FIRE RESISTANCE CLASSIFICATION REPORT No. 23277C

OWNER OF THE CLASSIFICATION REPORT

AGC GLASS EUROPE NV
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INTRODUCTION

This classification report defines the classification assigned to a non-loadbearing glazed wall, (type: Pyrobel-T EW30-16 DGU in a timber 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 13 pages and 7 annexes and may only be used or reproduced in its entirety.

1 Details of classified product

1.1 General

The element – type: Pyrobel-T EW30-16 DGU in a timber frame, is defined as a non-loadbearing glazed wall with fire resistance characteristics.

1.2 Description

The element, Pyrobel-T EW30-16 DGU in a timber 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 6 of this classification report.

1.2.1 Composition of the test specimen as tested

Outer dimensions of the test specimen:

- height: 4000 mm;
- width: 4000 mm;
- thickness: 79 mm.

1.2.2 Glazing system

[1] Glass pane					
Manufacturer	AGC GLASS EUROPE nv				
Reference	Pyrobel-T EW30-16 DGU				
Composition	T6/4/T6 – air 15 – 4:4				
Orientation	asymmetrical, DGU at the exposed side				
Thickness	39.4 mm (± 1.4 mm) (NV)				
Dimensions		Width (mm)	Height (mm)	Weight (kg)	Reference
	[1]a	622	1273	45	0L002-62-841
	[1]b	622	1273	45	0L002-62-833
	[1]c	622	1273	45	0L002-62-830
	[1]d	622	1273	45	0L002-62-824
	[1]e	1288	1272	93	0L002-62-848
	[1]f	500	3906	111	0L002-62-846
	[1]g	2000	3906	445	0L002-62-867
Fixing	clasped between the glazing beads				

[2] Glazing setting block	
Material	hardwood
Thickness	5 mm
Dimensions	80 mm x 39 mm
Density	655 kg/m³ (NV)
Quantity	2 per glass pane
[3] Glazing strip	
Reference	Odice Superwool X607
Material	Ceramic paper
Section dimensions	15 mm x 5 mm
Density	210 kg/m³ (NV)
Position	between the glass panes and the glazing beads
Fixing	self-adhesive
[4] Sealant	
Reference	Dow Firestop 700
Material	neutral silicone
Position	covering the glazing strips
[5] Intumescent strip	
Reference	Jung Flamiseal G
Material	Graphite-based
Section dimensions	39 mm x 2 mm
Position	around the circumference of the glass pane
Fixing	self-adhesive
[6] Timber glazing bead	
Material	Meranti
Section dimensions	15 mm x 17 mm
Density	675 kg/m³ (NV)
Fixing	with nails (material: steel, diameter: 1.3 mm x 1.6 mm, length: 31 mm), c/c distance: 150 mm

1.2.3 Timber framing system

[7] Timber frame	
Material	Meranti
Section dimensions	20 mm/30 mm/40(2x20) mm x 79 mm
Density	675 kg/m³ (NV)
Amount	2 modules

Composition	- edge framing member (section dimensions: 20 mm x 79 mm); - intermediary framing member (section dimensions: 30 mm x 79 mm)
Interfixing of the edge framing members	with open dowel joints, 2 dowels – length: 75 mm – diameter: 14 mm – c/c distance: 50 mm, glued.
Interfixing of the framing modules	with: - screws (material: steel, diameter: 5 mm, length: 35 mm), c/c distance: 300 mm, from each module, staggered 150 mm; and - 2 cover laths
Fixing to the supporting structure	with anchor bolts (reference: Hilti 100 HT, material: steel, diameter: 10 mm, length: 112 mm), c/c distance: 450-500 mm
[8] Cover lath	
Material	Meranti
Section dimensions	30 mm x 8 mm
Density	773 kg/m³
Number	2, 1 per side
Fixing	with nails (material: steel, diameter: 1.5 mm, length: 35 mm), c/c distance: 200-250 mm
[9] Frame setting block	
Material	calcium silicate
Thickness	20 mm
Dimensions	200 mm x 60 mm
Denisty	870 kg/m³ (NV)
Quantity	7 positions evenly spread underneath the hardwood frame

1.2.4 Insulation

[10] Insulation	
Manufacturer	Promat
Reference	Dalfratherm
Material	silicate fibres
Initial density	96 kg/m³ (NV)
Initial thickness	13 mm

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	23277A	AGC GLASS EUROPE NV	08/10/2024	EN 1364-1:2015
WFRGENT nv	23277B	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 glazed wall with the DGU glass composition was exposed to the fire.

No extra load supplementary to the own weight of the 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	
ΔT_m = 140°C	33 minutes
ΔT_M = 180°C	27 minutes
Integrity – E	
Spontaneous and sustained flaming	57 minutes
Failure with gap gauge ∅ 6 mm	57 minutes, no failure(1)
Failure with gap gauge ∅ 25 mm	57 minutes, no failure(1)
Ignition of cotton pad	57 minutes, no failure(2)
Radiation – W	
Radiation intensity = 15 kW/m²	57 minutes, no failure(1)

(1) The test was discontinued after 57 minutes at the request of the sponsor.

(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, glazed wall – type: Pyrobel-T EW30-16 DGU in a timber 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 DGU glass composition exposed to the fire.

EI 20, EI 15
EW 45, EW 30, EW 20, EW 15
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 ± 10° from the vertical plane is allowed, provided the height of the glazed element does not exceed 3960 mm.

3.3.1.2 Height of the glazed element with overrun

For the classification times:

- EI 20, EI 15;
- EW 45, EW 30, EW 20, EW 15;
- E 45, E 30, E 20, E15.

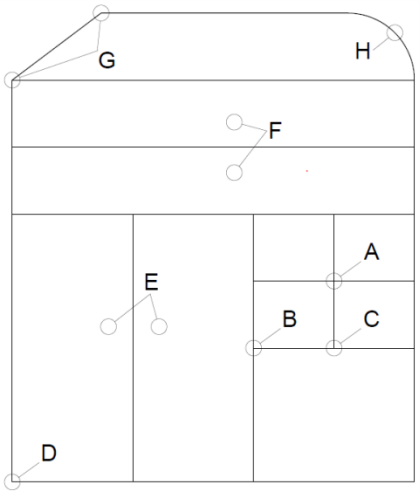
An increase in height up to a maximum of 4752 mm is allowed, provided the allowances for thermal expansion of the construction are increased pro-rata.

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 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 20, EI 15;
- EW 45, EW 30, EW 20, EW 15;
- 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** (m²)	**Width** (mm)	**Height** (mm)	**Area** (m²)
2000	3906	7.812	2400	4687	9.453

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

3.3.2.3 Glazing beads

Test results on timber beads fixed by nails/pins cover screw fixing of at least the same length, applied with the same or smaller centre to centre distance (≤ 150 mm).

The tested bead width may be increased (≥ 15 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 (≤ 500 mm).

The cross-sectional dimensions of the frame profiles may be increased from the dimensions tested (≥ 20 mm x ≥ 79 mm, ≥ 40 (2x20) mm x ≥ 79 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 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.

3.4.2 Timber beads: Exchange of timber species / bead fixing / bead shape and dimensions

Allowed changes:

- The tested glued laminated timber beads may be replaced by solid timber beads (identical design).
- The timber type can be exchanged with a timber type with a density ≥ 675 kg/m³ (NV).
- The tested unprotected timber can be replaced by protected timber.
- The bead depth may be increased (≥ 17 mm provided the mechanical edge cover remains within the limits determined by the reference test.
- The bead width (≥ 15 mm) may be increased without restriction.

Limitation:

- Hard wood with a density ≥ 450 kg/m3 shall not be exchanged with soft wood.
- A bead fixed by screws shall not be exchanged by a clipped or nailed bead.

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.

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 Timber frames: Thickness / profile / timber type (charring rate / density)

Allowed changes:

- The tested glued laminated timber frame may be replaced by a solid timber frame (identical design).
- The timber type can be exchanged with a timber type with a density ≥ 675 kg/m³ (NV).
- The tested unprotected timber can be replaced by protected timber.
- The frame depth (≥ (20/30/40(2x20) mm) may be increased without restriction.
- The frame width (≥ 79 mm) may be increased without restriction.

Limitation:

- Hard wood with a density ≥ 450 kg/m3 shall not be exchanged with soft wood.
- A frame fixed by screws shall not be exchanged by a clipped or nailed fixing.

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 152692, EN 15269-3 and EN 15269-5 apply.

4 Limitations

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

SIGNED

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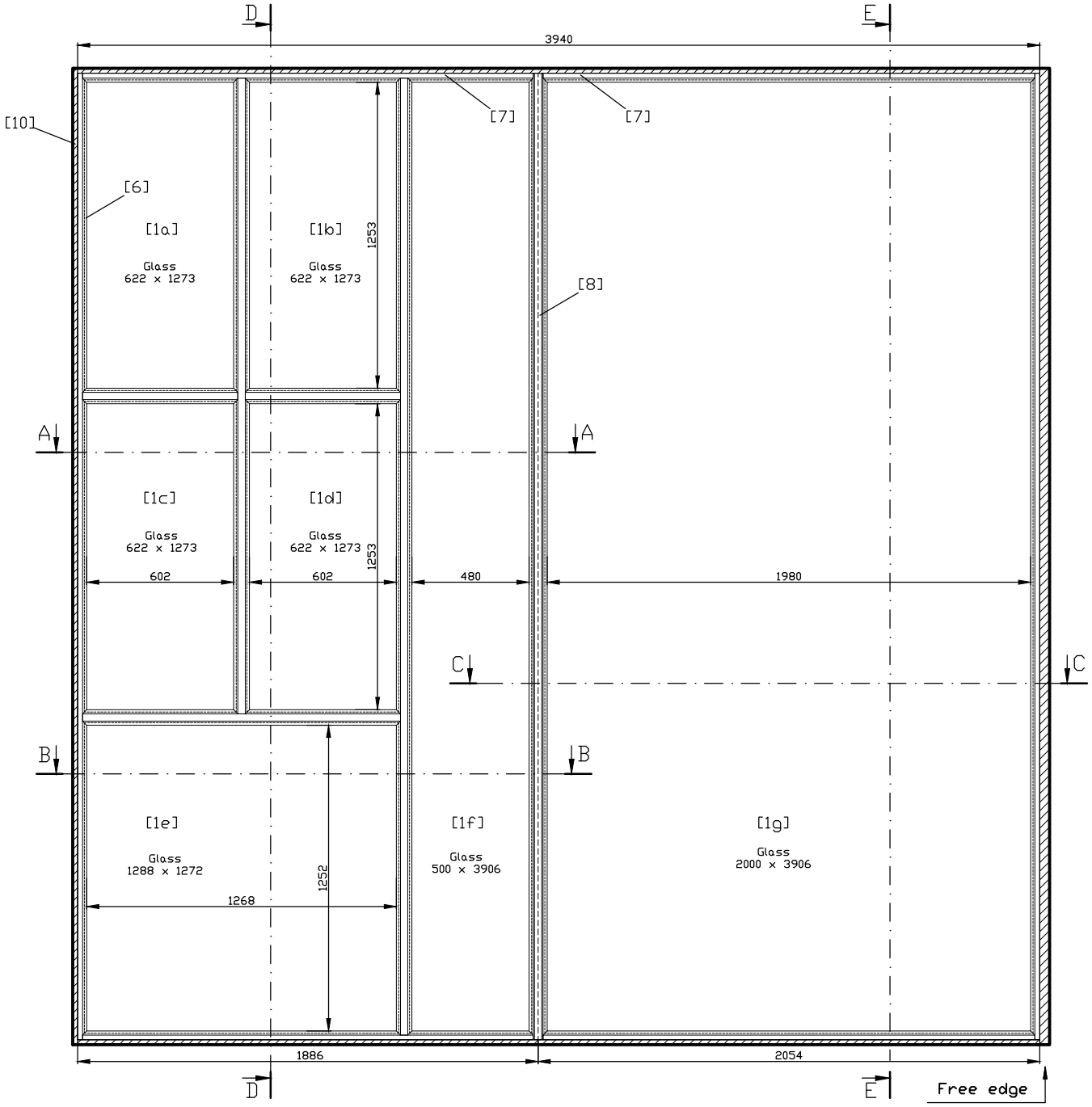
Signed for and on behalf of Warringtonfire Gent

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.

Front view (unexposed side) - dimensions.

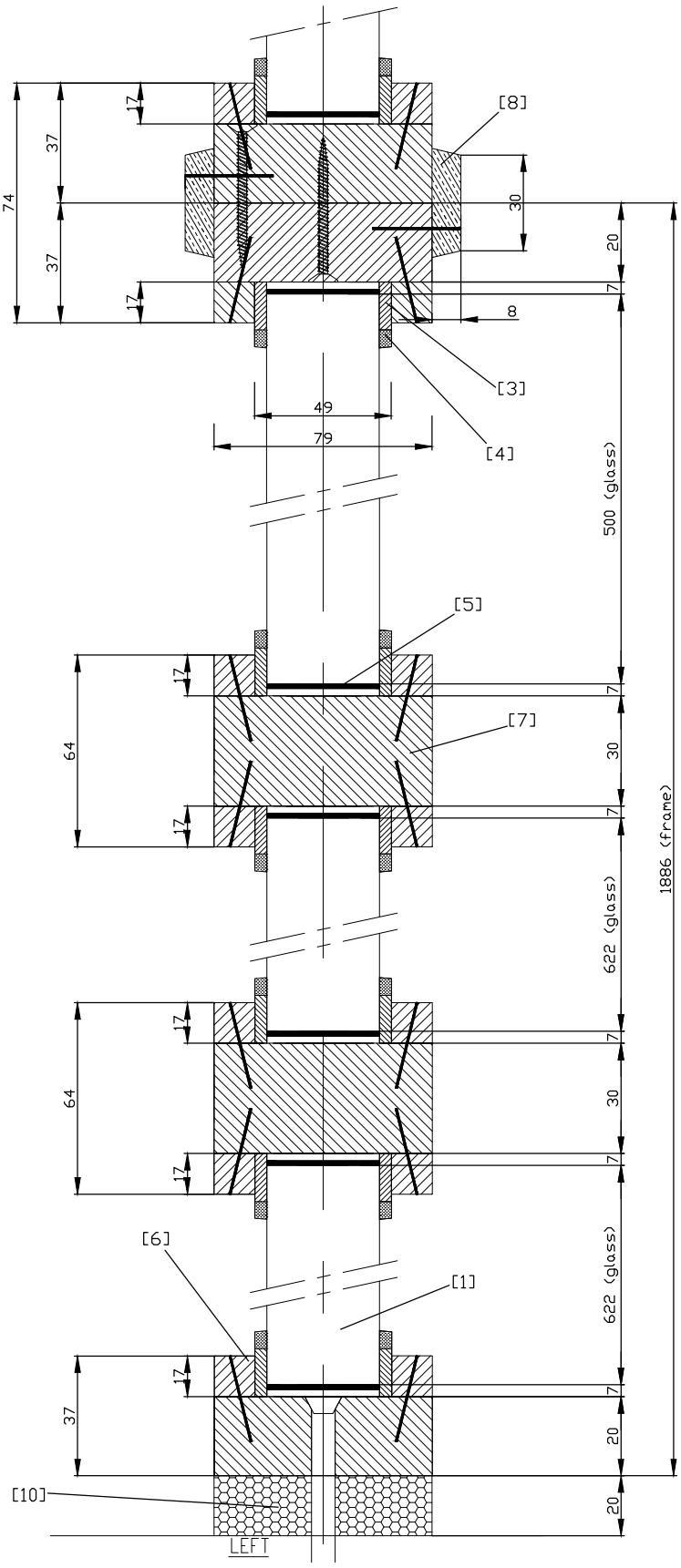


	G1-G2-G3-G4-G5-G6
Product	Pyrobel-T EW30-16 DGU
Structure	T6/4/T6-air 15-4:4
Nominal thickness	39.4 +/- 1.4
Fire side	on 4:4

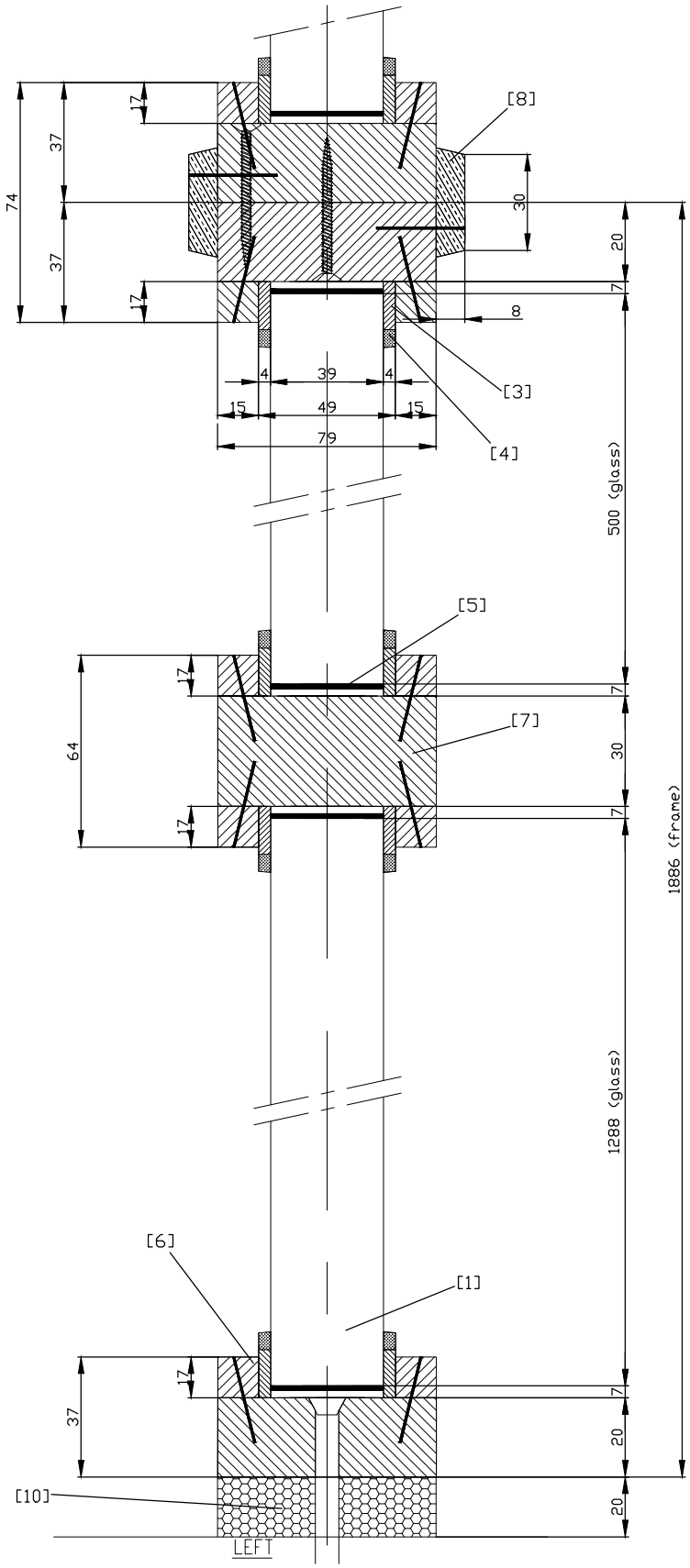
where T6 = 6mm toughened glass
4 = 4mm intumescent gel
air 15 = spacer 15 mm
4 = 4mm float glass
: = 0.76mm standard PVB

warringtonfire

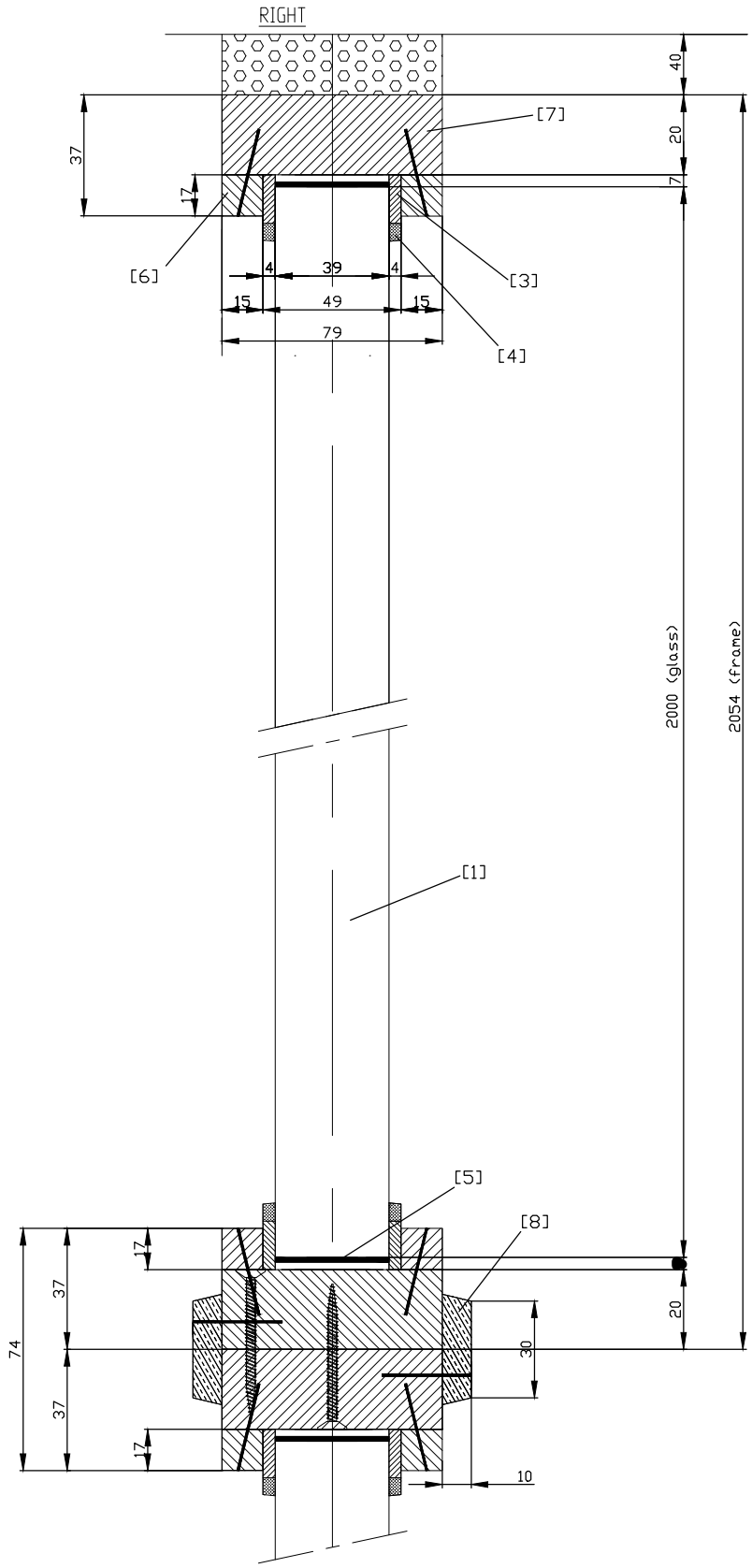
Section A-A - dimensions.



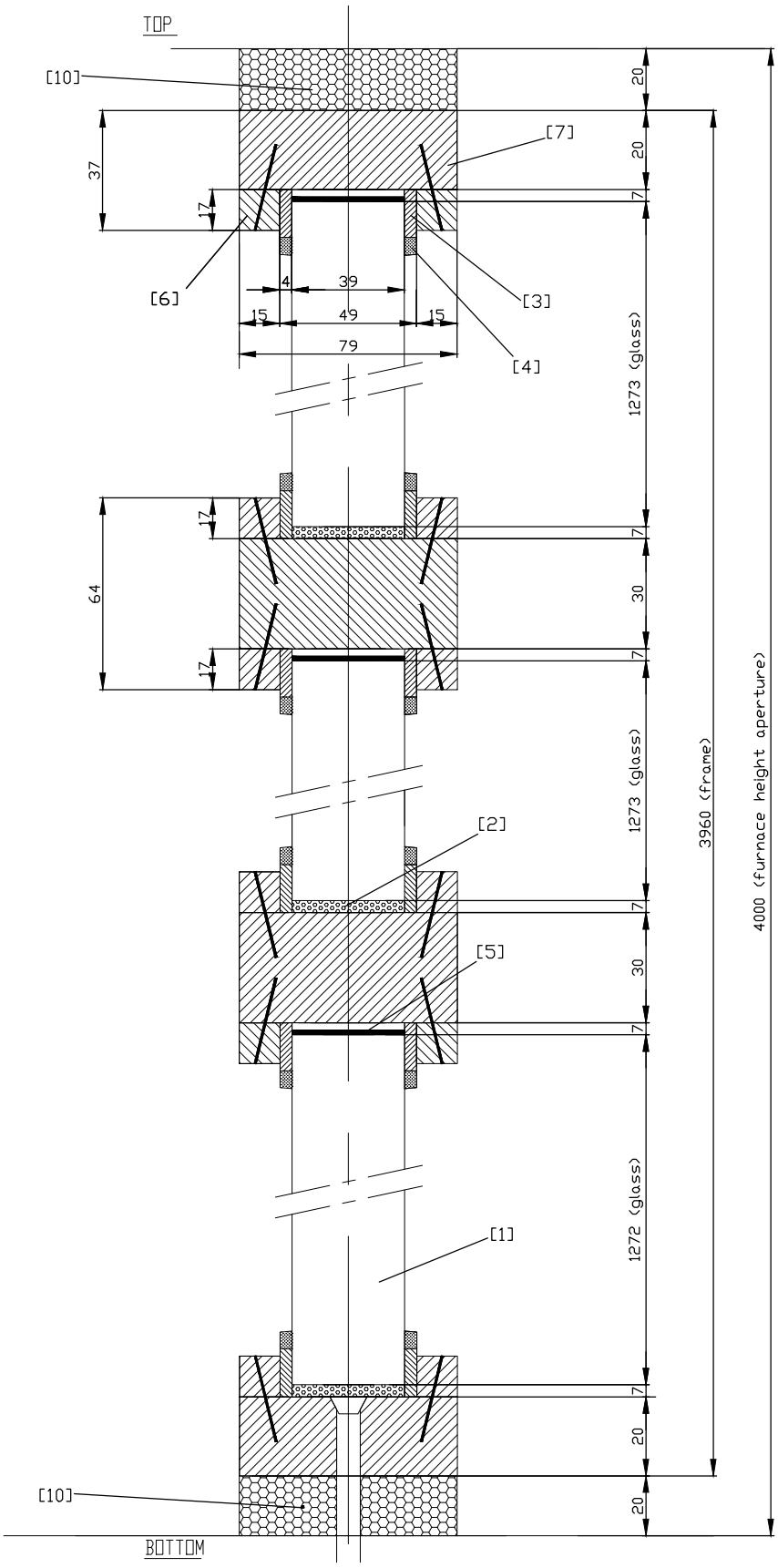
Section B-B - dimensions.



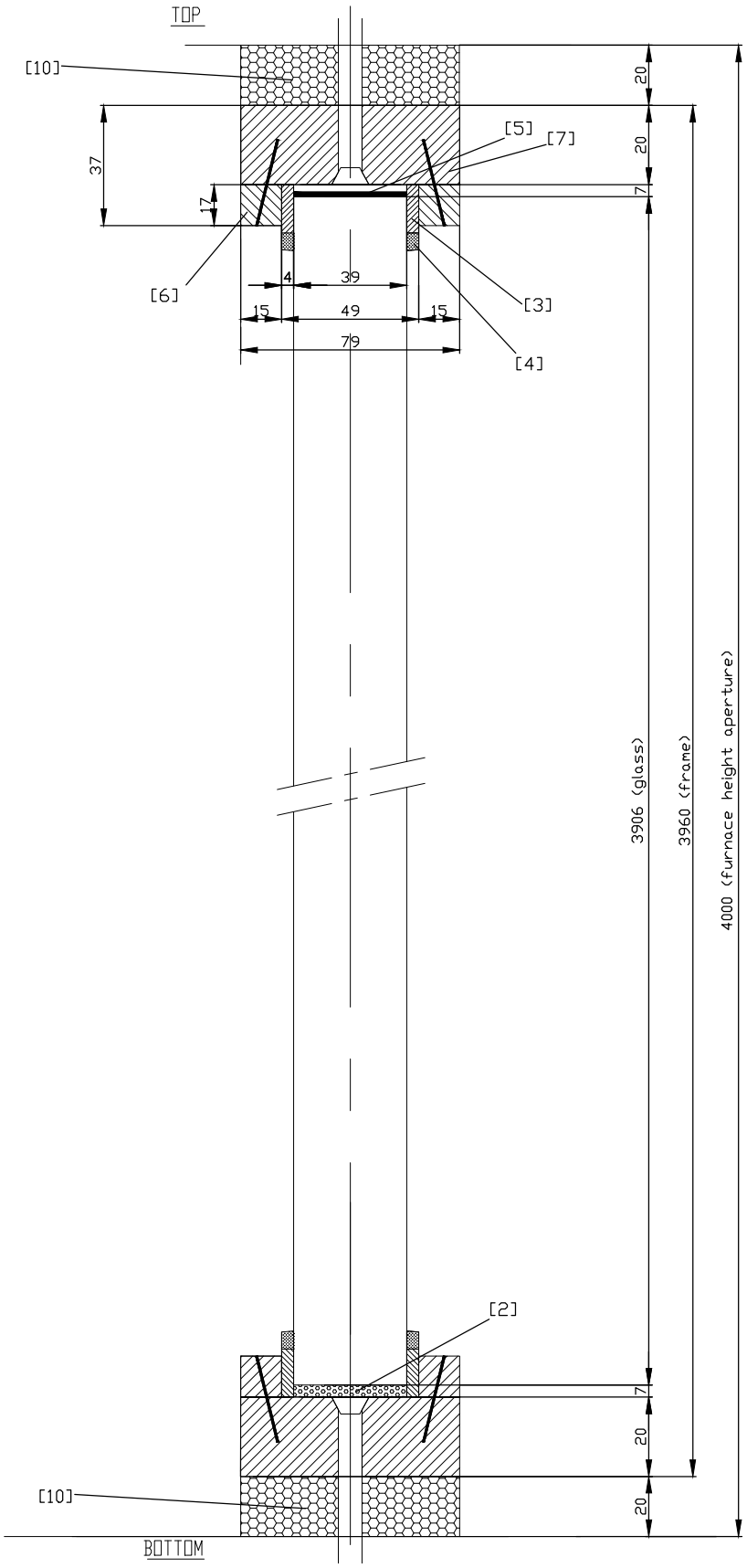
Section C-C - dimensions.



Section D-D - dimensions.



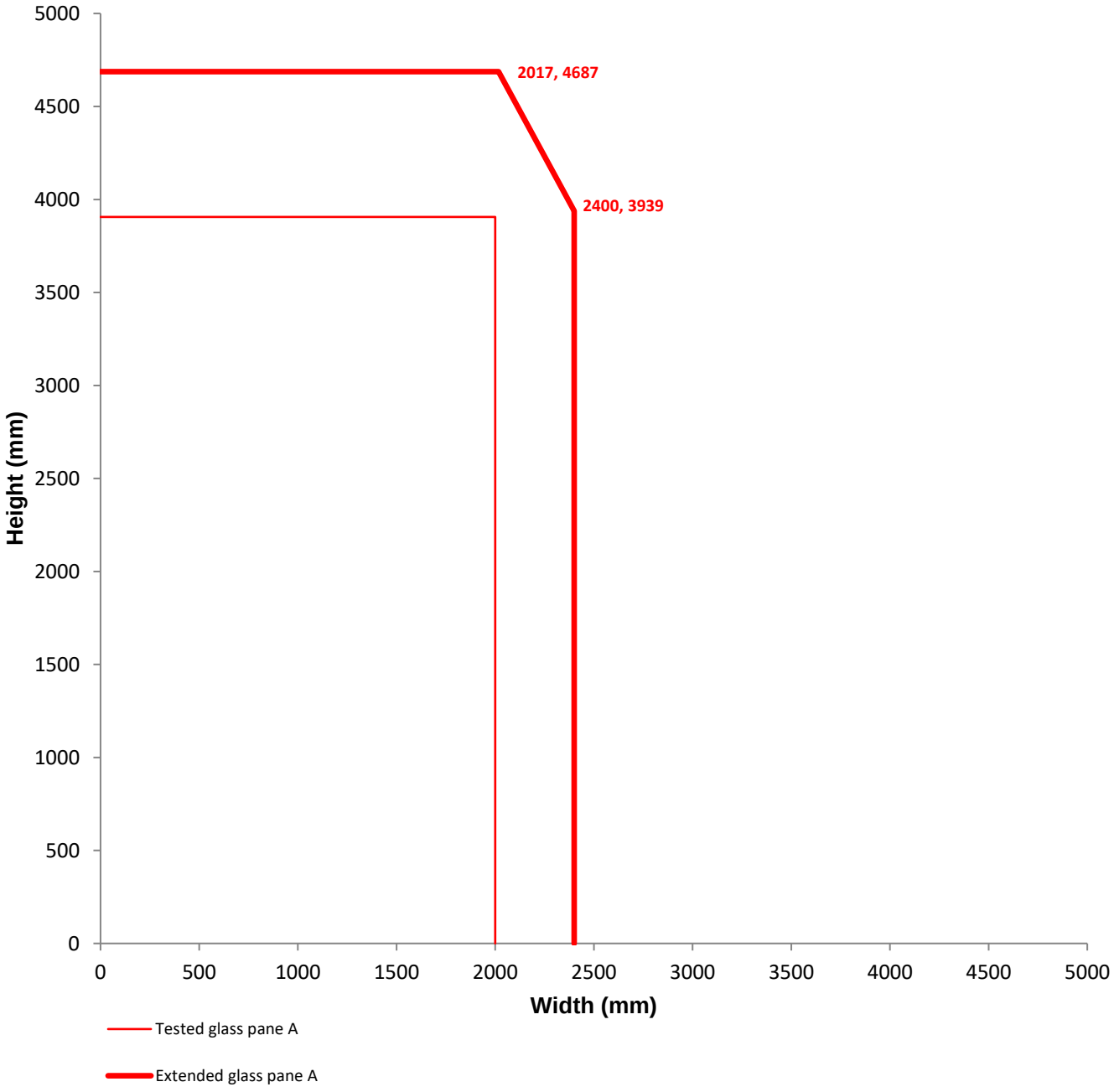
Section E-E - dimensions.



Individual rectangular glass panes: aspect ratio and increase in area

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

- EI 20, EI 15;
- EW 45, EW 30, EW 20, EW 15;
- E 45, E 30, E 20, E15.



Note:

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