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**Technical Assessment Body issuing the European Technical Assessment: UBAtc.
UBAtc has been designated according to Article 29 of Regulation (EU) No 305/2011 and is member of EOTA (European Organisation for Technical Assessment)**

Trade name of the construction product:	ElementFaçade 7 (EF 7)
Product family to which the construction product belongs:	9 - Structural sealant glazing kit for use in curtain walling
Manufacturer:	Reynaers Aluminium N.V. Oude Liersebaan 266, B-2570 Duffel Belgium
Manufacturing plant:	Reynaers Aluminium N.V. Oude Liersebaan 266, B-2570 Duffel Belgium
Website:	www.reynaers.com
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	ETAG 002, edition 1999 amended in 2012, used as European Assessment Document (EAD)
This version replaces:	This European Technical Approval 22/0580 is the first version
This European Technical Assessment contains:	26 pages, including 1 annex which forms an integral part of the document

European Organisation for Technical Assessment

Legal bases and general conditions

- This European Technical Assessment is issued by UBAtc (Union belge pour l'Agrément technique de la construction, i.e. Belgian Union for technical Approval in construction), in accordance with:
- Regulation (EU) N° 305/2011[1] of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
- Commission Implementing Regulation (EU) N° 1062/2013[2] of 30 October 2013 on the format of the European Technical Assessment for construction products
- Guideline for European technical approval 002 (ETAG), used as European Assessment Document (EAD)
- Under the provisions of Regulation (EU) No 305/2011, UBAtc is not authorized to check whether the provisions of this European Technical Assessment are met once the ETA has been issued.
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- Subject to the application introduced, this European Technical Assessment is issued in English and may be issued by the UBAtc in its official languages. The translations correspond fully to the English reference version circulated in EOTA.
- This European Technical Assessment was first issued by UBAtc on November 10th 2022.

[1] OJEU, L 88 of 2011/04/04

[2] OJEU, L 289 of 2013/10/31

Technical Provisions

1 Technical description of the product

1.1 Characteristics of the product

1.1.1 General

This ETA is being issued for the products specified on the cover page, on the basis of agreed data/information, deposited with the UBAtc, which identifies the products that have been assessed and judged. Changes to the product/production process, which could result in the deposited data/information being incorrect, should be notified to the UBAtc before the changes are introduced. The UBAtc will decide whether or not such changes affect the ETA and, if so, whether further assessment/alterations to the ETA, shall be necessary.

1.1.2 Structural sealant glazing kit

Structural sealant glazing kit (SSGS) in which the glazing infills are bonded all along the perimeter with a structural sealant to a metallic structural sealant support frame.

The EF7 is a cassette construction bonded glazing kit of the type I or II as per ETAG 002, table 1. The kit covered by this approval is not including opening parts.

1.2 Components of the kit

1.2.1 Structural sealants

The kit comprises the following structural sealants

Table 1 – Structural sealants

Glass on anodised aluminium		
Dow	Dow Sil™ 993	ETA 01/0005
	Dow Sil™ 895	ETA 01/0005
Sika	SG 500	ETA 03/0038
	SG 20	ETA 06/0090
Tremco	SG 200	ETA 05/0006
	SG 490	ETA 05/0005
	SG 499	ETA 05/0005
Outer structural edge seal of the insulating glass unit		
Dow	Dow Sil™ 3362	ETA 03/0003
	Dow Sil™ 3363	ETA 13/0359
Sika	IG 25	ETA 05/0068
Tremco	JS 562	--

Generic and specific types of suitable substrates for adhesion to the structural sealants are given in the ETA of the structural sealants

1.2.2 Structural sealant support frame

Framing profile (Fig. 1)

- 107.0501.XX, 107.0510.XX, 107.0520.XX + 107.0300.00, 107.0521.XX, 107.0580.XX, 107.0585.XX, 107.0510.XX+107.0110.00

The structural sealant support frame is made out of aluminium alloy in accordance with Table 2.

Table 2 – Aluminium alloy - characteristics

Alloy Designation	Metallurgic state	Mechanical characteristics
EN 573-3	EN 515	EN 755-2
EN AW-6060	T66	

Table 3 – Anodising characteristics of the structural sealant adhesion surface

Characteristics	Method	Criteria EOTA	Nominal value
Thickness	EOTA, clause 5.2.2.1.1	Mean minimum thickness: 15µm	≥ 20 µm
Sealing :			
Sealing degree			
Weight lost	EOTA, clause 5.2.2.1.2	EN ISO 3210: < 30 mg/dm²	< 30 mg/dm²
Admittance at 1.000 Hz for a given thickness of 20 µm	EOTA, clause 5.2.2.1.3	EN ISO 2931: < 20 µS	< 20 µS
Stain test		EN ISO 2143: < 2 on Qualanod scale	0-1

The anodising of the structural adhesion surface adaptor profile 134.1116.17SG and 107.0102.17SG is performed by the firm Alural (BE).

Geometrical and weight characteristics:

- Wall thickness of the profiles: 1,5 to 2 mm, tolerances conforming to EN 12020 –1 and- 2
- External dimensions of the profiles: (cf. fig. 1): tolerances: EN 12020 –1 and- 2
- Nominal linear mass (tolerances: + 10 %; - 10 %)
- Inertia: axes: xx parallel to the glazing, yy perpendicular to the glazing.

Table 4 – Geometrical and weight characteristics

Profiles	I_{xx} (mm⁴)	I_{yy} (mm⁴)	Linear mass. Kg/m.
107.0501.XX	3141510	156560	3.320
C07.1501.XX	2160790	149140	3.085
C07.2501.XX	2622340	152930	3.202
C07.3501.XX	3720560	160060	3.437
C07.4501.XX	4361730	163430	3.554
C07.5501.XX	5067260	166700	3.672
107.0510.XX	2804210	104680	3.009
C07.1510.XX	1927800	99370	2.774
C07.2510.XX	2339890	102070	2.892
C07.3510.XX	3322980	107210	3.126
C07.4510.XX	3898430	109690	3.244

Profiles	I_{xx} (mm^4)	I_{yy} (mm^4)	Linear mass. Kg/m.
C07.5510.XX	4532770	112100	3.361
107.0520.XX	2725260	140420	2.847
C07.1520.XX	188474	132710	2.731
C07.2520.XX	228063	136650	2.791
C07.3520.XX	321988	144040	2.911
C07.4520.XX	376571	147520	2.971
C07.5520.XX	4364000	150850	3.031
107.0300.00	37400	367440	1.009
C07.1300.00	35780	194780	0.935
C07.2300.00	36650	272650	1.005
C07.3300.00	38060	480450	1.074
C07.4300.00	38630	613000	1.143
C07.5300.00	39150	766380	1.213
107.0521.XX	2910840	254180	3.151
C07.1521.XX	2000610	224900	2.932
C07.2521.XX	2428370	239550	3.041
C07.3521.XX	3450110	268810	3.151
C07.4521.XX	4048270	283420	3.369
C07.5521.XX	4707410	298020	3.478
107.0580.XX	6479300	1289540	4.473
C07.1580.XX	4725670	1182940	4.254
C07.2580.XX	5563370	1236240	4.363
C07.3580.XX	7475450	1342850	4.582
C07.4580.XX	8553840	1396150	4.691
C07.5580.XX	9716460	1449450	4.800
107.0585.XX	3559620	1048980	2.922
C07.1585.XX	2544720	942380	2.703
C07.2585.XX	3026470	995680	2.812
C07.3585.XX	4146160	1102290	3.031
C07.4585.XX	4788120	1155590	3.140
C07.5585.XX	5487500	1208890	3.249
107.0110.00	21020	67450	0.652
134.1116.17SG	1230	150	0.134
107.0102.17SG	15870	9110	0.528
134.1117.00	2520	1460	0.280

1.2.3 Profiles and complimentary accessories

1.2.3.1 Mechanical self-weight support (fig. 3)

The mechanical self-weight support are listed in the following table.

Table 5 – Mechanical self-weight support

Articles	Application
173.8505.C35	Double glazing
173.8506.C35	Triple glazing

Length 200 mm. Fixed by 5 screws ref 052.5333, DIN 7982 4.8x25.

The support of the glass relies on the use of setting blocks, which transfer the glass dead load to the mechanical self-weight support.

Those devices are calculable according to the standardised loading using conventional calculations based upon the strength of material. Taking into account a safety factor on aluminium $\gamma_m = 1,1$; a maximum pressure on glass of 1 MPa and a maximum vertical displacement between the 2 glass panes of 1 mm, the bearing capacity of the devices is given in this ETA, clause 2.3.1.5.

1.2.3.2 Retaining device (fig. 3)

The retaining devices are made of aluminium AW 6060 T66 according EN 755-2.

Retaining devices are means of retaining the glass to reduce danger in the event of sealant failure.

The necessity of these accessories is to be evaluated in function of the safety specifications, of the situation of the building and of its working condition.

Those devices are calculable according to the standardised loading using conventional calculations based upon the strength of material. Taking into account a safety factor on aluminium $\gamma_m = 1,1$ and of a maximum pressure on glass of 1 MPa, the bearing capacity of the devices is given in this ETA, clause 2.3.1.6.

Table 6 – Retaining device

Articles	Application
173.8561.C35	36-40 mm
173.8563.C35	56-60 mm

1.2.4 Insulating glass unit

The kit EF7 is designed in such way that the IGU outer edge seal is a structural edge seal. The outer seal shall be performed with the structural sealant in Table 1 with a minimum bite of 6 mm.

IGU's shall conform to the ETAG 002, clause 5.0.

For each project, the IGU's manufacturer shall deliver to the façadier a technical dossier as described in ETAG 002, clause 8.3.2.4 (vi).

Dimensional tolerances on the IGU: ± 2 mm on the glass pane, special care shall be taken that the glass is always in contact with the settings blocks.

1.2.5 Cleaning product

The cleaning product that has to be used to clean the façade is mentioned in the ETAs for structural sealants.

Other products may be used provided they are assessed for conformity to ETAG 002, clause 5.2.3.3.

1.3 Accessories

1.3.1 Profiles assemblies (fig. 5)

See fig. 5

1.3.2 Gaskets (fig. 4)

1.3.2.1 Backer gasket for bonding sealant

- 180.9302.04

1.3.2.2 EPDM gasket between cassettes

- 180.9920.04, 180.9330.04, 180.9921.04, 180.9922.04, 180.9923.04, 180.9924.04, 180.9925.04, 180.9926.04, 180.9264.04, 180.9269.04

1.3.3 Sealant

In function of the structural glazing sealants chosen for the projects, the corresponding compatible weather sealants of the same sealant supplier shall be applied when the products are in contact. The compatible sealants tested are Dow Corning - DC 791, Sikasil – WS-605 S, Tremco - Proglaze LMA.

In case of contact of the weather sealant with the folio of the laminated glass, the compatibility should be verified.

1.3.4 Setting and location blocks

The glazing dead load is transferred to the setting blocks, with the following characteristics:

- In function of the structural glazing sealants chosen for the project, setting and location blocks are given in the ETA of the structural sealant.
- The length of the setting blocks are to be adapted as a function of the glazing load.

2 Specification of the intended use(s) in accordance with the applicable EAD

2.1 General

Structural sealant glazing kit (SSGS) for use as a façade or parts thereof. The structural sealant support frame is part of the system profile (it is slid into the retaining groove) or by fixing it with screws to the system profile (107.0102.17SG).

The system is intended to be used in curtain walling for which requirements BWR2 Safety in case of fire, BWR3 Hygiene, health and environment, BWR4 Safety in use, BWR5 Protection against noise and BWR6 Energy economy and heat retention may be fulfilled. The failure of the structural bond would cause risk to human life and/or considerable economic consequences.

The provisions made in this European Technical Assessment are based on the assumed working life of the SSGS of 25 years. The assumed working life of a system cannot be taken as a guarantee given by the producer, but are to be used as a means for selecting appropriate products.

2.2 Provisions related to manufacturing, packaging and storage

2.2.1 Storage of the anodised Glazing profile adaptor 134.1116.17SG

The storage of the glazing profile shall be performed in a protected and maintained location with a maximum relative humidity of 60%. At those conditions, they may be used for projects up to 6 months after the anodising. After this delay, the adaptors need to be reassessed.

2.2.2 Structural sealant support frames (fig. 2)

The structural sealant support frames are manufactured by the façadiers according to the ETA designer rules and instructions.

The structural sealant support frame profiles are made of extruded aluminium.

The profiles are assembled by corners to screw and/or to crimp to form the structural sealant support frame:

The dimensional tolerances on the structural sealant support frame are ±1 mm.

Principal operations:

- Assembling of the structural seal support frame profile,
- Drilling and punching of the holes for ironwork, drainage and ventilation
- Setting the ironwork

2.2.3 Bonding the glazing

The following combinations of anodizing/sealant has been assessed fit for use.

The use of primer is assessed per batch of adaptor by adhesion test with the project structural sealant(s)

Table 7 – Sealant / anodizing combinations

Sealants	Anodizing	Cleaner/Primer
Dow SIL™ 993	Alural	Cleaner R40
Dow SIL™ 895	Alural	
SG 500	Alural	-
SG 20	Alural	
SG 499	Alural	Primer 10073
SG 490	Alural	
SG 200	Alural	Primer SG010

2.2.3.1 Application of the sealants

This work is performed in a workshop heated and maintained free from dust. Instructions given in the ETA for structural sealant are to be respected.

Principal stage of assembling:

- Preparation of the structural sealant adhesion surfaces as prescribed by the ETA on the structural sealant(s) used,
- Setting in place of the spacers,
- Setting in place of the glazing,
- Setting of setting blocks in place,
- Extrusion of the sealant,
- Pressing and smoothing the sealants beads,
- Setting of the mechanical self-weight support

The frame is immediately set on a rack. The sealant curing is then allowed without any movement between the glass and the structural support frame during the time prescribed in the structural sealant ETA.

2.3 Provisions related to the design and use of the product

2.3.1 Design rules

2.3.1.1 Structural seals design

The structural seal shall be calculated in accordance with ETAG 002, Annex 2, with the design value given in chapter 2.1.1 respecting the following minimum dimensions of the structural seal: $e \geq 6$ mm, $h_c \geq 6$ mm. (For the definition of e, h_c, see ETAG 002).

Alternative calculation methods mentioned in the ETA of the structural sealants may also be used (see this ETA, clause 1.2.1).

2.3.1.2 *Drainage*

The drainage principle for the system is given on fig. 7

The water evacuation is ensured by indicated cut outs in the linking cascade gasket.

Spandrel: ventilation of the fixed parts is performed by 2 holes of Ø8 mm in the upper part of the 2 vertical structural sealant support frame profiles.

2.3.1.3 *Weather sealing*

Between the glass and the support frame the weather sealing is achieved with the structural seal completed with the backer gasket 180.9302.04 for insulating glass.

Between the cassettes, the weather sealing is achieved with the gaskets 180.9921.04, 180.9922.04, 180.9923.04, 180.9924.04, 180.9925.04, 180.9926.04 according to the glass thickness, and 180.9264.04, 180.9269.04 and 180.9330.04.

2.3.1.4 *Maximum dimensions*

The fixed parts are to be calculated according to the technical data of the anchorages and frame profile given in the ETA.

Anchorage of the structural sealant support frame: the fixed frames are designed taking into consideration the following rules:

– The maximum deflection of structural sealant support frame profile between 2 anchorages is 1/300.

2.3.1.5 *Transfer of the dead load of the infill panel to façade structure*

The mechanical self-weight support devices are given in this ETA, clause 1.2.3.1

The bearing capacity was determined according the EN 16758

Table 8 – Self weight support - maximum bearing capacity per retaining device

Self-weight support	Maximum bearing capacity N
173.8505.C35 length 200 mm	1500
173.8506.C35 length 200 mm	1500

2.3.1.6 *Retaining devices*

The retaining devices are given in this ETA, clause 1.2.3.2. The maximum bearing capacity of the retaining device is given here after:

Table 9 – Retaining device - maximum bearing capacity per retaining device

Retaining devices 100 mm	Bearing capacity F_{des} (N)
173.8561.C35	1950
173.8563.C35	1950

Calculation of the required number and distance of the retaining devices must be done project per project in function of the wind and the infill panel dimensions.

2.3.2 Installation - Specifications on the façade structure

The maximum permissible deflection of the mullion and transom under the designed load is 1/200 (SLS).

The coupling between mullions and transoms is performed by mechanical T -connection.

The façade structure shall be electrically earthed.

The façade structure shall be equipped with dilatation joints and movement joints in function of those of the building structure.

In the façade design, movement in the joint shall not be thwarted and care shall be taken not to shortcut any façade structure joint with structural sealant support frames.

The cassettes are placed on the building structure element per element.

The elements are then equipped with the gaskets.

Care shall be taken to allow drainage.

2.3.3 Maintenance and repair

2.3.3.1 *Repair*

Since the glazing is glued directly into the basic structure via the glazing profile, it is not possible to remove the frame for replacing glass panel in the workshop if the glass breaks. With this type of curtain wall, replacing glass panel must be carried out on site. Specific rules have been put forward for this via the silicone supplier. There may also be additional country-specific guidelines / restrictions which must be taken into account.

Practical procedure:

1. Remove the broken glazing and the used glazing profiles.
2. In the workshop, glazing profile is only fitted to the top of the glass plate. The fillister reducer must be glued to the glazing profile. The reduced gasket must be calculated per project.
3. Other glazing profiles must be fitted directly to frame. These must be mechanically protected at least once.
4. Fillister reducer must be fitted to glazing profile. Fillister reducer must be interrupted locally at the clips.
5. Fitting of the glass sheet to mainframe (on site). The glass sheet is hooked onto the base frame with fitted glazing profile. Support for own weight must be provided via glass supports.
6. Glass sheet must be temporarily mechanically secured. This must be done using specific equipment, possibly with additional glass clamp 097.0762.00 in combination with safety against unhooking.
7. Gluing the glass sheet via inside of the building.
8. Once the glue has hardened temporarily fitted glass clamp 097.0762.00 must be removed and these openings sealed up

2.3.3.2 *Maintenance*

Ordinary periodic maintenance: cleaning the glazing with clear water.

When necessary, the cleaning product mentioned in the ETAs for structural sealants referred in Table 1 can be used.

For any other cleaning product, the compatibility with the kit shall be assessed as required by the ETAG 002.

3 Performance of the product and references to the methods used for its assessment

3.1 General

The assessment of the fitness for use of the structural sealant for the intended use in relation to the requirements for safety in case of fire; safety in use; hygiene health and environment; energy economy and heat retention; in the sense of the Basic Work Requirements 2, 3, 4 and 6, has been made in accordance with the "Guideline for European Technical Assessment for Structural Sealant Glazing Systems (ETAG 002).

Where the guideline allows for classifications and/or choice, the selection specified below has been made.

3.2 Safety in case of fire

3.2.1 Reaction to fire

Anodized aluminium profiles: class A1 (EC decision 96/603/EC)

Painted aluminium profiles: class A2 – s1,d0

EPDM gaskets: class E

3.2.2 Resistance to fire

No performance assessed

3.3 Hygiene, health and environment

3.3.1 Air permeability (ETAG 5.1.3.1.2, EN 12152)

Table 10 – Air permeability

ETAG 002, clause 5.1.3.1.2 EN 12152 – EN 12207	
Fixed part	AE 1200

3.3.2 Water tightness (ETAG 5.1.3.1.2)

Table 11 – Water tighness

ETAG 002, clause 5.1.3.1.2 EN 12154 – EN 12237	
Fixed part	RE 1200

3.3.3 Dangerous substances

No performance assessed

3.4 Safety in use

3.4.1 Impact test

Table 12 – Impact resistance

ETAG 002, clause 5.1.4.5 EN 12154 – EN 12237	
Fixed part	I5 – E5

3.4.2 Sill height

Transom and mullion are coupled by mechanical connections. The sill height can be adapted to any required height.

3.4.3 Wind resistance

Table 13 – Wind resistance

ETAG 002, clause 5.1.4.9 EN 13116	
Fixed part	EN 13116: Design load: +/- 2400 Pa (SLS) Safety wind load : +/- 3600 Pa (ULS)

3.5 Protection against noise

Table 14 – Acoustic performance

Description	Fixed part		
Dimensions and total surface	(lg x h) (m) 2.31x 4,04 surface: 9,33m²	(lg x h) (m) 4.04 x 2.31 surface: 9,33m²	(lg x h) (m) 4.04 x 2.31 surface: 9,33m²
Frame	107.0510.XX	107.0510.XX	107.0510.XX
	107.0520.XX	107.0501.XX	107.0501.XX
	107.0521.XX	107.0521.XX	107.0520.XX 107.0521.XX
	107.0585.XX	107.0585.XX	107.0585.XX
Gaskets	180.9264.04	180.9264.04	180.9264.04
	180.9921.04	180.9921.04	180.9921.04
	180.9300.04	180.9300.04	180.9300.04
	180.9301.04	180.9301.04	180.9301.04
	180.9302.04	180.9302.04	180.9302.04
Adaptor	134.1116.17SG	134.1116.17SG	134.1116.17SG
glass / infill	10/16/66.2	(*)	66.2/12/6/12/8 8.2
R_w (C; C_{Tr})	43(-1;-4)	51(-1;-3)	48(-1;-3)
(*) Single glass 8 mm / 2 x 60 mm Rockwool / steel plate 1,5mm			

3.6 Energy economy and heat retention

3.6.1 Determination of thermal insulation and susceptibility of condensation:

– Aggregate test method

No performance assessed through testing

– Calculation method

As a function of the design and the glazing chosen, thermal modelling of a SSGS can be undertaken with various computer software packages. To use the results of those programmes, it is necessary to ensure that they are at least two-dimensional and cover all the required parameters (EN ISO 13788).

– The commonly used values of the thermal conductivity (λ-value) of the materials used in the present SSGS kit are:

Table 15 – Thermal conductivity (λ-value) of the components

Materials	λ-value (W/m K)
Stainless steel	17
Glass	1
EPDM	0,25
ABS	0,15
Silicone	0,35
Spacer PUR foam	0,078
Aluminium	160
TPE LD	0,33

Some situation have been calculated as per EN ISO 10077-2 based on the assumption of the EN ISO 12361. The total width of the joint is 190 mm, considering an infill panel of 0,7 or 1,1 W/m²K: see Annex II.

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with Regulation (EU) N° 305/2011, Article 65, Directive 89/106/EEC is repealed, but references to the repealed Directive shall be construed as references to the Regulation.

The systems of assessment and verification of constancy of performance specified by the European Commission detailed in EC Decision 96/582/EC[3] are as follows:

- System 1 (without audit testing of samples) for SSG kits Type II and IV;
- System 2+ (first possibility, including certification of the factory production control (FPC) by an approved body on the basis of its continuous surveillance, assessment and assessment) for SSG kits Type I and III

The system(s) of assessment and verification of constancy of performance are shown in the following Table.

Table 17 – System(s) of assessment and verification of constancy of performance

Product(s)	Intended use(s)	Level(s) or class(es)	Assessment and verification of constancy of performance system(s)*
SSG kit type II and IV	External walls and roofs	none	1
SSG kit type I and III		none	2+

* See Annex V to Regulation (EU) N° 305/2011

In practice, the operation of systems 1 and 2+ will be very similar for SSG kits, for the following reasons:

- the results of assessment testing shall be used by notified bodies (cf. Regulation (EU), Annex V, clause 1.6)
- the nature of the product is such that testing of samples at the factory by the manufacturer will be required under the FPC arrangements.

[3] Commission decision of 24/06/96, published in the EC Official Journal L254 of 08/10/96

5 Technical details necessary for the implementation of the AVCP system

5.1 Tasks for the ETA-holder

5.1.1 Factory production control (FPC)

5.1.1.1 General

The manufacturer shall establish, document and maintain a FPC system to ensure that the products placed on the market conform to the stated performance characteristics. The FPC system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control raw and other incoming materials or components, equipment, the production process and the product.

A FPC system conforming with the requirements of EN ISO 9001, and made specific to the requirements of this ETA, is considered to satisfy the above requirements.

The results of inspections, tests or assessments requiring action shall be recorded, as shall any action taken. The action to be taken when control values or criteria are not met shall be recorded.

The ETA holder of the kit is responsible for setting up appropriate rules and instructions for façadiers and the bonding workshops (quality manual for kit assembling and bonding). The different actors are bound via contractual links with the ETA holder to respect the kit holder's rules and instructions which are an integral part of the FPC system

5.1.1.2 Equipment

All weighing, measuring and testing equipment shall be calibrated and regularly inspected according to documented procedures, frequencies and criteria.

5.1.1.3 Raw materials and components

The specifications of all incoming raw materials and components shall be documented, as shall the inspection scheme for ensuring their conformity.

5.1.1.4 Non-conforming products

In the event of any non-conformity of any product, that product shall be placed into quarantine and action taken to rectify the cause of the non-conformity. Products may not subsequently be dispatched until the problem has been resolved.

5.1.1.5 Tests and frequencies

All the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures. This production control system ensures that the product is in conformity with the European Technical Assessment (ETA).

This relates only to taking samples representative of the final product. In the context of SSGS the testing of "H" pieces, peel tests as part of FPC provides the necessary evidence.

5.2 Tasks for the Technical Assessment Body

5.2.1 Initial Type Testing

Assessment tests on the sealant have been conducted under the responsibility by the assessment body (UBAtc) in accordance with Chapter 5 of the ETAG 002. The assessment body (UBAtc) has assessed the results of these tests in accordance with Chapter 6 of this ETAG, as part of the ETA issuing procedure. The results of assessment testing shall be used by notified bodies (cf. Regulation (EU), Annex V, clause 1.6).

5.2.2 Assessment of the factory production control - Initial inspection and continuous surveillance

Assessment of the FPC is the responsibility of a notified body.

An assessment must be carried out on the required manufacturing steps of each manufacturing plant to demonstrate that the factory production control is in conformity with the ETA and any subsidiary information. This assessment is based on an initial inspection of the different manufacturing actors' plants. (Kit designer; façadier(-s) and bonding workshops)

Subsequently continuous surveillance of factory production control is necessary to ensure continuing conformity with the ETA. This continuous surveillance shall be in conformity with to ETAG 002, chapter 8.3, at each identified manufacturing plant.

It is recommended that surveillance inspections should be conducted at least twice a year at each identified manufacturing plant.

6 Bibliography

ETAG 002 Structural sealant glazing kits Edition November 1999 1st amendment: October 2001- 2nd amendment: November 2005 - 3rd amendment: May 2012.

EN 515 Aluminium and aluminium alloys - Wrought products - Temper designations

EN 573-3 Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 3: Chemical composition and form of products

EN 755-2: Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles - Part 2: Mechanical properties

EN 1863-1 and -2 Glass in building - Heat strengthened soda lime silicate glass

EN 12020-1 Aluminium and aluminium alloys - Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 - Part 1: Technical conditions for inspection and delivery

EN 12020-2 Aluminium and aluminium alloys - Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 - Tolerances on dimensions and form

EN 12210 Windows and doors - Resistance to wind load - Classification

EN 12152 Curtain walling - Air permeability - Performance requirements and classification

EN 12154 Curtain walling - Watertightness - Performance requirements and classification

EN 12207 Windows and doors - Air permeability - Classification

EN 12237 Windows and doors – Watertightness - Classification

EN 13116 Curtain walling - Resistance to wind load - Performance requirements

EN 16758 - Curtain walling - Determination of the strength of shear connections - Test method and requirements

EN ISO 2143 Anodizing of aluminium and its alloys - Estimation of loss of absorptive power of anodic oxidation coatings after sealing - Dye-spot test with prior acid treatment

EN ISO 2931 Anodizing of aluminium and its alloys - Assessment of quality of sealed anodic oxidation coatings by measurement of admittance

EN ISO 3210 Anodizing of aluminium and its alloys - Assessment of quality of sealed anodic oxidation coatings by measurement of the loss of mass after immersion in phosphoric acid/chromic acid solution

EN ISO 3506 Mechanical properties of corrosion-resistant stainless steel fasteners

EN ISO 10077-2 Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Numerical method for frames

EN ISO 13788 Hygrothermal performance of building components and building elements - Internal surface temperature to avoid critical surface humidity and interstitial condensation - Calculation methods

EN ISO 12361 Thermal performance of curtain walling - Calculation of thermal transmittance

UBAtc asbl is a non-profit organization according to Belgian law. It is a Technical Assessment Body notified by the Belgian notifying authority, the Federal Public Services Economy, SMEs, Self-Employed and Energy, on 17 July 2013 in the framework of Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC and is member of the European Organisation for Technical Assessment, EOTA (www.eota.eu).

This European Technical Assessment has been issued by UBAtc asbl, in Sint-Stevens-Woluwe, on the basis of the technical work carried out by the Assessment Operator, BCCA.

On behalf of UBAtc asbl,

Eric Winnepenninckx
secretary general

Benny De Blaere
Director

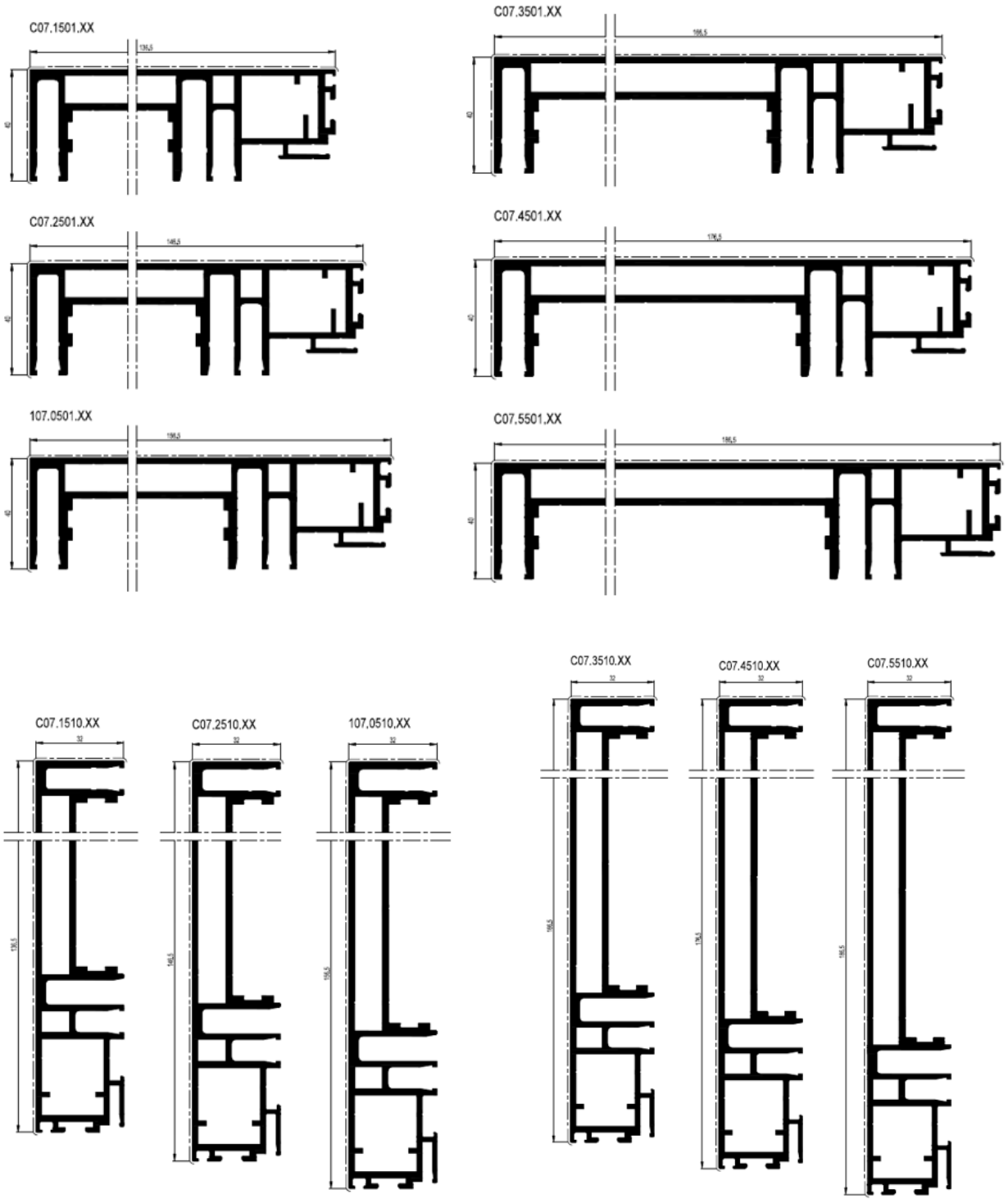
On behalf of the Assessment Operator, BCCA, responsible for the technical content of the ETA,

Olivier Delbrouck,
director general

The most recent version of this European Technical Assessment may be consulted on the UBAtc website (www.butgb-ubatc.be).

Annex I – Figures

Fig. 1 - Framing profiles



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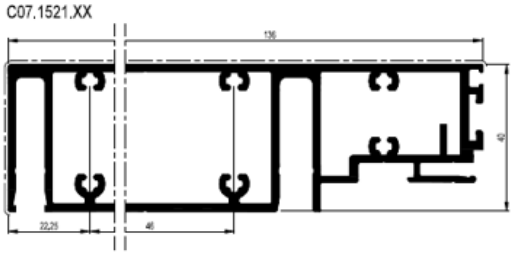

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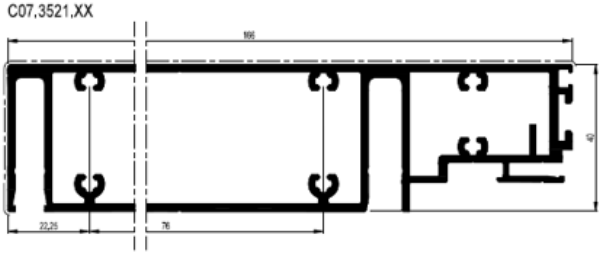

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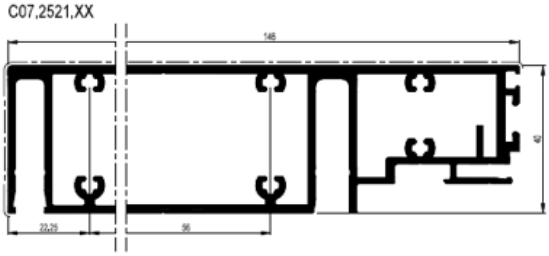

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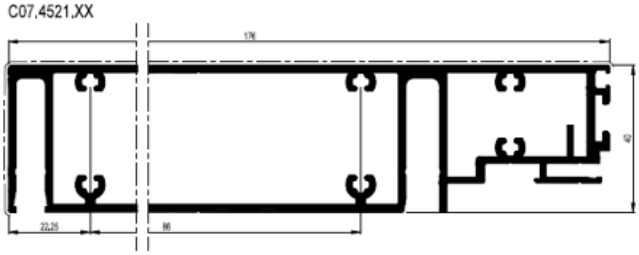

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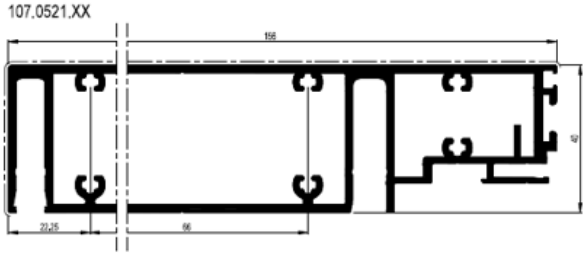

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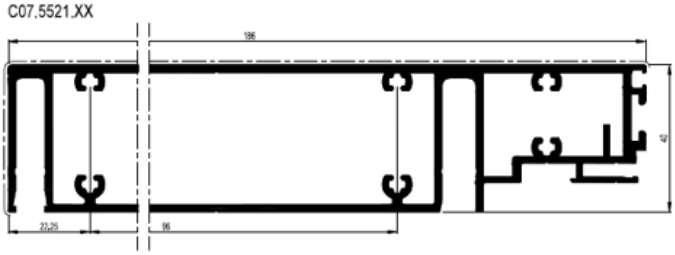

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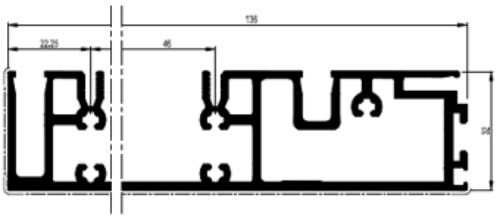

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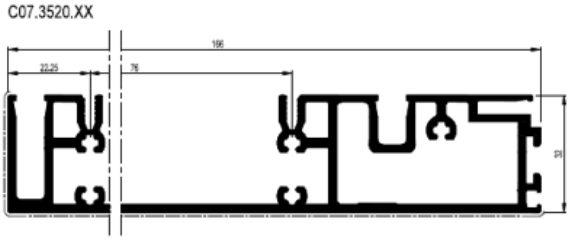

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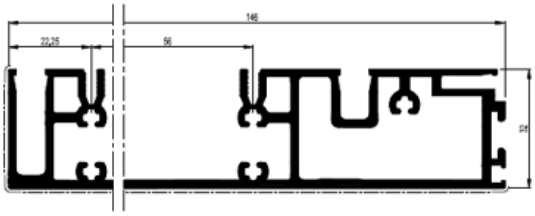

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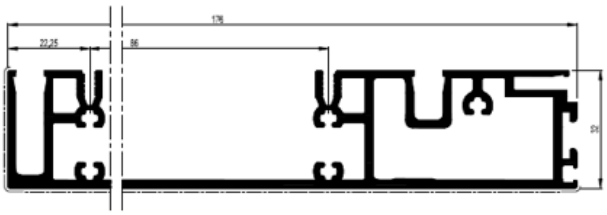

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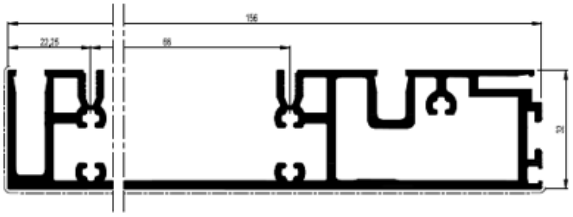

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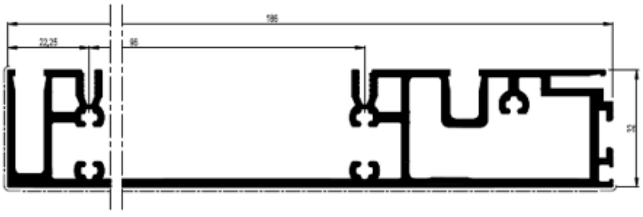

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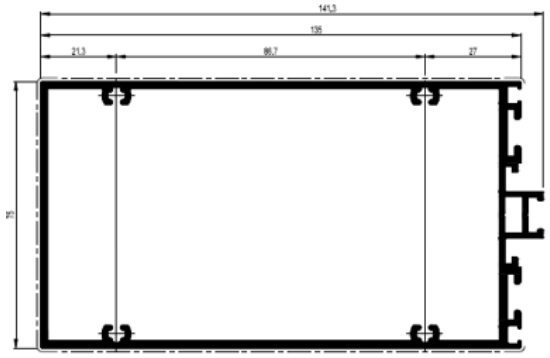

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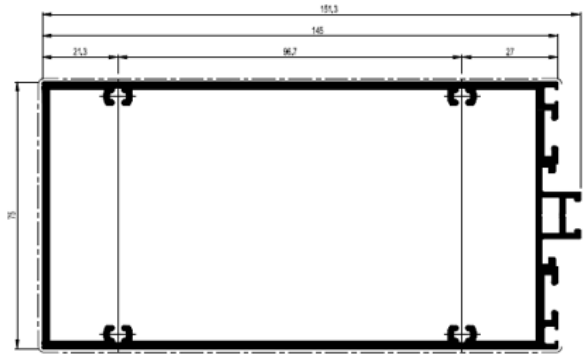

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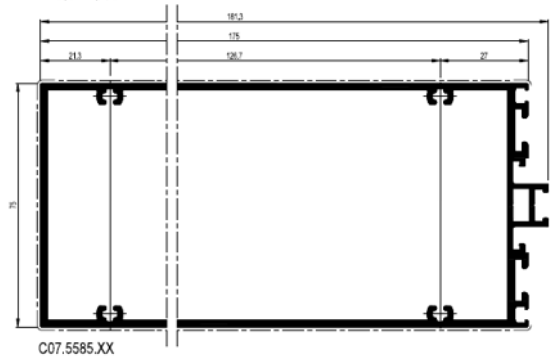

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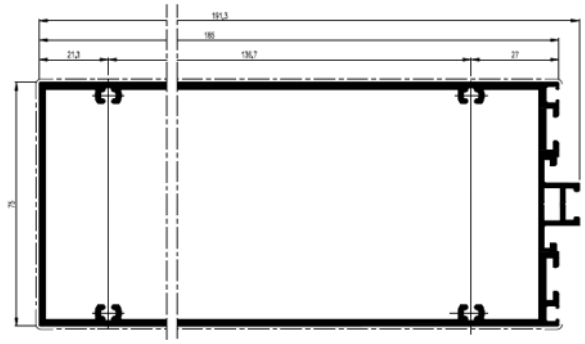

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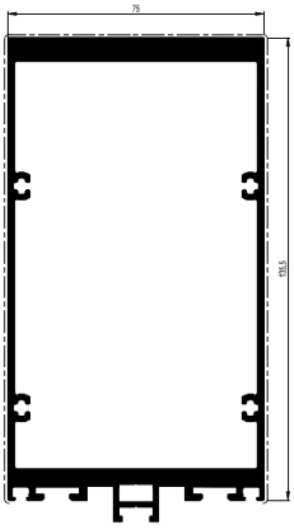

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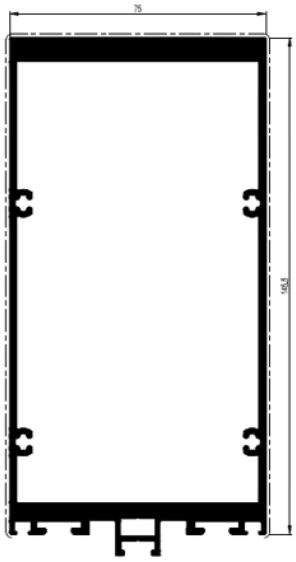

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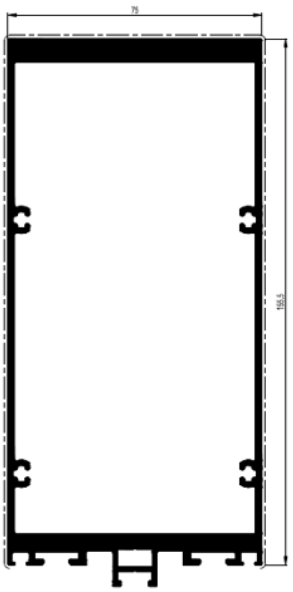

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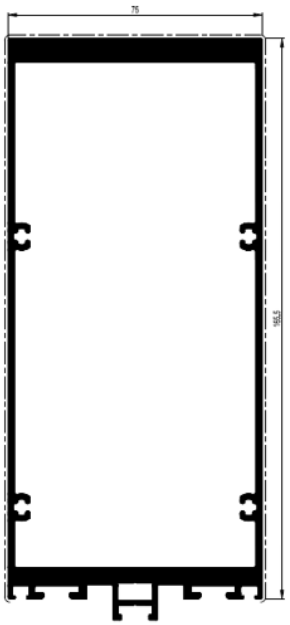

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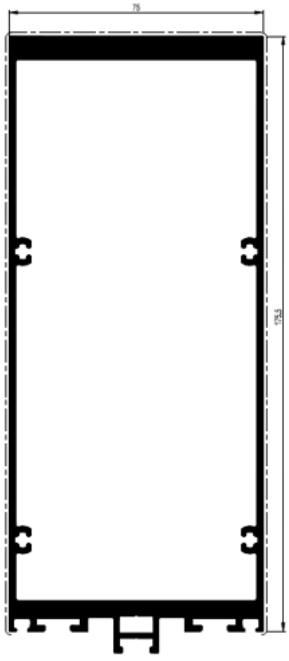

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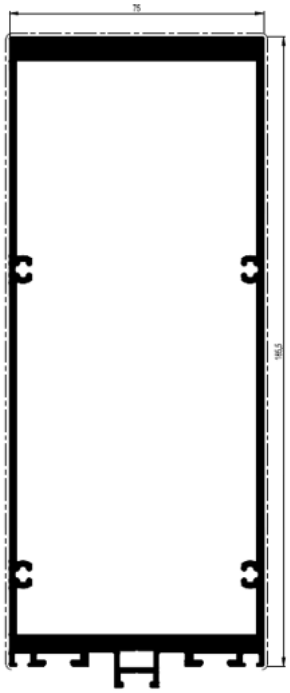

Fig. 2 - Structural sealant frame profiles

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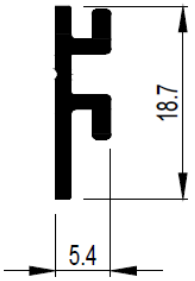

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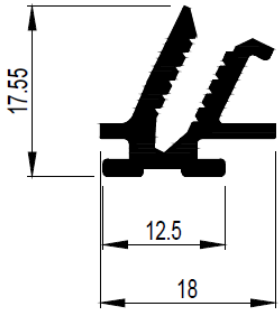

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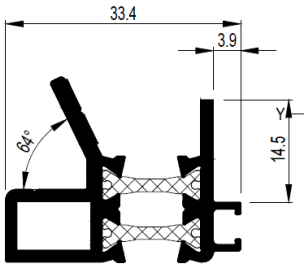
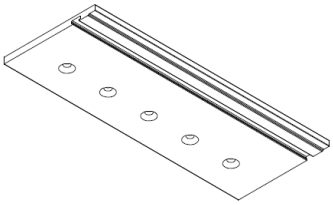
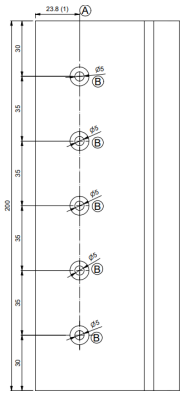


Fig. 3 - Mechanical self-weight support and retaining device

173.8505.C35





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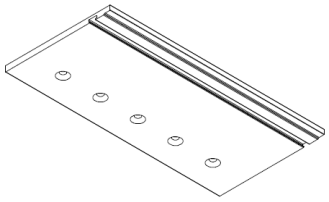

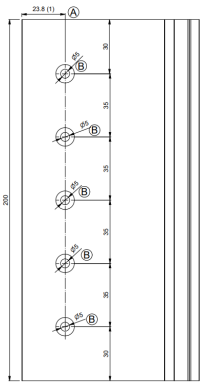

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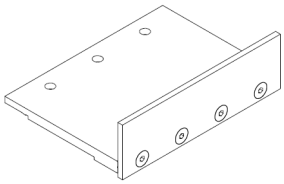

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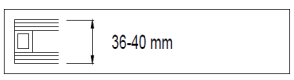

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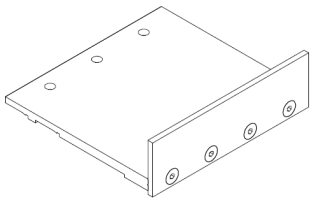

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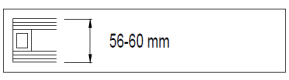
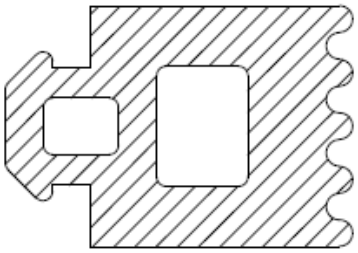


Fig. 4 - Gaskets

180.9302.04



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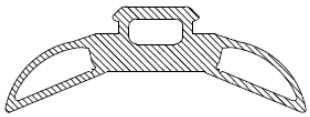

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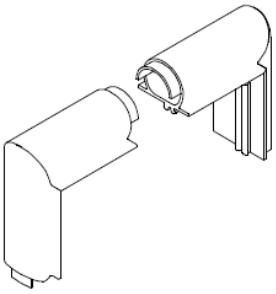

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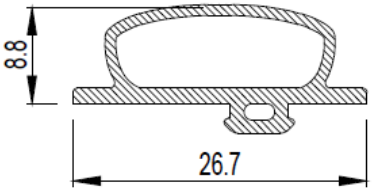

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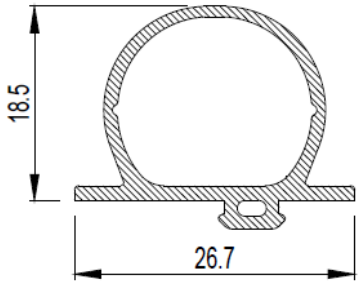

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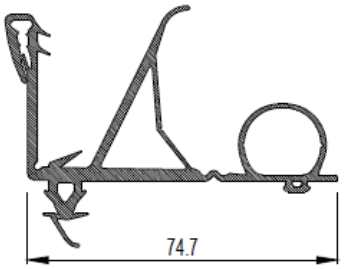

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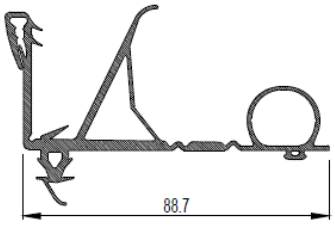

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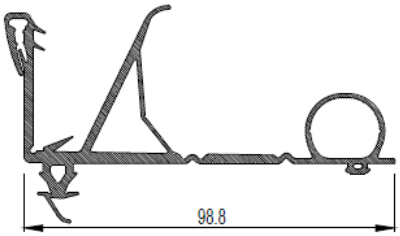

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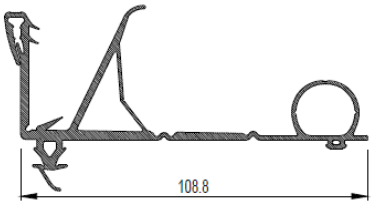

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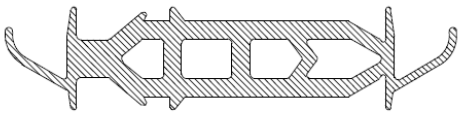

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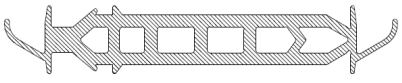

Fig. 5 - Profiles assemblies

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C07.2510.XX	C07.2510.XX	C07.2501.XX	C68.2522.00			
C07.3510.XX	C07.3510.XX	C07.3501.XX	C68.3522.00			
C07.4510.XX	C07.4510.XX	C07.4501.XX	C68.4522.00			
C07.5510.XX	C07.5510.XX	C07.5501.XX	C68.5522.00			

A	B2	C2	G	H	I	J2
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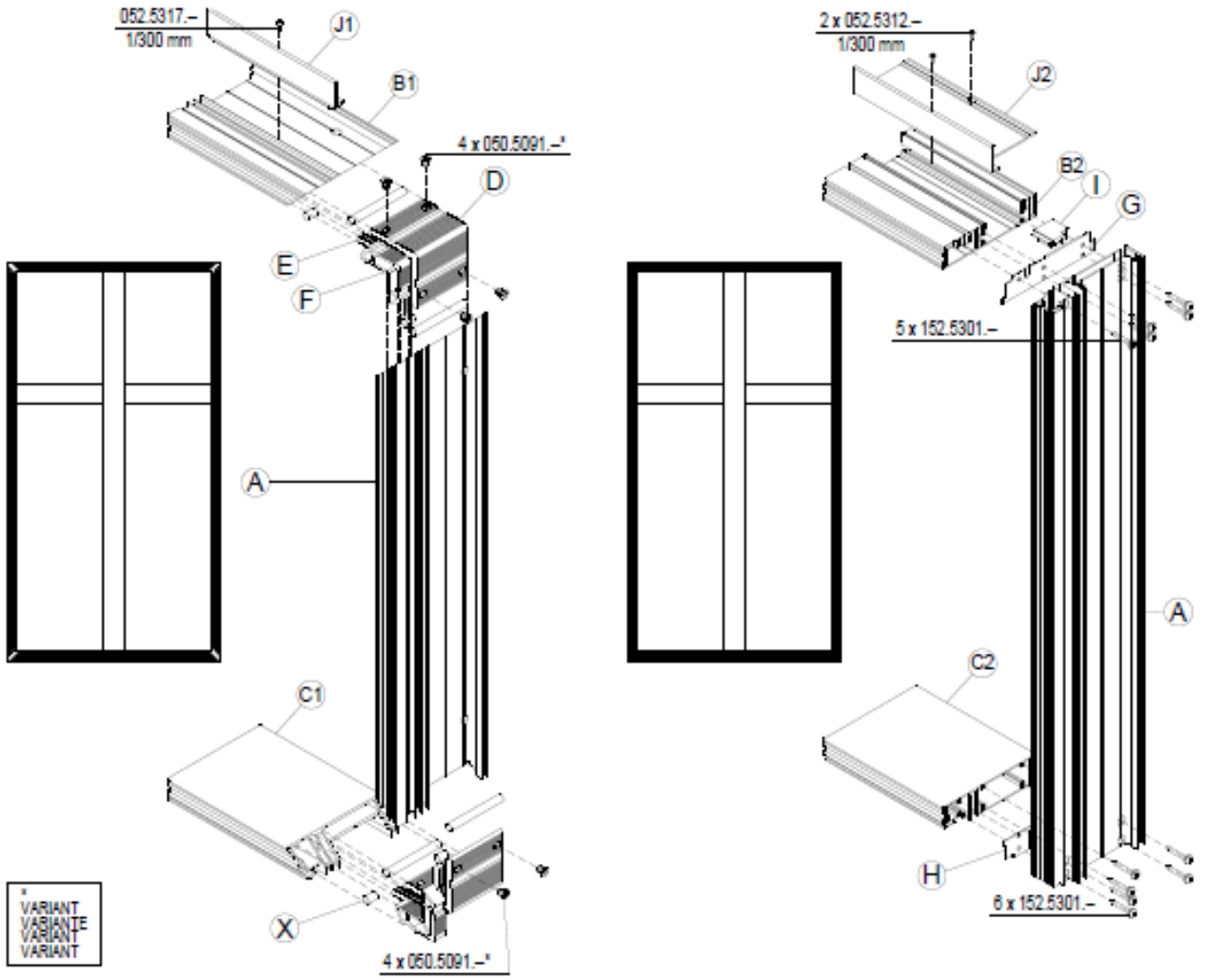
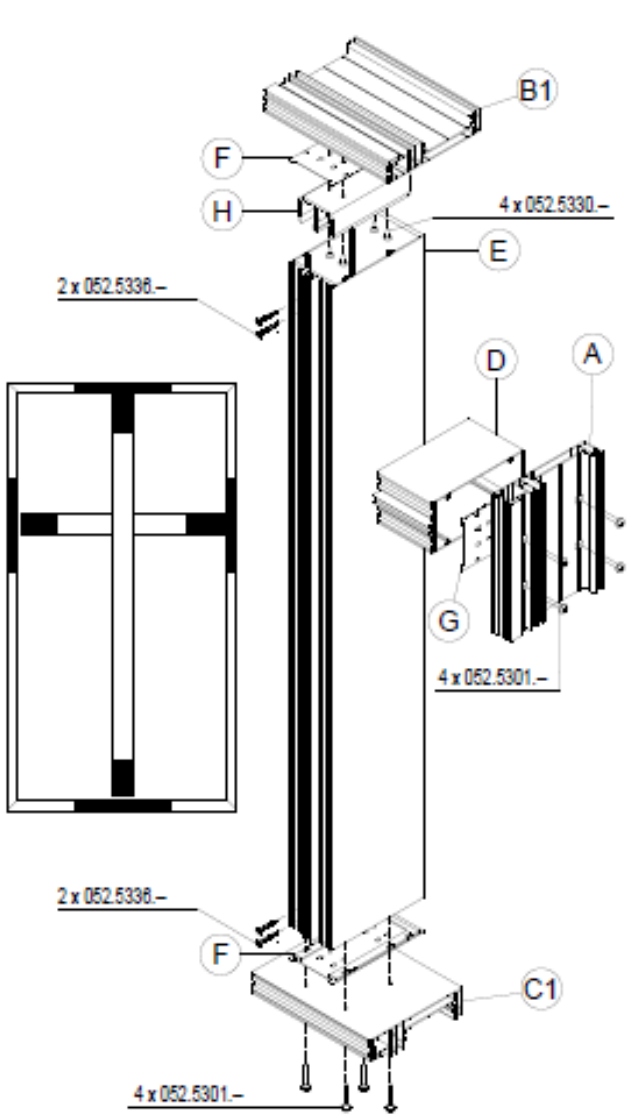
C07.2510.XX	C07.2520.XX	C07.2521.XX	C62.2408.04	C62.2410.04		
C07.3510.XX	C07.3520.XX	C07.3521.XX	C62.3408.04	C62.3410.04		
C07.4510.XX	C07.4520.XX	C07.4521.XX	C62.4408.04	C62.4410.04		
C07.5510.XX	C07.5520.XX	C07.5521.XX	C62.5408.04	C62.5410.04		

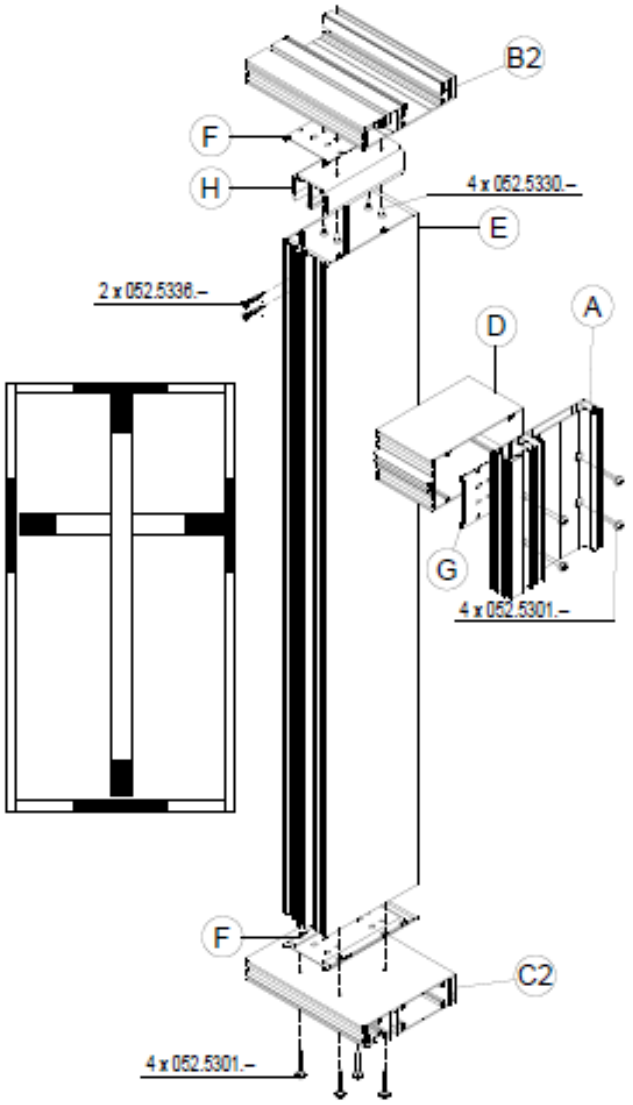


A	D	G
107.0510.XX	107.0585.XX	162.9412.04
C07.1510.XX	C07.1585.XX	C62.1412.04
C07.2510.XX	C07.2585.XX	C62.2412.04
C07.3510.XX	C07.3585.XX	C62.3412.04
C07.4510.XX	C07.4585.XX	C62.4412.04
C07.5510.XX	C07.5585.XX	C62.5412.04

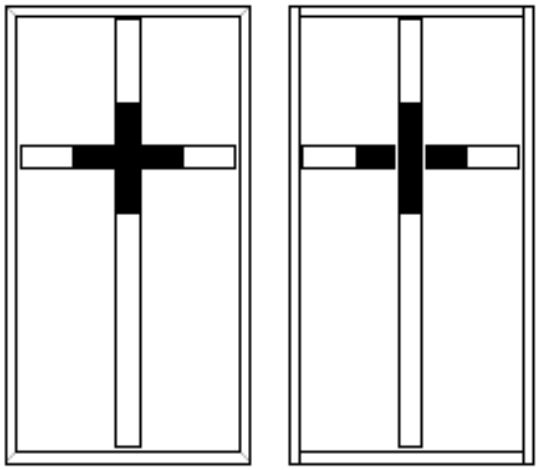
B1	C1	E	F	H
107.0510.XX	107.0501.XX	107.0580.XX	162.9412.04	173.7517.00
C07.1510.XX	C07.1501.XX	C07.1580.XX	C62.1412.04	C73.1517.00
C07.2510.XX	C07.2501.XX	C07.2580.XX	C62.2412.04	C73.2517.00
C07.3510.XX	C07.3501.XX	C07.3580.XX	C62.3412.04	C73.3517.00
C07.4510.XX	C07.4501.XX	C07.4580.XX	C62.4412.04	C73.4517.00
C07.5510.XX	C07.5501.XX	C07.5580.XX	C62.5412.04	C73.5517.00

B2	C2	E	F	H
107.0520.XX	107.0521.XX	107.0580.XX	162.9412.04	173.7517.00
C07.1520.XX	C07.1521.XX	C07.1580.XX	C62.1412.04	C73.1517.00
C07.2520.XX	C07.2521.XX	C07.2580.XX	C62.2412.04	C73.2517.00
C07.3520.XX	C07.3521.XX	C07.3580.XX	C62.3412.04	C73.3517.00
C07.4520.XX	C07.4521.XX	C07.4580.XX	C62.4412.04	C73.4517.00
C07.5520.XX	C07.5521.XX	C07.5580.XX	C62.5412.04	C73.5517.00





A	B	C	D
107.0580.XX	107.0585.XX	173.7517.00	162.9412.04
C07.1580.XX	C07.1585.XX	C73.1517.00	C62.1412.04
C07.2580.XX	C07.2585.XX	C73.2517.00	C62.2412.04
C07.3580.XX	C07.3585.XX	C73.3517.00	C62.3412.04
C07.4580.XX	C07.4585.XX	C73.4517.00	C62.4412.04
C07.5580.XX	C07.5585.XX	C73.5517.00	C62.5412.04



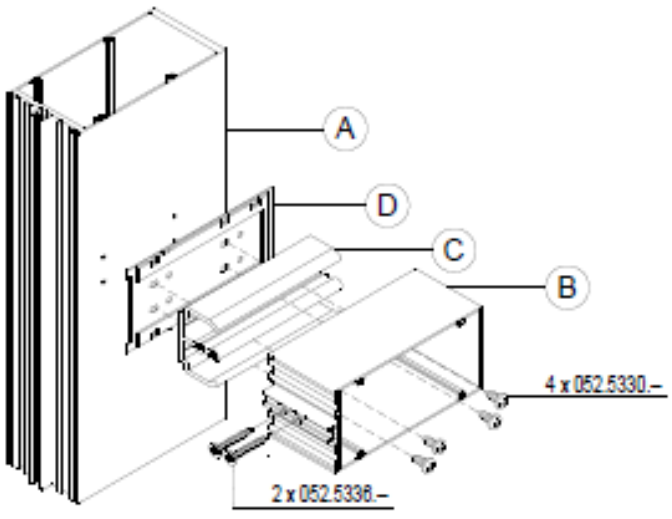
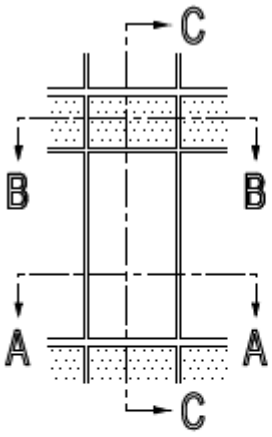
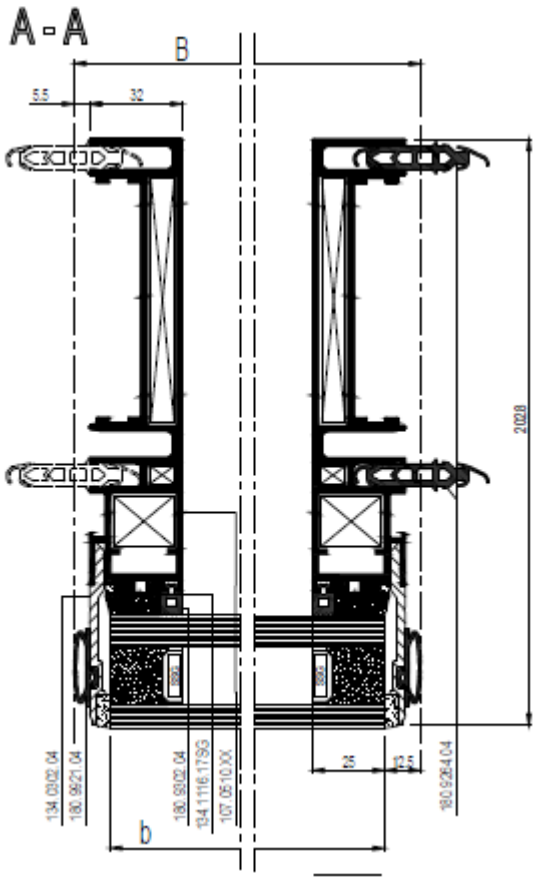
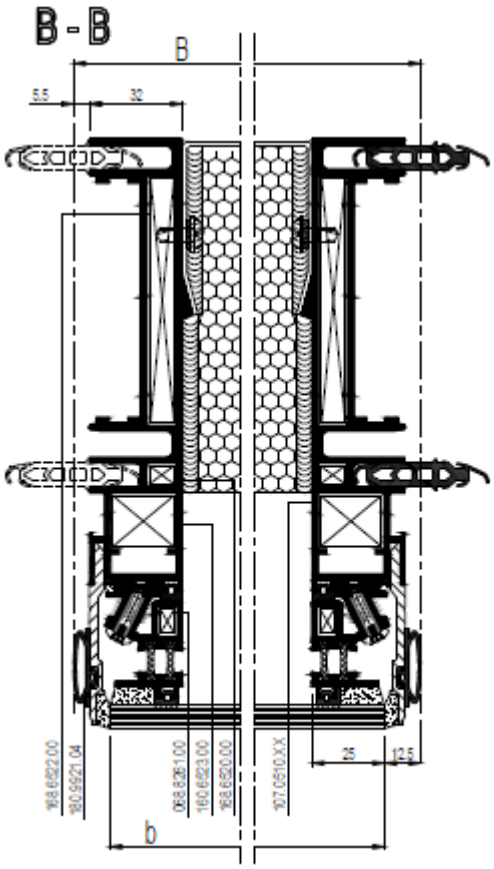


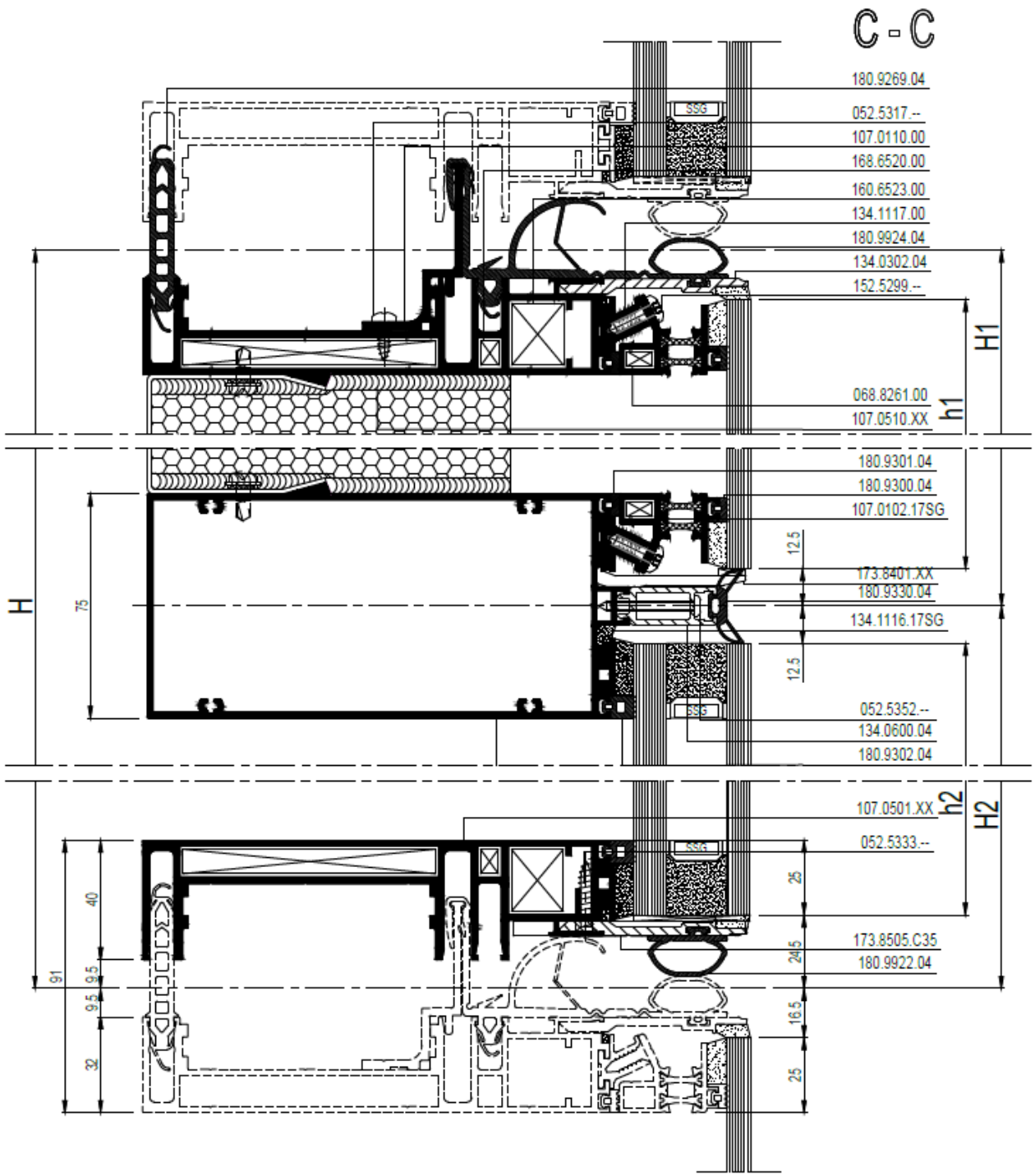
Fig 6 – Structural sealant support frame : Vertical and horizontal cuts detail

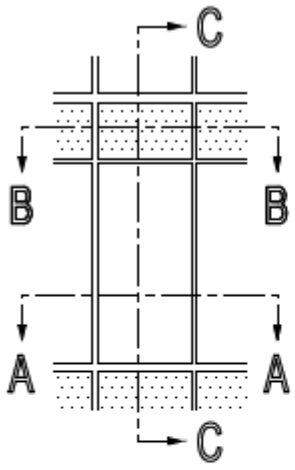


b = B - 25 h1 = H1 - 29 h2 = H2 - 37				#	Lm
	107.0501.XX			1	B + 5 B - 11
	107.0510.XX			1	B - 11
				2	H - 27
	107.0110.00			1	B - 11
	107.0585.XX			1	B - 76
	134.1116.17SG			1	B-61
				1	B-22
				2	H2-34
	134.1117.00			1	B-76
				1	B-23.3
				2	H1-45.2
	107.0102.17SG			2	H1 - 26.5
				2	B - 22.5
	134.0302.04			2	B - 11
				2	H - 27
	134.0600.04			1	B - 23





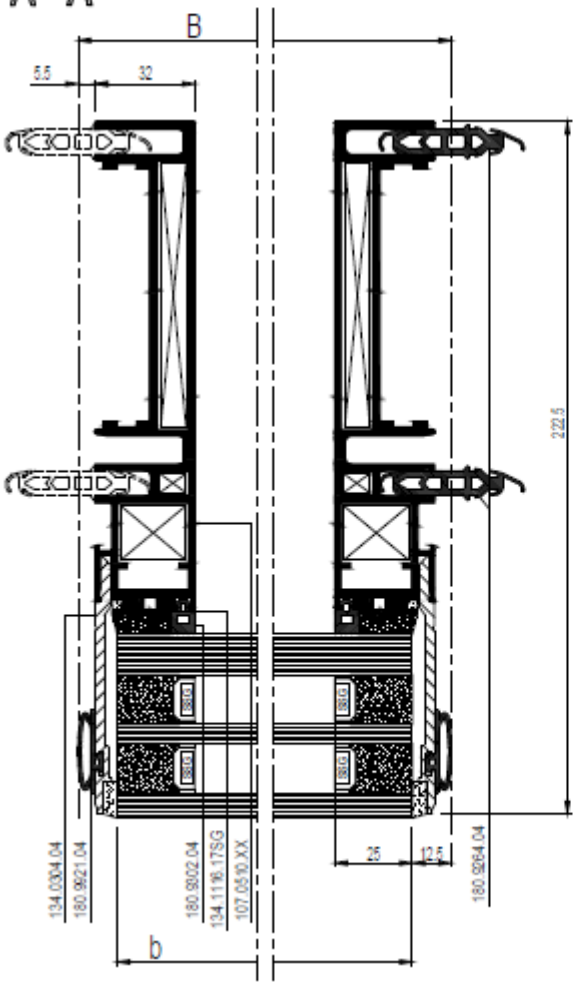

C - C
180.9269.04
052.5317.--
107.0110.00
168.6520.00
160.6523.00
134.1117.00
180.9924.04
134.0302.04
152.5299.--
H1
068.8261.00
107.0510.XX
h1
H
180.9301.04
180.9300.04
107.0102.17SG
12.5
173.8401.XX
180.9330.04
134.1116.17SG
12.5
75
052.5352.--
134.0600.04
180.9302.04
107.0501.XX
h2
H2
052.5333.--
25
173.8505.C35
180.9922.04
245
16.5
25
40
9.5
9.5
32
91



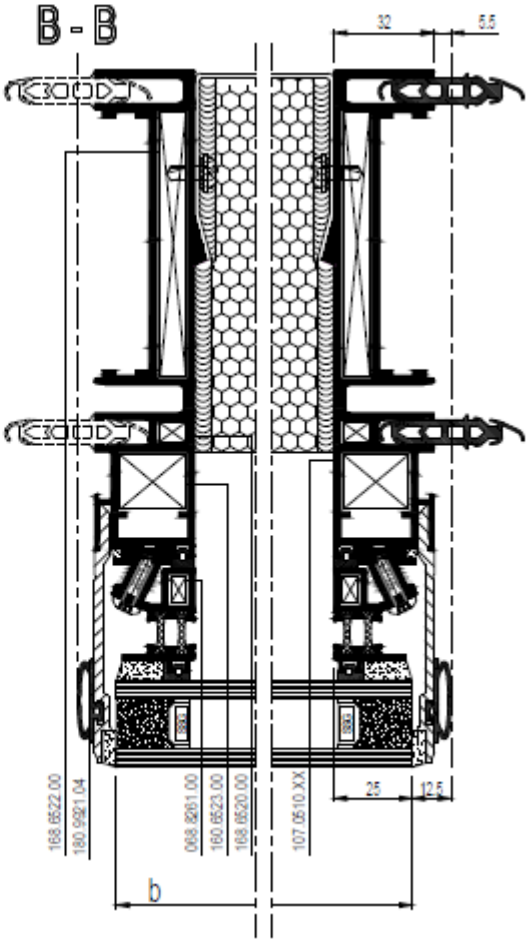
b = B - 25
h1 = H1 - 29
h2 = H2 - 37

			#	
107.0501.XX			1	B + 5 B - 11
107.0510.XX			1	B - 11
			2	H - 27
107.0110.00			1	B - 11
107.0585.XX			1	B - 76
134.1116.17SG			1	B-61
			1	B-22
			2	H2-34
134.1117.00			1	B-76
			1	B-23.3
			2	H1-45.2
107.0102.17SG			2	H1 - 26.5
			2	B - 22.5
134.0304.04			2	B - 11
			2	H - 27
134.0601.04			1	B - 23

A - A



B - B



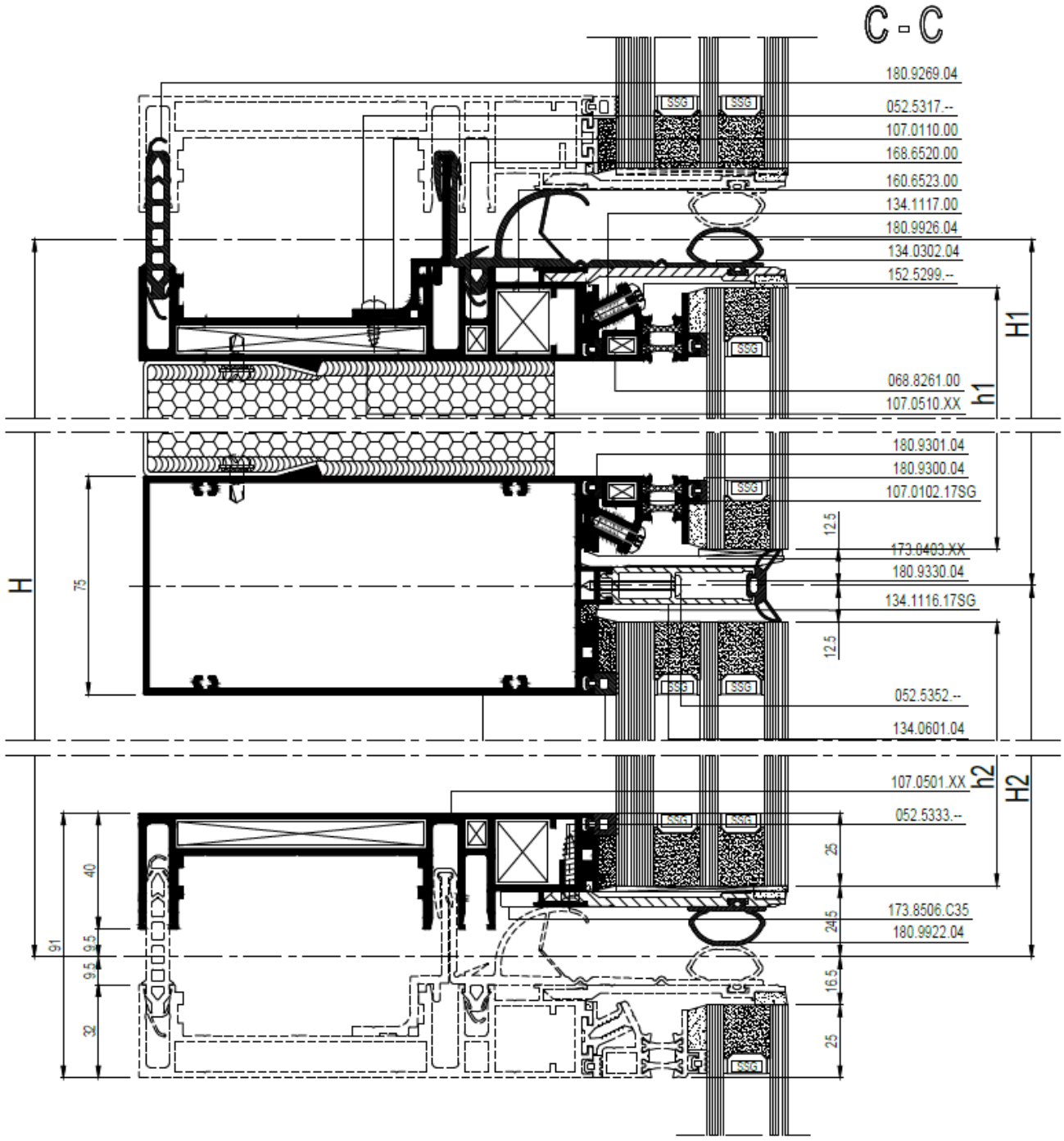
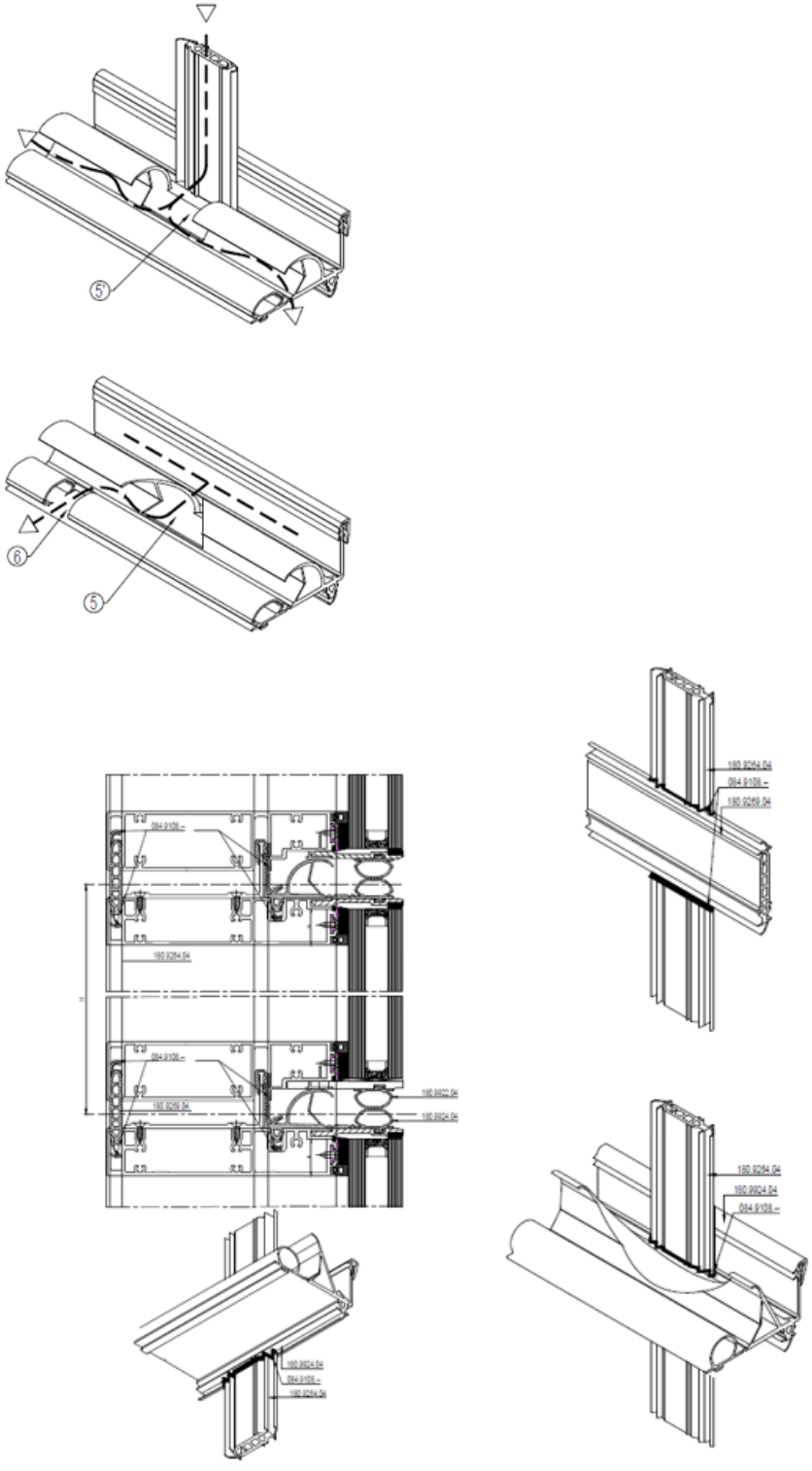
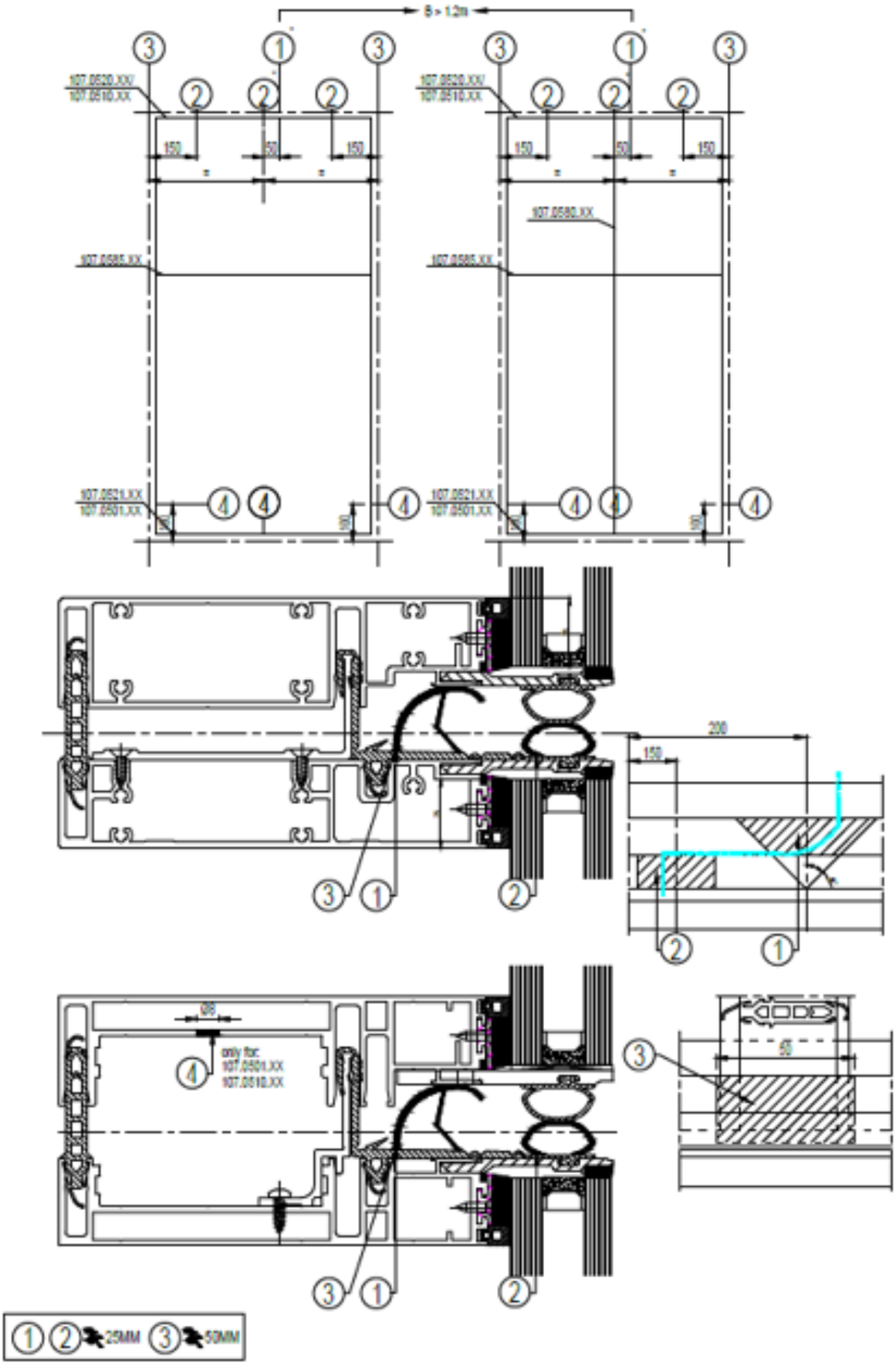

C - C
180.9269.04
052.5317.--
107.0110.00
168.6520.00
160.6523.00
134.1117.00
180.9926.04
134.0302.04
152.5299.--
H1
068.8261.00
107.0510.XX
h1
180.9301.04
180.9300.04
107.0102.17SG
12.5
173.0403.XX
180.9330.04
134.1116.17SG
12.5
052.5352.--
134.0601.04
H
75
107.0501.XX
h2
H2
052.5333.--
25
173.8506.C35
245
180.9922.04
16.5
25
91
40
9.5
9.5
32
SSG

Fig. 7 - Drainage and ventilation




B > 1.2m
150
50
150
107.0580.XX
107.0585.XX
107.0521.XX
107.0501.XX
200
150
only for:
107.0501.XX
107.0510.XX
50
25MM
50MM

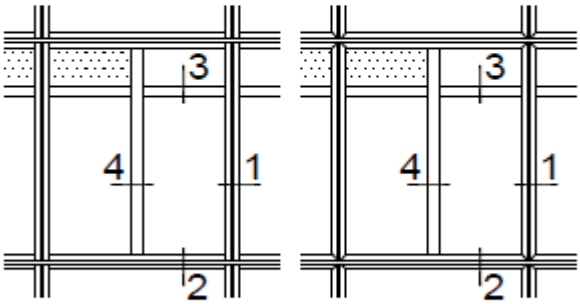
Annex IIAnnex I Calculated Utj-value

Utj value according to EN ISO 12631:2017 and EN ISO 10077-2:2017	EF 7-SG	Version of 18/11/2020

The following glass compositions are used:

36mm - 10/20/6 - Ug=1.1 W/m^2.K

56mm - 6/20/4/20/6 - Ug=0.7 W/m^2.K

				Aluminium spacer	Chromatech spacer	Swisspacer Ultimate
Section	**Profiles**	**d [mm]**	**W [mm]**	**Utj [W/m²K]**		
Element Façade - SG						
1	**Element Facade Mullion**					
1	1070510+1070510	36	75	7.4	4.8	3.5
1	1070510+1070510	56	75	6.7	3.5	2.4
2	**Element Facade Transom**					
2	1070510+1070501	36	91	6.5	4.4	3.3
2	1070520+1070521	36	91	6.4	4.4	3.3
2	1070510+1070501	56	91	5.8	3.3	2.3
2	1070520+1070521	56	91	5.8	3.3	2.3
3	**Mid-Transom**					
3	1070585	36	75	7.1	4.7	3.4
3	1070585	56	75	6.5	3.5	2.4
4	**Mid-Mullion**					
4	1070580	36	75	7.1	4.7	3.4
4	1070580	56	75	6.5	3.5	2.4