing | self-adhesive |
| [6] Metal glazing bead | |
| Manufacturer | Jansen |
| Reference | 402.130 Z |
| Material | steel |
| Steel thickness | 1.8 mm |
| Section dimensions | 20 mm x 30 mm |
| Fixing | clamped on fastening studs (reference: Jansen fastening stud 450.007, material: steel, diameter: 4.0 mm, length: 15 mm), c/c distance horizontal: 200 mm c/c distance vertical: 360 mm |

1.2.1.2 Metal framing system

| [7] Metal frame | |
|------------------------------------|--|
| Manufacturer | Jansen |
| Reference | Janisol C4 |
| Material | steel |
| Steel thickness | 1.6 mm |
| Outer dimensions | 2940 mm x 2960 mm x 70 mm |
| Composed of: | Single edge profile Double edge profile Thermal break Infill Intumescent strip |
| Inter-fixing of the framing parts | welded together |
| Fixing to the supporting structure | with fixing anchors (reference: Fisher DuoXpand 10x140, material: steel, diameter: 6.3 mm, length: 150 mm, with plastic plug 9.5 mm, length: 150 mm) through a steel plate (dimensions: 36 mm x 70 mm, thickness: 3 mm), c/c distance: 915/1008 mm |
| [8] Single edge profile | |
| Reference | 601.685.C4 Z |
| Material | steel |
| Outer dimensions | 72.5 mm x 70 mm |
| [9] Double edge profile | |
| Reference | 602.685.C4 Z |
| Material | steel |
| Outer dimensions | 95 mm x 70 mm |
| [10] Thermal break | |
| Reference | This information was not provided by the client to the laboratory. |
| Material | This information was not provided by the client to the laboratory. |
| Outer section dimensions | 40 x 1.8 mm (NV) |
| Density | This information was not provided by the client to the laboratory. |
| Quantity | 2 per compound frame profile |
| [11] Infill | |
| Reference | This information was not provided by the client to the laboratory. |
| Material | This information was not provided by the client to the laboratory. |
| Section dimensions | This information was not provided by the client to the laboratory. |

| | |
|---------------------------------|--|
| Density | This information was not provided by the client to the laboratory. |
| [12] Intumescent strip | |
| Reference | This information was not provided by the client to the laboratory. |
| Material | This information was not provided by the client to the laboratory. |
| Outer section dimensions | 39 mm x 18 mm |
| Diameter tube | 18 mm |
| Thickness tube | 3 mm |
| Thickness flanges | 1 mm (NV) |
| [13] Frame setting block | |
| Manufacturer | Promat |
| Reference | Promatect®-H |
| Material | Calcium silicate |
| Dimensions | 200 mm x 65 mm x 20 mm |
| Density | 870 kg/m ³ (NV) |
| Position | 4 positions, evenly spread underneath the frame. |

1.2.1.3 Insulation

| | |
|------------------------|--|
| [14] Insulation | |
| Manufacturer | Promat |
| Reference | Promaglaf HTK 1100 |
| Material | Alkaline earth silicate |
| Initial thickness | 13 mm |
| Initial density | 96 kg/m ³ (NV) |
| Position | between the frame and the supporting structure |

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 | 22984A | AGC GLASS EUROPE nv | 19/10/2023 | EN 1364-1:2015 |
| WFRGENT nv | 22984B | AGC GLASS EUROPE nv | - | EN 15254-4:2018 |

Exposure conditions during the fire resistance test:

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

Direction of exposure: The test specimen is an asymmetrical construction. The side of the non-loadbearing glazed wall with the glazing beads was exposed to the fire.

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.

2.2 Test results

| Parameters | Results |
|--|---------------------------------------|
| Thermal insulation – I | |
| $\Delta T_m = 140^\circ\text{C}$ | 61 minutes, no failure ⁽¹⁾ |
| $\Delta T_M = 180^\circ\text{C}$ | 60 minutes |
| Integrity – E | |
| Spontaneous and sustained flaming | 61 minutes, no failure ⁽¹⁾ |
| Failure with gap gauge \varnothing 6 mm | 61 minutes, no failure ⁽¹⁾ |
| Failure with gap gauge \varnothing 25 mm | 61 minutes, no failure ⁽¹⁾ |
| Ignition of cotton pad | 61 minutes, no failure ⁽²⁾ |
| Radiation – W | |
| Radiation intensity = 15 kW/m ² | 61 minutes, no failure ⁽¹⁾ |

(1) The test was stopped discontinued after 61 minutes at the test sponsor's request.

(2) No failure until the moment of failure of the thermal insulation (I).

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 25 in a Jansen Janisol C4 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 the direction as stated in clause 2.1: The side of the non-loadbearing glazed wall with the glazing beads was exposed to the fire.

EI 60, EI 45, EI 30, EI 20, EI 15

EW 60, EW 45, EW 30, EW 20, EW 15

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

3.3.1.4 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 2960 mm.

3.3.1.5 Height of the glazed element without overrun

For the classification times:

- EI 60
- EW 60
- E 60

An increase in height up to a maximum of 3256 mm is allowed, provided the allowances for thermal expansion of the construction are increased pro-rata.

3.3.1.6 Height of the glazed element with overrun

For the classification times:

- EI 45, EI 30, EI 20, EI 15
- EW 45, EW 30, EW 20, EW 15
- E 45, E 30, E 20, E 15

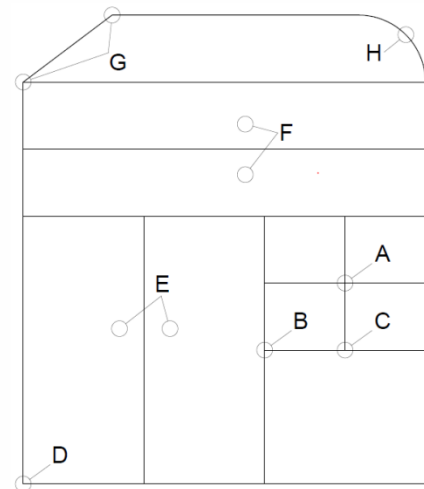
An increase in height up to a maximum of 3552 mm is allowed, provided the allowances for thermal expansion of the construction are increased pro-rata.

3.3.1.7 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 A: four panes joining together;
- Type B: three panes joining together at one point including a full height vertical pane;
- Type C: three panes joining together at one point including a full width horizontal pane;
- 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 45, EI 30, EI 20, EI 15
- EW 45, EW 30, EW 20, EW 15
- 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 ²) | Width (mm) | Height (mm) | Area (m ²) |
| 1500 | 2848 | 4.272 | 1800 | 3418 | 5.169 |

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

3.3.2.3 Glazing beads

Test results on 'clip-on' beads cover screwed-on glazing beads, applied with the same or smaller centre to centre distance (horizontal: ≤ 200 mm, vertical: ≤ 360 mm).

The tested bead width may be increased (≥ 30 mm). 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 (≤ 915 mm).

The cross-sectional dimensions of the frame profiles may be increased from the dimensions tested ($\geq 72.5/95$ mm x ≥ 70 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 25 with the glass pane variant from the same product range.

No limitation: The Pyrobel 25 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 25 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 Metal beads: Exchange of bead fixing / bead shape and dimensions

Allowed changes:

- The bead depth may be increased (≥ 20 mm) provided the mechanical edge cover remains within the limits determined by the reference test.
- The bead width (≥ 30 mm) may be increased without restriction.

3.4.4 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.

3.4.5 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.

3.4.6 Metal frames: Frame materials / sections / thickness of chamber walls

Frame section may be changed provided that it is 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.

3.4.7 Changes or adding frame surface coverings

Decorative surface coverings of the glazing beads 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

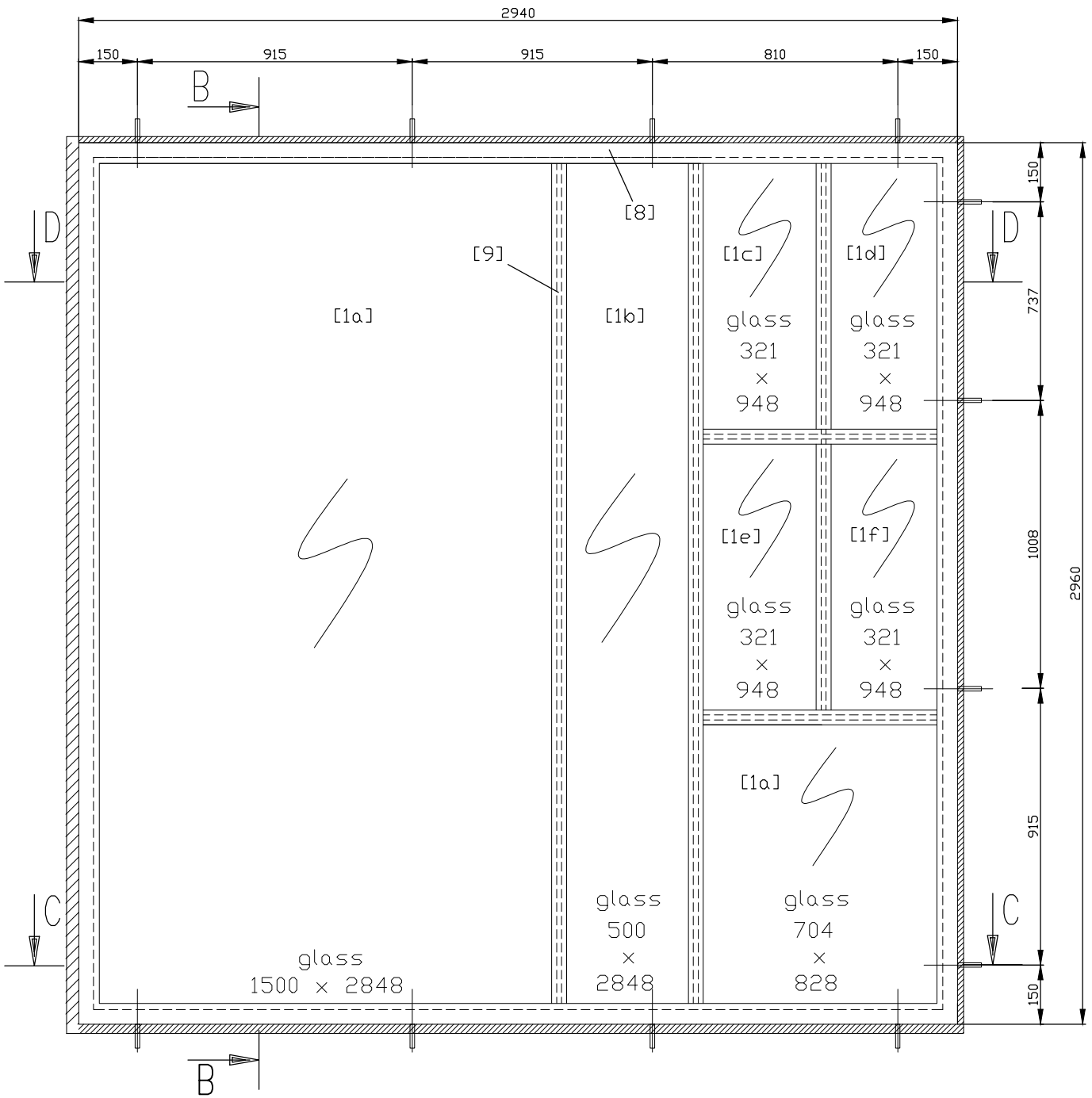
This document is the original version of the classification report and is written in English.

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

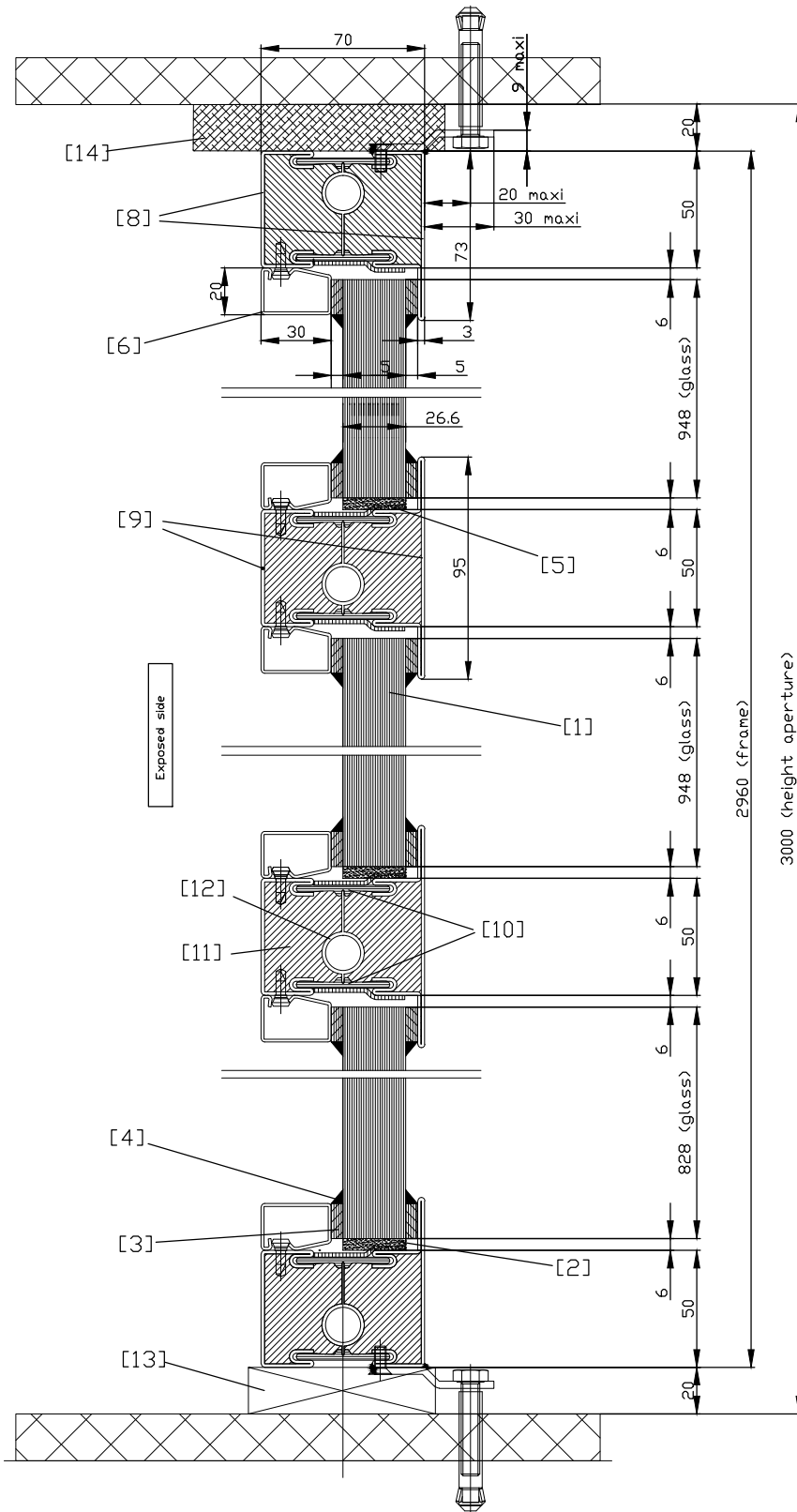
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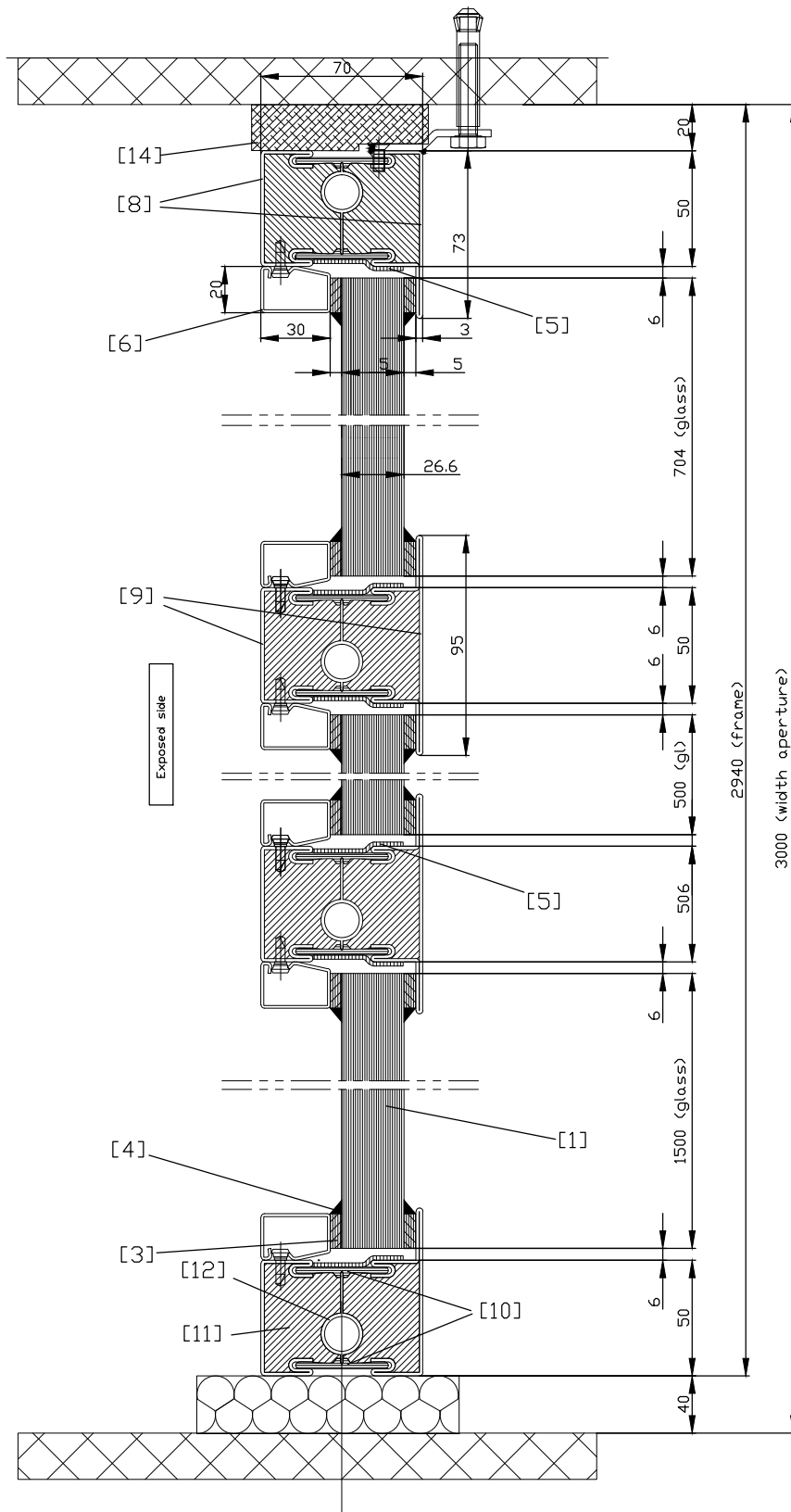
Front view (unexposed side) - dimensions.



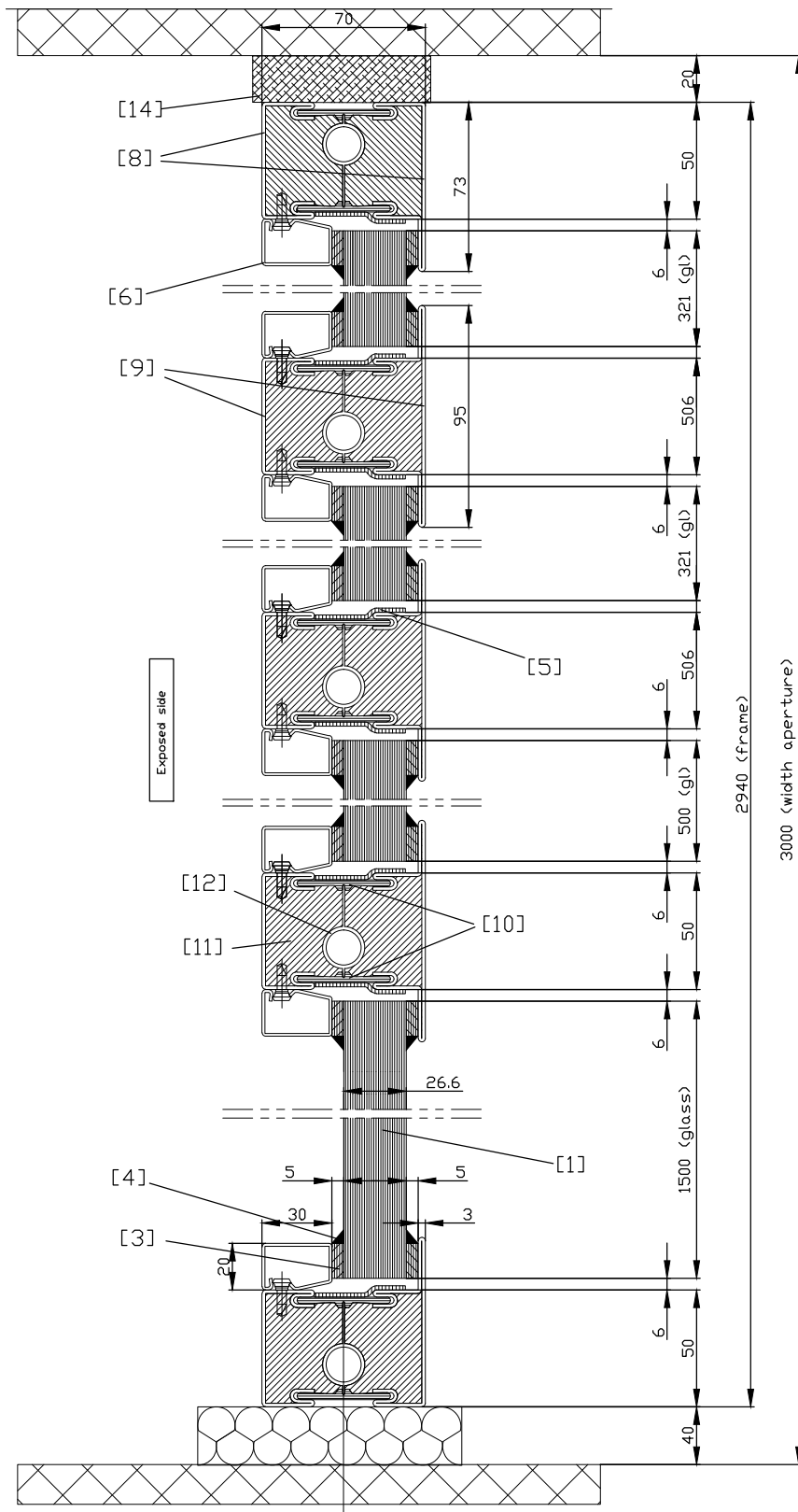
Section A-A - dimensions - details



Section C-C - dimensions - details



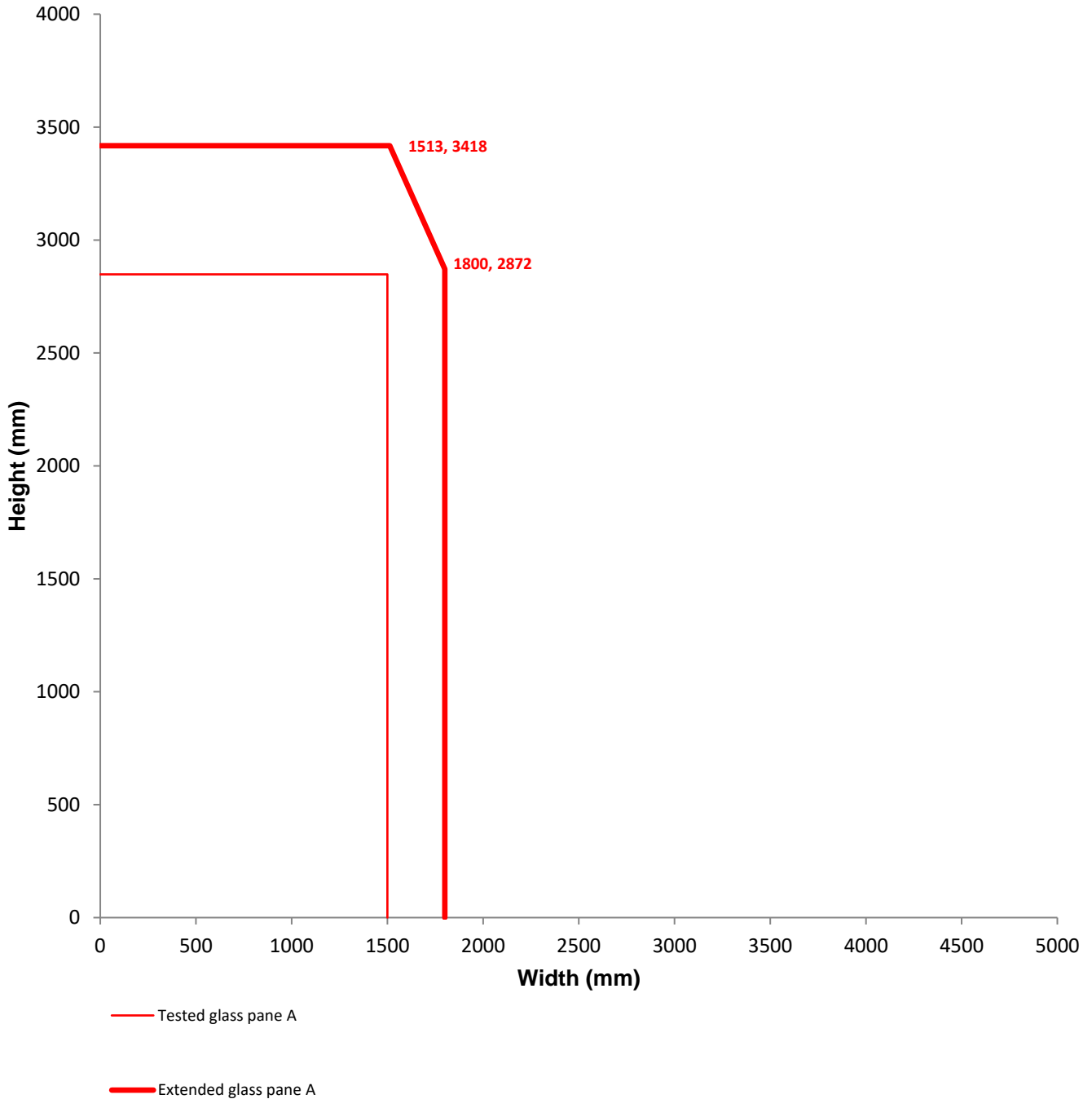
Section D-D - dimensions - details



Individual rectangular glass panes: aspect ratio and increase in area

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

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



Note:

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