FIRE RESISTANCE CLASSIFICATION REPORT No. 14263D

Owner of the classification report:

AGC Glass Europe sa
166, Chaussée de la Hulpe
B-1170 BRUSSELS
BELGIUM

Introduction:

This classification report defines the classification assigned to a non-loadbearing glazed wall – Pyrobel 17N in a timber frame – in accordance with the procedures given in EN 13501-2: 2007+A1:2009: Fire classification of products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services.

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

1 Details of classified product

1.1 General

The product is defined as a non-loadbearing wall – type: Pyrobel 17N in a timber frame. It is evaluated in respect of the fire performance characteristics given in clause 5 of EN 13501-2: 2007+A1:2009.

1.2 Product description:

The test element is fully described below in support of classification. The drawings of test report 14263A are enclosed in the annexes 1 till 5.

Composition of the tested glazed wall:

The unloaded glazed wall consists of glass panes in a timber frame.

1.2.1 Glazing system:

Glass pane – brand and type: Pyrobel 17N – thickness: 17 mm – nominal thickness of the glass: 17.8 ± 1.6 mm.

- fixation: clasped between the glazing beads of the timber frame.

Specimen:	Dimensions of the glass panes:	Dimensions of the exposed area:	Reference:
[1]	842 mm x 956 mm	798 mm x 912 mm	BX12865-03-502
[2]	600 mm x 956 mm	556 mm x 912 mm	BX12865-04-502
[3]	842 mm x 956 mm	798 mm x 912 mm	BX12865-03-501
[4]	600 mm x 956 mm	556 mm x 912 mm	BX12865-04-501
[5]	1498 mm x 850 mm	1454 mm x 806 mm	BX12865-02-501
[6]	1300 mm x 2874 mm	1256 mm x 2830 mm	BX12865-01-501

[7] Adjustment blocks for the glass panes – type: Promatect-H – dimensions: 70 mm x 17 mm x 5 mm – density: 960 kg/m³ (NV).

- position: under the glass panes.

[12] Glazing beads – material: Meranti – outer dimensions of the section: 30 mm x 27 mm – density: 550 kg/m³ (NV).

- position: on both sides of the glass panes.

- fixation:
  - with screws [13] – material: steel – diameter: 4 mm – length: 60 mm;
  - on the horizontal transom and the vertical mullions;
  - centre/centre distance: from 200 to 230 mm.

[15] Self-adhesive ceramic paper – type: Superwool X607 – outer dimensions of the section: 20 mm x 5 mm.

- position: between the glazing beads and the glass panes;
- fixation: self-adhesive on the timber glazing beads.

[16] Silicone kit – brand and type: Dow Corning – Firestop 700.

- position: sealing between the glass panes and the glazing beads.

1.2.2 Framing system:

[8] Frame – material: Meranti – density: 550 kg/m³ (NV) – section dimensions of the mullions and transoms: 33 mm x 87 mm – section dimensions of the intermediate mullions and intermediate transoms: 46 mm x 87 mm.

- fixation:
  - with concrete plugs [9] – material: steel – brand and type: Hilti 100 HT – diameter: 10 mm – length: 112 mm;
  - to the surrounding building structure;
  - centre/centre distance: 450 mm.

[10] Cover lath – material: Meranti – outside dimensions of the section: 45 mm x 12 mm – density: 550 kg/m³ (NV).

- fixation:
  - with screws [11] – material: steel – diameter: 3.5 mm – length: 35 mm;
  - to the mullions;
  - centre/centre distance: 300 mm (alternating from edge).

[14] Adjustment blocks for the frame – type: Promatect-H – dimensions: 100 mm x 50 mm x 20 mm – density: 960 kg/m³ (NV).

- position: between the timber frame and the floor connection of the building structure.

[17] Mineral wool – type: thermal insulation Insulfrax – compressed till approximately 20 mm.

- position: between timber frame and surrounding building structure.

2 Test report/extended application reports and test results in support of the classification

2.1 Test report/extended application reports

Name of the laboratory	Report ref. no.	Name of sponsor	Date of the test	Test method/ Field of extended application rules
WFRGENT nv	14263A	AGC Glass Europe sa	22/02/2010	EN 1364-1:1999 EN 1363-1:1999
WFRGENT nv	14263C	AGC Glass Europe sa	22/02/2010	EN 15254-4:2008+A1:2011

Exposure conditions during the fire resistance test:

Temperature/time curve: standard as in EN 1363-1:1999.

Direction of exposure:

- The framing system is symmetrical;
- The glazing system is symmetrical.

One side exposed to the fire.

No load is applied.

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

2.2 Test results

Parameter	Results
Load bearing capacity	Not applicable
Integrity	
Time of ignition of a cotton pad	No failure at test termination
Time of occurrence of sustained flaming	79 minutes
Time of failure of gap gauge criterion	No failure at test termination
Thermal insulation	
Time after which the mean temperature rise at the unexposed side exceeds 140 °C	50 minutes
Time after which the maximum temperature rise at the unexposed side exceeds 180 °C	49 minutes
Radiation	
Time after which the radiation intensity exceeds 15 kW/m²	No failure at test termination
Mechanical action	
No impact test	Not applicable

The test duration was 79 minutes.

3 Classification and field of application

3.1 Reference of classification

This classification has been carried out in accordance with clause 7.5.2 of EN 13501-2:2007+A1:2009.

3.2 Classification

The element is classified according to the following combinations of performance parameters and classes as appropriate. No other classifications are permitted.

The classification is valid for both directions of exposure as described in clause 2.1.

EI 45, EI 30, EI 20, EI 15

EW 60, EW 30, EW 20

E 60, E 30, E 20

3.3 Direct field of application

This classification is valid for the following end use applications according to EN 13501-2:2007+A1:2009 and EN 1364-1:1999.

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. Other changes are not permitted.

a) Unlimited decrease and increase in the wall width.
b) Unlimited decrease in the wall height of 3 m.
c) Decrease in linear dimensions of the panes.
d) Change in the aspect ratio of the panes provided that the largest dimension of the pane and its area are not increased.
e) Decrease in the distance between vertical mullions and horizontal transoms.
f) Decrease in distances between fixing centres.
g) Increase in the dimensions of framing members.
h) Allowances for expansion if none were incorporated in the test specimen.

3.4 Extended field of application

This classification is valid for the following end use applications according to EN 15254-4: 2008+A1:2011.

The results of the fire test are directly applicable to similar constructions where one or more of the changes listed below are made. Other changes are not permitted.

The justification and the calculations are given in the extended application report no.14263C.

3.4.1 Exchange of the fire resistant glass

The Pyrobel 17N glass panes can be replaced by thicker symmetrical Pyrobel *xx*N glass panes, considering the rules listed in extended application report no. 14263C.

(*xx*: nominal thickness of the pane)

3.4.2 Asymmetrical fire resistant glass

The fire resistant glass is symmetrical and can be used in both directions.

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

The maximum dimensions of the rectangular, triangular and four sided shaped glass panes are represented by the thickest lines in annexes 6 and 7 of this classification report, for the indicated E and EI classifications.

The maximum dimensions of the other non rectangular glass panes are represented by the thinnest lines in annexes 6 and 7 of this classification report, for the indicated E and EI classifications.

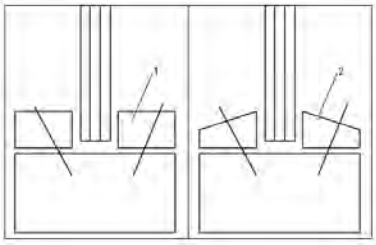
3.4.4 Individual panes in a wall: radiation

The maximum dimensions of the rectangular, triangular and four sided shaped glass panes are represented by the thickest lines in annex 6 of this classification report, for the indicated EW classifications.

The maximum dimensions of the other non rectangular glass panes are represented by the thinnest lines in annex 6 of this classification report, for the indicated EW classifications.

3.4.5 Exchange of timber glazing beads

- In all cases, the exchange of timber species should be on the basis of density and/or comparative char rate tests (when available), calculations according to EN 1395-1-2 or reference values. These shall demonstrate that the fire performance of the replacement timber bead is either the same or better than that used in the reference test.
- For EI classification of fire resistant glazed elements, exchange of the bead profile from a sloped or chamfered bead to a flat bead of the same height is allowed.
- The bead depth may be increased without restraint: the bead depth must be at least 30 mm.



Principal drawing 1

3.4.6 Bead surface coverings

Decorative surface coverings of the glazing beads may be added provided it can be demonstrated that the covering material achieves at least Class A2 when tested according to EN 13501-1. In addition it must be shown that they do not adversely affect the fire performance of the fire resistant glazed element, e.g. in the case of replacement of coverings that provide a contribution to insulation performance.

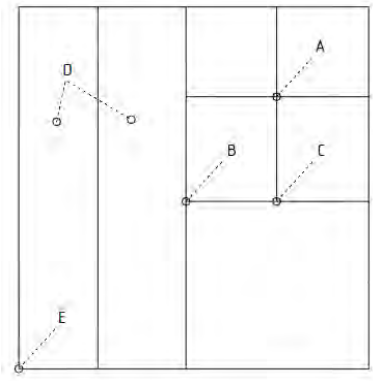
3.4.7 Asymmetrical framing systems

The framing system is completely symmetrical, so it can be used in both directions.

3.4.8 Exchange of frames

Frames can be manufactured using some or all of the tested junction types:

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: two full panes side by side (horizontal and vertical) is not allowed;
Type E: corner junction.



Principal drawing 2

3.4.9 Timber frames

Exchange of the type of timber species used for the frame is allowed for fire resistant glass from the same glass product group as follows:

- timber with the same or higher density and/or moisture content, with the same or lower char rate and identical profile: the density must have at least a nominal value of 550 kg/m³;
- increased thickness of the frame: the thickness of the frame must be at least 87 mm.

3.4.10 Frame surface coverings

Decorative surface coverings of the framing members may be added provided it can be demonstrated that the covering materials achieves at least Class A2 when classified according to EN 13501-1. In addition it must be shown that they do not adversely affect the fire performance of the fire resistant glazed element, e.g. in the case of replacement of coverings that provide a contribution to the insulation performance.

3.4.11 Increase in overall dimensions and area of the partition

The maximum dimensions of the fire resistant glazed partition are represented by the thickest lines in annexes 8 and 9 of this classification report, for the indicated E and EI classifications.

3.4.12 Increase in dimensions for fire glazed partitions: radiation

The maximum dimensions of the fire resistant glazed partition are represented by the thickest lines in annex 8 of this classification report, for the indicated EW classifications.

3.4.13 Replication of the fire resistant glazed partition with reference to radiation

A wider construction achieved by replicating the fire resistant glazed partition as tested, by adding more units of the same fire resistant glazed partition side by side is allowed for all the classification times listed in §3.2 of this classification report.

3.4.14 Changing in installation angle

A change in the angle of installation of up to +/- 10 degrees from the vertical is allowed. No further increase in the installation angle is allowed.

4 Duration of the validity of the classification report

At the time the standard EN 13501-2:2007+A1:2009 was published, no decision was made concerning the duration of validity of the classification document.

5 Warning

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

SIGNED

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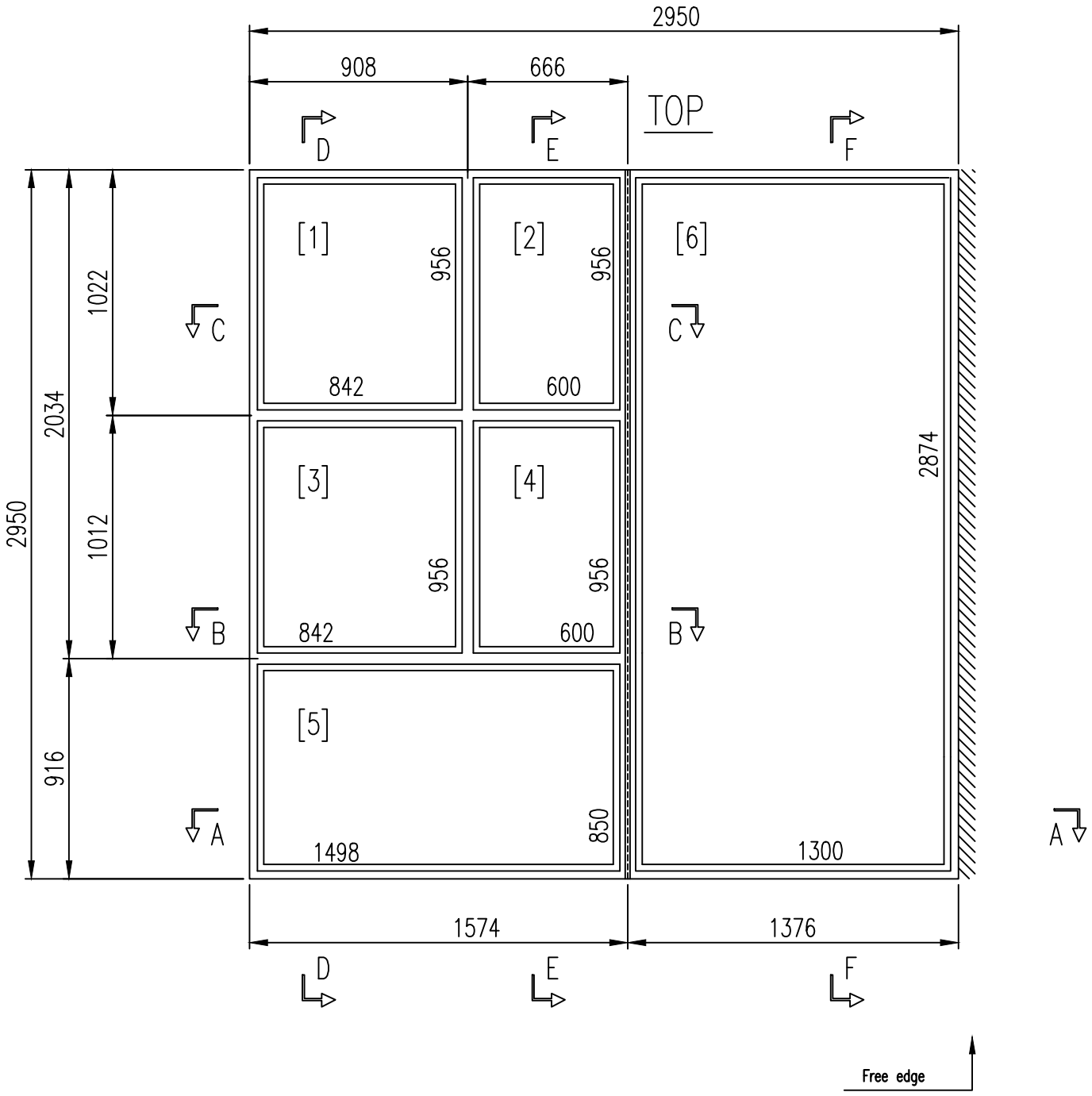
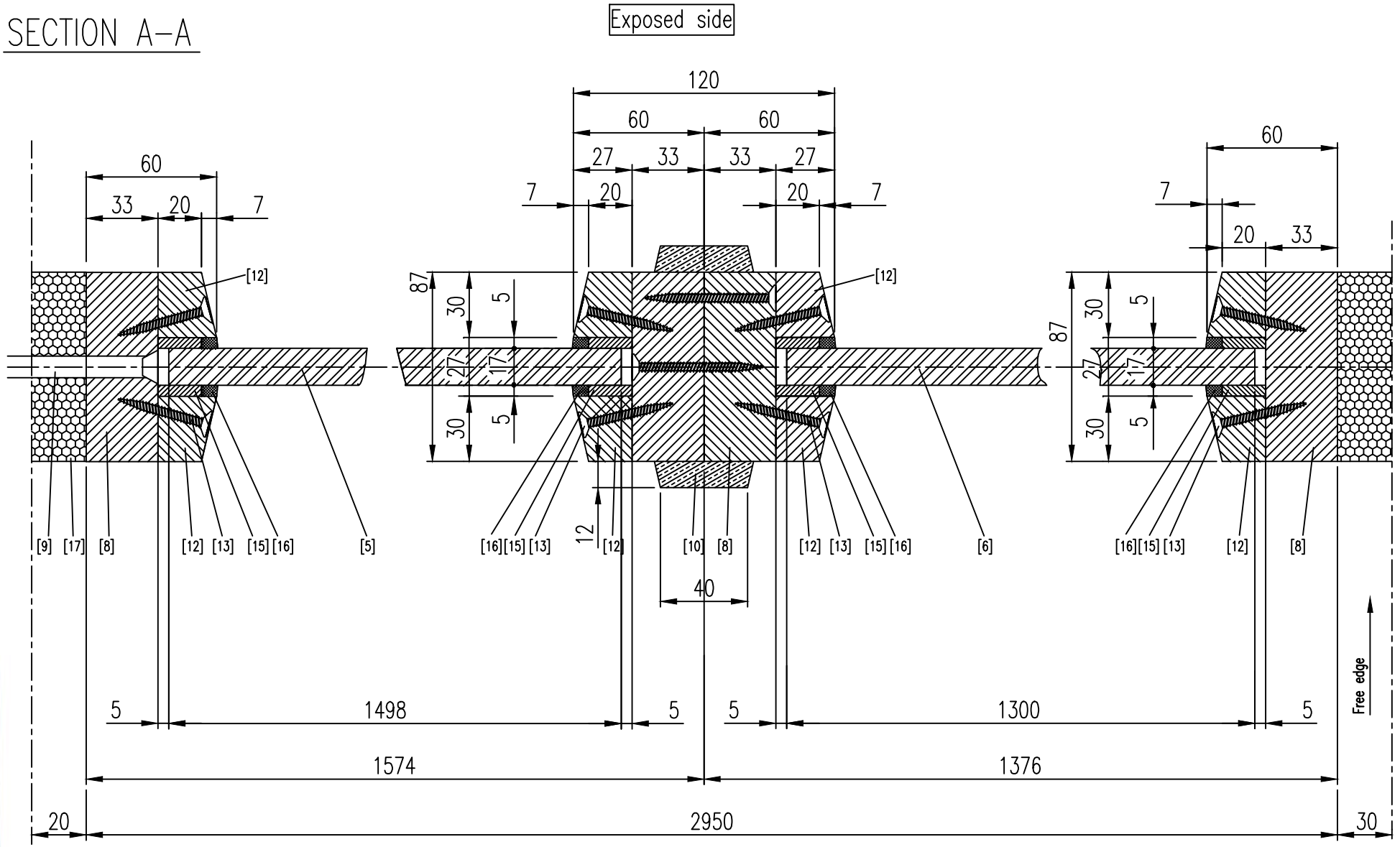
This document is the original version of this classification report and is written in English.

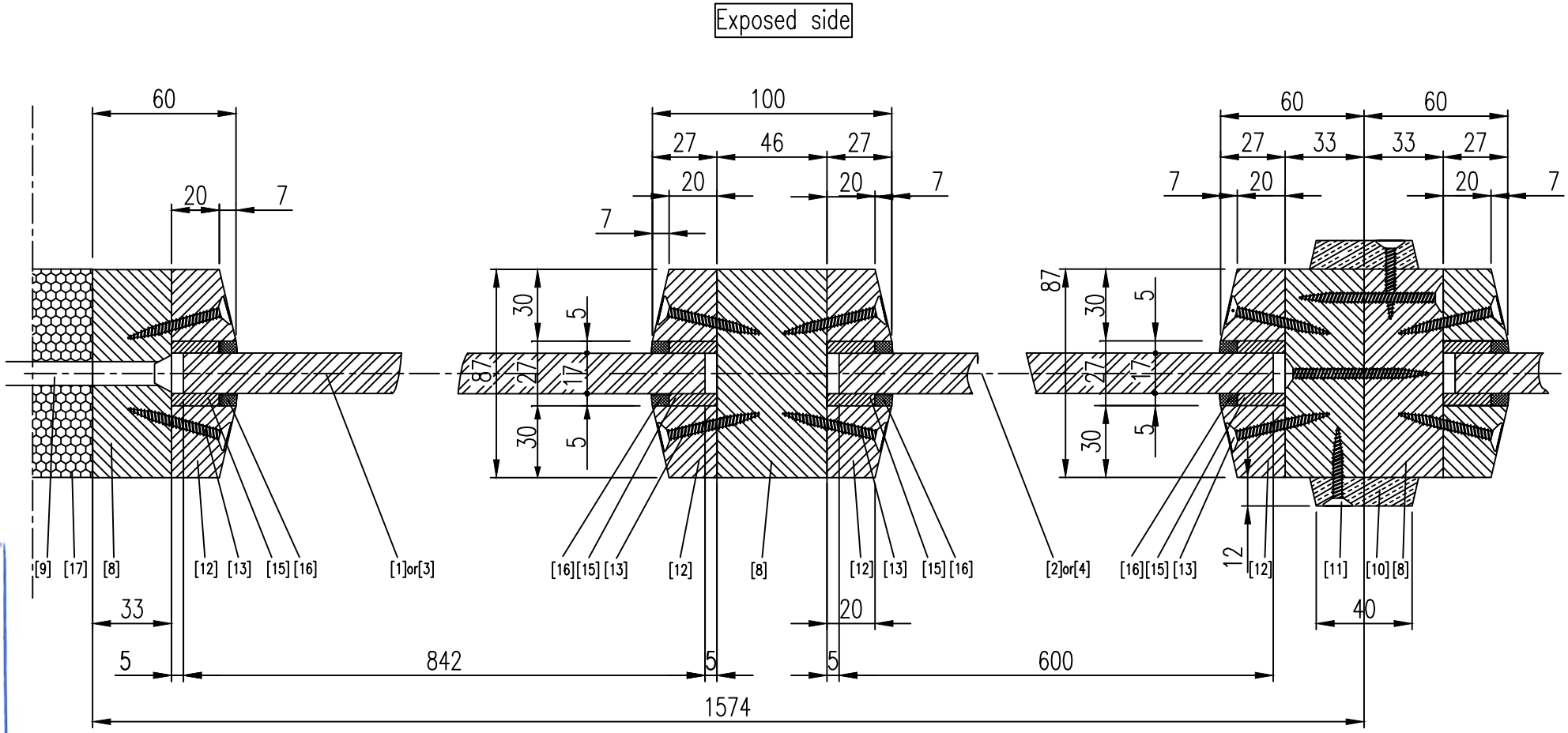
Front view – unexposed side – dimensions.



SECTION A–A



SECTIONS B–B AND C–C



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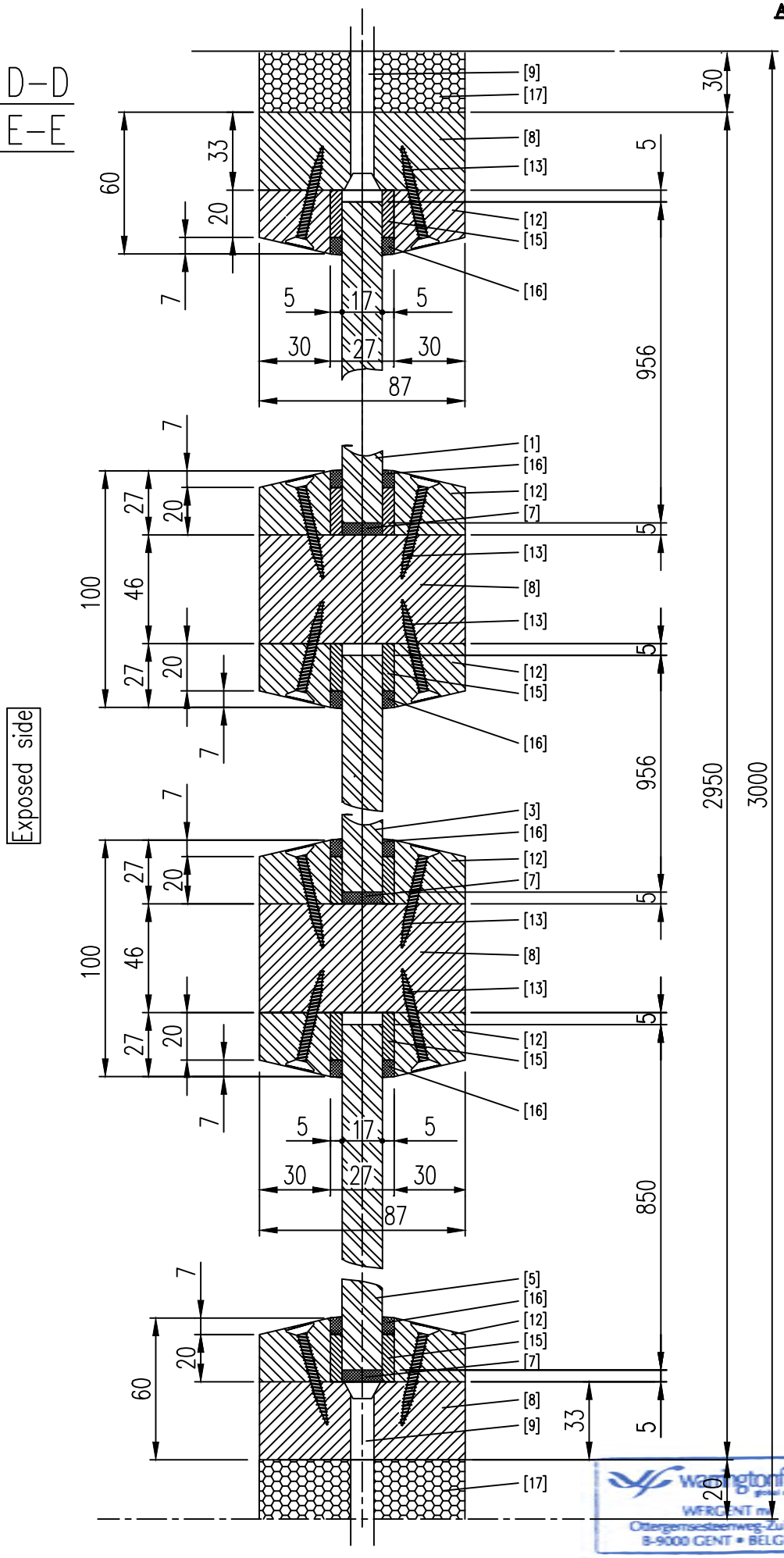
SECTION E–E



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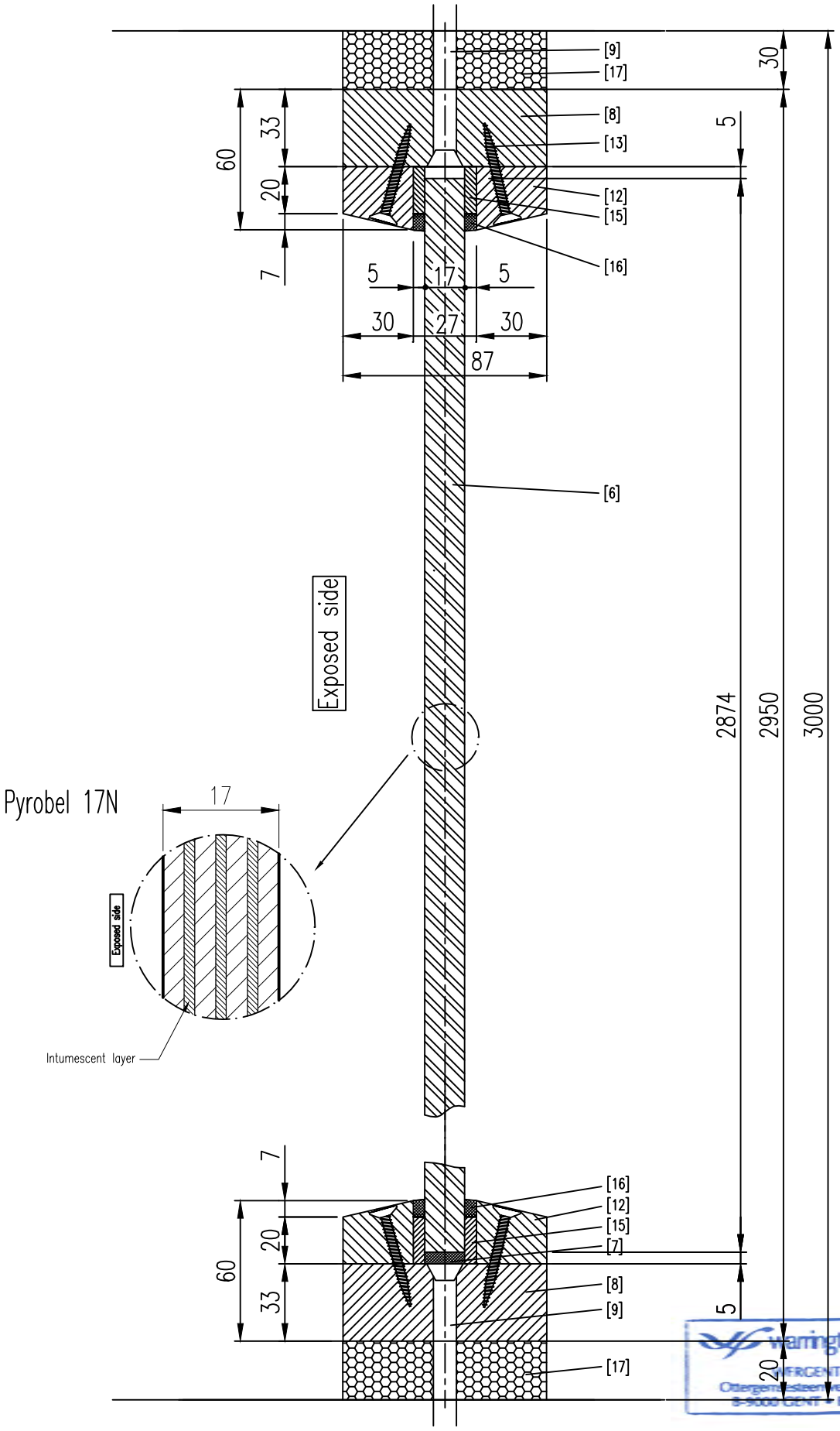
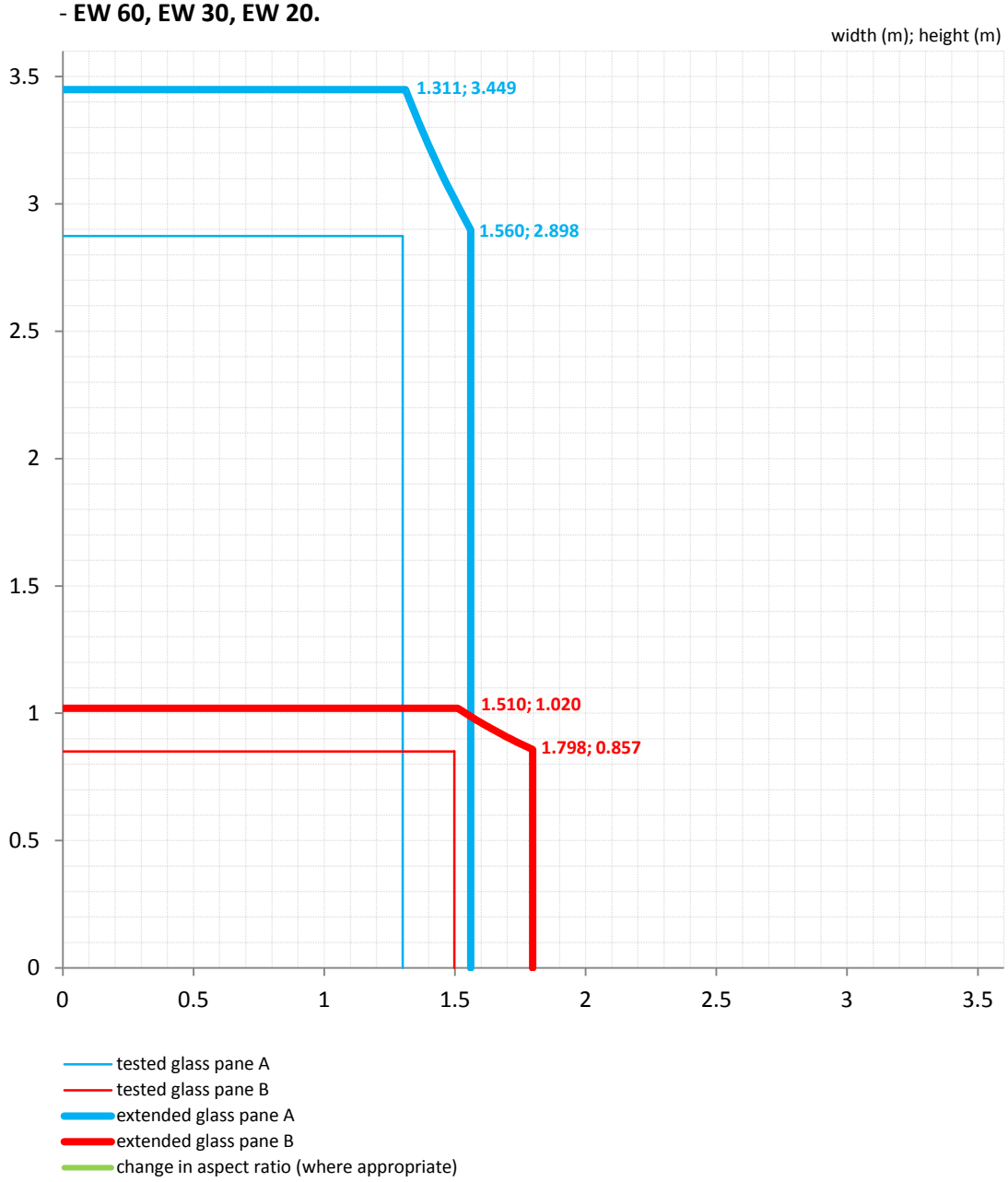


Individual rectangular glass panes: aspect ratio and increase in area

The extended dimensions are only valid for the following classifications:

- **EI 30, EI 20, EI 15;**
- **E 60, E 30, E 20;**
- **EW 60, EW 30, EW 20.**

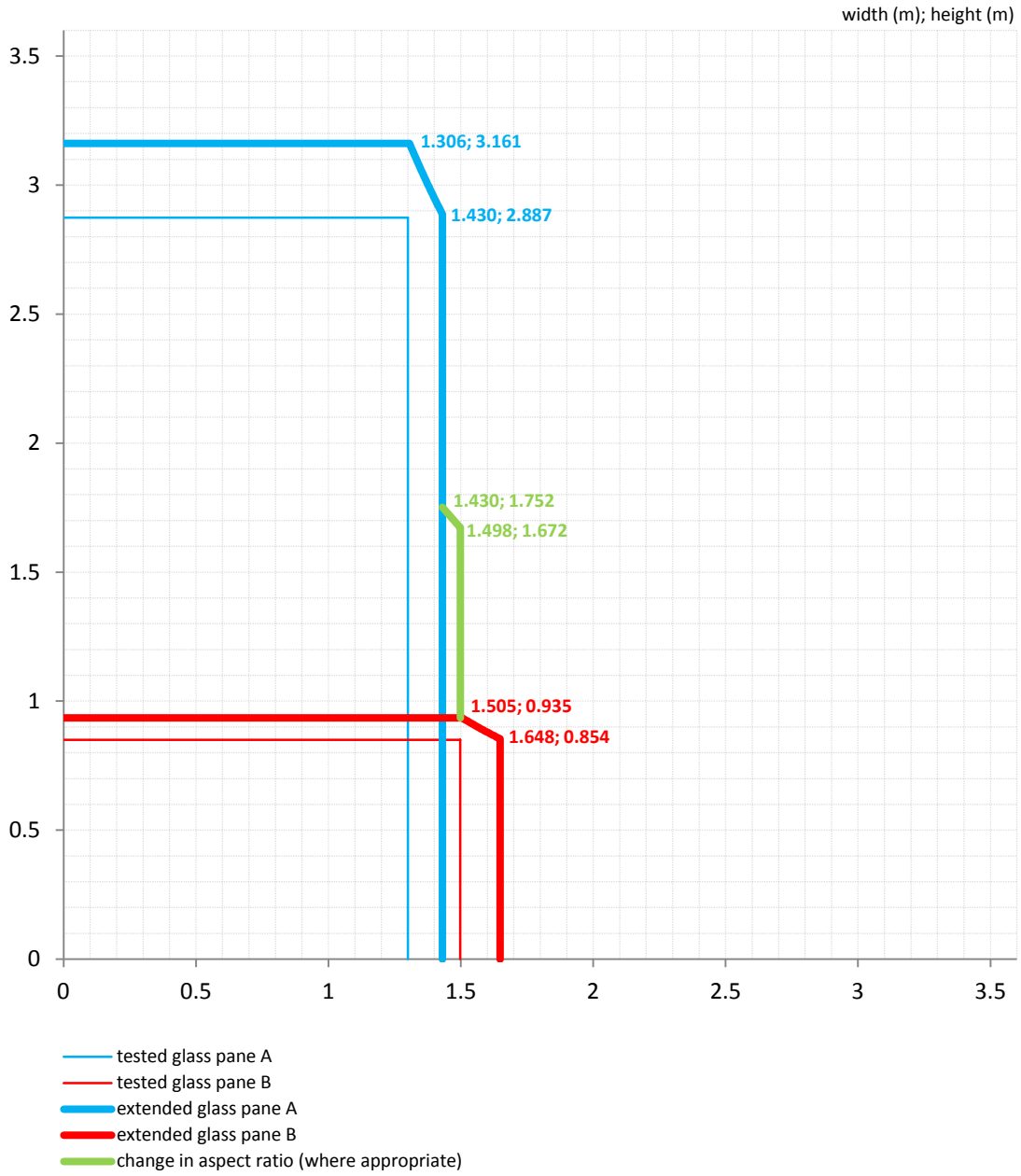


Note:

The maximum dimensions of the rectangular, triangular and four sided shaped glass panes are represented by the thickest lines (extended dimensions). The maximum dimensions of the other non rectangular glass panes are represented by the thinnest lines (tested dimensions).

Individual rectangular glass panes: aspect ratio and increase in area

The extended dimensions are only valid for the following classifications:
- **EI 45**.

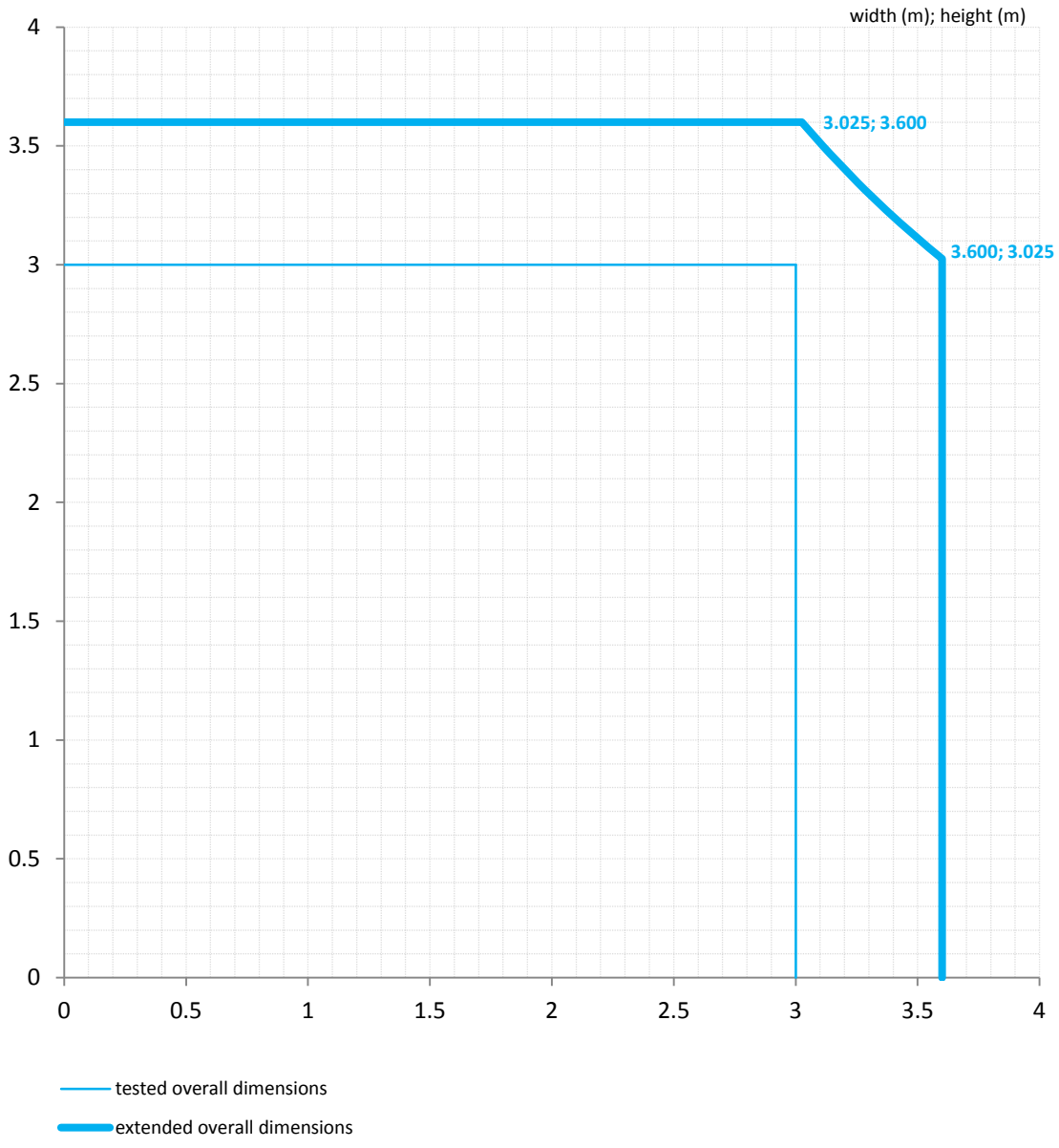


Note:

The maximum dimensions of the rectangular, triangular and four sided shaped glass panes are represented by the thickest lines (extended dimensions). The maximum dimensions of the other non rectangular glass panes are represented by the thinnest lines (tested dimensions).

Increase in overall dimensions and area of the partition as a whole

The extended dimensions are only valid for the following classifications:
- **EI 30, EI 20, EI 15;**
- **E 60, E 30, E 20;**
- **EW 60, EW 30, EW 20.**

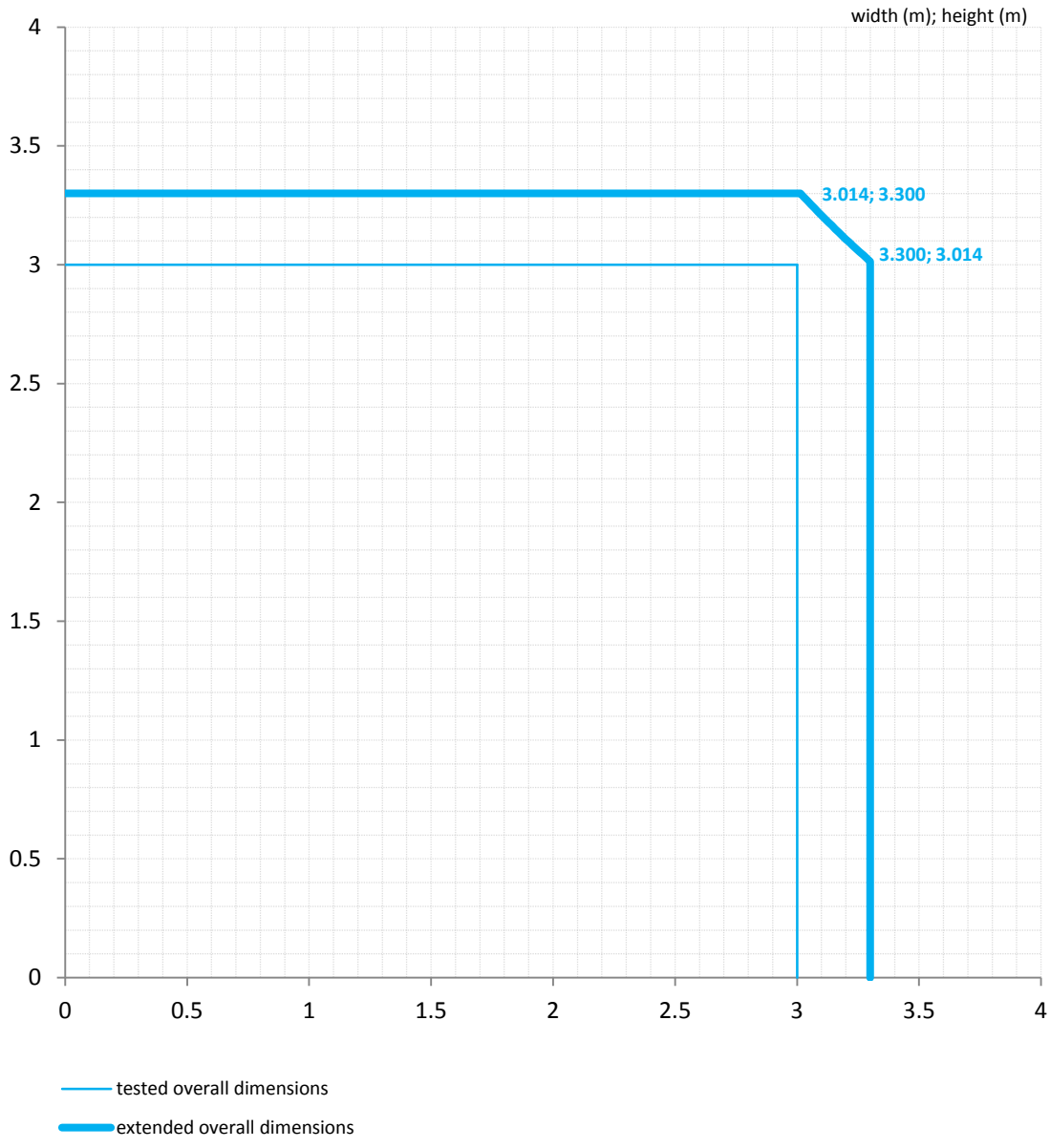


Note:

The maximum overall dimensions of the fire resistant glazed partition are represented by the thickest lines. A wider construction achieved by replicating the extended fire resistant glazed element is allowed.

Increase in overall dimensions and area of the partition as a whole

The extended dimensions are only valid for the following classifications:
- **EI 45**.



Note:

The maximum overall dimensions of the fire resistant glazed partition are represented by the thickest lines. A wider construction achieved by replicating the extended fire resistant glazed element is allowed.