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FIRE RESISTANCE CLASSIFICATION REPORT No. 14462B

Owner of the classification report:

AGC Glass Europe S.A.
166, Chaussée de la Hulpe
B-1170 BRUSSELS

Introduction:

This classification report defines the classification assigned to a glazed non-loadbearing wall – Pyrobelite 12 IGU_Timber frame_silicone – 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 eight pages and five 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 glazed non-loadbearing wall – Pyrobelite 12 IGU_Timber frame_silicone. 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 in the test report provided in support of this classification listed in Clause 2.1. The drawings of this test report are enclosed in annexes 1 till 5.

Composition of the glazed wall:

The asymmetrical glazed wall is constituted of:

- glass panes [1], [2], [3], [4], [5] and [6];
- a timber frame.

1.2.1 Glass panes

Glass pane – brand and type: Pyrobelite 12 IGU – thickness: 36 mm (MV) – nominal thickness: 36.0 mm ± 2.0 mm.

- fixation: clasped between the glazing beads.
- orientation: the panes are asymmetrical with the "Pyrobel 12" layer at the exposed side.

Specimen:	Dimensions of the glass panes:	Dimensions of the exposed area:	Reference:
[1]	977 mm x 956 mm	933 mm x 912 mm	CM19024-03-501
[2]	650 mm x 956 mm	606 mm x 912 mm	CM19024-04-501
[3]	977 mm x 956 mm	933 mm x 912 mm	CM19024-03-502
[4]	650 mm x 956 mm	606 mm x 912 mm	CM19024-04-502
[5]	1683 mm x 850 mm	1639 mm x 806 mm	CM19024-02-501
[6]	1100 mm x 2874 mm	1056 mm x 2830 mm	CM19024-01-501

[7] Adjustment blocks for the glass panes – type: Promatect-H – dimensions: 70 mm x 36 mm x 5 mm – volumetric mass: 960 kg/m³ (NV).

- number: 2 per glass pane.
- position: under the glass panes.

1.2.2 Frame

The timber frame is composed of units screwed to one another. The joint between those units is covered with timber laths at the exposed and unexposed side.
One unit consists of transoms, mullions, intermediate transoms and intermediate mullions so that the unit is divided in several parts. Another unit consists of transoms and mullions.
Glazing beads are screwed at the exposed and unexposed side of the frame.

[8] Transoms and mullions – material: Meranti – volumetric mass: 550 kg/m³ (NV) – section dimensions: 33 mm x 106 mm.
- fixation to the adjacent building structure:
  - with concrete plugs [9] – material: steel – brand and type: Hilti 100 HT – diameter: 10 mm – length: 112 mm;
  - centre/centre distance: 500 mm.
- fixation of the two units:
  - with screws [10] – material: steel – diameter: 5 mm – length: 60 mm;
  - centre/centre distance: 500 mm.

[11] Intermediate transoms and intermediate mullions – material: Meranti – volumetric mass: 550 kg/m³ (NV) – section: 46 mm x 106 mm.
- glued to the adjoining (intermediate) transoms and (intermediate) mullions.

[12] Cover lath – material: Meranti – outside dimensions of the section: 46 mm x 12 mm – volumetric mass: 550 kg/m³ (NV).
- fixation:
  - with screws [13] – material: steel – diameter: 3.5 mm – length: 35 mm;
  - to the middle mullions;
  - centre/centre distance: 300 mm (alternating from edge).

[14] Glazing beads – material: Meranti – outer dimensions of the section: 30 mm x 27 mm – volumetric mass: 498 kg/m³ (MV).
- position: on both sides of the glass panes.
- fixation:
  - with screws [15] – material: steel – diameter: 4 mm – length: 60 mm;
  - to the horizontal transoms and vertical mullions;
  - centre/centre distance: 200 to 230 mm.

[16] Adjustment blocks for the frame – type: Promatect-H – dimensions: 200 mm x 65 mm x 25 mm – volumetric mass: 960 kg/m³ (NV).
- centre/centre distance: approximately 500 mm.
- position: between the timber frame and the adjacent building structure at the lower horizontal edge.

1.2.3 Finishing

[17] 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.

[18] Silicone kit – brand and type: Dow Corning Firestop 700.
- position: sealing between the glass panes and the glazing beads.

[19] Mineral wool – type: thermal insulation Insulfrax – compressed till approximately 25 mm – initial density: 96 kg/m³.
- position: between timber frame and the adjacent building structure.

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2 Test report and test results in support of this classification

2.1 Test report

Name of laboratory that undertook the test	Identification number of test report	Owner of test report	Date of test	Test method
WFRGENT N.V.	14462A	AGC Glass Europe S.A.	28/06/2010	EN 1364-1: 1999 EN 1363-2: 1999

Exposure conditions during the fire resistance test:

Temperature/time curve: external fire exposure curve as in EN 1363-2:1999.
Direction of exposure: the timber framework is a symmetrical construction.
The glass panes are asymmetrical; the "Pyrobel 12" layer is orientated to the fire .
One side exposed to the fire.
No load is applied.
One vertical edge is free, the other edges are fixed.

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2.2 Test results

Parameter	Results
Loadbearing capacity	Not applicable
Integrity	
Time of ignition of cotton pad	No failure at test termination
Time of occurrence of sustained flaming	No failure at test termination
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	62 minutes
Time after which the maximum temperature rise at the unexposed side exceeds 180 °C	111 minutes
Radiation	
Time after which the radiation exceeds 15 kW/m²	No failure at test termination (*)
Mechanical action	
No impact test	Not applicable

(*) No failure at test termination in case of infinite width extension of the glazed wall (see Test report 14462A – Annex 10).

The test duration was 132 minutes.

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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 only valid for the direction as described in clause 2.1: the "Pyrobel 12" layer is orientated to the fire.

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

3.3 Field of direct 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.

- unlimited decrease in the wall width.
- unlimited increase in the wall width*.
- unlimited decrease in the wall height of 3 m. No extension in height is allowed above 3 m.
- decrease in linear dimensions of the panes.
- change in the aspect ratio of the panes provided that the largest dimension of the pane and its area are not increased.
- decrease in the distance between vertical mullions and horizontal transoms.

- decrease in distances between fixing centres.
- increase in the dimensions of framing members.
- allowances for expansion if none were incorporated in the test specimen.
- change in the angle of installation of up to 10° from the vertical.

* the radiation intensity for an increased width till +∞ meters remains below 15kW/m². The calculated values are shown in test report 14462A – Annex 10.

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

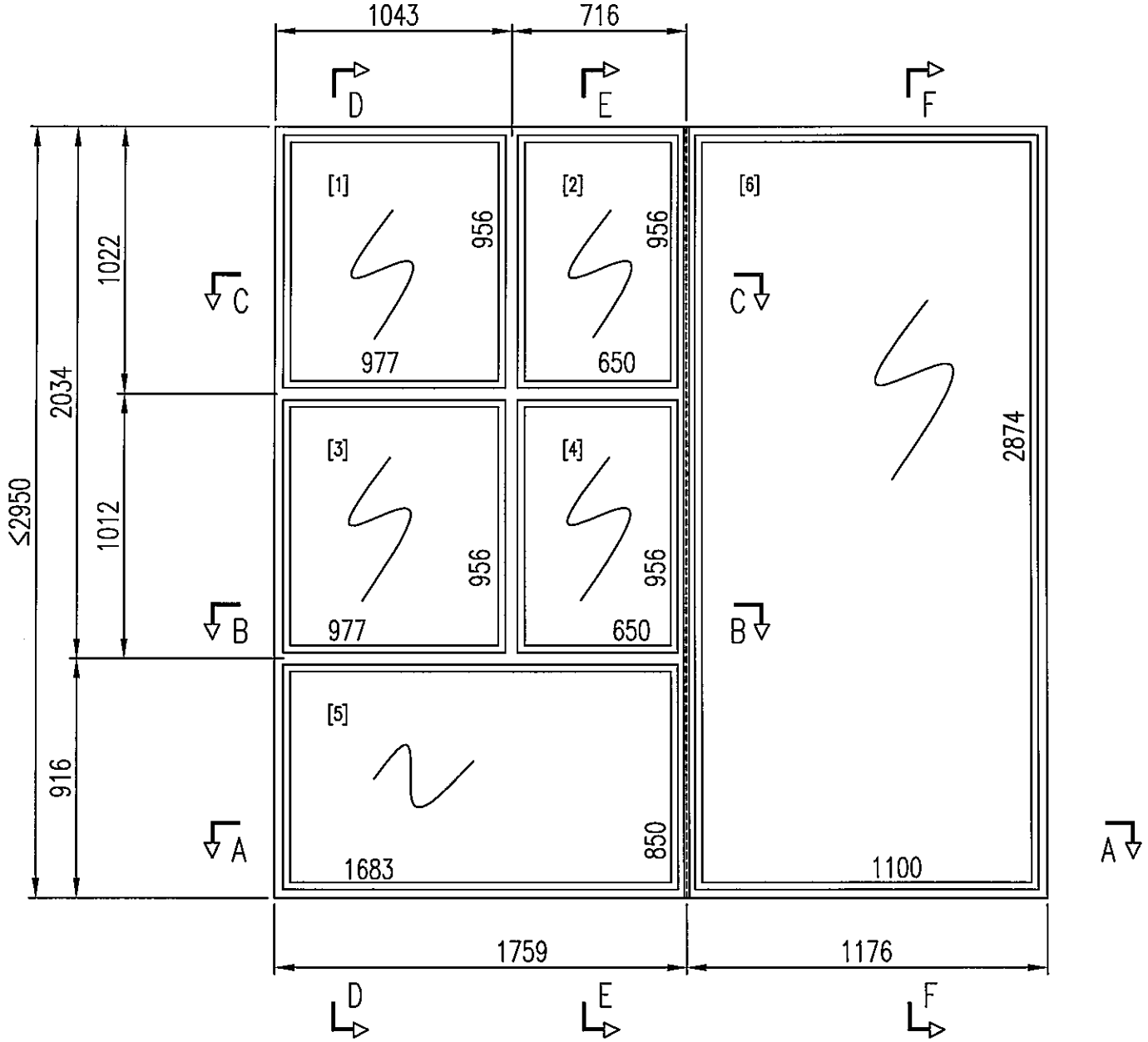
This classification document does not represent type approval nor certification of the product.

Report	Name	Signature*	Date
Prepared by	P. TACK		18 AUG 2010
Reviewed by	Prof. dr. ir. P. VANDEVELDE		18 AUG 2010
* For and on behalf of WFRGENT N.V.			

EN 13501-2 FSG REC 017-version 1

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

Front view – unexposed side – dimensions.



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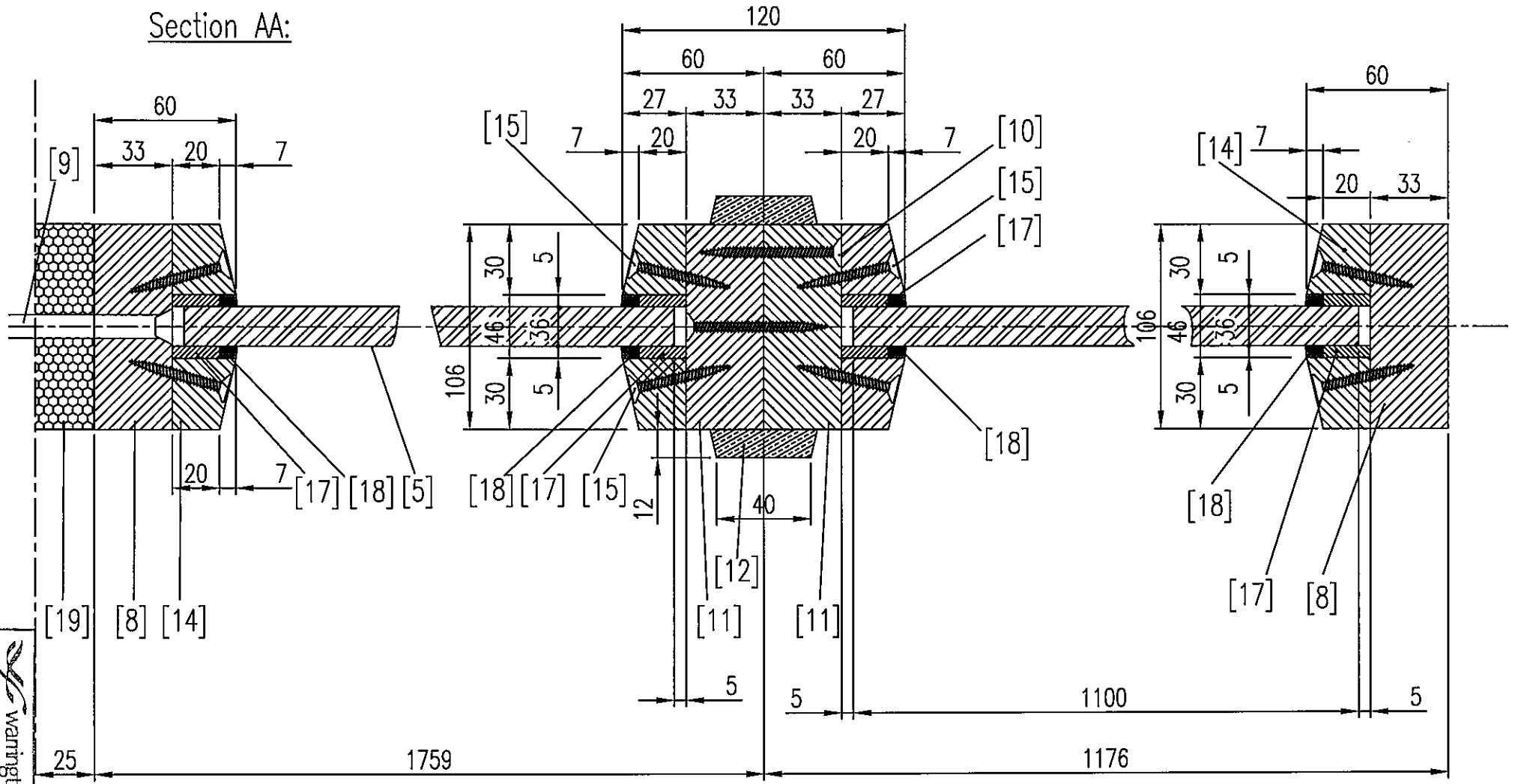

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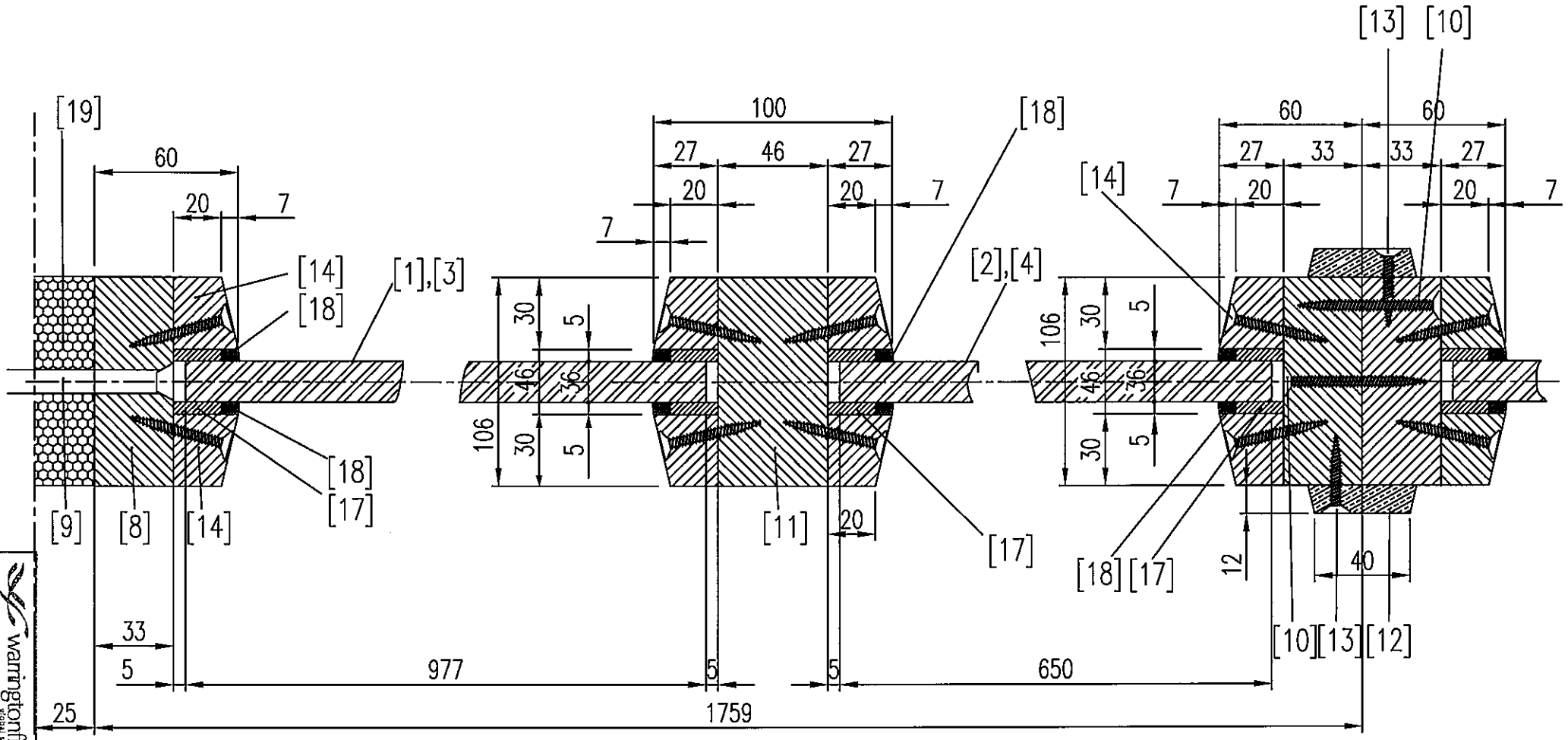
Sections BB and CC:



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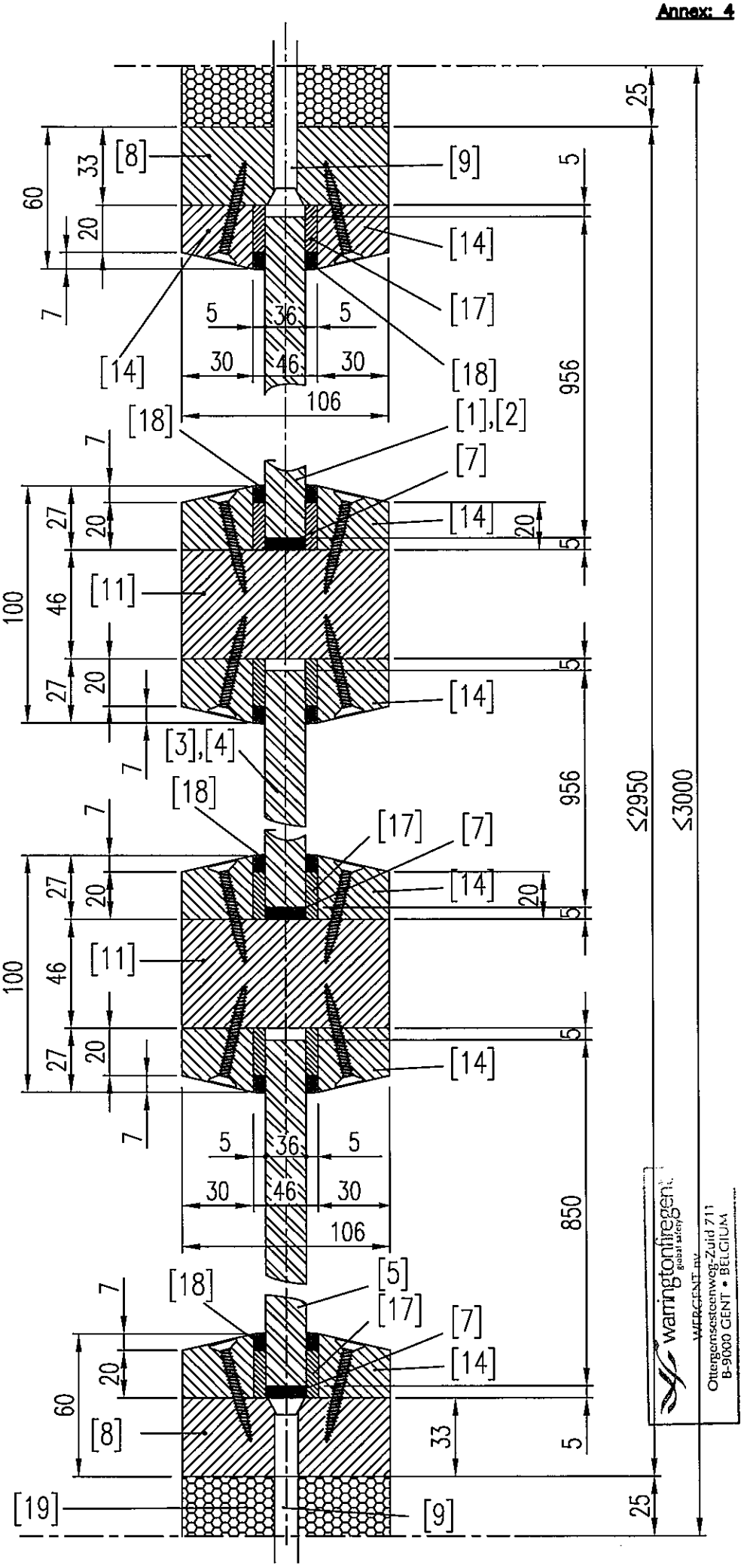
Sections DD and EE:



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Section FF: