

FIRE RESISTANCE CLASSIFICATION REPORT No. 22985C

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 54 in a Jansen Janisol C4 EI120 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 54 in a Jansen Janisol C4 EI120 frame, is defined as a non-loadbearing glazed wall with fire resistance characteristics.

1.2 Description

The element, Pyrobel 54 in a Jansen Janisol C4 EI120 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: 2970 mm;
- width: 2945 mm;
- thickness: 100 mm.

1.2.1.1 Glazing system

[1] Glass pane					
Manufacturer	AGC				
Reference	Pyrobel 54				
Composition	3/3/3/3/3/3: 3/3/3/3/3/3				
Orientation	Symmetrical				
Thickness	(26.6 ± 2.0) mm (NV)				
Dimensions		Width (mm)	Height (mm)	Weight (kg)	Reference
	[1a]	1300	2858	460.78	0L002-06-991
	[1b]	500	2858	177.20	0L002-07-010
	[1c]	423	968	50.84	0L002-06-720
	[1d]	423	968	50.84	0L002-06-751
	[1e]	423	968	50.84	0L002-06-743
	[1f]	423	968	50.84	0L002-06-507
	[1g]	909	798	90.02	0L002-06-701
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	Jansen
Reference	Jansen distance strip white (ref: 451.015)
Material	flame retardant paper fibre tape
Section dimensions	17 mm x 6 mm
Density	230 kg/m ³ (NV)
Position	between the glass pane and the frame rebate or glazing bead.
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	1.4 mm
Section dimensions	30 mm x 20 mm
Fixing	clamped on fastening studs (reference: Jansen fastening stud 450.007, material: steel, diameter: 4.0 mm, length: 15 mm), [1a]: c/c horizontal: 330 mm, c/c vertical: 330 mm

1.2.1.2 Metal framing system

[7] Metal frame	
Manufacturer	Jansen
Reference	Janisol C4 EI120
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 Extension profile Thermal break Infill main profiles Infill extension profile Intumescent strip
Inter-fixing of the framing parts	welded together
Fixing to the supporting structure	with fixing anchors (reference: Hilti HT 10/112, material: steel, diameter: 10 mm, length: 112 mm) through a steel plate (dimensions: 36 mm x 70 mm, thickness: 3 mm), c/c distance: 661.25/667.5 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] Extension profile	
Reference	400.045.C
Material	steel
Outer dimensions	30 mm x 50 mm
[11] 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

[12] Infill main profiles	
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.
[13] Infill extension profile	
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.
[14] 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)
[15] Frame setting block	
Manufacturer	Promat
Reference	Promatect®-H
Material	Calcium silicate
Dimensions	100 mm x 100 mm x 20 mm
Density	870 kg/m ³ (NV)
Position	4 positions, evenly spread underneath the frame,

1.2.1.3 Insulation

[16] 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	22958A	AGC GLASS EUROPE nv	20/12/2023	EN 1364-1:2015
WFRGENT nv	22958B	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	
$\Delta T_m = 140^\circ\text{C}$	135 minutes, no failure ⁽¹⁾
$\Delta T_M = 180^\circ\text{C}$	135 minutes, no failure ⁽¹⁾
Integrity – E	
Spontaneous and sustained flaming	135 minutes, no failure ⁽¹⁾
Failure with \varnothing 6 mm gap gauge	135 minutes, no failure ⁽¹⁾
Failure with \varnothing 25 mm gap gauge	135 minutes, no failure ⁽¹⁾
Ignition of cotton pad	135 minutes, no failure ⁽¹⁾
Radiation – W	
Radiation intensity = 15 kW/m ²	135 minutes, no failure ⁽¹⁾

(1) The test was stopped discontinued after 135 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 54 in a Jansen Janisol C4 EI120 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 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

3.4 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:

3.4.1 Glazed element

3.4.1.4 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 2970 mm.

3.4.1.5 Height of the glazed element with overrun

For the classification times:

- EI 120, EI 90, EI 60, EI 45, EI 30, EI 20, EI 15
- EW 120, EW 90, EW 60, EW 45, EW30, EW 20, EW 15
- E 120, E 90, E 60, E 45, E 30, E 20, E15

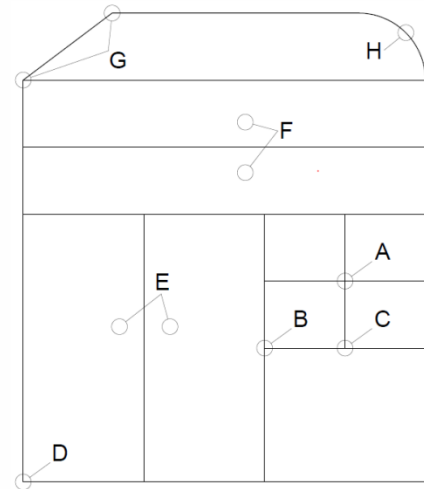
An increase in height up to a maximum of 3564 mm is allowed, provided the allowances for thermal expansion of the construction are increased pro-rata.

3.4.1.6 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.



3.4.2 Glazing system

3.4.2.1 Linear dimensions

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

3.4.2.2 Dimensions and area of individual rectangular glass panes with overrun

For the classification times:

- EI 120, EI 90, EI 60, EI 45, EI 30, EI 20, EI 15
- EW 120, EW 90, EW 60, EW 45, EW30, EW 20, EW 15
- E 120, E 90, E 60, E 45, E 30, E 20, E15

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)
1300	2858	3.715	1560	3430	4.495

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.

3.4.2.3 Glazing beads

Test results on 'clip-on' beads cover screwed-on glazing beads, applied with the same or smaller centre to centre distance (horizontal: ≤ 330 mm, vertical: ≤ 330 mm).

The tested bead width may be increased (≥ 20 mm). The bead depth may not be changed. (according to EN 15254-4:2018, figure 5)

3.4.2.4 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 (≤ 661.25 mm, ≤ 667.5 mm).

The cross-sectional dimensions of the frame profiles may be increased from the dimensions tested ($\geq 72.5/95$ mm x ≥ 100 mm).

3.4.2.5 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;

3.5 Field of extended application

3.5.1 Replacement of glass within the same glass product range

It is allowed to exchange the glass pane Pyrobel 54 with the glass pane Pyrobel 54 EG and Pyrobel 54 DGU variant from the same product range.

No Limitation: The Pyrobel 54 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 54 DGU variant can only be used with the fire side at the side of the fire resistant segment.

3.5.2 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.

3.5.3 Metal beads: Exchange of bead fixing / bead shape and dimensions

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

3.5.4 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.

3.5.5 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.

3.5.6 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.

3.5.7 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

4.1 Application range – product family

This extended application is valid for the product as described in clause 1 of this report.

4.2 Fire performance parameters

The results are given in clause 3.2 of this report.

5 Additional statement

The extended application results relate to the behaviour of a product/product family under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product/product family in use.

SIGNED

APPROVED

Signed for and on behalf of Warringtonfire Gent

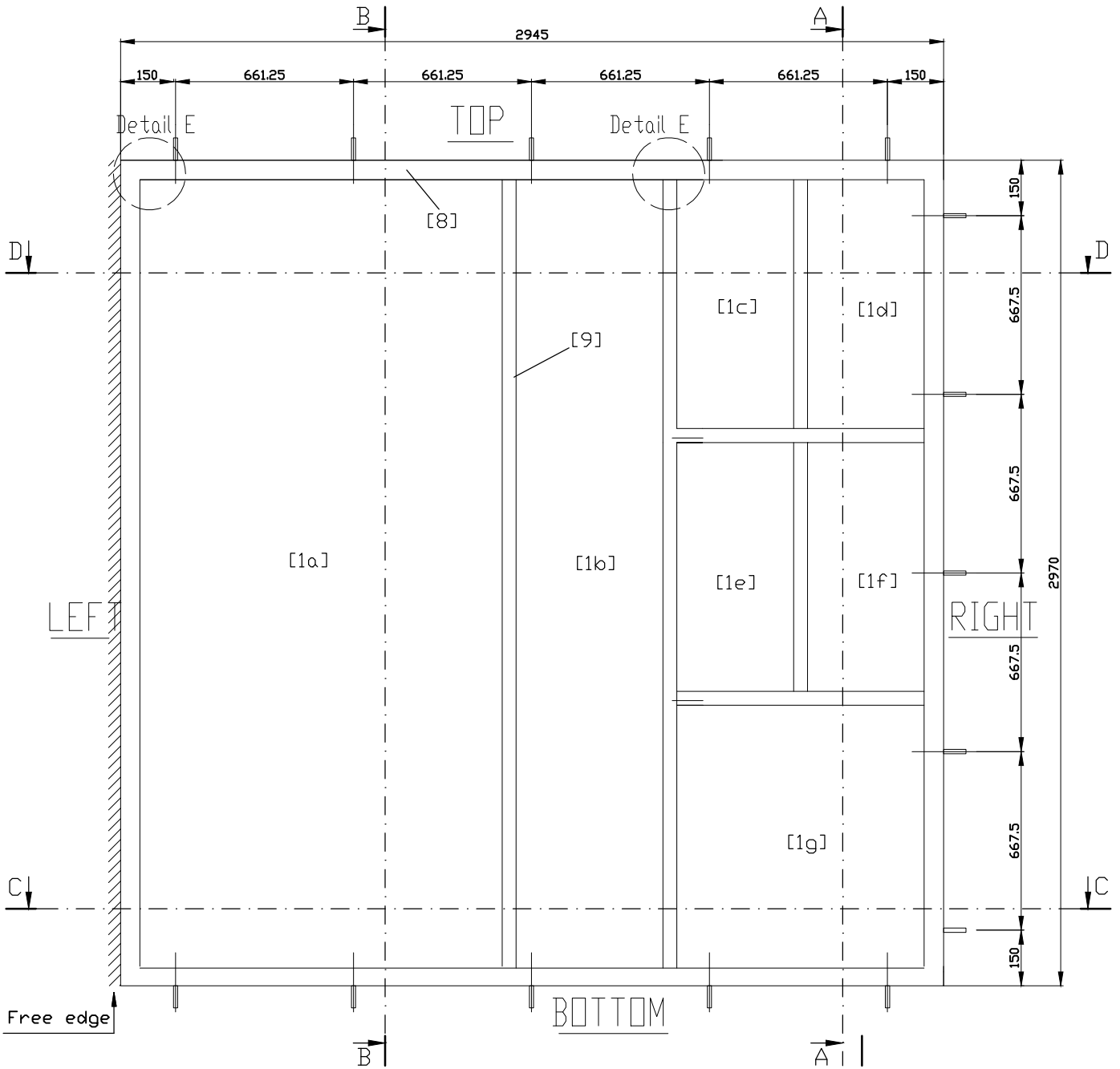
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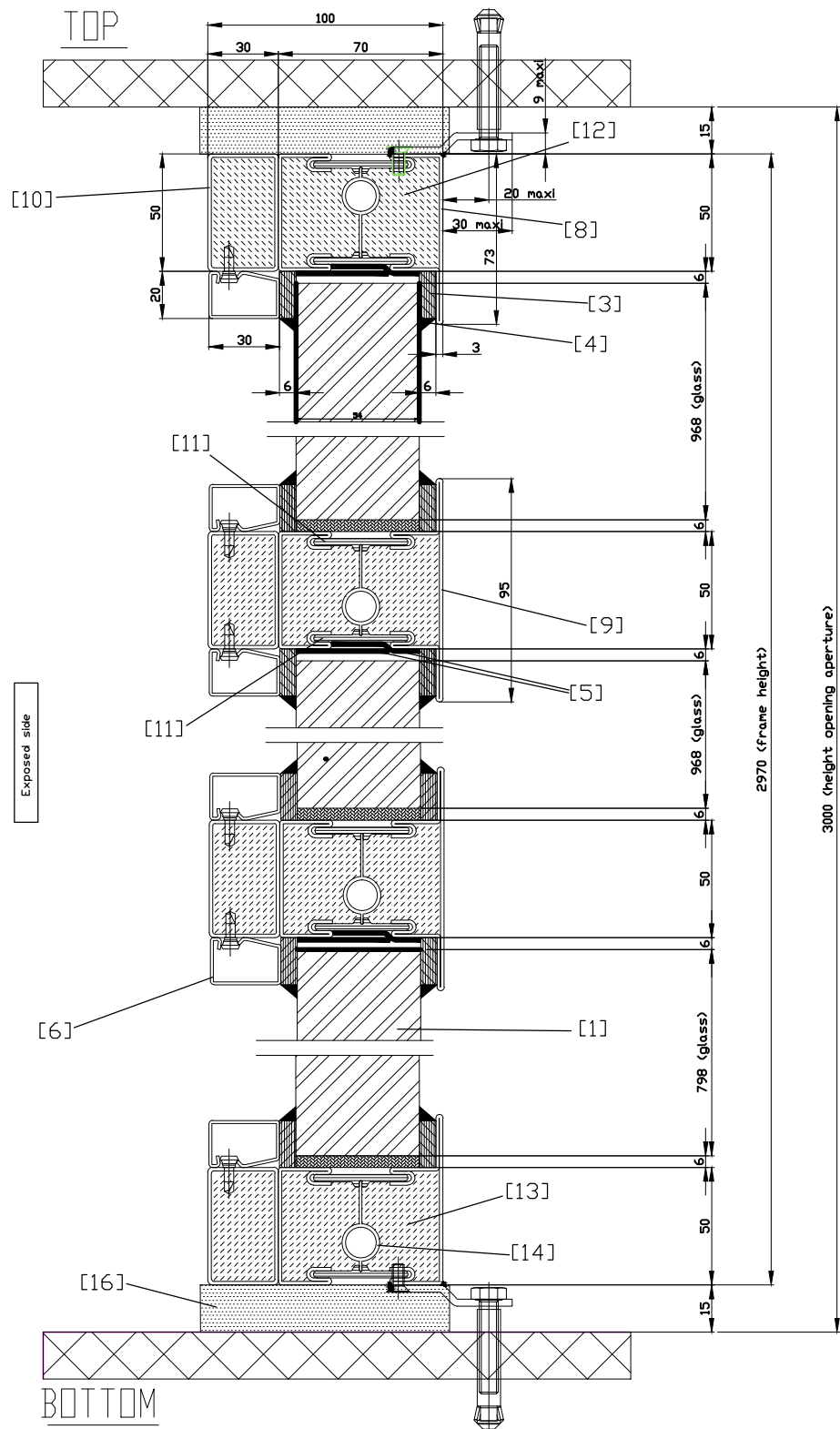
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Front view (unexposed side) - dimensions - glass structure

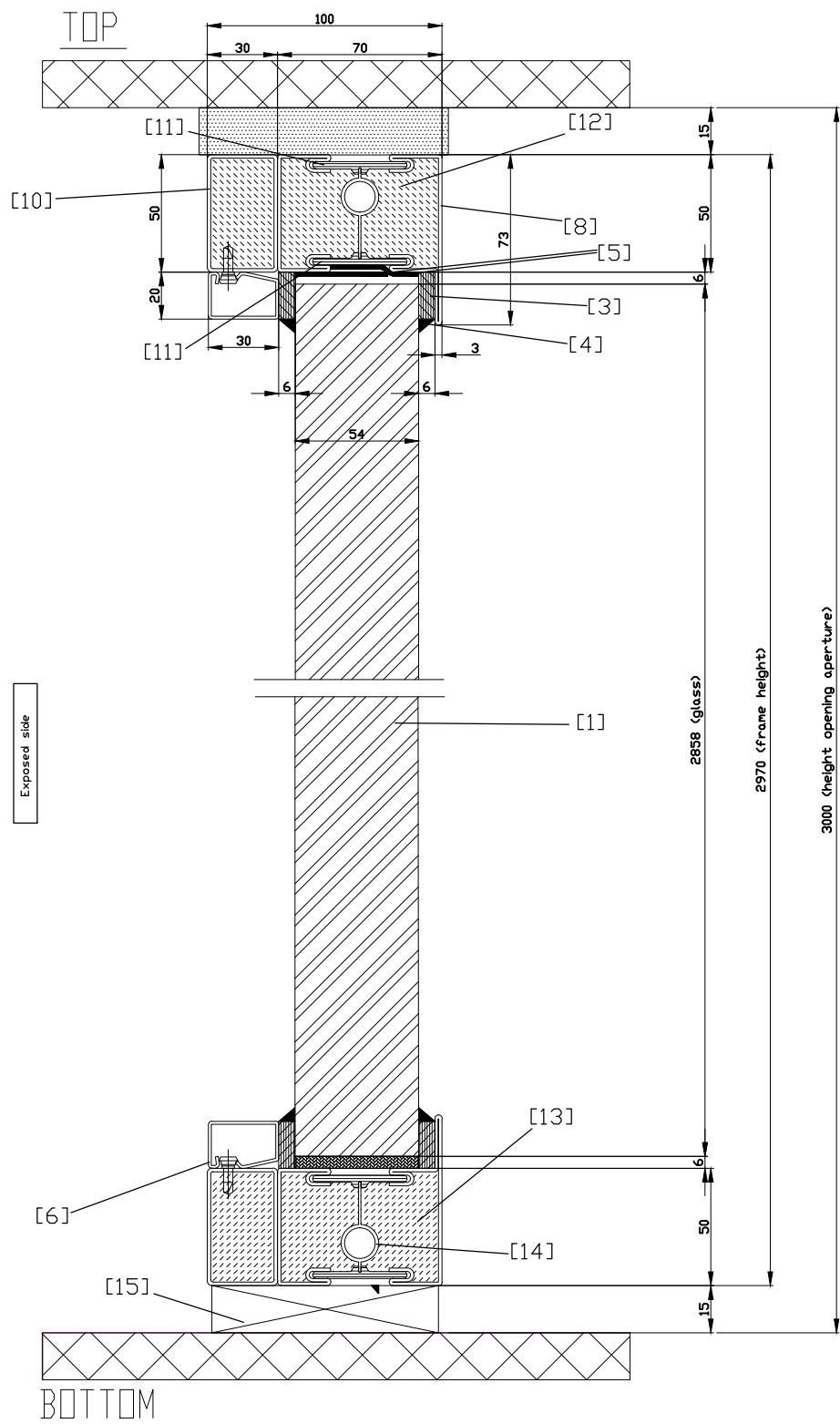


Product	Pyrobel 54	with 3 = 3mm float glass
Structure	3/3/3/3/3/3/3/3/3/3/3	/ = 1.95mm intumescent layer
Nominal thickness	54.0 +/- 3.0	: = 0.76mm standard PVB
Fire side	symmetrical	

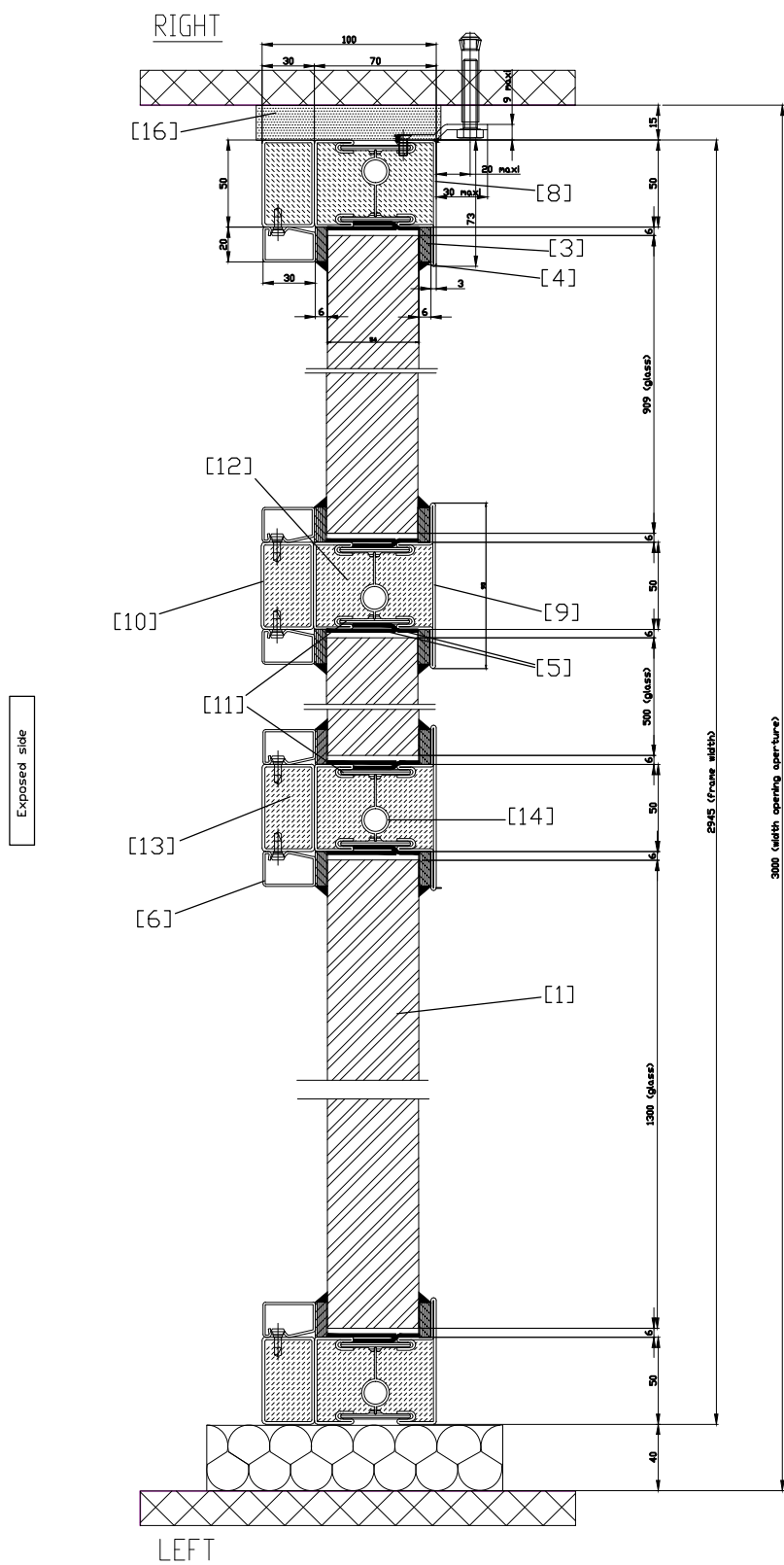
Section A-A - dimensions



Section B-B - dimensions



Section C-C - dimensions



Section D-D - dimensions

