CLASSIFICATION REPORT EFR-24-005117 - CR

Issuing body	EFECTIS France Espace Technologique Bâtiment Explorer Route de l'Orme des Merisiers 91190 SAINT-AUBIN | FRANCE
Notified body	1812
Concerning	Glazed partition wall from the serie VISS FIRE (JANSEN) in line. Glazing: Pyrobel-T EI30-18 (AGC) Pyrobel-T EI30-18 TGU (AGC)
Sponsor	AGC GLASS EUROPE 4, Avenue Jean Monnet B - 1348 LOUVAIN-LA-NEUVE BE0413.638.187

1. SCOPE

This fire resistance classification report defines the classification assigned to the component VISS FIRE (JANSEN) according to the paragraph 7.5.2 of the standard EN 13501-2 : 2023.

The element is classified for the first time.

2. CLASSIFIED PRODUCT DETAILS

Its function is to resist fire according to the characteristic fire performance of clause 5 of standard EN 13501-2: 2023 from the inside to the outside or vice versa. The classification is made for both direction of fire (i ->o and o ->i).

The classification includes horizontal and vertical connections.

The element is described below in test reports mentioned in the paragraph 3. to prove the classification.

3. TEST REPORTS / EXTENDED FIELD OF APPLICATION REPORT

3.1. REFERENCE DOCUMENTS

Laboratory	Sponsor	Reference of the document	Standard
EFECTIS France	AGC	EFR-21-G-001937	EN 1364-3 : 2014
EFECTIS France	AGC	EFR-22-002127	EN 1364-3 : 2014
WARRINGTONFIREGENT	AGC	18558A	EN 1364-1 : 2015
WARRINGTONFIREGENT	AGC	20818A	EN 1364-1 : 2015

3.2. RESULTS

The tests mentioned below have been realized in accordance with the current standard EN 1364-3: 2014 and 1364-1 :2015.

Note: all test reports are mentioned in detail in extended field of application report EFR-24-005117-EXAP.

Reference of test report	Laboratory	Sponsor	Standard
EFR-21-G-001937	EFECTIS France Notified body: 1812	AGC	EN 1364-3 : 2014
	Supporting construction	Reinforced concrete according to EN 1364-3	
	Fire direction	o →i	
	Fire resistance criteria	**Duration**	
	E – Sustained flaming (S1)	91 minutes	
	E – Gap gauge (S1)	91 minutes	
	E – Cotton wool pad (S1)	91 minutes	
	I – Mean temperature (S1)	44 minutes	
	I – Maximal temperature (S1)	46 minutes	
	W – Maximal radiation (15 kW/m²)	91 minutes	

Reference of test report	Laboratory	Sponsor	Standard
EFR-22-002127	Efectis France Notified body: 1812	AGC	EN 1364-3 : 2014
	Supporting construction	Reinforced concrete according to EN 1364-3	
	Fire direction	i -> 0	
	Fire resistance criteria	**Duration**	
	E – Sustained flaming (S2)	67 minutes	
	E – Gap gauge (S2)	67minutes	
	E – Cotton wool pad (S2)	67 minutes	
	I – Mean temperature (S2)	44 minutes	
	I – Maximal temperature (S2)	33 minutes (on panel)	
	W – Maximal radiation (15 kW/m²)	67 minutes	

Reference of test report	Laboratory	Sponsor	Standard
18558A	Warringtonfiregent	AGC	EN 1364-1 : 2015
	Supporting construction	Concrete according to EN 1364-3	
	Fire direction	i <-> 0	
	Fire resistance criteria	**Duration**	
	E – Sustained flaming	55 minutes	
	E – Gap gauge	55 minutes	
	E – Cotton wool pad	67 minutes	
	I – Mean temperature	38 minutes	
	I – Maximal temperature	32 minutes	
	W – Maximal radiation (15 kW/m²)	55 minutes	

Reference of test report	Laboratory	Sponsor	Standard
20818A	Warringtonfiregent	AGC	EN 1364-1 : 2015
	Supporting construction	Concrete according to EN 1364-3	
	Fire direction	i -> 0	
	Fire resistance criteria	**Duration**	
	E – Sustained flaming	66 minutes	
	E – Gap gauge	66minutes	
	E – Cotton wool pad	66 minutes	
	I – Mean temperature	45 minutes	
	I – Maximal temperature	36 minutes	
	W – Maximal radiation (15 kW/m²)	66 minutes	

4. DESCRIPTION OF THE PRODUCT

4.1. FRAMEWORK

The framework of the partition wall is made of steel profiles from the VISS FIRE TVS (JANSEN) series.

The mullions and the transoms forming the "+" junction and the "⊥" junction are made of steel profiles of reference 76.694 (JANSEN) with a section of 50 x 50 mm and a thickness of 1.5 mm.

All the other mullions and transoms are made of steel profiles of reference 76.697 (JANSEN) with a section of 95 x 50 mm and a thickness of 1.5 mm.

All the profiles present a groove equipped with stainless steel fastening anchors of reference 452.428 (JANSEN) located every 400 mm at maximum.

The transoms are fixed to the mullions by welding. There is no possible dilatation between the transoms and the mullions.

The inner transoms may also be fixed with clip-in connecting spigots, reference 452.061 (JANSEN) on which a mullion protection support, reference 453.080 (JANSEN) is glued.

4.2. INFILL ELEMENTS

4.2.1. Glazing

The partition wall defines openings filled with:

- Either Pyrobel-T EI30-18 (AGC) glazing whose exact composition is in the possession of the laboratory

- Or Pyrobel-T EI30-18 TGU (AGC) glazing composed of:
  - a Pyrobel-T EI30-18 (AGC) glazing
  - a 15 mm thick steel spacer;
  - a 6 mm toughened glazing;
  - a 15 mm thick steel spacer;
  - a 44.2 laminated glazing made of:
    - a 4 mm thick float glazing;
    - two 0.38 mm thick standard PVB-layers;
    - a 4 mm thick float glazing.

All around of each Pyrobel-T EI30-18 (AGC), an intumescent tape of reference FLAMISEAL G (ETANCHEITE JUNG) with a section of 18 x 2 mm is applied.

Each Pyrobel-T EI30-18 TGU (AGC) corner is protected horizontally and vertically by an intumescent tape of reference FLAMISEAL® G (ETANCHEITE-JUNG) with a section of 62 x 2 mm except at the emplacement of the setting blocks.

4.2.2. Panels

The openings of the partition wall in the part exposed to fire may be filled by:

- a 75 mm thick opaque panel is made of:
  - a 1.5 mm thick steel sheet;
  - a 12 mm thick calcium silicate plate of reference PROMATECH-H (PROMAT);
  - a (40+20) mm thick mineral wool layer of reference U PROTECT SLAB 4.0 (ISOVER) with a density of 66 kg/m^3, opposite to the pressure plates side;
  - a 1.5 mm thick steel sheet.

The components are assembled together by glue, 450.096 (PYROCOL) at a rate of 60 g/m² and to the profiles by steel screws Ø4.2 x 38 mm every 300 mm.

4.2.3. Infill elements holding system

The infill elements are held in place by 1.5 mm thick steel pressure plates, reference 400.867 (JANSEN) with section 47 x 10 mm, fixed by stainless steel fastening anchors of reference:

- 452.453 (JANSEN) for Pyrobel-T EI30-18 (AGC) and panels
- 452.428 (JANSEN) for Pyrobel-T EI30-18 TGU (AGC)

placed every 400 mm, after interposition of two intumescent tapes of reference 451.080 (JANSEN) of section 14.4 x 1.8 mm installed side by side.

The pressure plates are covered with:

- For Pyrobel-T EI30-18 (AGC) and panels:
  - a 1.5 mm thick aluminium cover profile, reference 407.861 (JANSEN) with a section of 50 x 18 mm, for the mullions;
  - a 1.5 mm thick aluminium cover profile, reference 407.860 (JANSEN) with a section of 50 x 12 mm, for the transoms.
- For Pyrobel-T EI30-18 TGU (AGC):
  - a 1.5 mm thick aluminium cover profile, reference 407.862 (JANSEN) with a section of 50 x 25 mm for the mullions;
  - a 1.5 mm thick aluminium cover profile, reference 407.861 (JANSEN) with a section of 50 x 18 mm for the transoms.

The mullions are provided with an EPDM gasket, reference 455.558 (JANSEN) and section 50 x 10 mm or a flame retardant gasket, reference 455.547 (JANSEN). The transoms are provided with an EPDM gasket, reference 455.537 (JANSEN) and section 50 x 10 mm or a flame retardant gasket, reference or 455.550 (JANSEN).

The pressure plates are provided with:

- Either two EPDM gaskets, reference 455.588 and 452.589 (JANSEN) for the mullions and the transoms.
  Or
- Two EPDM gaskets, reference 455.508 (JANSEN) for mullions
- One EPDM gasket, reference 455.508 (JANSEN) for top of the transoms pressure plate
- One EPDM gasket, reference 455.509 (JANSEN) for bottom of the transoms pressure plates

The Pyrobel-T EI30-18 (AGC) and panels are supported by setting blocks, section 80 x 19 x 6 mm, reference 453.027 (JANSEN), placed on glazing supports, length 24 mm, reference 452.454 (JANSEN), fixed through stainless steel fastening anchors of reference 452.453 (JANSEN).

The Pyrobel-T EI30-18 TGU (AGC) are supported by 100 x 80 x 5 mm reference 453.070 (JANSEN) in their lower part, set on steel plates with dimensions of 100 x 88 x 10 mm axed at 200 mm from each extremity of each opening and welded in the groove of the profiles.
Infill element rebate bottom clearance:

- Lateral : 7 mm;

- Top : 8 mm;
- Bottom : 9 mm.

Edge cover of the infill elements:

- Lateral : 14 mm;
- Top : 13 mm;
- Bottom : 12 mm.

4.2.4. Fastening

Each mullion is fixed at each extremity to the corresponding concrete slab by a system made of a 4 mm thick steel tube with a section of 45 x 75 mm and a length of 150 mm, welded on a 10 mm thick steel plate with a section of 50 x 125 mm. The steel plate is screwed on the concrete frame by two steel anchor bolts HT-10/72 (HILTI).

At the bottom of the partition wall, a PROMATECT-H (PROMAT) plate of section 90 x 20 mm is placed under the bottom transom at the emplacement of each mullion. Each mullion could thus dilate from 20 mm.

The 40 mm thick top gap and 20 mm thick bottom gap between the transoms and the concrete frame is sealed with mineral wool of reference PROMAGLAF®-HTK 1100 (PROMAT) with a theoretical density of 96 kg/m^3.

The whole periphery of the partition wall is filled with spacers made of one layer of PROMATECT-H (PROMAT) boards and section 60 x 20 mm. They are fixed between the holding system of the partition wall after insertion of steel angle profiles with section of 25 x 25 mm and thickness of 2 mm on the pressure plates side.

5. CLASSIFICATION AND FIELD OF APPLICATION

5.1. CLASSIFICATION REFERENCE

This classification has been carried out in accordance with paragraph 7.5.2. of standard EN 13501-2: 2023.

5.2. CLASSIFICATION

The element is classified according to the following combinations of performance parameters and classes:

R	E	I	W		T	-	M	C	S	G	K
	E	**I**		**(i ↔o)**	**30**						
	E		**W**	**(i ↔o)**	**30**						
	E			**(i ↔o)**	**30**						

5.3. FIELD OF APPLICATION

The variations of the product are defined as follows according to the field of direct application of the test results for the classification stated in paragraph 4.2.

The field of direct application below is mentioned for reference tests described in paragraph 3.1 and the additional variants and end-use details are given in extended field of application report.

The design parameters specified therein are not limited by the following field of application.

Standard of reference EN 1364-1 : 2015	Permitted changes to element tested
A.4.1	**General** The test results are directly applicable to similar constructions where one or more of the changes in this A.4 are made and the construction continues to comply with the appropriate design code for its stiffness and stability. Other changes are not permitted. The result of a test on a specimen with mixtures of different types of construction (e.g. different types of glass or different types of framing, etc.) is only applicable to that tested.
A.4.2	**Field of direct application rules not requiring overrun time**
A.4.2.1	**Glazed element**
A.4.2.1.1	**Installation angle** Test results on vertical glazed elements cover glazed elements sloped to a maximum angle of ± 10° from the vertical plane, provided the height of the glazed element is not larger than the maximum height tested.
A.4.2.1.2	**Height of the glazed element** Test results cover rectangular glazed elements with a height increase of 10 % subject to a maximum increase of 0,3 m, above the height tested, provided that: a. the maximum deflection (see Figure 14) of the test specimen did not exceed 100 mm; b. the allowances for thermal expansion of the construction are increased pro-rata.
A.4.2.1.3	**Width of the glazed element** Test results cover rectangular glazed elements of greater width by replication of the tested glazed element or parts thereof, provided: a. the framing system is identical to the one tested; b. the width of the specimen in the test was 2,8 m or greater with one vertical edge unrestrained; c. the mullions within and/or connection joints between glazed elements have been tested.
A.4.2.2	**Glazing system (see Figure 16)**
A.4.2.2.1	**Linear dimensions** The linear dimensions of panes may be decreased from the dimensions tested. Height and width may be considered independently.
A.4.2.3	**Framing system (see Figure 16)** The distance between mullions and/or transoms may be decreased from that tested. The distance between fixing centres may be decreased from that tested. The cross sectional dimensions of the frame profiles may be increased from the dimensions tested, under the following restrictions: For framing systems intended to be used for EI classification, no increase in width is allowed in case no temperature measurements on the unexposed side of the profiles were made during the test.

A.4.2.4 Supporting constructions

A.4.2.4.1 General

For specimens tested in the test frame without any supporting construction, the result is applicable to high density rigid supporting constructions with at least the same fire resistance as the test specimen.

A.4.2.4.2 Standard supporting constructions

Test results obtained with flexible standard supporting constructions may be applied to high density rigid supporting constructions (in accordance with EN 1363-1) with at least the same fire resistance classification and an overall thickness equal to or greater than that of the element used in the tests.

Test results obtained with low density rigid standard supporting constructions may be applied to high density supporting constructions (in accordance with EN 1363-1) with at least the same fire resistance classification and an overall thickness equal to or greater than that of the element used in the tests.

Test results obtained with flexible standard supporting constructions do not cover sandwich panel constructions and flexible supporting constructions where the lining does not cover the studs on both sides.

Test results obtained with flexible standard supporting constructions cover alternative flexible constructions of the same fire resistance classification provided:

1. the construction is of a stud and board type construction, classified in accordance with EN 13501-2;
2. the construction has an overall thickness not less than the minimum thickness of the appropriate range given in EN 1363-1 for the standard flexible wall used in the test;
3. the number of board layers and the overall board layer thickness is equal or greater than that tested;
4. flexible wall constructions with timber studs are constructed with at least the same number of layers given in EN 1363-1 on the faces and at the interface between the glazed element and the supporting construction.

If the specimen was tested with a flexible standard supporting construction fixed along the vertical and/or horizontal edge (see Figure 17), the permitted flexible supporting constructions can only be interfaced along its tested edge-types (vertical and/or horizontal). The permitted rigid supporting constructions can be interfaced with all edge-types of the glazed element.

A.4.2.4.3 Non-standard supporting construction

The result of a test of fire resistant glazing tested in non-standard supporting constructions is only applicable to that construction.

A.4.3 Field of direct application rules requiring overrun time

A.4.3.1 General

For some rules to be applicable an overrun time in the fire test result compared to the intended classification period is required.

The required overrun time is shown in Table A.1.

Table A.1 - Overrun time

Intended classification period (min)	Overrun time A (min)	Overrun time B (min)
≤ 20	not applicable	≥ 3
30, ~~45 and 60~~	~~≥ 3 and < 6~~	≥ 6
~~≥ 90~~	~~≥ 5% and < 10% of the intended classification period~~	~~≥ 10 % of the intended classification period~~

NOTE:
The rules given in A.4.3 may be used in addition to the rules in A.4.2.

A.4.3.2	**Dimensions of the glazed element**
A.4.3.2.1	**Height** The test result of the glazed element covers the height up to a maximum of the tested height multiplied by a factor of 1,1 provided overrun time A is achieved. This is irrespective of the measured deflections. The test result of the glazed element covers the height up to a maximum of the tested height multiplied by a factor of 1,2 provided overrun time B is achieved. This is irrespective of the measured deflections.
A.4.3.2.2	**Width** The replication of the glazed element is covered based on rules described in A.4.2.1.3. For glazed elements tested with a width smaller than 2,8 meter, the following rules apply. The test result of the glazed element covers the width up to a maximum of the tested width multiplied by a factor of 1,1 provided overrun time A is achieved. This is irrespective of the measured deflections. The test result of the glazed element covers the width up to a maximum of the tested width multiplied by a factor of 1,2 provided overrun time B is achieved. This is irrespective of the measured deflections.
A.4.3.3	**Dimensions and area of individual rectangular glass panes** The test result of a pane covers dimensions up to a maximum of the tested dimensions multiplied by a factor 1,1 in width and/or height, provided overrun time A is achieved and the maximum tested area multiplied by a factor 1,1 is not exceeded. The test result of a pane covers dimensions up to a maximum of the tested dimensions multiplied by a factor 1,2 in width and/or height, provided overrun time B is achieved and the maximum tested area multiplied by a factor 1,21 is not exceeded. In order to accommodate the increase in glass dimensions, it is permitted to increase the distance between mullions and/or transoms.
A.4.3.5	**Area of individual circular, triangular and four side non-rectangular glass panes** The test result from individual circular, triangular and four sided non rectangular glass panes covers the area up to a maximum of the tested area multiplied by a factor 1,1 provided overrun time A is achieved. The test result from individual circular, triangular and four sided non rectangular glass panes covers the area up to a maximum of the tested area multiplied by a factor 1,2 provided overrun time B is achieved. The pane shall be of the same orientation and shape (including maintaining internal angles) as the tested pane. In order to accommodate the increase in glass area, it is permitted to increase the distance between mullions and/or transoms.

6. LIMITATIONS

This classification document does not represent type approval or certification of the product.

These conclusions relate only to the fire resistance performance of the element covered by this classification report. They do not prejudge, in any case, other performances related to its incorporation in a work.

Saint-Aubin, March 20th, 2025

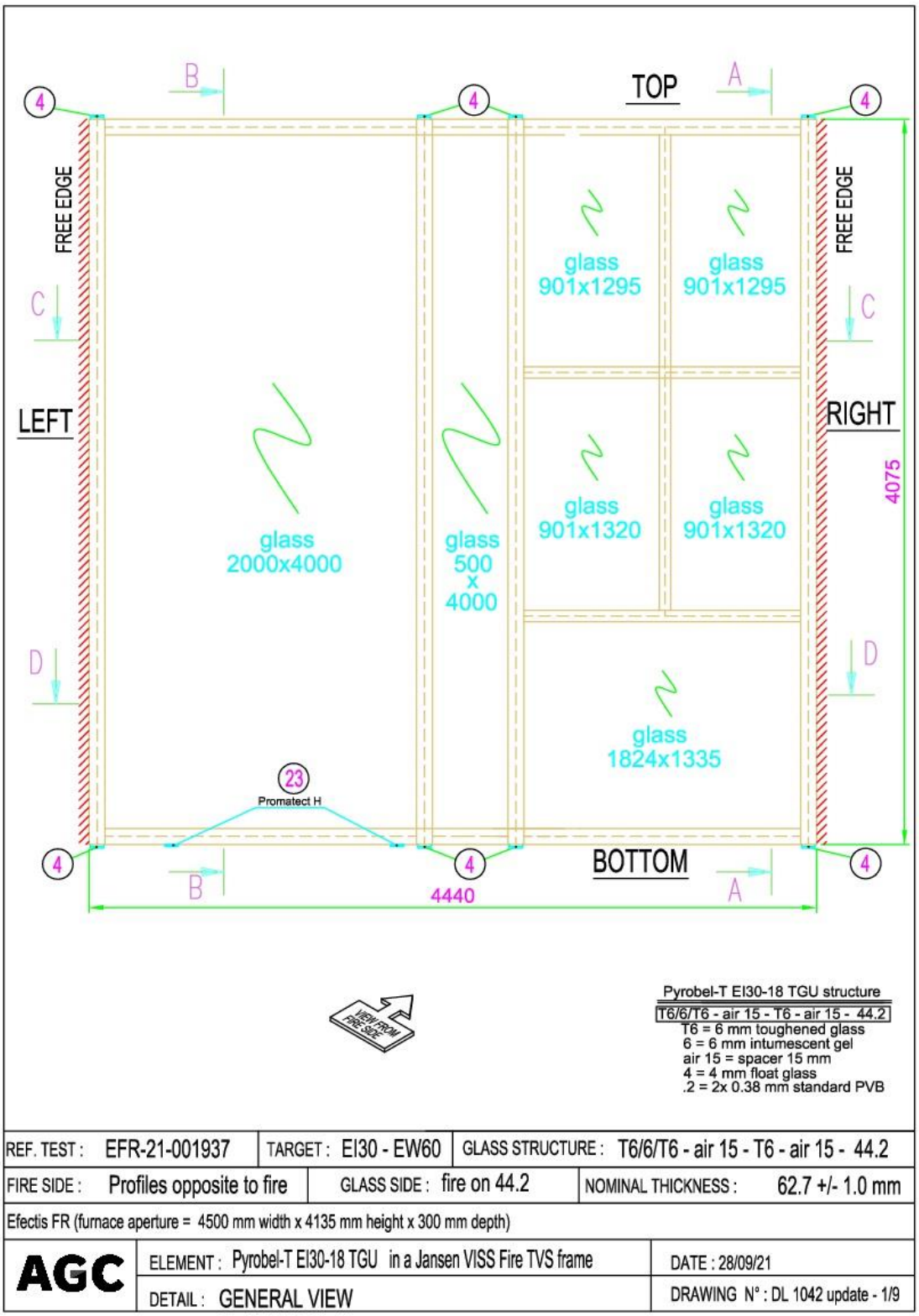
X Virginie GOULON

Project leader
Signé par : Virginie GOULON

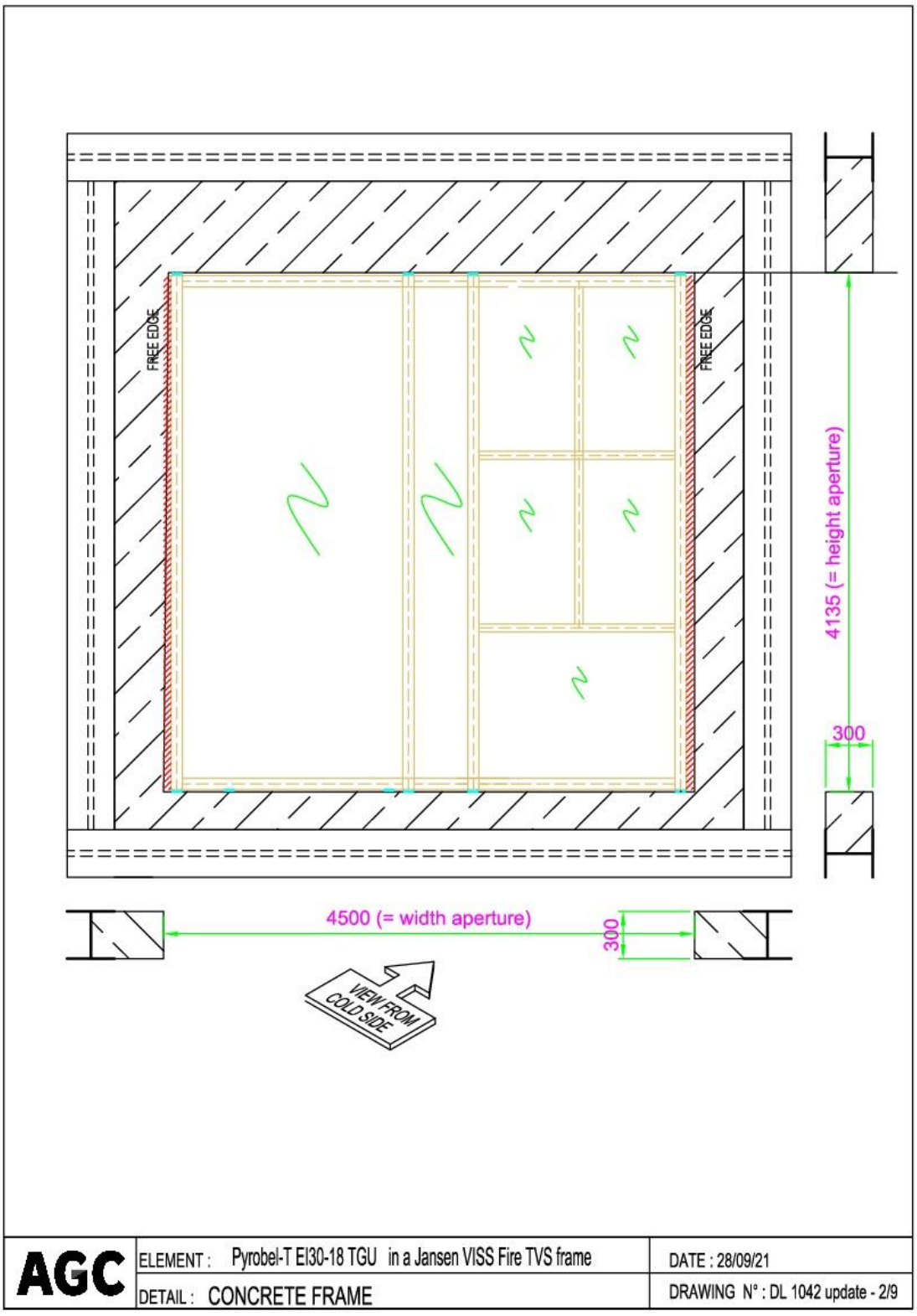
X Andréa VIARD

Supervisor
Signé par : Andréa VIARD

DRAWINGS APPENDIX: Plate No. 1



DRAWINGS APPENDIX: Plate No. 2



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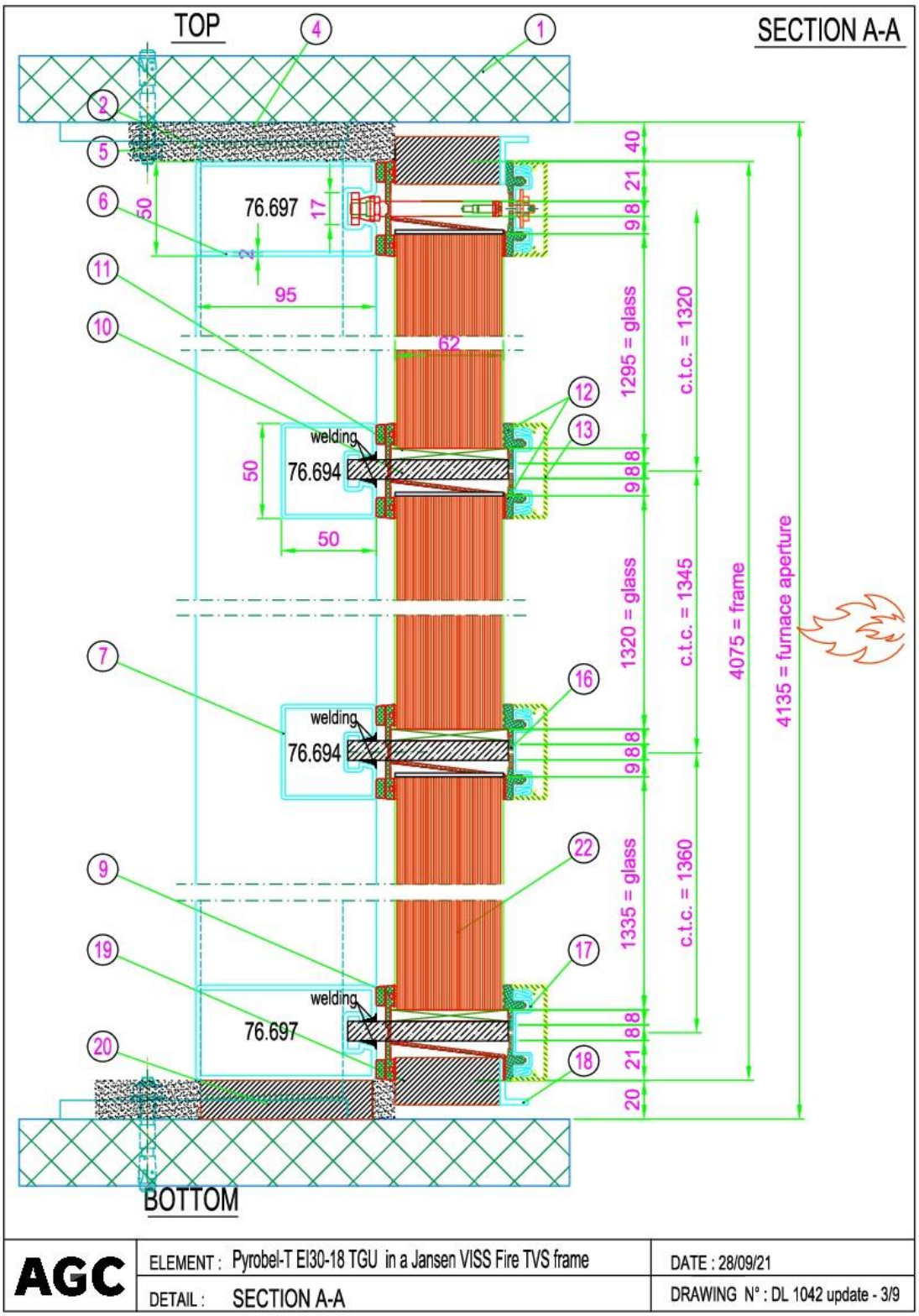

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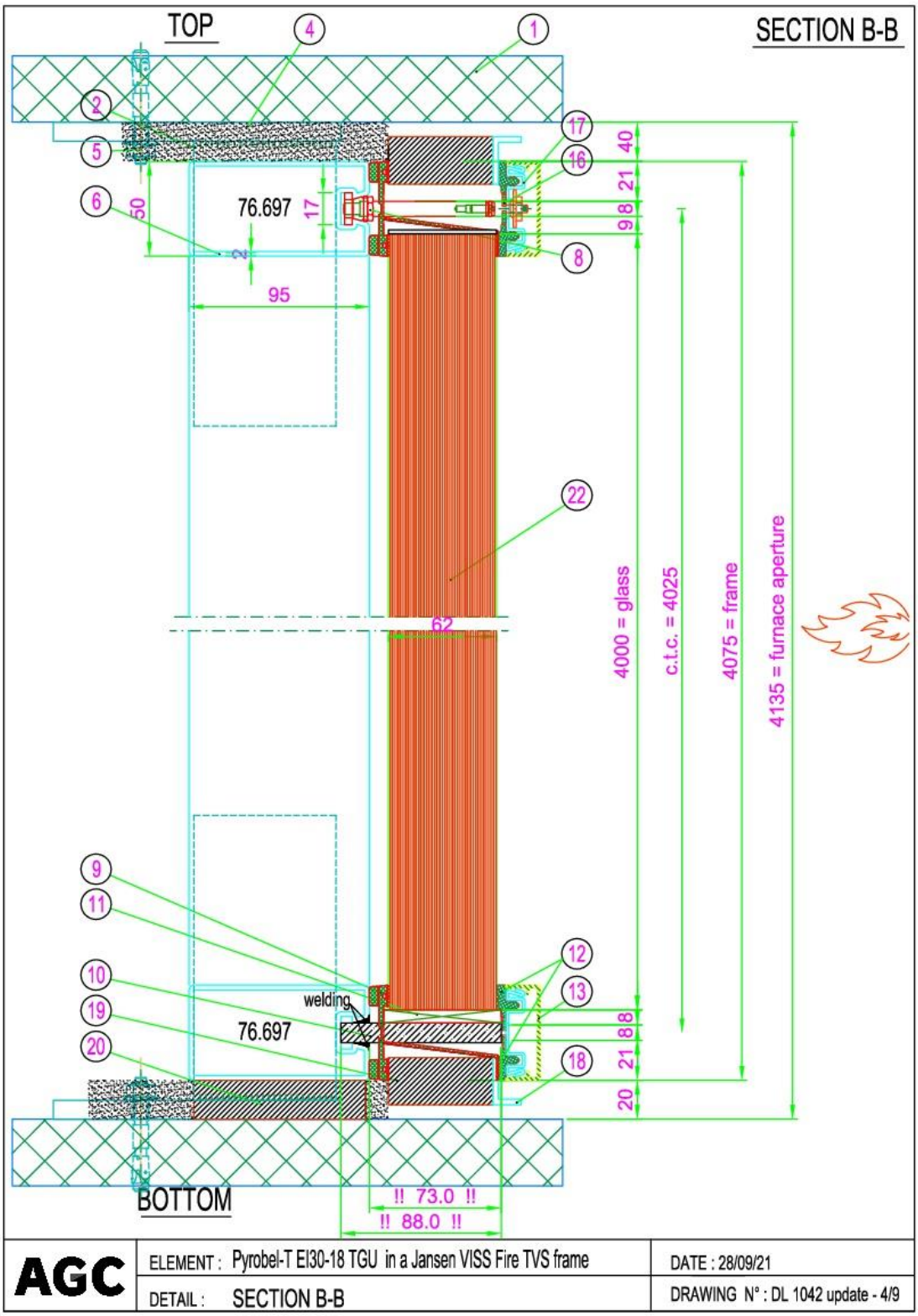

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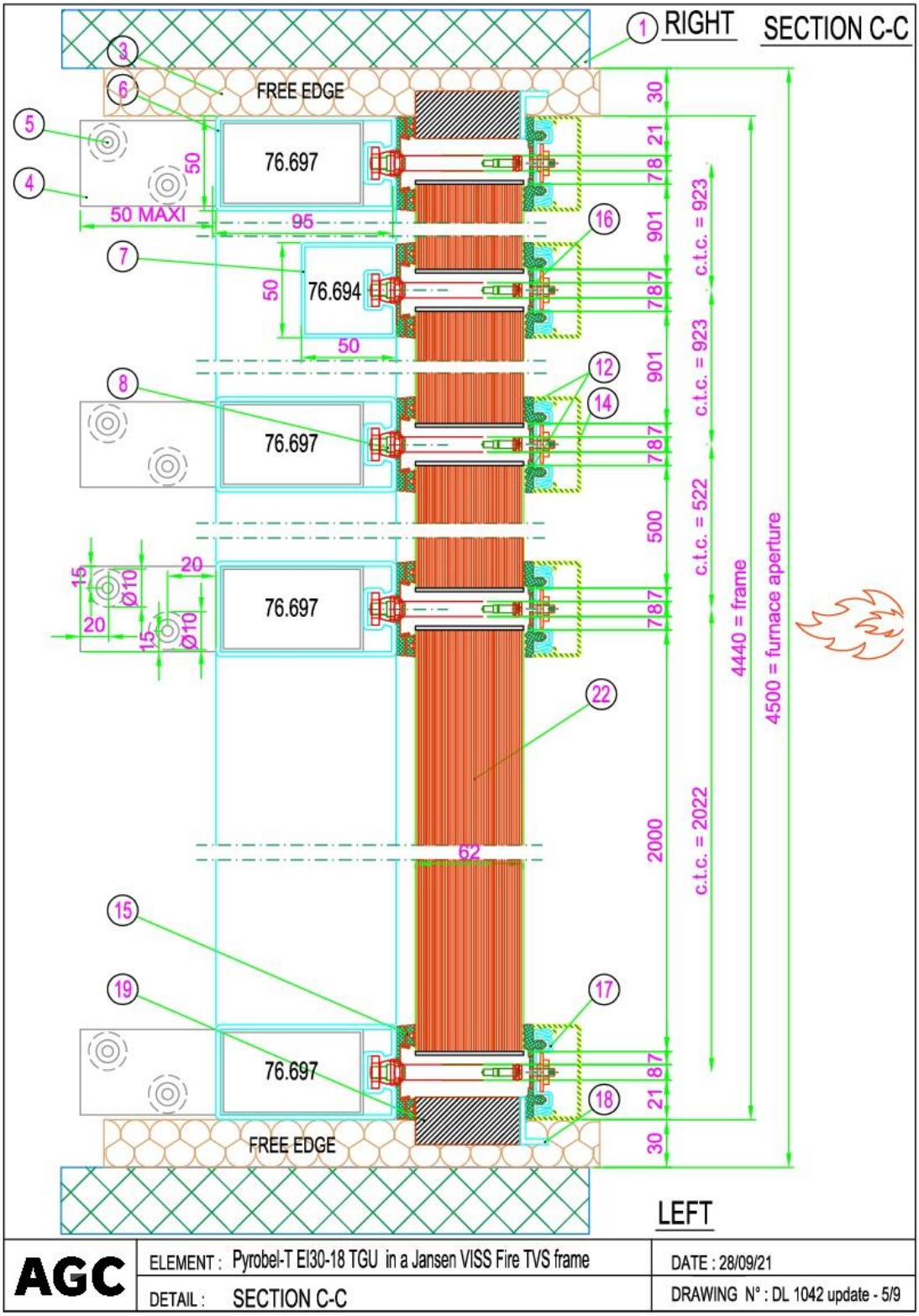

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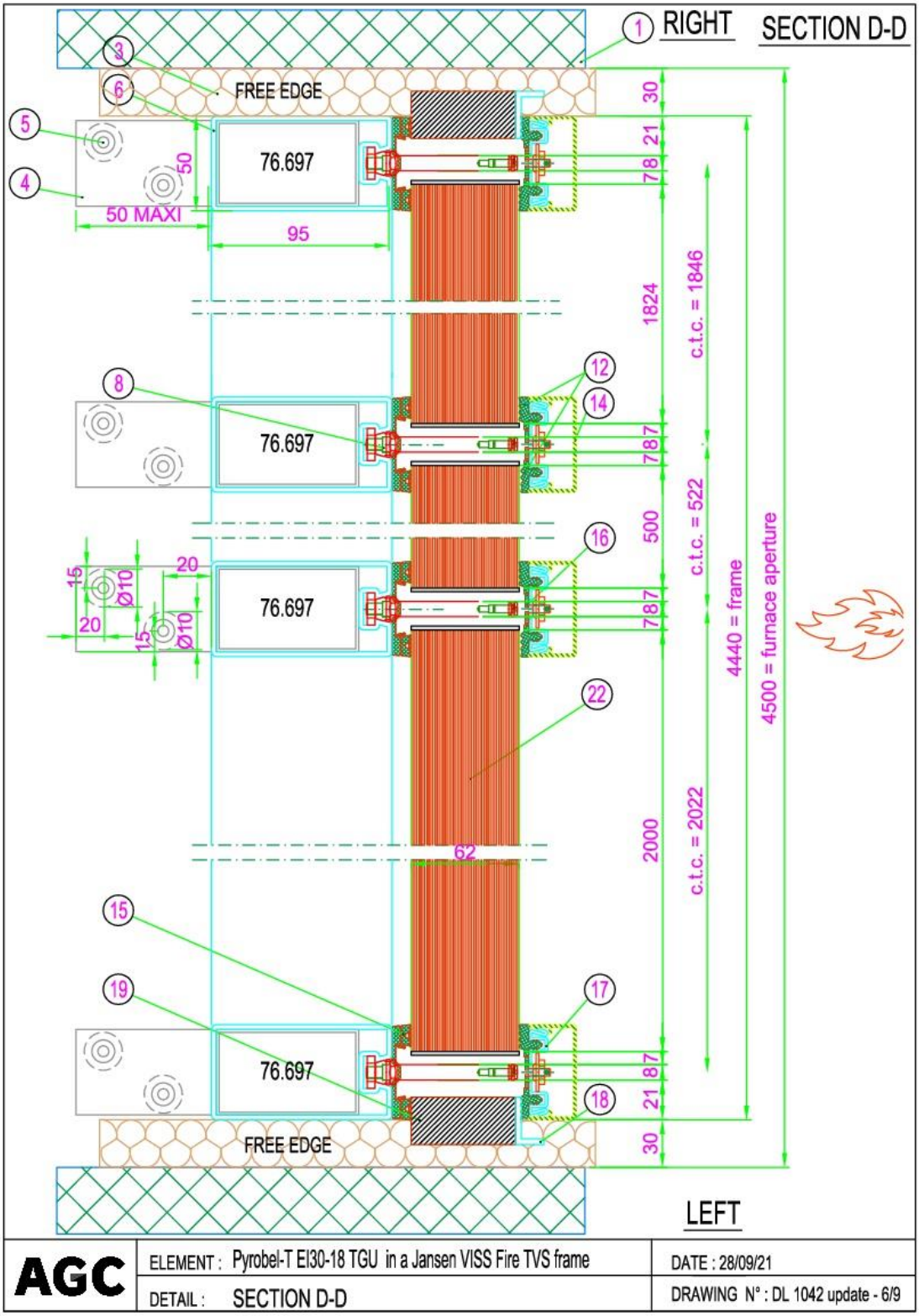

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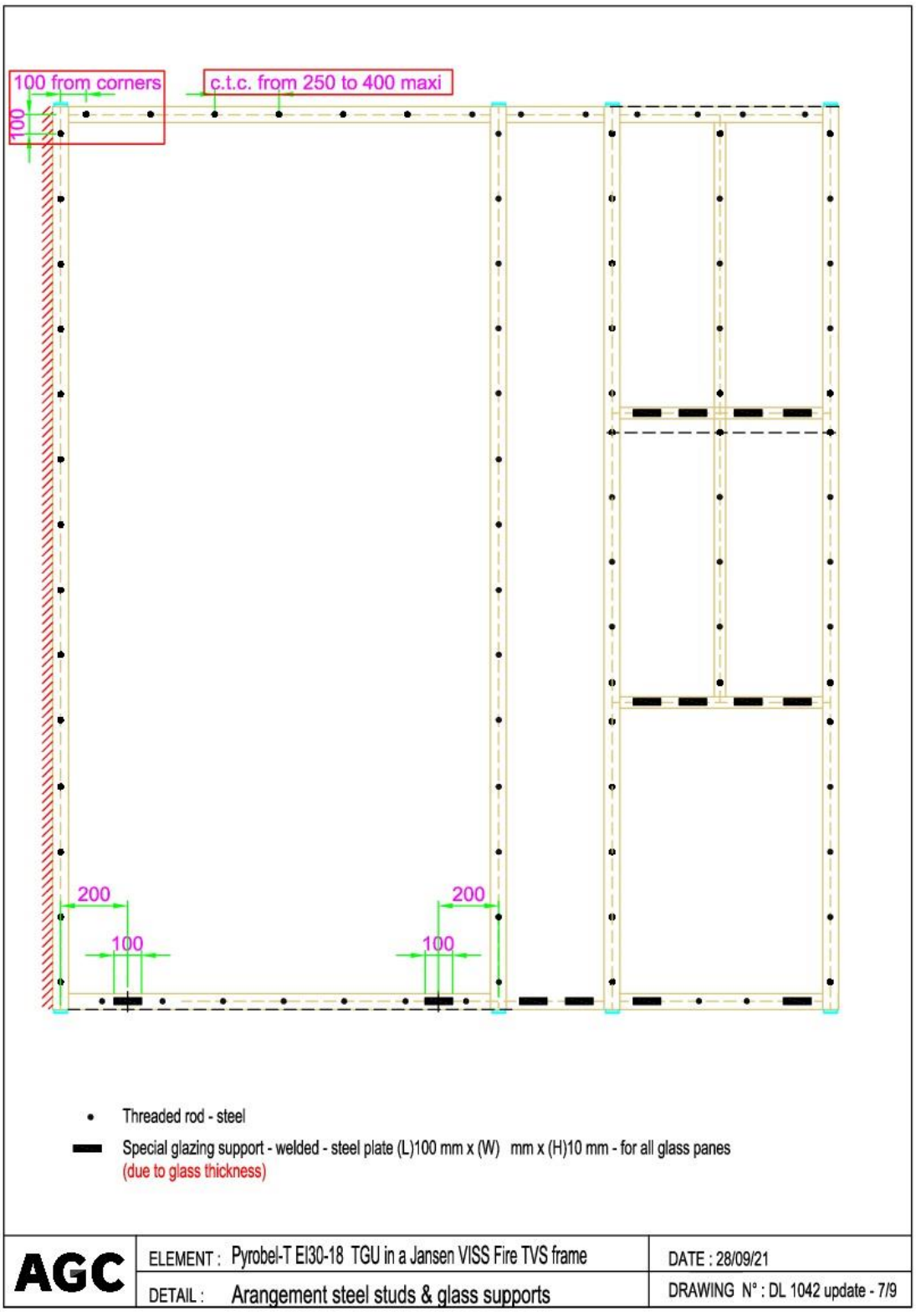
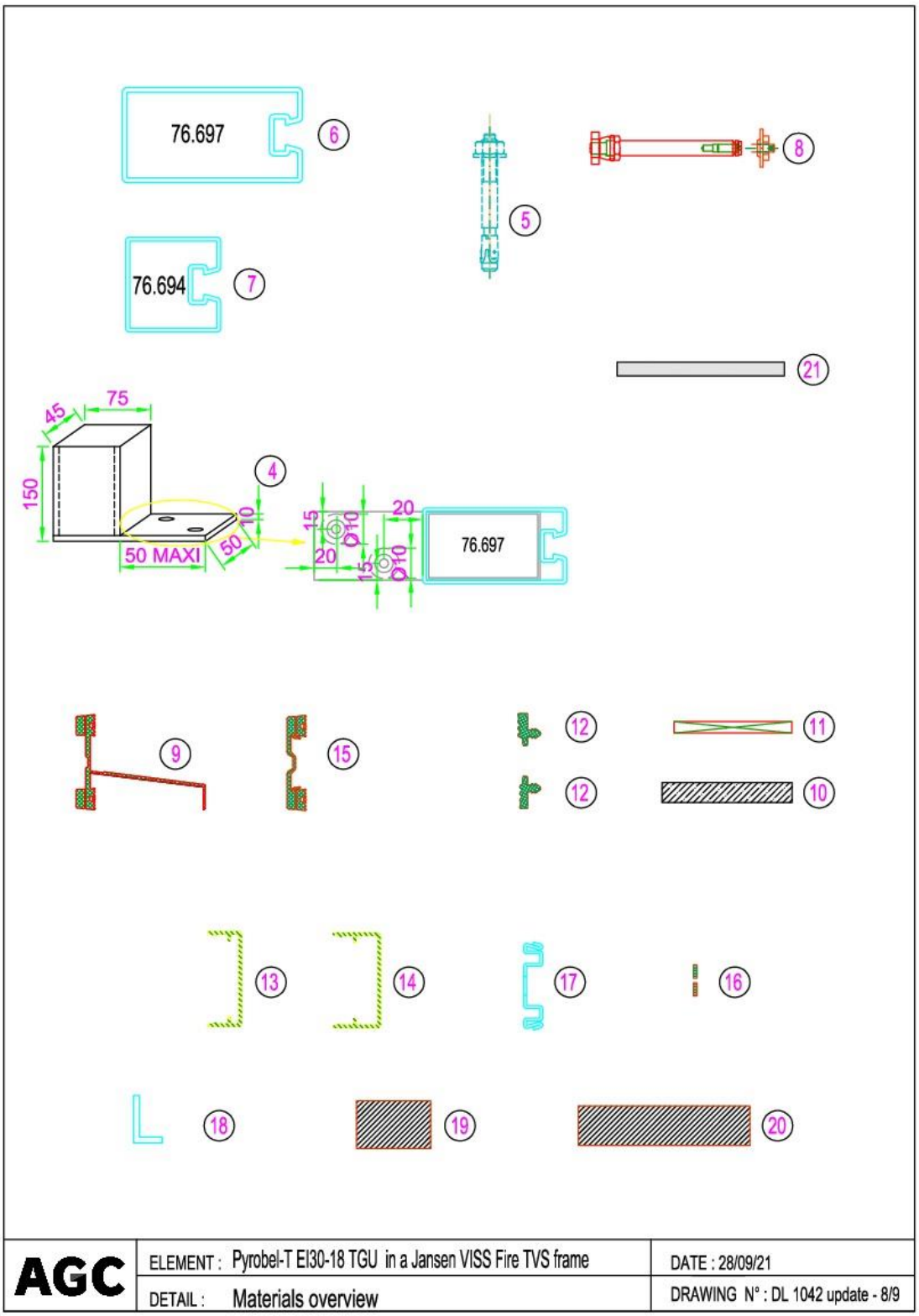


DRAWINGS APPENDIX: Plate No. 8



LIST OF COMPONENTS APPENDIX: Plate No. 9

# REF.	COMPONENTS
1	Concrete frame - inner dimensions : 4500 (width) x 4135 (height) mm
2	Thermal insulation - Promat Promaglaf HTK1100 : 96 kg/m³
3	Thermal insulation - mineral wool : 120 kg/m³
4	Mounting console
5	Anchor bolt - Hilti 100 HT : Ø10 x L 72 mm
6	Profile - steel - Jansen VISS Fire TVS : ref. 76.697
	=> outer dimensions of section : 95 x 50 mm
	=> inner dimensions of groove : 17 x 6 mm
7	Profile - steel - Jansen VISS Fire TVS : ref. 76.694
	=> outer dimensions of section : 50 x 50 mm
	=> inner dimensions of groove : 17 x 6 mm
8	Fire-proof anchor - Jansen : ref. 452.428
	=> stainless steel, with pre-assembled key and tenon block, set screw M4,
	centring nut M4
9	Inner gasket horizontal - Flame retarding, black - Jansen : ref. 455.550
10	Special glazing support - welded - steel plate (L)100 mm x (W) see drawing x (H)10 mm -
	(for all glass panes <=> thickness)
11	Glazing setting block - Jansen : ref.453.070
12	Outer gasket - Flame retarding, black - Jansen : ref. 455.508 / 455.509
13	Aluminium cover sections - Jansen : ref.407.861
14	Aluminium cover sections - Jansen : ref.407.862
15	Inner gasket vertical - Flame retarding, black - Jansen : ref. 455.547
16	Fire protection laminate, self adhesive - Jansen : ref. 451.080 - dimensions 14.4 x 1.8 mm
17	Steel section - Jansen : ref. 400.867
18	Steel or aluminium angle profile. 25x25x2
19	Calcium silicate - Promatect H 60x20 mm
20	Calcium silicate - Promatect H 90x20 mm
21	Jung Flamiseal G - 62x2 (around glass panes)
22	Pyrobel-T EI30-18 TGU (T6/6/T6 - air 15 - T6 - air 15 - 44.2)

AGC	ELEMENT : Pyrobel-T EI30-18 TGU in a Jansen VISS Fire TVS frame	DATE : 28/09/21
	DETAIL : COMPONENTS LIST	DRAWING N° : DL 1042 update - 9/9

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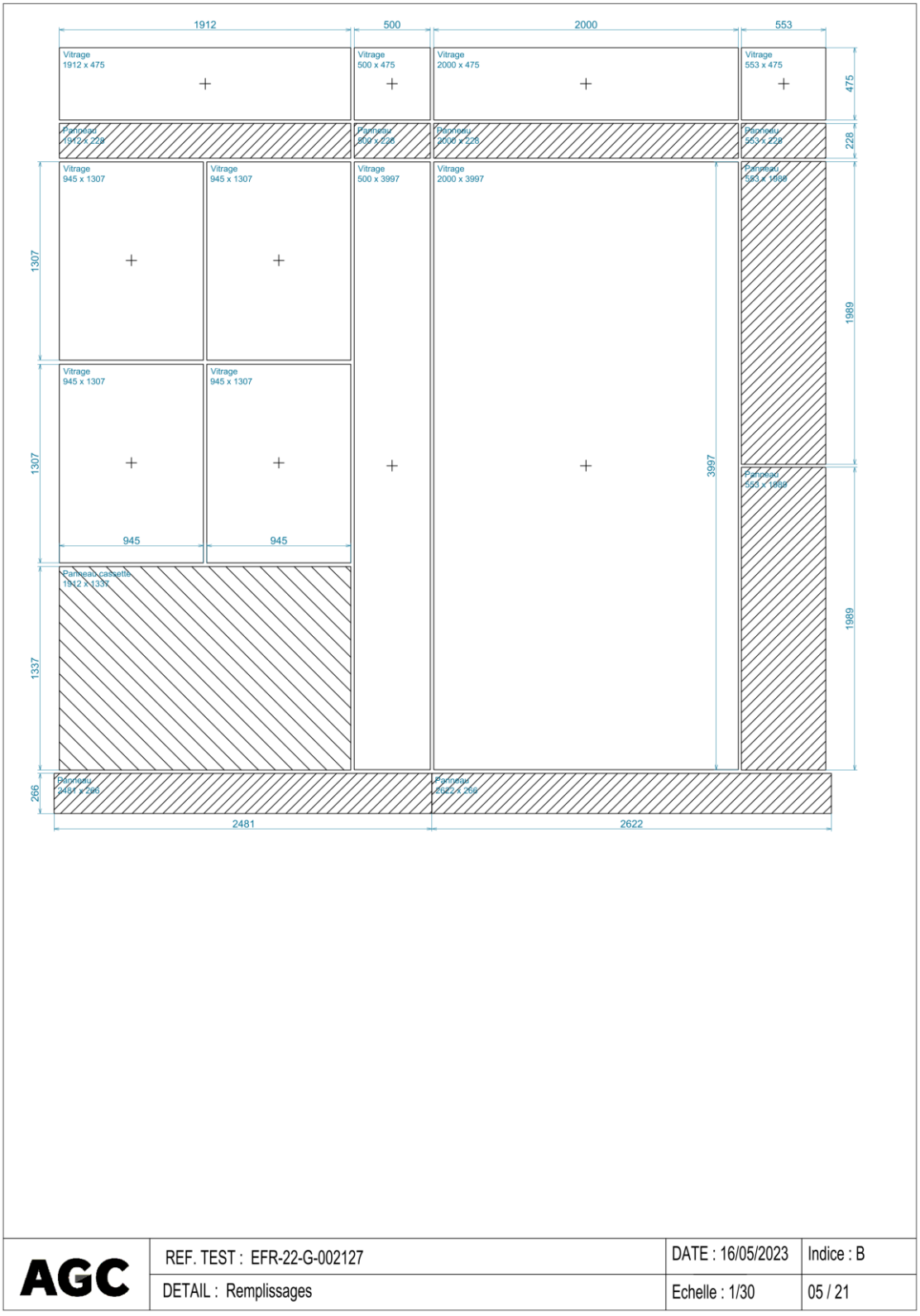

AGC	REF. TEST : EFR-22-G-002127	DATE : 16/05/2023	Indice : B
	DETAIL : Remplissages	Echelle : 1/30	05 / 21