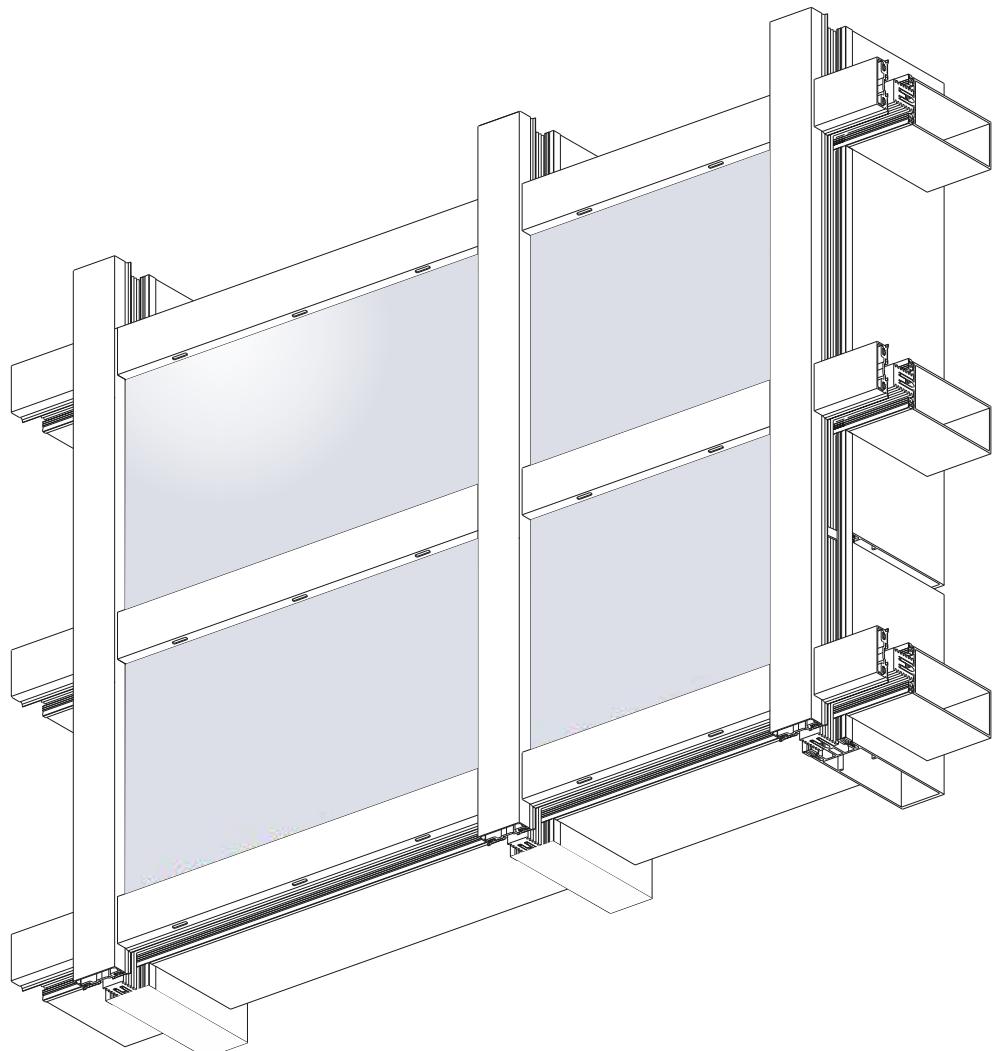


# Curtain wall system

## ALBIO R50



Technical  
Catalogue

# Curtain wall system ALBIO R50

## Table of content

<b>Chapter 1</b>	General informations
<b>Chapter 2</b>	Overview of ALBIO R50 profiles & accessories
<b>Chapter 3</b>	Profiles specifications Physical & mechanical
<b>Chapter 4</b>	Profiles detailes scale 1:1
<b>Chapter 5</b>	Classic curtain wall system
<b>Chapter 6</b>	Structural glazing curtain wall system
<b>Chapter 7</b>	Processing details

# **Chapter 1**

## **General informations**

## 1. SYSTEM DESCRIPTION

The system is designed for the construction and performance of light-weight curtain walls, roofs, skylights and other complex structures.

The system has a self-bearing structure, composed of 50 mm wide aluminium mullions and transoms. Depending on the division pattern and external loads, the system provides a wide range of mullions and transoms varying in depth, with the moment of inertia  $I_x=58-1115\text{ cm}^4$ . All mullions may be additionally strengthened by applying special internal aluminium profiles. The mullion-transom connection has masking strips to enable a proper water drainage and ventilation.

In order to achieve optimal thermal and acoustic insulation performance there has been applied in the system a continuous thermal break called " Nomaflex/ NOMATEC XPE" with good insulating parameters and profiled EPDM glazing gaskets. It allows to obtain proper insulation class for thermal performance  $U_f=1,67-1,88\text{ W/m}^2\text{K}$ , and it also allows for application of infills of thickness varying from 4 to 50 mm.

To reduce the mechanical working of mullions, any cut-outs in lateral surfaces of the mullions have been eliminated and the installation of infills (DGU or Sandwich panels) is performed with clamping strips - fixed with self-tapping screws made of stainless steel A2.

The profiles can be painted according to the RAL palette in full compliance of quality standards QUALICOAT or anodising in compliance with the requirements for QUALANOD trademark. The minimum compulsory paint layer thickness shall be at least 60 microns for external architectural use. The minimum anodic oxide layer thickness is 15 microns for external architectural use.

The curtain wall system should be executed as per the design worked out individually for each object. Subject to the system documentation and structural analysis, the design should specify the following: aluminium profiles (for mullions and transoms) / accessories to fasten mullions to the building structure / transoms to mullions / details of connections and sealing between the elements/ ventilation method and drainage.

While taking into account requirements connected with the function, location and geometry of the building, the wall should be designed in accordance with applicable requirements.

## 2.TECHNICAL DESCRIPTION OF RAW MATERIALS AND MATERIALS

### 2.1 ALUMINIUM PROFILES

Aluminium profiles are produced in the process of mechanical working of the aluminium alloy: EN AW-6060 T66 (AlMgSi0,5 F22).

The surface of profiles should be finished with anodic oxide coating or RAL electrostatic coating as protection against corrosion.

### 2.2 THERMAL BREAKS (INSULATORS)

The insulators - through which are fastened clamping strips that fix façade claddings to mullions and transoms - are made of Nomaflex/ NOMATEC XPE- with high insulating performance according to IFT Rosenheim.



## 2.3 GASKETS

Gaskets used to seal up panels in clear and non-transparent areas are made of EPDM. Corner joints are glued.

## 2.4 INFILL PANELS

Transparent areas of the curtain wall system are glazed with DGU units in a manner that meets requirements set for the thermal standard and sound-proof performance of the rooms. The glazing thickness ranging from 4 to 50 [mm].

For opaque areas of the curtain wall system can be use steel or aluminium sheet min. 1 mm thick, zinc-coated or RAL painted with hard mineral wool according to the building specification and national standard.

As regards glazing horizontal and inclined surfaces we recommend using double glazing with tempered external pane and laminated internal pane as required by safety regulations.

## 2.5 ALUMINIUM SHEETS

Aluminium sheets can be anodised or RAL painted and used for sandwich elements or end finishing.

## 2.6 STEEL SHEETS

Steel sheets are zinc coated or RAL painted against corrosion. Those can be used for sandwich elements or end finishing.

## 2.7 MINERAL WOOL

Mineral wool (soft or hard) used to insulate perimeter of curtain wall is admitted for use in building industry just with technical approval.

## 2.8 FIXING ELEMENTS

Joining elements (self-tapping screws, nuts, washers) used to make connections are made of stainless steel according to standards referred to in the system documentation.

## 2.9 ALUMINIUM SUPPORT BRACKETS

Aluminium support brackets and connecting members are made of aluminium alloy AlMgSi0, 5 F22 and protected against corrosion with anodic oxide coatings.

## 2.10 STEEL SUPPORT BRACKETS

Steel supports are made of steel sheet and protected against corrosion; contact points of steel and aluminium elements are isolated.

## 2.11 SUPPLEMENTARY MATERIALS

Supplementary materials (glues and silicones to seal joints, membranes, etc) to establish the compatibility with support materials.

## 2.12 DOORS AND WINDOWS

Aluminium doors and windows are fitted in transparent areas of a curtain wall system according to this documentation.



## 2.13 ACCESSORIES

Expansion joints for the mullions and brackets for transoms are made of primary aluminium EN AW-6060 alloy.

Seal joint-covers for joining between the different elements are made of a reinforced synthetic material. Transoms finishing flanges are made of a flexible thermoplastic material. Screws used to fix them, like all the bolts and nuts in the system, are A2 stainless steel.

Projecting/ Projected windows are equipped with stainless steel stay-arms and permit the window to open out approximately from 15° to 30° according to the system used. The corner joints are made using solid aluminium angles. Hinges are made from aluminium extruded elements with steel hinge pins and anti-friction resin bushings. Opening is limited by a rotating handle bolt with transmission rods and retention pawls. Locks can be extended on whole perimeter for large dimensions or when negative wind load is very high.

## INSTRUCTION FOR STRUCTURAL GLAZING

R50 curtain wall system can be supplemented with top-hung openable frames with structural sealant glazing. This glazing system is done by sealing the glass to the aluminium frame with a structural sealing product.

The reliability of this construction depends on the exact and careful carrying out of this operation.

It is absolutely necessary to test and verify the adherence of the sealer to glass surface and to aluminium frames in order to ensure all static performances required by the project itself.

To this purpose, a close co-operation between sealer supplier, glass worker and the assembling company, is recommended.

The surface anodising treatment of aluminium sections, is done by EXALCO according to SIKA/DOW CORNING standards. Sika/ Dow Corning have tested this treatment.

When supplying these sections, EXALCO will take care to show the lot number (treatment date) as well as to supply a copy of sealing maker's approval, showing the product to be used for cleaning.

Treated sections should be then used within six months since treatment date. After that period, the right adhesion of the structural sealing cannot be guaranteed.

Sections can be supplied only with anodised surface treatment and when placing the order the window fitter shall enclose a statement specifying:

We have already tested the materials, which have to be sealed by structural sealing. However it is warmly recommended to pay careful attention when storing the goods indoor, in a dry and dustless environment. A particular care shall be paid when working the materials in order not to alter the treated surface to be sealed.

## 3.SUPPLEMENTARY INFORMATION

### 3.1 STORAGE AND TRANSPORTATION

Storage: Aluminium profiles and accessories, should be stored in dry rooms in order to protect elements against mechanical damage and damage to anodised or painted coatings.

Transportation: Aluminium profiles and accessories could be transported to ensure the protection against soiling, dust and any damage during transportation.



### 3.2 ASSEMBLY GUIDELINES AT THE BUILDING SITE

Curtain wall system is fastened to the building structure with special steel or aluminium support brackets. The brackets are anchored on the building slab with steel expansion bolts (or other bolts adjusted to a particular type of the slab). Mullions are fixed into the bracket with screws. The brackets have slotted holes, which ensure the accuracy of mullions placement in three directions. Transoms are fastened between the set up mullions. If the weight of transom loading element does not exceed 60 kg, the transoms are fixed directly to the mullions; in other cases they have additional connecting aluminium parts, which are fixed to mullions, in order to obtain a grid construction. Gaps between the building structure and curtain wall are covered with zinc-coated steel sheets or anodised/paint-coated aluminium sheets,. In order to ensure continuous insulation the gaps are filled with mineral wool and sealed with silicone/polyurethane cords. Also, for the water tightness will be used EPDM membrane.

#### WARNING:

Any "wet" works must be limited to the minimum (lime, cement, alkaline and cleaning substances) because they have particularly harmful effect on aluminium profiles, especially on decorative protective surfaces. If any of those are brought into contact with the surface of aluminium, it must be immediately washed before they go hardness.

### 3.3 CATALOGUE UPDATES

The updates can be downloaded in PDF files at [www.exalco.ro](http://www.exalco.ro) in the section "Technical Catalogue".

### 3.4 AVAILABILITY OF CATALOGUE PRODUCTS

The availability dates and commercial rules of the elements(presented in the catalogue) have been specified in EXALCO PRICE LIST.

#### WARNING:

EXALCO reserves the right to add supplements in view of future development and technical improvement of the system. The presented publication shall not be reproduced or copied without a EXALCO prior written consent.

## 4. MATERIAL PROPERTIES

Aluminium alloy - EN AW 6063 F22

Ultimate tensile strength -  $R_m = 210 \text{ N/mm}^2$

Yield strength -  $R_{p0,2} = 150 \text{ N/mm}^2$

Modulus of elasticity -  $E_{al} = 70\,000 \text{ N/mm}^2$

Coefficient of thermal expansion -  $\alpha = 0,023 \text{ m/m*K}$  ( $\approx 1,2 \text{ mm/m}$  for difference up to 500C)



## 5.SYSTEM CERTIFICATION

CHARACTERISTIC	VALUE	STANDARD	INSTITUTE
Air permeability Test pressure (Pa)	AE	EN 12152:2002-02	IFT ROSENHEIM
Watertightness - Static	Re1500	EN 12154:1999-12	IFT ROSENHEIM
Resistance to wind load Design load: Safety load:	$\pm 1.50 \text{ kN/m}^2$ $\pm 2.25 \text{ kN/m}^2$	EN 13116:2001-07	IFT ROSENHEIM
Watertightness - Dynamic	$P_{\min} 188 \text{ Pa}$ $P_{\max} 563 \text{ Pa}$	ENV 13050:2000-11	IFT ROSENHEIM
Impact resistance	I3/E4	EN 14019:2004-06	IFT ROSENHEIM
Thermal transmittance Um, Ut [W/(m <sup>2</sup> · K)]	1.67÷1.87	UNI EN ISO 12631-12	INSTITUTO GIORDAN

## 6.STRUCTURAL ANALYSIS

### 6.1. INTRODUCTION - EUROPEAN STANDARD EN 13830

In the absence of a special agreement between designer and client, Eurocode 9 sets specific limits in terms of deformation, which must not be exceeded. Based on Eurocode 9 (ENV 1999-1-1, Design of aluminum structures), the European Standard EN 13830 makes special reference on the serviceability limits of aluminum structures concerning resistance to wind load.

A. Specifically for curtain wall mullions and transoms, the following limits for the elastic deflection have been set:

$f = L/200$  or 15 mm, whichever is less, where L is the length between supports.

These limits have been set for serviceability reasons, but also in order to prevent that the durability of the glass products and their performances will be affected negatively.

B. The maximum deflection of any horizontal framing from vertical loads (dead loads) have been set:

$f = L/500$  or 3 mm, whichever is less, where L is the length between supports.

### 6.2 SELECTION OF THE APPROPRIATE MULLION AND TRANSOM PROFILES

A. According to DIN 1055-04:1975

The first step in the selection of the proper mullion and transom profiles must be the selection of the appropriate wind load value, used for the calculation. The table that follows, wind loads values (depending on the construction height and the exposure of the structure in wind pressure) are recommended. Parameter "C" is an additional safety factor.



Structure Height	Wind pressure [w]	Wind load [qw] c = 1,2	Wind load [qw] c = 1,6
0-8 m	0,50 kN/m <sup>2</sup>	0,60 kN/m <sup>2</sup>	0,80 kN/m <sup>2</sup>
8-20 m	0,80 kN/m <sup>2</sup>	0,96 kN/m <sup>2</sup>	1,28 kN/m <sup>2</sup>
20-100 m	1,10 kN/m <sup>2</sup>	1,32 kN/m <sup>2</sup>	1,76 kN/m <sup>2</sup>

Note:  $qw = c \cdot w$

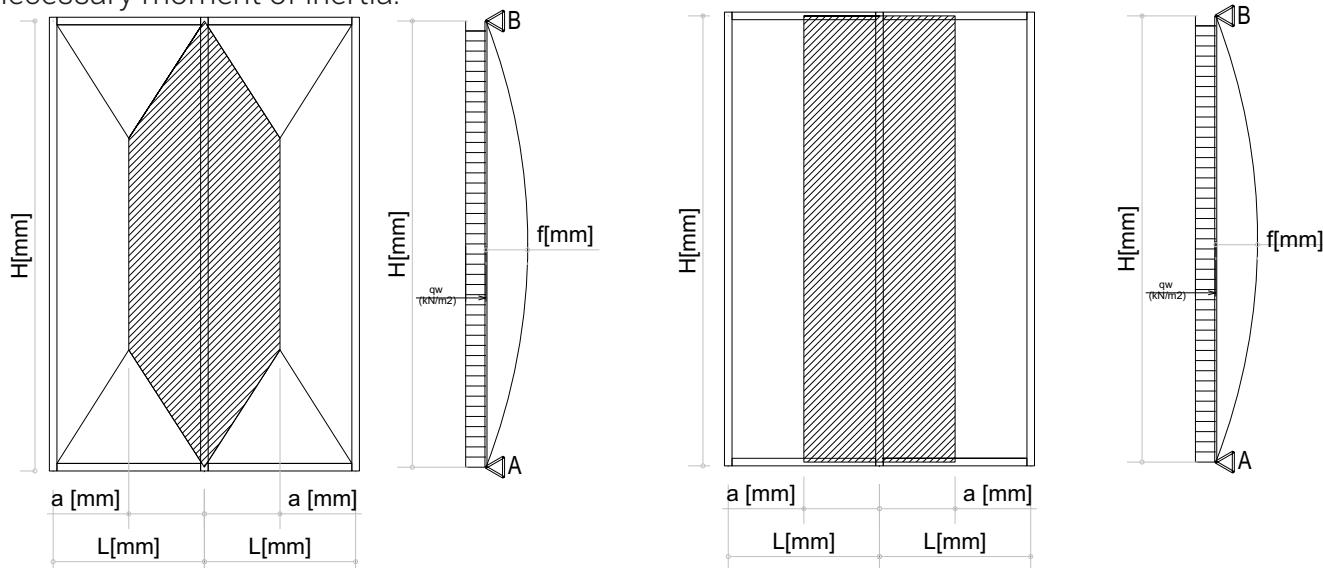
c = 1,2 for non wind-exposed buildings

c = 1,6 for wind-exposed buildings

B.According to Eurocode 1

A civil engineer structure must satisfy the new European Union requirements for safety and durability (EN 1990). The selection of the right materials (right mullion and transom profiles), thus material resistance to loads which are developed by structure's self-weight, wind load, snow load etc., are described by a calculation methodology according to Eurocode 1 (EN 1991). Specialized engineers take the responsibility to apply the new European codes to civil structures.

Single span beam - The selection of the proper mullion profile is based on the condition for the maximum acceptable deflection of a beam supported at two points:  $f < H/200 < 15 \text{ mm}$ . Table 3 page 1.7, is extracted from this condition, in combination with the following formula for the necessary moment of inertia:



$$I_{\min} = \frac{q_w \cdot a \cdot H^4}{1920 \cdot E \cdot f_{\max}} \cdot [25 - 40 \cdot \frac{a^2}{H^2} + 16 \cdot \frac{a^4}{H^4}]$$

I<sub>min</sub> = Moment of inertia

a = Width L/2

E = Elasticity module

$$I_{\min} = \frac{5 \cdot q_w \cdot H^4}{384 \cdot E \cdot f_{\max}}$$

q<sub>w</sub> = Windload

H = Mullionheight

f<sub>max</sub> = Maximum deflection



In the case of facing difficulties to make the calculation, please contact EXALCO S.A. Research & Technical Support Department on the phone.

Notes:

The following table presents the required moment of inertia of a single span mullion, referring to a wind load value of 1 kN/m<sup>2</sup>, applied on one side of the structure. For any other wind load value, each cell of the table must be multiplied by this value. E.g. for a 0,6kN/m<sup>2</sup> wind load value, each cell of the table must be multiplied by 0,6 factor.

		L1 or L2 (m)								
		0,4	0,6	0,8	1	1,2	1,4	1,6	1,8	2
H(m)	2	3.91	5.74	7.44	8.95	10.25	11.30	12.07	12.54	12.70
	2.2	5.73	8.46	11.01	13.35	15.42	17.17	18.58	19.61	20.24
	2.4	8.14	12.04	15.73	19.17	22.28	25.01	27.32	29.17	30.51
	2.6	11.23	16.64	21.82	26.68	31.17	35.20	38.73	41.69	44.05
	2.8	15.12	22.45	29.50	36.19	42.44	48.15	53.27	57.73	61.46
	3	19.95	29.65	39.04	48.02	56.47	64.32	71.47	77.85	83.38
	3.2	25.84	38.46	50.72	62.50	73.69	84.19	93.88	102.69	110.51
	3.4	32.96	49.10	64.83	80.02	94.54	108.27	121.09	132.89	143.57
	3.6	41.45	61.79	81.68	100.95	119.48	137.11	153.72	169.18	183.37
	3.8	51.49	76.80	101.60	125.73	149.02	171.31	192.45	212.30	230.72
	4	63.24	94.38	124.96	154.79	183.68	211.47	237.97	263.04	286.51
	4.2	76.90	114.82	152.12	188.59	224.03	258.24	291.04	322.24	351.67
	4.4	92.65	138.40	183.47	227.62	270.64	312.31	352.43	390.78	427.17
	4.6	110.71	165.44	219.42	272.40	324.14	374.40	422.96	469.58	514.05
	4.8	131.29	196.25	260.40	323.45	385.16	445.25	503.48	559.60	613.37
	5	154.61	231.18	306.85	381.35	454.38	525.65	594.90	661.85	726.24
	5.2	180.91	270.56	359.25	446.67	532.49	616.42	698.15	777.39	853.84
	5.4	210.43	314.77	418.08	520.02	620.23	718.40	814.19	907.29	997.38
	5.6	243.41	364.19	483.85	602.02	718.36	832.48	944.05	1052.71	1158.13
	5.8	280.13	419.20	557.07	693.35	827.65	959.57	1088.75	1214.81	1337.38
	6	320.86	480.22	638.29	794.67	948.92	1100.63	1249.40	1394.83	1536.51
		0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2



Double span beam— In this case the mullion profile is connected to the building on top and bottom edges as well as on an intermediate point. Consider the distribution load parallelogramic and the following formula stands:

$$I_{\min} = \frac{q_w \cdot a \cdot H^4}{185 \cdot E \cdot f_{\max}} \cdot 10^5$$

$I_{\min}$  = Moment of inertia

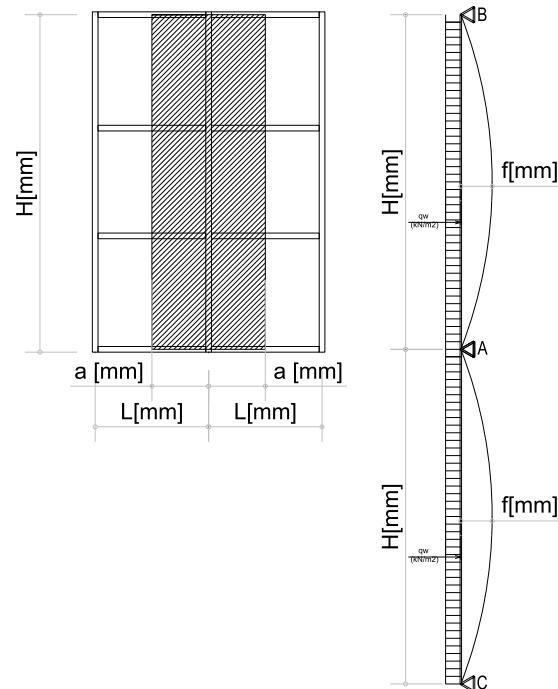
$q_w$  = Windload

$a$  = Width L/2

H = Mullionheight

E = Elasticity module

$f_{\max}$  = Maximum deflection



In the case of facing difficulties to make the calculation, please contact EXALCO S.A. Research & Technical Support Department on the phone.



## Notes:

The following table presents the required moment of inertia of a double span mullion, referring to a wind load value of 1 kN/m<sup>2</sup>, applied on one side of the structure. For any other wind load value, each cell of the table must be multiplied by this value. E.g. for a 0,6kN/m<sup>2</sup> wind load value, each cell of the table must be multiplied by 0,6 factor.

		L1 or L2 (m)								
		0,4	0,6	0,8	1	1,2	1,4	1,6	1,8	2
H(m)	2	1.65	2.47	3.29	4.12	4.94	5.77	6.59	7.41	8.24
	2.2	2.41	3.62	4.82	6.03	7.24	8.24	9.65	10.85	12.06
	2.4	3.42	5.12	6.83	8.54	10.25	11.96	13.66	15.37	17.08
	2.6	4.71	7.06	9.41	11.76	14.12	16.47	18.82	21.17	23.53
	2.8	6.33	9.49	12.66	15.82	18.99	22.15	25.31	28.48	31.64
	3	8.34	12.51	16.68	20.85	25.02	29.19	33.36	37.53	41.70
	3.2	10.80	16.19	21.59	26.99	32.39	37.79	43.18	48.58	53.98
	3.4	13.76	20.64	27.52	34.40	41.28	48.16	55.04	61.92	68.79`
	3.6	17.29	25.94	34.59	43.23	51.88	60.53	69.17	77.82	86.47
	3.8	21.47	32.20	42.94	53.67	64.41	75.14	85.87	96.61	107.34
	4	26.36	39.54	52.72	65.89	79.07	92.25	105.43	118.61	131.79
	4.2	32.04	48.06	64.08	80.10	96.11	112.13	128.15	144.17	160.19
	4.4	38.59	57.89	77.18	96.48	115.77	135.07	154.36	173.66	192.95
	4.6	46.10	69.15	92.20	115.25	138.30	161.35	184.40	207.45	230.50
	4.8	54.66	81.98	109.31	136.64	163.97	191.29	218.62	245.95	273.28
	5	64.35	96.53	128.70	160.88	193.05	225.23	257.40	289.58	321.75
	5.2	75.28	112.92	150.56	188.20	225.84	263.48	301.12	338.76	376.40
	5.4	87.55	131.32	175.10	218.87	262.64	306.42	350.19	393.96	437.74
	5.6	101.26	151.88	202.51	253.14	303.77	354.40	405.02	455.65	506.28
	5.8	116.51	174.77	233.03	291.29	349.54	407.80	466.06	524.32	582.57
	6	133.44	200.15	266.87	333.59	400.31	467.03	533.75	600.46	667.18
		0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2



CALCULATION EXAMPLE - SINGLE SPAN BEAM (DIN 1055-04:1975)

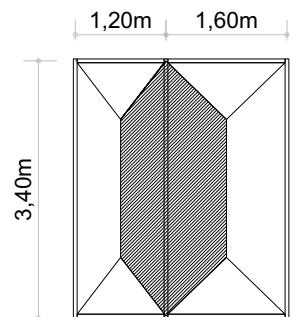
Building height: 0.8 m

Safety factor: 1,2

Length between supports: 3,40 m

LEFT side: 1,20 m

RIGHT side: 1,60 m



For a 0.8 m building, with a safety factor of 1,2, the design value of wind load is 0,6 kN/m<sup>2</sup>. Using the Table from the previous page, we get two values of the moment of inertia, one for each side of the mullion. These values must be multiplied by 0,6. We will add these values. Finally, we select from the Table that shows mullion profile moment of inertia value, the appropriate mullion profile, keeping in mind that the moment of inertia  $I_x$  of this mullion must be higher than the sum ( $I_1+I_2$ ).

Thus,

For  $H = 3.40$  m and  $L_1 = 1.20$ , the moment of inertia is  $94.54 \text{ cm}^4$ .  $I_1 = 0.60 * 94.54 = 56.72 \text{ cm}^4$ .

For  $H = 3.40$  m and  $L_2 = 1.60$ , the moment of inertia is  $121.09 \text{ cm}^4$ .  $I_2 = 0.60 * 121.09 = 72.65 \text{ cm}^4$ .

From mullion profile moment of inertia value table, we will select the profile 50-103, which has a moment of inertia of:  $I_x = 232.20 \text{ cm}^4$ .

CALCULATION EXAMPLE - DOUBLE SPAN BEAM

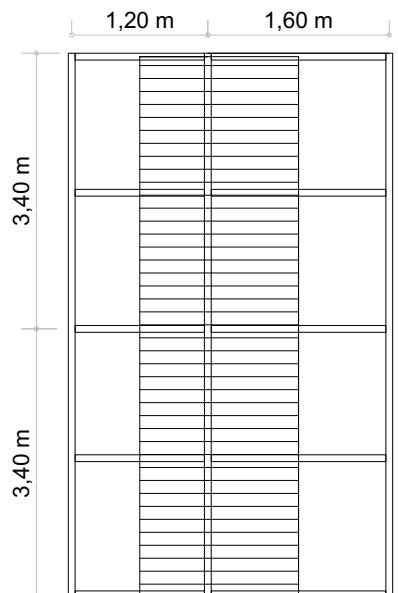
Building height: 0.8 m

Safety factor: 1,2

Length between supports: 3,40 m

LEFT side: 1,20 m

RIGHT side: 1,60 m



For a 0.8 m building, with a safety factor of 1,2, the design value of wind load is 0,6 kN/m<sup>2</sup>.

Using the Table from the previous page, we get two values of the moment of inertia, one for each side of the mullion. These values must be multiplied by 0,6. We will add these values.

Finally, we select from the Table that shows mullion profile moment of inertia value, the appropriate mullion profile, keeping in mind that the moment of inertia  $I_x$  of this mullion must be higher than the sum ( $I_1+I_2$ ).



Thus,

For both spans  $H = 3.40 \text{ m}$  and  $L_1 = 1.20 \text{ m}$ , the moment of inertia is  $41.28 \text{ cm}^4$ .

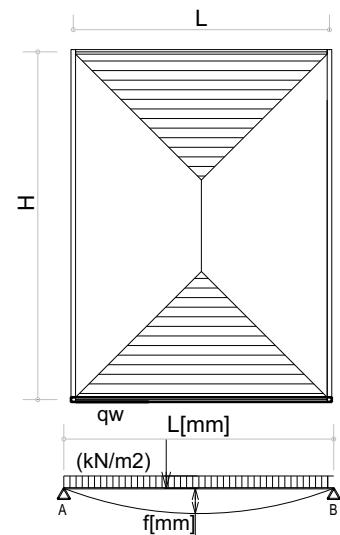
$$I_1 = 0.60 \cdot 41.28 = 24.77 \text{ cm}^4$$

For  $H = 3.40 \text{ m}$  and  $L_2 = 1.60 \text{ m}$ , the moment of inertia is  $55.04 \text{ cm}^4$ .  $I_2 = 0.60 \cdot 55.04 = 33.02 \text{ cm}^4$ .

From mullion profile moment of inertia value table, we will select the profile 130-50-101, which has a moment of inertia of:  $I_x = 60.04 \text{ cm}^4$ .

Transom - The selection of the proper transom profile subjected to wind load is based on the condition for the maximum acceptable deflection of a beam supported at two points:  $f < H/200 < 15 \text{ mm}$ . The necessary moment of inertia of a transom subjected to wind load is given by the following equations:

$$\text{When } \frac{L}{H} < 1, I_{\min} = \frac{q_w \cdot \frac{L}{2} \cdot L^4}{120 \cdot E \cdot f_{\max}}$$



#### Notes:

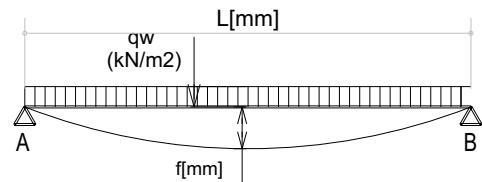
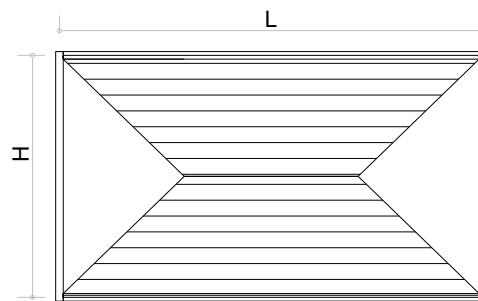
The following table presents the required moment of inertia of a transom, referring to a wind load value of  $1 \text{ kN/m}^2$ , when  $L/H \leq 1$ .

For any other wind load value, each cell of the table must be multiplied by this value. E.g. for a  $0.6 \text{ kN/m}^2$  wind load value, each cell of the table must be multiplied by 0.6 factor.

$L(\text{m})$	$I_{\text{req}}(\text{cm}^4)$
1	1.19
1.2	2.47
1.4	4.57
1.6	7.80
1.8	12.50
2	19.05
2.2	27.89
2.4	39.50
2.6	54.40
2.8	73.17
3	96.43



When  $\frac{L}{H} > 1$ ,  $I_{min} = \frac{q_w \cdot \frac{H}{2} \cdot L^4}{1920 \cdot E \cdot f_{max}} \cdot [25 - 40 \cdot \frac{(\frac{H}{2})^2}{H^2} + 16 \cdot \frac{(\frac{H}{2})^4}{H^4}]$



#### Notes:

The following table presents the required moment of inertia of a transom, referring to a wind load value of 1 kN/m<sup>2</sup>, when L/H > 1.

For any other wind load value, each cell of the table must be multiplied by this value. E.g. for a 0,6kN/m<sup>2</sup> wind load value, each cell of the table must be multiplied by 0,6 factor.

		L1 or L2 (m)											
		1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	
H(m)	1	1.19	1.43	1.67	1.90	2.14	2.38	2.62	2.86	3.10	3.33	3.57	
	1.2	2.06	2.47	2.88	3.29	3.70	4.11	4.53	4.94	5.35	5.76	6.17	
	1.4	3.27	3.92	4.57	5.23	5.88	6.53	7.19	7.84	8.49	9.15	9.80	
	1.6	4.88	5.85	6.83	7.80	8.78	9.75	10.73	11.70	12.68	13.65	14.63	
	1.8	6.94	8.33	9.72	11.11	12.50	13.89	15.27	16.66	18.05	19.44	20.83	
	2	9.52	11.43	13.33	15.24	17.14	19.05	20.95	22.86	24.76	26.67	28.57	
	2.2	12.68	15.21	17.75	20.28	22.82	25.35	27.89	30.42	32.96	35.49	38.03	
	2.4	16.46	19.75	23.04	26.33	29.62	32.91	36.21	39.50	42.79	46.08	49.37	
	2.6	20.92	25.11	29.29	33.48	37.66	41.85	46.03	50.22	54.40	58.59	62.77	
	2.8	26.13	31.36	36.59	41.81	47.04	52.27	57.49	62.72	67.95	73.17	78.40	
	3	32.14	38.57	45.00	51.43	57.86	64.29	70.71	77.14	83.57	90.00	96.43	



CALCULATION EXAMPLE - INTERMEDIARY TRANSOM

Building height: 0-8 m

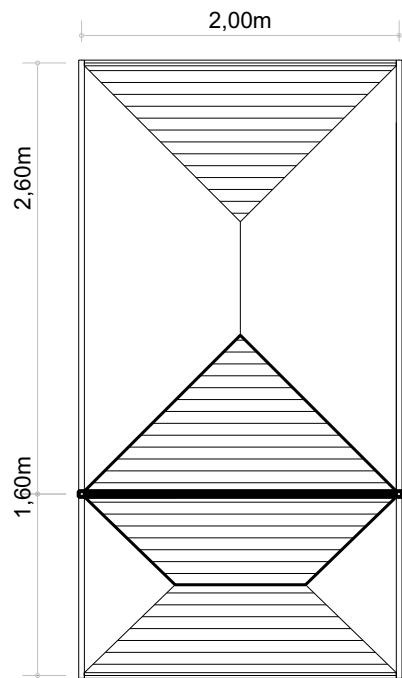
Safety factor: 1,2

Length between supports: 2,00 m

DISTANCE BETWEEN MULLIONS:

UPPER side: 2,60 m

LOWER side: 1,60 m



For a 0-8 m building, with a safety factor of 1,2, the design value of wind load is 0,6 kN/m<sup>2</sup>. Using the above tables, we get two values of the moment of inertia, one for each side of the transom. These values must be multiplied by 0,6. We will add these values. Finally, we select from the table that shows transom profile moment of inertia value, the appropriate transom profile,

keeping in mind that the moment of inertia  $I_x$  of this transom must be higher than the sum  $(I_1+I_2)$ .

Thus,

For the upper part of the intermediary transom  $L = 2.00$  m and  $H_1 = 2.60$ , meaning that  $L/H < 1$ , the necessary moment of inertia is  $19.05 \text{ cm}^4$ .

$$I_1 = 0.60 \cdot 19.05 = 11.43 \text{ cm}^4.$$

For the lower part of the intermediary transom  $L = 2.00$  m and  $H_2 = 1.60$ , meaning that  $L/H > 1$ , the necessary moment of inertia is  $15.24 \text{ cm}^4$ .

$$I_2 = 0.60 \cdot 15.24 = 9.14 \text{ cm}^4.$$

From transom profile moment of inertia value table, we will select the profile 130-50-201, which has a moment of inertia of:  $I_x = 51.70 \text{ cm}^4$ .

The moment of inertia of a transom due to the glass pane weight is given by:

$$L_y = \frac{G \cdot a}{24 \cdot E \cdot f_{\max}} \cdot [3 \cdot I^2 - 4 \cdot a^2]$$

where :

$G$  = weight of glass pane, kg

$a$  = the distance for glazing supports, m

$I$  = length of transom, m

$E$  = Elasticity module

$f_{\max}$  = Maximum deflection



## CALCULATION EXAMPLE:

$$t = t_1 + t_2 = 8 + 6 = 14 \text{ mm}, \text{ the glass sheet sum}$$

$$q_{\text{glass}} = 2,5 \text{ kg/m}^2 \times \text{mm}$$

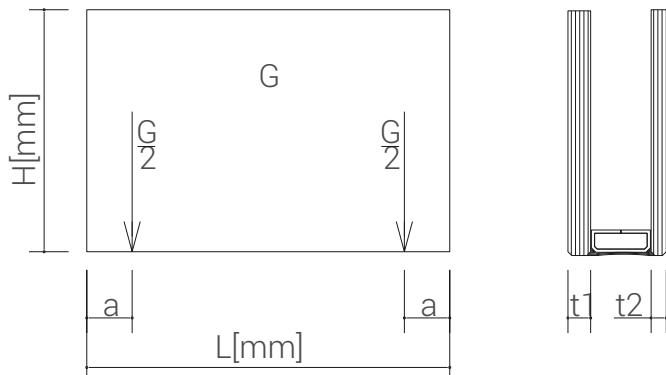
$$L = 2000 \text{ mm}$$

$$H = 1000 \text{ mm}$$

$$E_{\text{al}} = 70\,000 \text{ N/mm}^2$$

$$a = 150 \text{ mm}$$

$$G = t \cdot q_{\text{glass}} \cdot L \cdot H = 14 \cdot 2,58 \cdot 2 \cdot 1 = 70 \text{ kg}$$



$$f_{\max} = \frac{L}{500} = \frac{1,2}{500} = 0,004 = 0,003 \text{ m} \text{ (according EN13830)}$$

when  $f_{\max} = 0,003 \text{ m}$  the required moment of inertia is:

$$I_y = \frac{G \cdot a}{24 \cdot E \cdot f_{\max}} \times Z = \frac{70 \times 0,15 \times 10^8}{24 \times 7 \times 10^9 \times 0,0003} \times [3 \times 2^2 - 4 \times 0,15^2] < 24,813 \text{ cm}^5$$

From transoms profile moment of inertia value table, we will select the profile 50-202, which has a moment of inertia of:  $I_y = 25,7 \text{ cm}^4$ .

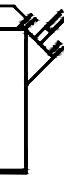
## WARNING:

EXALCO shall bear no responsibility for improper selection of mullion and transom profiles. Methods of resistance calculations presented in this catalogue are only rough estimates. A designing engineer is responsible for proper adjustment of the system elements. Should there arise any queries in connection with the basis assumed for calculations, please contact the Technical Department at EXALCO or a company specializing in such computations.



# **Chapter 2**

## **Overview of ALBIO R50 profiles & accessories**

Code	Profile	Dimensions	Description	LP.	weight (kg/m)	section area (cm <sup>2</sup> )	painting perimeter (m)
50-100		50x 44.6	Mullion substructural profile	6/4 *	1.283	4.8	0.19
50-101		50x 66.5	Mullion 66,5mm	6/4 *	2.117	7.9	0.28
50-102		50x 90.5	Mullion 90,5mm	6/4 *	2.389	7.0	0.33
50-103		50x 115.5	Mullion 115,5mm	6/4 *	2.796	10.4	0.38
50-104		50x140.5	Mullion 140.5mm	6/4 *	3.135	11.7	0.43
50-105		50x165.5	Mullion 165.5mm	6/4 *	3.363	12.5	0.48
50-106		50x185.5	Mullion 185.5mm	6/4 *	3.934	14.6	0.52
50-107		50x204.5	Mullion 204.5mm	6/4 *	4.951	18.4	0.56
50-108		50x 90.5	Mullion 90° 90,5mm	6/4 *	3.896	14,4	0.46
50-109		50x139.4	Mullion 45° 139.4mm	6/4 *	5.052	18.8	0.55
50-110		50x140.1	Mullion 90° 140.1mm	6/4 *	5.895	23.7	0.63



Code	Profile	Dimensions	Description	LP	weight (kg/m)	section area (cm <sup>2</sup> )	painting perimeter (m)
50-111		44.9x 66	Mullion 45° 66mm	6	1.526	5.7	0.30
50-112		35,8x 66	Mullion 45° 66mm	6	1.086	4.0	0.20
50-400		7.9x 16.0	Static profile	6	1.198	4.4	-
50-401		45.0x 87.0	Static profile	6	1.695	6.3	-
130-50-402		44.7x 70.2	Static profile	6	1.951	7.2	-
130-50-403		45.0x 93.8	Static profile	6	2.276	8.4	-
130-50-404		44.7x143.8	Static profile	6	3.167	11.7	-
130-50-413		45.0x150.0	Static profile	6	7.591	28.0	-
50-200		44.3x50	3rd level transom	6	1.119	4.1	0.19
50-201		90.8x50	3rd level transom	6	1.630	6.0	0.28
50-202		114.8x50	3rd level transom	6	1.890	7.0	0.33
50-203		139.8x50	3rd level transom	6	2.245	8.3	0.38
50-204		164.8x50	3rd level transom	6	2.529	9.4	0.43
50-205		189.8x50	3rd level transom	6	2.948	10.9	0.48
50-602		115.1x50	2nd level transom	6	2.135	7.7	0.33
50-603		140.1x50	2nd level transom	6	2.405	8.7	0.38
50-605		190.1x50	2nd level transom	6	2.945	10.7	0.48
130-50-301		16 x50	Cover cap	6	0.292	-	0.13
130-50-302		13 x50	Cover cap	6	0.272	-	0.13
130-50-315		13 x50	Cover cap	6	0.243	-	0.13

\*possible to be delivered in custom length

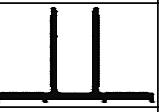
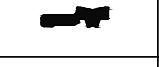
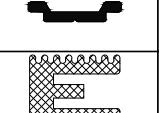


Code	Profil	Dimensions	Description	LP	weight (kg/m)	section area (cm <sup>2</sup> )	painting perimeter (m)
130-50-319	[ ]	30.1x50	Cover cap	6	0.383	-	0.16
130-50-304	[ ]	38x50	Cover cap	6	1.151	-	0.18
130-50-307	[ ]	100,4x50	Cover cap	6	1.053	-	0.30
50-310	[ ]	22.5x50	Cover cap	6	0.369	-	0.14
50-317	[ ]	36 x50	Cover cap	6	0.606	-	0.17
50-311	[ ]	16 x58.6	One side angle cover cap - 165°	6	0.312	-	0.15
50-312	[ ]	16 x66.5	Both side angle cover cap - 150°	6	0.325	-	0.16
50-313	[ ]	16 x48.1	One side angle cover cap - 135	6	0.267	-	0.13
50-314	[ ]	16 x56.0	Both side angle cover cap - 120°	6	0.274	-	0.14
50-315	[ ]	16x83.5	Both side angle cover cap - 150°	6	0.405	-	0.20
130-50-306	[ ]	20.4x17.2	Both side angle cover cap - 90°	6	0.269	-	0.12
50-316	[ ]	7.4x36.0	Cover cap	6	0.178	-	0.09
130-50-300	[ ]	6.6 x47.5	Pressure plate	6	0.439	-	-
50-300	[ ]	12.2x47.5	Pressure plate	6	0.460	-	-
130-50-314	[ ]	22.8x47.5	Pressure plate	6	0.626	-	-
130-50-318	[ ]	22.8x47.5	Pressure plate	6	0.626	-	-
50-301	[ ]	6.6 x56.1	One side angle pressure plate - 165°	6	0.511	-	-
50-302	[ ]	6.6 x64.2	Both side angle pressure plate - 150°	6	0.631	-	-
50-303	[ ]	6.6 x46.3	One side angle pressure plate - 135°	6	0.455	-	-
50-304	[ ]	6.6 x54.0	Both side angle pressure plate - 120°	6	0.576	-	-
50-305	[ ]	6,6 x75,4	Both side angle pressure plate - 150°	6	0.625	-	-
130-50-305	[ ]	12.7x43.9	Both side angle pressure plate - 90°	6	0.574	-	-



Code	Profil	Dimensions	Description	LP	weight (kg/m)	section area (cm <sup>2</sup> )	painting perimeter (m)
50-02		94.3x54.5	Frame for projected & parallel opening windows	6	1.353	-	0.30
50-005		21.5x16.9	External glazing support	6	0.189	-	0.08
50-04		83.7x44.7	Sash for projected window	6	1.468	-	0.26
50-07		91.3x47.2	Sash for projected window	6	1.573	-	0.30
50-17		94.3x54.5	Frame for projected & parallel opening windows	6	1.295	-	0.43
130-50-501		82.8X52.7	Frame for projected windows	6	0.974	-	0.27
50-08		74.6x90	Frame for projected windows for roofs	6	2.149	-	0.33
50-10		75x105.5	Sash for projected windows for roofs	6	2.037	-	0.36
50-012		79.5x28	Cover cap for projected windows for roofs	6	0.520	-	0.21
50-013		62.8x41.4	Additional sash profile for projected windows for roofs	6	0.923	-	0.23
50-501		95x95	Peripheral profile 95mm	6	0.757	-	0.38
50-502		72.5x72.5	Peripheral profile 72.5mm	6	0.575	-	2.90
50-503		35.2x35.2	Peripheral profile 32.5mm	6	0.283	-	0.14
50-420		45.4x16	Transom connection profile	6	0.800	-	-
140-011		45x37	Transom connection profile	6	1.358	-	-
130-50-419		45.4x16	Transom connection profile	6	0.440	-	-
130-50-415		45.5x55	Transom connection profile	6	1.362	-	-
130-50-414		Ø45	Transom connection profile	6	1.636	-	-
50-410		32.5x11.7	Glazing support	6	0.233	-	-
50-411		38.5x11.7	Glazing support	6	0.267	-	-
50-412		43x11.7	Glazing support	6	0.301	-	-
50-413		25.9x8.5	Glazing support	6	0.188	-	-

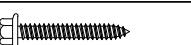
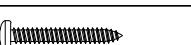
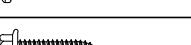
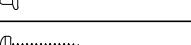
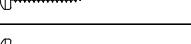
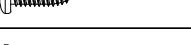
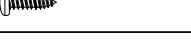
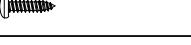
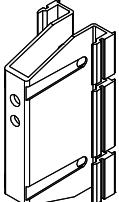
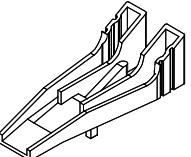
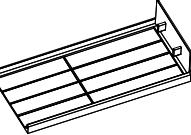
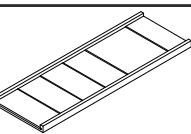


Code	Profil	Dimensions	Description	LP	weight (kg/m)	section area (cm <sup>2</sup> )	U.M.
130-50-416		220x93	Small mullion bracket	6	9.000	-	m
130-50-417		220x133	Large mullion bracket	6	8.000	-	m
130-50-418		59.1x6	Anti-skid plate for mullion bracket	6	0.886	-	m
4058		220x97x93	Small mullion bracket - ready to use		0.767	-	pcs.
4059		220x97x133	Large mullion bracket - ready to use		1.361	-	pcs.
50-450		9.2x9	Gasket reducers profiles 9mm	6	0.090	-	m
50-451		9.2x15	Gasket reducers profiles 15mm	6	0.159	-	m
50-452		9.2x21	Gasket reducers profiles 21mm	6	0.197	-	m
50-453		27.5x8.3	Fixing part for structural glazing	6	0.378	-	m
50-456		34.7x8.3	Fixing part for structural glazing	6	0.394	-	m
50-457		33.7x8.3	Fixing part for structural glazing	6	0.391	-	m
50-458		30.2x12.1	Fixing part for structural glazing	6	0.275	-	m
3001		15x11x2	Anodized spacer for structural glazing	6	0.200	-	m
50-462		34.7x20	Spacer	6	0.364	-	m
140-013		15x29	Spacer	6	0.399	-	m
101-063		19x4	Connection rod	5	0.116	-	m
4320		30x23.9	Insulator Normaflex 3	2	0.013	-	m



Code	Profil	Dimensions	Description	UMV	Package	U.M.
G.155		10,8x13	Gasket	80	roll	m
G.153		10,8x11	Gasket	80	roll	m
G.152		10,8x9	Gasket	80	roll	m
G.151		10,8x7	Gasket	80	roll	m
G.154		10,8x5	Gasket	80	roll	m
G.150		10.8x3	Gasket	80	roll	m
G.156		10.8x11.5	Angular Gasket	80	roll	m
G.157		13x5.2	Angular Gasket	80	roll	m
G.133		13x3.5	Gasket	80	roll	m
5800/140		15x14.8	Gasket	80	roll	m
5417		16x5.1	Gasket	80	roll	m
5577		9.7x5.7	Gasket	80	roll	m
5800/60		7.6x15.1	Gasket	80	roll	m
5800/60A		13.2x15.4	Gasket	80	roll	m
G.107		6x11.3	Gasket	80	roll	m
G.131		58.7x31.9	Gasket	80	roll	m

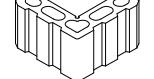
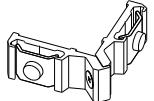
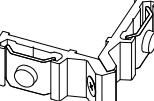


Code	Profil	Dimensions	Description	UMV	Package	U.M.
7981-A2		6.3x70	Self tapping screw - pan head	100	roll	pcs.
7981-A2		6.3x60	Self tapping screw - pan head	100	roll	pcs.
7981-A2		6.3x50	Self tapping screw - pan head	100	roll	pcs.
7986-A2		6.3x45	Self tapping screw - hexagon head	100	roll	pcs.
7981-A2		6.3x45	Self tapping screw - pan head	100	roll	pcs.
7986-A2		6.3x38	Self tapping screw - hexagon head	100	roll	pcs.
7981-A2		6.3x38	Self tapping screw - pan head	100	roll	pcs.
7986-A2		6.3x32	Self tapping screw - hexagon head	100	roll	pcs.
7981-A2		6.3x32	Self tapping screw - pan head	100	roll	pcs.
7981-A2		6.3x25	Self tapping screw - pan head	100	roll	pcs.
7981-A2		5.5x19	Self tapping screw - pan head	100	roll	pcs.
7981-A2		4.8x19	Self tapping screw - pan head	100	roll	pcs.
7981-A2		4.8x16	Self tapping screw - pan head	100	roll	pcs.
7981-A2		4.2x16	Self tapping screw - pan head	100	roll	pcs.
7981-A2		4.2x13	Self tapping screw - pan head	100	roll	pcs.
3424			Plastic draining cap for mulions		roll	pcs.
3425			Water drainage		roll	pcs.
3497			Transom to mullion attachment flange		roll	pcs.
5034			Transom to mullion attachment flange		roll	pcs.
5042			Junction sealing wedge		roll	pcs.



Code	Profil	Dimensions	Description	UMV	Package	U.M.
5128		28'	Pair of project-out window arms			pcs.
5163		18'	Pair of project-out window arms			pcs.
5871			Decorative plastic cap			pcs.
9000		20 x 24	PVC mullion finishing	3		m
5899			Adjusting device for project-out arms			
4106			Cremone black colour			
4107			Cremone silver colour			
4108			Locking point for project-out window			
4109			Keeper for project-out window			
4113			Projecting windows corner transmission			
4114			Clamping catch for project-out window			
4115			Shim for project-out window arms			
4116			Lateral sash support			
			Butyl membrane			m
			Waterproofing silicone			pcs.



Code	Profil	Dimensions	Description	UMV	Package	U.M.
4607		76x76x11,8 L=28,2	Extruded aluminium press corner No 101-073			pcs.
5040		76x76x11,8 L=40,2	Extruded aluminium press corner No 101-073			pcs.
5507		72,5x72,5x7,5 L=9,4	Extruded aluminium press corner No 109-032			pcs.
3341		72,5x72,5x7,5 L=16,5	Extruded aluminium press corner No 109-032			pcs.
3345		65x65x19,6 L=37,2	Extruded aluminium press corner No 101-075			pcs.
3343		65x65x17,8 L=5,3	Extruded aluminium press corner No 101-071			pcs.
5726		72,5x72,5x13,6 L=9,4	Extruded aluminium press corner No 109-031			pcs.
3342		72,5x72,5x13,6 L=38,8	Extruded aluminium press corner No 109-031			pcs.
5578		L=28,2	Aluminium joint mechanical corner			pcs.
5046		50x50x15,1 L=3,2	Plastic alignment corner			pcs.
5580		L=20,7	Aluminium joint mechanical corner			pcs.
5599		25x25x4,9 L=0,6	Inox alignment corner			pcs.



# **Chapter 3**

## **Profiles specifications**

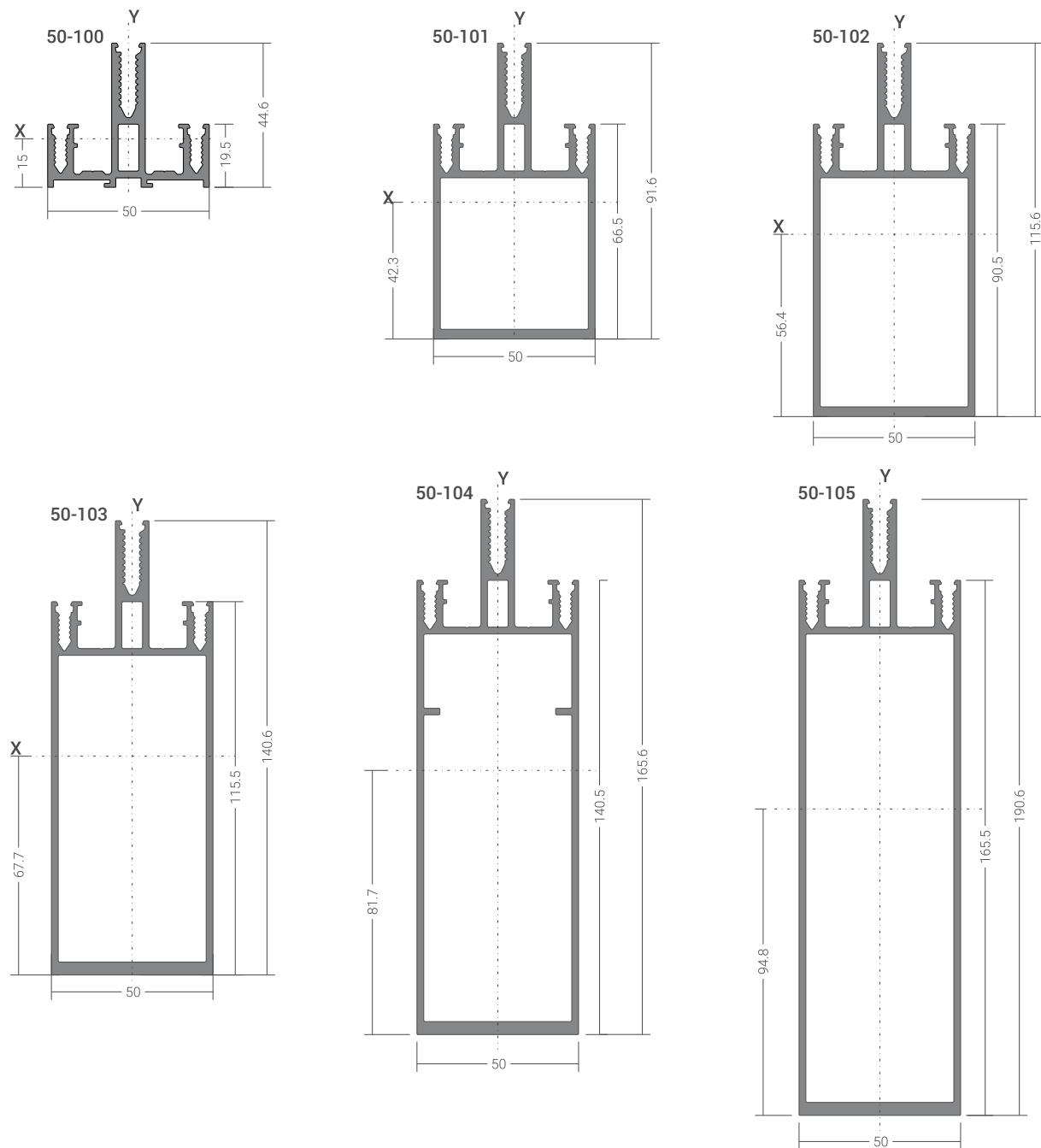
### **Physical & mechanical**

# Profiles specifications

## Physical & mechanical

### Table of content

page 3.1	Mullion profiles
page 3.2	Mullion profiles; Mullion profile 90°
page 3.3	Mullion profiles - variable angles
page 3.4	Static profiles
page 3.5	Transom profiles
page 3.6	Transom profiles
page 3.7	Cover cap profiles; Pressure plates
page 3.8	Cover cap profiles - variable angles; Pressure plates - variable angles
page 3.9	Projected windows (Openings) - Frame profiles;- Sash profiles
page 3.10	Projected windows for roofs
page 3.11	Connection profiles; Glazing supports; Peripheral profiles
page 3.12	Aluminium corners
page 3.13	Reducers profiles; Fixing parts; Spacers; Connection rod
page 3.14	Fixing parts
page 3.15	Insulator; Gaskets
page 3.16	Self-tapping screw

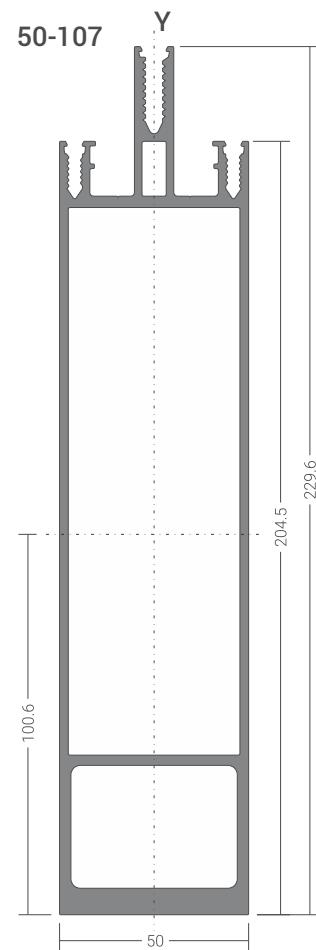
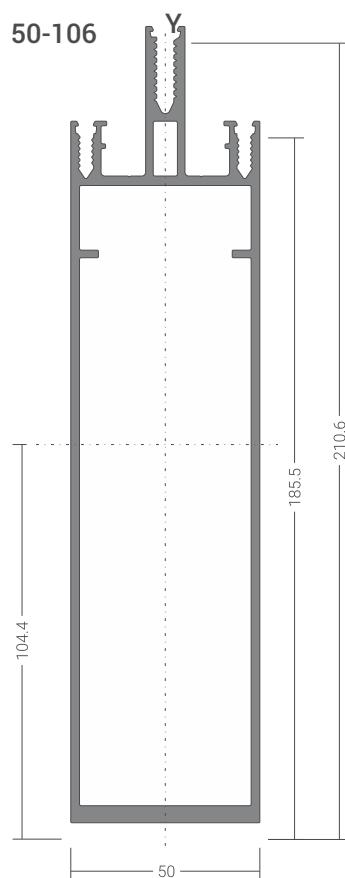


code	Dimensions (mm)	weight (kg/m)	I <sub>x</sub> (cm <sup>4</sup> )	I <sub>y</sub> (cm <sup>4</sup> )	W <sub>x</sub> (cm <sup>3</sup> )	W <sub>y</sub> (cm <sup>3</sup> )	section area (cm <sup>2</sup> )	Visible perimeter (mm)	Painting perimeter (mm)	compatible static profile
50-100	50x 44,6	1.283	6,7	9,3	2,3	3,7	4.80	111,79	189,10	-
50-101	50x 66,5	2.117	58,7	22,7	11,9	9,1	7.88	185,23	283,10	-
50-102	50x 90,5	2.389	121,2	28,6	20,6	11,4	9.82	233,23	331,10	130-50-402
50-103	50x115,5	2.796	220,0	35,4	30,2	14,1	10.40	283,23	381,10	130-50-403
50-104	50x140,5	3.135	345,7	42,2	41,2	16,891	11.65	333,23	431,10	130-50-403
50-105	50x165,5	3.363	505,5	47,4	52,798	18,961	12.50	383,23	481,10	130-50-404

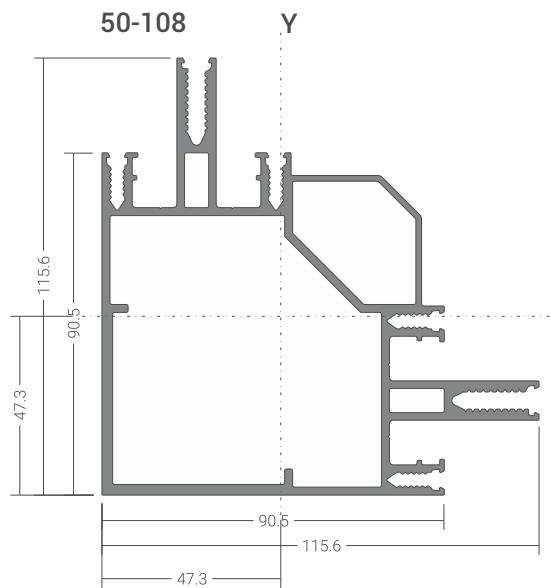


Scale 1:2





## Mullion profiles 90°

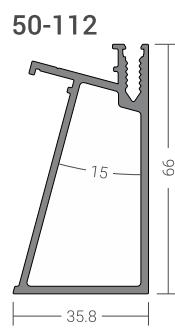
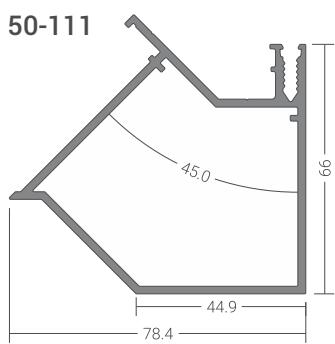
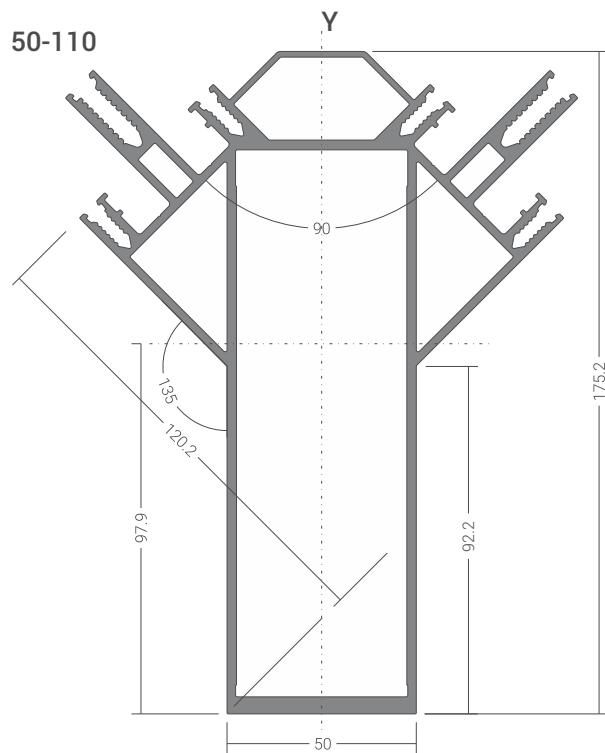
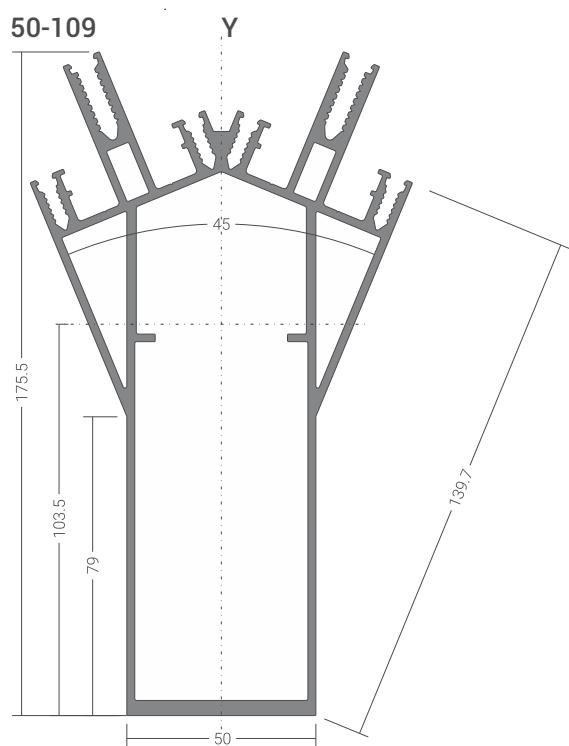


code	Dimensions (mm)	weight (kg/m)	$I_x$ ( $\text{cm}^4$ )	$I_y$ ( $\text{cm}^4$ )	$W_x$ ( $\text{cm}^3$ )	$W_y$ ( $\text{cm}^3$ )	section area ( $\text{cm}^2$ )	Visible perimeter (mm)	Painting perimeter (mm)	compatible static profile
50-106	50x185,5	3.934	713,5	57,2	67,2	22,9	14,6	423,23	521,10	130-50-404
50-107	50x204,5	4.951	1115,8	68,3	86,6	27,3	18,4	461,23	559,10	130-50-404
50-108	50x 90,5	3.896	167,0	167,0	24,5	24,5	14,4	259,92	462,20	130-50-402



Scale 1:2





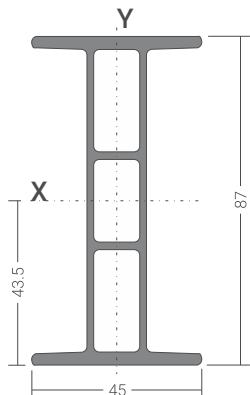
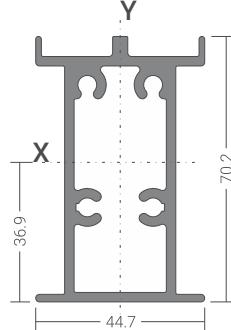
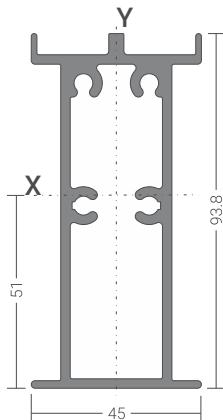
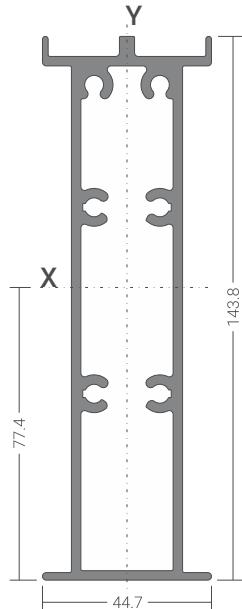
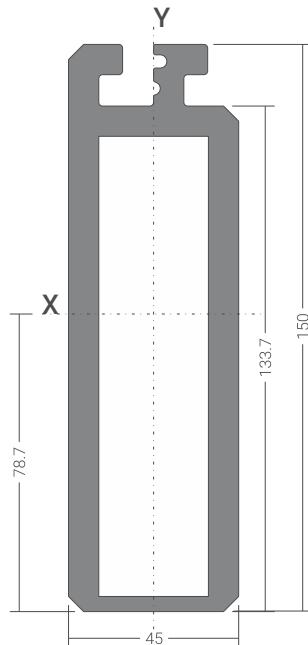
code	Dimensions (mm)	weight (kg/m)	$I_x$ ( $\text{cm}^4$ )	$I_y$ ( $\text{cm}^4$ )	$W_x$ ( $\text{cm}^3$ )	$W_y$ ( $\text{cm}^3$ )	section area ( $\text{cm}^2$ )	Visible perimeter (mm)	Painting perimeter (mm)	compatible static profile
50-109	50x139,4	5.052	535,6	138,5	51,7	27,4	18,8	0,34	552,99	130-50-404
50-110	50x140,1	5.895	978,7	266,9	77,7	39,5	23,7	0,40	620,33	130-50-404
50-111	44,9x 66	1.526	29,2	33,9	7,4	6,0	5,0	0,16	304,40	-
50-112	35,8x 66	1.086	20,1	5,4	6,0	2,4	4,0	0,10	203,46	-



Scale 1:2



**50-400**

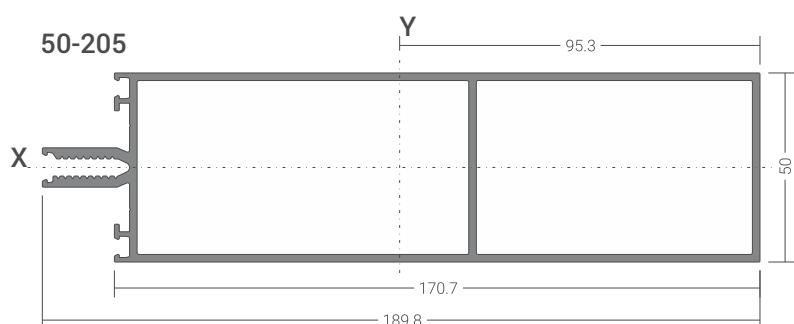
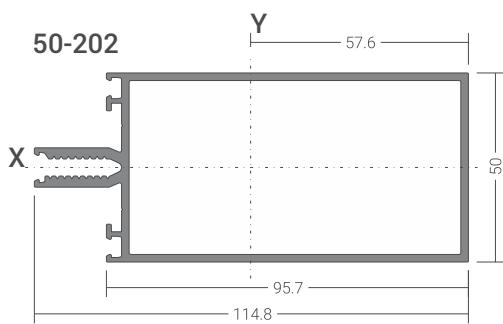
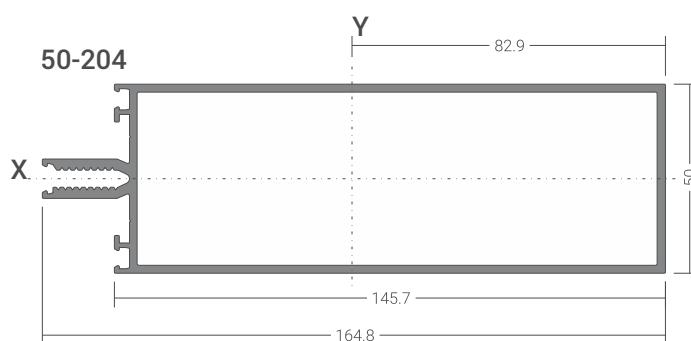
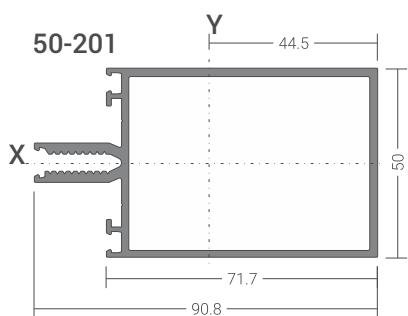
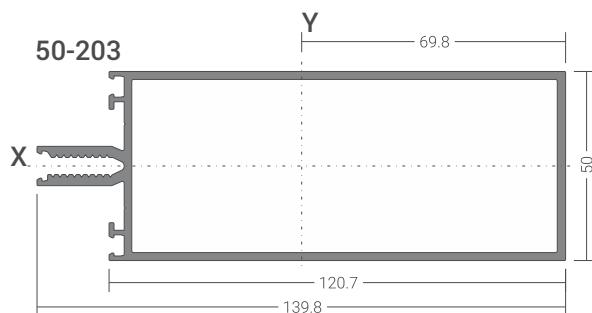
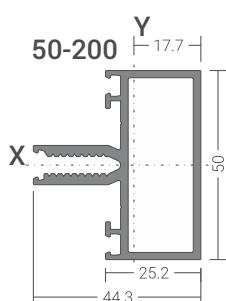
**50-401**

**130-50-402**

**130-50-403**

**130-50-404**

**130-50-413**


code	Dimensions (mm)	weight (kg/m)	$I_x$ ( $\text{cm}^4$ )	$I_y$ ( $\text{cm}^4$ )	$W_x$ ( $\text{cm}^3$ )	$W_y$ ( $\text{cm}^3$ )	section area ( $\text{cm}^2$ )	compatible mullion
50-400	7,9x 16,0	1.198	103,1	0,2	12,9	0,4	4,4	130-50-402; 130-50-403; 130-50-404;
50-401	45,0x 87,0	1.695	67,4	6,0	15,5	2,7	6,3	50-202; 50-205
130-50-402	44,7x 70,2	1,951	39,7	10,9	10,7	4,9	7,2	50-102; 50-108
130-50-403	45,0x 93,8	2,276	81,2	13,1	15,9	5,8	8,4	50-103; 50-104; 50-109
130-50-404	44,7x 143,8	3,167	255,2	18,2	33,0	8,2	11,7	50-106; 50-107; 50-110
130-50-413	45,0x 150,0	7,591	605,2	81,3	76,9	35,1	28,0	all mullions



Scale 1:2



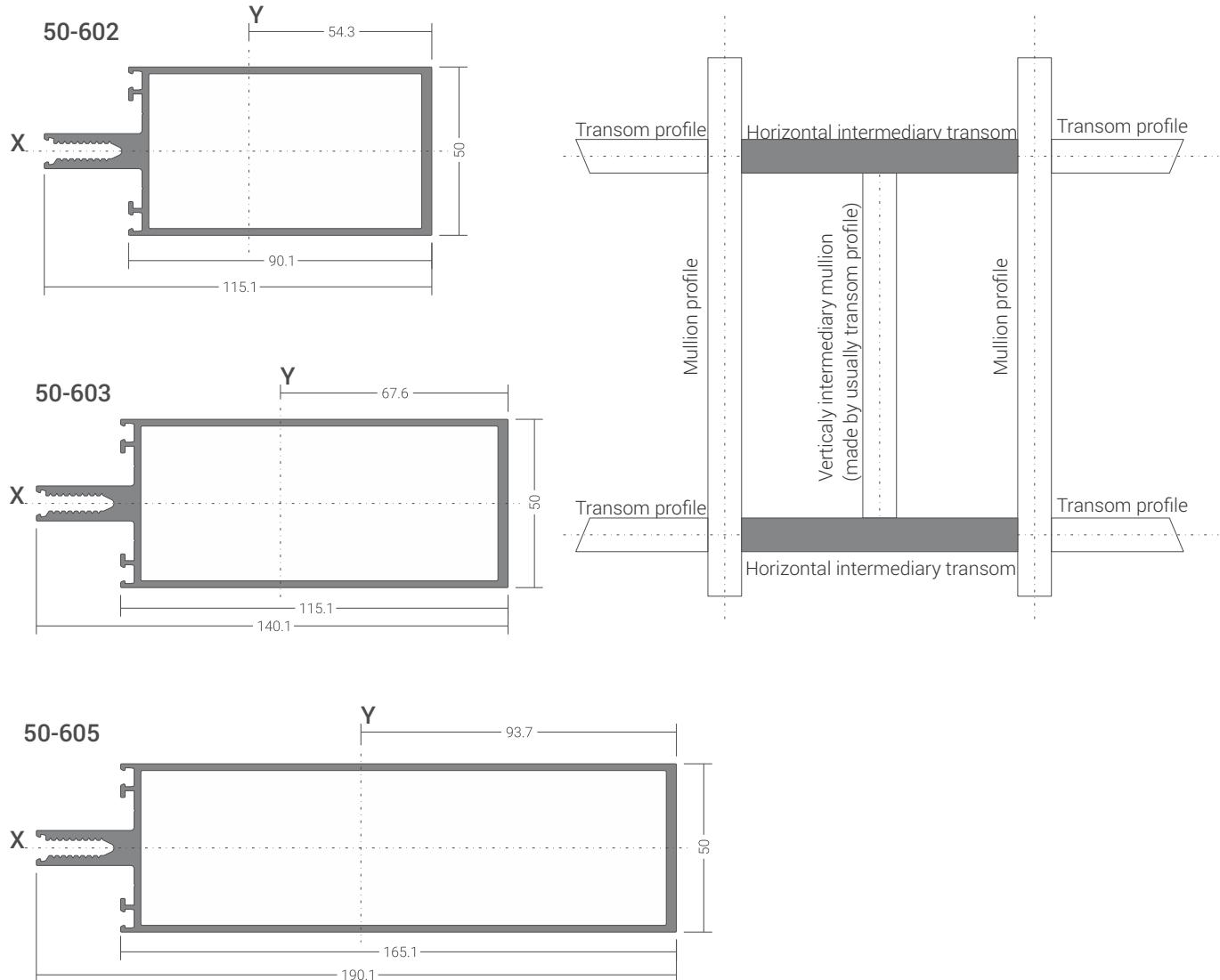


code	Dimensions (mm)	weight (kg/m)	$I_x$ ( $\text{cm}^4$ )	$I_y$ ( $\text{cm}^4$ )	$W_x$ ( $\text{cm}^3$ )	$W_y$ ( $\text{cm}^3$ )	section area ( $\text{cm}^2$ )	Visible perimeter (mm)	Painting perimeter (mm)	compatible static profile
50-200	25,2x50	1.119	9,3	6,4	3,7	2,4	4,1	102,63	188,50	-
50-201	71,7x50	1.630	20,2	51,7	8,1	11,2	6,0	195,63	281,40	-
50-202	95,7x50	1.890	25,7	99,0	10,3	17,2	7,0	243,63	329,40	-
50-203	120,7x50	2.245	32,8	176,5	13,1	25,2	8,3	293,63	379,40	-
50-204	145,7x50	2.529	38,9	275,9	15,5	33,3	9,4	343,63	429,40	-
50-205	170,7x50	2.948	44,7	392,3	17,9	41,1	10,9	393,63	479,40	-



Scale 1:2



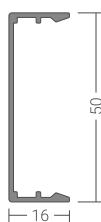
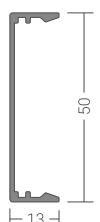
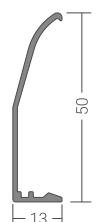
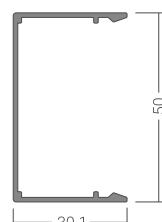
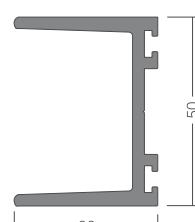
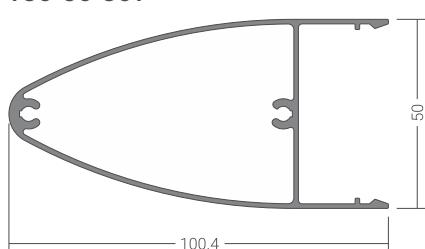
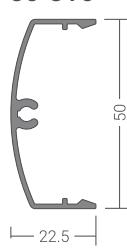
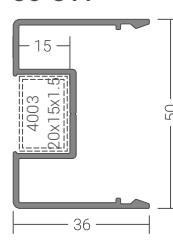


code	Dimensions (mm)	weight (kg/m)	I <sub>x</sub> (cm <sup>4</sup> )	I <sub>y</sub> (cm <sup>4</sup> )	W <sub>x</sub> (cm <sup>3</sup> )	W <sub>y</sub> (cm <sup>3</sup> )	section area (cm <sup>2</sup> )	Visible perimeter (mm)	Painting perimeter (mm)	compatible static profile
50-602	90,1x50	2,135	25,3	110,6	10,1	18,2	7,7	232,43	330,29	-
50-603	115,1x50	2,405	31,1	188,9	12,4	26,0	8,7	282,43	380,29	-
50-605	165,1x50	2,945	42,6	429,7	17,0	44,6	10,7	382,43	480,30	-



Scale 1:2



**130-50-301**

**130-50-302**

**130-50-315**

**130-50-319**

**130-50-304**

**130-50-307**

**50-310**

**50-317**


## Pressure plates

**130-50-300**

**50-300**

**130-50-314**

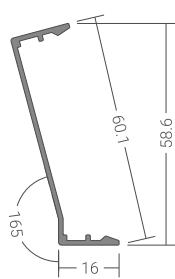
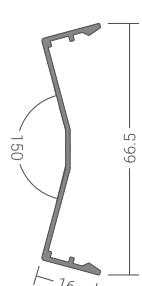
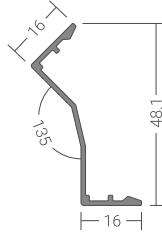
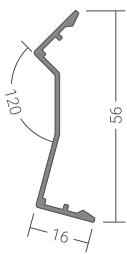
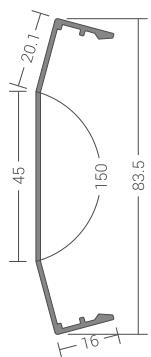
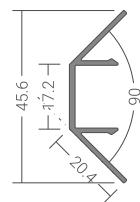
**130-50-318**


code	Dimensions (mm)	L.P	weight (kg/m)	Visible perimeter (mm)	Painting perimeter (mm)	compatible static profile
130-50-301	16x50	6	0.292	83,07	132,00	130-50-300
130-50-302	13x50	6	0.272	77,07	126,00	130-50-300
130-50-315	13x50	6	0.243	69,67	126,00	130-50-314
130-50-319	30,1x50	6	0.383	111,07	160,00	130-50-318
130-50-304	38x50	6	1.151	183,81	176,00	-
130-50-307	100,4x50	6	1.053	217,24	300,74	130-50-318
50-310	22,5x50	6	0.369	86,82	144,94	50-300
50-317	36x50	6	0.606	153,28	172,00	130-50-318
130-50-300	6,6x47,5	6	0.439	-	-	-
50-300	12,2x47,5	6	0,460	-	-	-
130-50-314	7,9x46,7	6	0,404	-	-	-
130-50-318	22,8x47,5	6	0,626	-	-	-

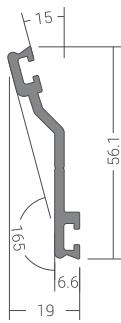
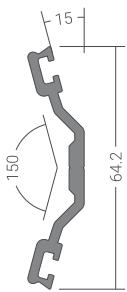
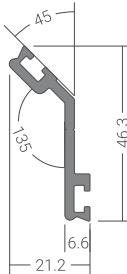
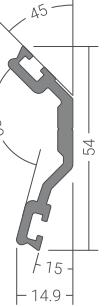
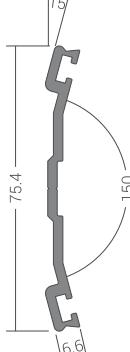
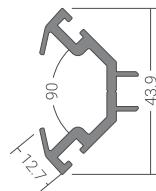


Scale 1:2



**50-311**

**50-312**

**50-313**

**50-314**

**50-315**

**130-50-306**


## Pressure plates - variable angles

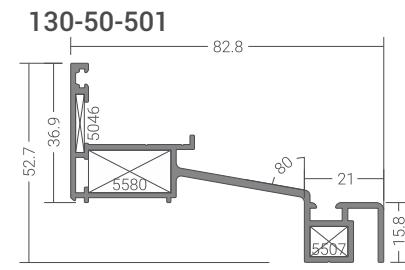
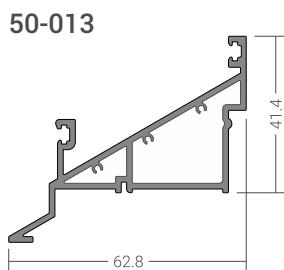
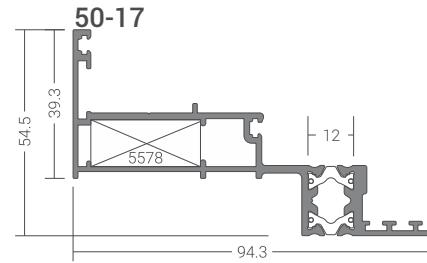
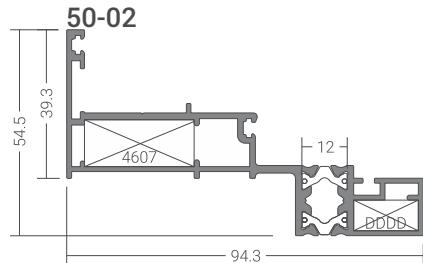
**50-301**

**50-302**

**50-303**

**50-304**

**50-305**

**130-50-305**


code	Dimensions (mm)	Angle (°)	weight (kg/m)	Visible perimeter (mm)	Painting perimeter (mm)	compatible static profile
50-311	16 x58,6	165	0,312	89,29	152,16	50-301
50-312	16 x66,5	150	0,325	93,86	164,11	50-302
50-313	16 x48,1	135	0,267	75,57	132,58	50-303
50-314	16 x56,0	120	0,274	77,62	142,82	50-304
50-315	16x83,5	150	0,405	116,26	208,09	50-305
130-50-306	20,4x17,2	90	0,269	60,21	121,40	130-50-305
50-301	6,6 x56,1	165	0,511	-	-	-
50-302	6,6 x64,2	150	0,631	-	-	-
50-303	6,6 x46,3	135	0,455	-	-	-
50-304	6,6 x54,0	120	0,576	-	-	-
50-305	6,6x75,4	150	0,625	-	-	-
130-50-305	12,7x43,9	90	0,574	-	-	-

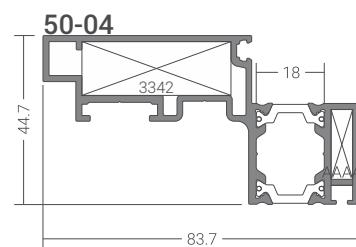
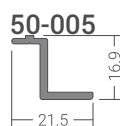
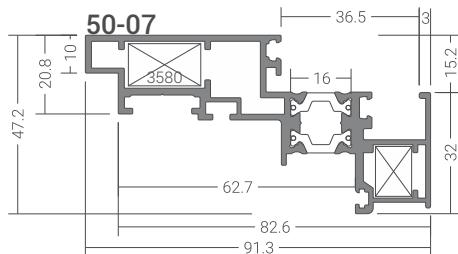


Scale 1:2





## Projected windows (Openings) - Sash profiles

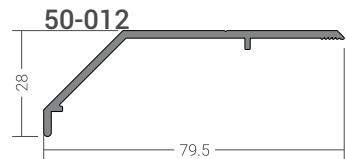
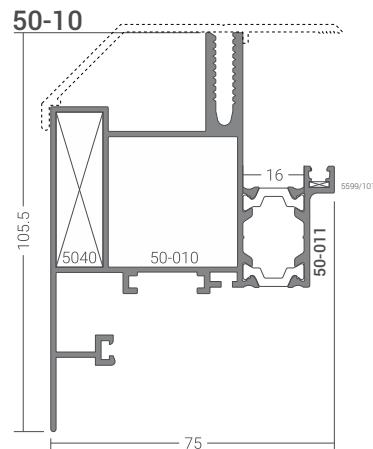
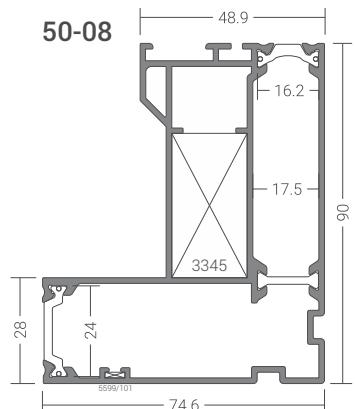


code	Dimensions (mm)	weight (kg/m)	section area (cm <sup>2</sup> )	Visible perimeter (mm)	Painting perimeter (mm)	compatible frame / sash profile	compatible corner
50-02	94,3x54,5	1.353			297,00	50-04	4607/5578; 3341; 5046
50-013	62,8x41,4	0.923	3.42		234.63	50-02; 50-17	-
50-17	94,3x54,5	1.295			429,40	50-013; 50-04	4607/5578; 5046
130-50-501	82,8X52,7	0.974			271,00	50-07	5507; 5580/7018B; 5046
50-07	91,3x47,2	1.573			297,50	130-50-501	5726; 5580
50-005	21,5x16,9	0.189			76,70	50-04	-
50-04	83,7x44,7	1.468			256,80	50-02; 50-005; 50-17	3342; 3343



Scale 1:2



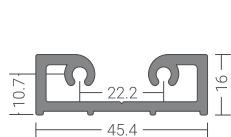
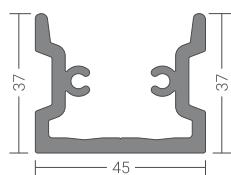
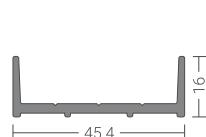
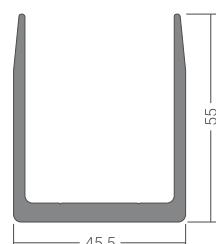
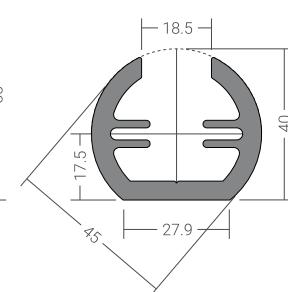
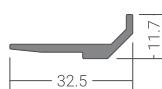
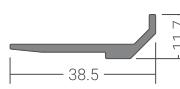
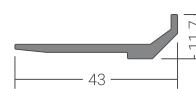
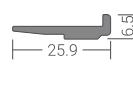
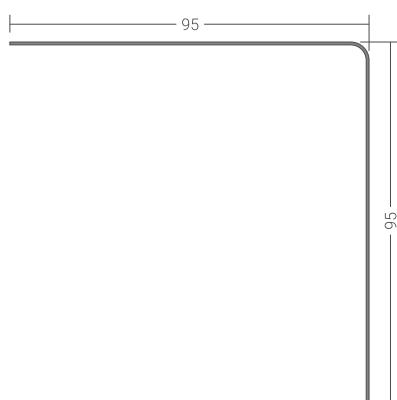
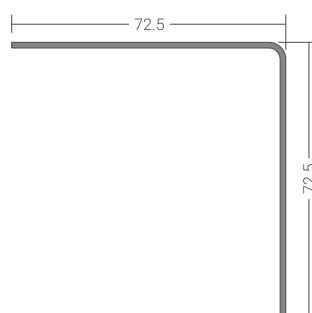
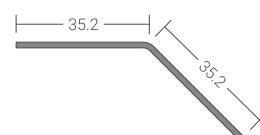


code	Dimensions (mm)	weight (kg/m)	section area (cm <sup>2</sup> )	Visible perimeter (mm)	Painting perimeter (mm)	compatible frame / sash profile	compatible corner
50-08	74,6x90	2.149			329,26	50-10	5599/101; 3345
50-10	75x105,5	2.037			361,00	50-08	5040; 5599/101
50-011	79,5x28	0.520			214,93	50-10	-

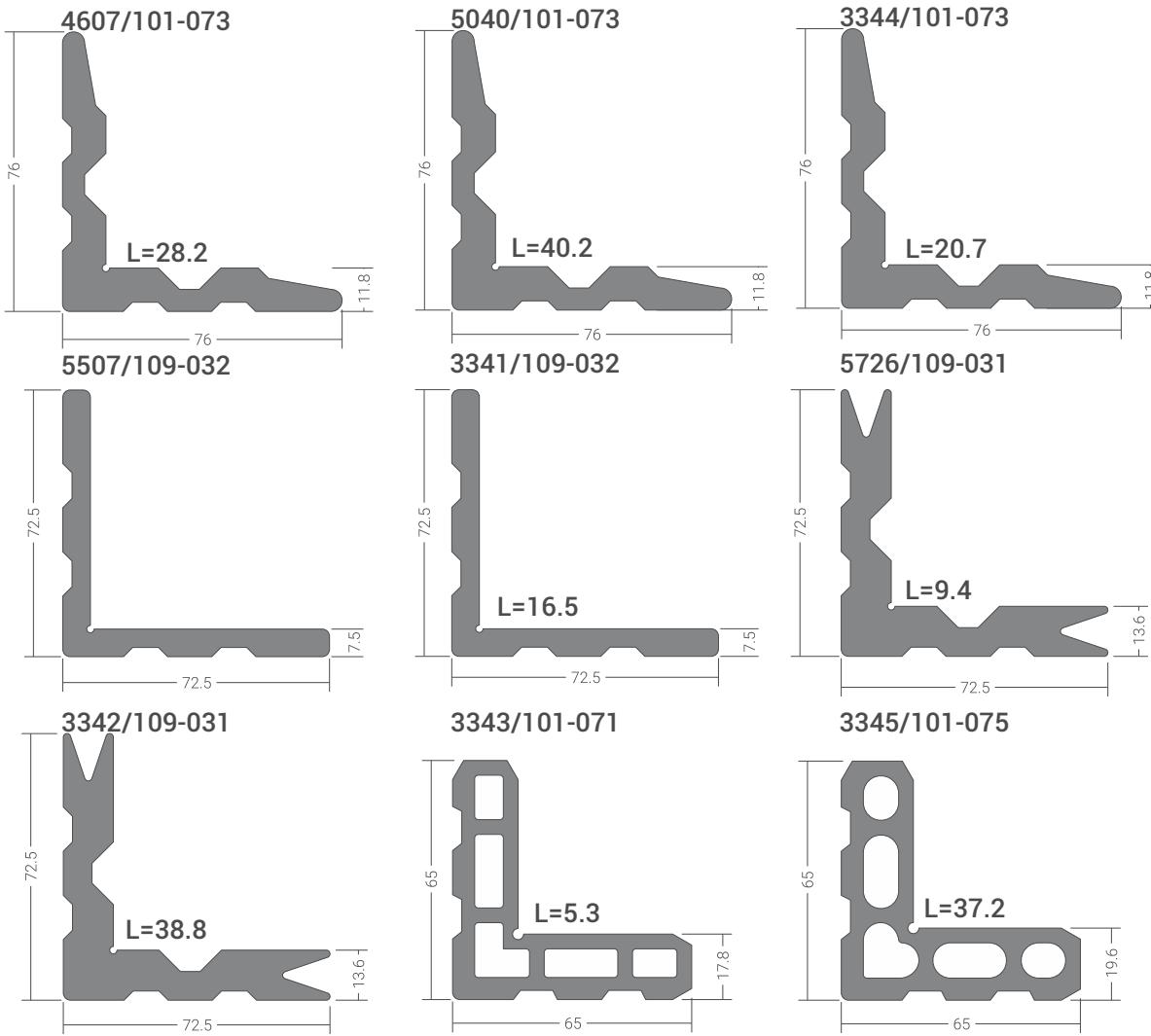


Scale 1:2



**50-420**

**140-011**

**130-50-419**

**130-50-415**

**130-50-414**

**Glazing supports**
**50-410**

**50-411**

**50-412**

**50-413**

**Peripheral profiles**
**50-501**

**50-502**

**50-503**


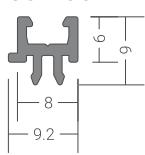
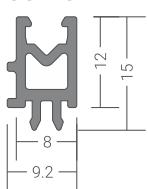
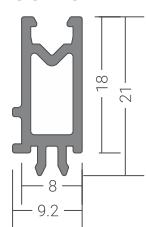
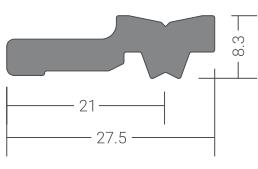
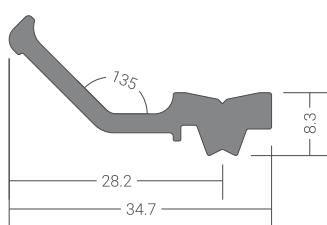
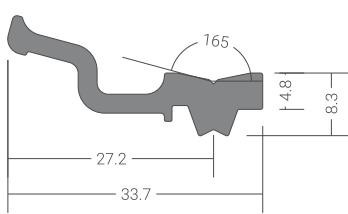
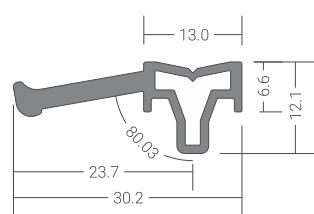
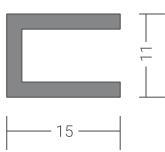
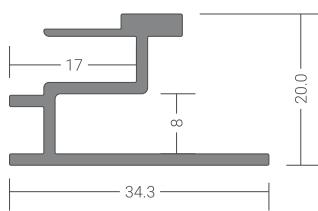
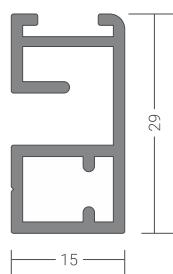
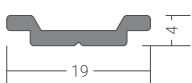
code	Dimensions (mm)	L.P (m)	weight (kg/m)	Visible perimeter (mm)
50-420	45,4x16	6	0.800	-
140-011	45x37	6	1.358	-
130-50-419	45,4x16	6	0.440	-
130-50-415	45,5x55	6	1.362	-
130-50-414	Ø45	6	1.636	-
50-410	32,5x11,7	6	0.233	-
50-411	38,5x11,7	6	0.267	-
50-412	43x11,7	6	0.302	-
50-413	25,9x8,5	6	0.188	-
50-501	95x95	6	0.757	0.38
50-502	72,5x72,5	6	0.575	0.29
50-503	35,2x35,2	6	0.283	0.14



code	Profile Code	Dimension (mm)	Length (mm)	Compatible profiles
4607	101-073	76x76x11,8	28.2	50-02; 50-17
5040	101-073	76x76x11,8	40.2	50-10
3344	101-073	76x76x11,8	20.7	50-07
5507	109-032	72,5x72,5x7,5	9.4	130-50-501
3341	109-032	72,5x72,5x7,5	16.5	50-02
3345	101-075	65x65x19,6	37.2	50-08
3343	101-071	65x65x18,8	5.3	50-04
5726	109-031	72,5x72,5x13,6	9.4	50-07
3342	109-031	72,5x72,5x13,6	38.8	50-04

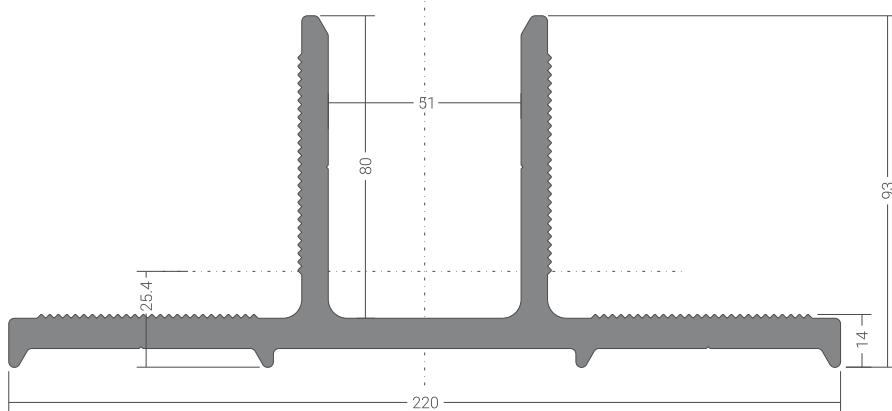
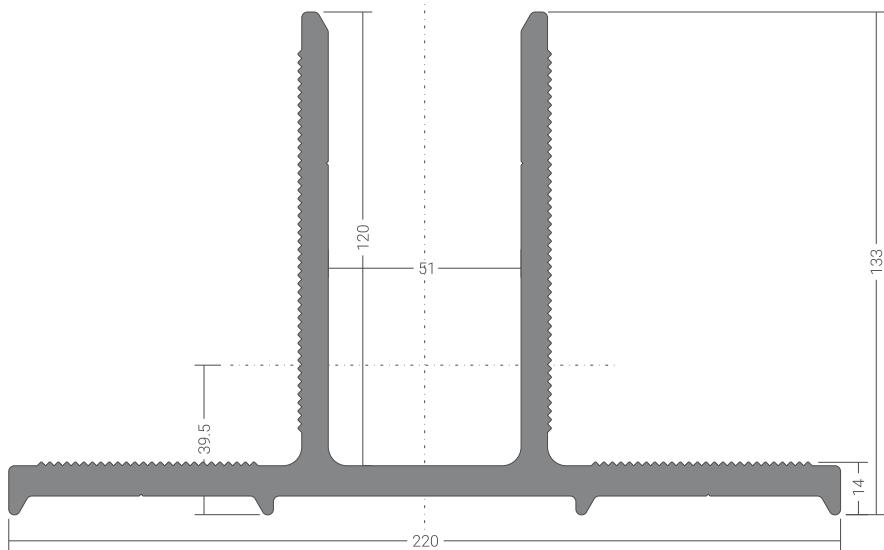
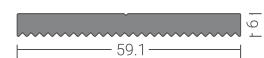


Scale 1:2

**50-450**

**50-451**

**50-452**

**Fixing parts for structural glazing**
**50-453**

**50-456**

**50-457**

**50-458**

**Spacers**
**3001**

**50-462**

**140-013**

**Connection rod**
**101-063**


code	Dimensions (mm)	weight (kg/m)	Painting perimeter (mm)
50-450	9,2x9	0.090	36,40
50-451	9,2x15	0.159	276,00
50-452	9,2x21	0.197	60,40
50-453	27,5x8,3	0.378	-
50-456	34,7x8,3	0.394	-
50-457	33,7x8,3	0.391	-
50-458	30,2x12,1	0.275	-
3001	15x11x2	0.201	-
50-462	34,7x20	0.364	109,40
140-013	15x29	0.399	88,00
101-063	19x4	0.116	-

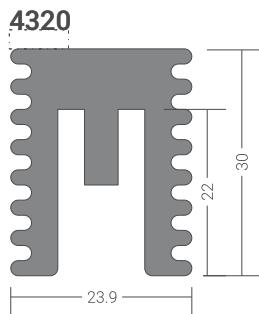
Scale 1:1

**130-50-416****130-50-417****130-50-418**

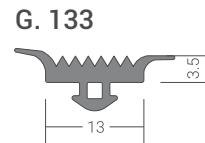
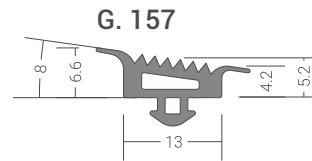
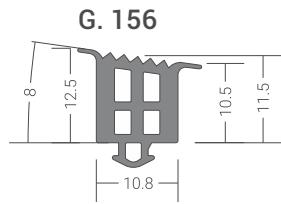
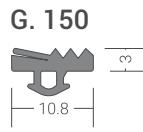
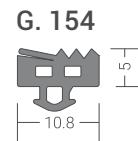
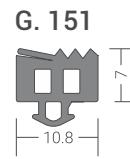
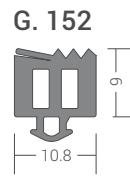
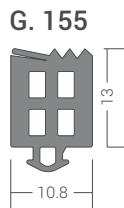
code	Dimensions (mm)	L.P (m)	weight (kg/m)
130-50-416	220x93	6	9.000
130-50-417	220x133	6	8.000
130-50-418	59.1x6	6	0.886



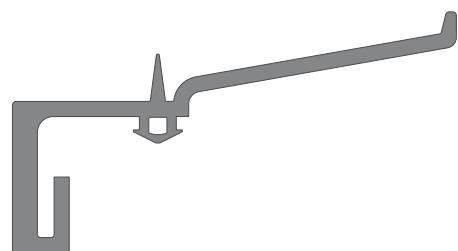
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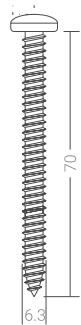
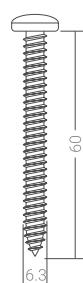
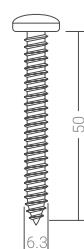
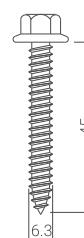
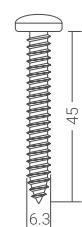
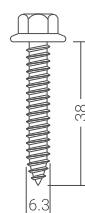
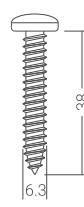
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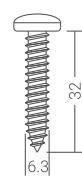
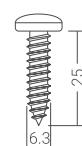
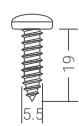
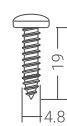


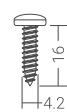
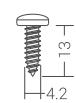
G.135



Scale 1:2

**6,3 x 70**

**6,3 x 60**

**6,3 x 50**

**6,3 x 45**

**6,3 x 45**

**6,3 x 38**

**6,3 x 38**

**6,3 x 32**

**6,3 x 32**

**6,3 x 25**

**5,5 x 19**

**4,8 x 19**

**4,8 x 16**

**4,2 x 16**

**4,2 x 13**


Dimension (dxL mm)	DIN	UMV	Package	U.M.
6,3x70	7981-A2	100	10	pcs
6,3x60	7981-A2	100	10	pcs
6,3x50	7981-A2	100	10	pcs
6,3x45	7986-A2	100	10	pcs
6,3x45	7981-A2	100	10	pcs
6,3x38	7986-A2	100	10	pcs
6,3x38	7981-A2	100	10	pcs
6,3x32	7986-A2	100	10	pcs
6,3x32	7981-A2	100	10	pcs
6,3x25	7981-A2	100	10	pcs
5,5x19	7981-A2	100	10	pcs
4,8x19	7981-A2	100	10	pcs
4,8x16	7981-A2	100	10	pcs
4,2x16	7981-A2	100	10	pcs
4,2x13	7981-A2	100	10	pcs



Scale 1:2



# **Chapter 4**

## **Profiles details**

### **scale 1:1**

# Profiles details

## Table of content

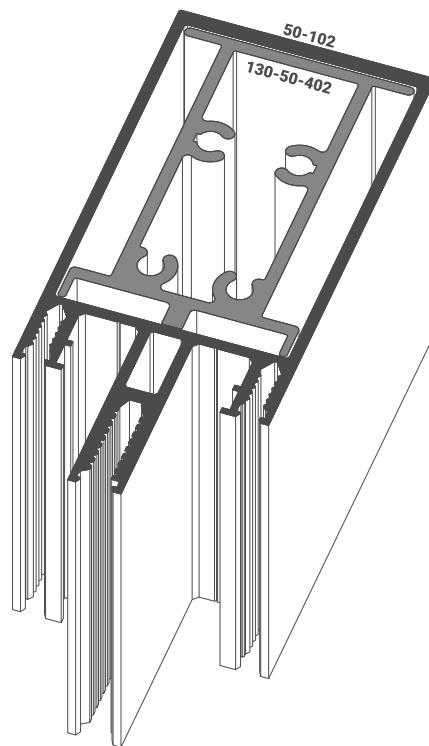
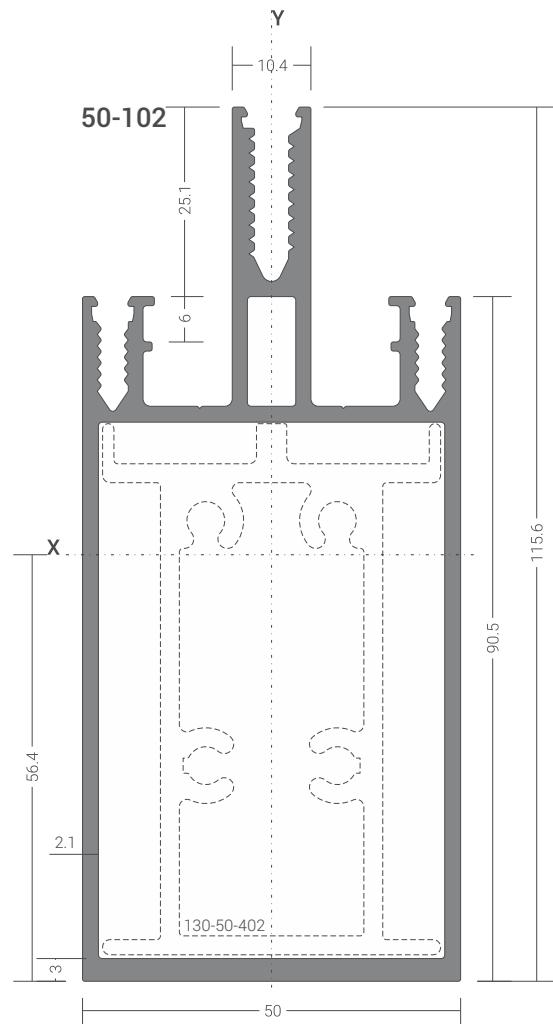
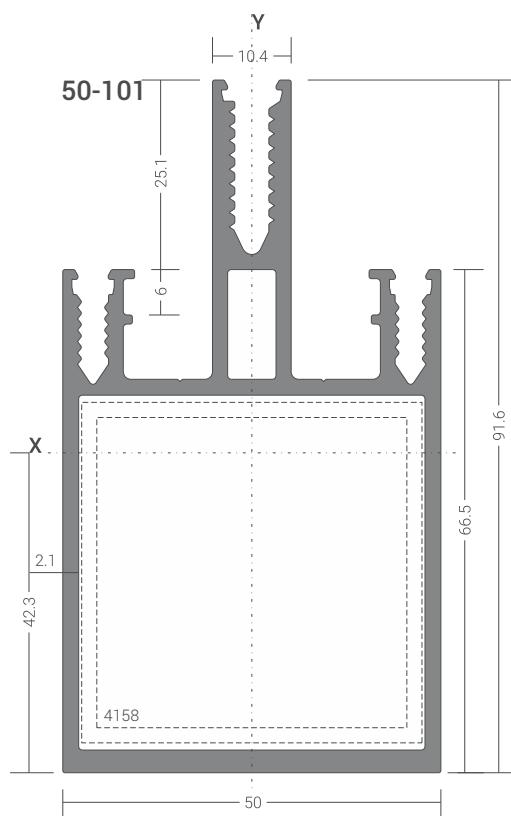
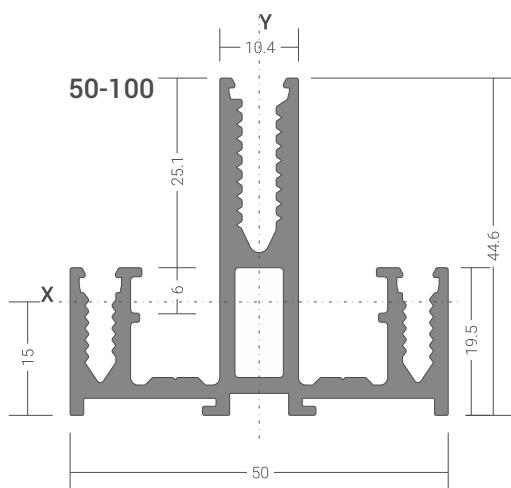
page 4.1	Mullion profiles
page 4.2	Mullion profiles
page 4.3	Mullion profiles
page 4.4	Mullion profiles
page 4.5	Mullion profiles - 90° corner
page 4.6	Mullion profiles - 135° corner
page 4.7	Mullion profiles - 90° corner
page 4.8	Additional mullion profiles - variable angle
page 4.9	Static profiles
page 4.10	Static profiles
page 4.11	Static profiles
page 4.12	Transom profiles
page 4.13	Transom profiles
page 4.14	Transom profiles
page 4.15	Transom profiles
page 4.16	Transom profiles
page 4.17	Cover cap profiles
page 4.18	Decorative cover cap profiles

# Profiles detailes

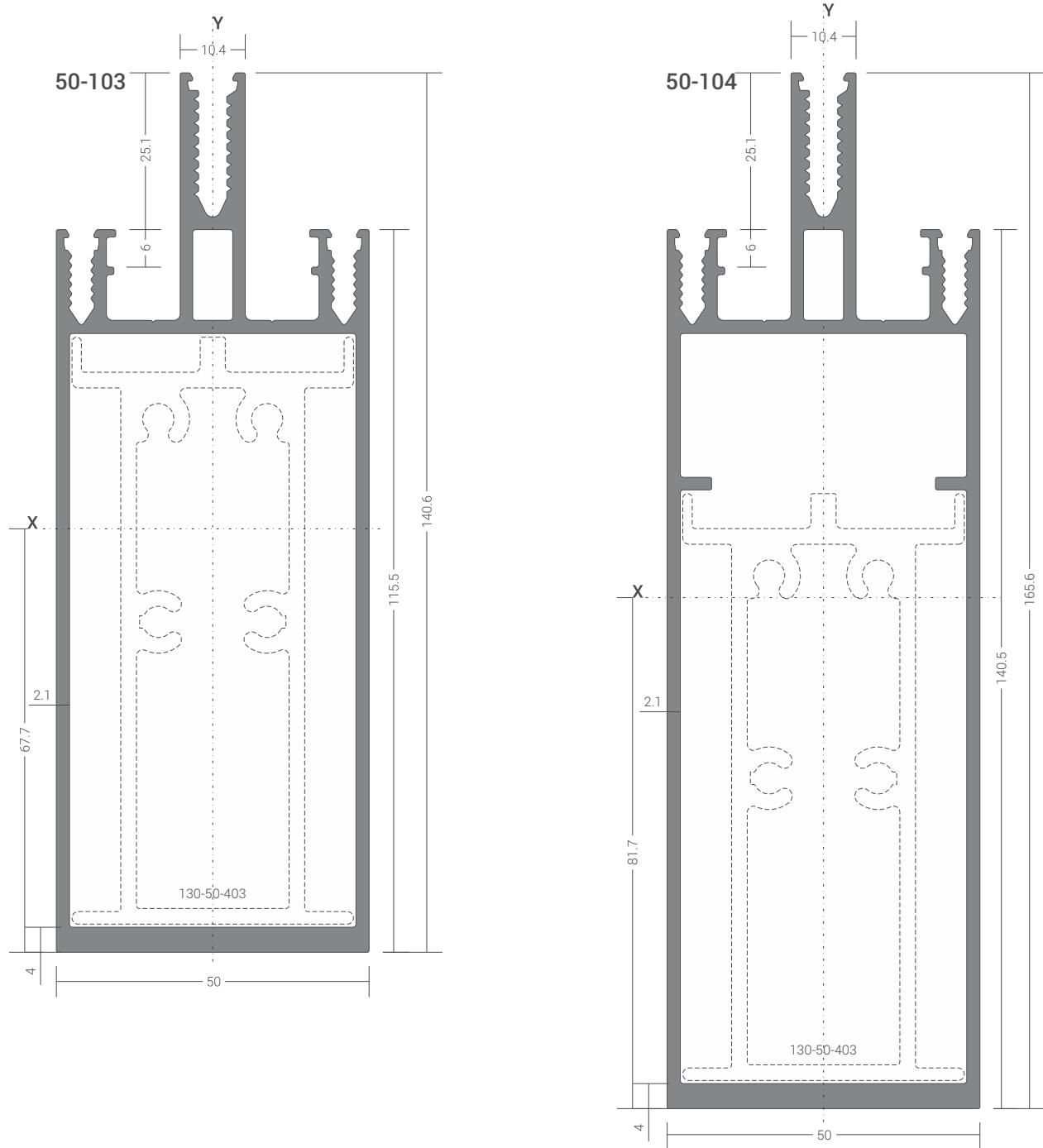
## Table of content

page 4.19 Cover cap profiles - variable angles

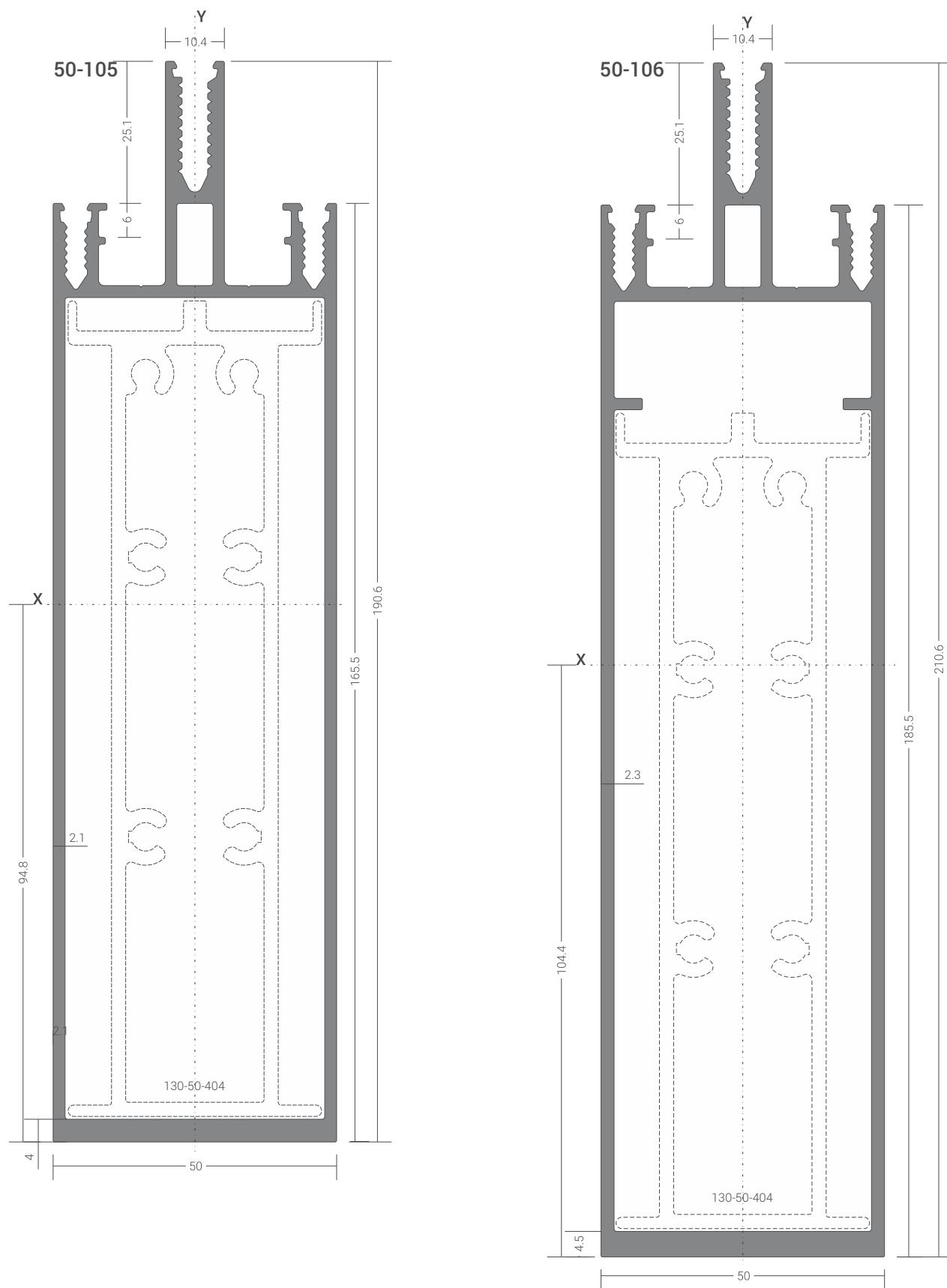
page 4.20 Pressure plate profiles



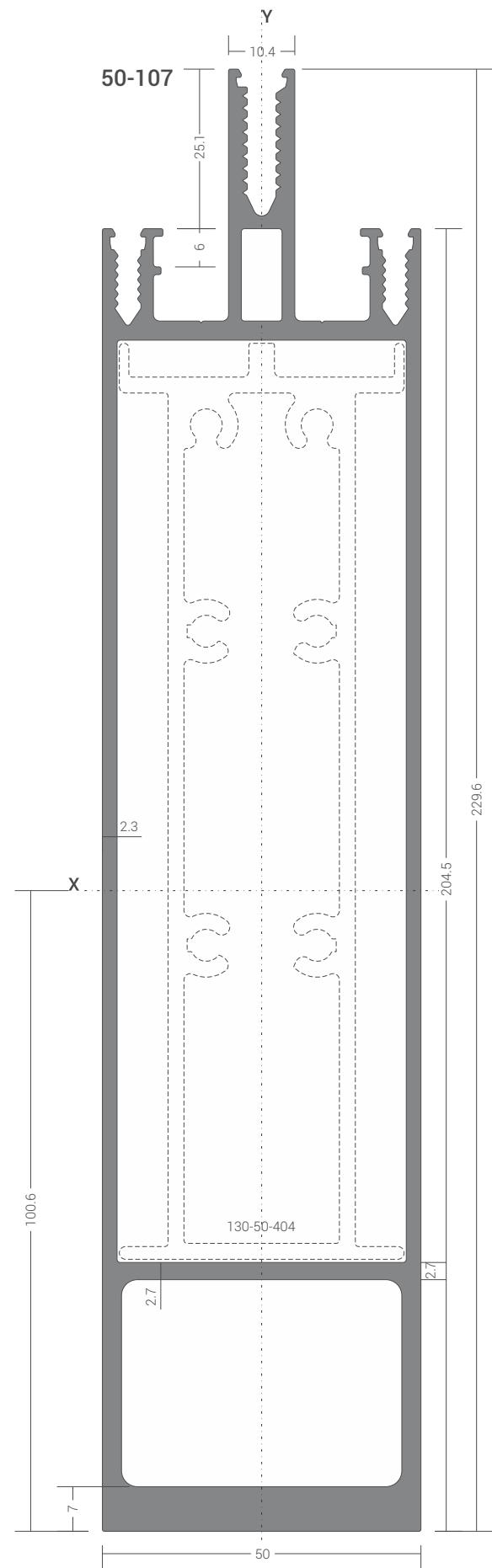
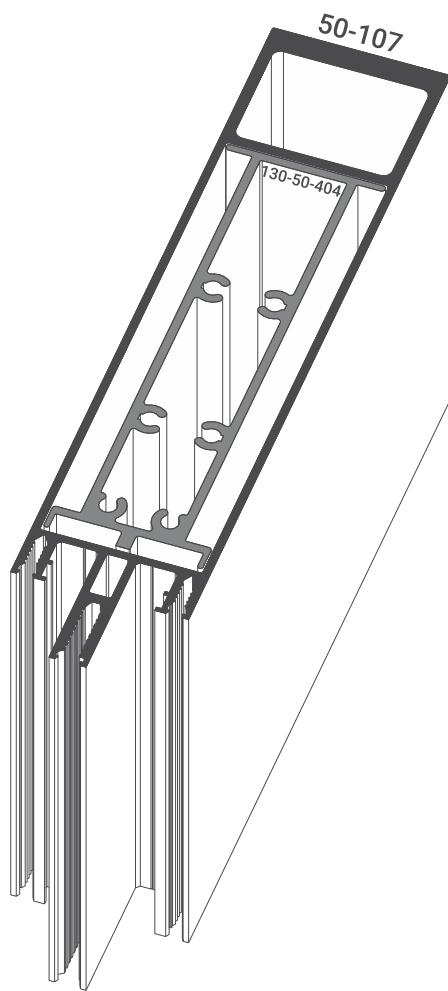
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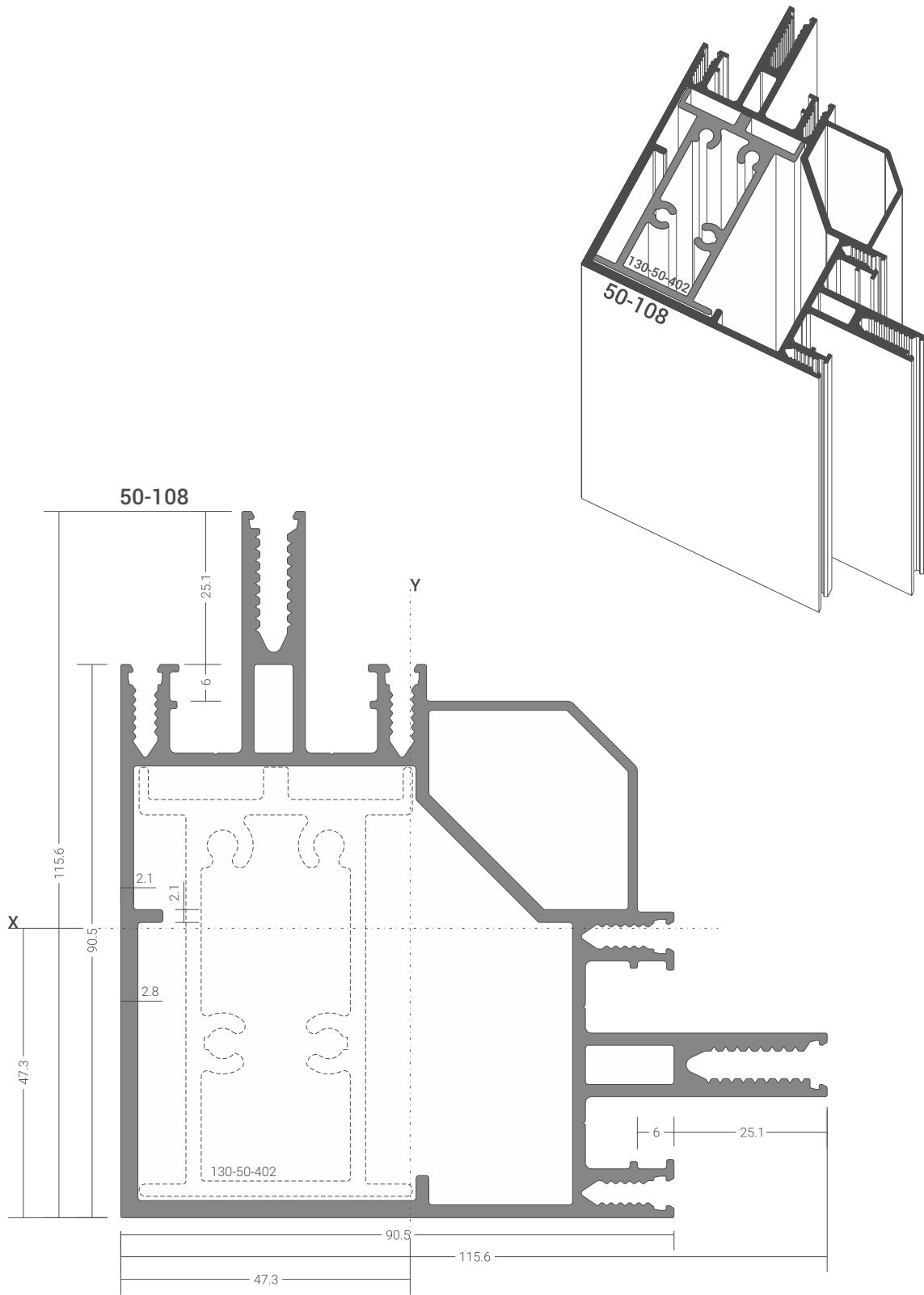
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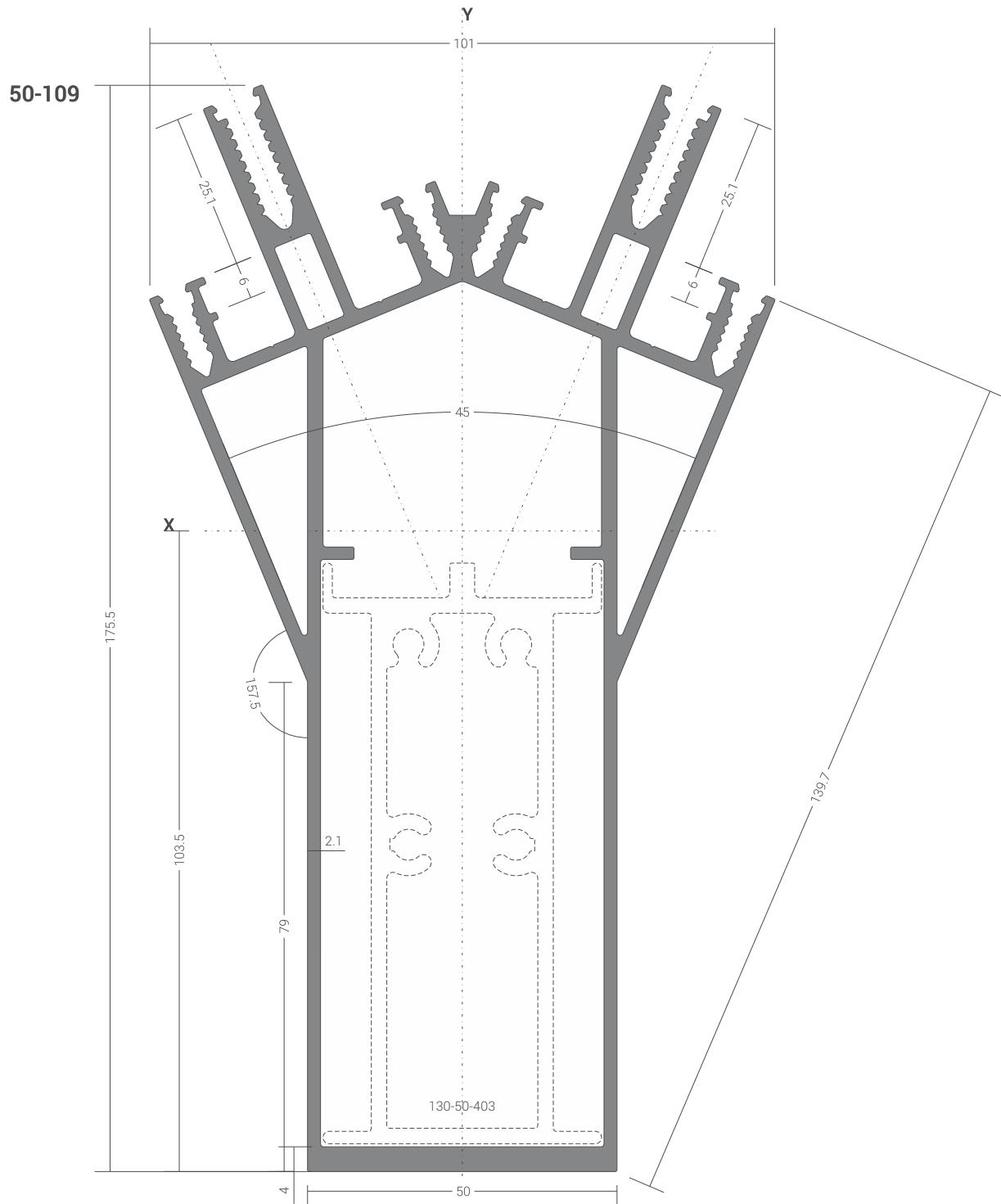
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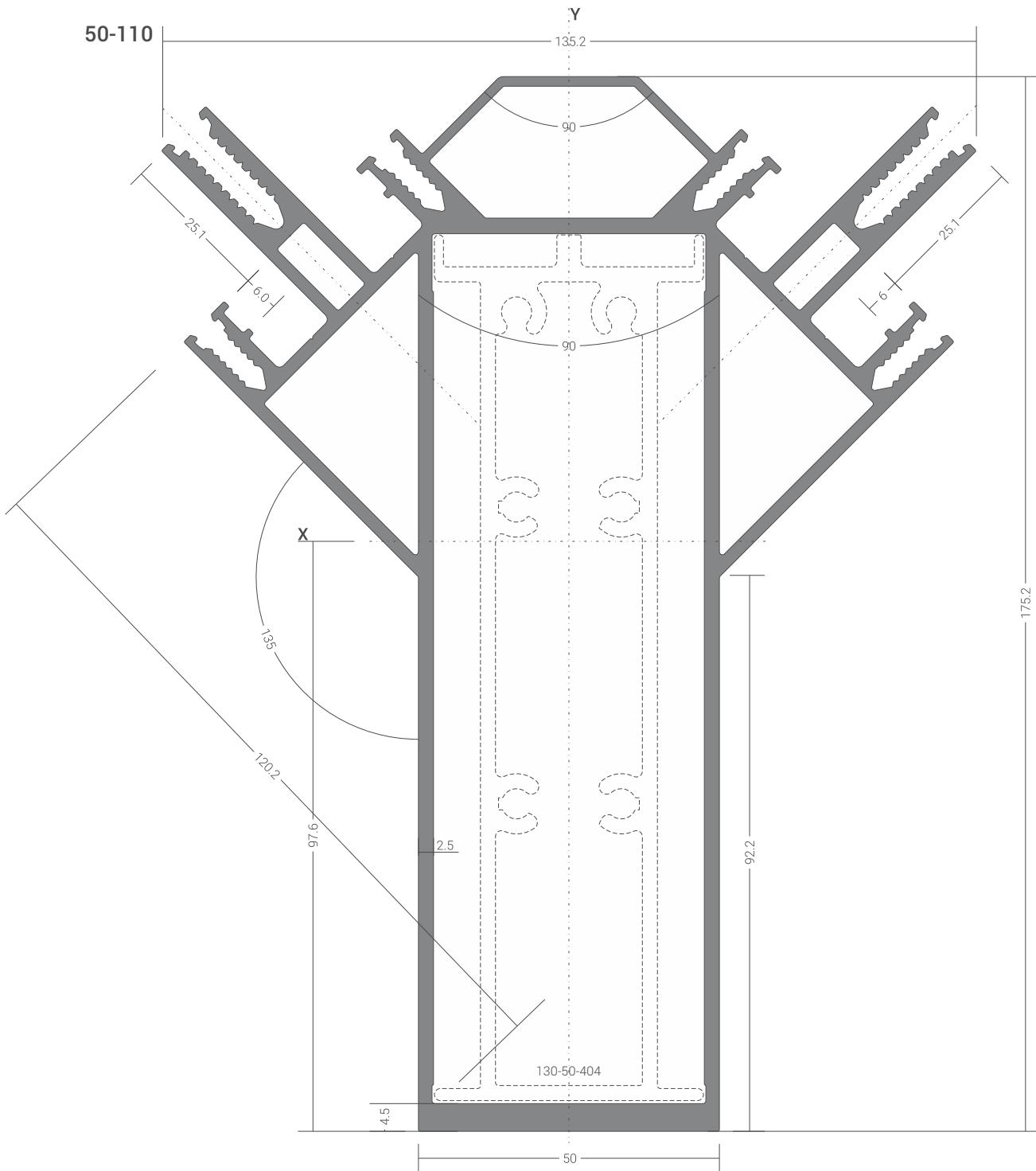
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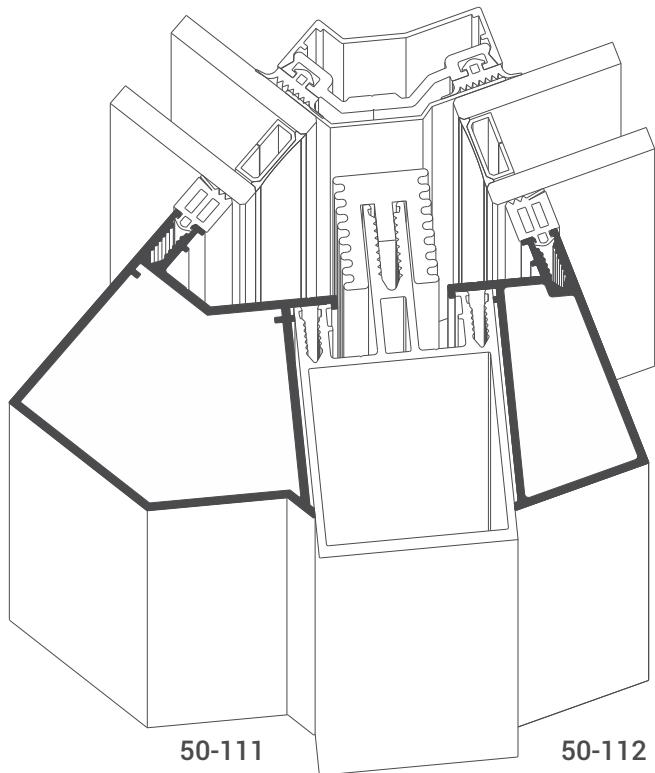
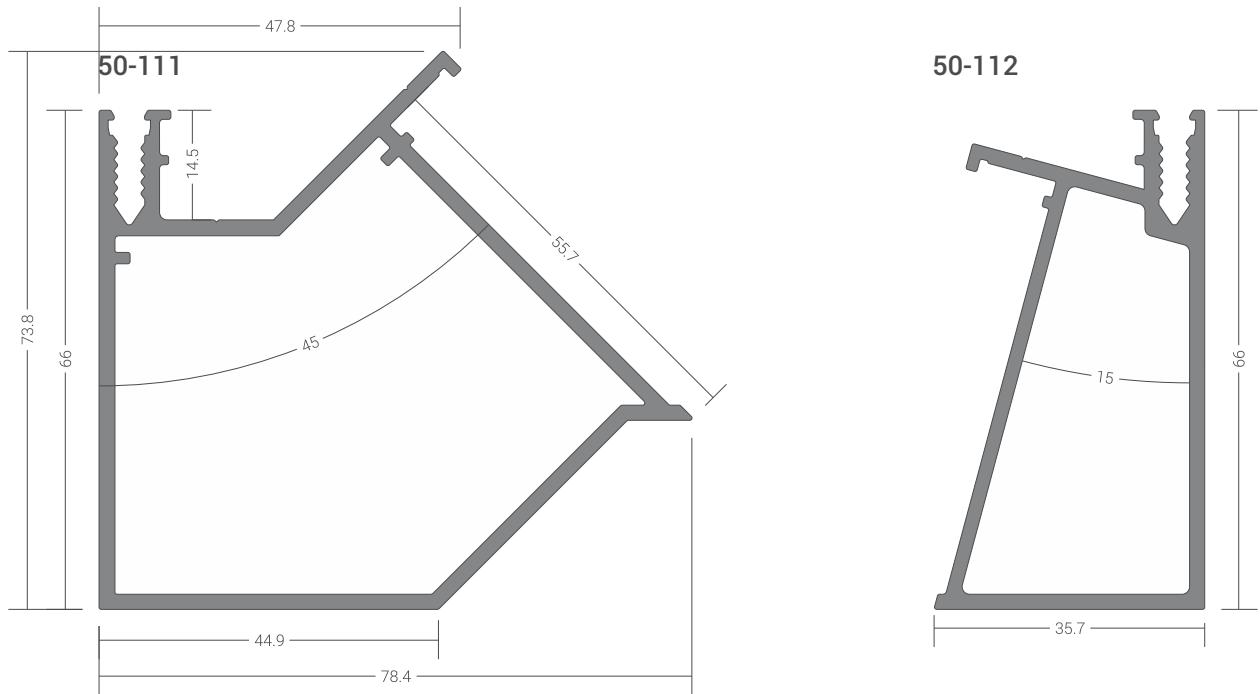
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Scale 1:1

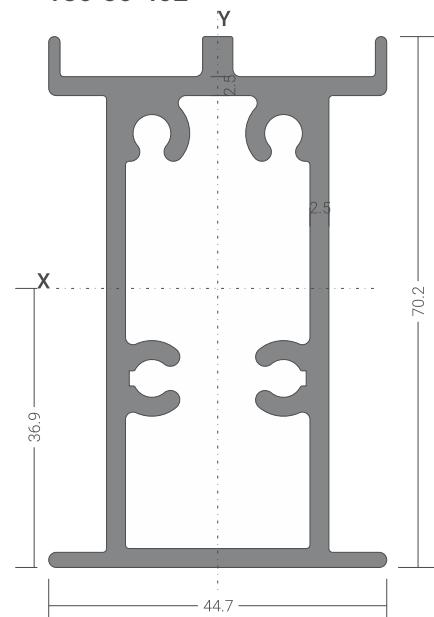
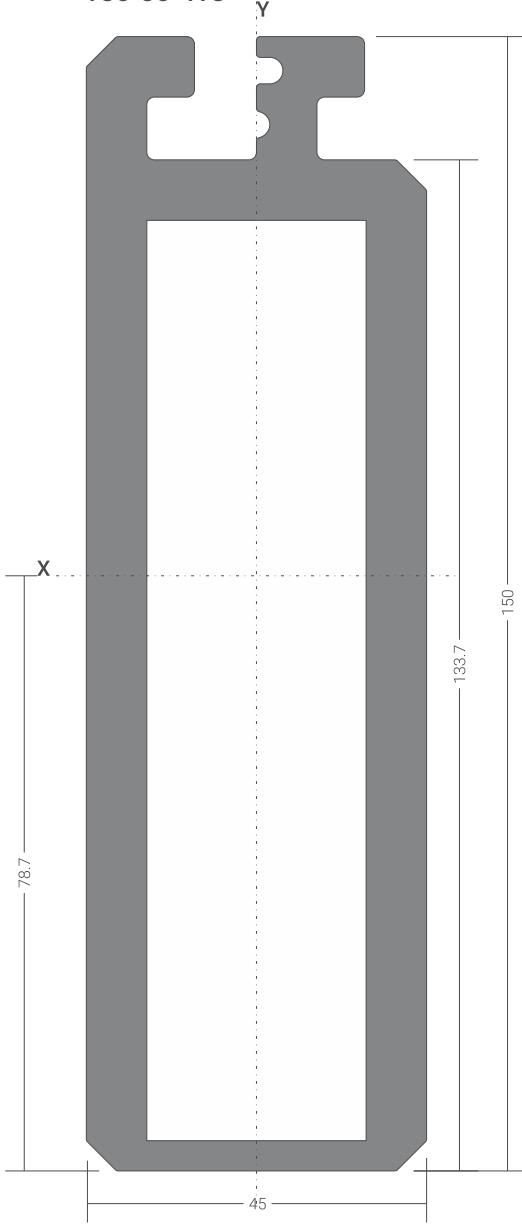
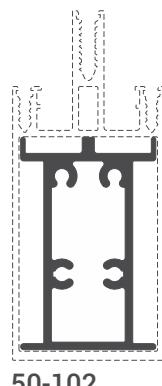
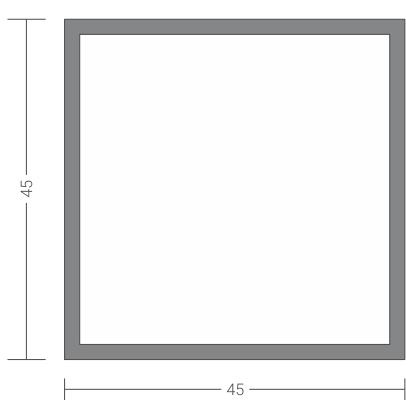
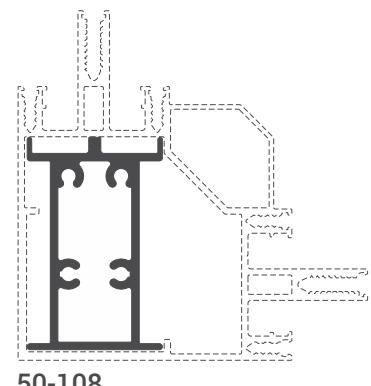


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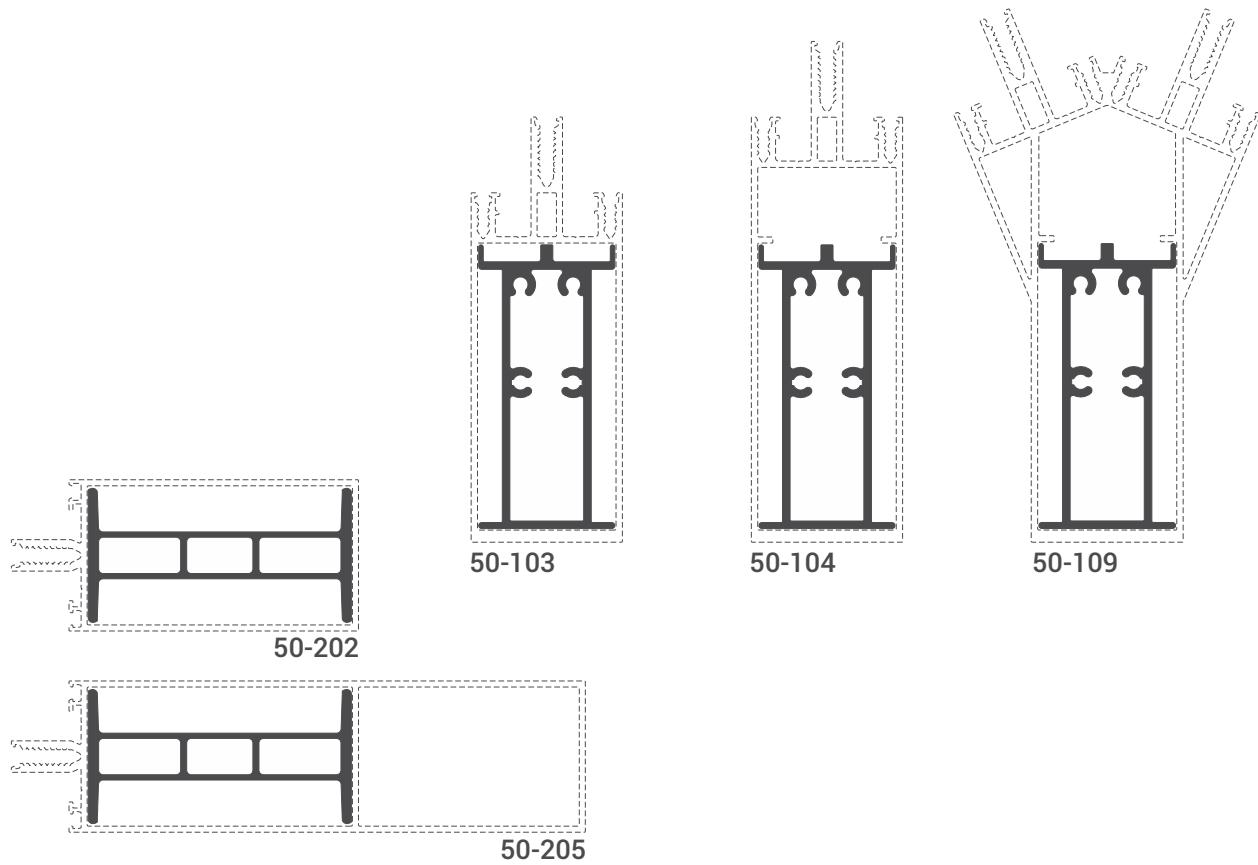
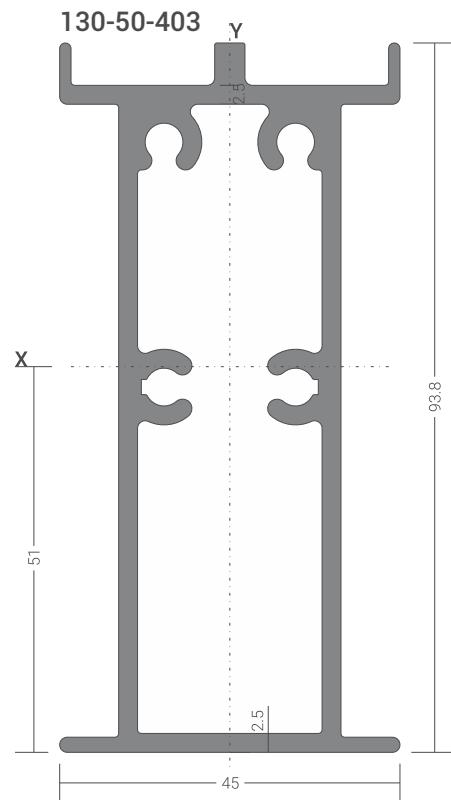
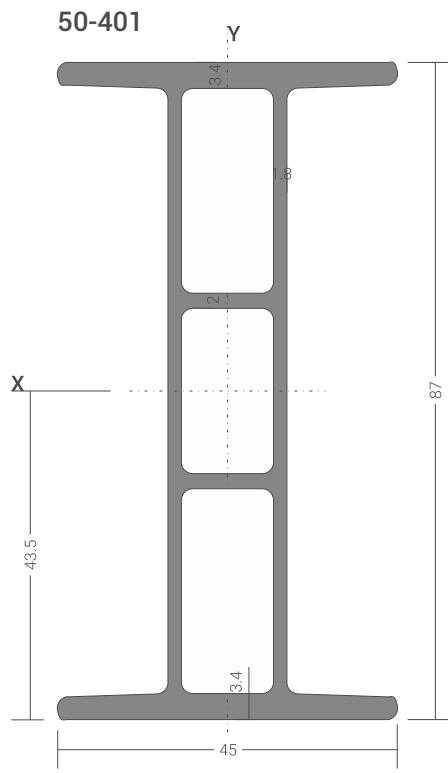


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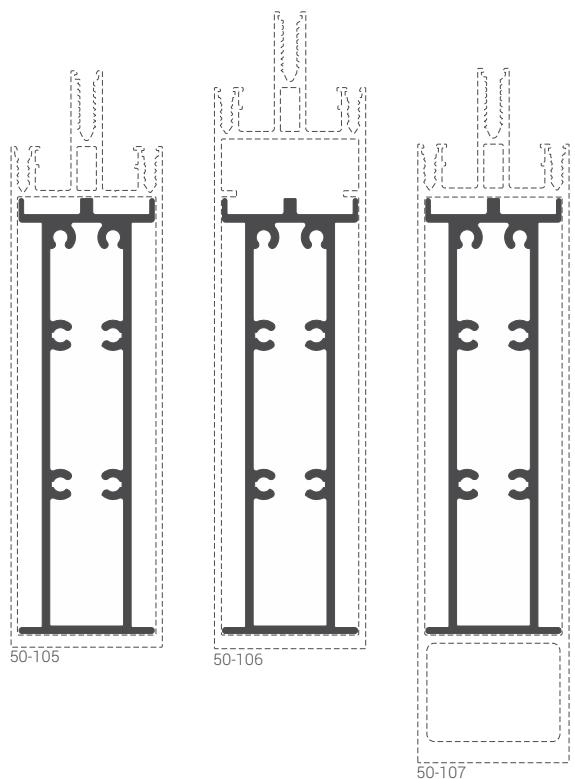
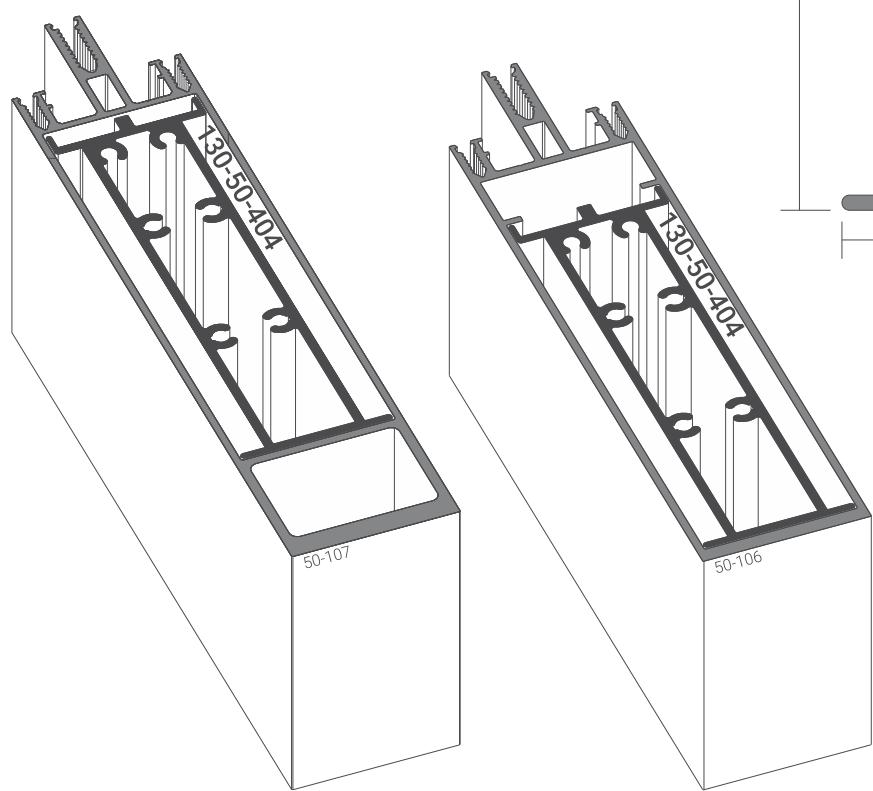
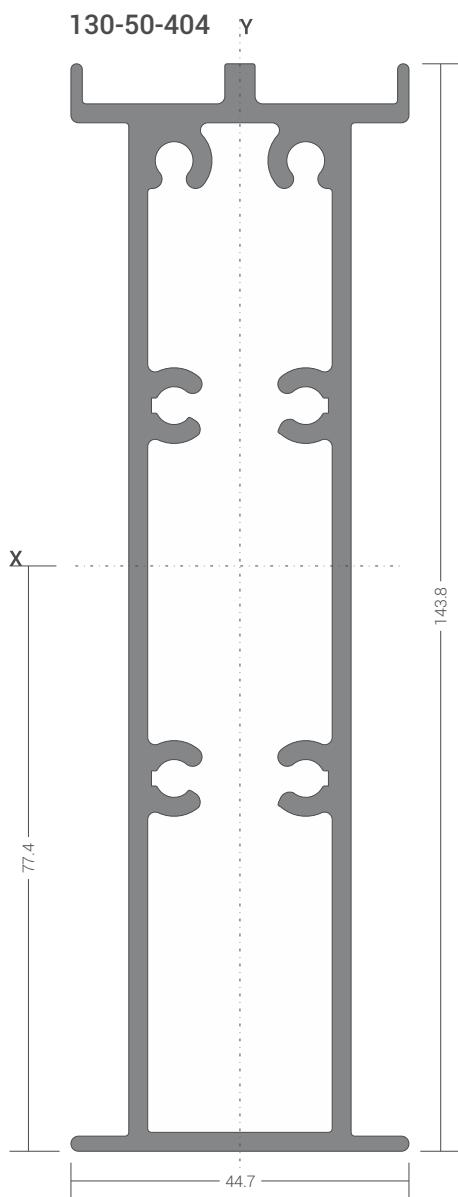
**50-400**

**130-50-402**

**130-50-413**

**4158**

**50-102**

**50-108**

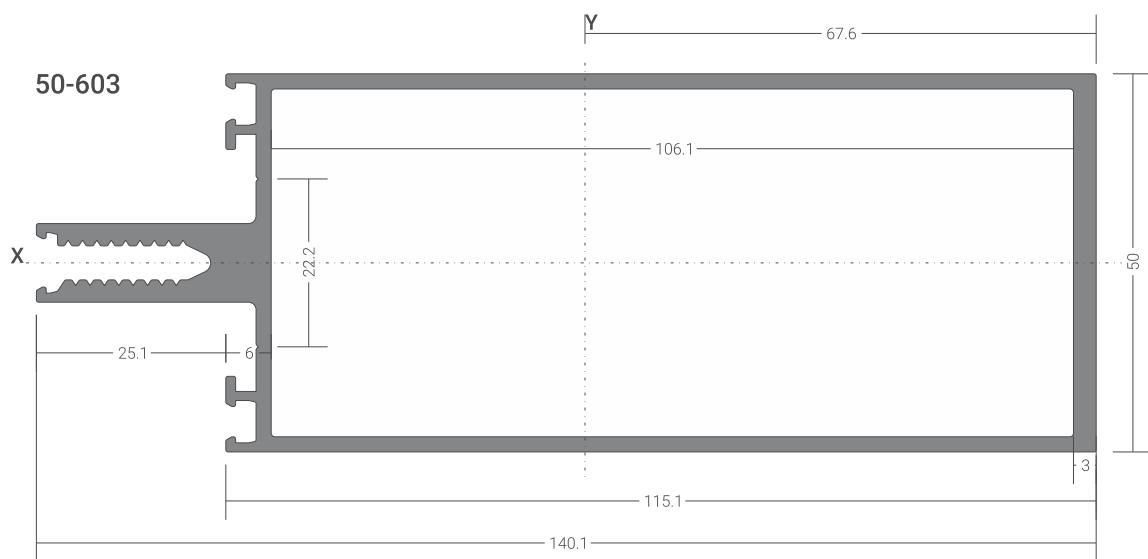
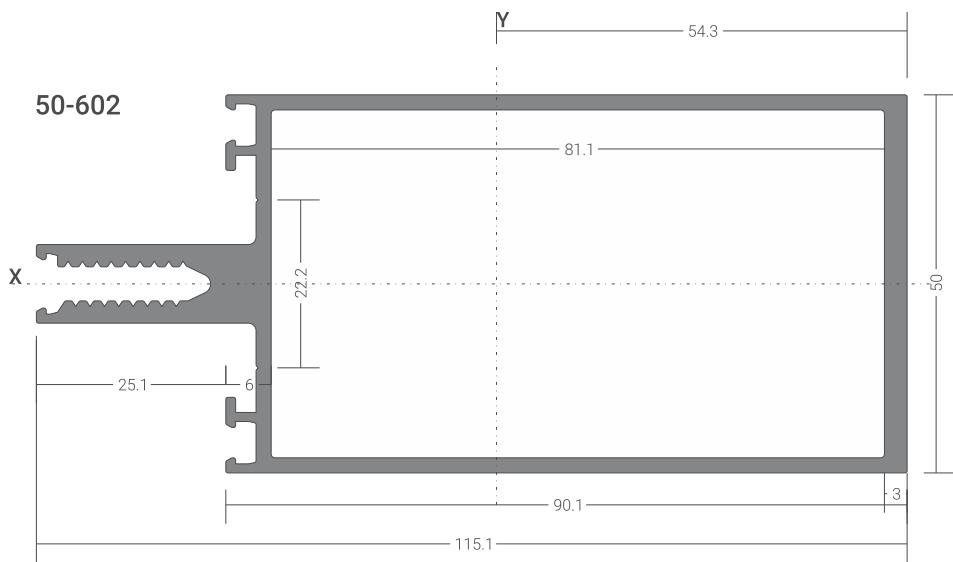

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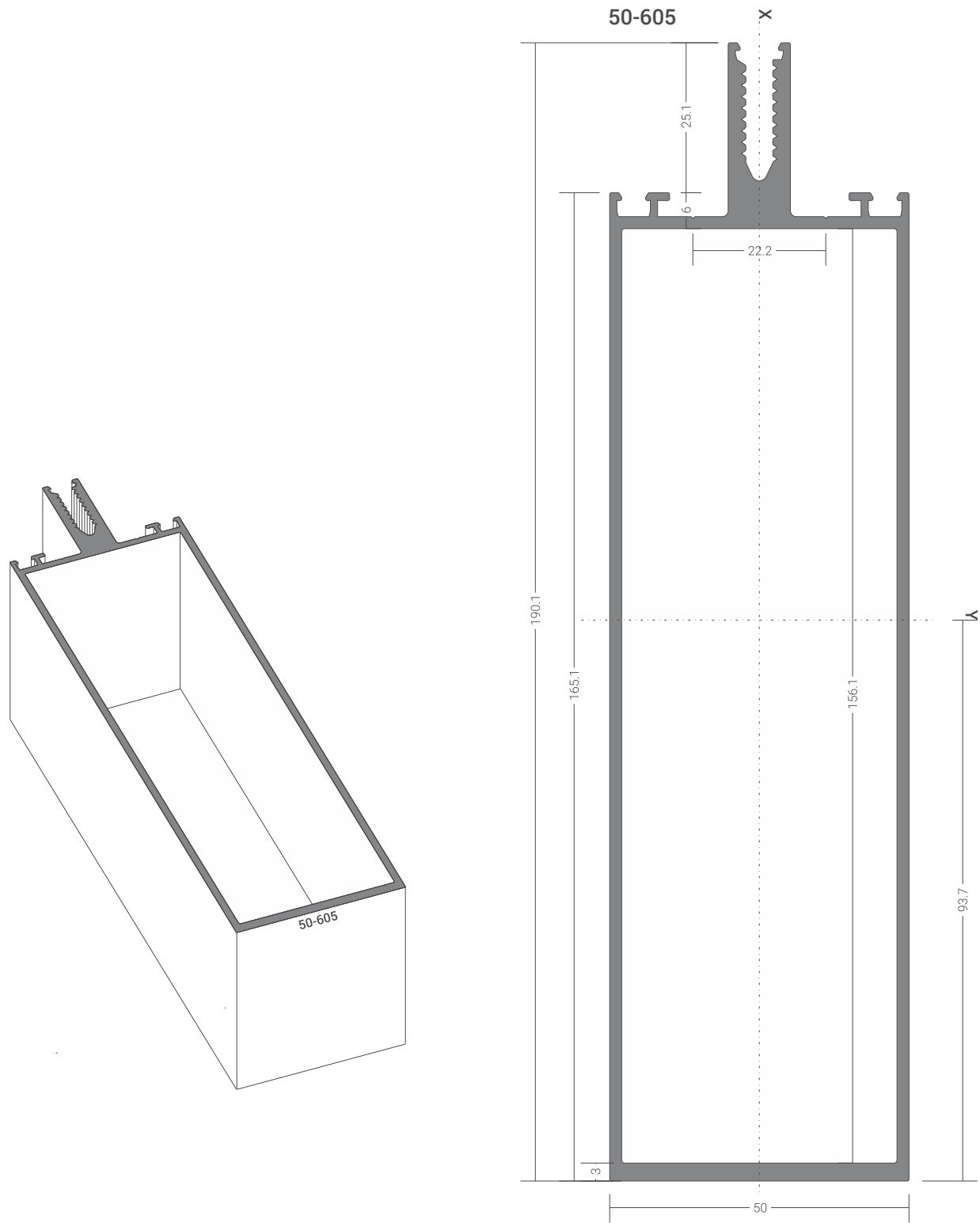
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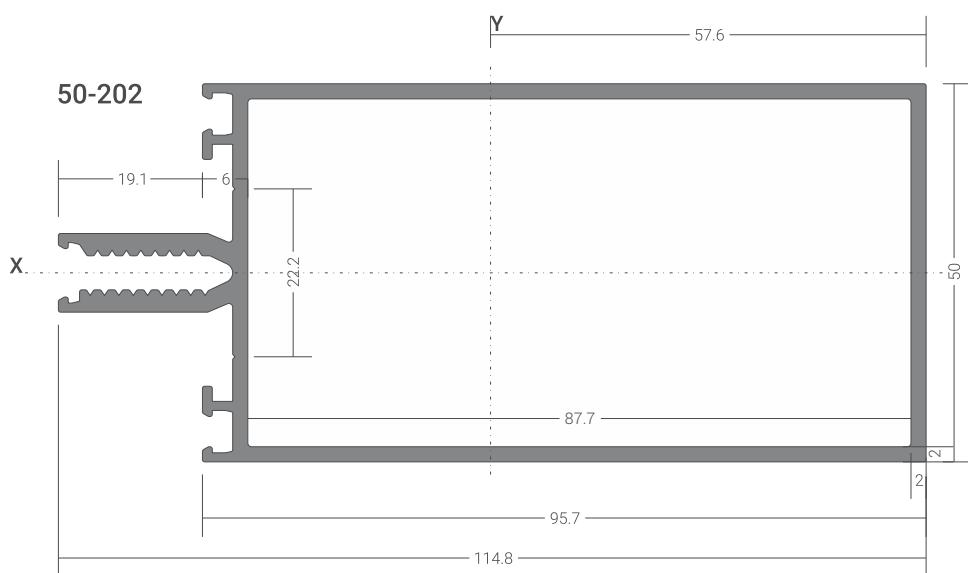
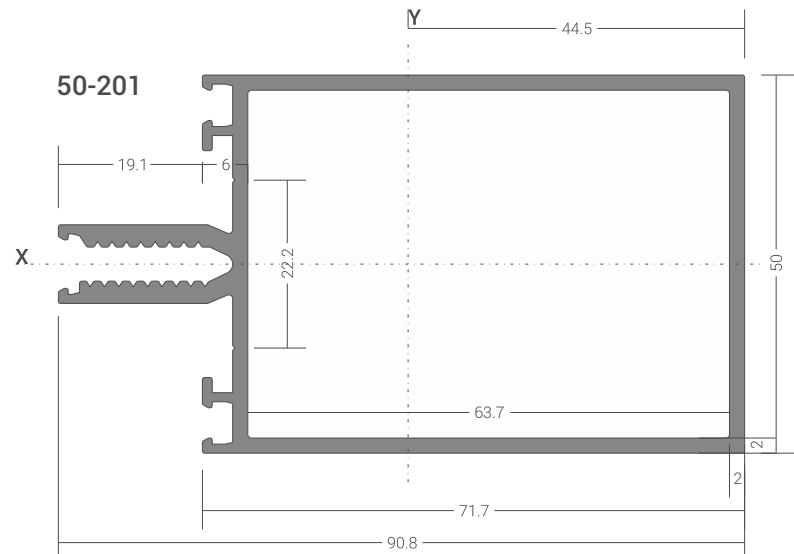
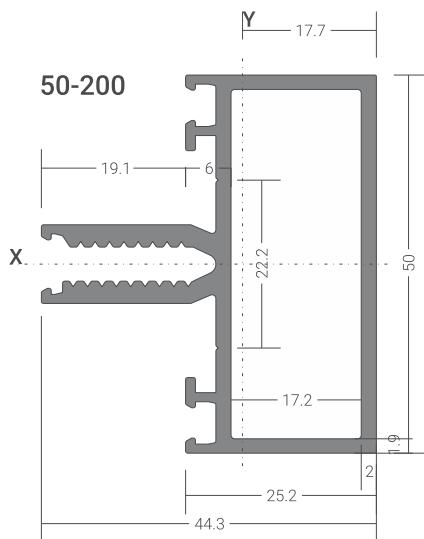
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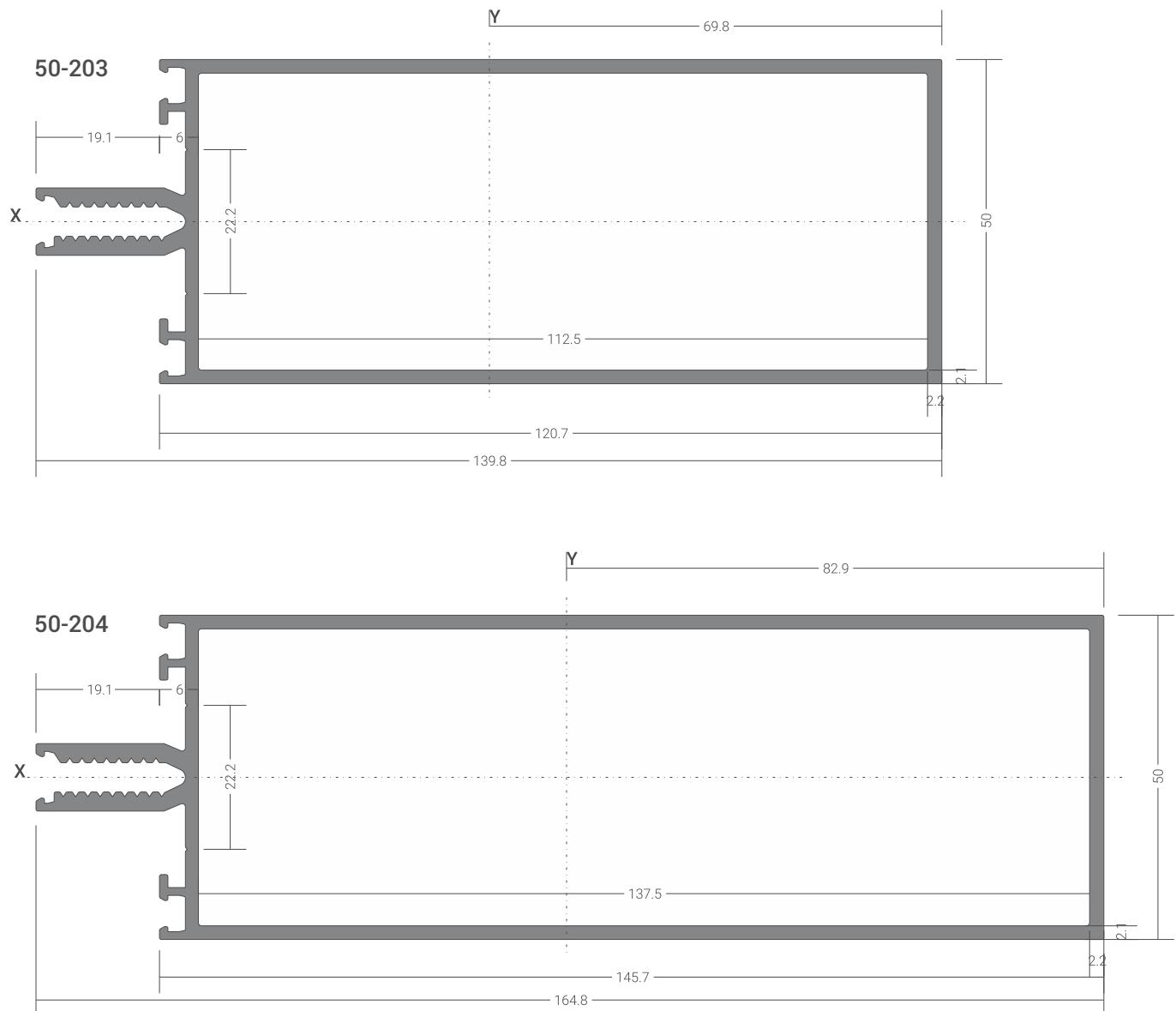
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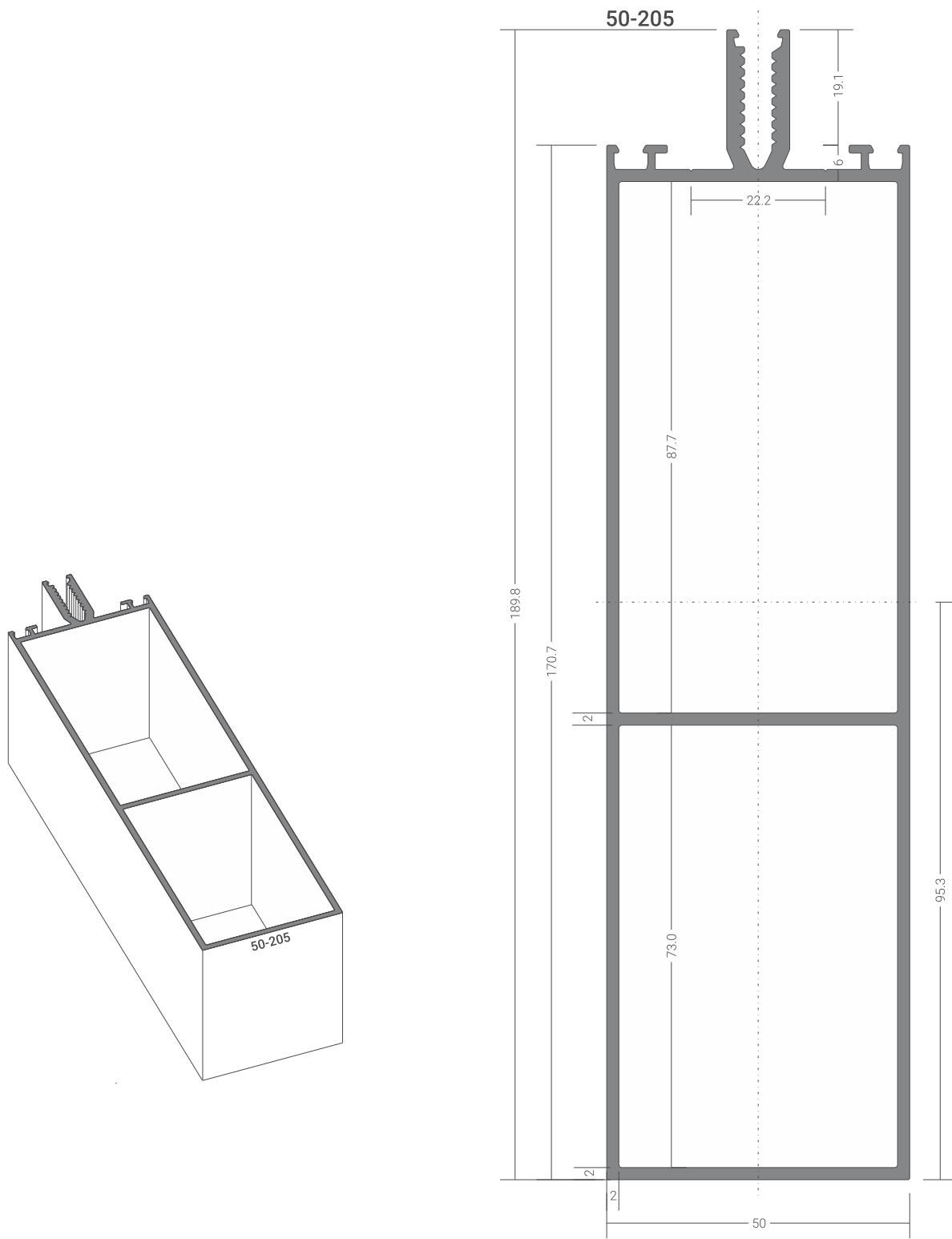
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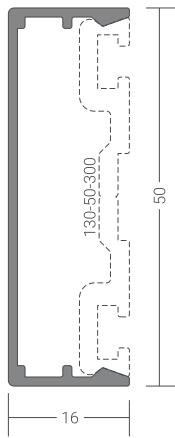
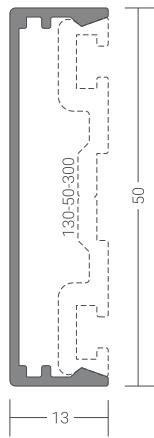
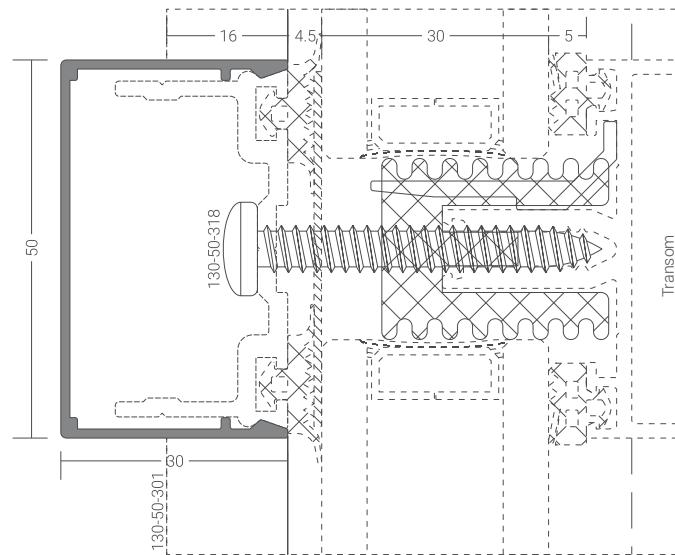
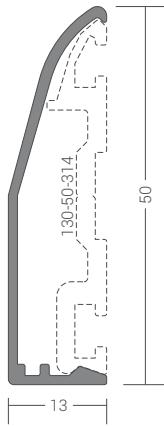
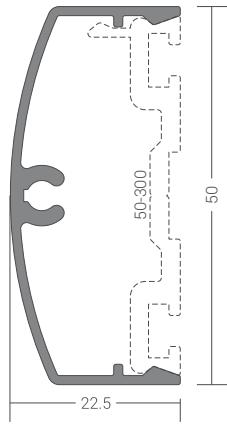
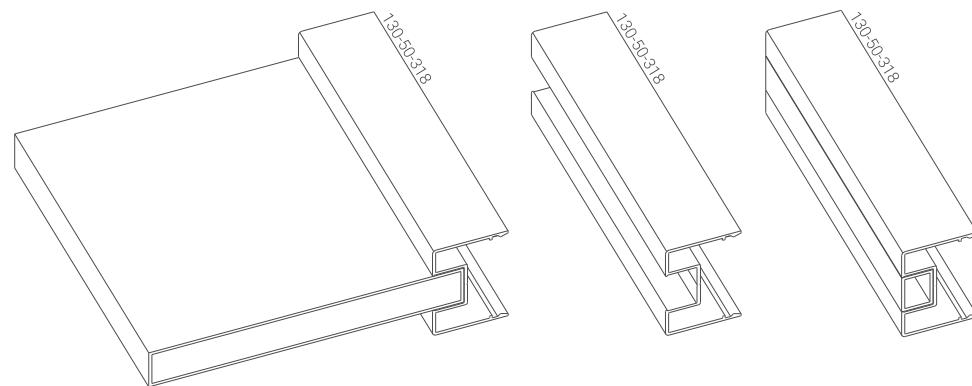
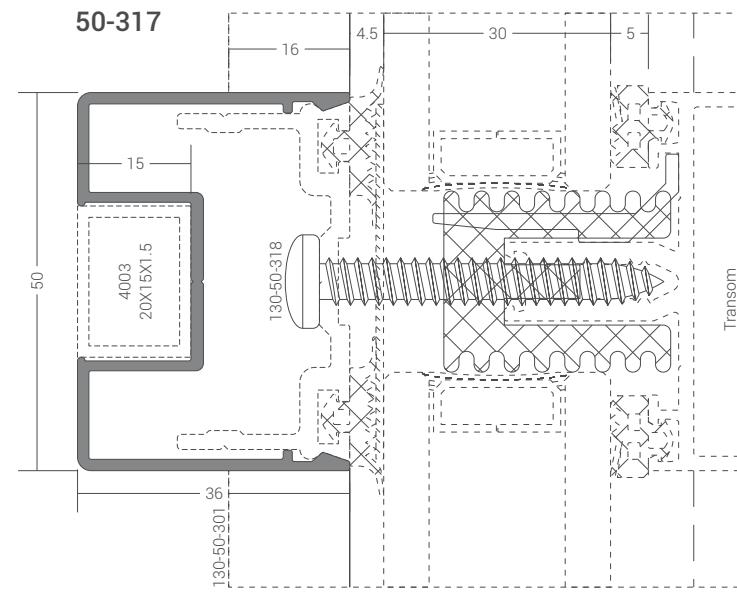
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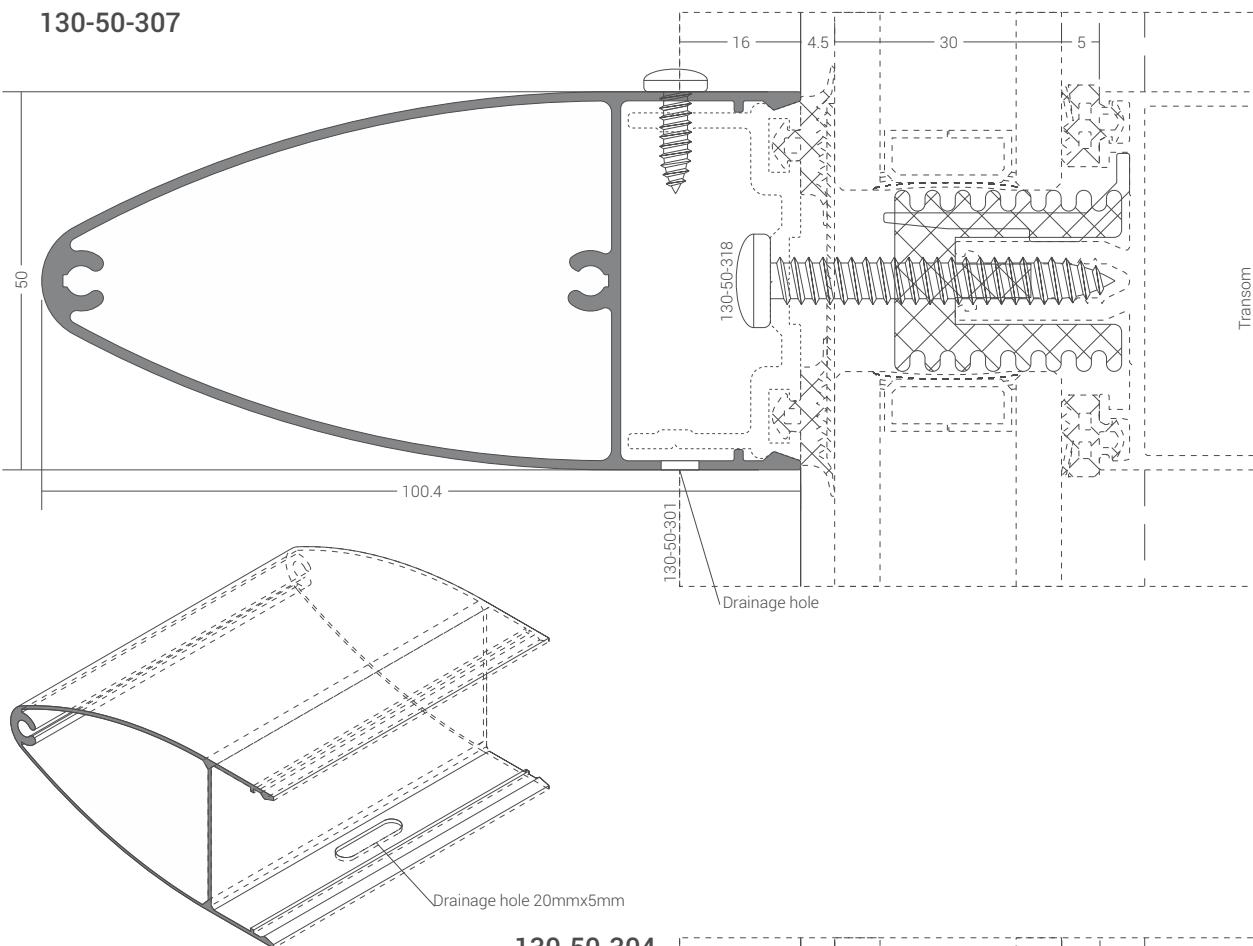
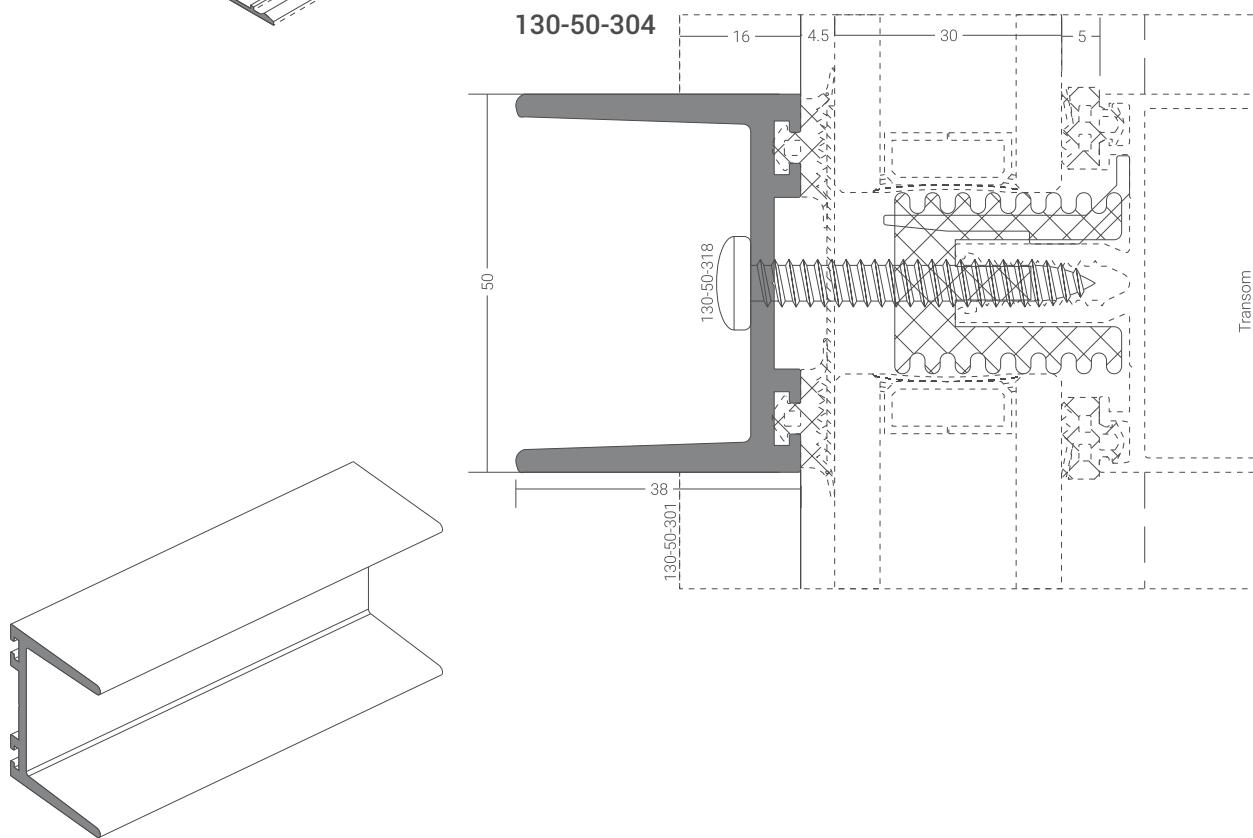
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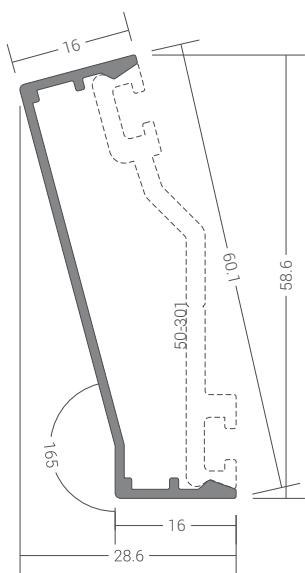
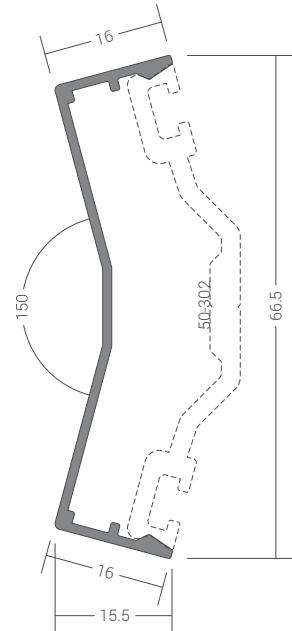
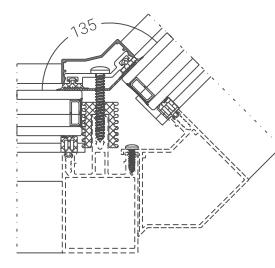
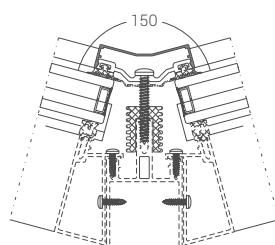
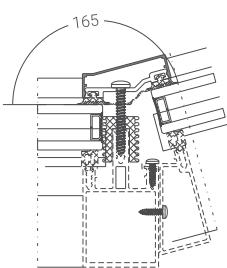
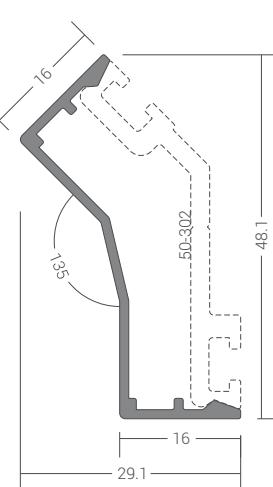
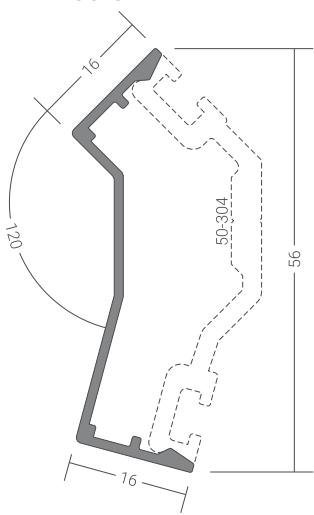
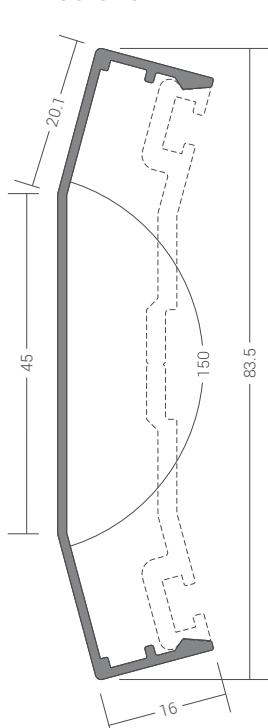
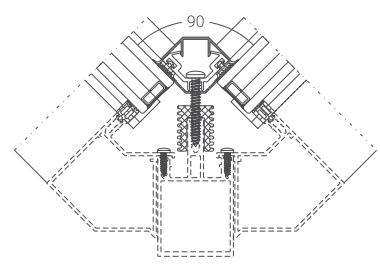
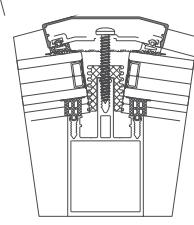
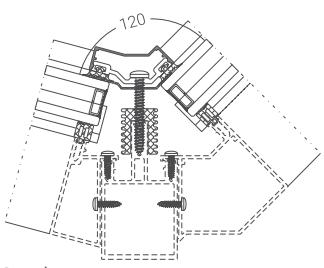
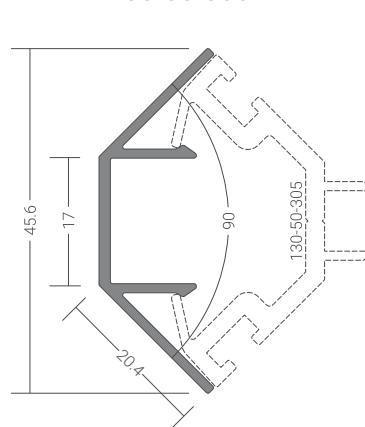
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**130-50-302**

**130-50-319**

**130-50-315**

**50-310**

**50-317**


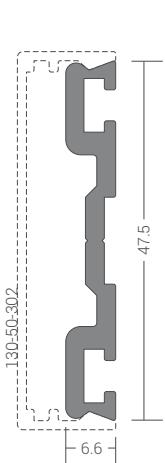
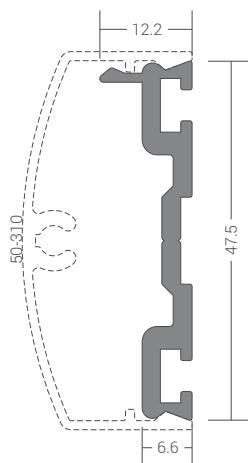
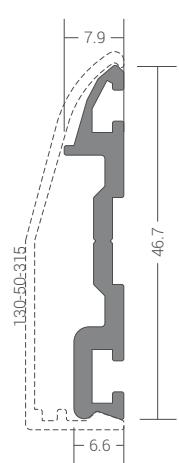
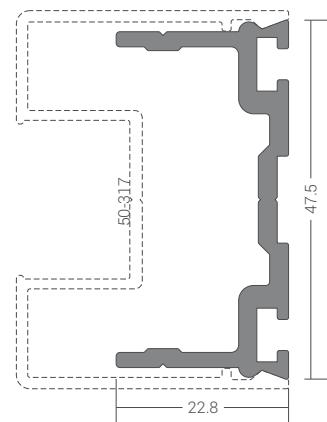
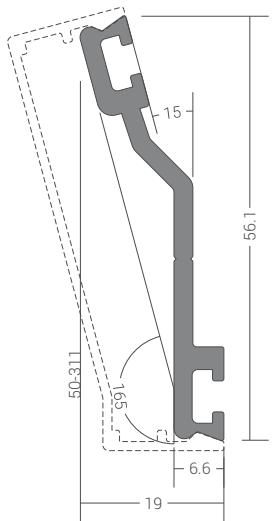
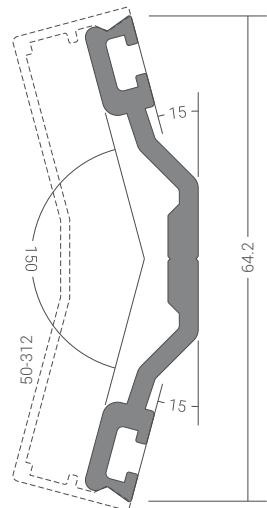
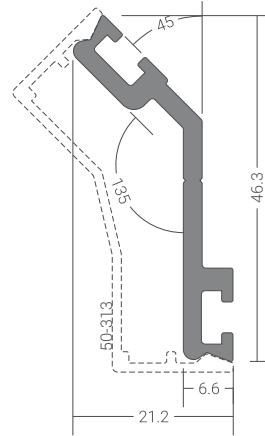
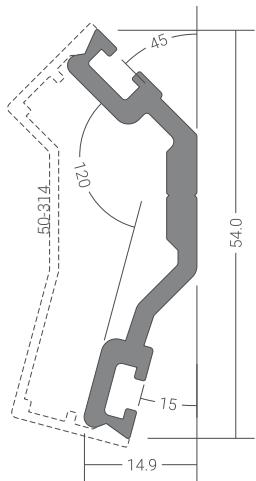
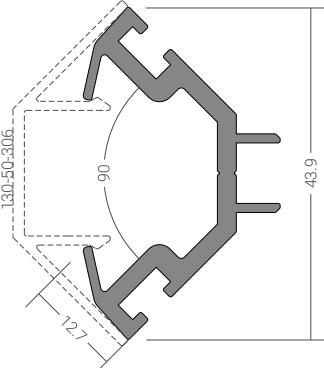
Scale 1:1

**130-50-307**

**130-50-304**


Scale 1:1

**50-311**

**50-312**

**50-312**

**50-314**

**50-315**

**130-50-306**


Scale 1:1

**130-50-300**

**50-300**

**130-50-314**

**130-50-318**

**50-301**

**50-302**

**50-303**

**50-304**

**130-50-305**


Scale 1:1



# **Chapter 5**

## **Classic curtain wall system**

# Classic curtain wall system

## Table of content

page 4.1	Sections - Mullion
page 4.2	Sections - Transom
page 4.3	Sections - Mullion 90° outer corner
page 4.4	Sections - Mullion 90° outer corner
page 4.5	Sections - Mullion 90° outer corner
page 4.6	Sections - Mullion 90° outer corner
page 4.7	Sections - Mullion 90° inner corner
page 4.8	Sections - Mullion 105° outer corner
page 4.9	Sections - Mullion 135° outer corner
page 4.10	Sections - Mullion 150° outer corner
page 4.11	Sections - Mullion 165° outer corner
page 4.12	Sections - Mullion & adapter 90° outer corner
page 4.13	Sections - Mullion & adapter 120° outer corner
page 4.14	Sections - Mullion & adapter 135° outer corner
page 4.15	Sections - Mullion & adapter 150° outer corner
page 4.16	Sections - Mullion & adapter 165° outer corner
page 4.17	Sections - Mullion wall connection
page 4.18	Sections - internal opening inserted window version1

# Classic curtain wall system

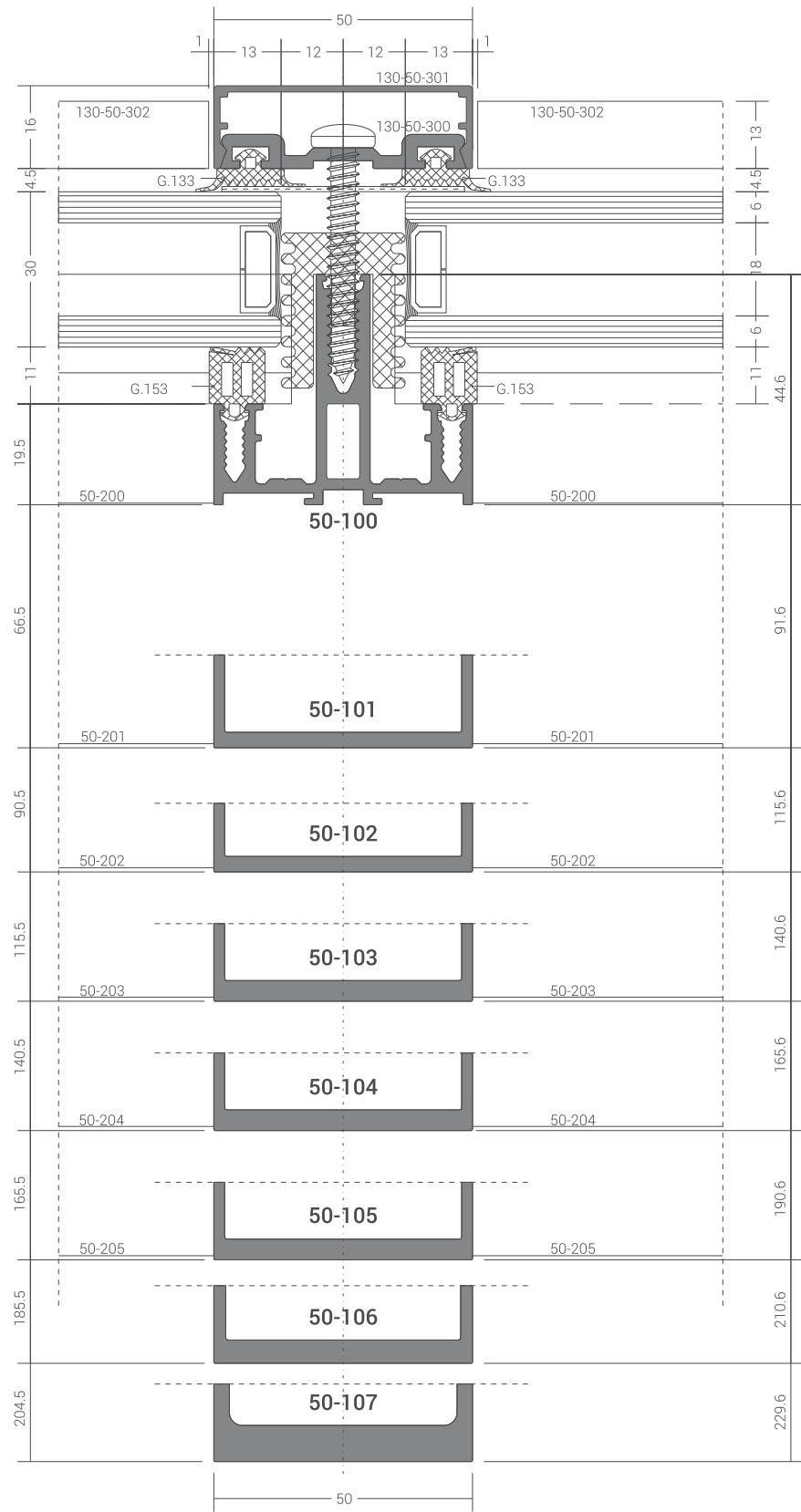
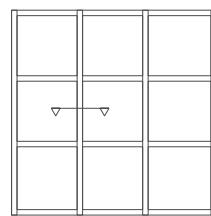
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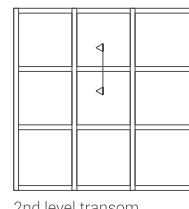
page 5.19	Sections - internal opening inserted window version 2
page 5.20	Sections - internal opening inserted doors
page 5.21	Sections - external opening inserted doors version1
page 5.22	Sections - external opening inserted doors version1
page 5.23	Sections - external opening inserted doors version2
page 5.24	Sections - external opening inserted doors version2
page 5.25	Sections - external opening inserted doors version3
page 5.26	Sections - external opening inserted doors version3
page 5.27	Sections - external opening projecting windows version1
page 5.28	Sections - external opening projecting windows version2
page 5.29	Sections - skylight external opening projecting windows
page 5.30	Sections - conservatory vertical section
page 5.31	Sections - conservatory vertical section
page 5.32	Sections - conservatory vertical section
page 5.33	Connection with aluminium composite panels for facade
page 5.34	Connection with aluminium composite panels for facade
page 5.35	Connection with ventilated facade
page 5.36	Connection with ventilated facade

# **Classic curtain wall system**

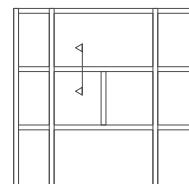
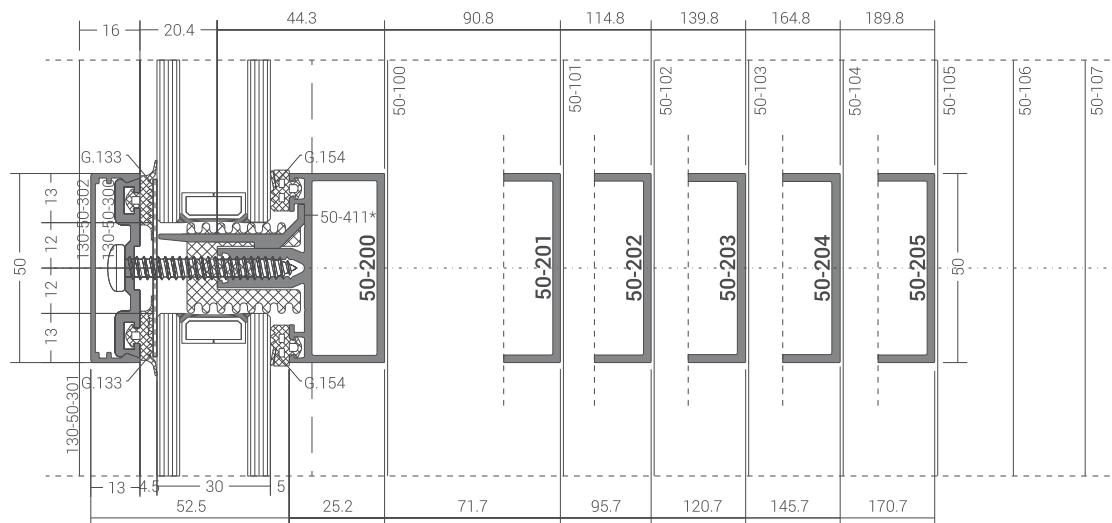
## **Table of content**

- page 5.37 Connection with decorative plaster thermosystem for facade
- page 5.38 Connection with decorative plaster thermosystem for facade
- page 5.39 Sections - external opening inserted doors version3
- page 5.40 Connection with interior gypsum wallboard
- page 5.41 Connection with interior gypsum wallboard
- page 5.42 Section - upper finishing as fascia
- page 5.43 Section - intermediate floor
- page 5.44 Section - base point

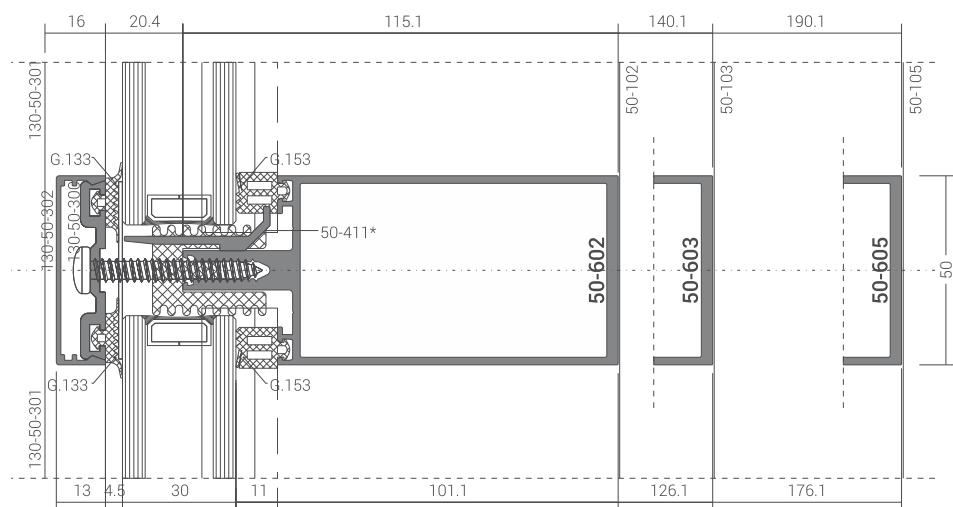




2nd level transom



### 3rd level transom



Scale 1:2

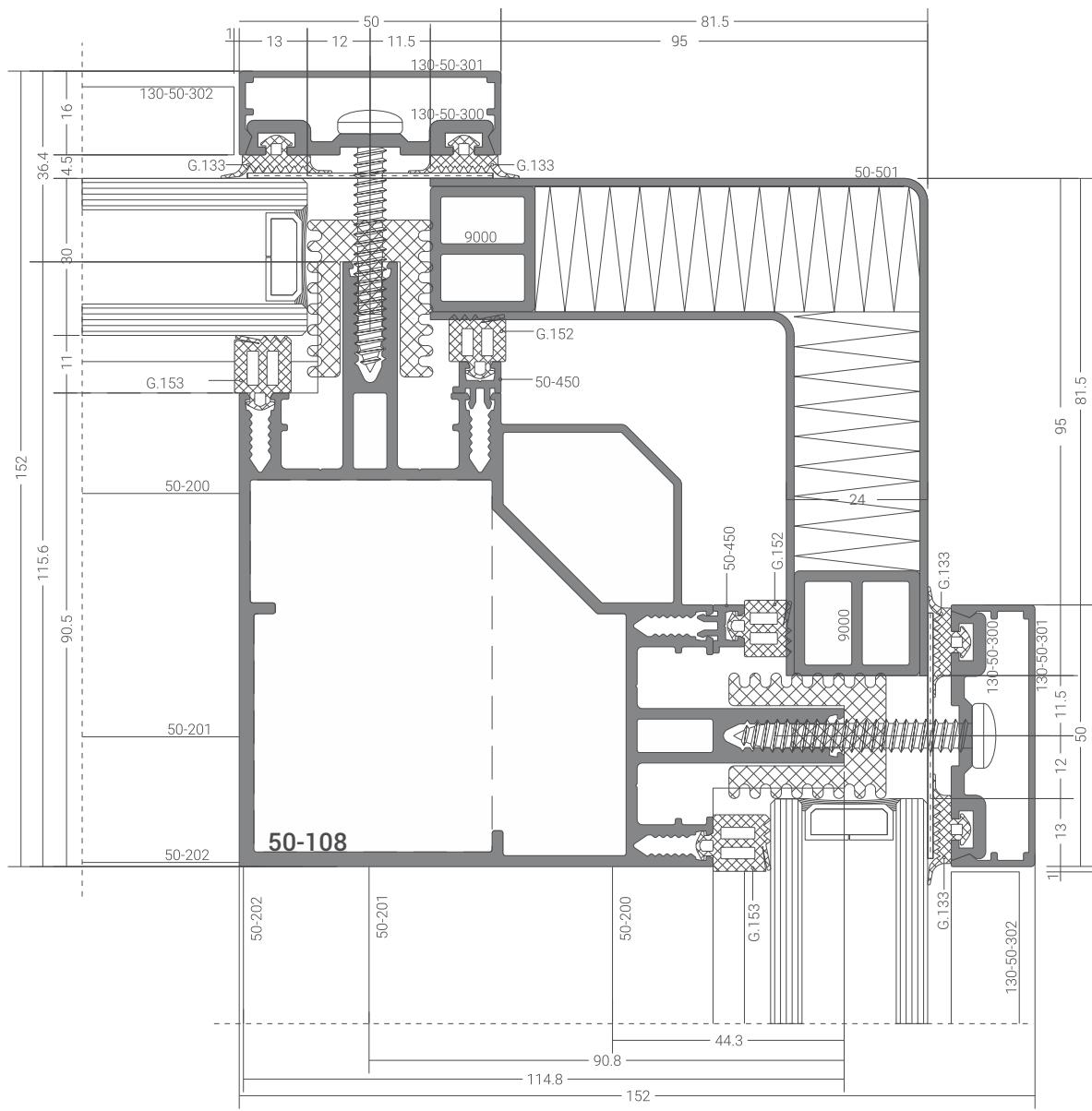
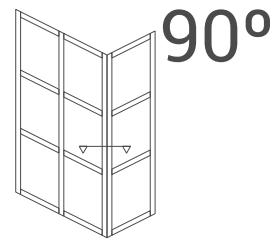
\* the glazing support must be long enough to cover at least 65% from the thickness of exterior glass



## Sections - Mullion 90° outer corner

## Classic curtain wall system

# **ALBIO R50**



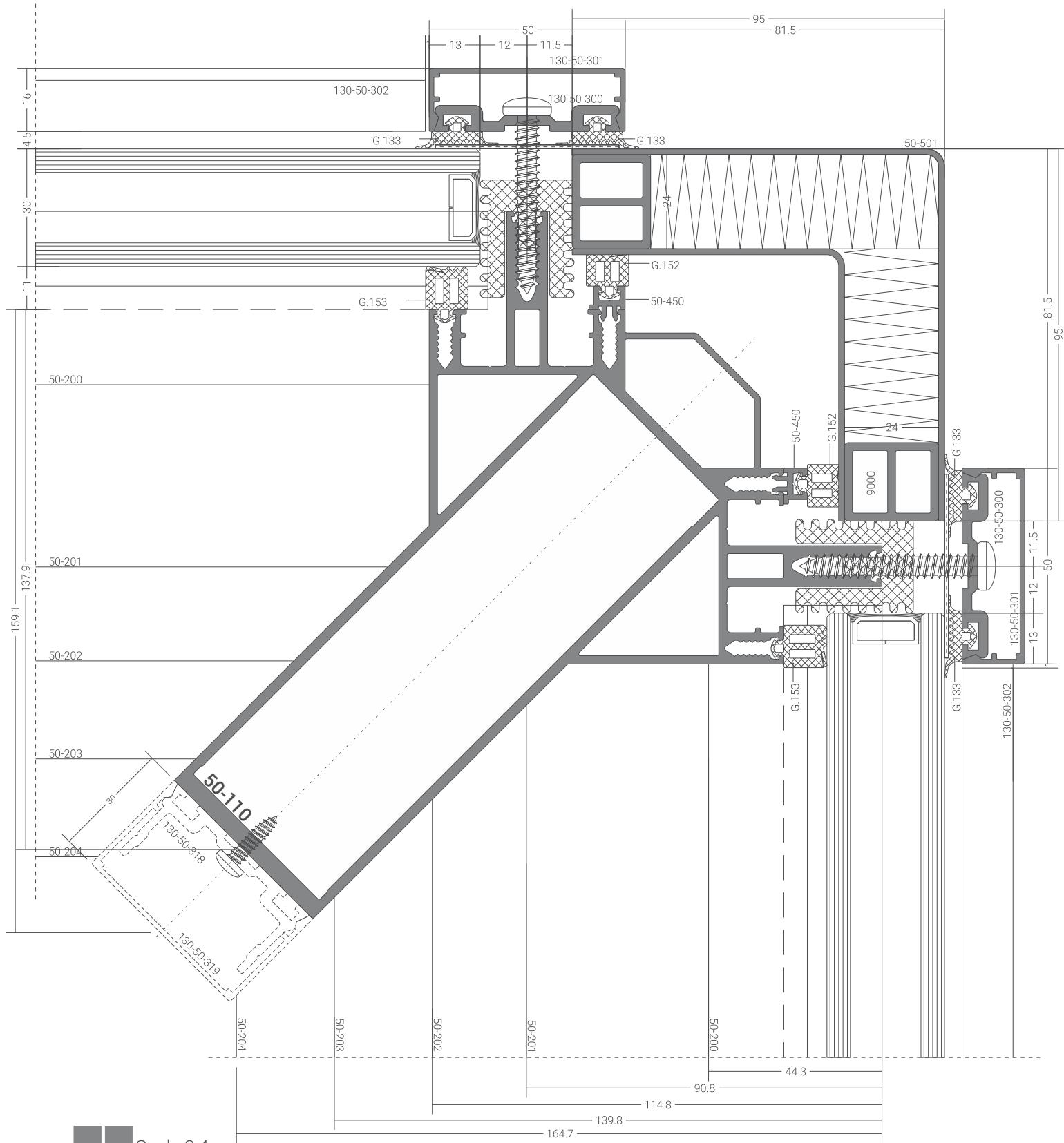
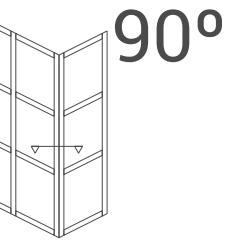
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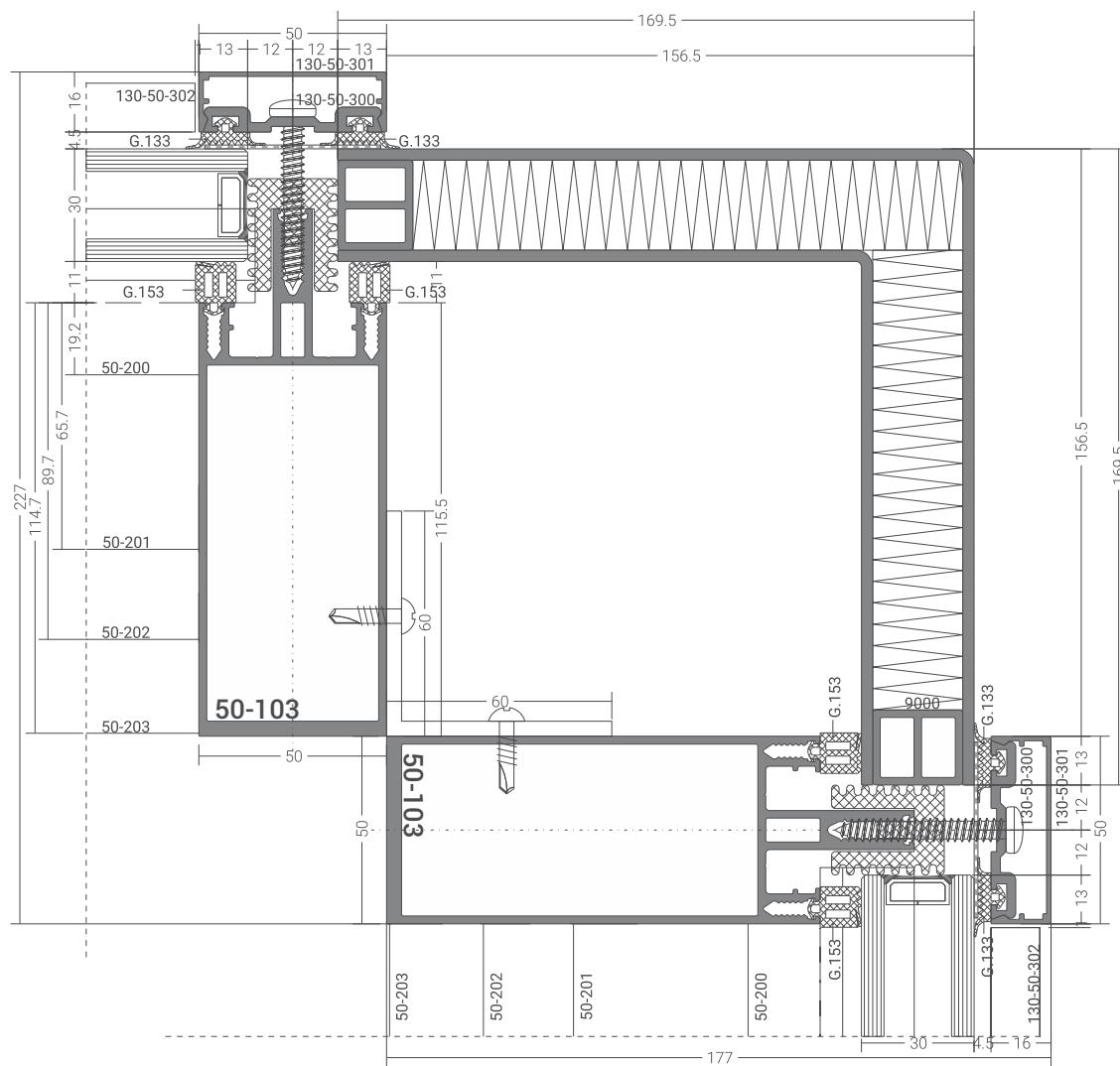
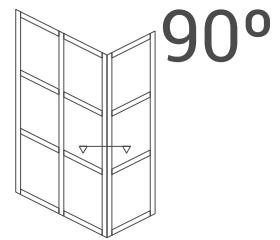
## Sections - Mullion 90° outer corner

## Classic curtain wall system

**ALBIO R50**



Scale 3:4



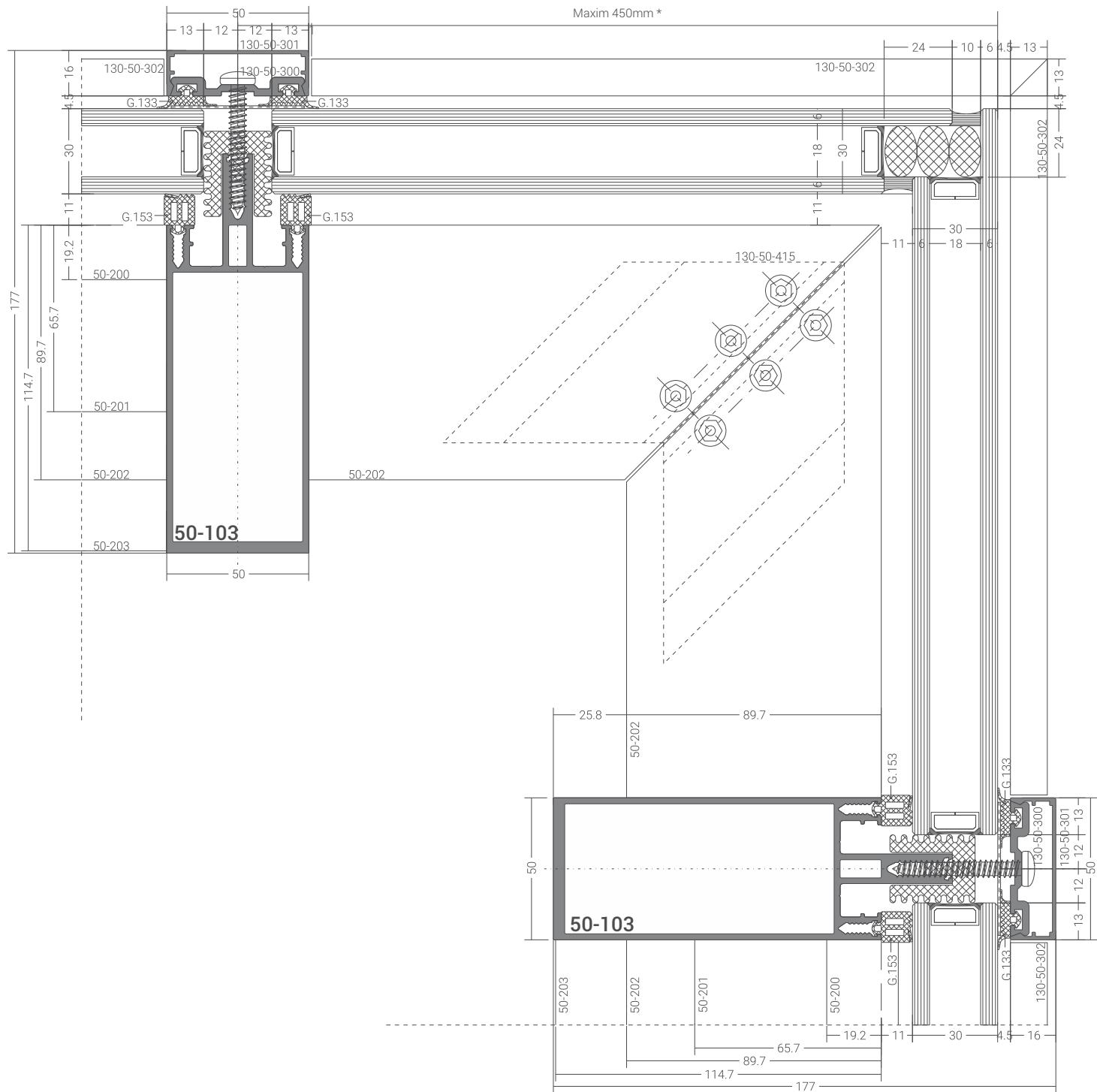
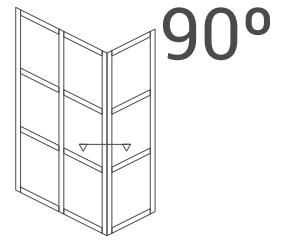
Scale 1:2



## Sections - Mullion 90° outer corner

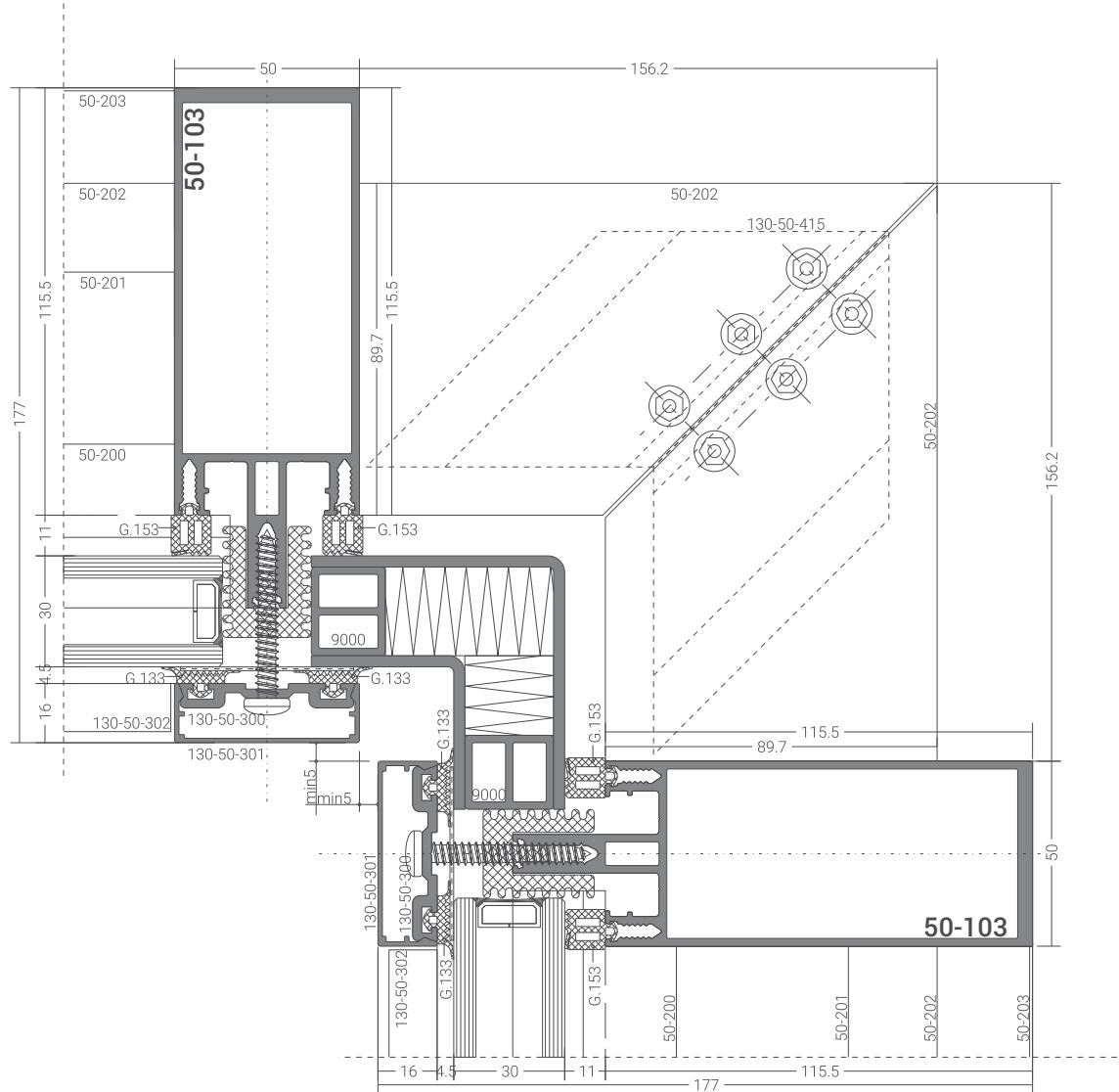
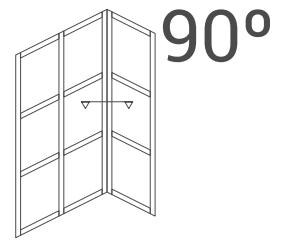
## Classic curtain wall system

# **ALBIO R50**



Scale 1:2

\* for bigger dimensions you have to consult the EXALCO technical department



Scale 1:2

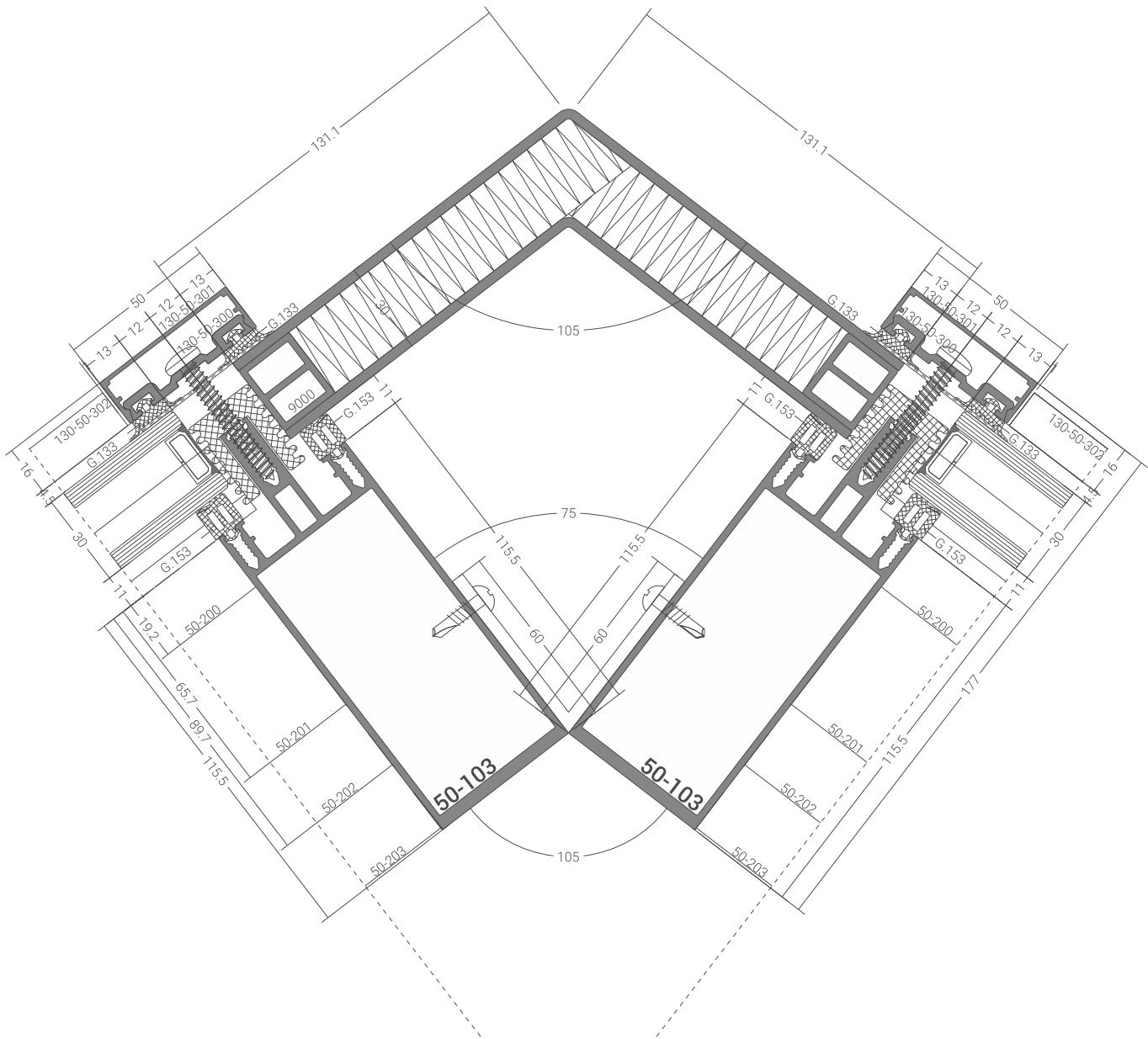
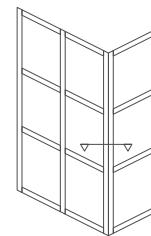


## Sections - Mullion 105° outer corner

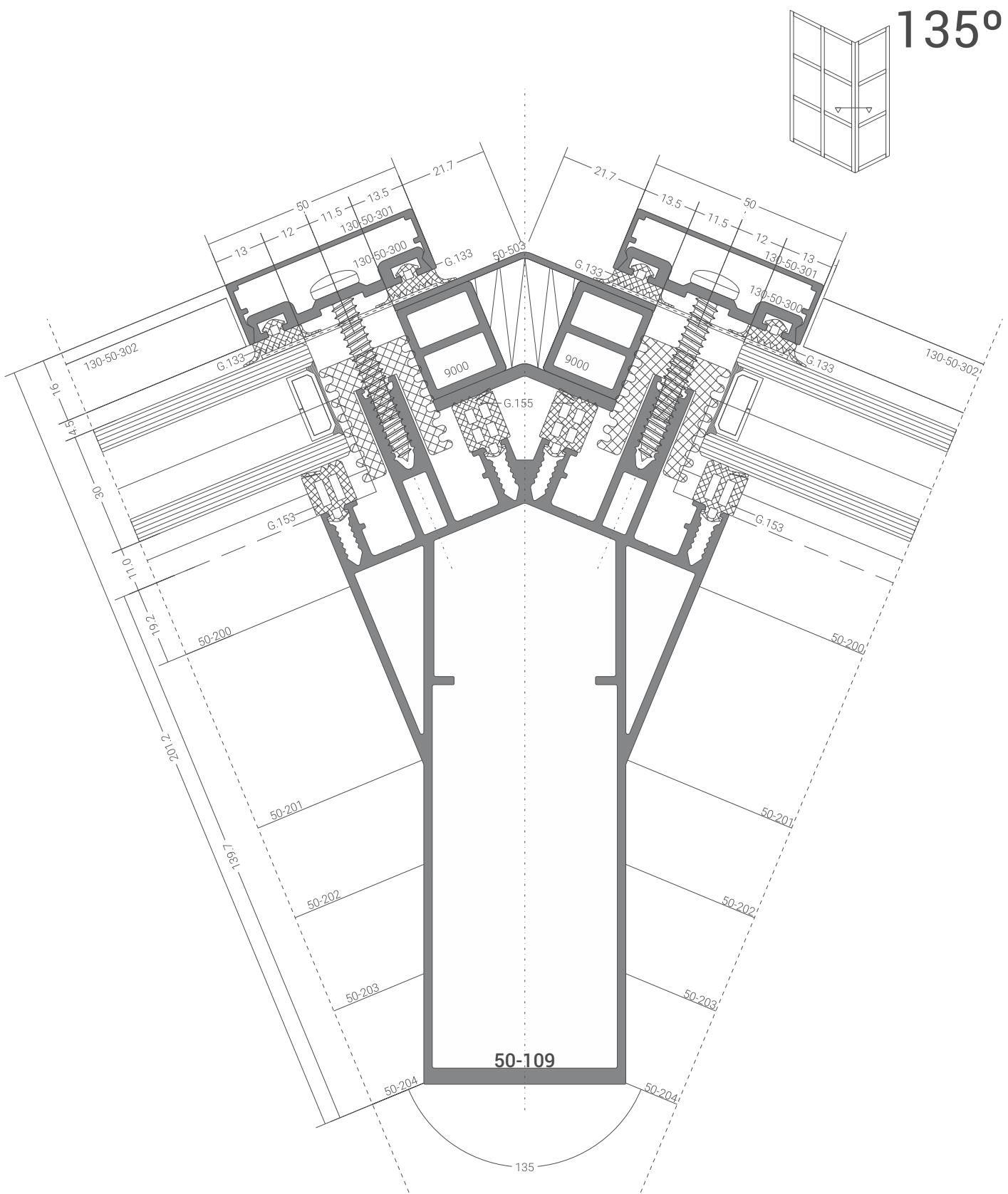
## Classic curtain wall system

# **ALBIO R50**

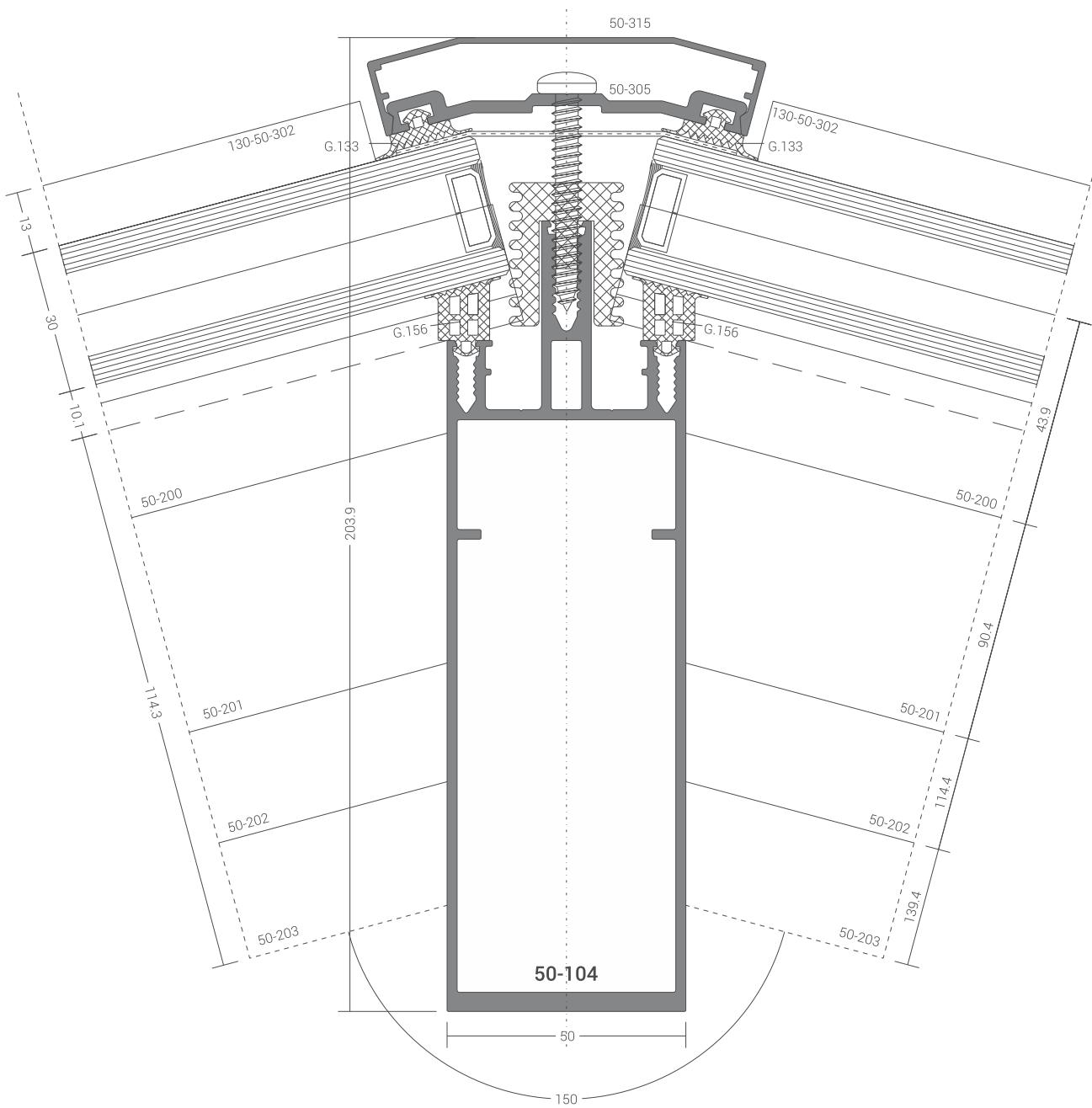
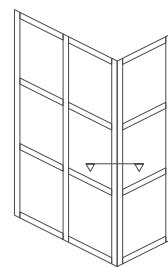
105°



Scale 1:2

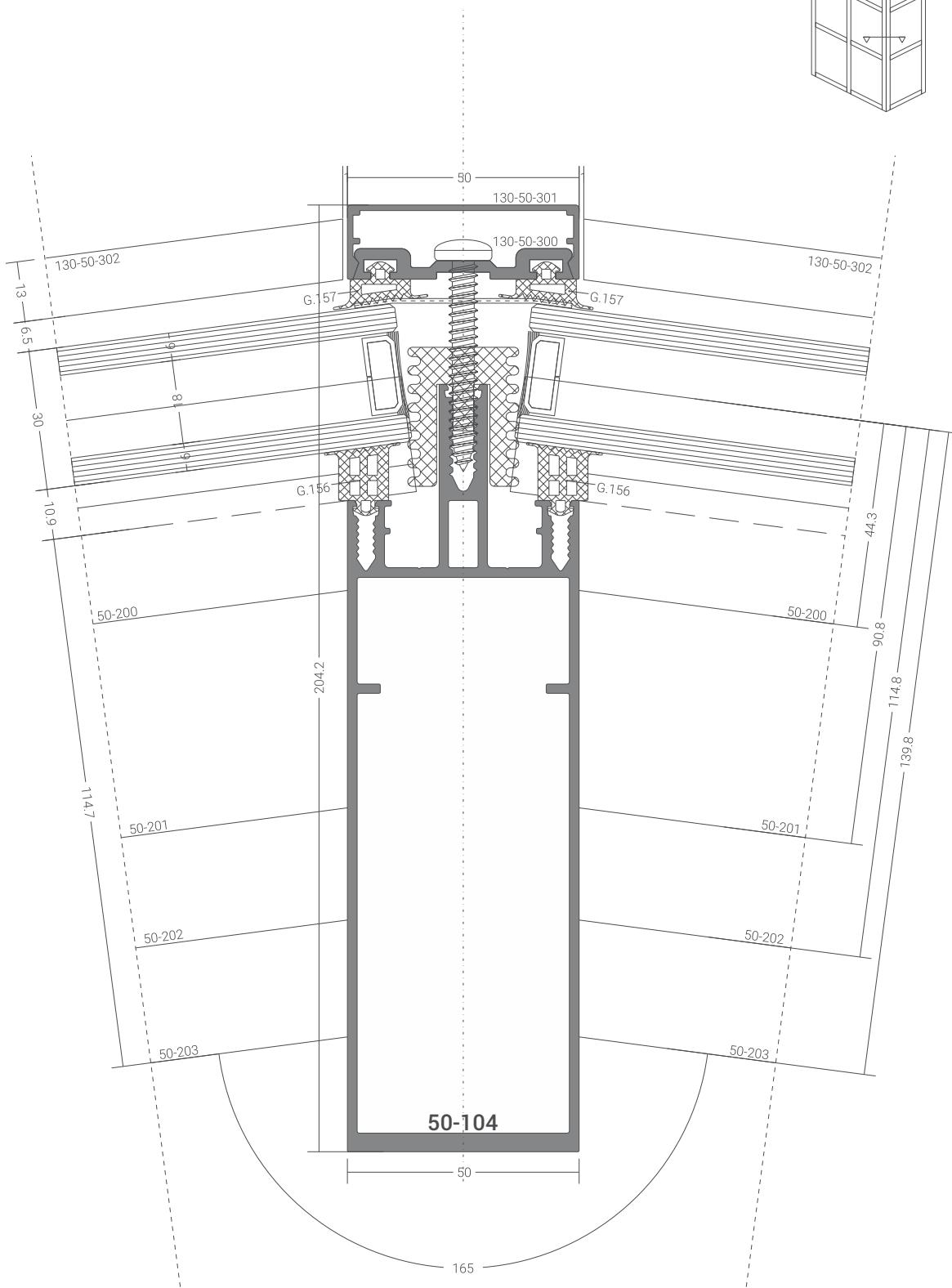


150°

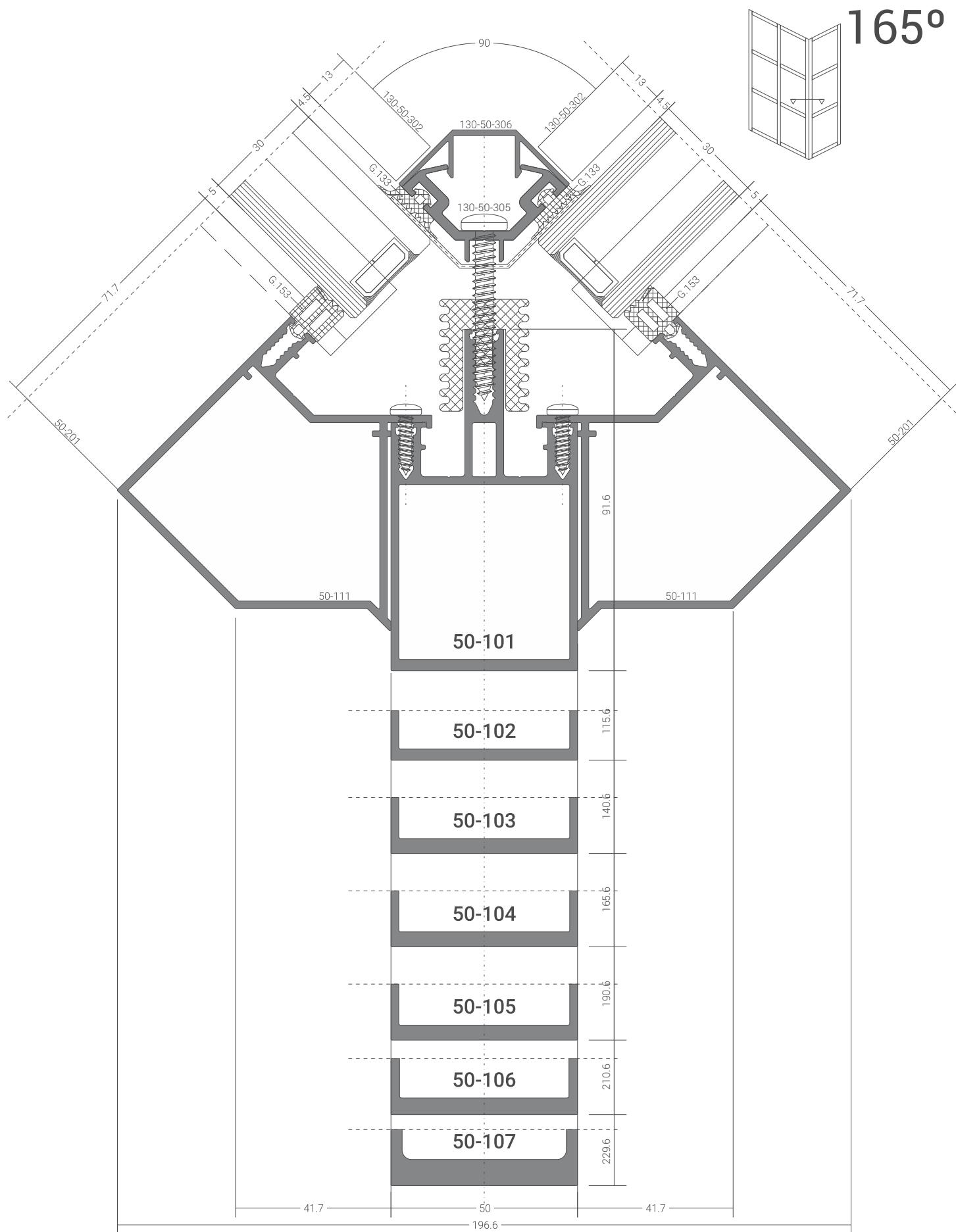


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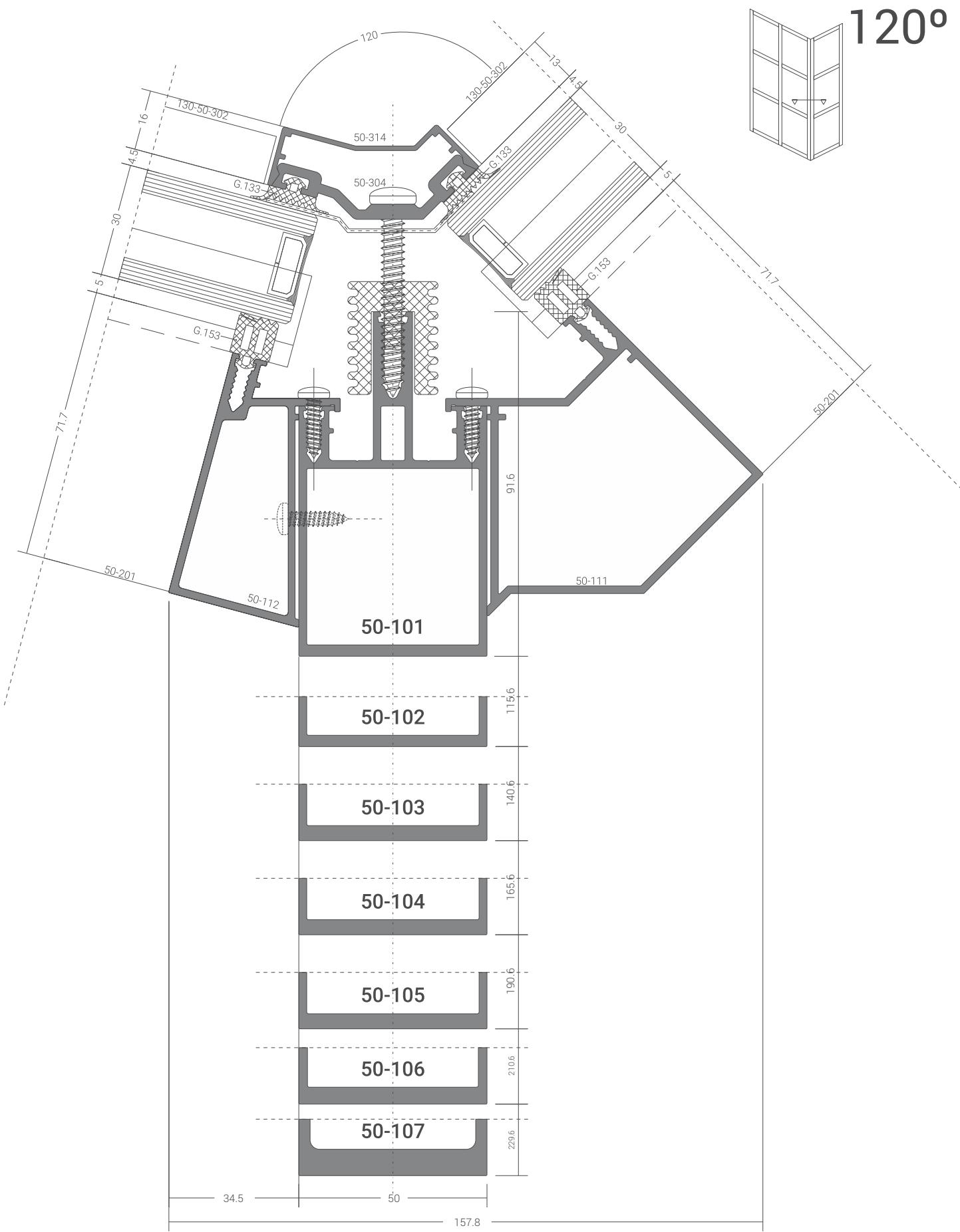
165°



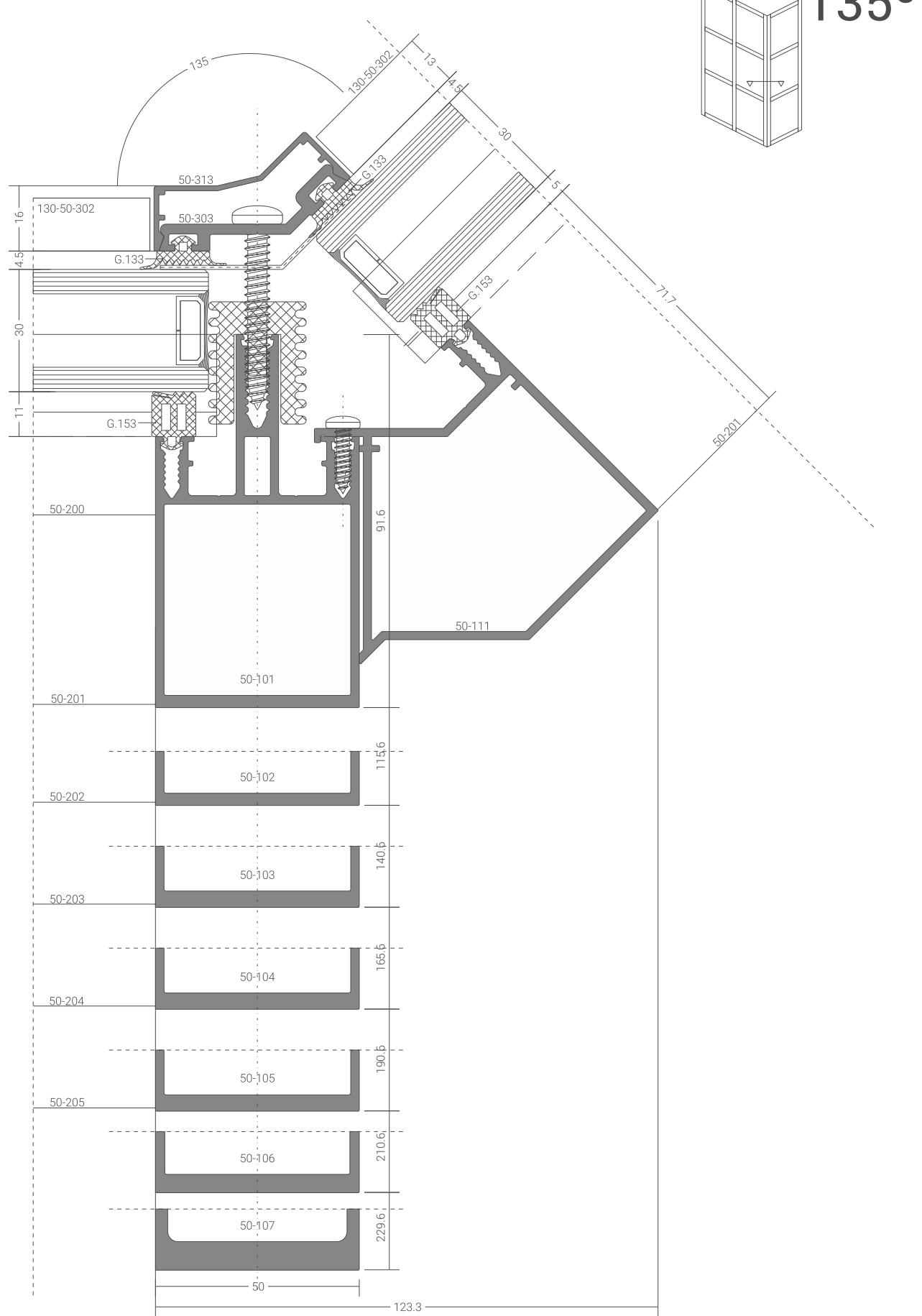
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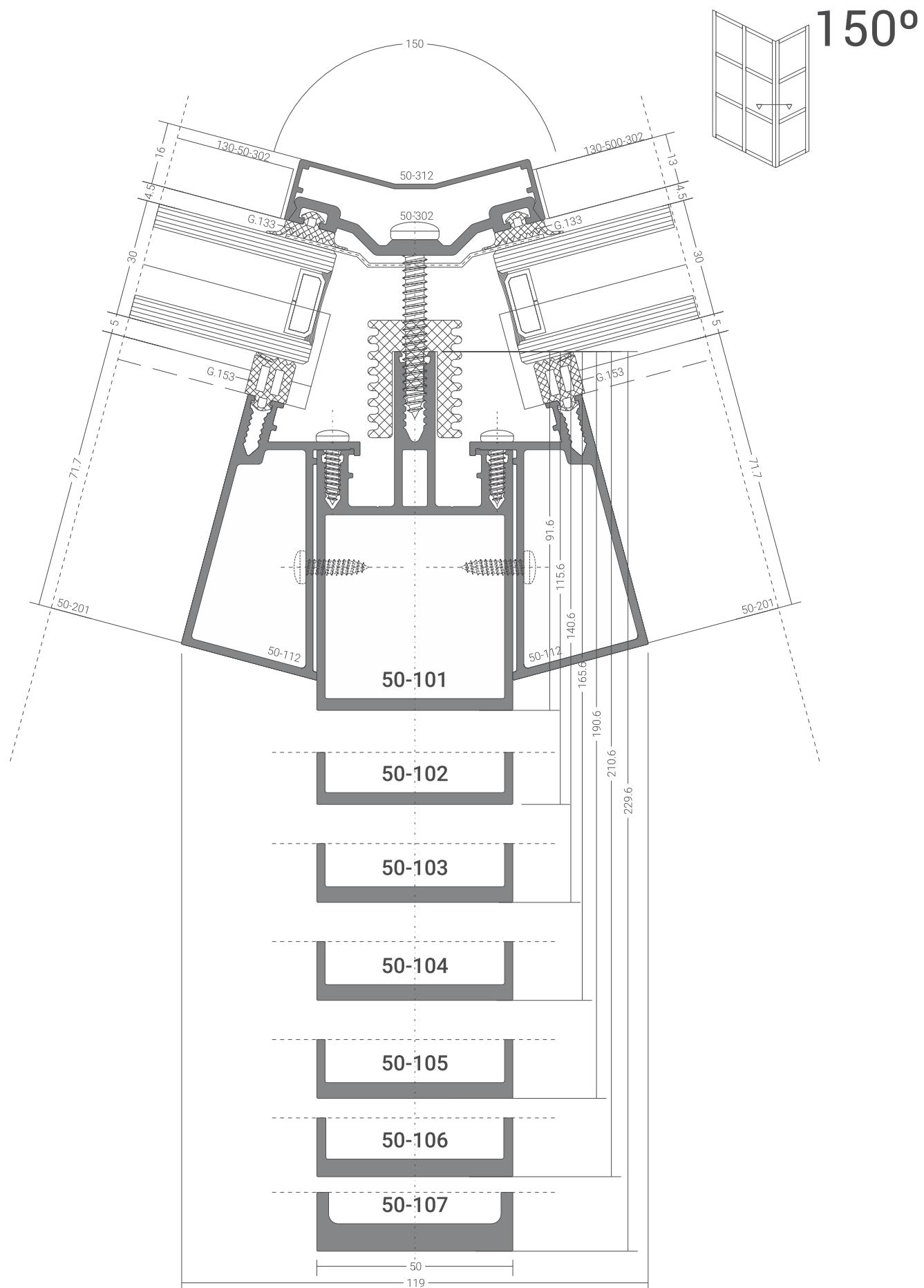
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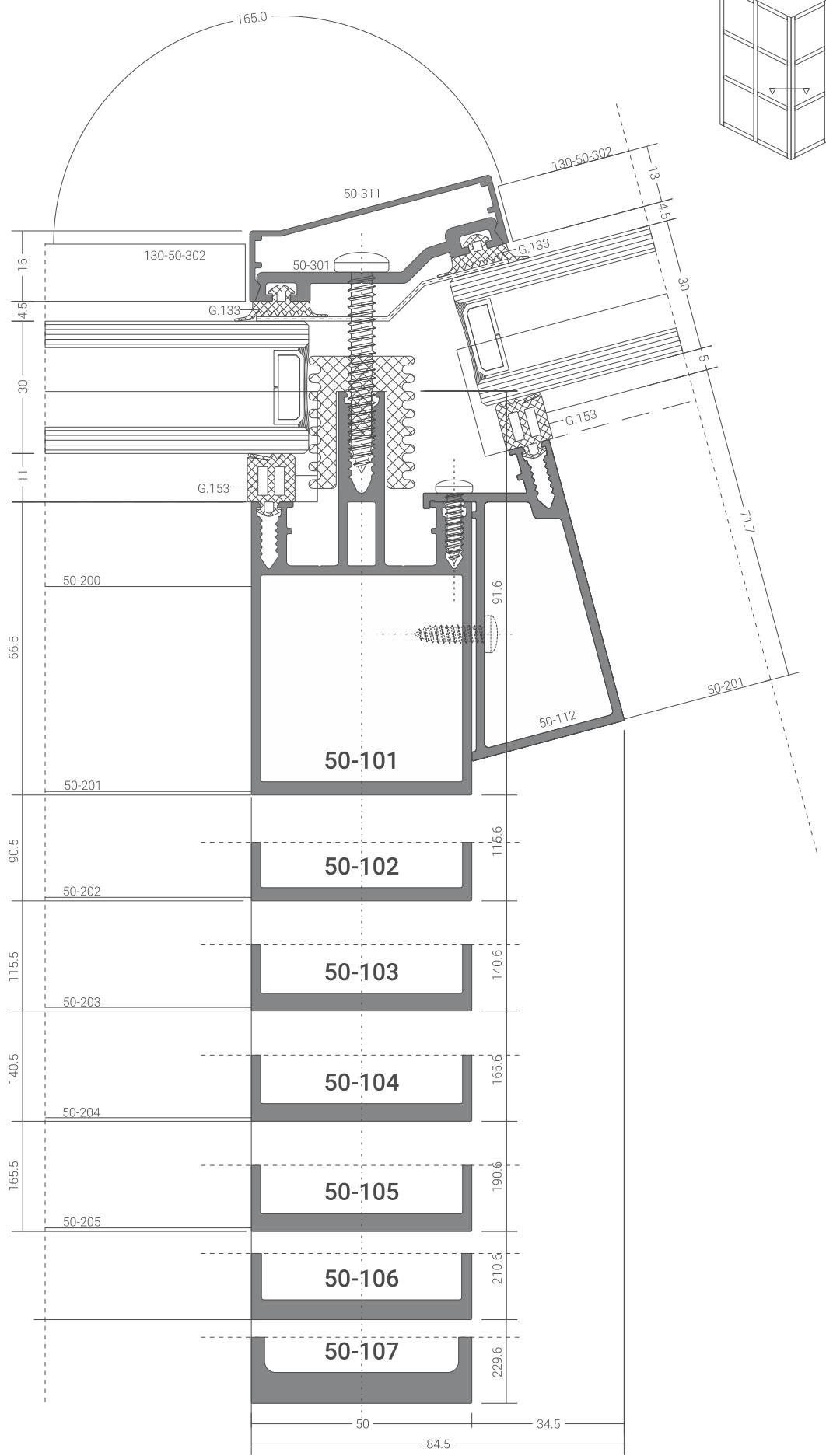
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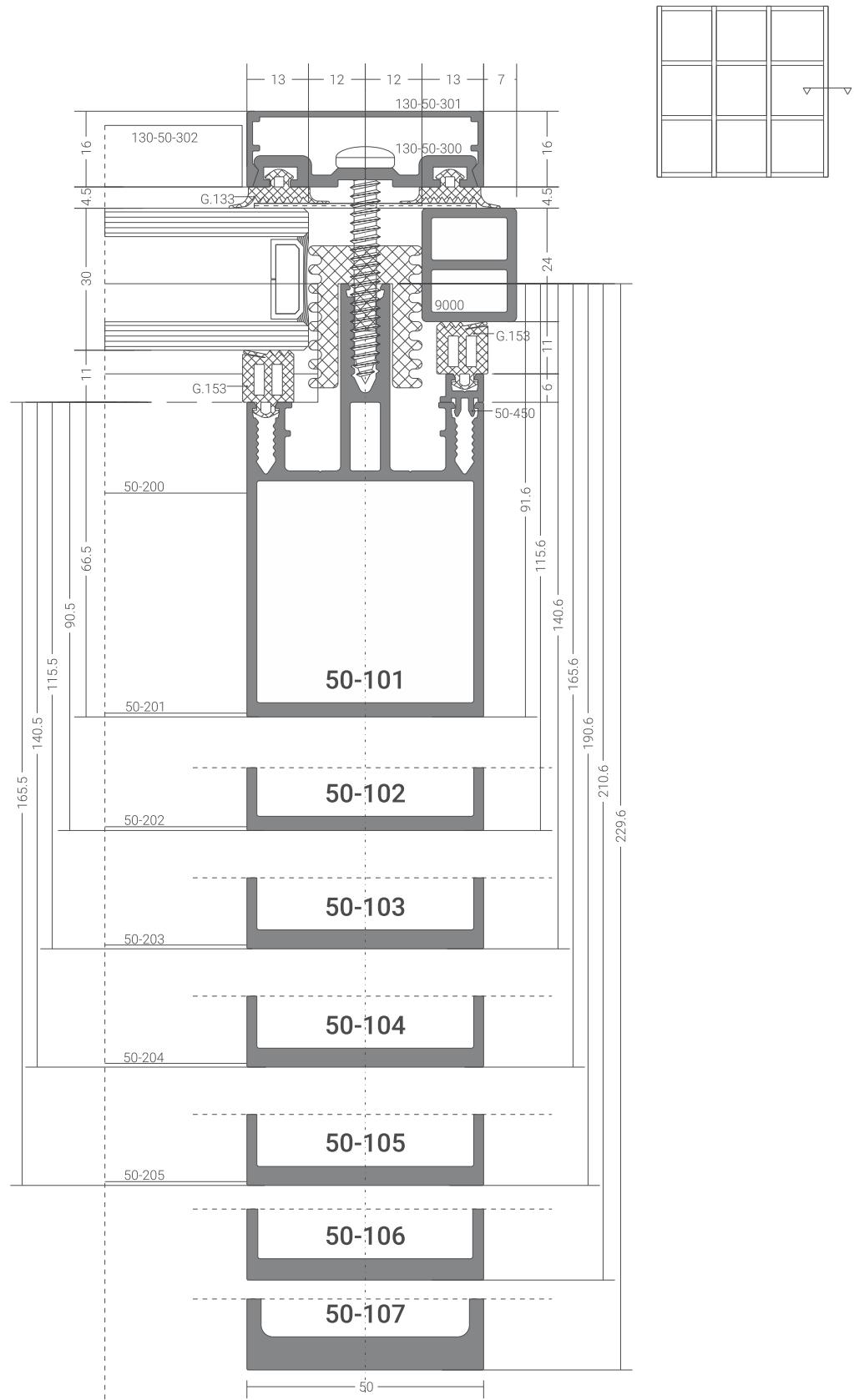


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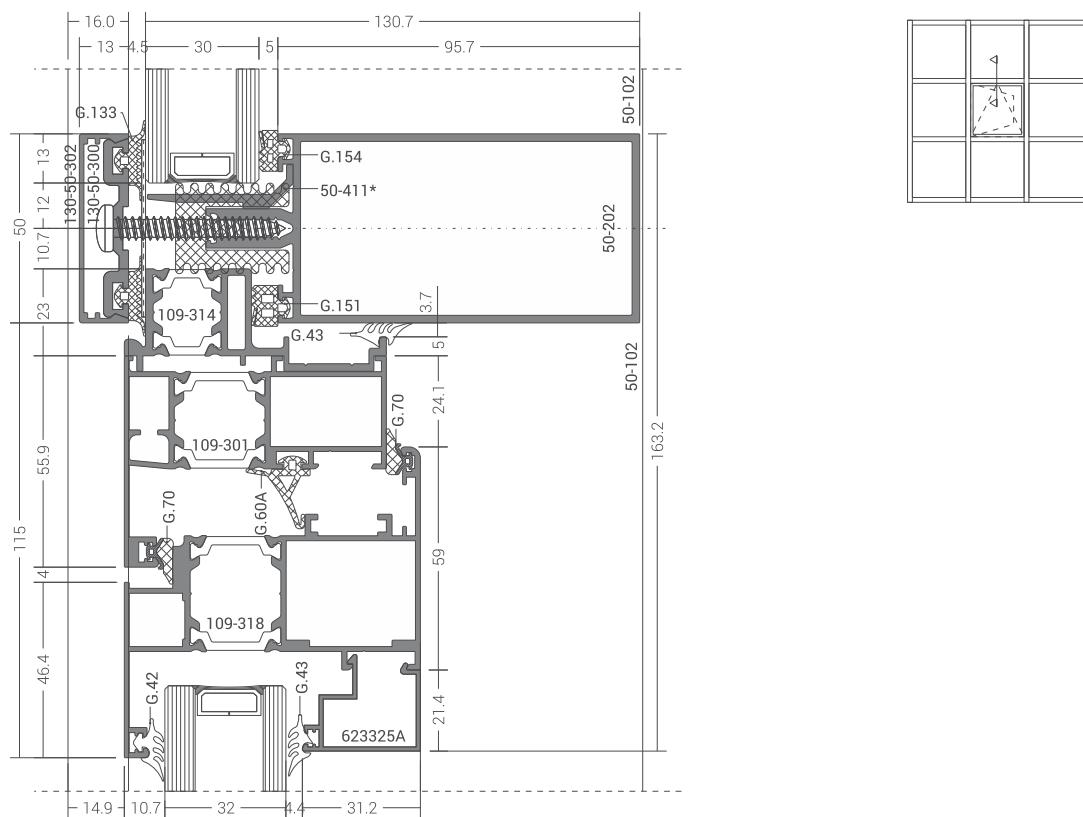
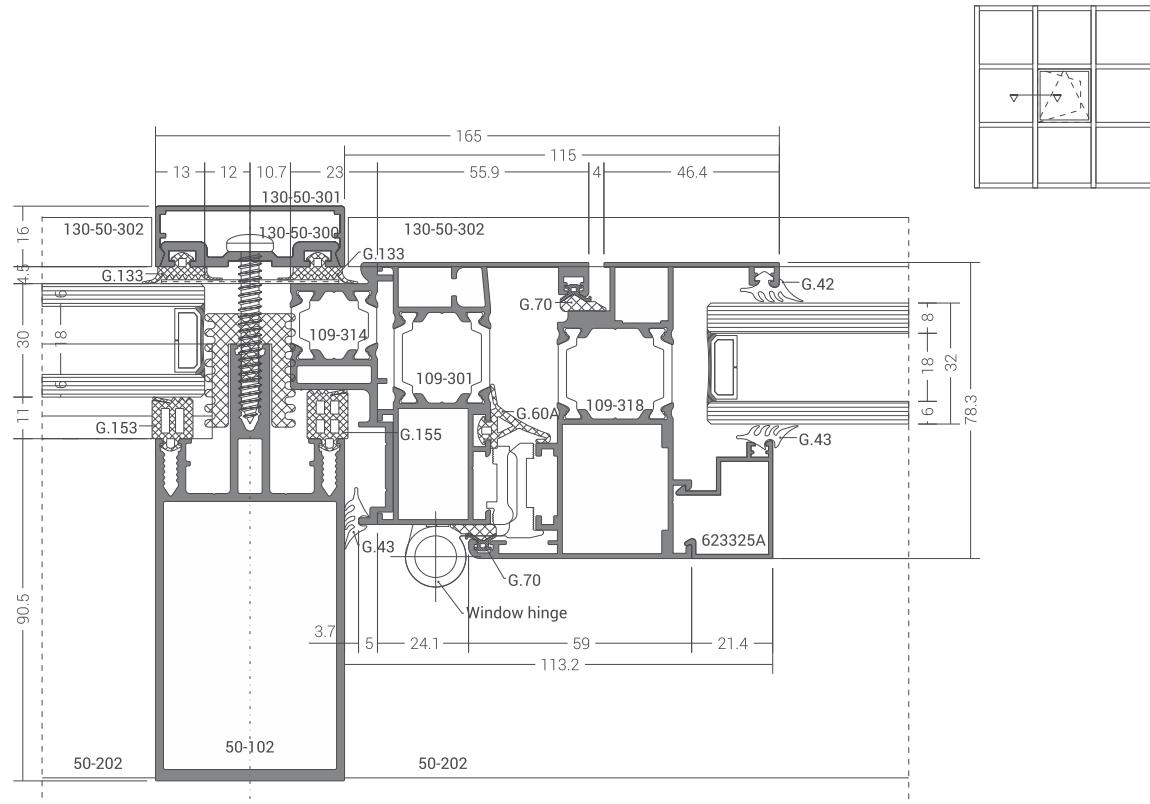


Scale 3:4





Scale 3:4



Scale 1:2

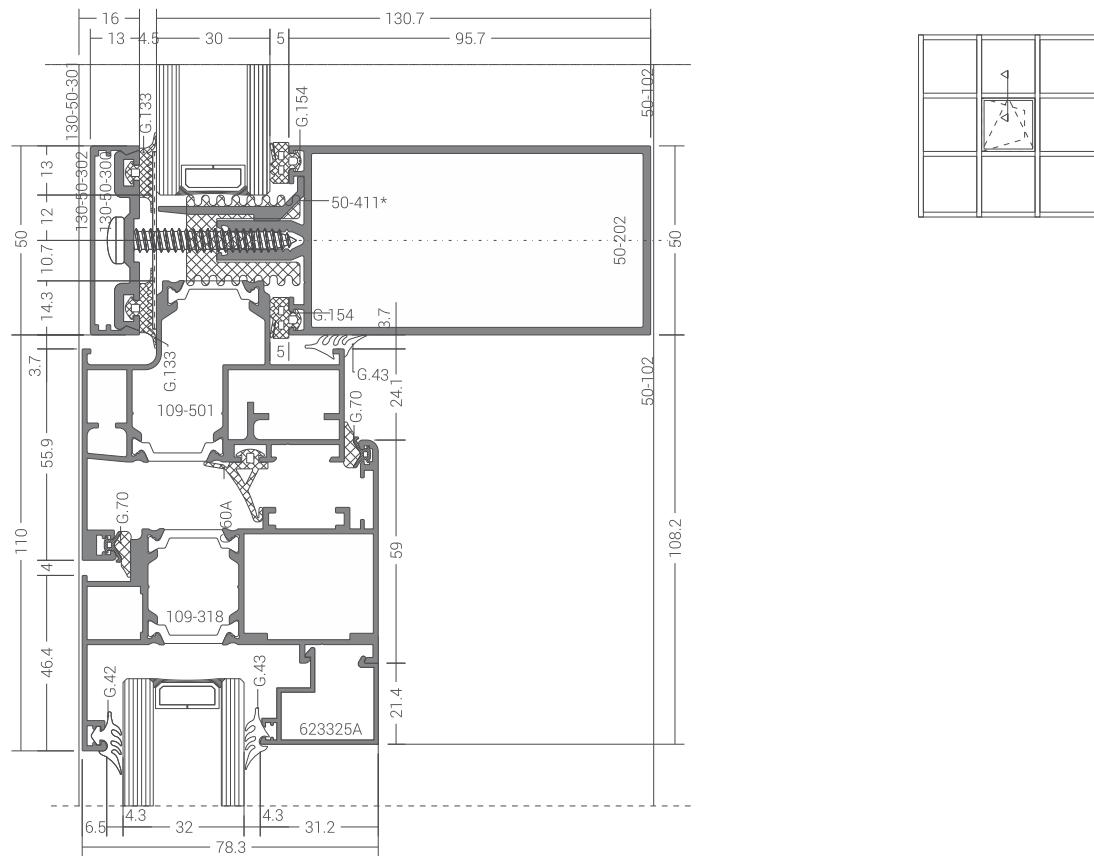
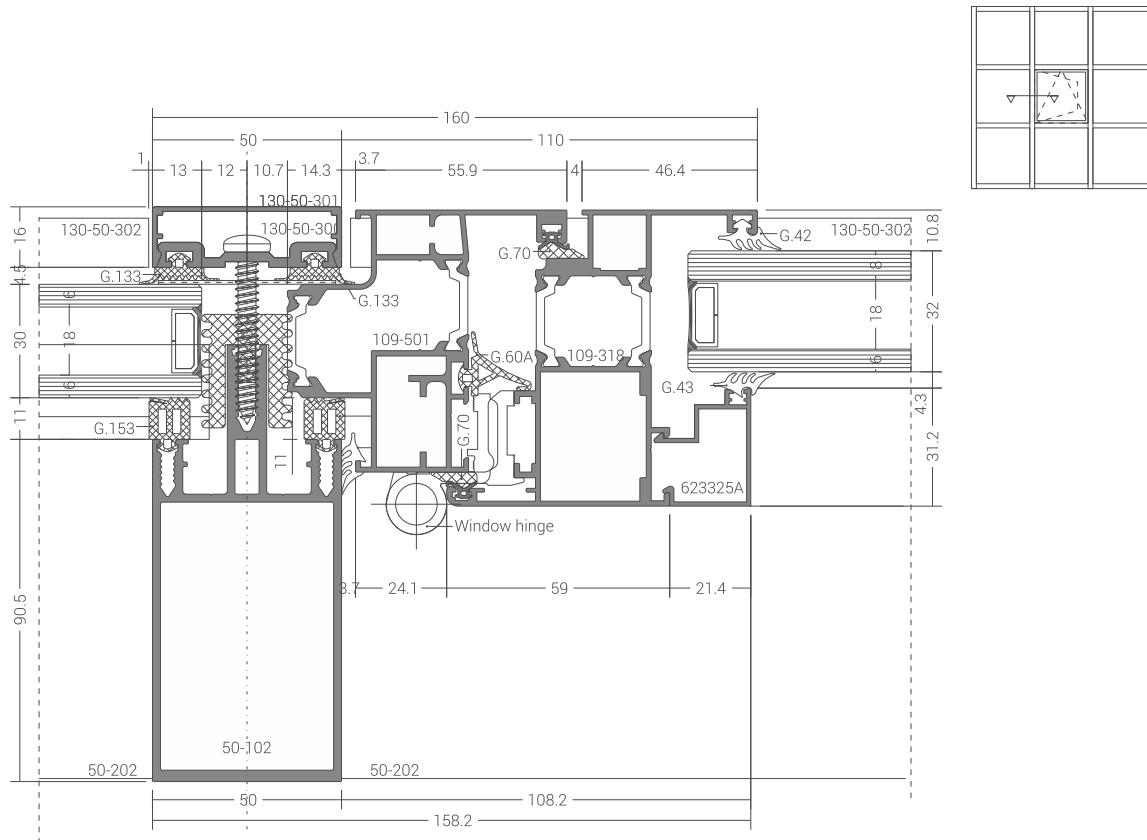
\* the glazing support must be long enough to cover at least 65% from the thickness of exterior glass



Sections - internal opening inserted window version 2

## Classic curtain wall system

# **ALBIO R50**



Scale 1:2

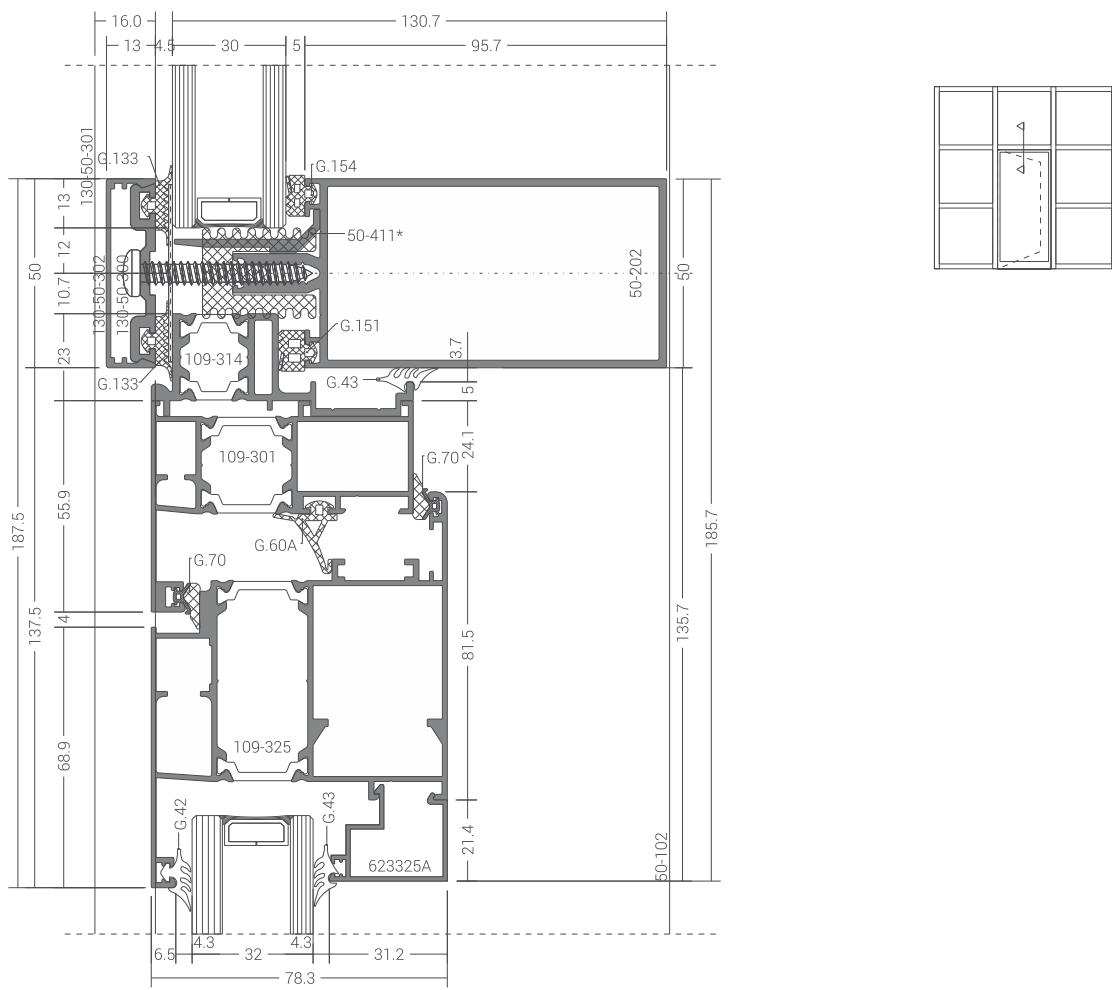
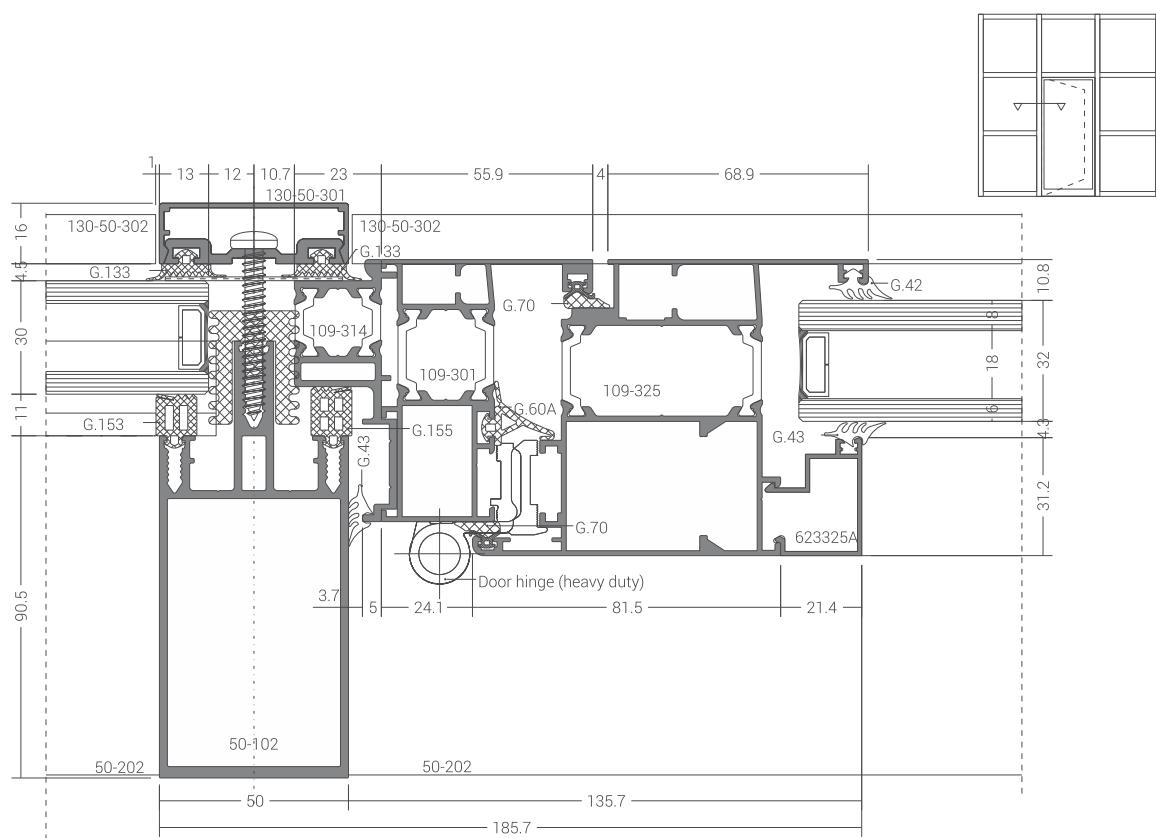
\* the glazing support must be long enough to cover at least 65% from the thickness of exterior glass



## Sections - internal opening inserted doors

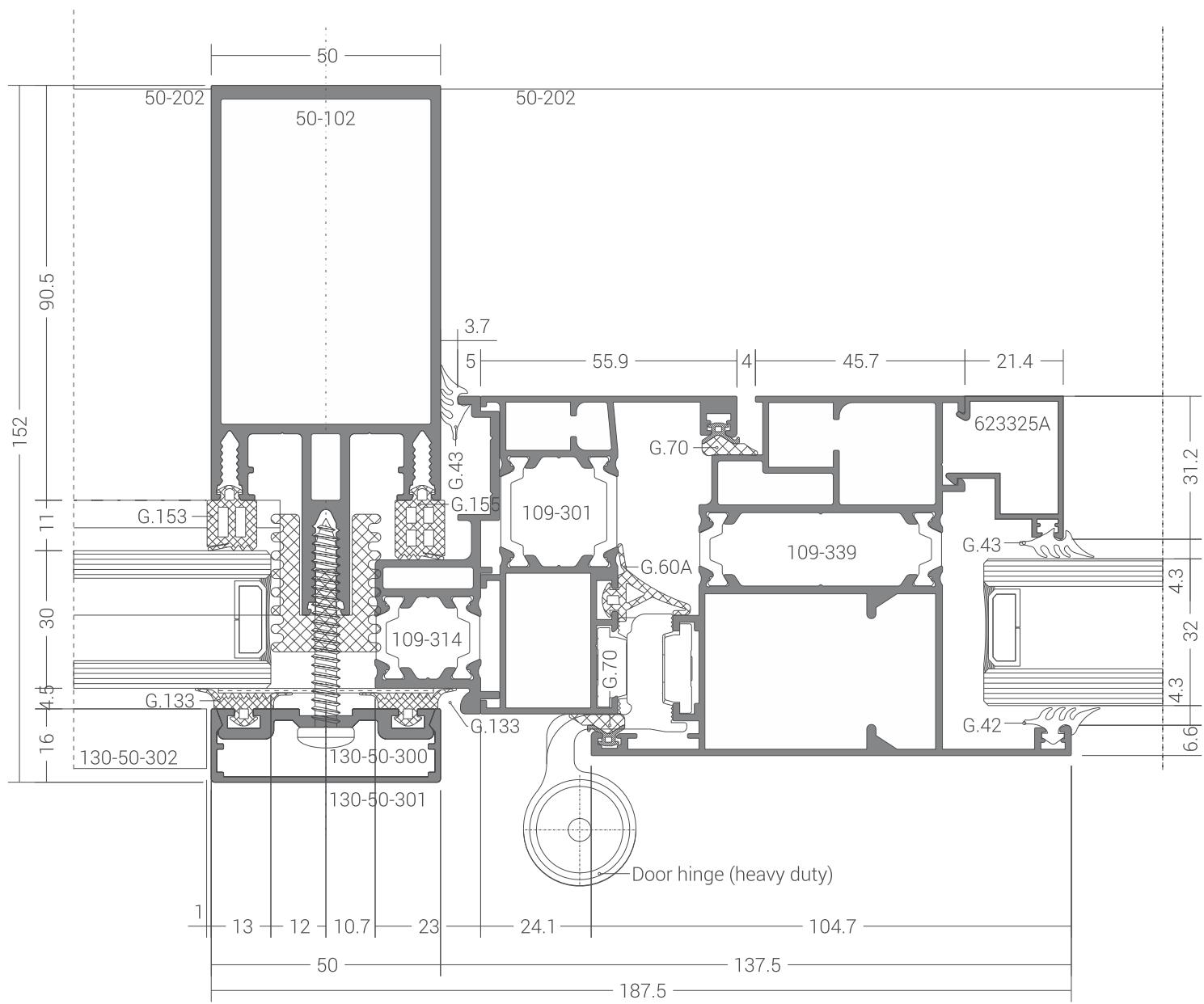
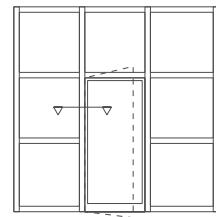
## Classic curtain wall system

**ALBIO R50**

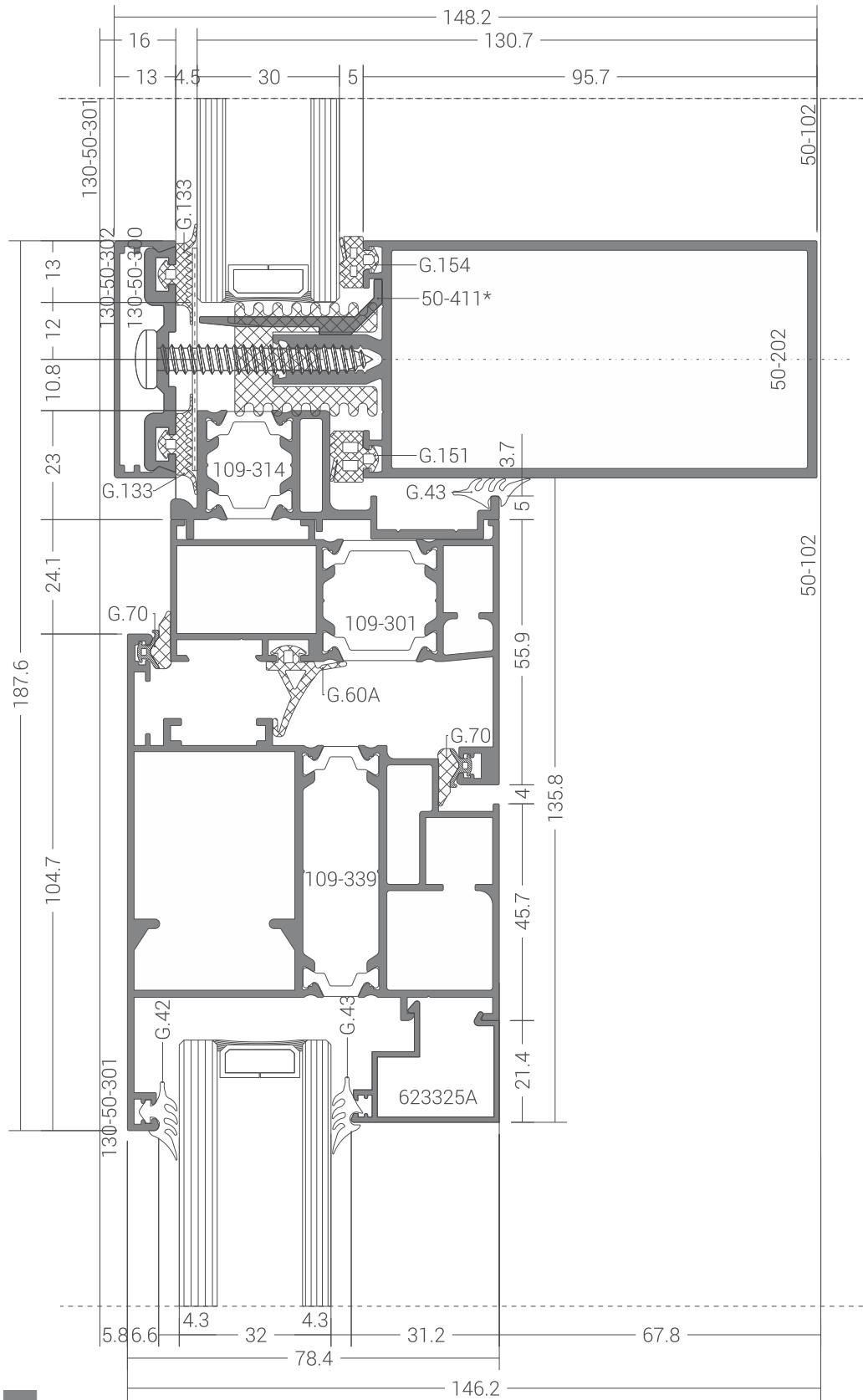
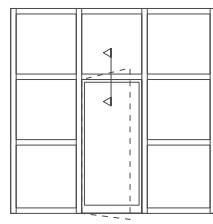


Scale 1:2

\* the glazing support must be long enough to cover at least 65% from the thickness of exterior glass

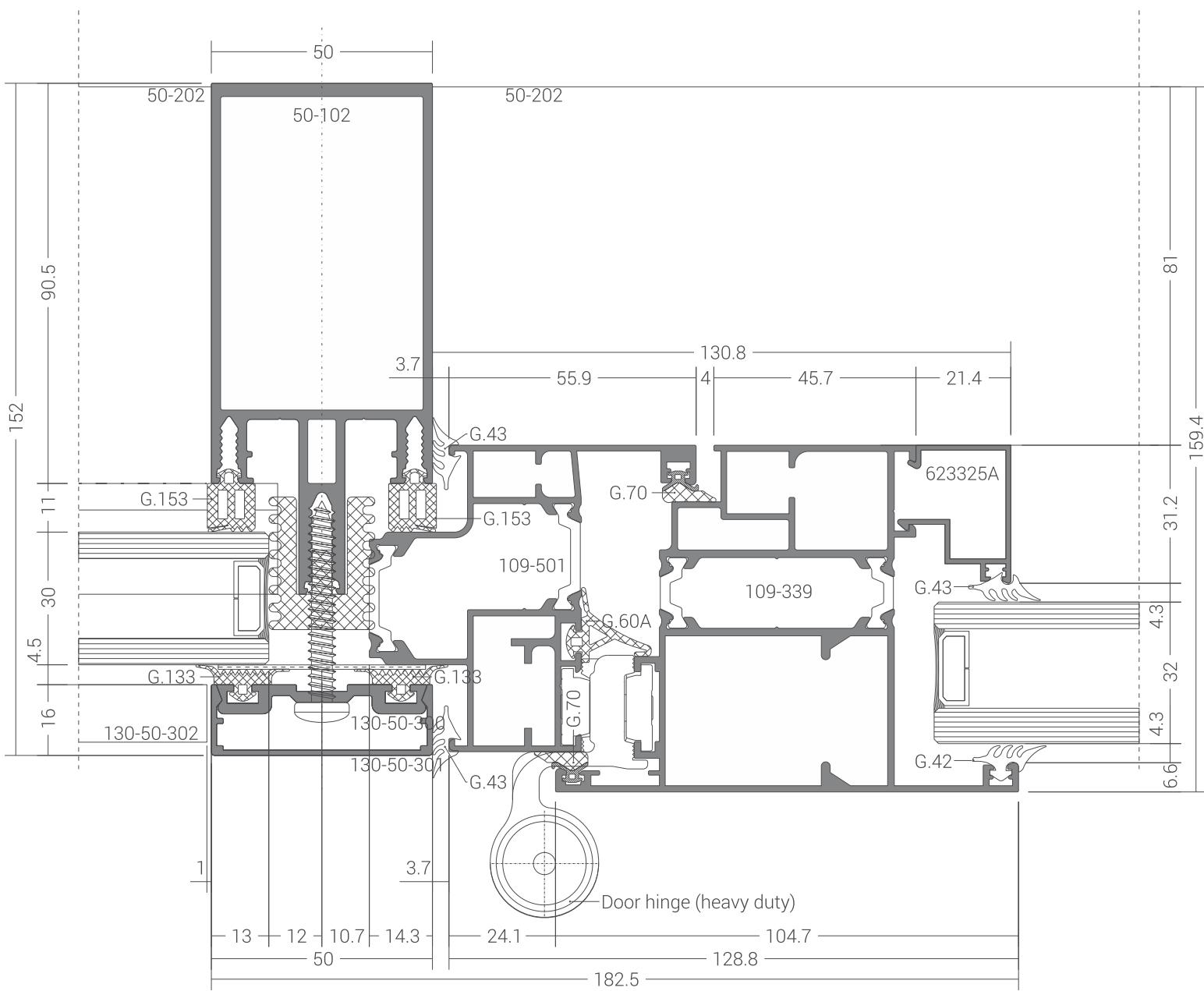
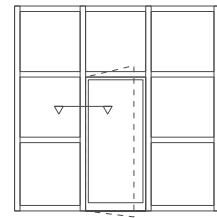


Scale 3:4



Scale 3:4

\* the glazing support must be long enough to cover at least 65% from the thickness of exterior glass



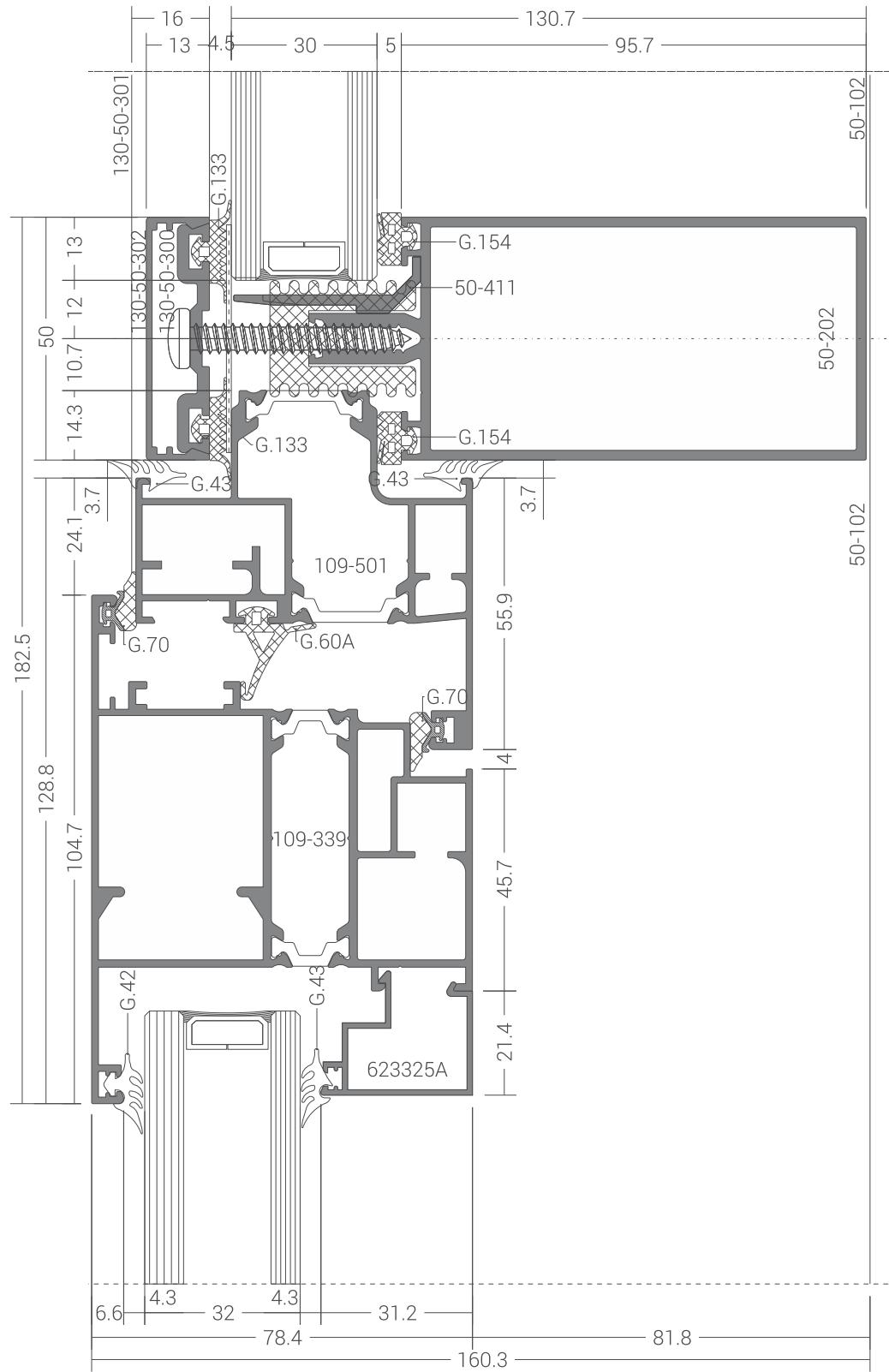
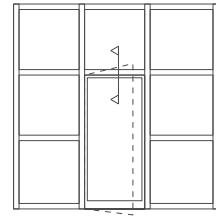
Scale 3:4



Sections - external opening inserted doors version2

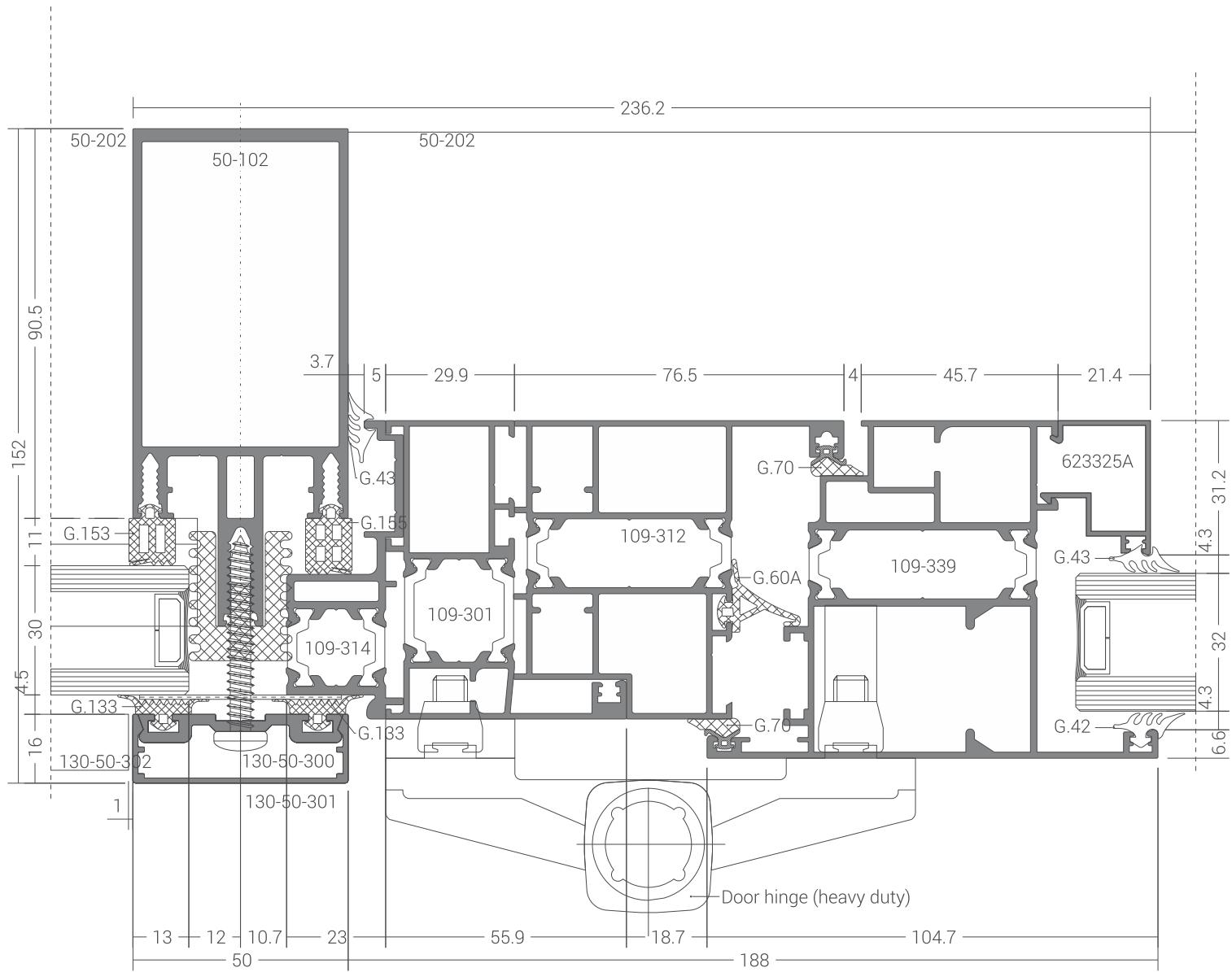
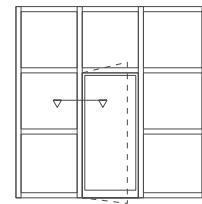
## Classic curtain wall system

## **ALBIO R50**

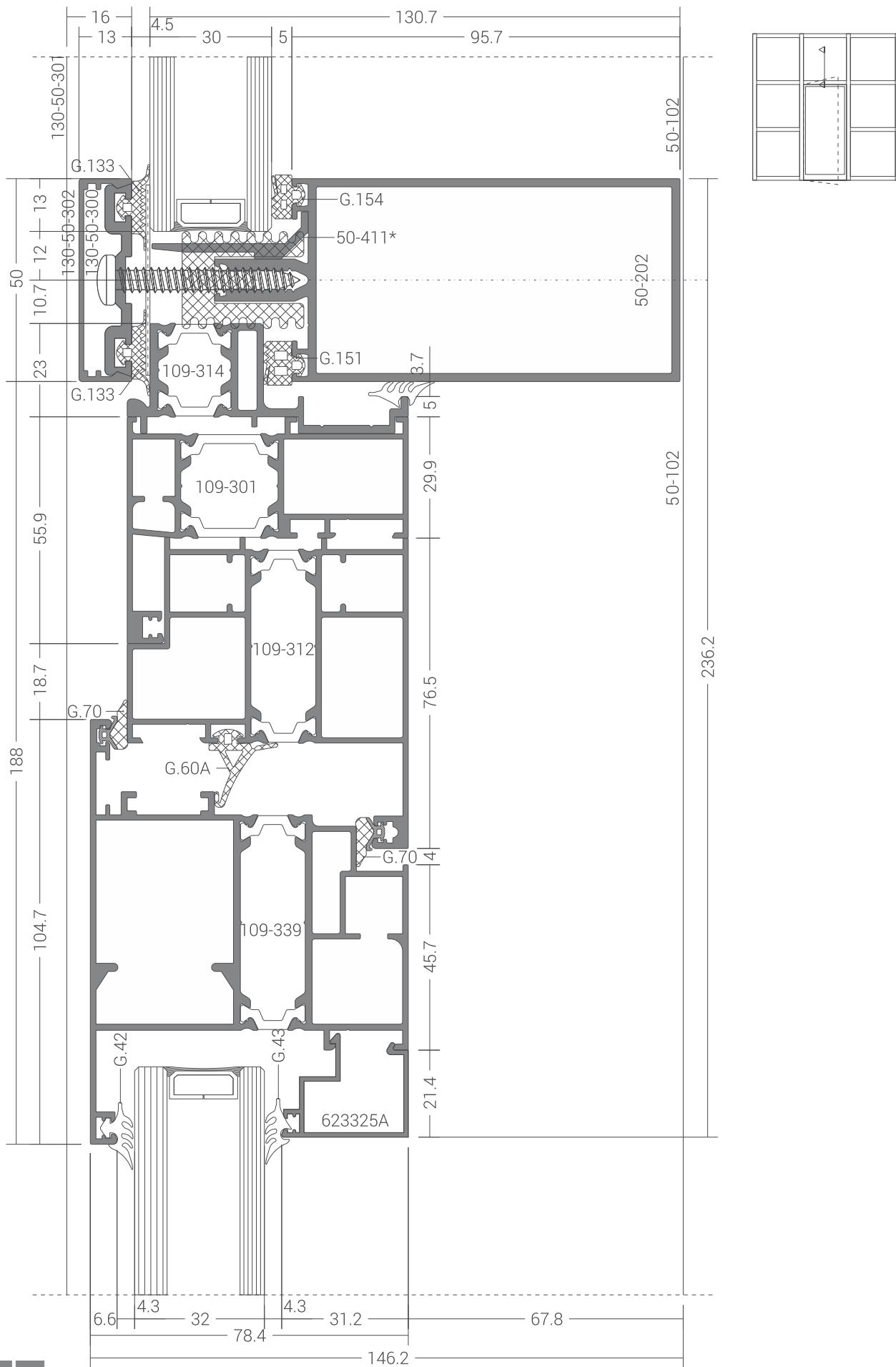


Scale 3:4

\* the glazing support must be long enough to cover at least 65% from the thickness of exterior glass

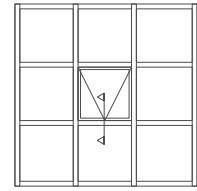
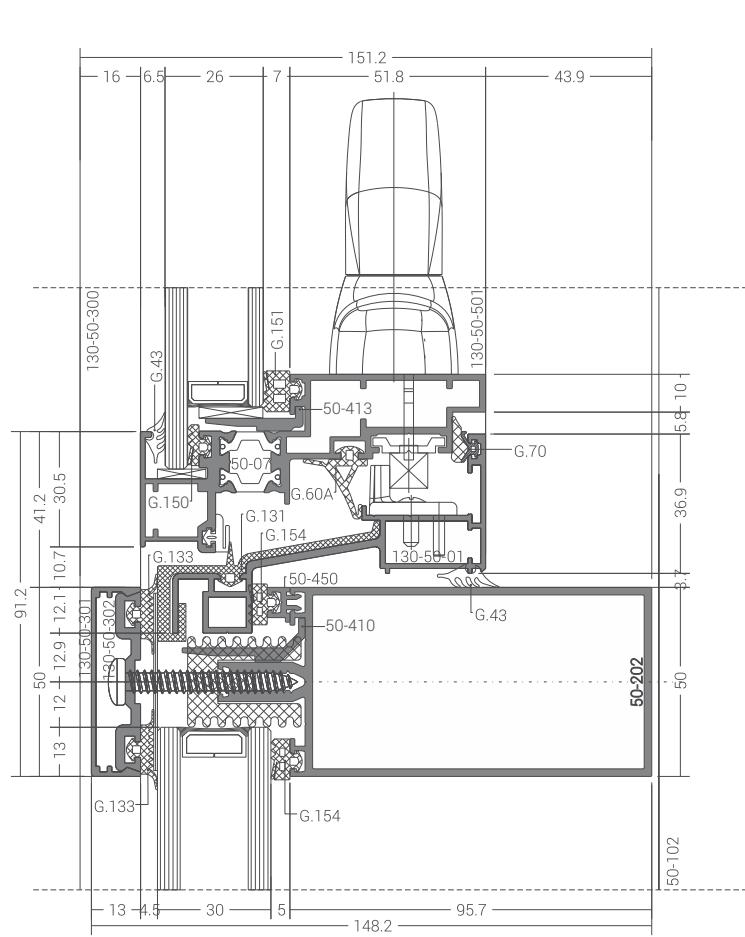
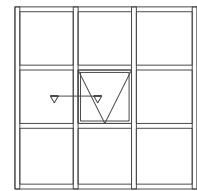
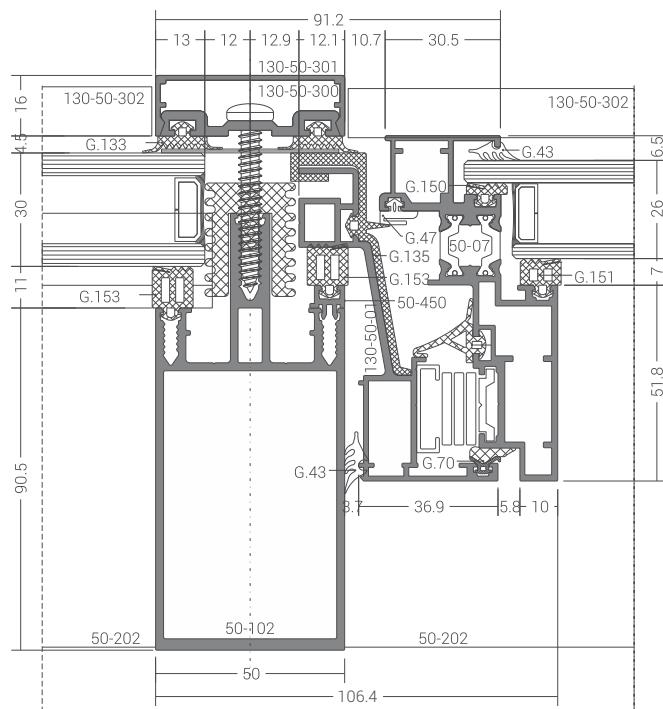


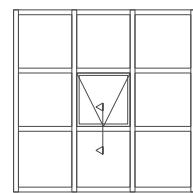
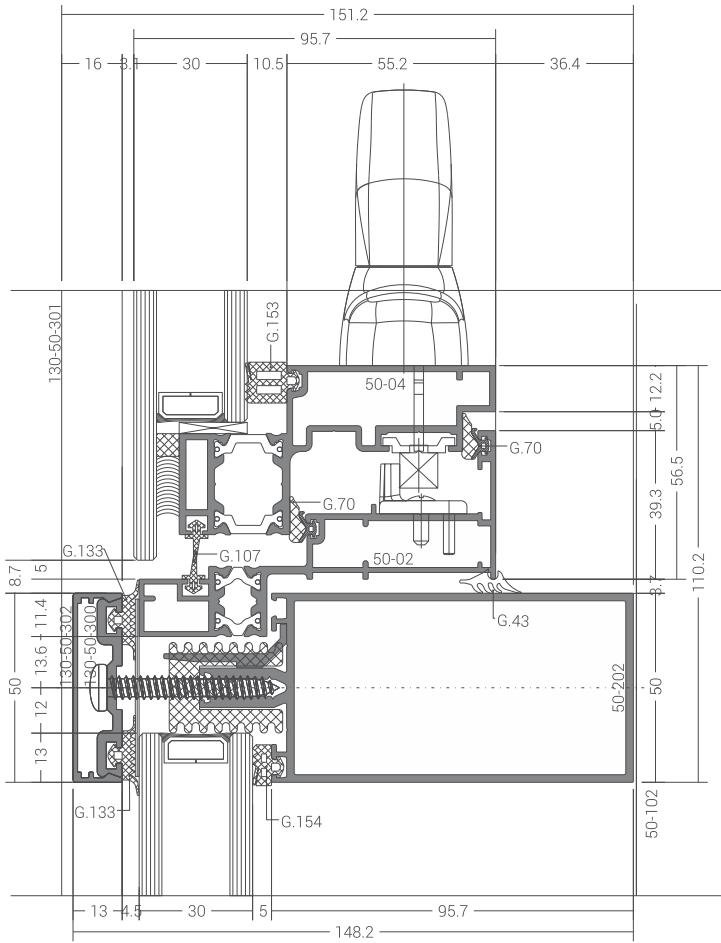
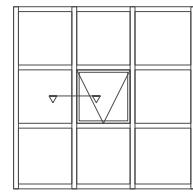
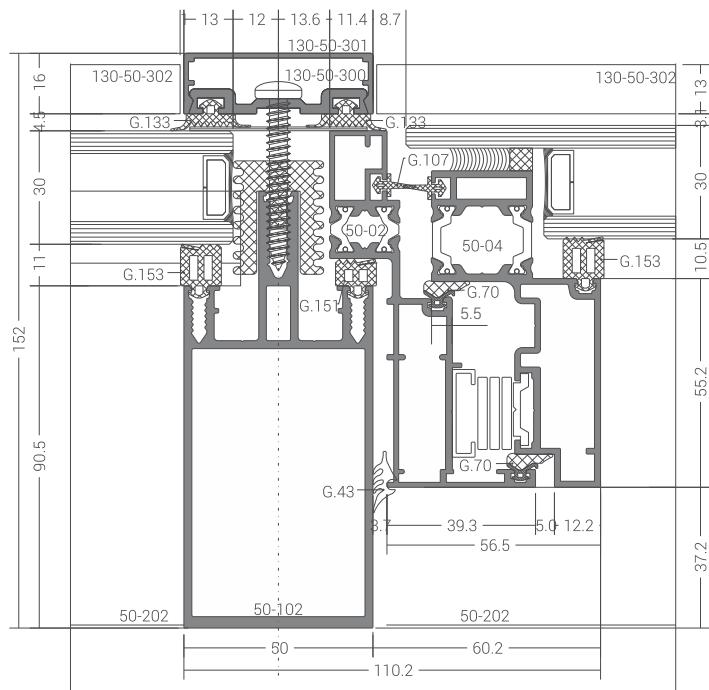
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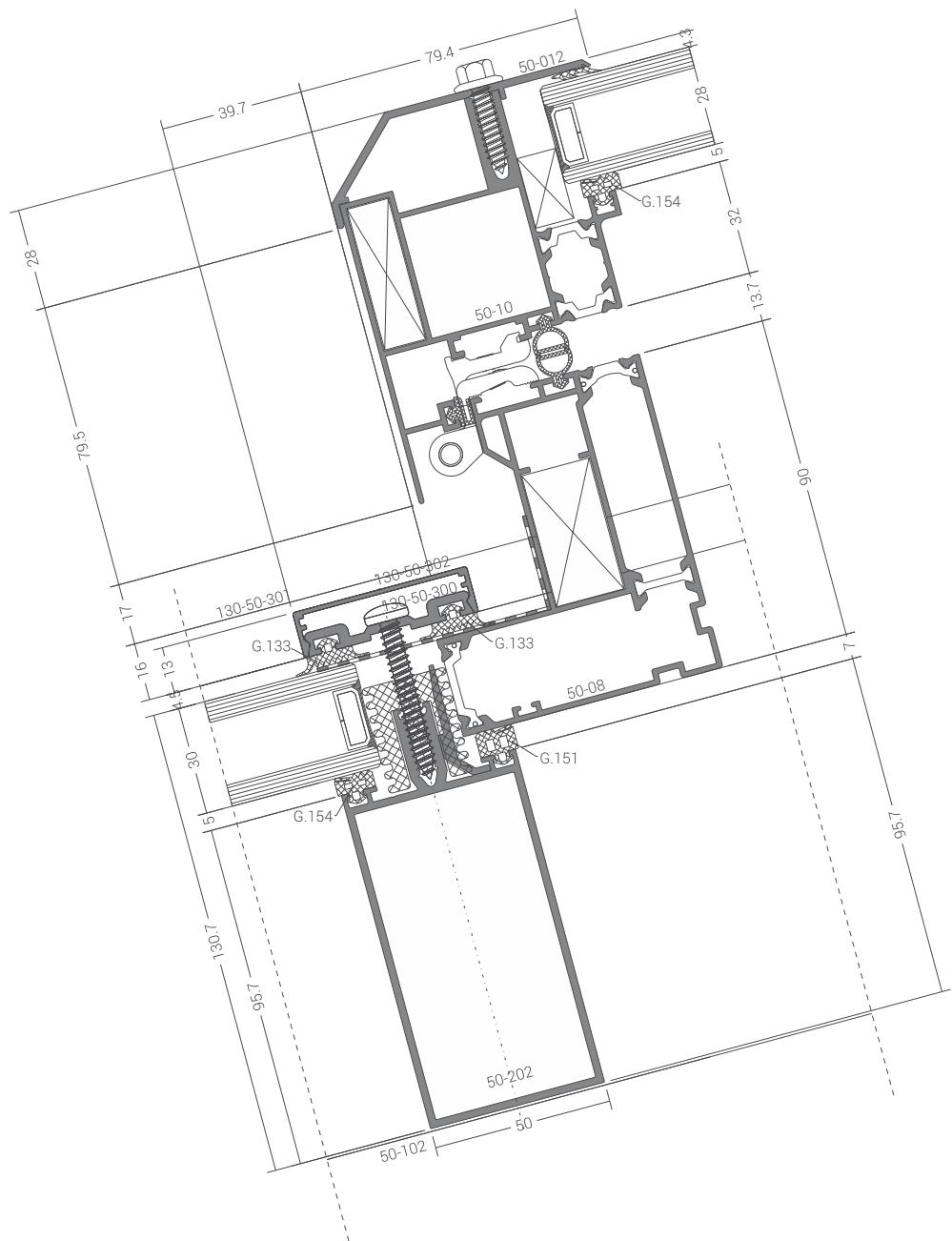
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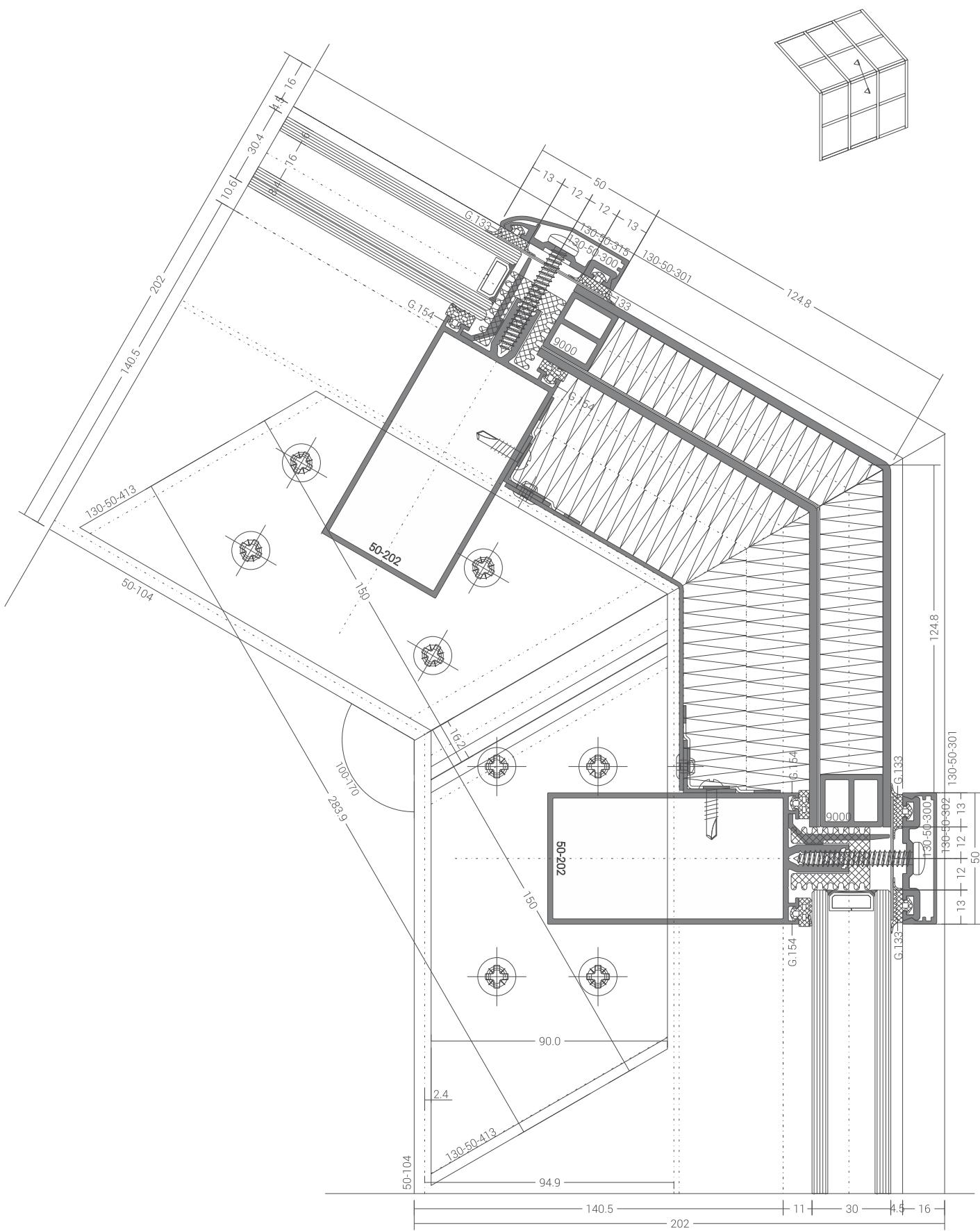




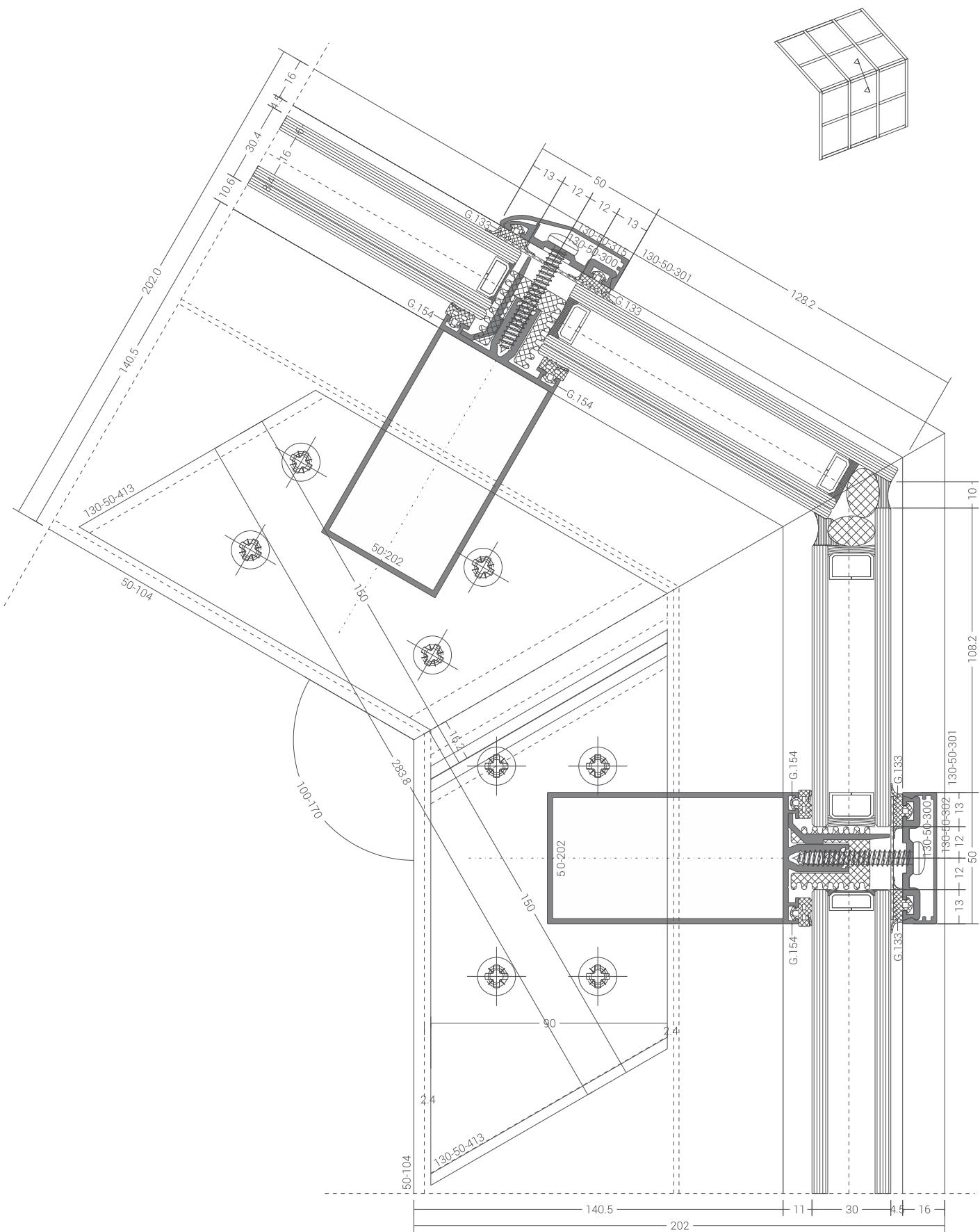
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Scale 1:2



Scale 1:2

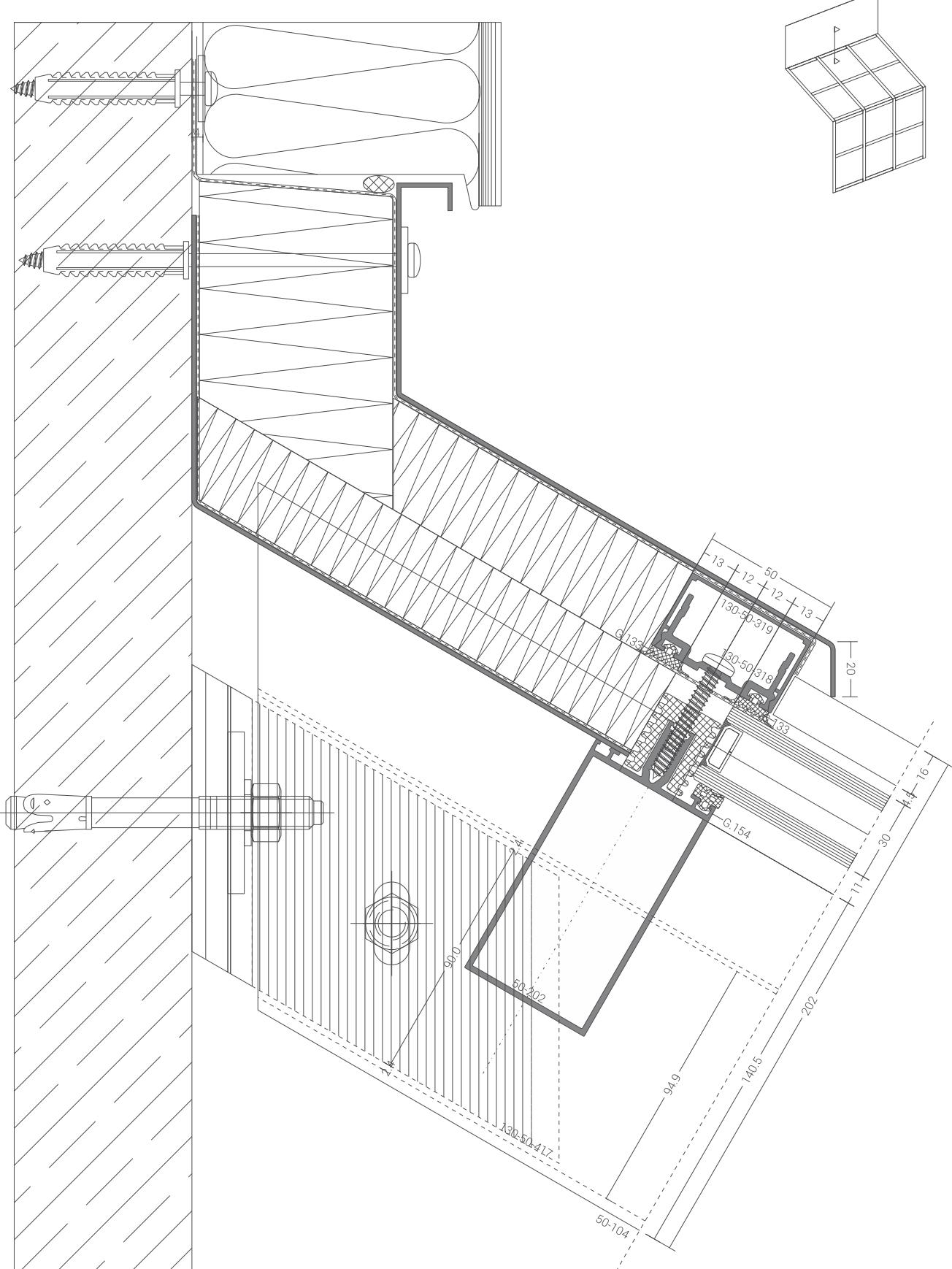




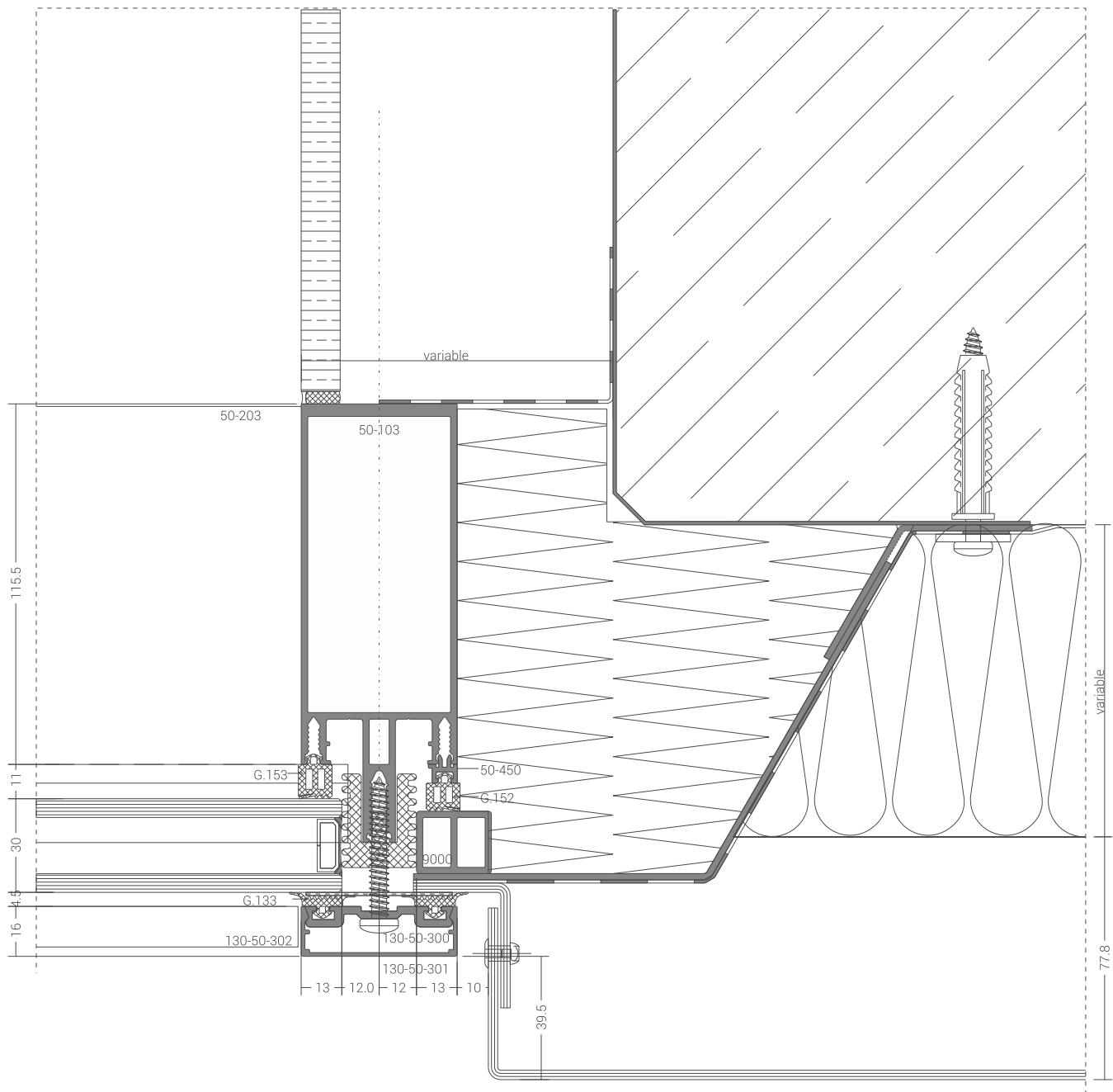
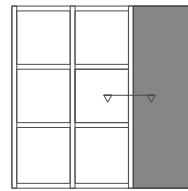
## Sections - conservatory vertical section

## Classic curtain wall system

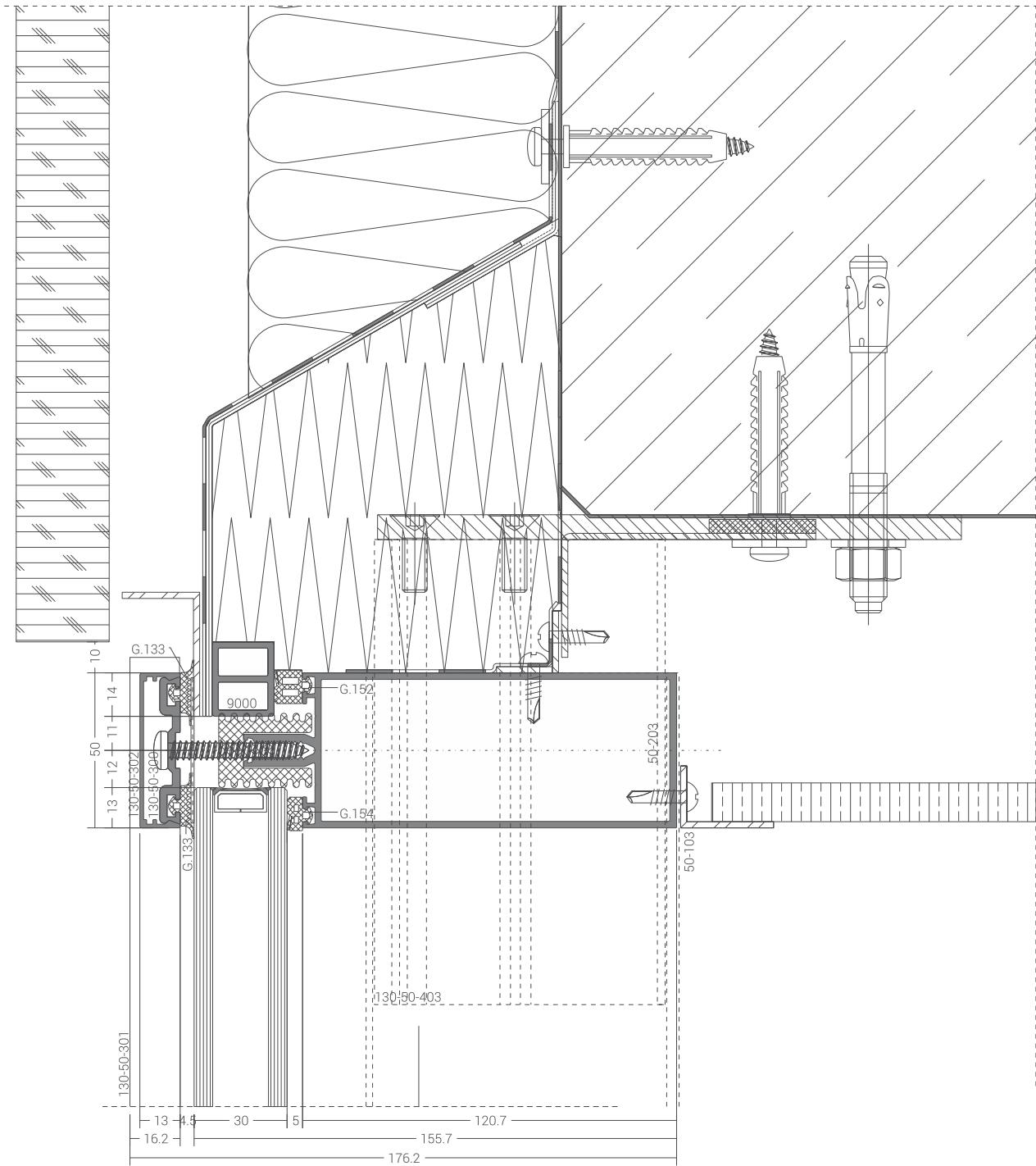
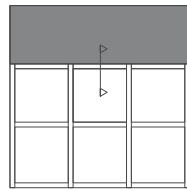
**ALBIO R50**



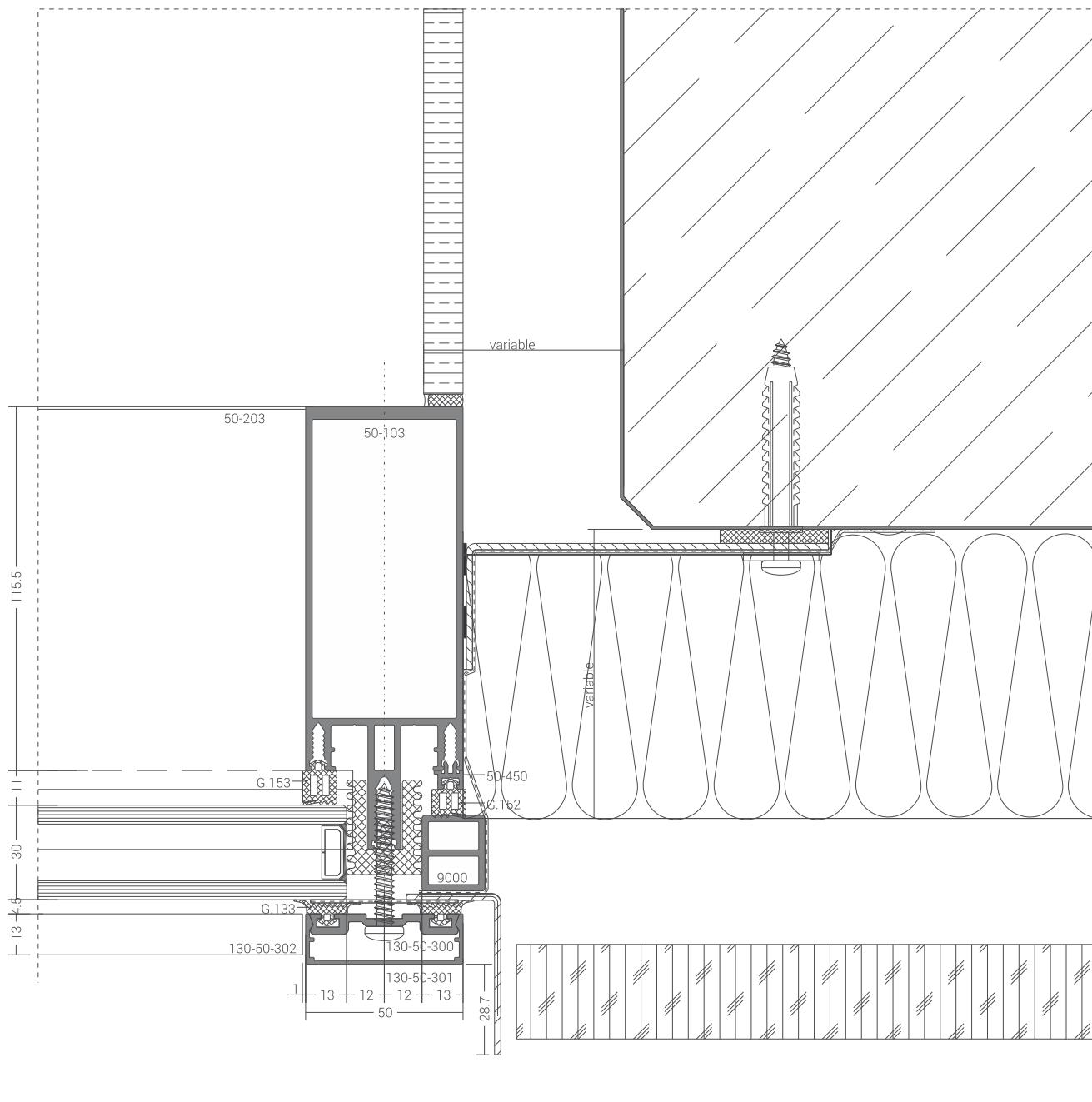
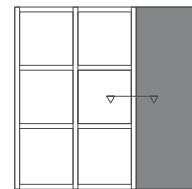
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Scale 1:2



Scale 1:2



Scale 1:2



Connection with ventilated facade

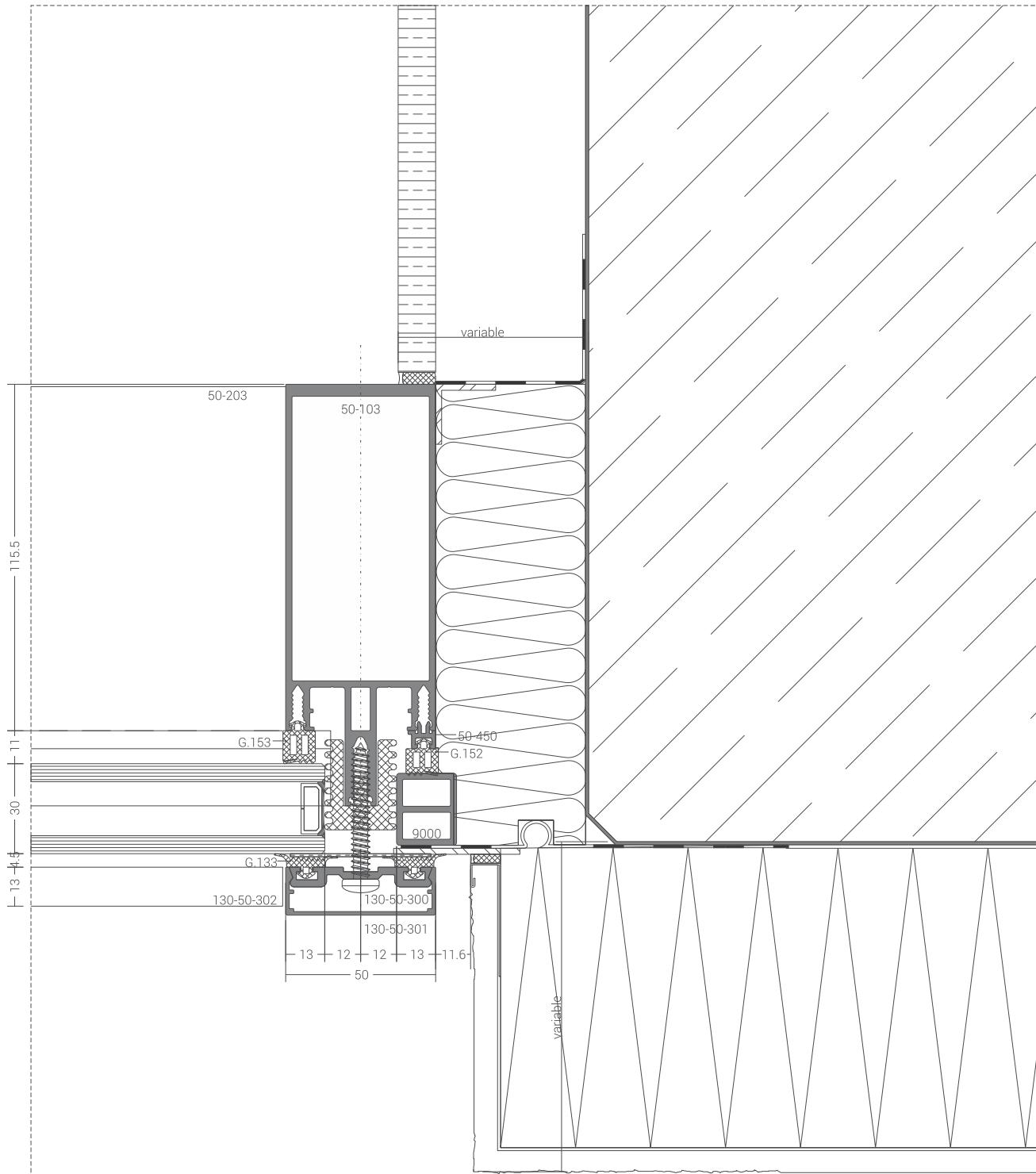
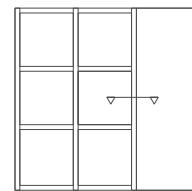
Classic curtain wall system

**ALBIO R50**

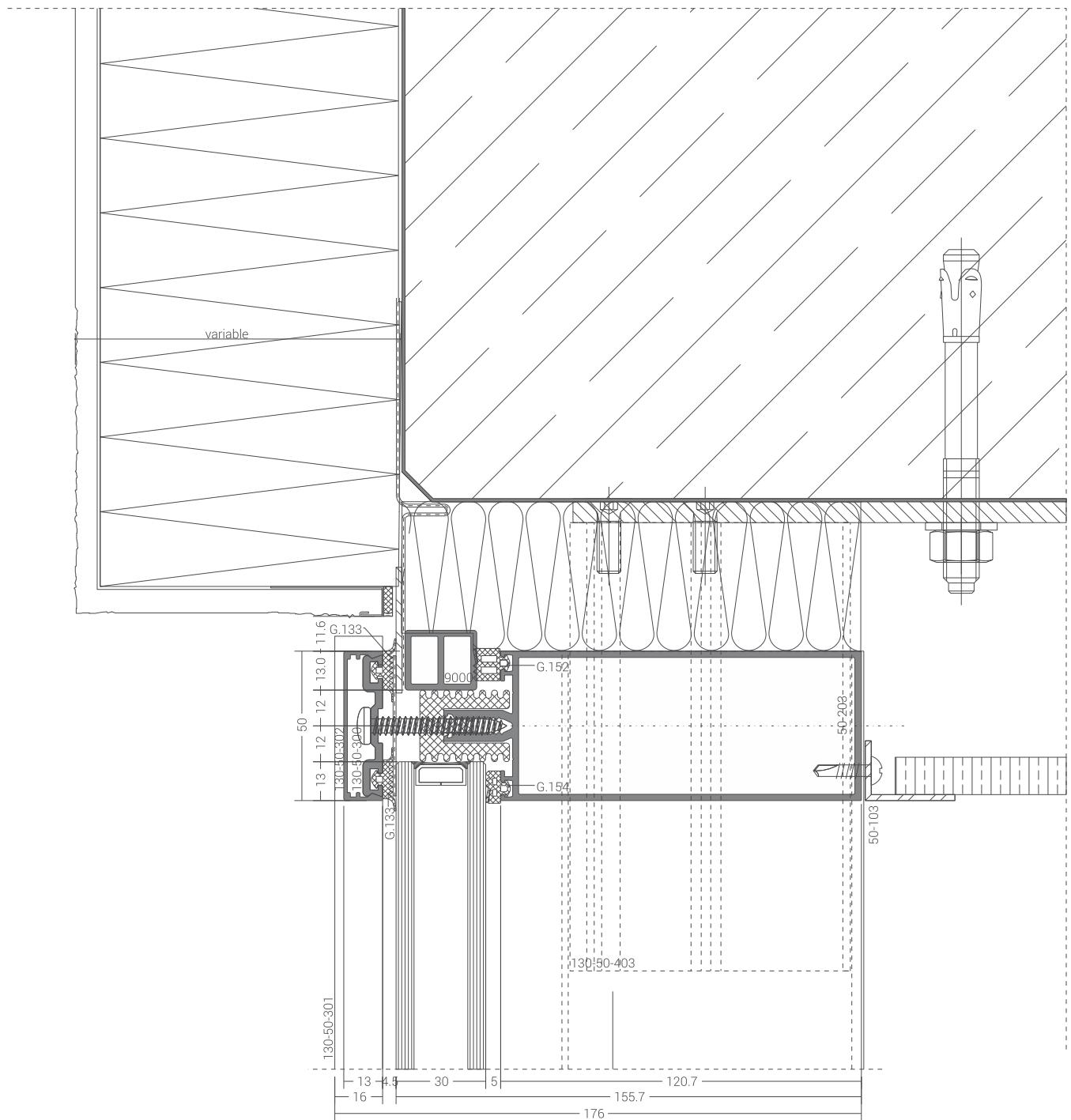
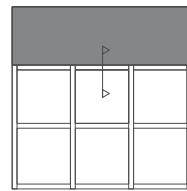
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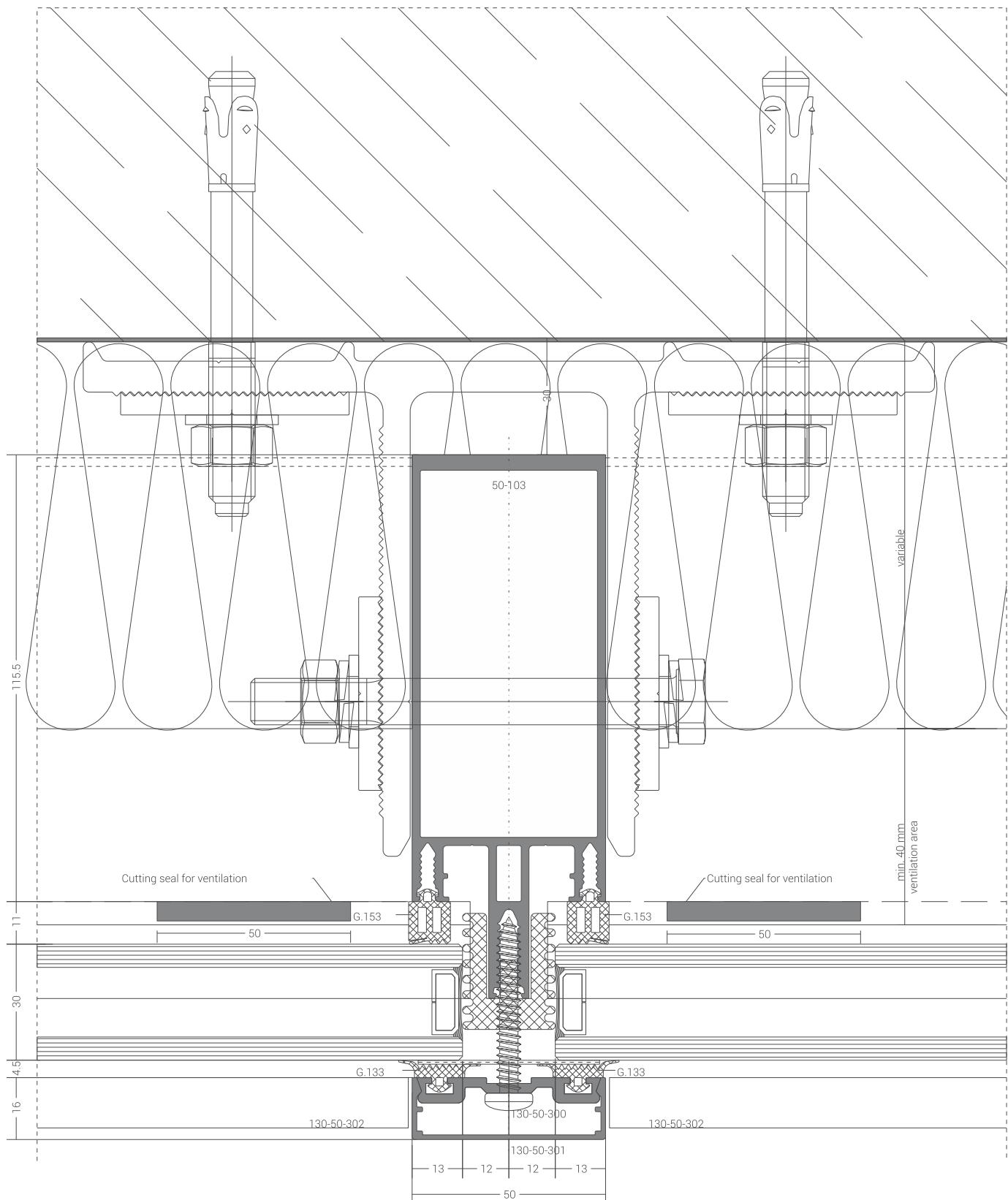
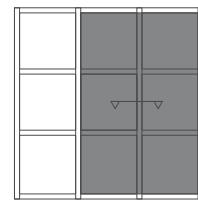
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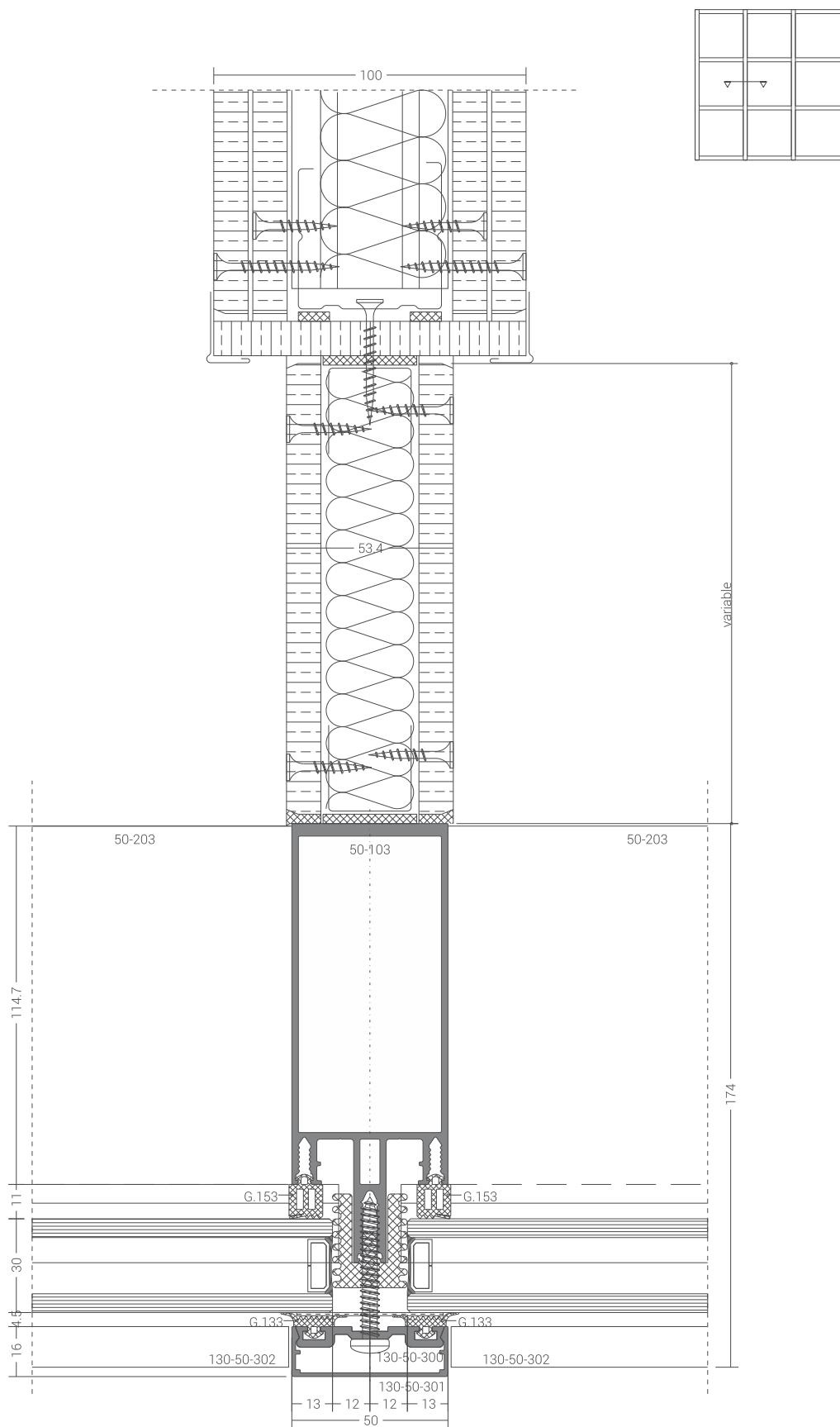
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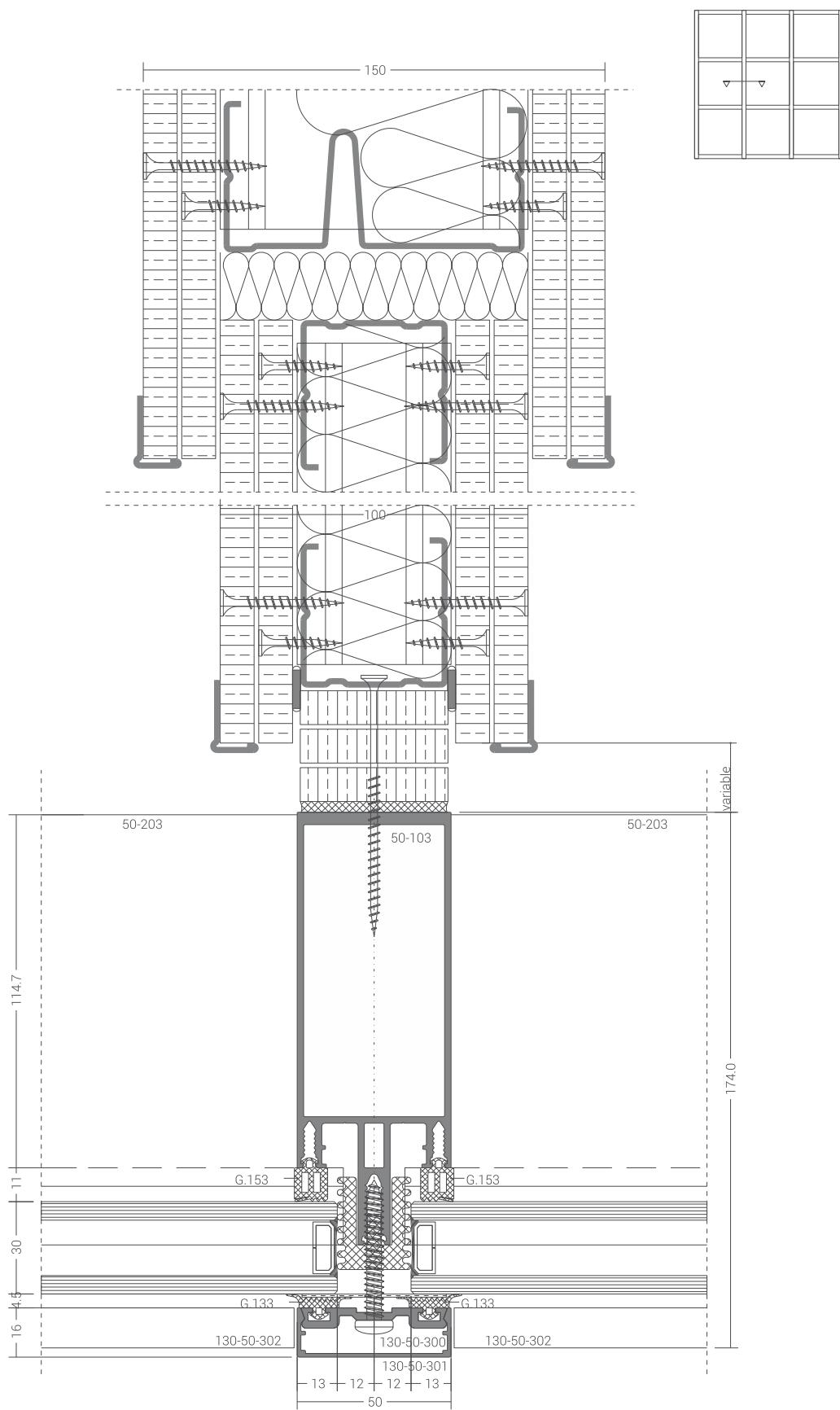


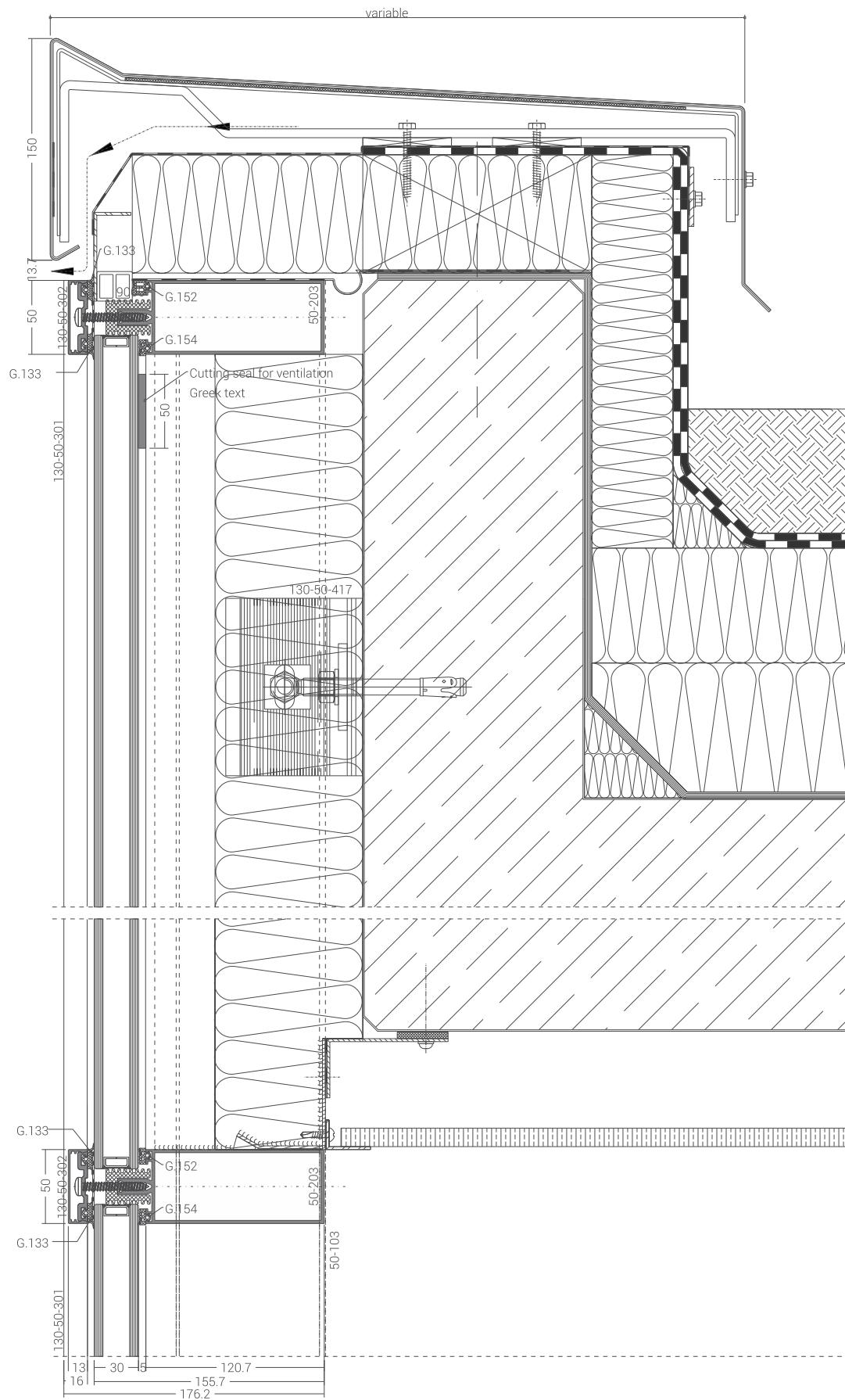
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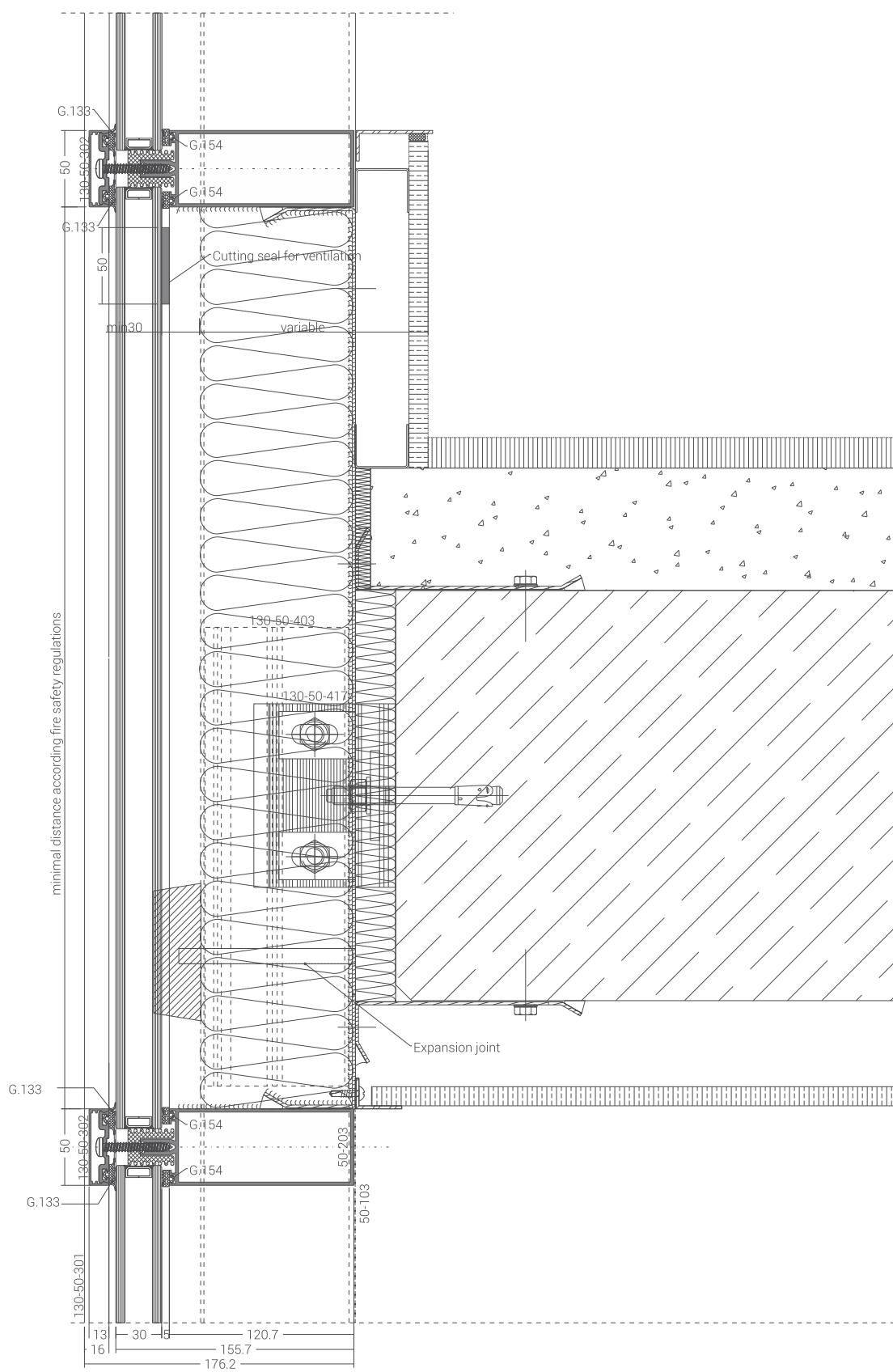
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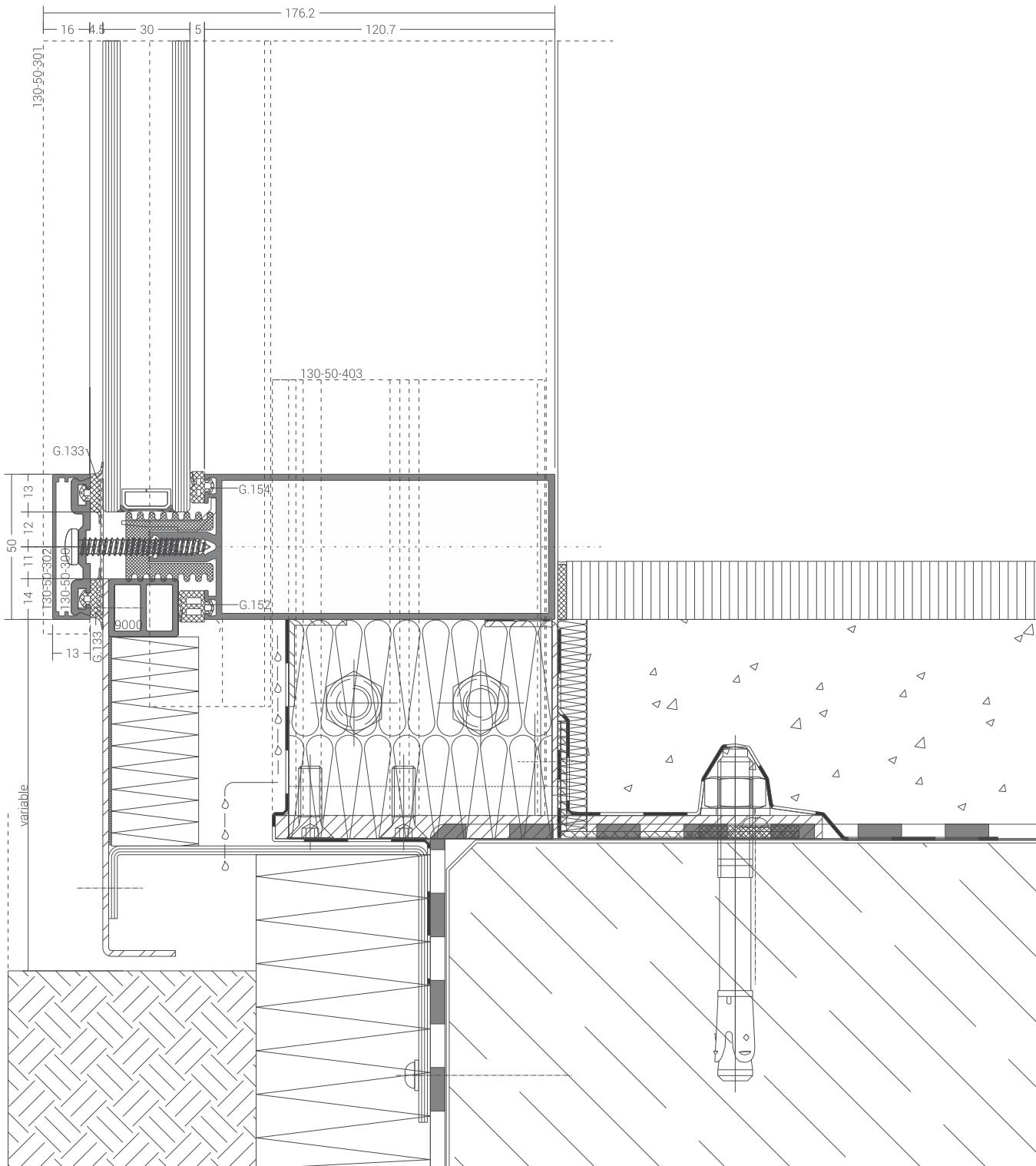




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Scale 1:4



Scale 1:2

# **Chapter 6**

## **Structural glazing curtain wall system**

# Structural glazing curtain wall system

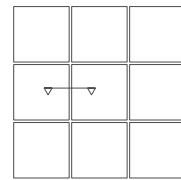
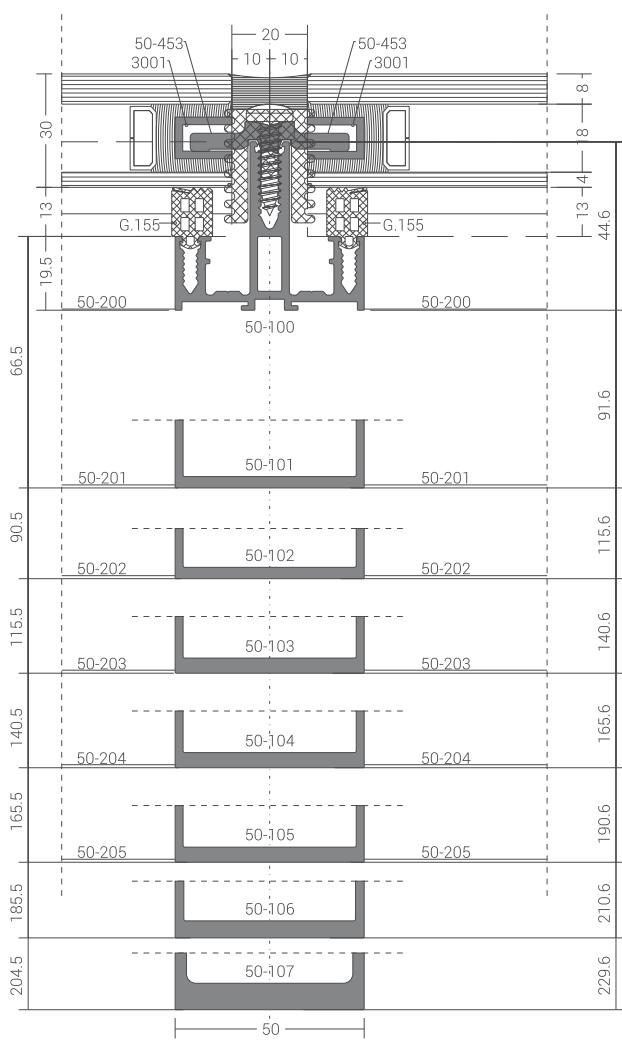
## Table of content

page 4.1	Sections - Glazing 4-18-8
page 4.2	Sections - Glazing 6-18-6
page 4.3	Sections - Glazing 6-18-8
page 4.4	Sections - Glazing 8-18-8
page 4.5	Sections - Mullion 90° outer corner
page 4.6	Sections - Mullion 90° outer corner
page 4.7	Sections - Mullion 105° outer corner
page 4.8	Sections - Mullion 120° outer corner
page 4.9	Sections - Mullion 135° outer corner
page 4.10	Sections - Mullion 135° outer corner
page 4.11	Sections - Mullion 150° outer corner
page 4.12	Sections - Mullion 165° outer corner
page 4.13	Sections - Mullion 90° inner corner
page 4.14	Sections - Mullion 120° inner corner
page 4.15	Sections - Mullion 135° inner corner
page 4.16	Sections - Mullion 150° inner corner
page 4.17	Sections - Mullion 165° inner corner
page 4.18	Sections - Mullion at wall connection

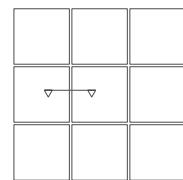
# **Structural glazing curtain wall system**

## **Table of content**

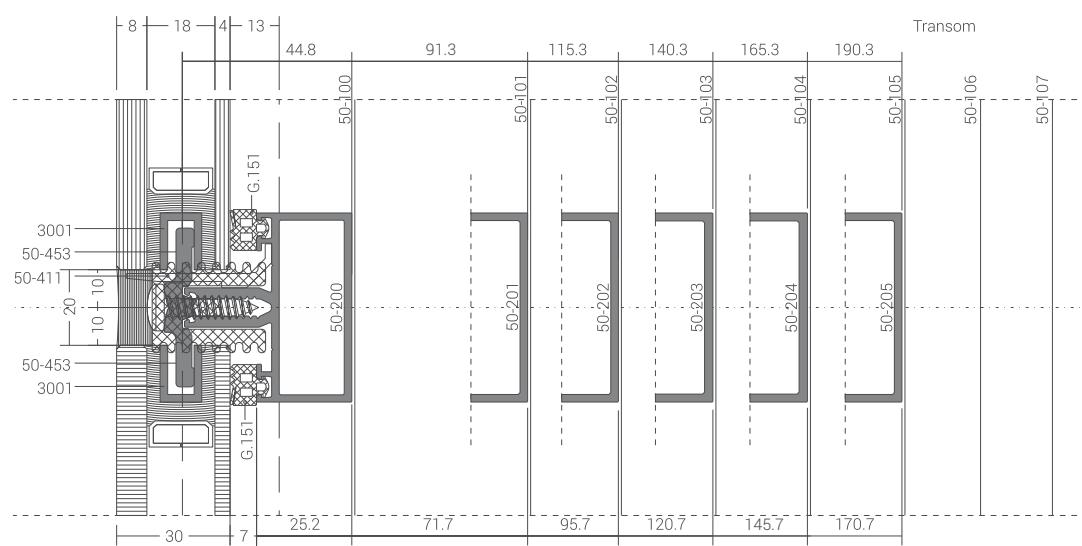
page 5.19	Sections - Mullion at top connection
page 5.20	Mullion at connection with composite panel
page 5.21	Transom at connection with composite panel
page 5.22	Sections - internal opening inserted window
page 5.23	Sections - internal opening inserted doors
page 5.24	Sections - external opening inserted doors
page 5.25	Sections - external opening inserted doors
page 5.26	Sections - external opening projected window
page 5.27	Sections - external opening projected window
page 5.28	Sections - external opening projected window
page 5.29	Skylight - external opening projected window
page 5.30	Sections - shadow box
page 5.31	Sections - conservatory vertical section



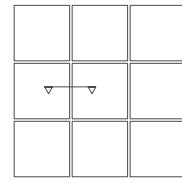
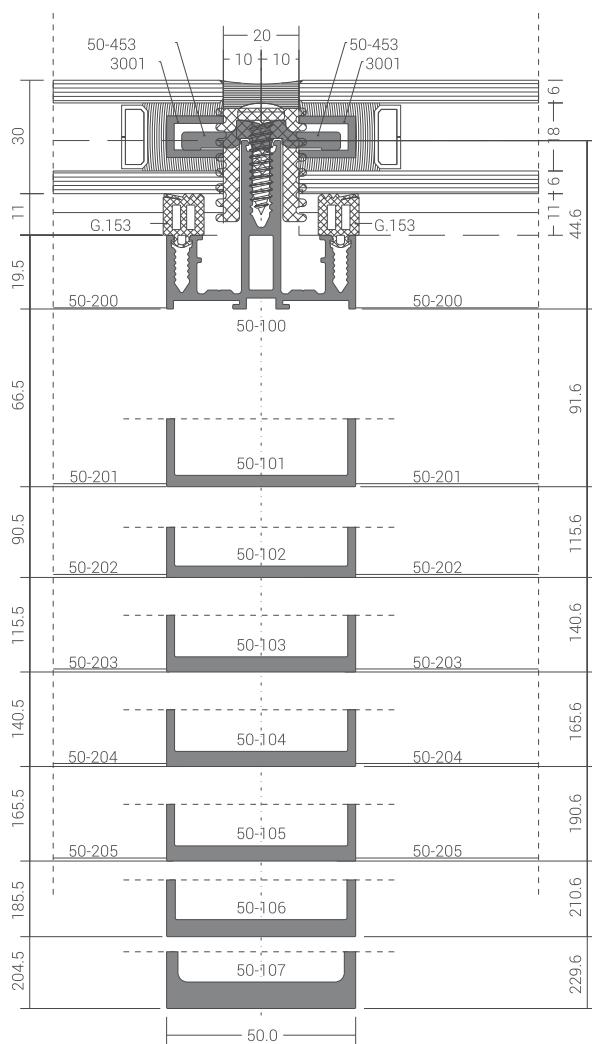
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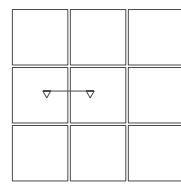
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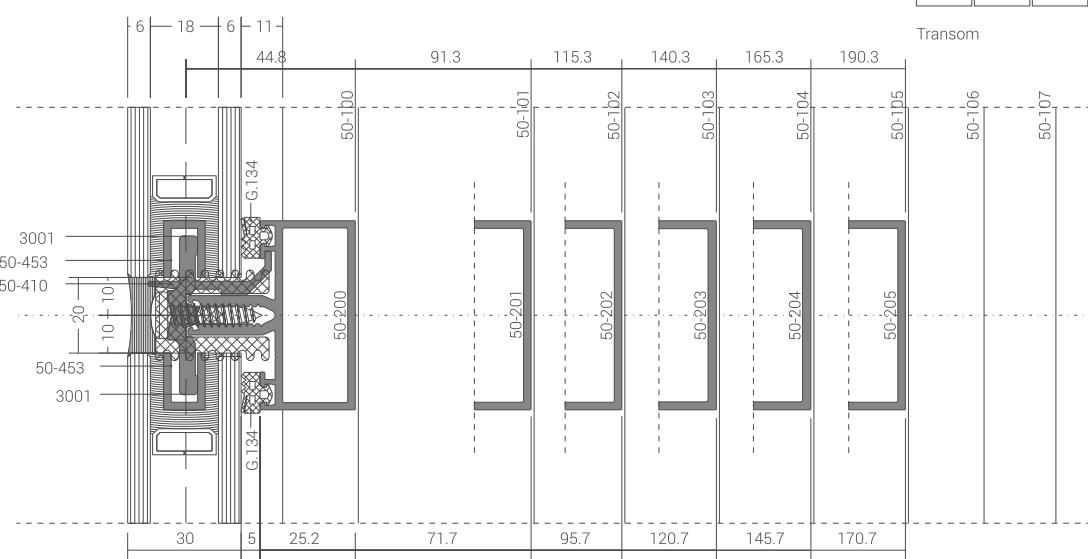
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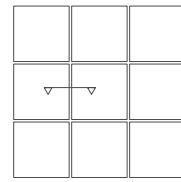
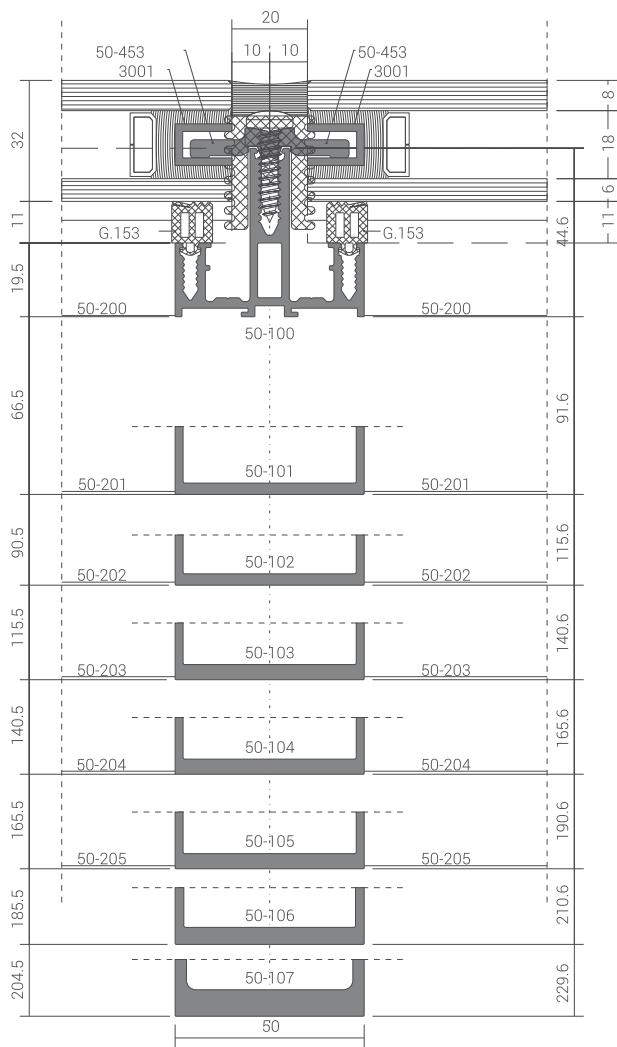
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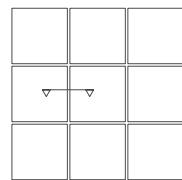
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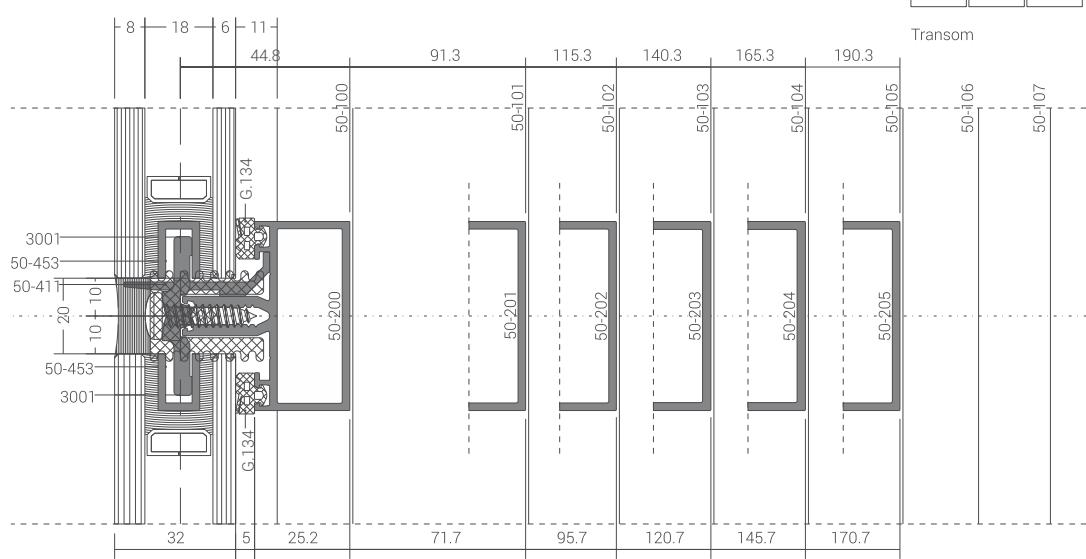
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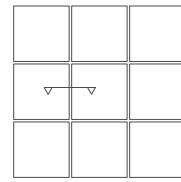
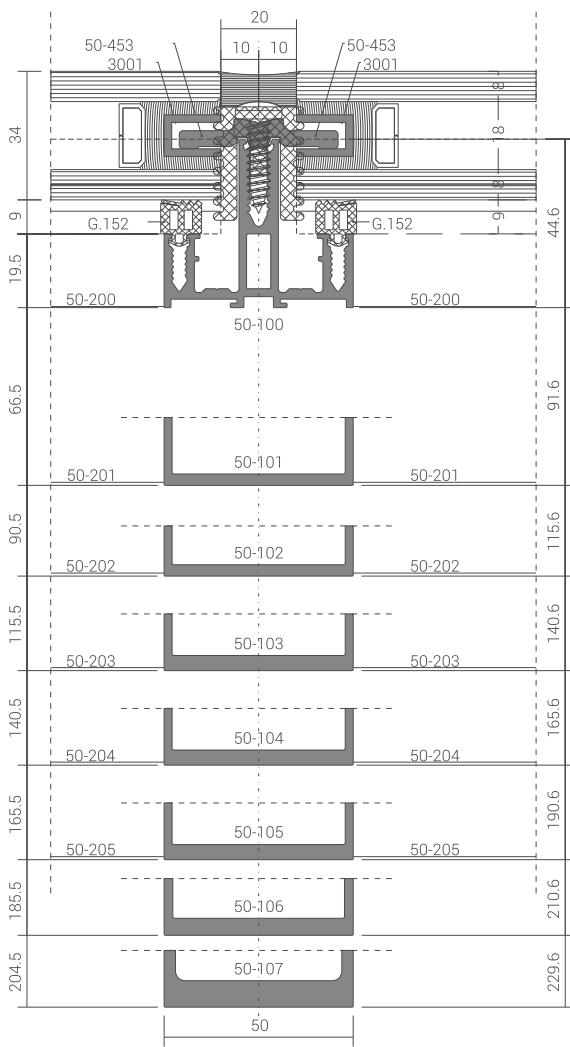
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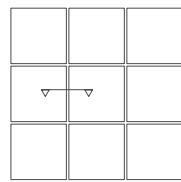
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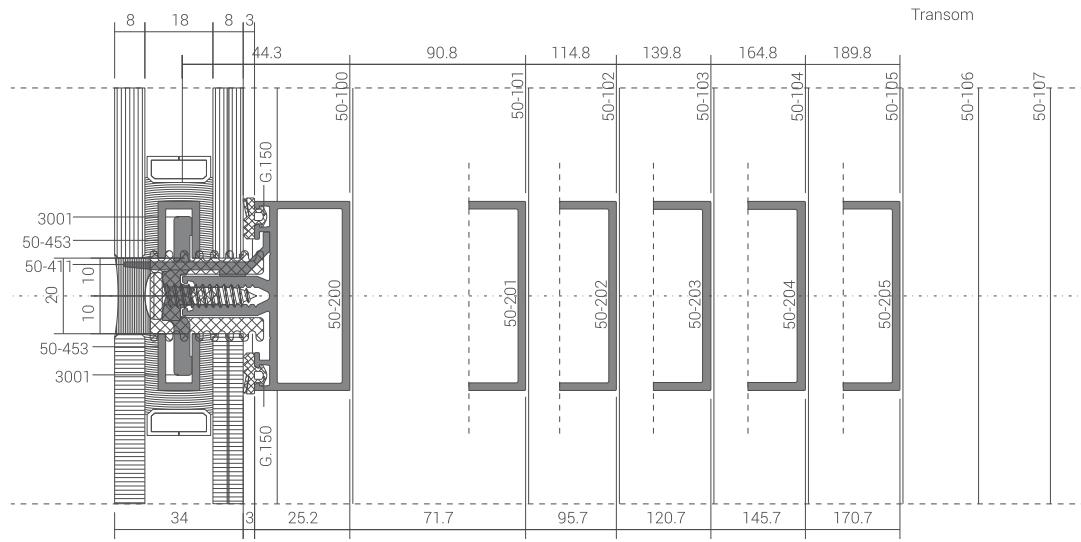
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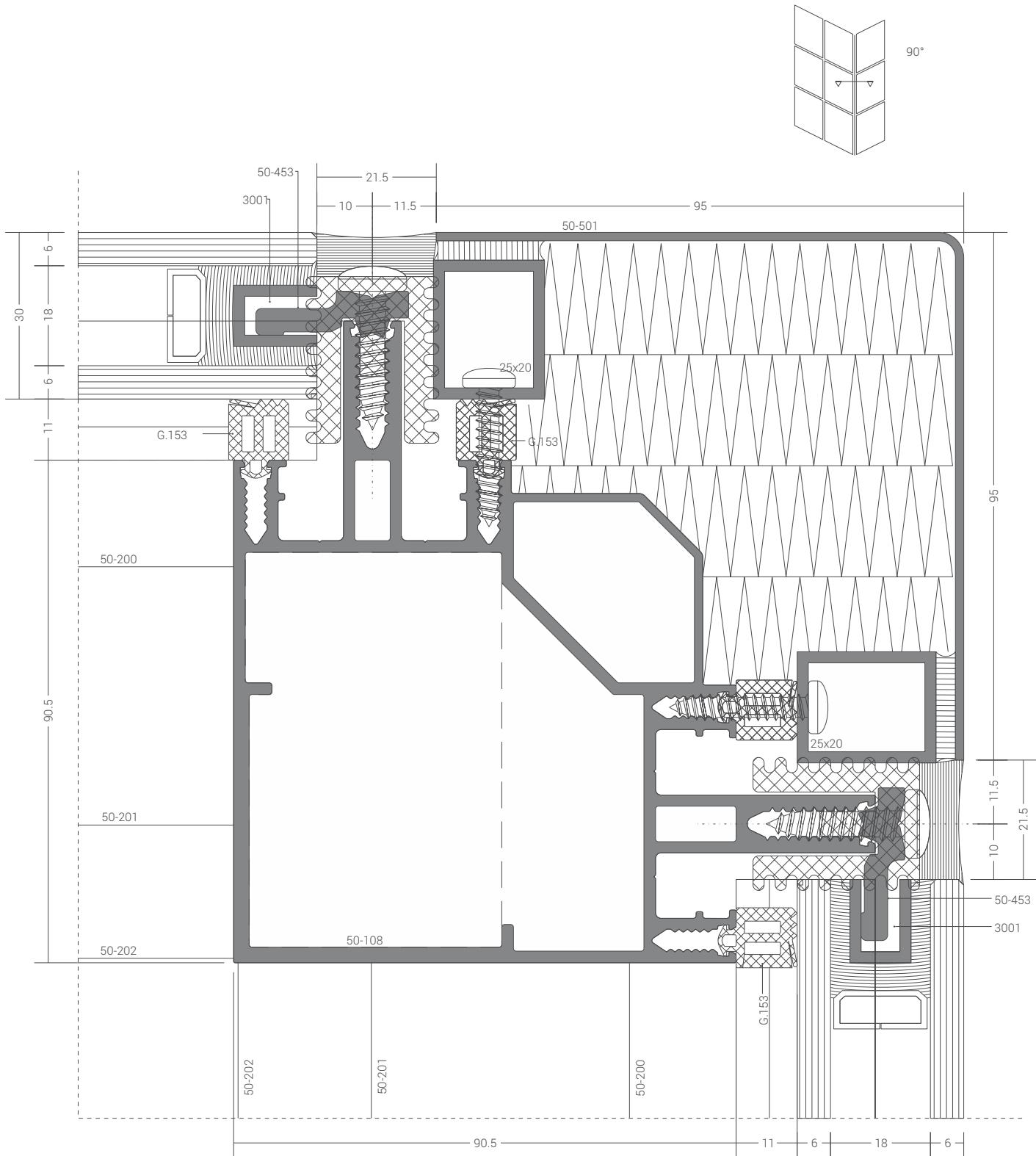
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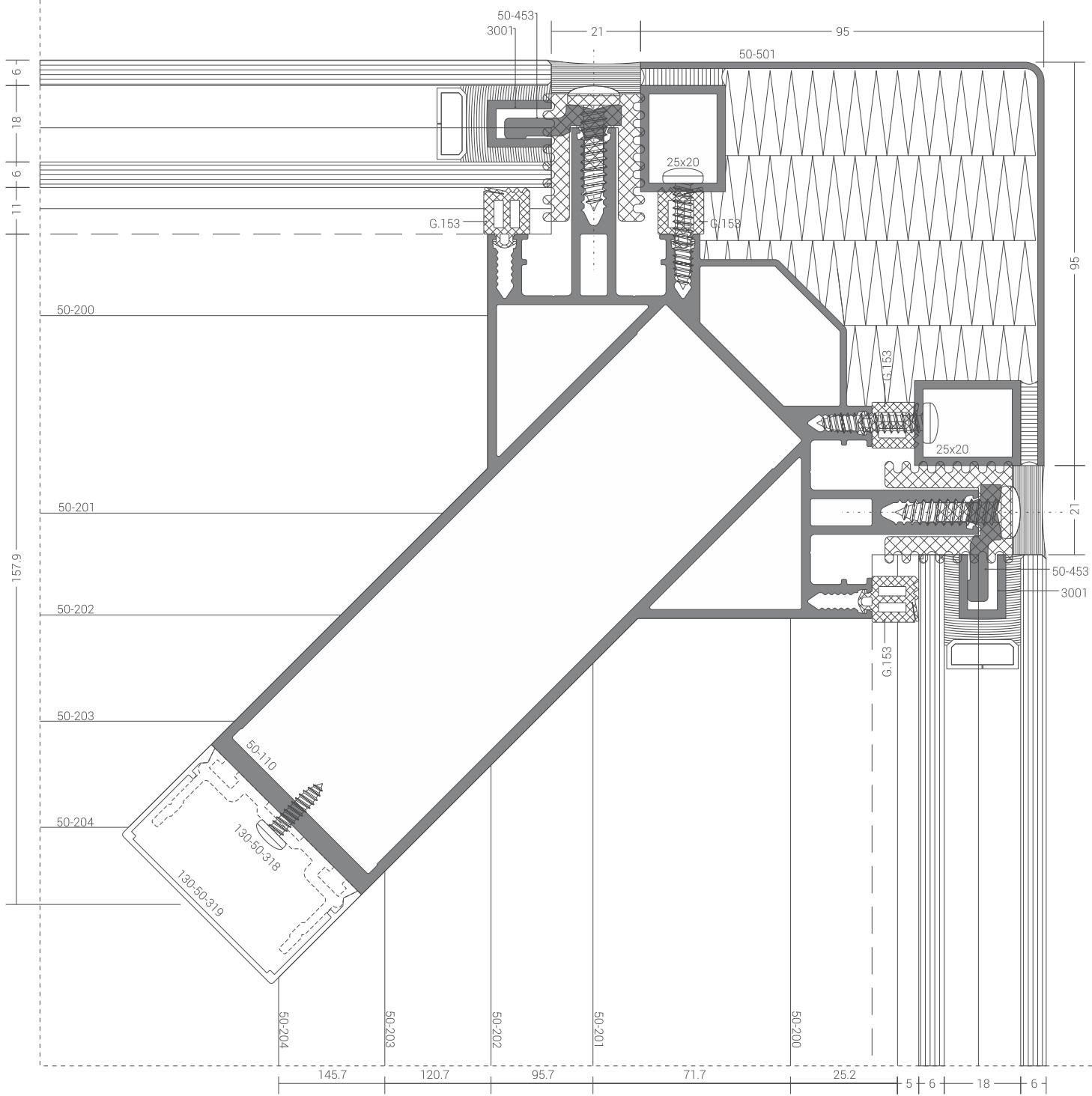
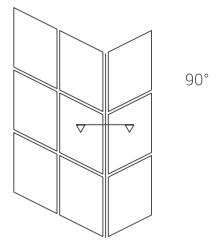
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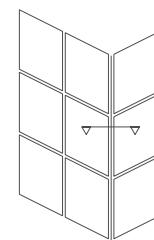
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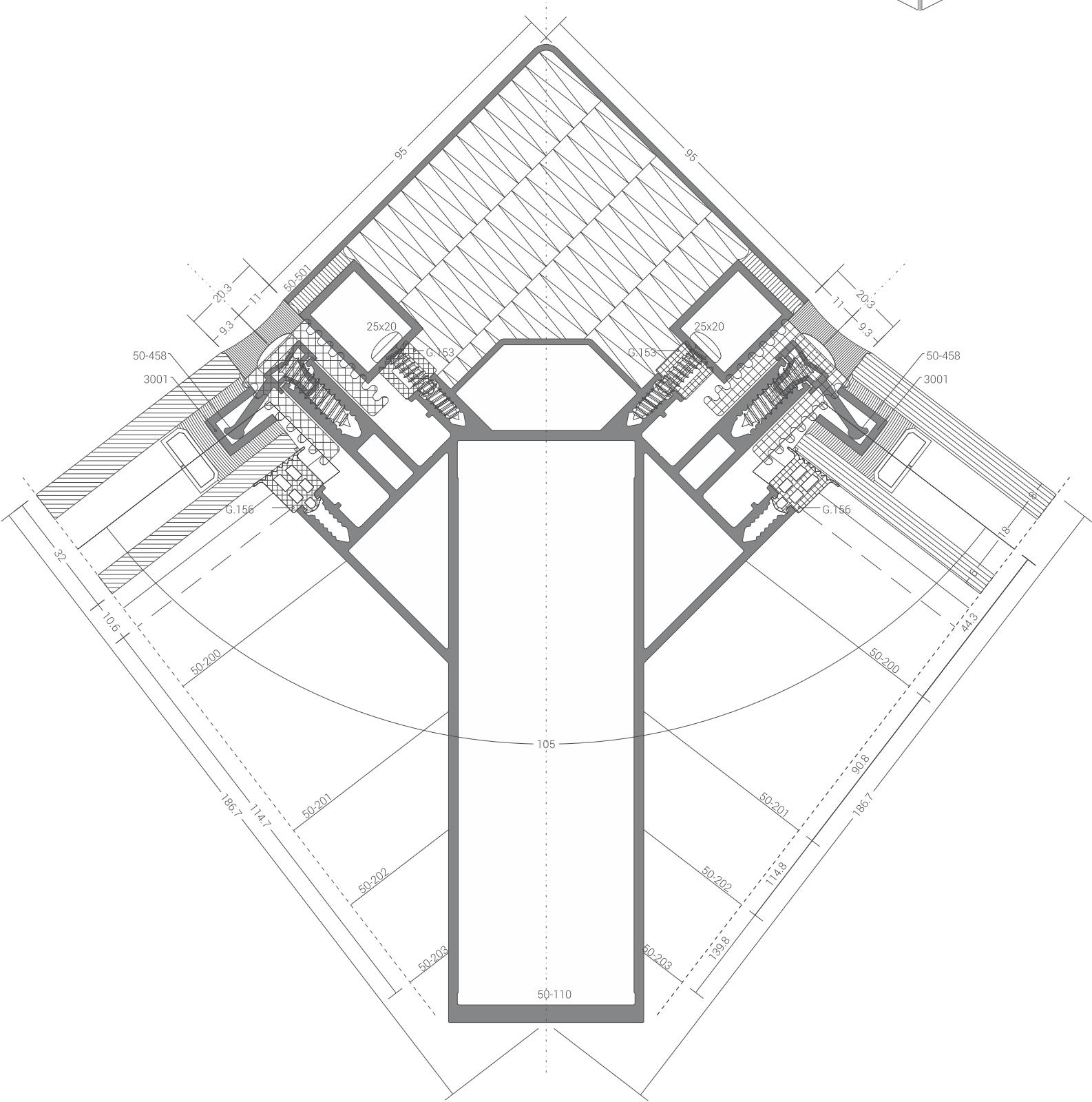
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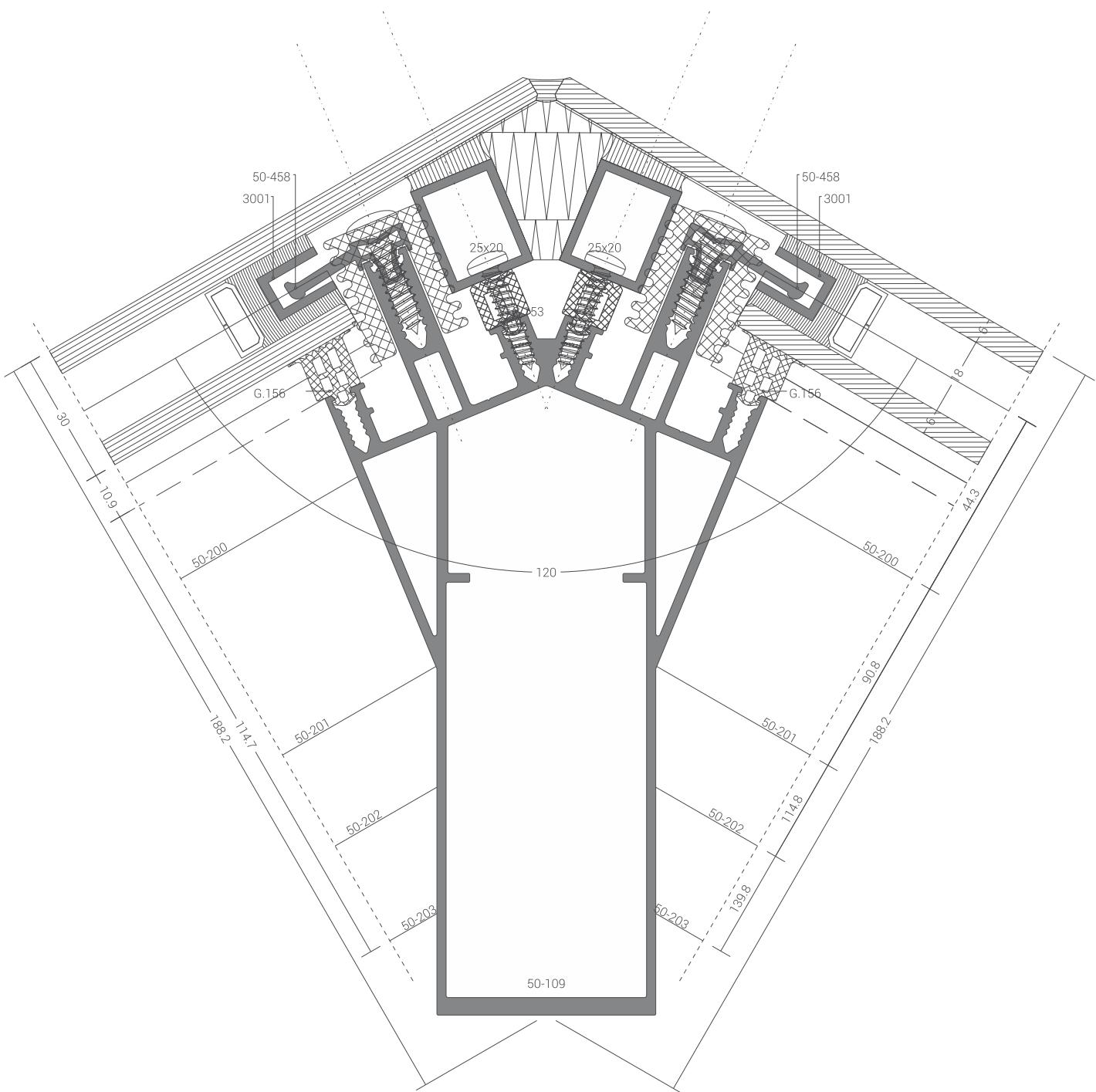
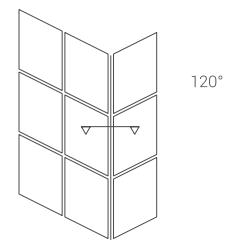
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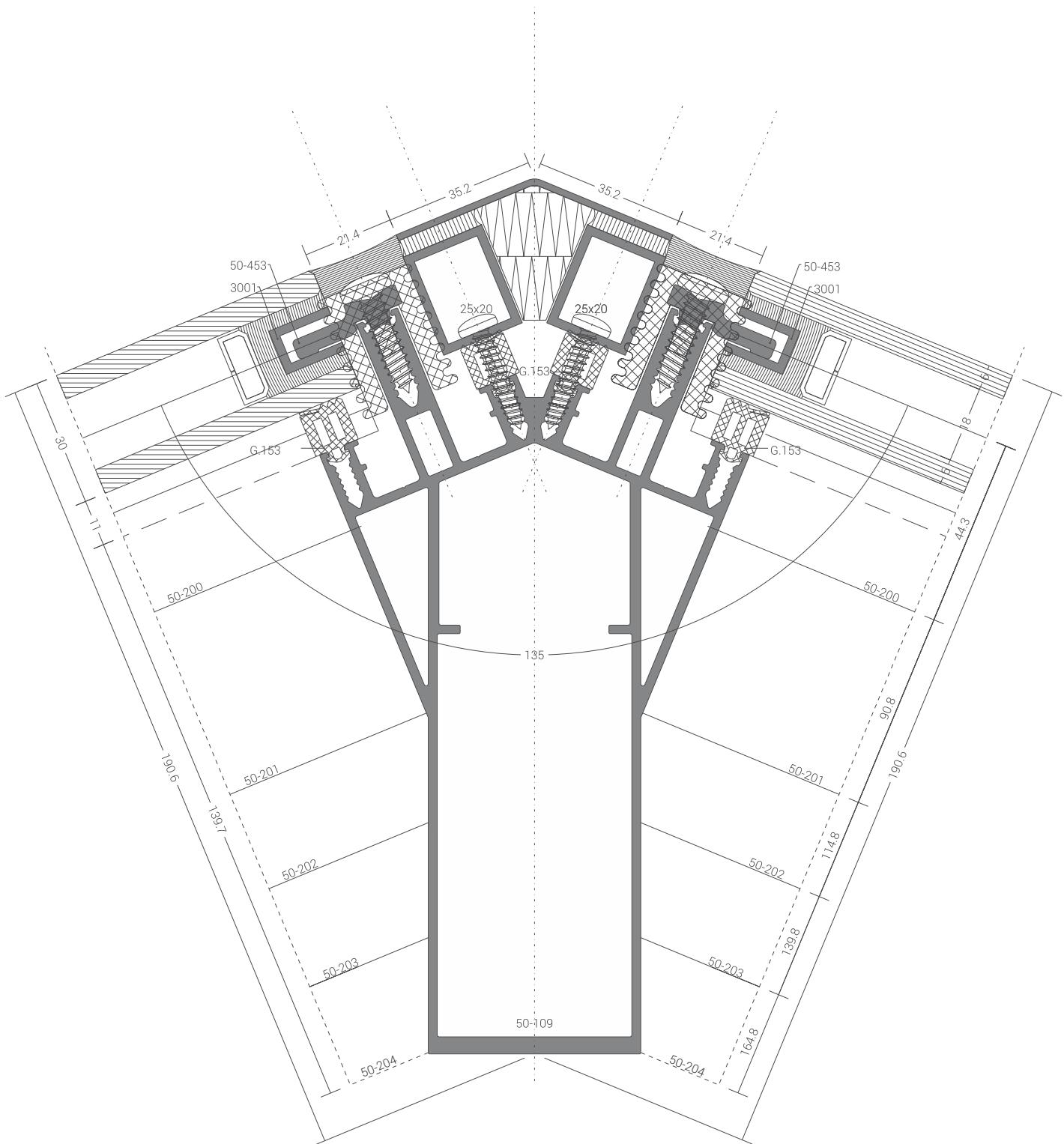
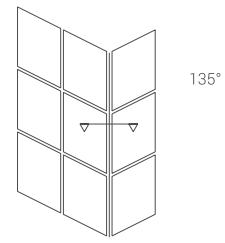
105°



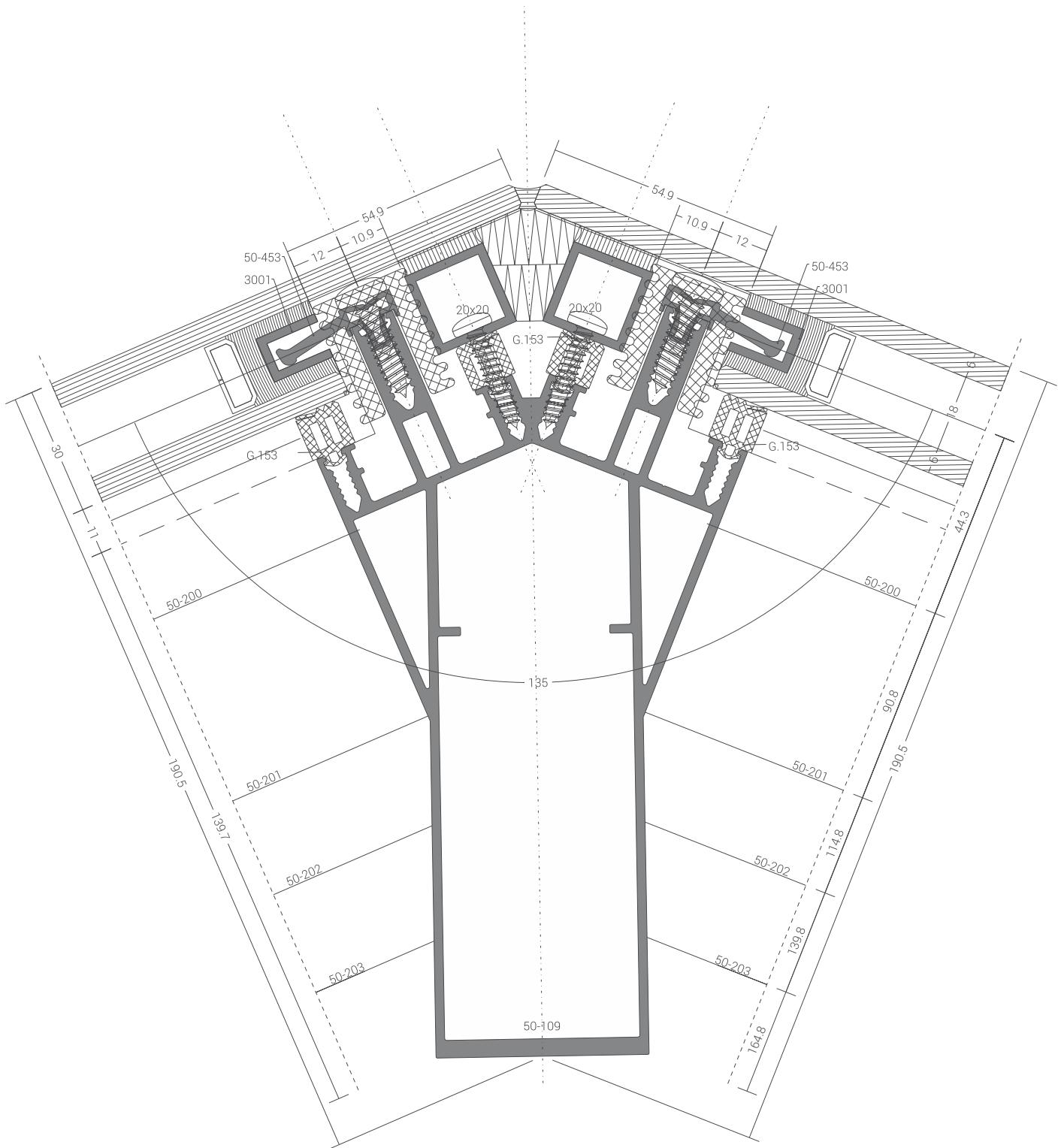
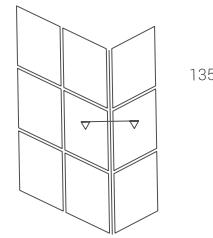
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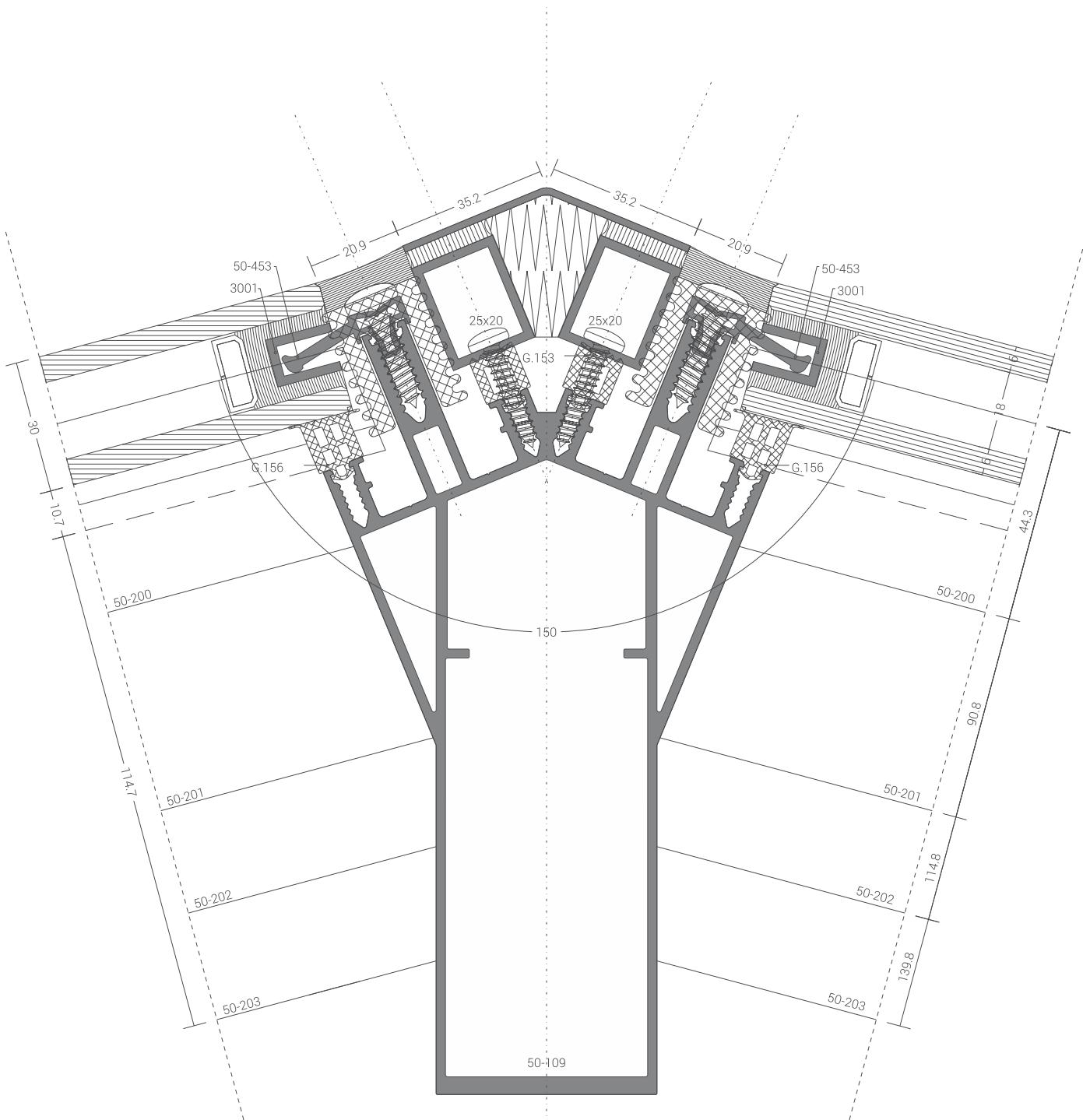
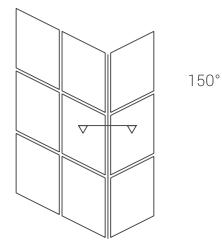
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Scale 3:4



Scale 3:4



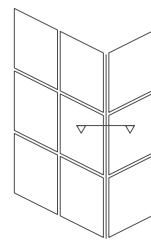
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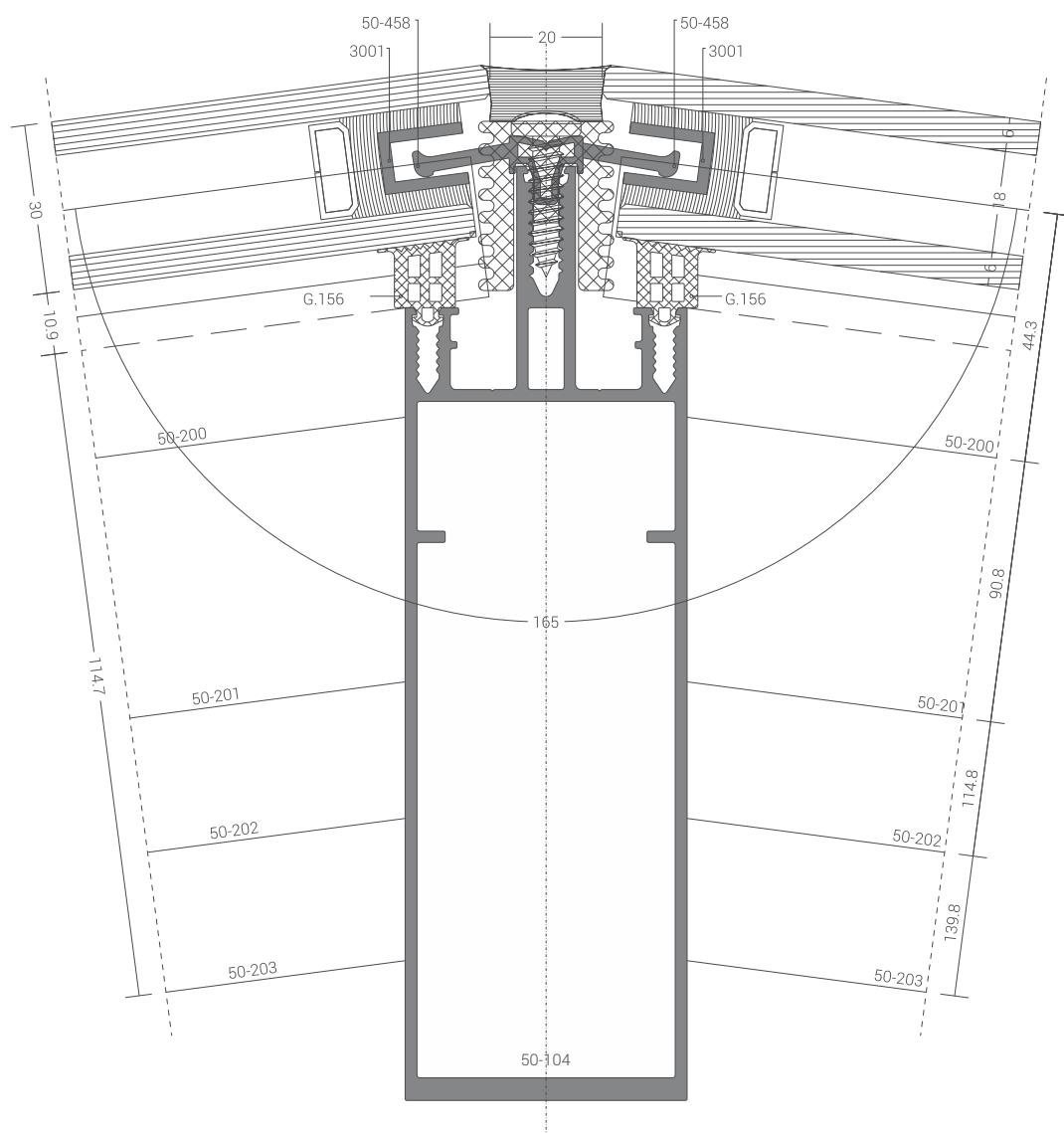
## Sections - Mullion 165° outer corner

# Structural glazing curtain wall system

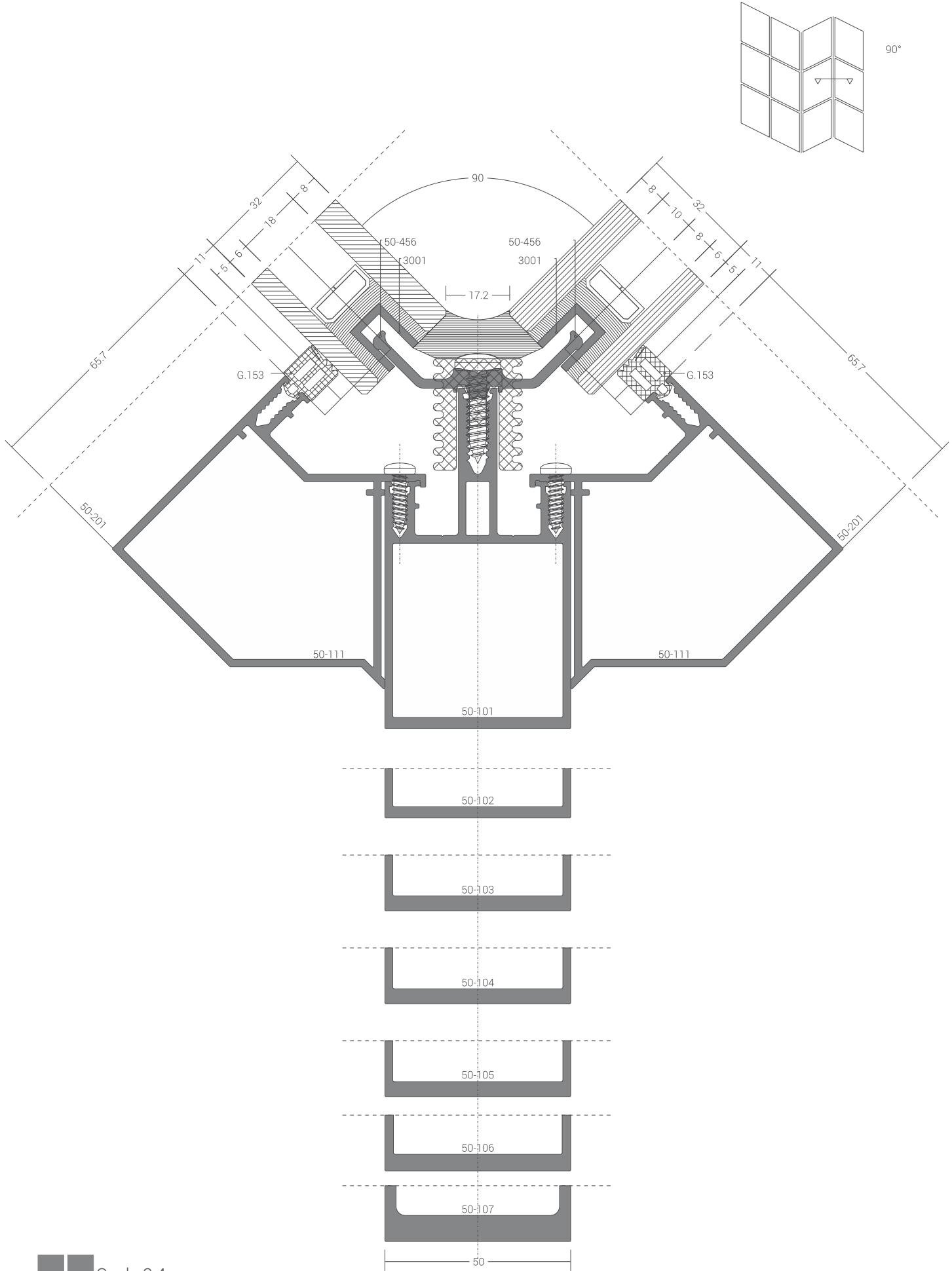
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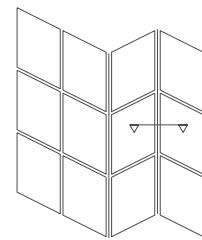


165°

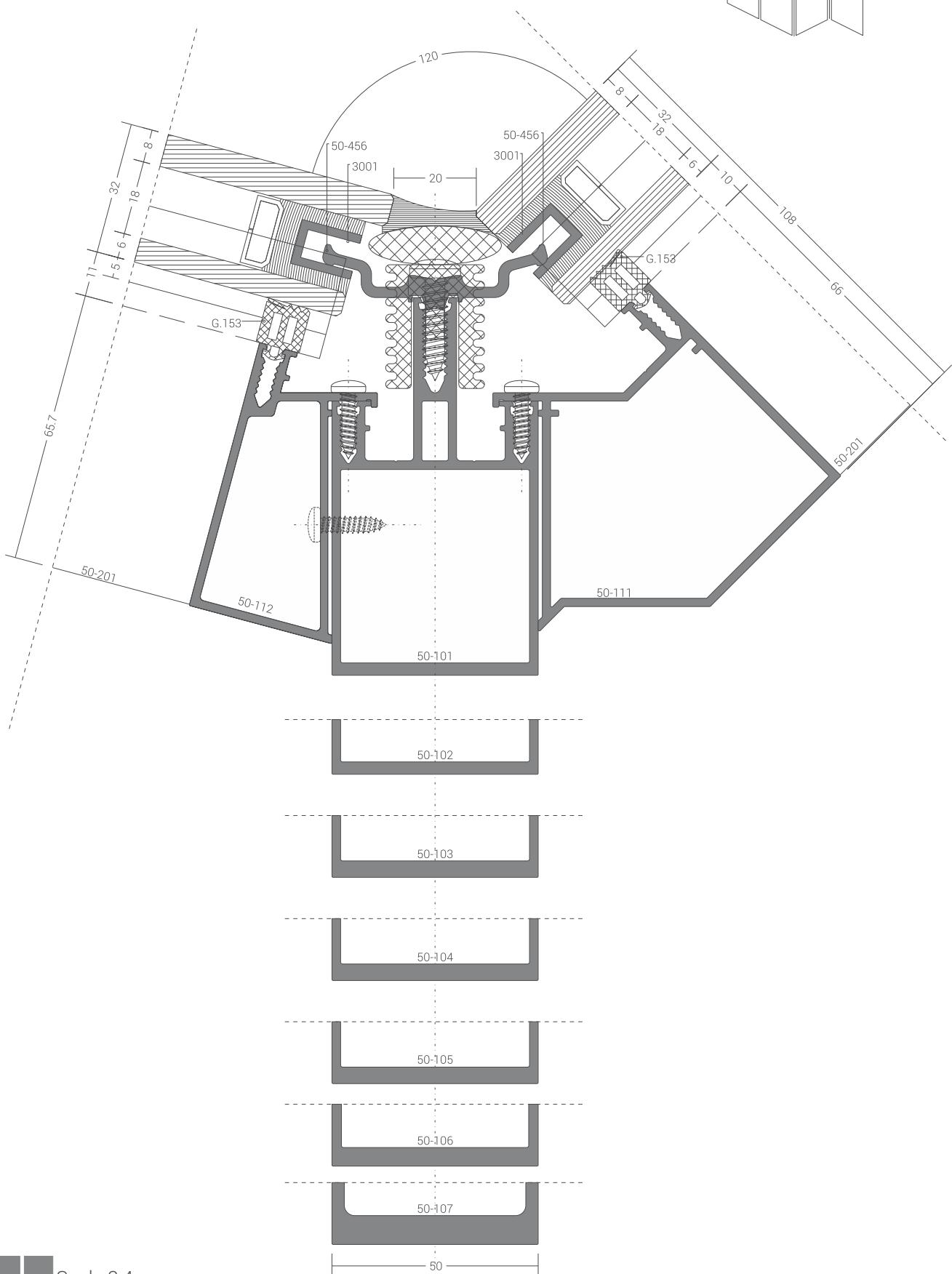


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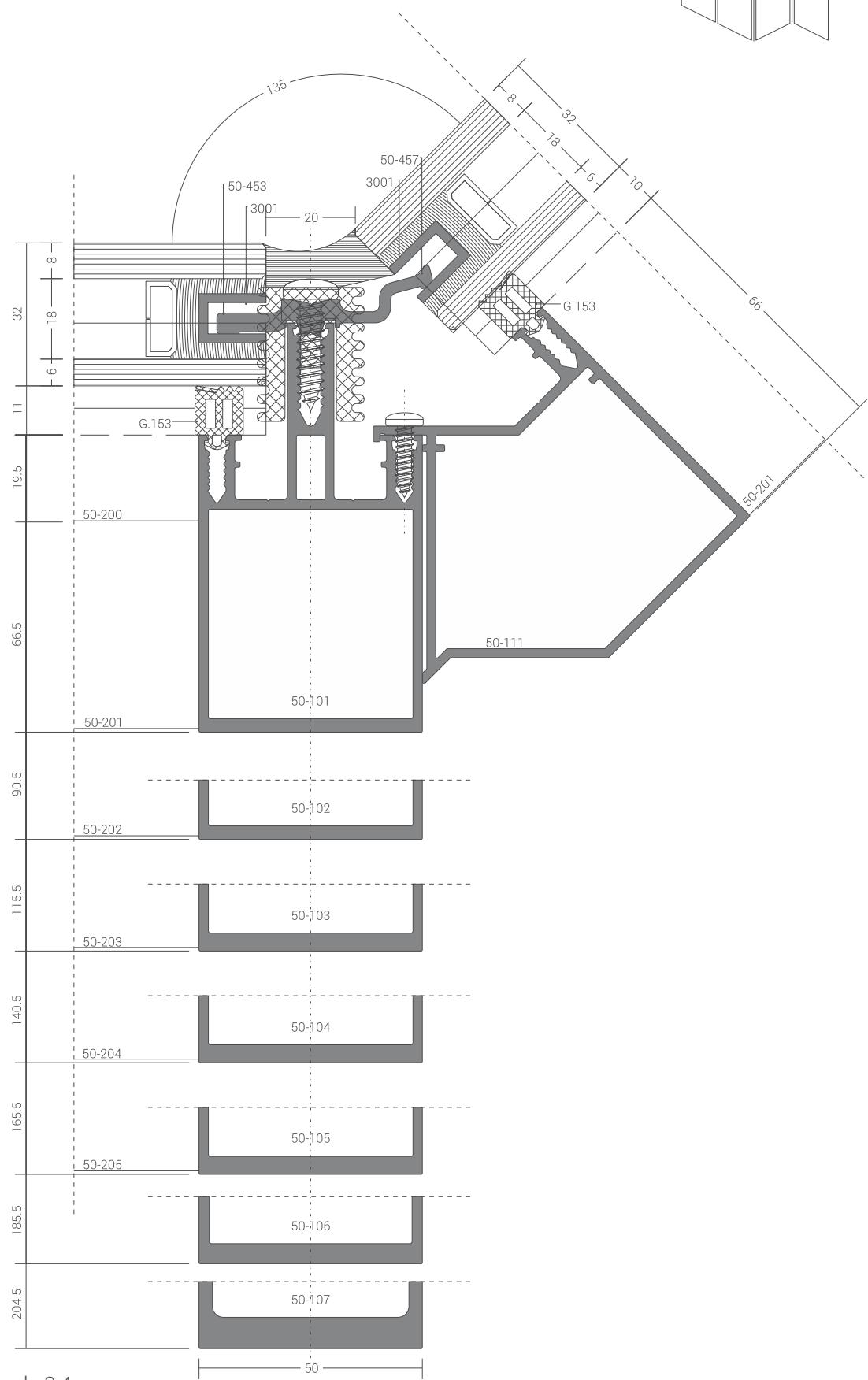
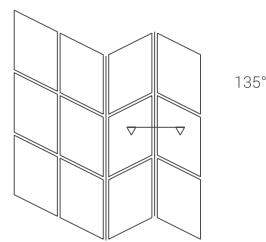




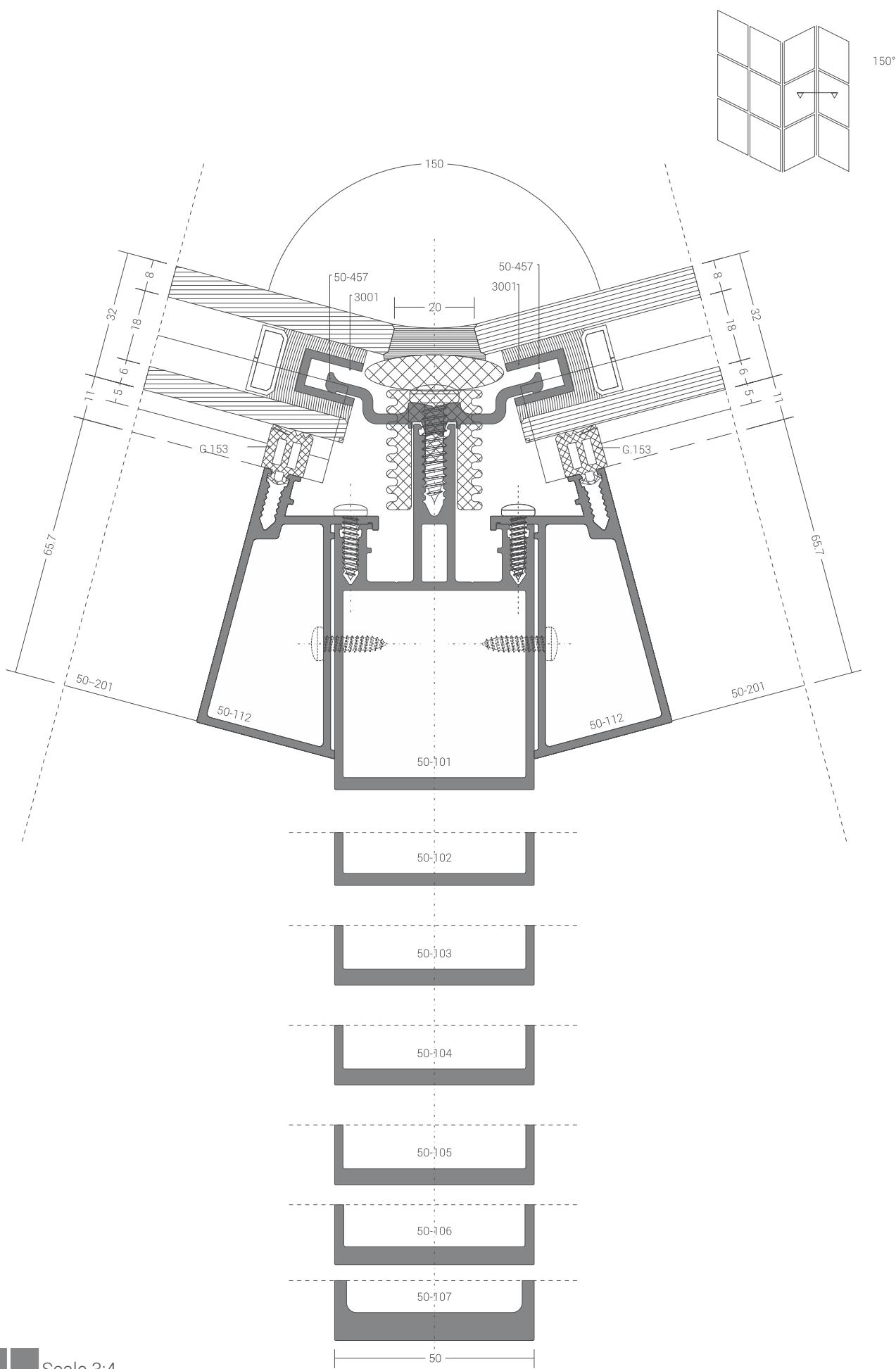
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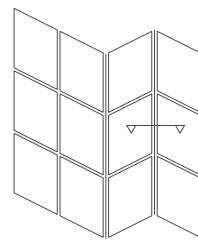


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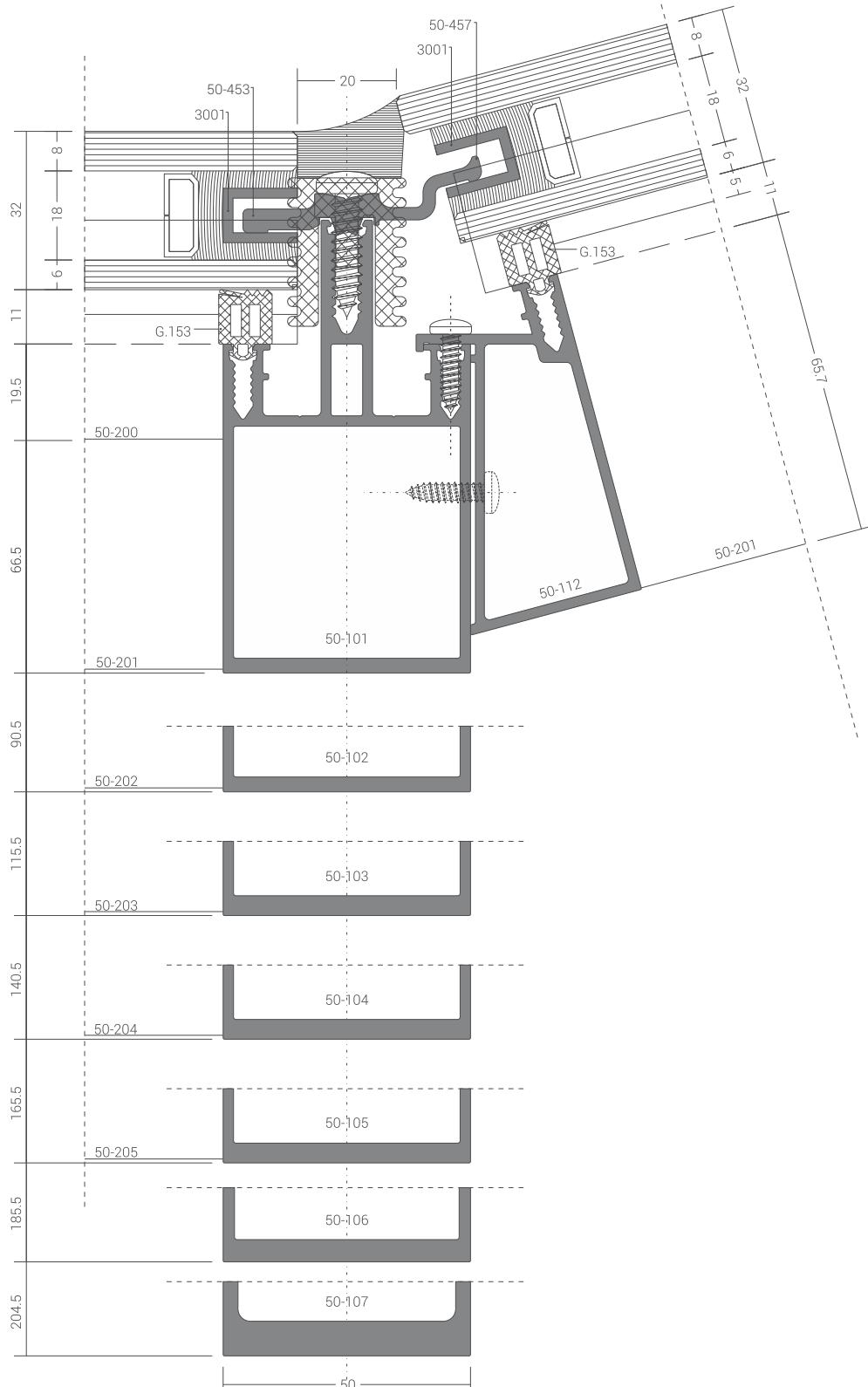


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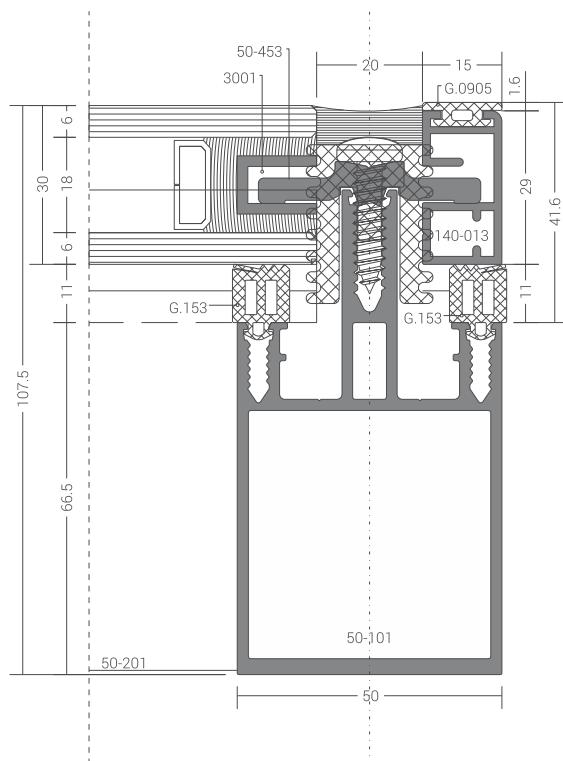
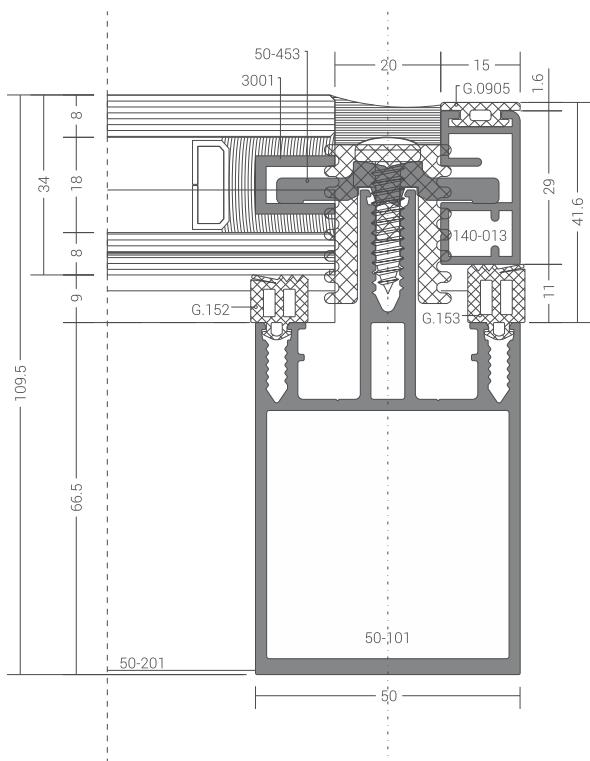
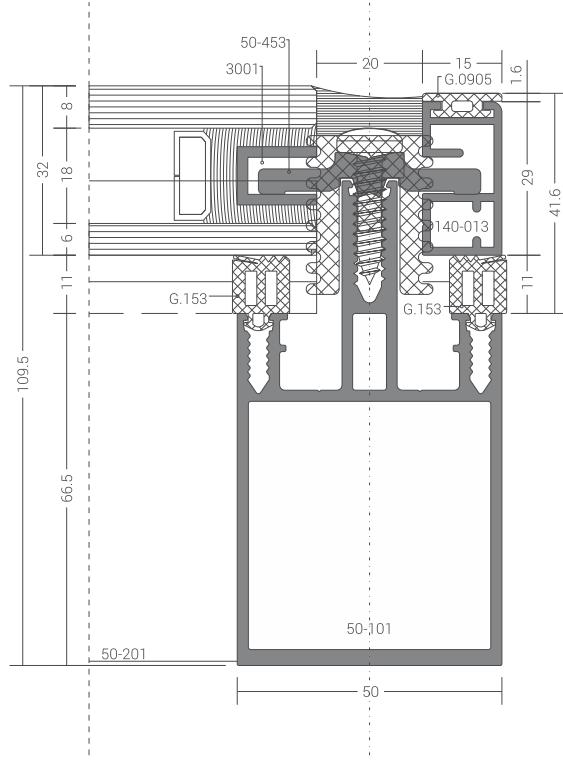
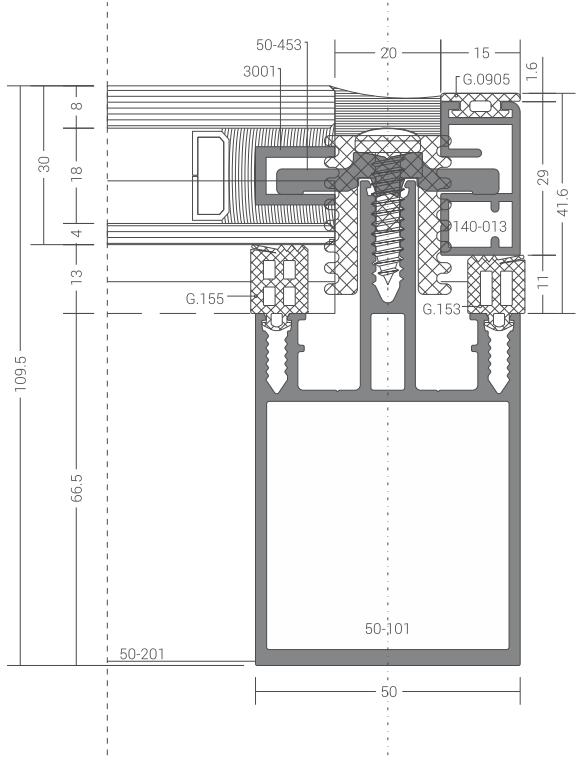
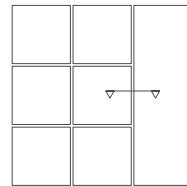




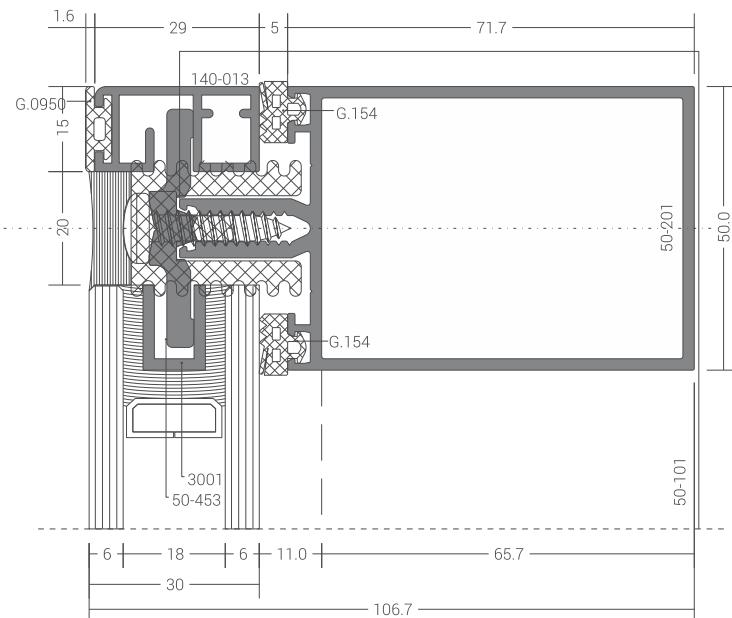
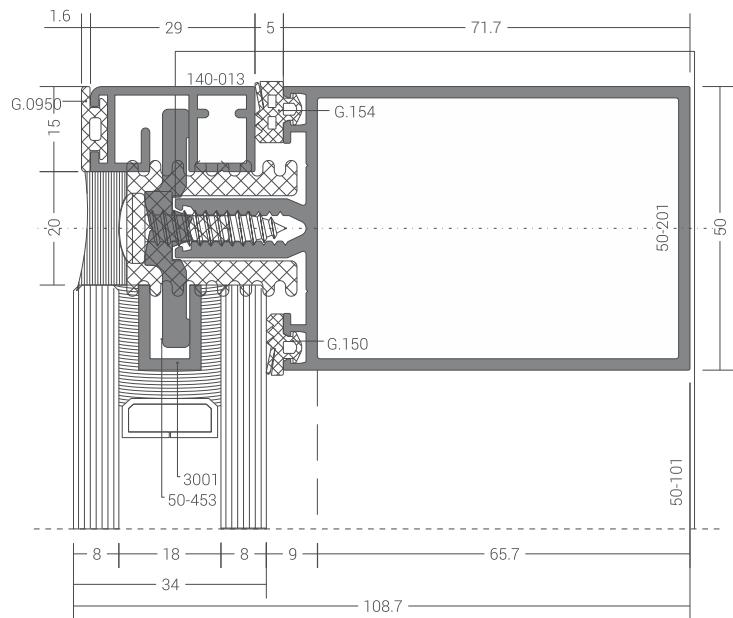
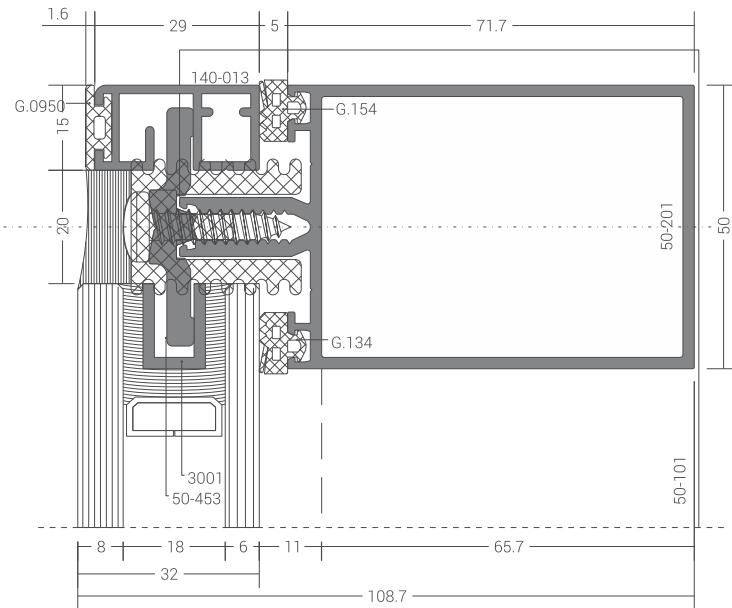
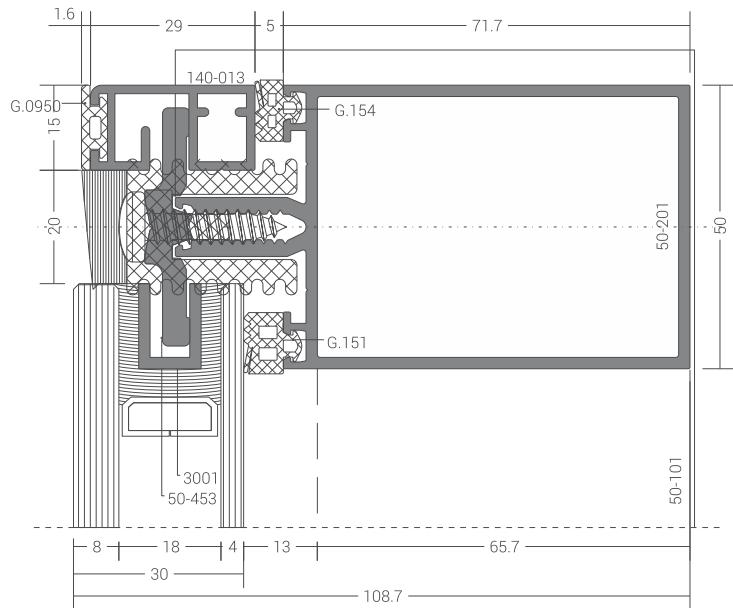
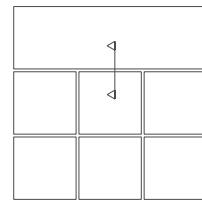
165°



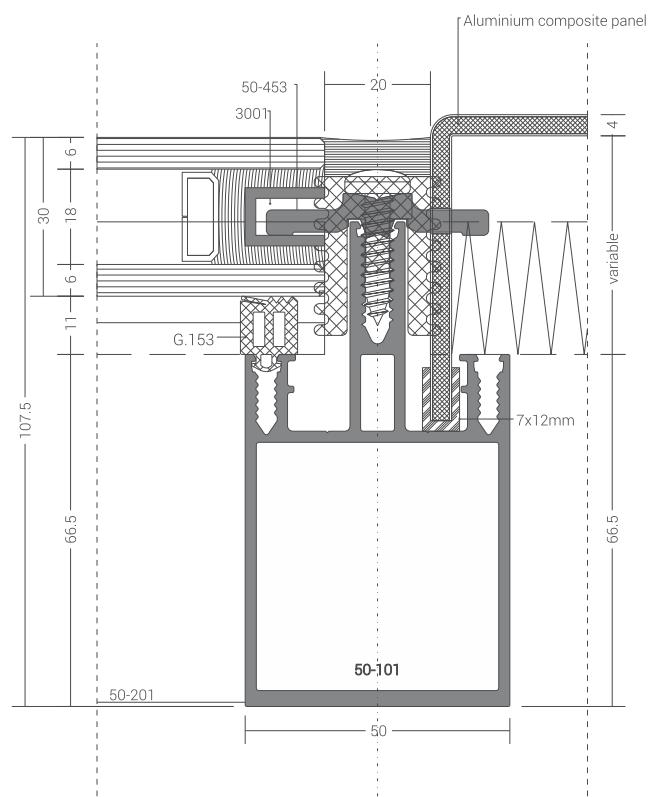
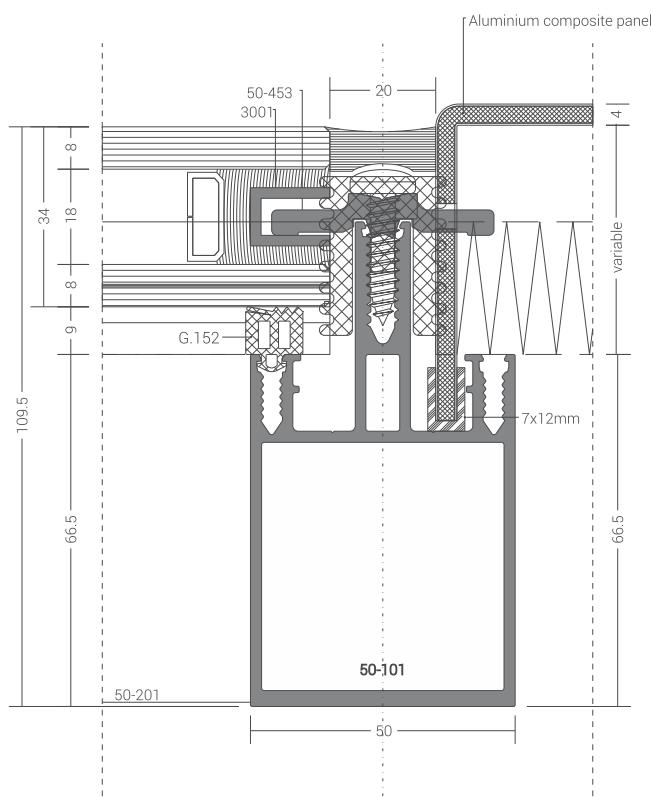
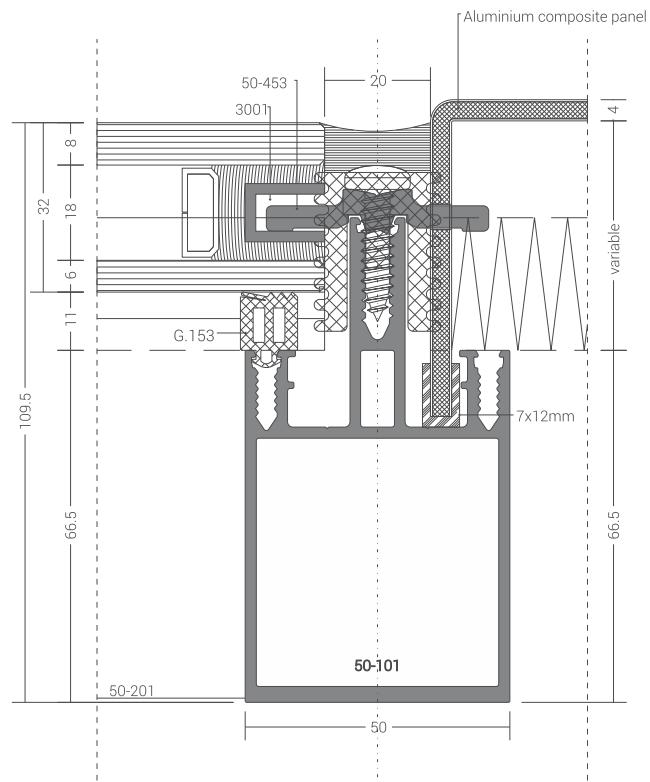
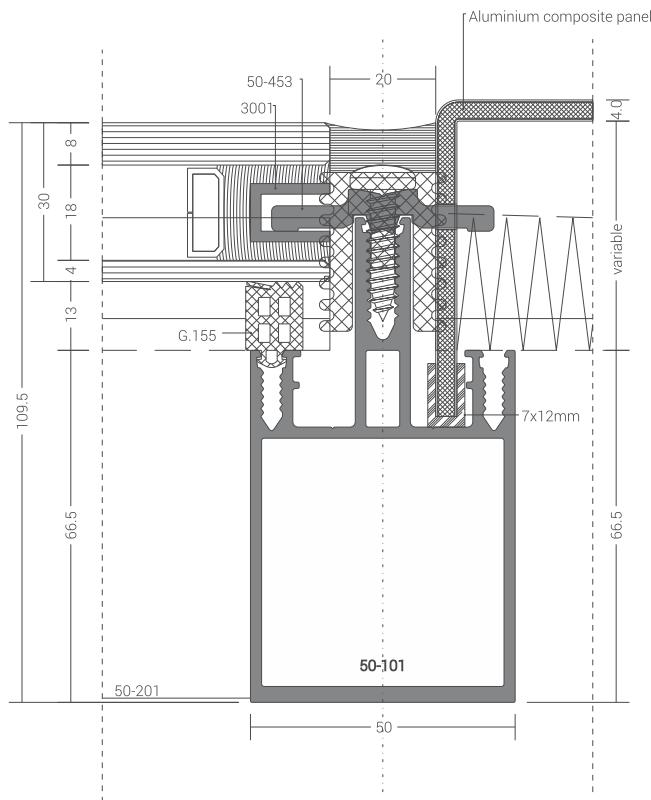
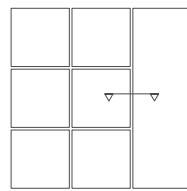
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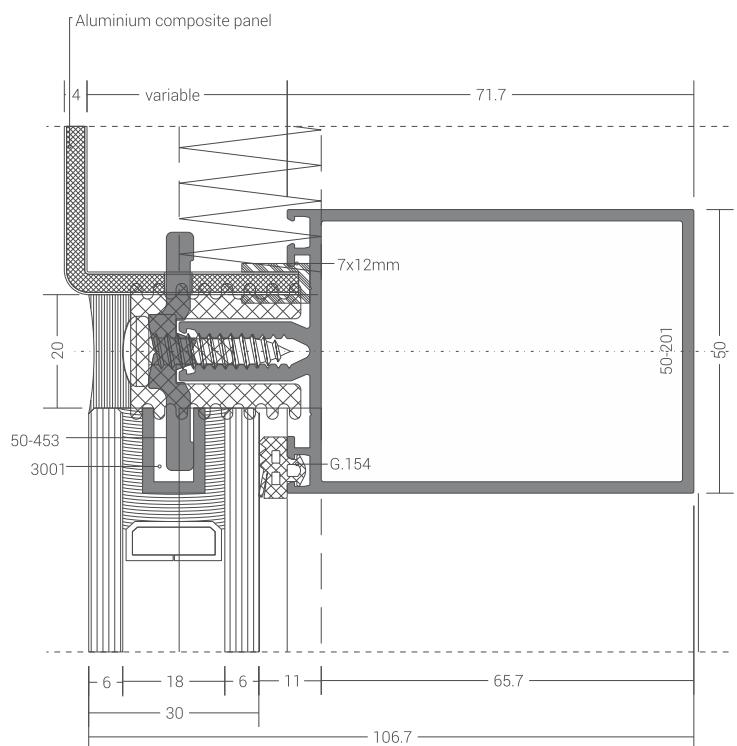
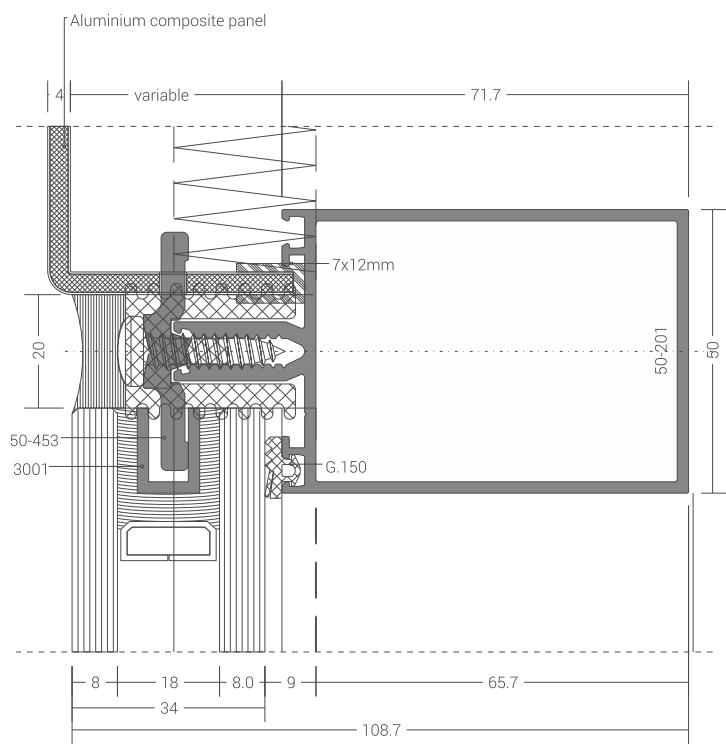
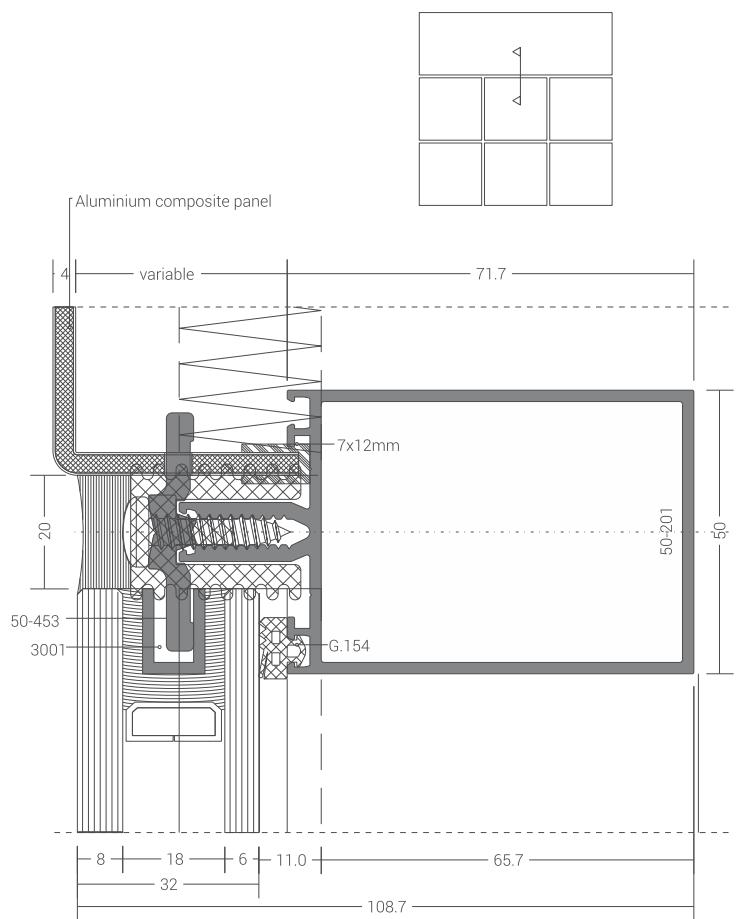
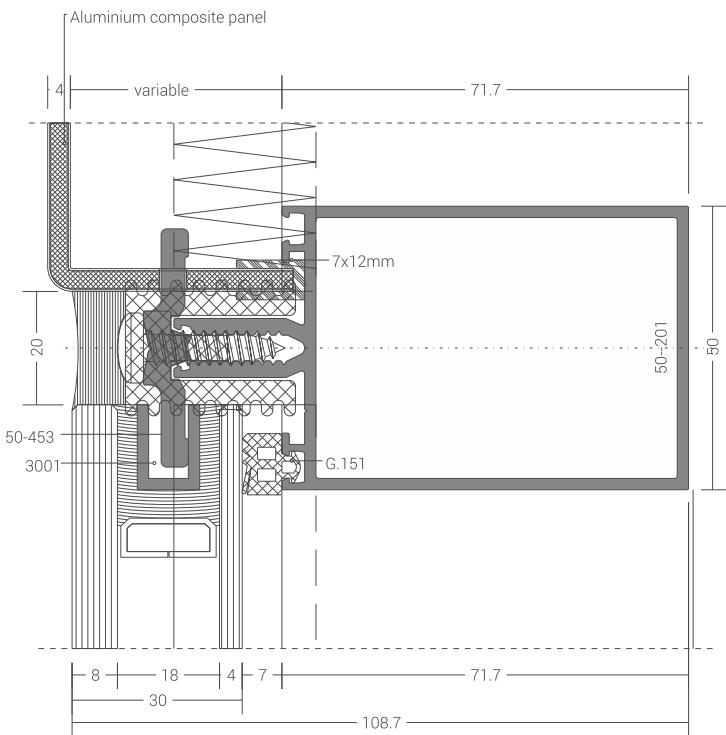
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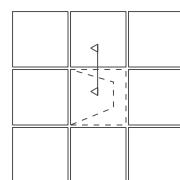
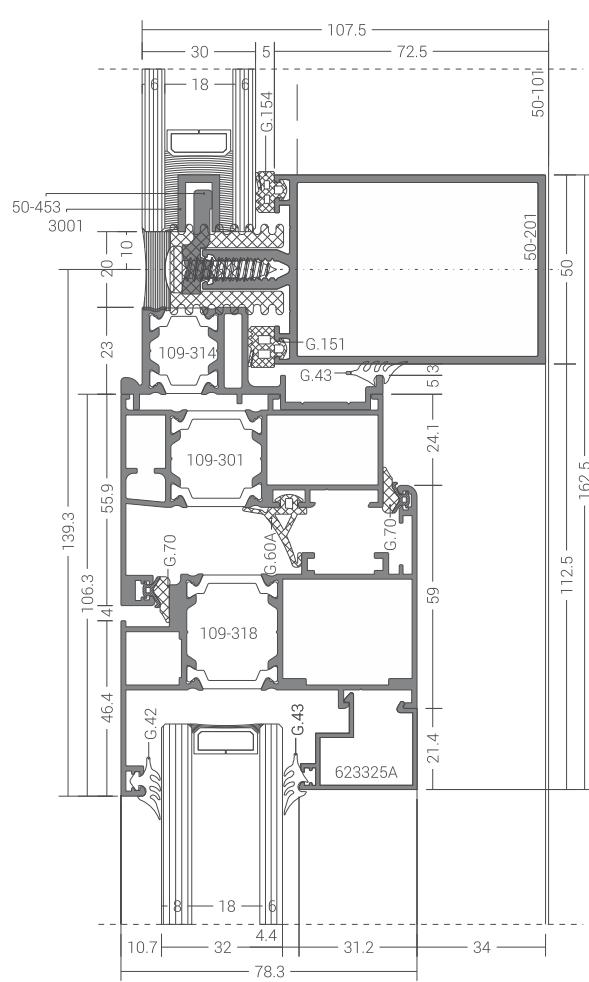
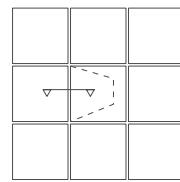
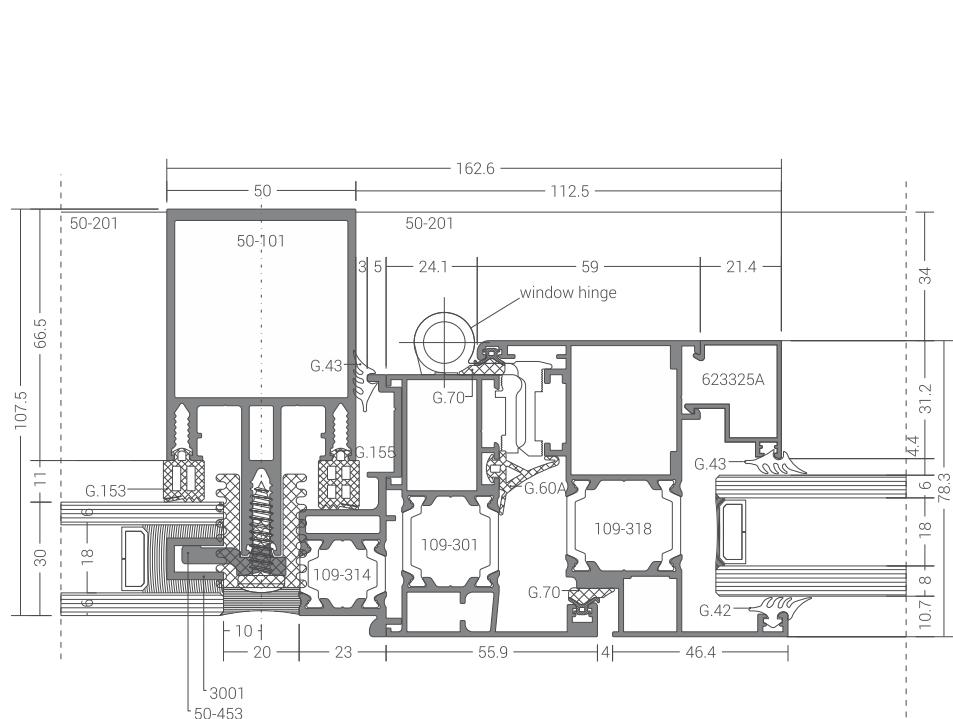
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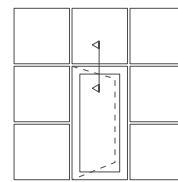
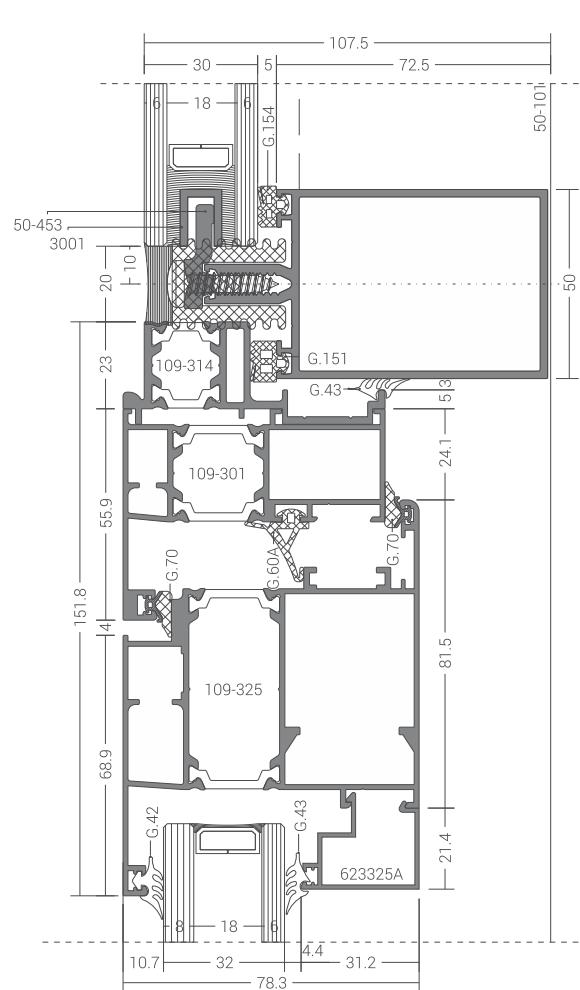
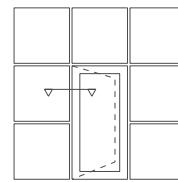
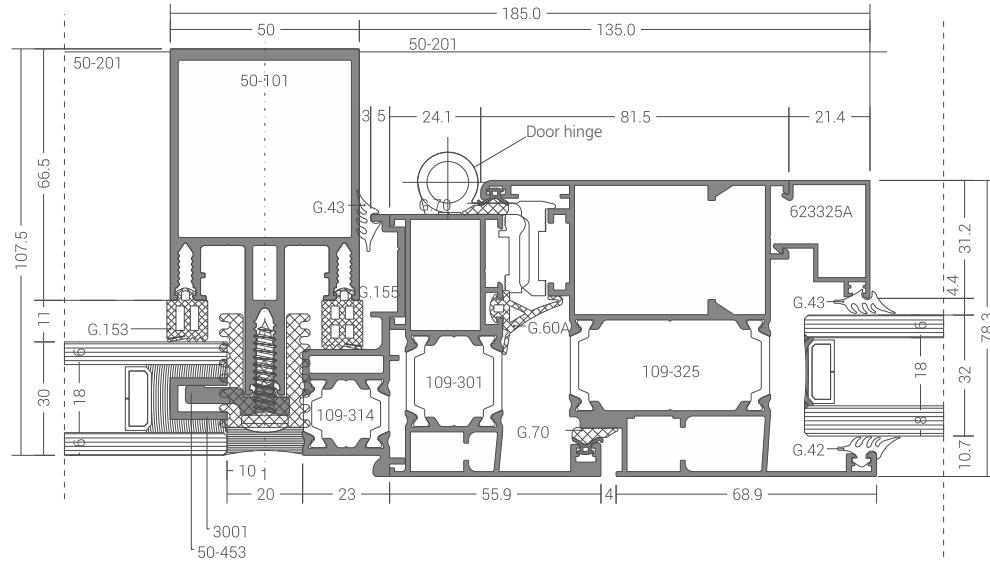


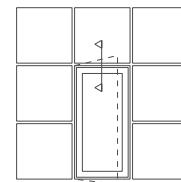
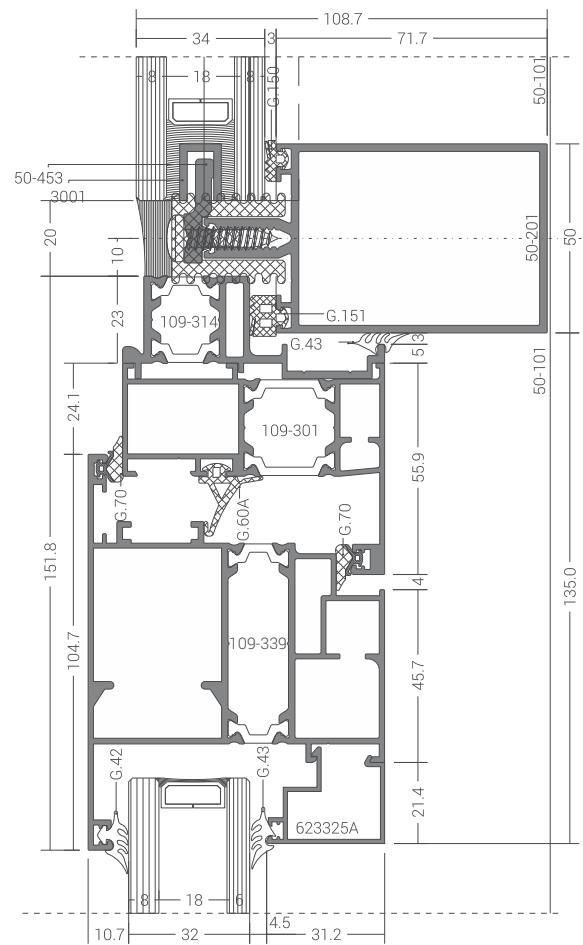
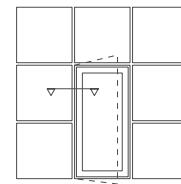
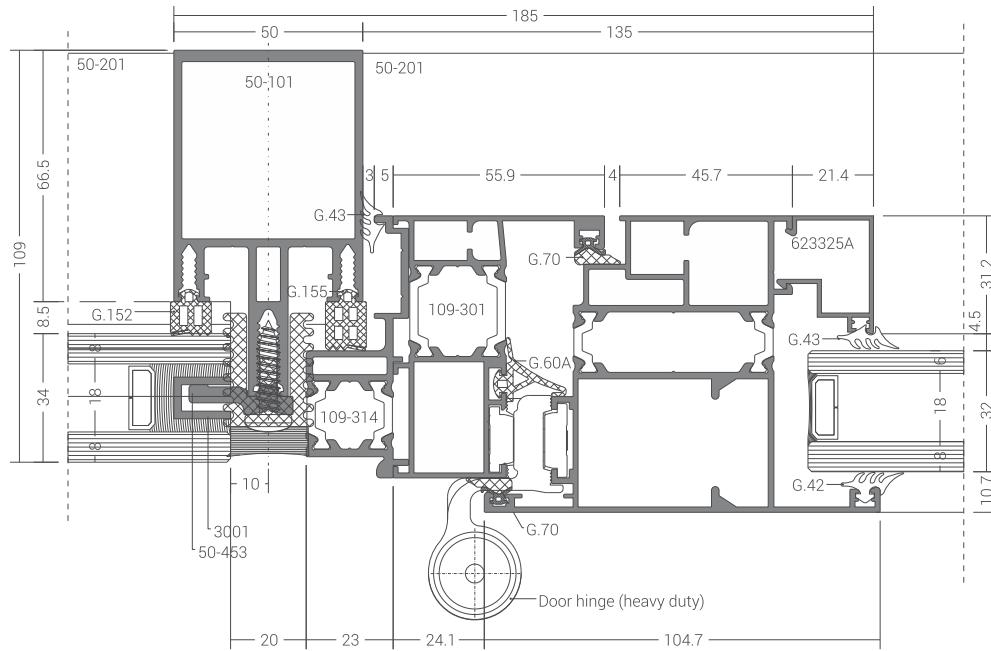
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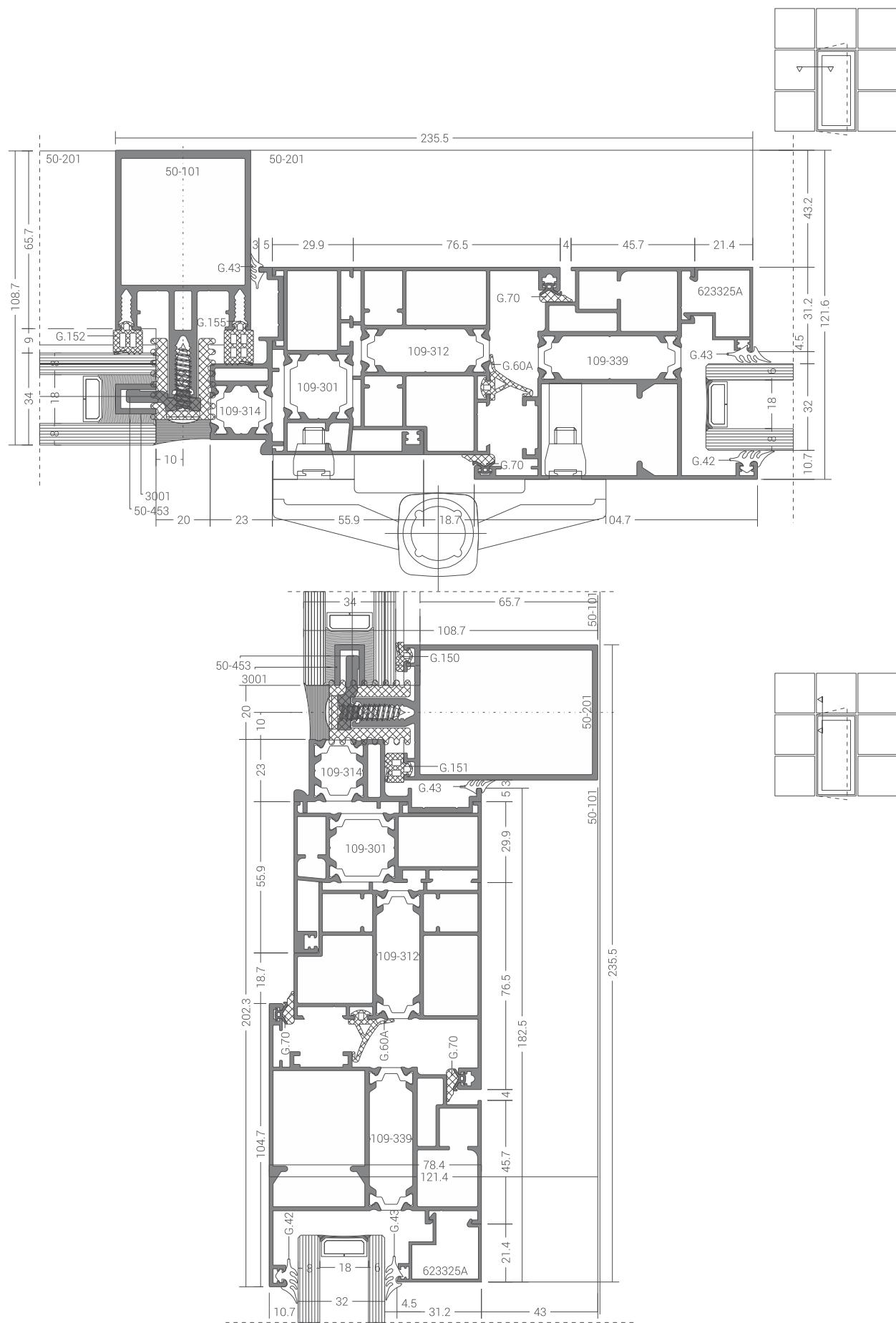


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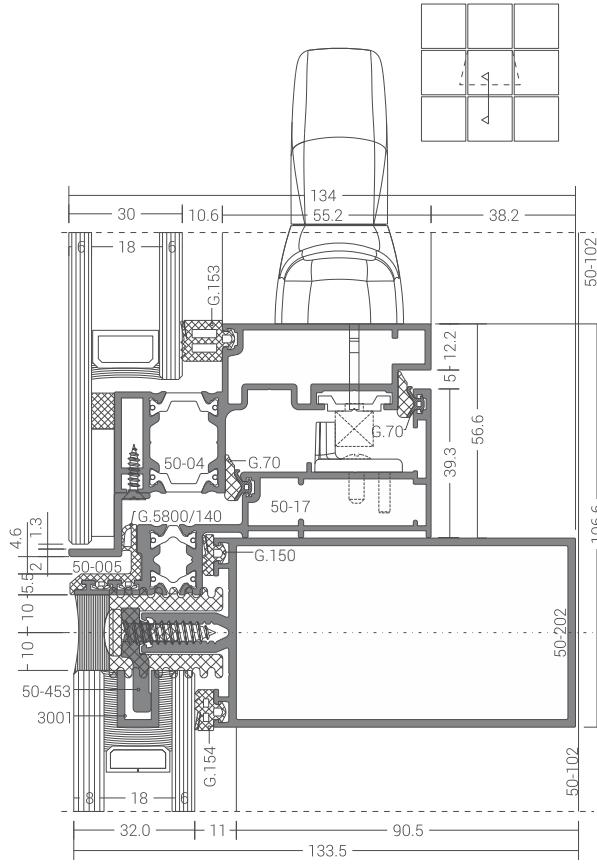
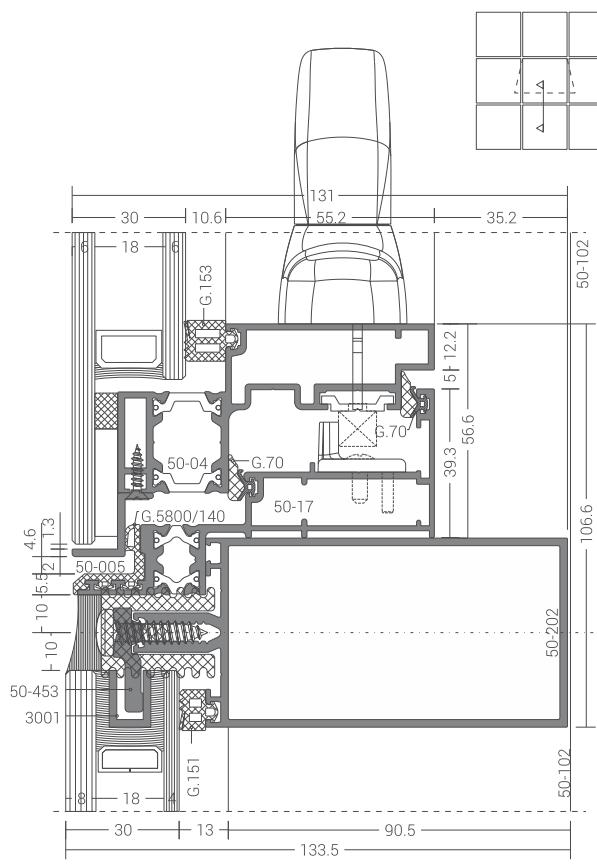
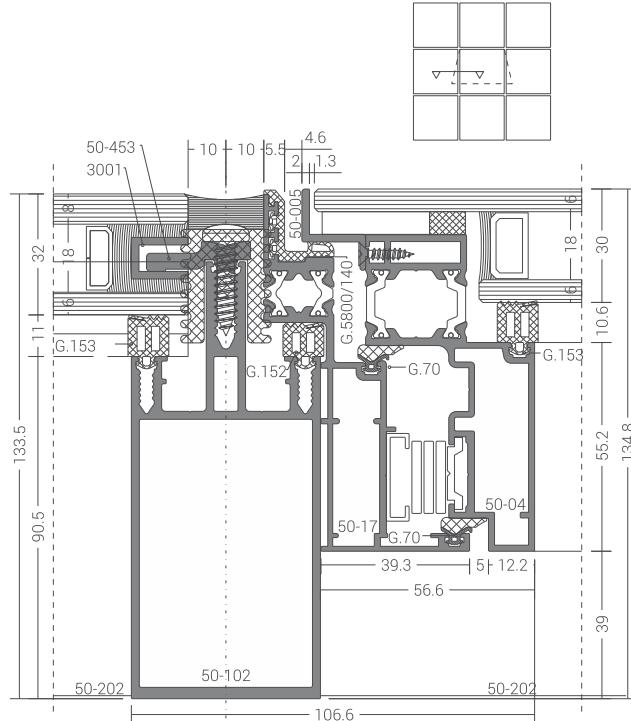
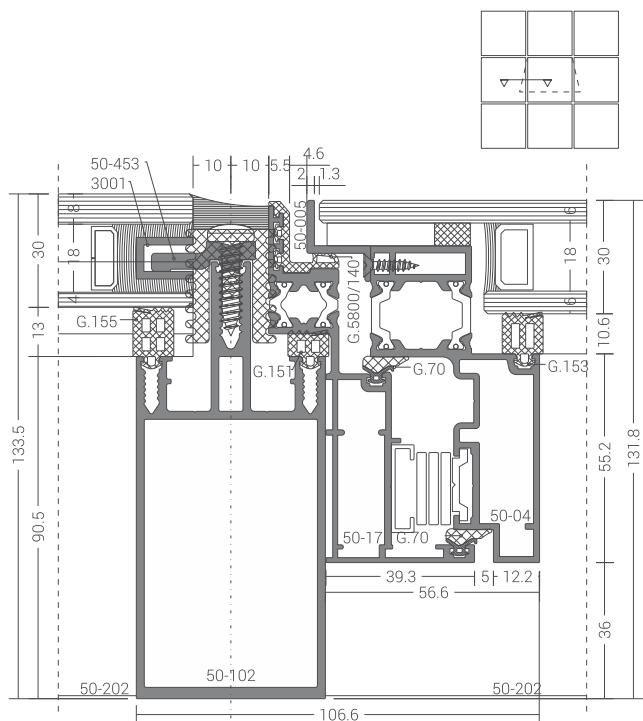




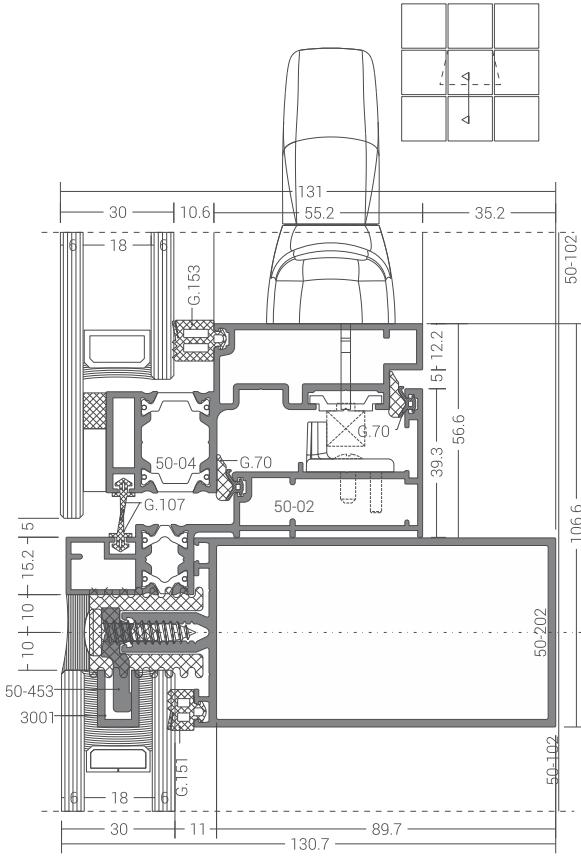
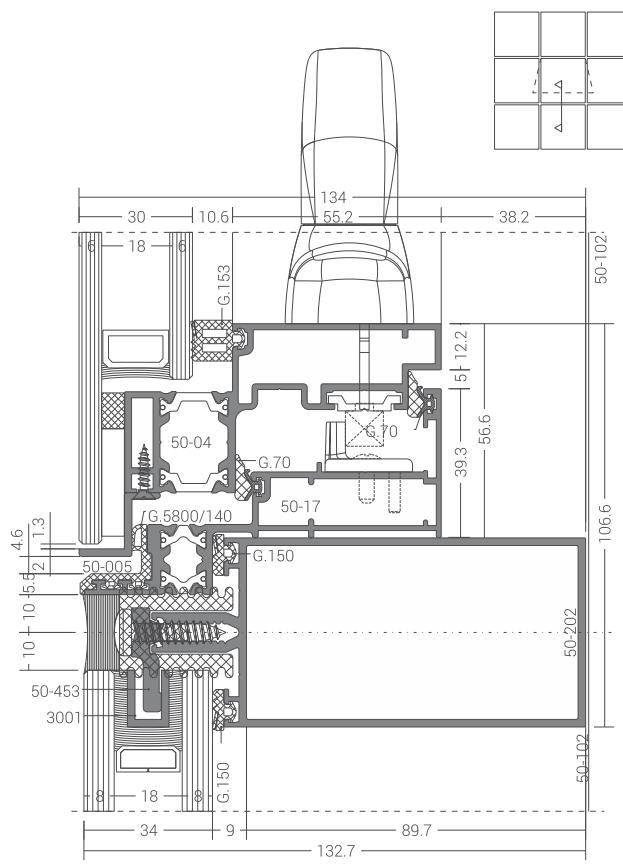
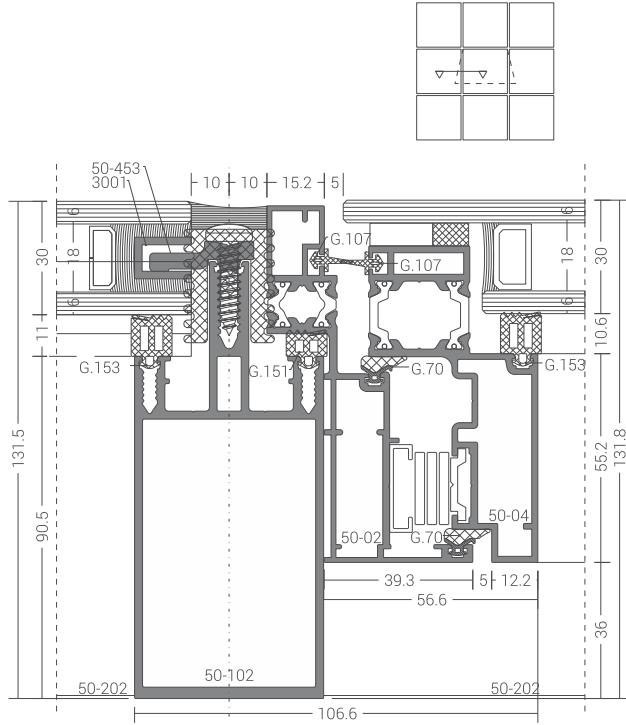
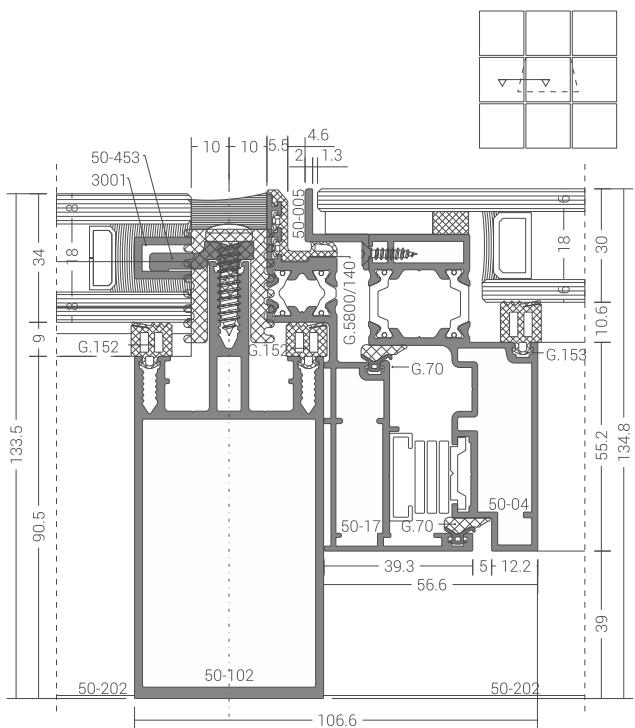




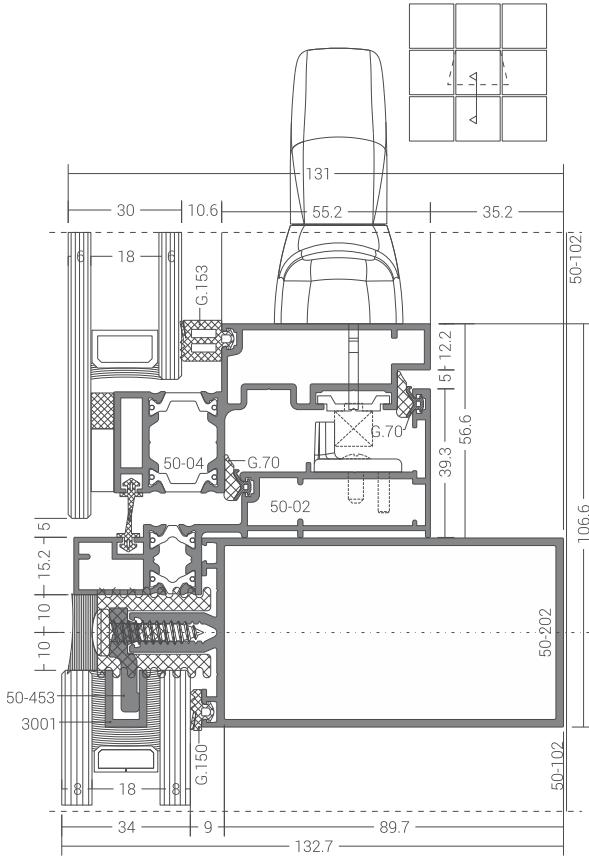
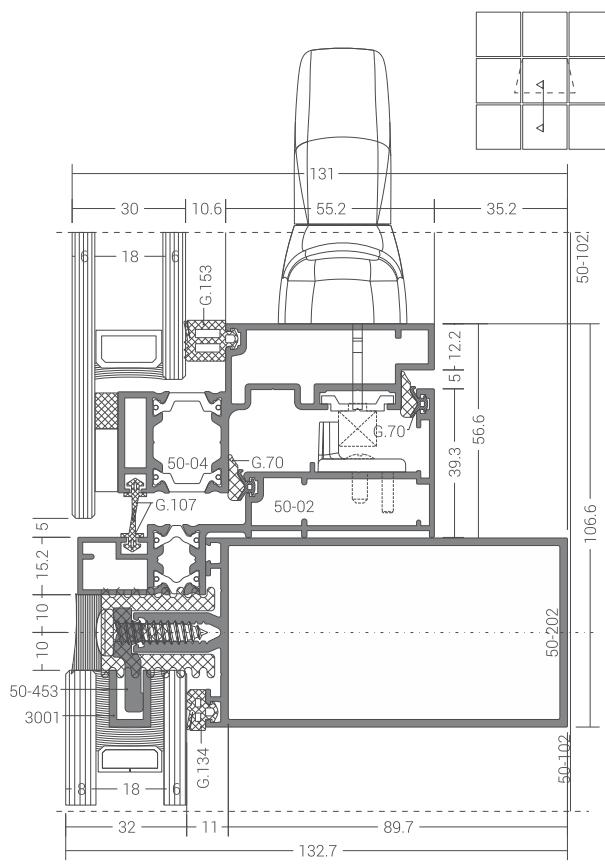
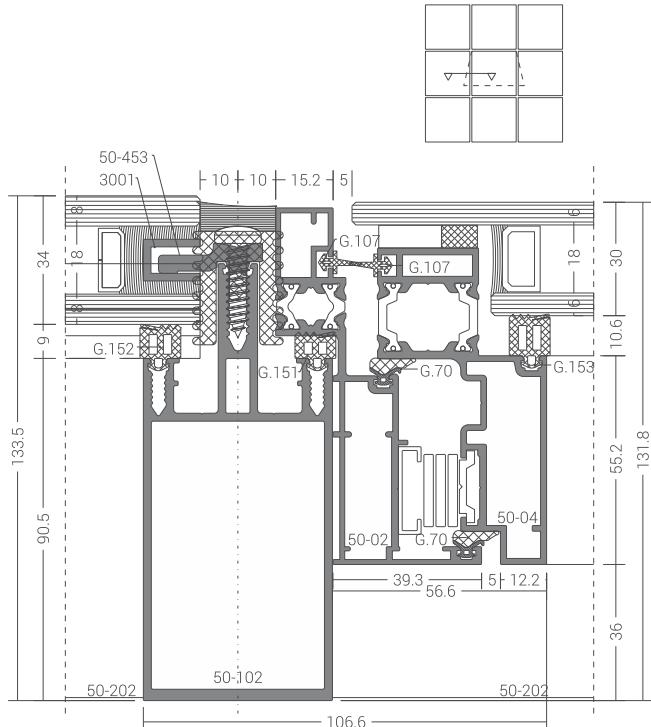
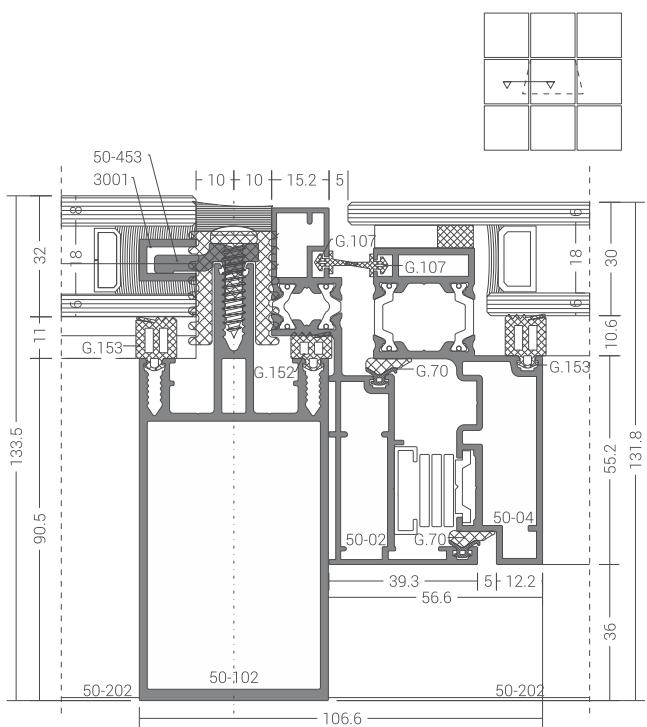
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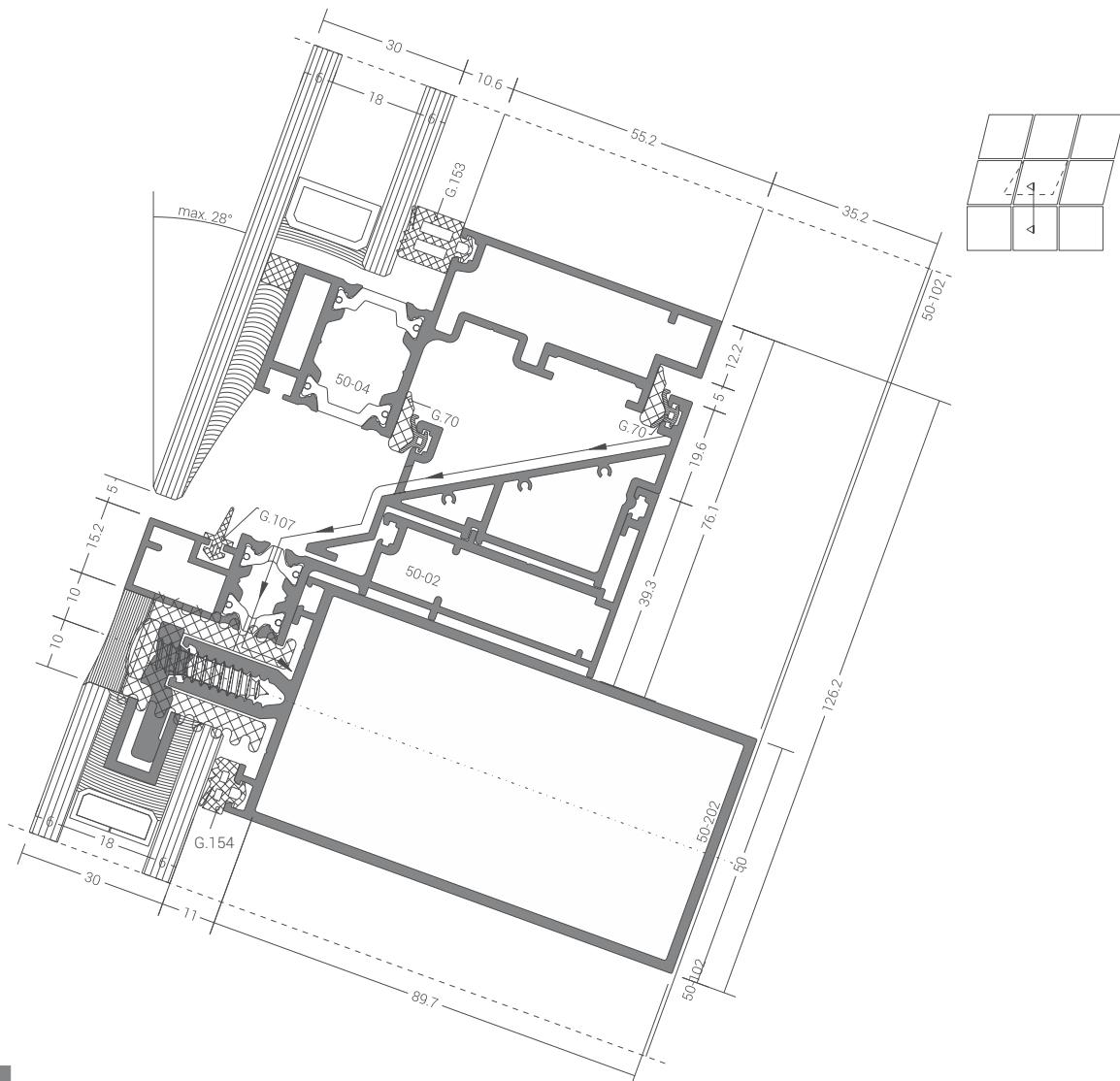
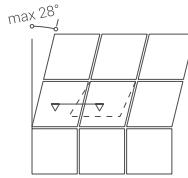
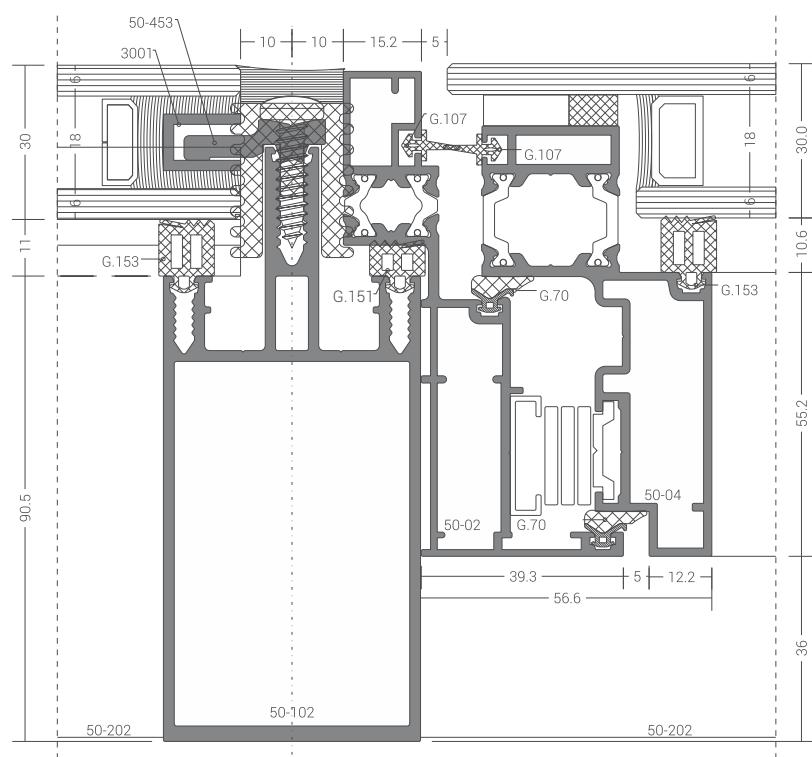
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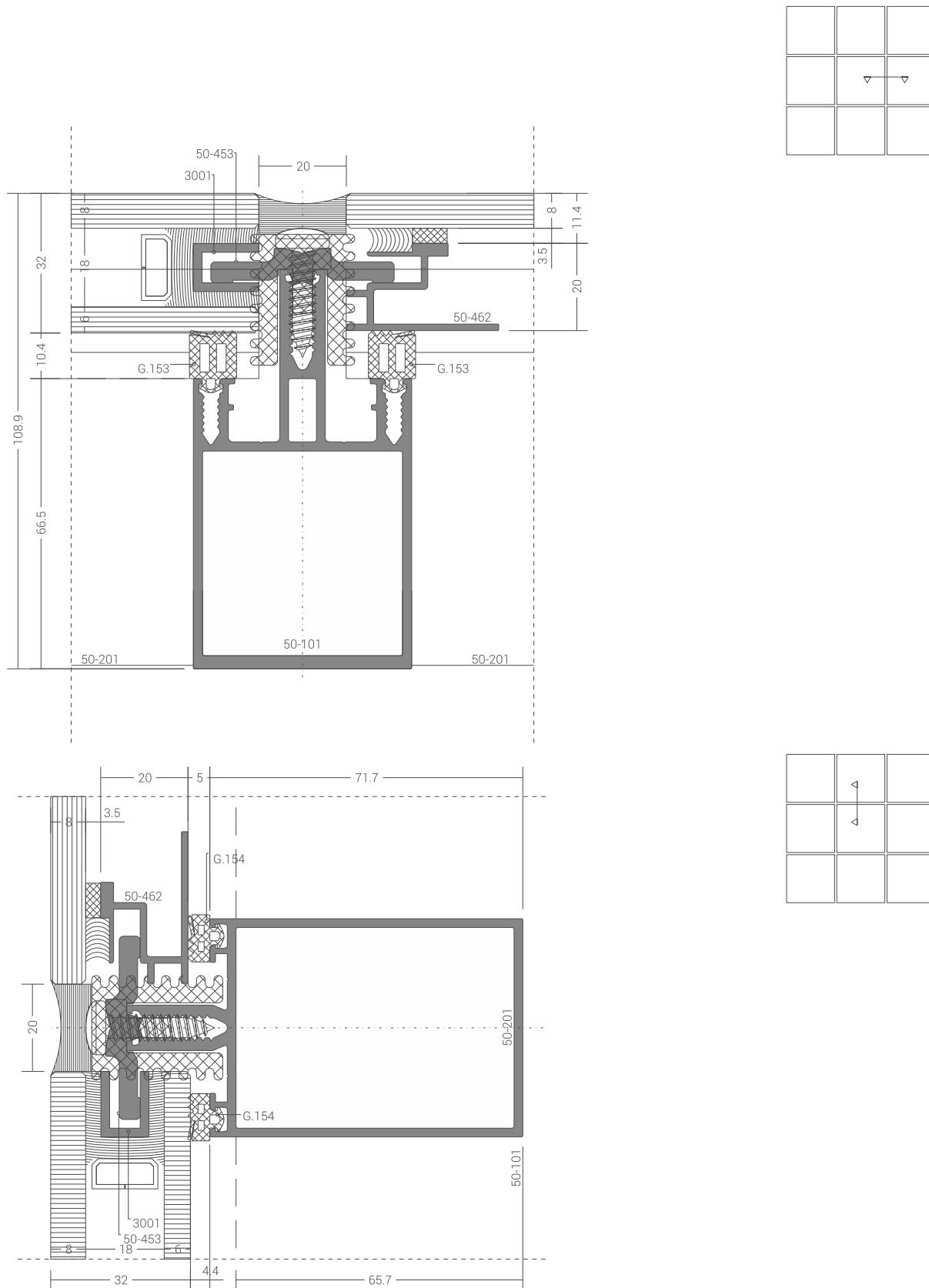
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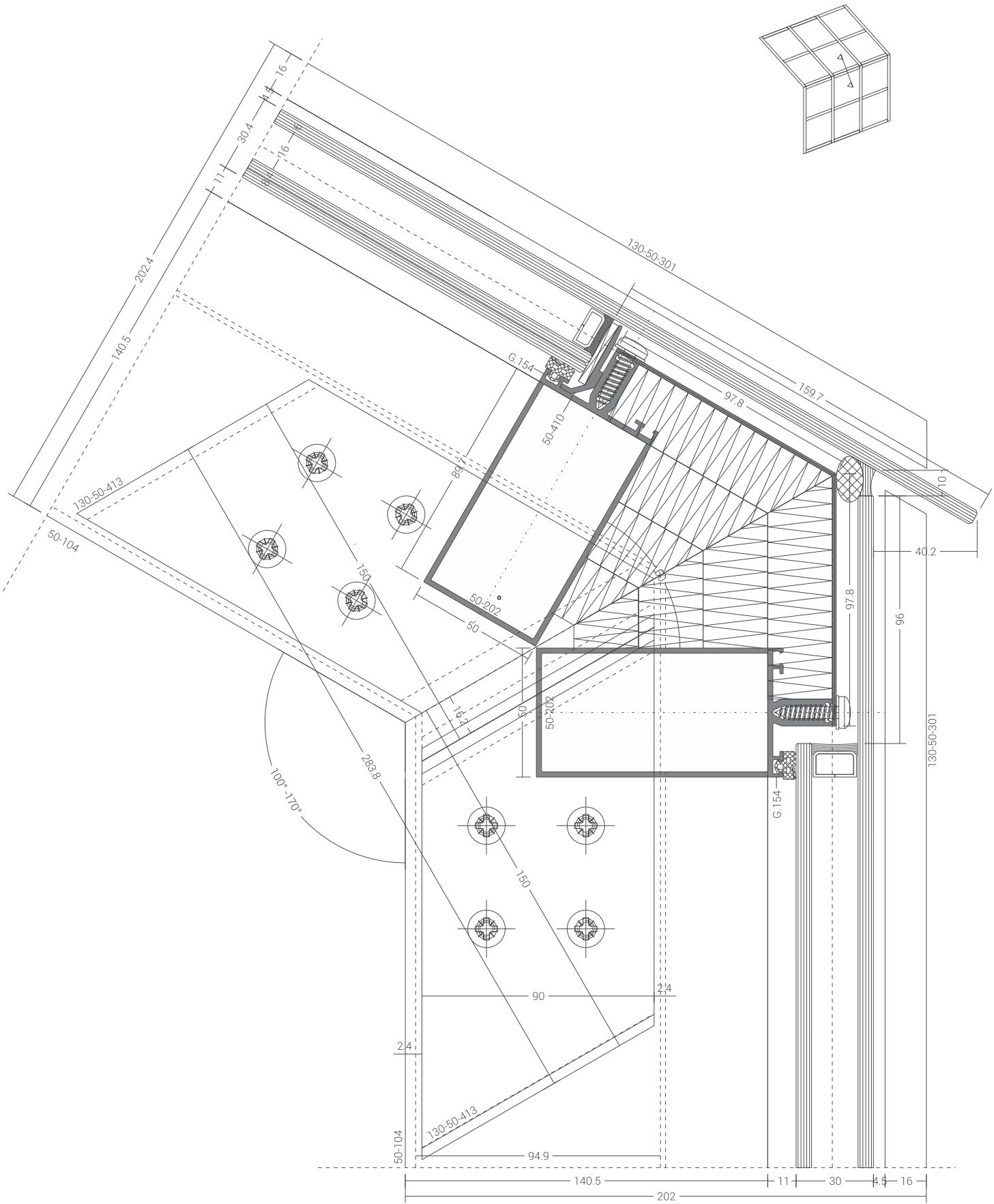


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Scale 1:2





Scale 1:2

# **Chapter 7**

## **Processing details**

# Processing details

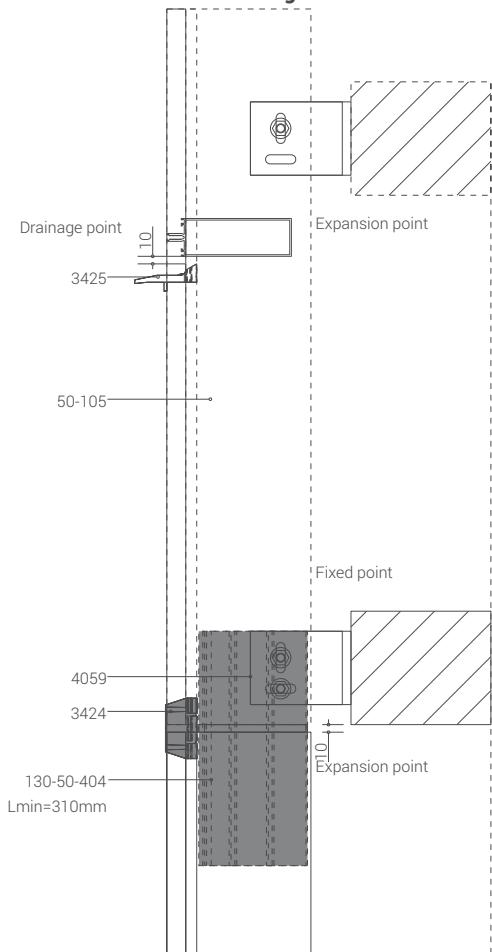
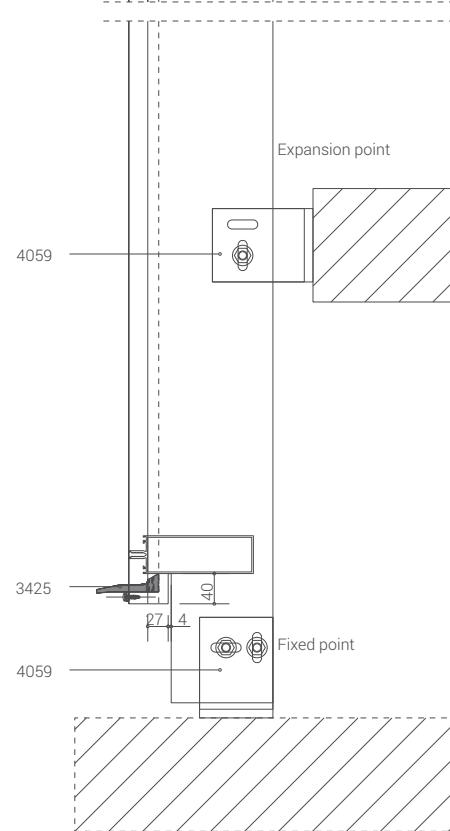
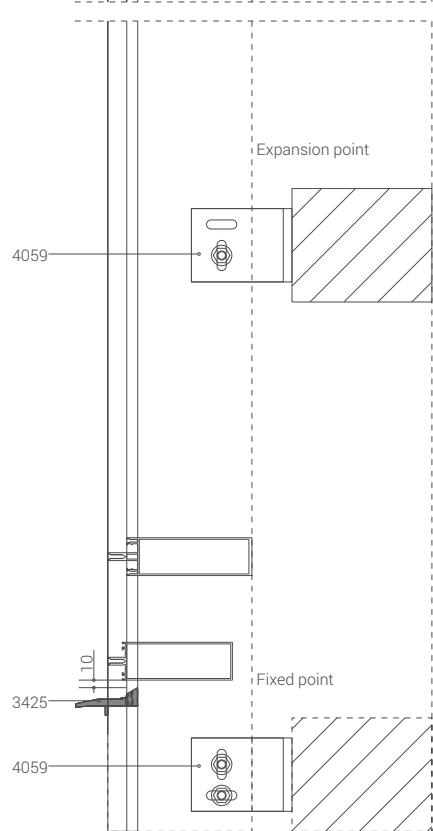
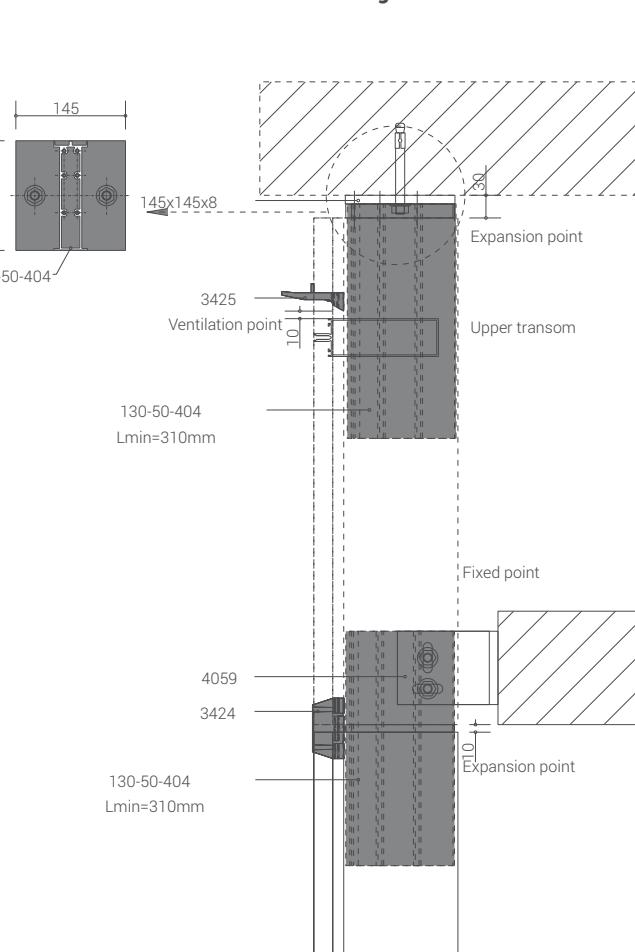
## Table of content

- page 7.1 Mullion fixing points to building structure - elevation
- page 7.2 Mullion fixing points to building structure - isometric view
- page 7.3 Cutting lengths for assembly with flange
- page 7.4 Sequential assembly - transom cutting
- page 7.5 Transom connectors - sequential assembly with flange
- page 7.6 Curtain wall sequential assembly - only with flange
- page 7.7 Transom connectors - frontal assembly with flange
- page 7.8 Transom connectors for angled assembly - without flange
- page 7.9 Pressure plate cutting and machining
- page 7.10 Cover cap cutting and machining
- page 7.11 Water's different levels drainage scheme
- page 7.12 Mullion, 2nd and 3rd level transom assembly cutting
- page 7.13 Water drainage and ventilation scheme
- page 7.14 Water drainage and ventilation scheme
- page 7.15 Mullion angled connection
- page 7.16 Spacer assembly for structural glazing
- page 7.17 Compatibilities
- page 7.18 Cutting length for project-out window classic system - v

# Processing details

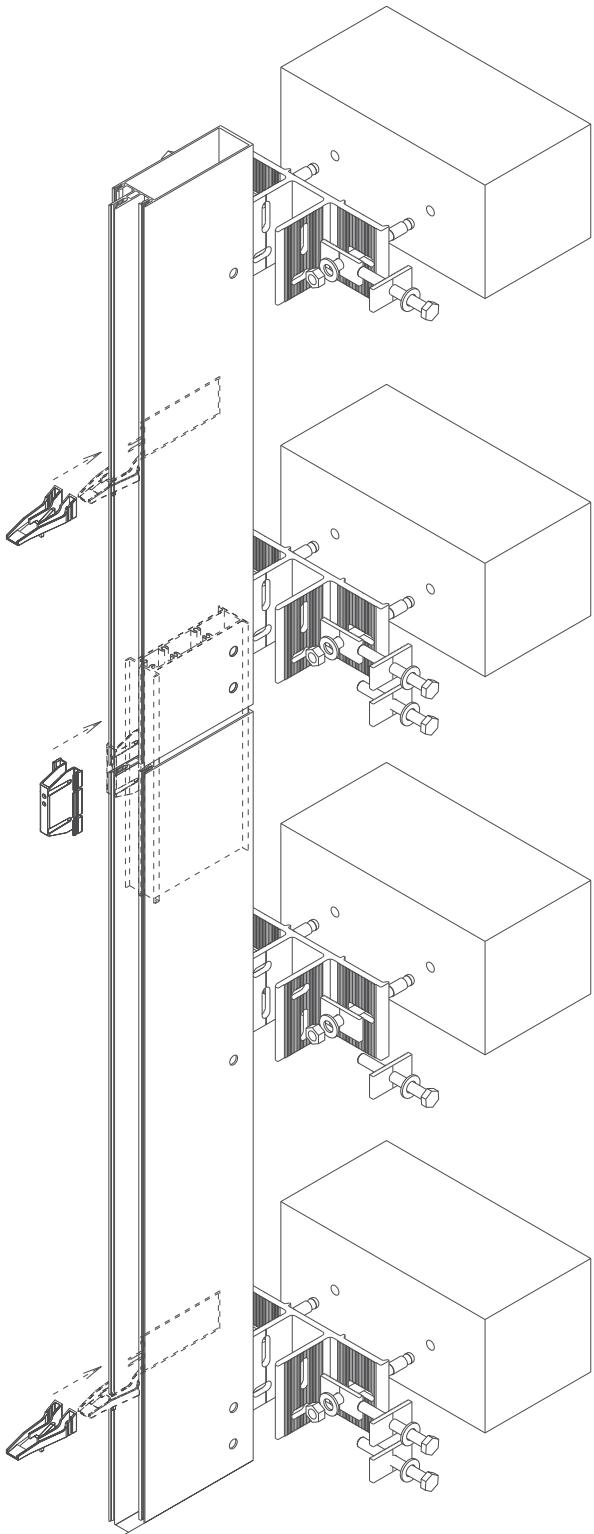
## Table of content

page 7.19	Cutting length for project-out window classic system - v2
page 7.20	Cutting length for skylight project-out window
page 7.21	Cutting length for project-out window - structural glazing
page 7.22	FAPIM fittings for projecting windows
page 7.23	Sash machining for cremone and closing points mounting
page 7.24	Frame profile 50-02 corner assembly
page 7.25	Frame profile 50-04 corner assembly
page 7.26	Frame profile 50-07 corner assembly
page 7.27	Frame profile 50-08 corner assembly
page 7.28	Frame profile 50-10 corner assembly
page 7.29	Frame profile 50-17 corner assembly
page 7.30	Frame profile 130-50-501 corner assembly

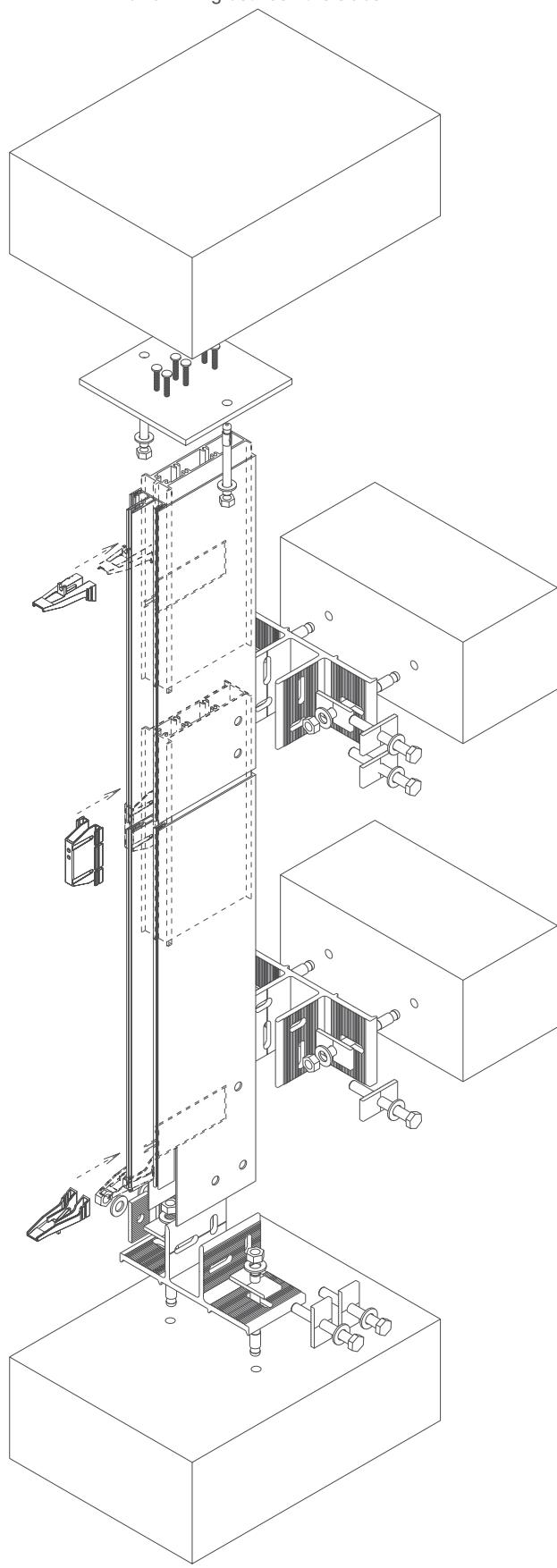
**Mullion fixing in front of the slabs**

**Mullion fixing between the slabs**


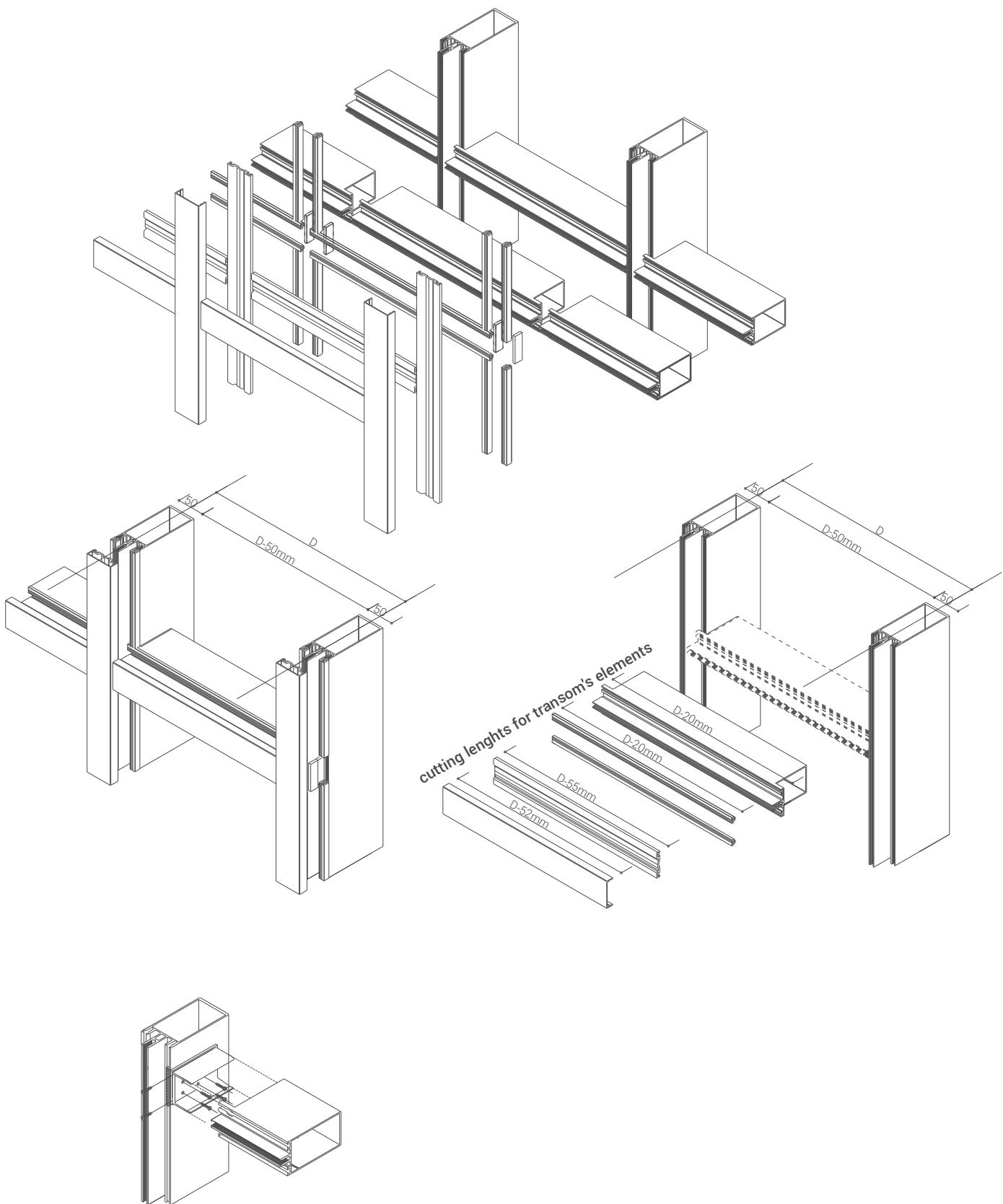
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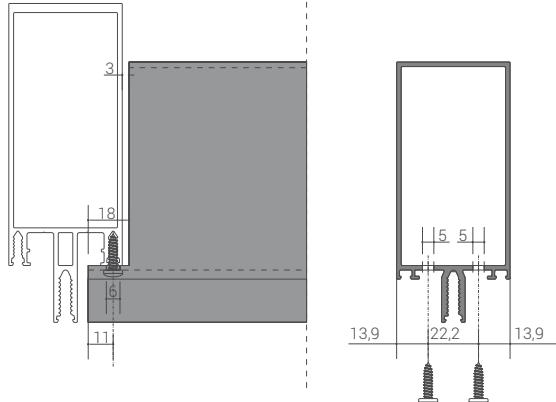
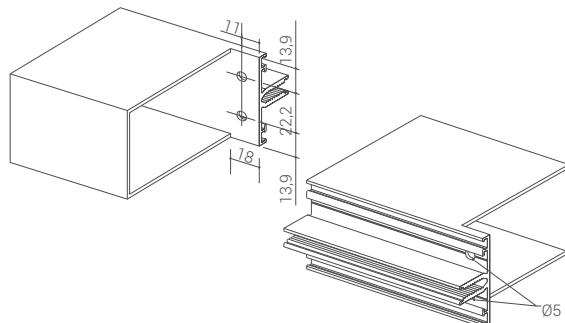
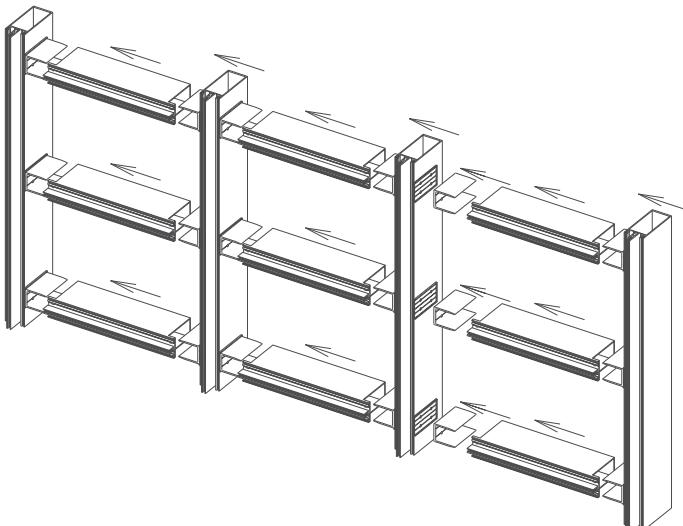
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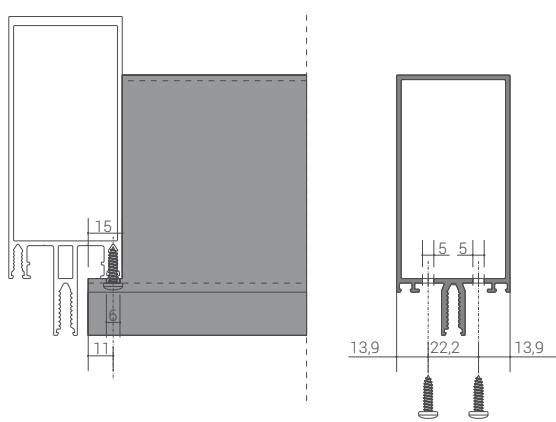
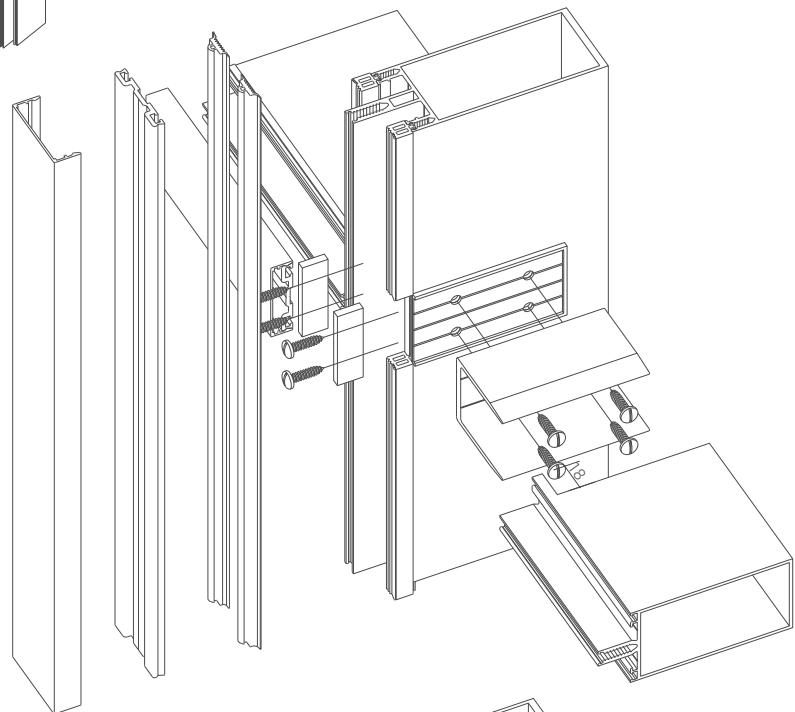
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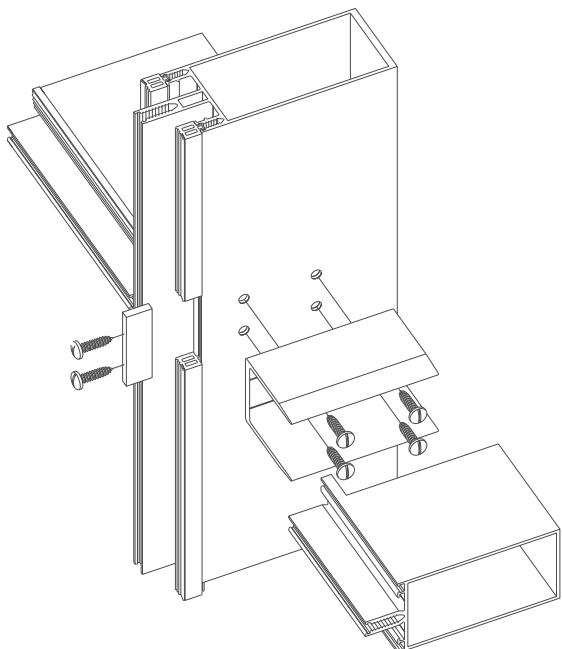




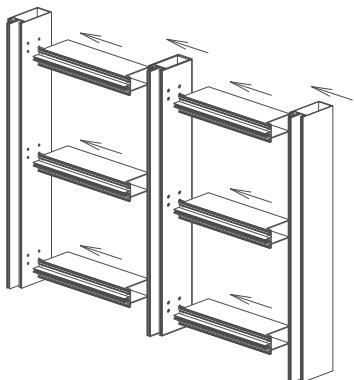
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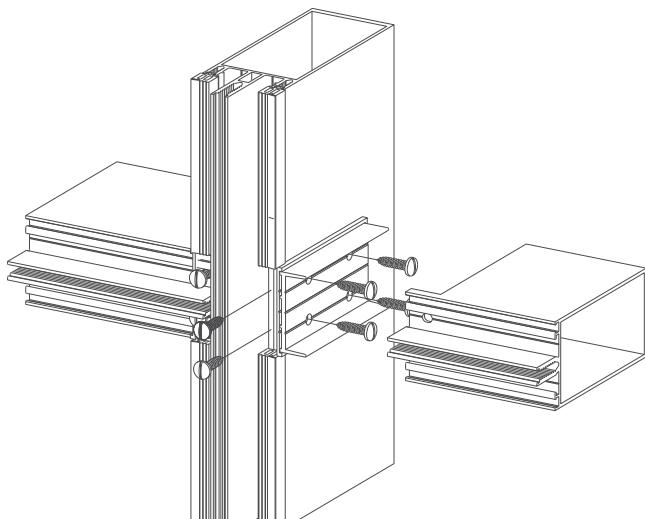
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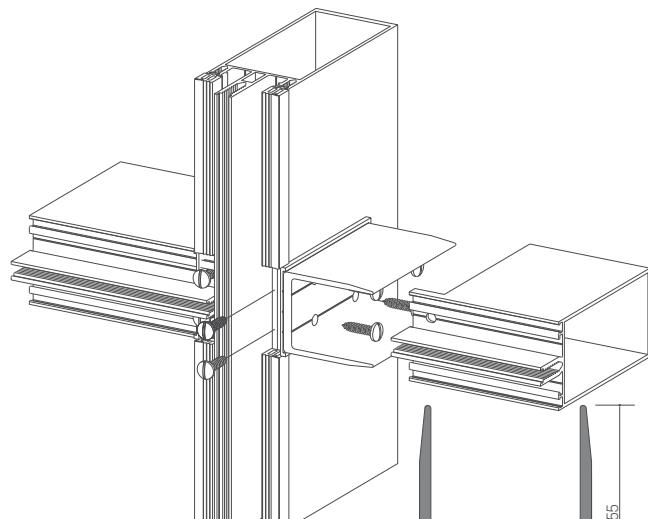
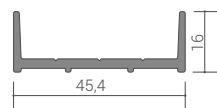
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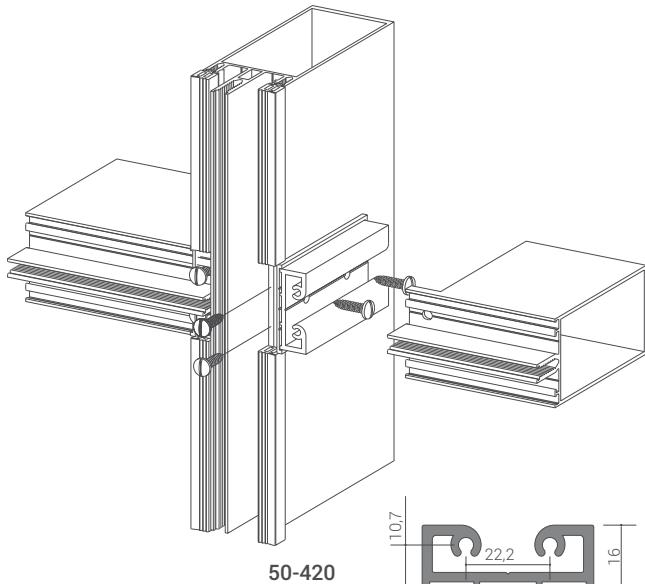
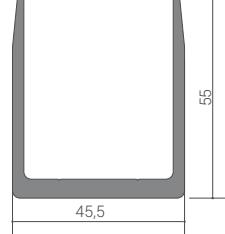
Transom code	connector cutting length(mm)
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50-201	62,70
50-202	86,70
50-203	111,50
50-204	136,50
50-205	86,70
50-602	80,10
50-603	105,10
50-604	155,10



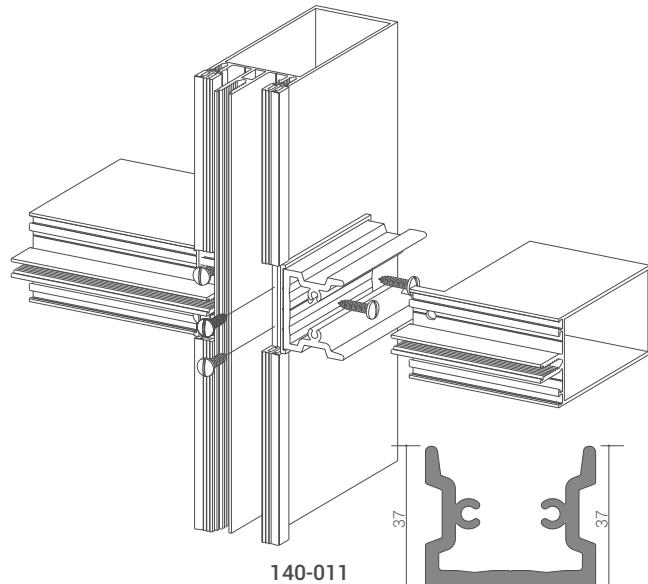
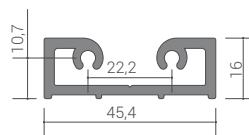
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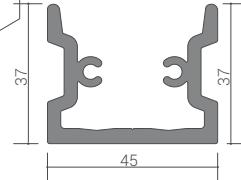
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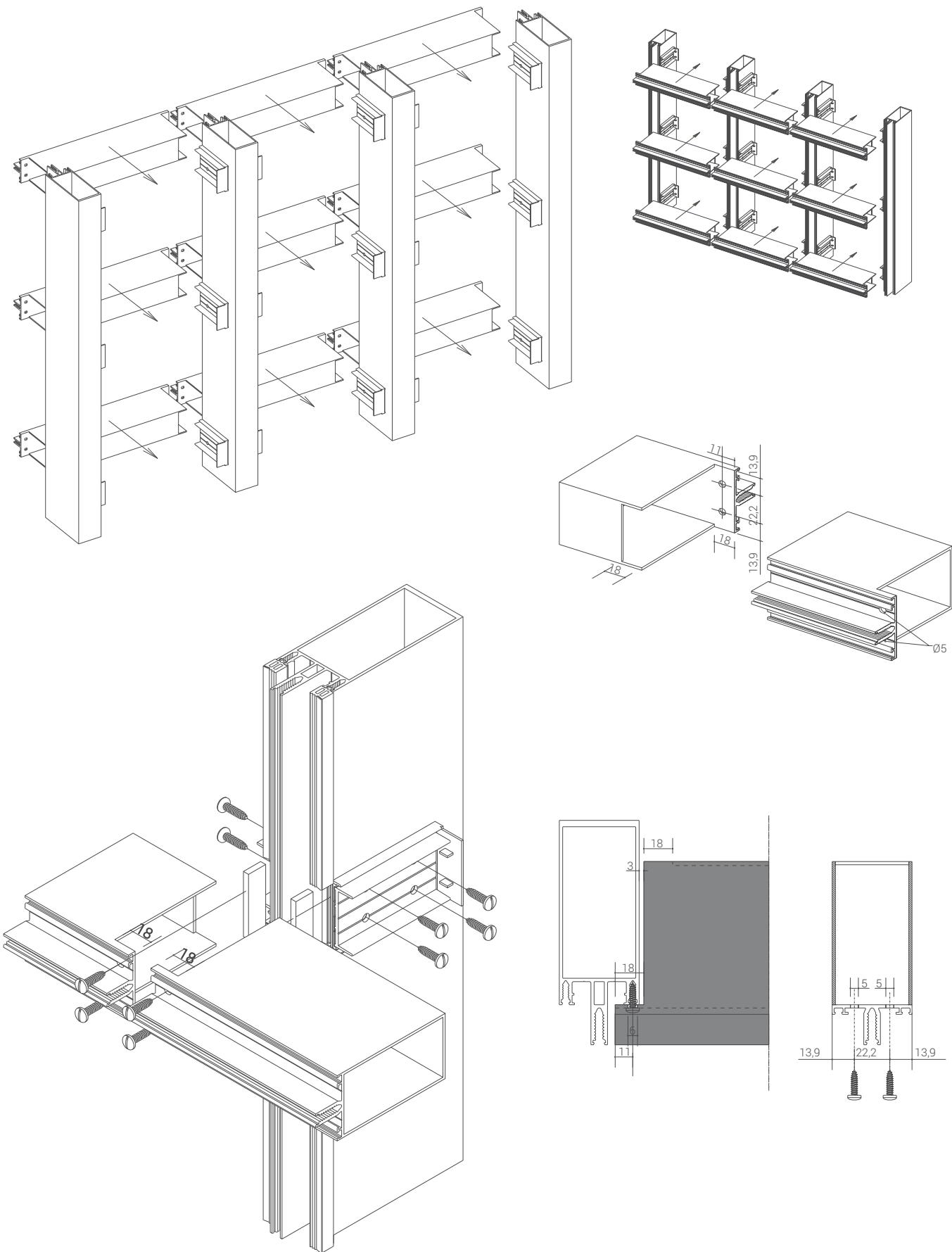
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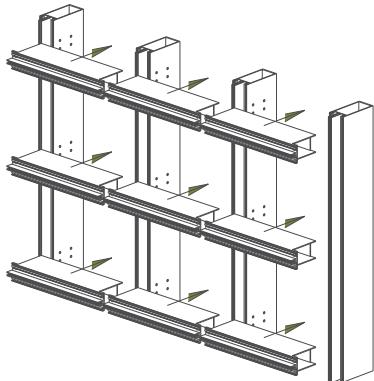


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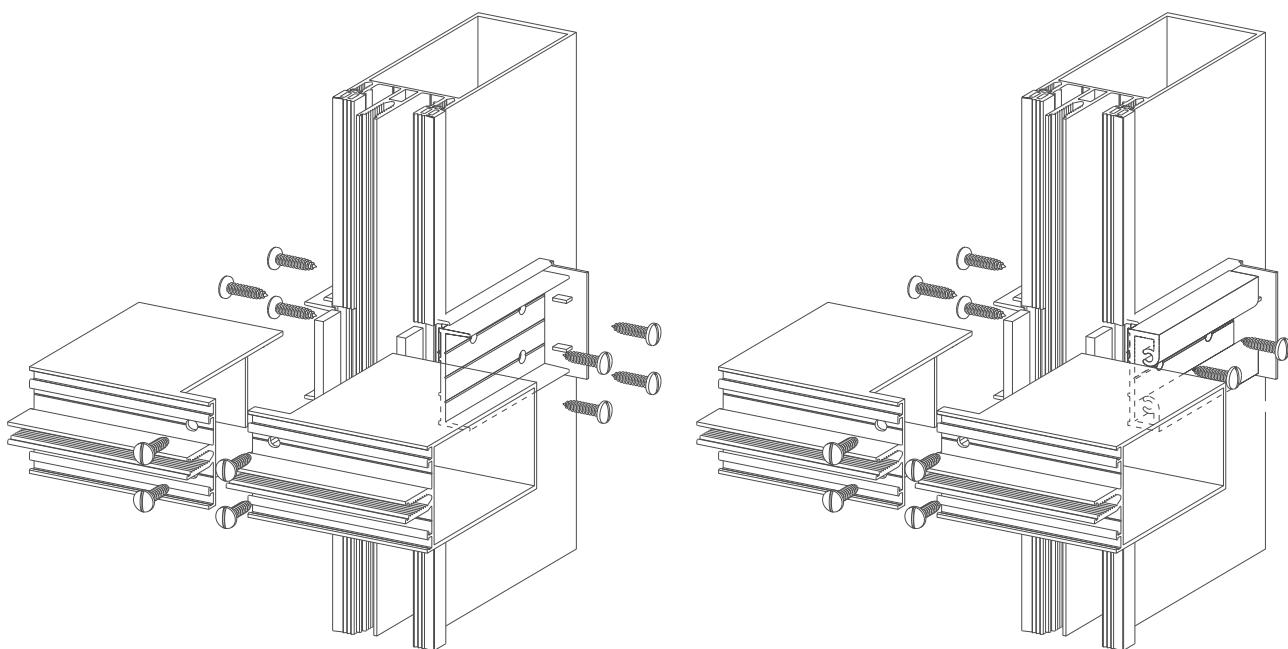


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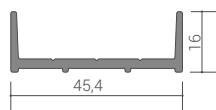




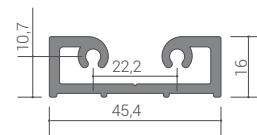
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50-205	86,70
50-602	80,10
50-603	105,10
50-604	155,10



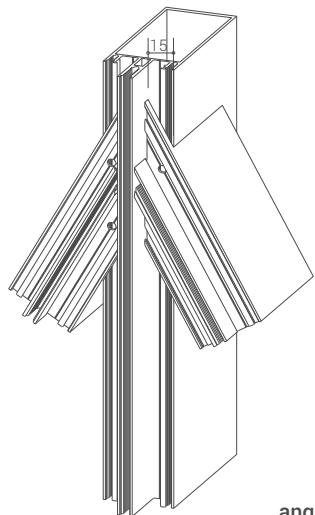
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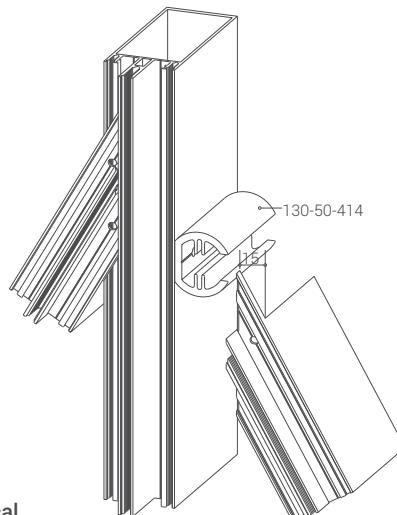
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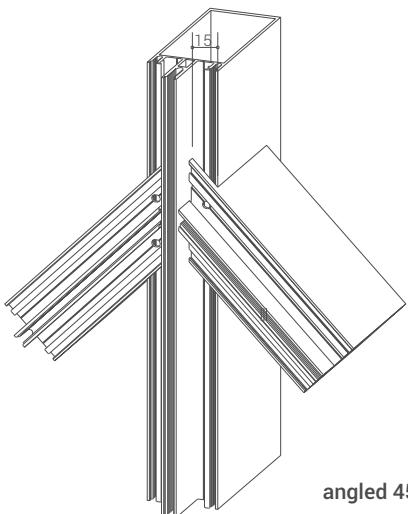
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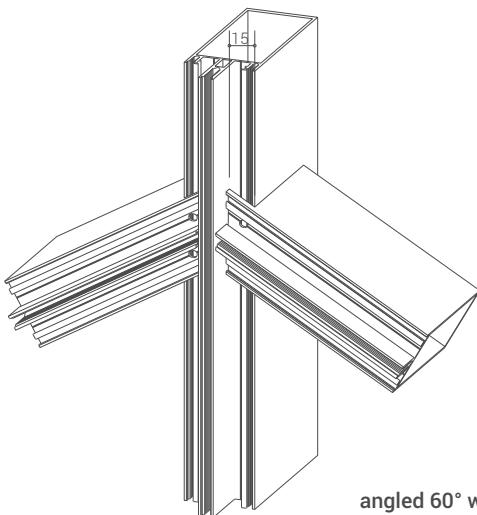
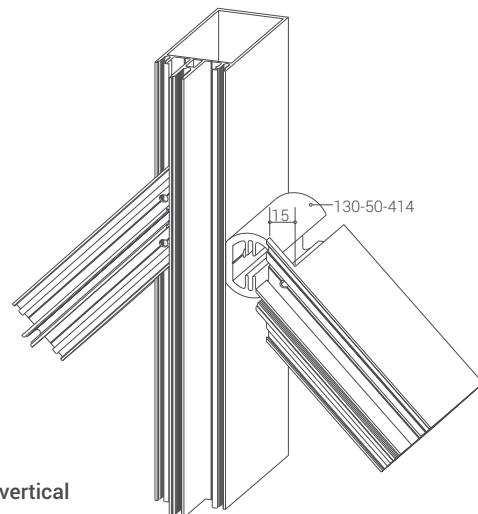
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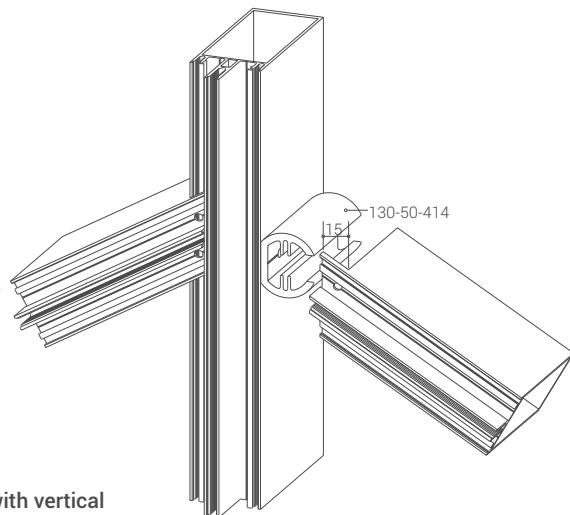
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50-602	80,10
50-603	105,10
50-604	155,10



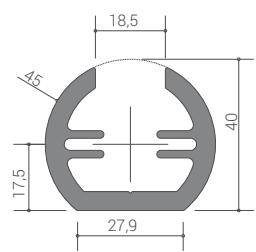
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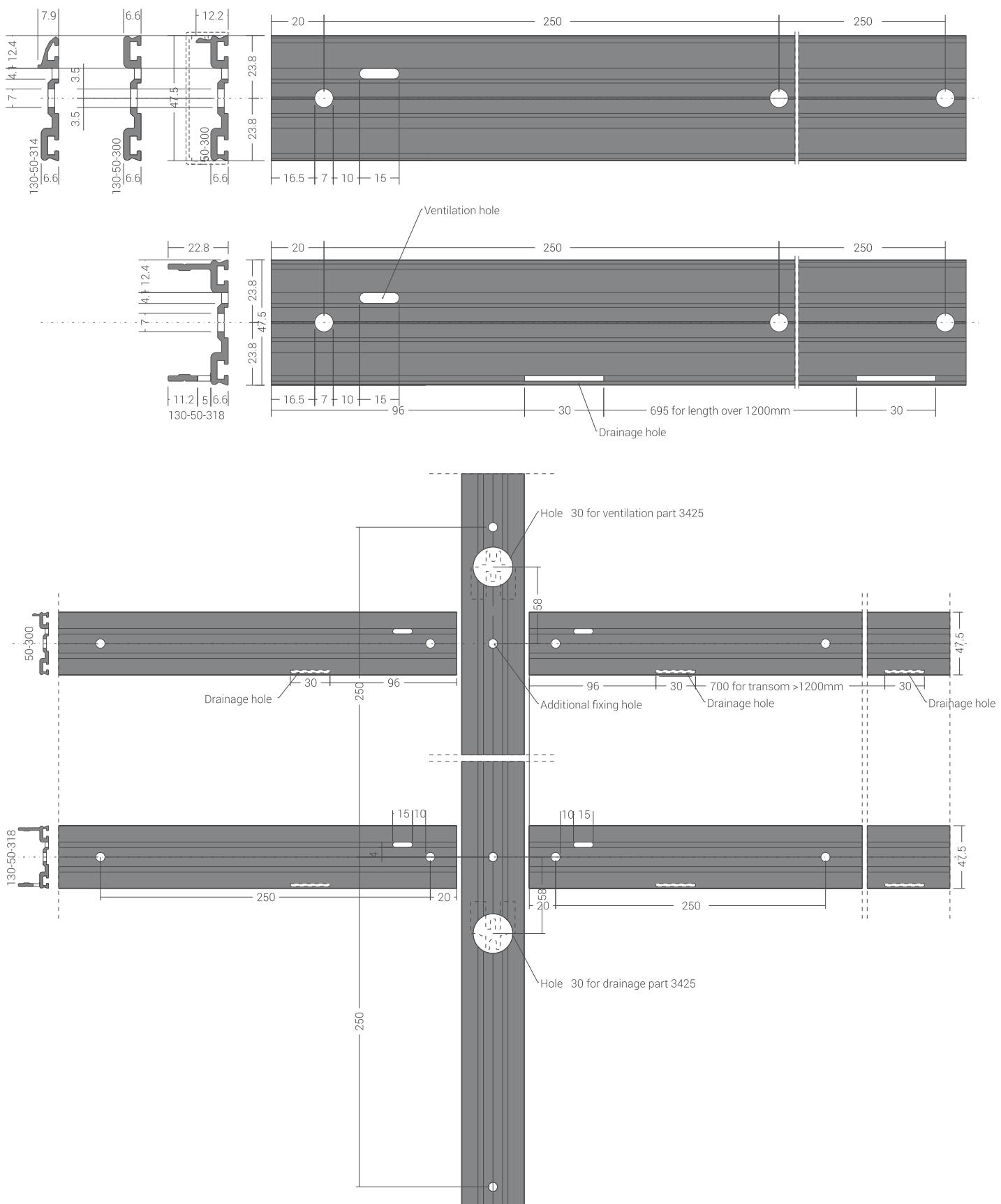
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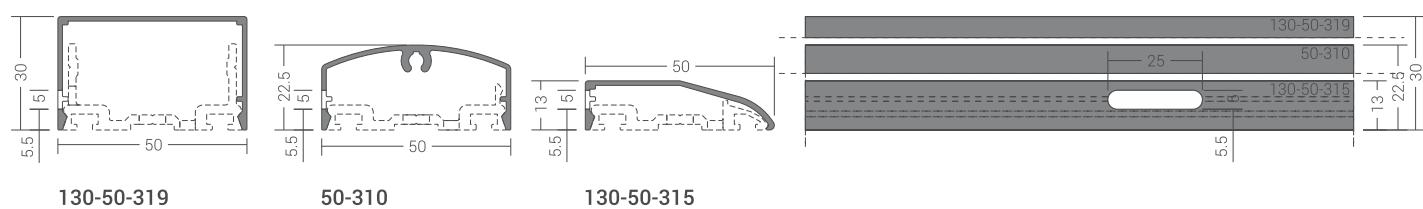
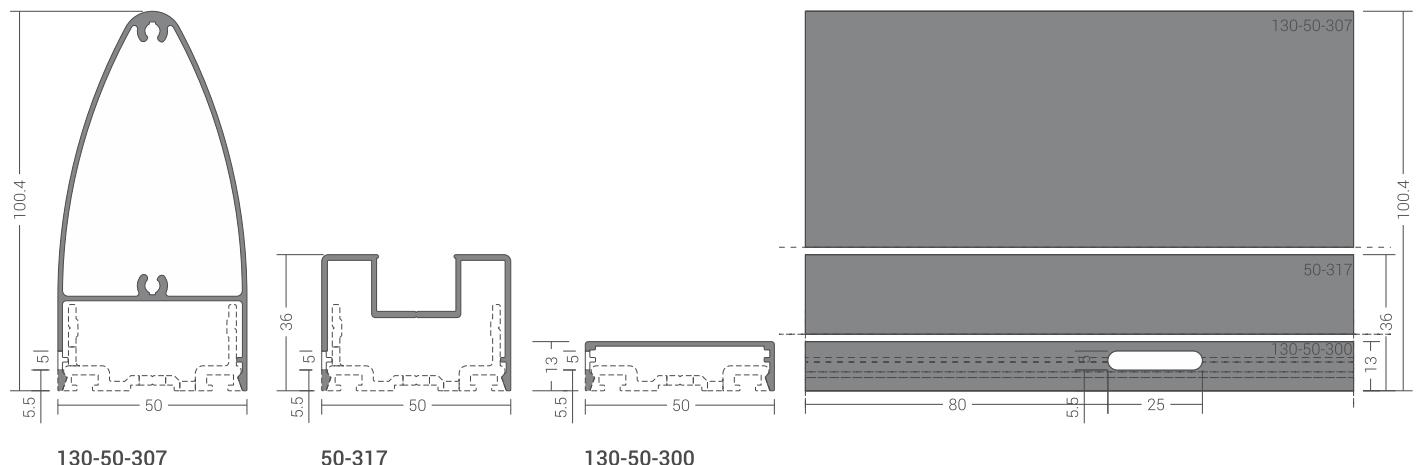
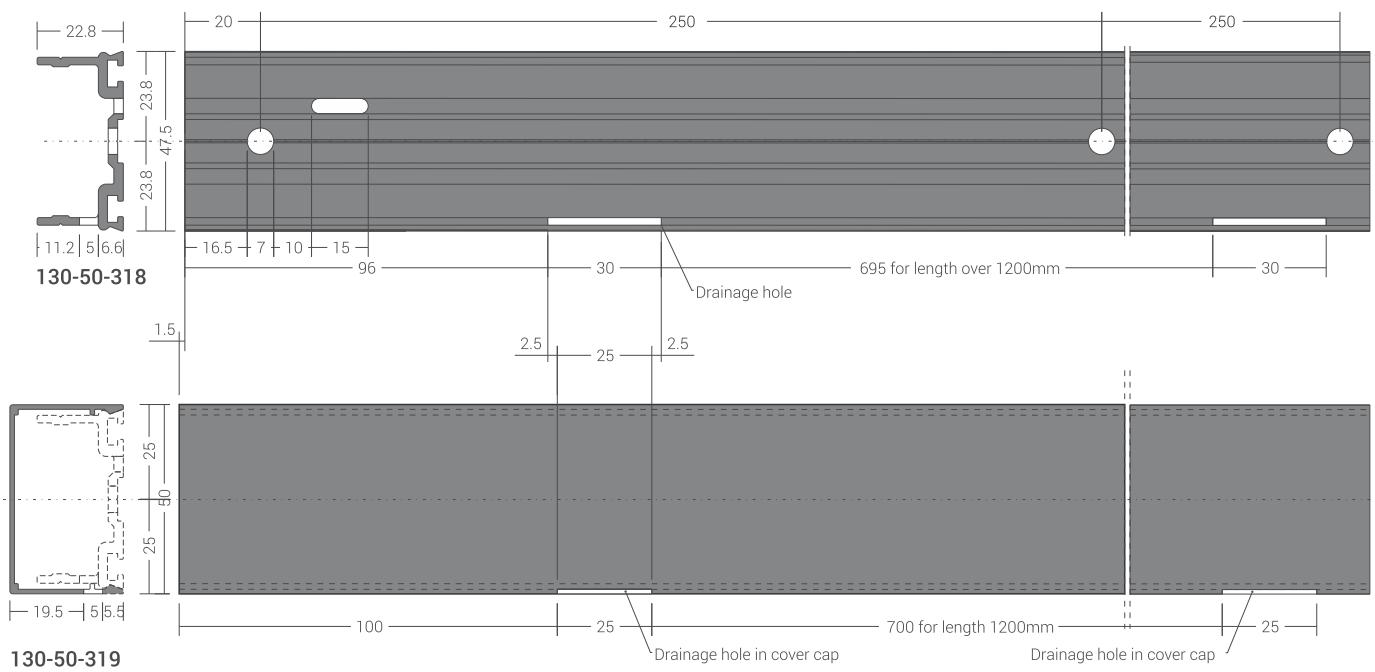


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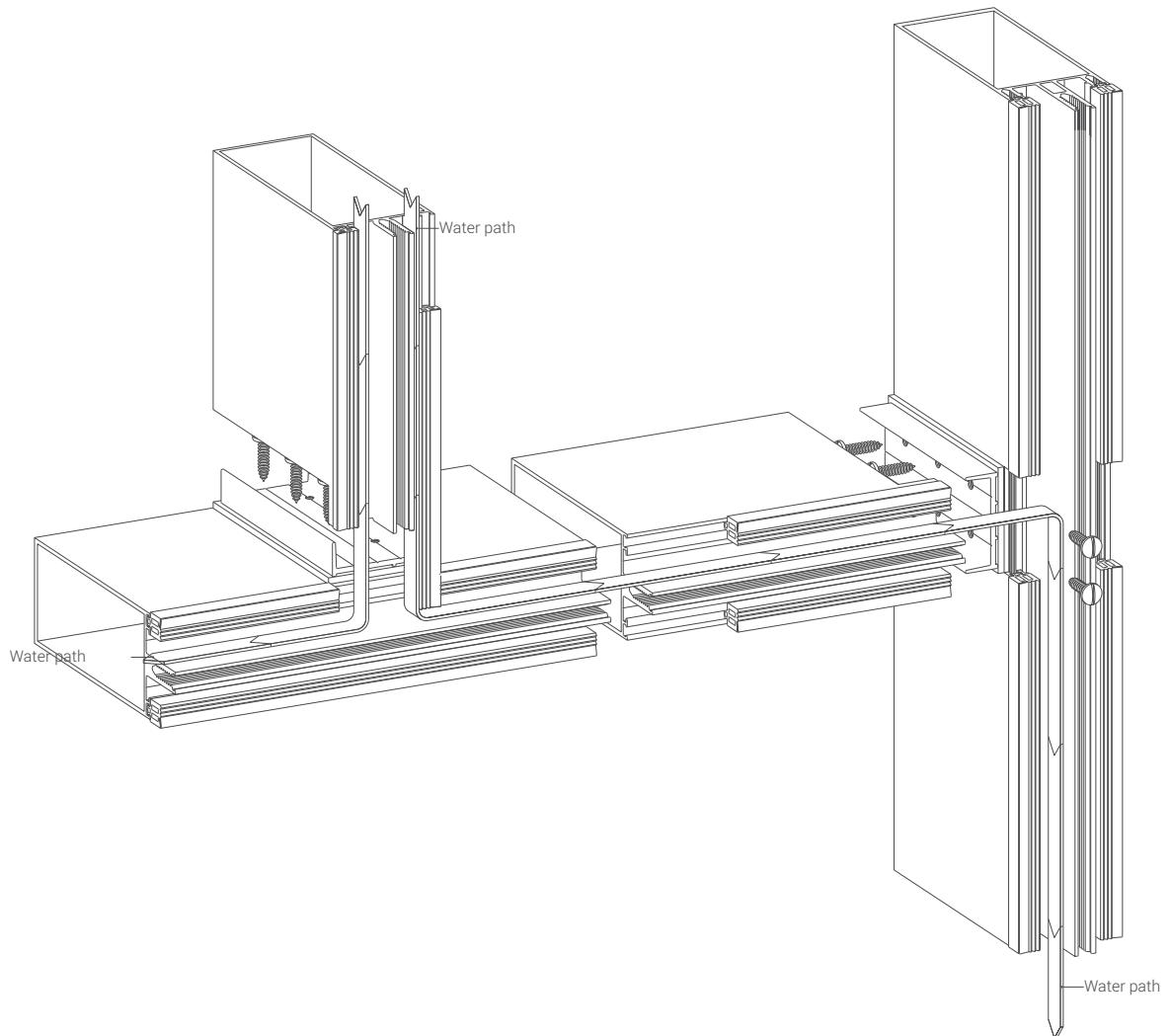
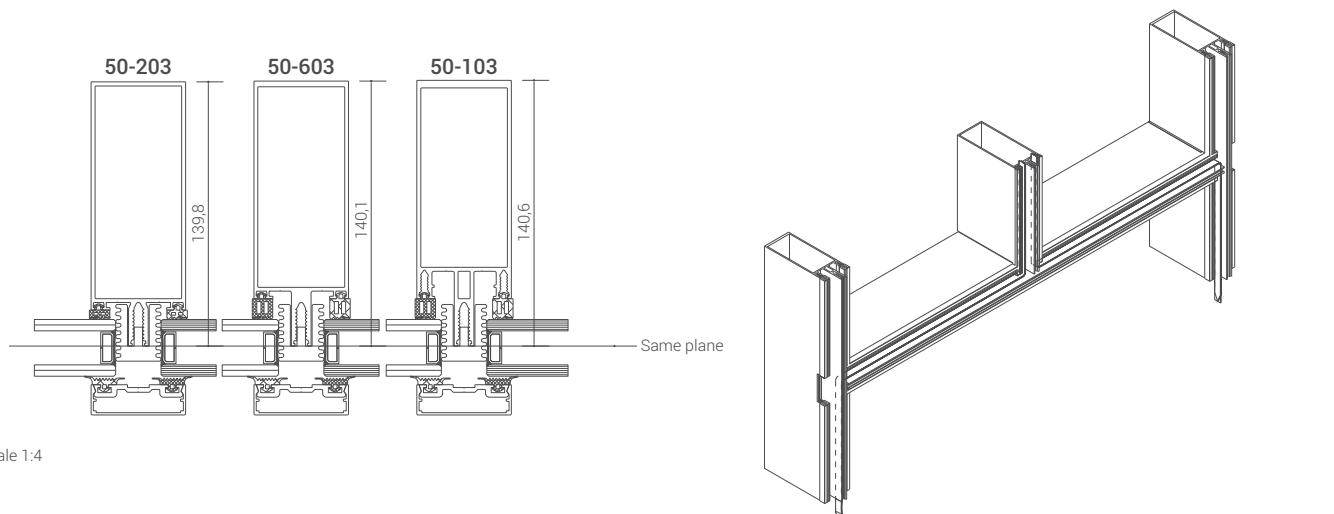


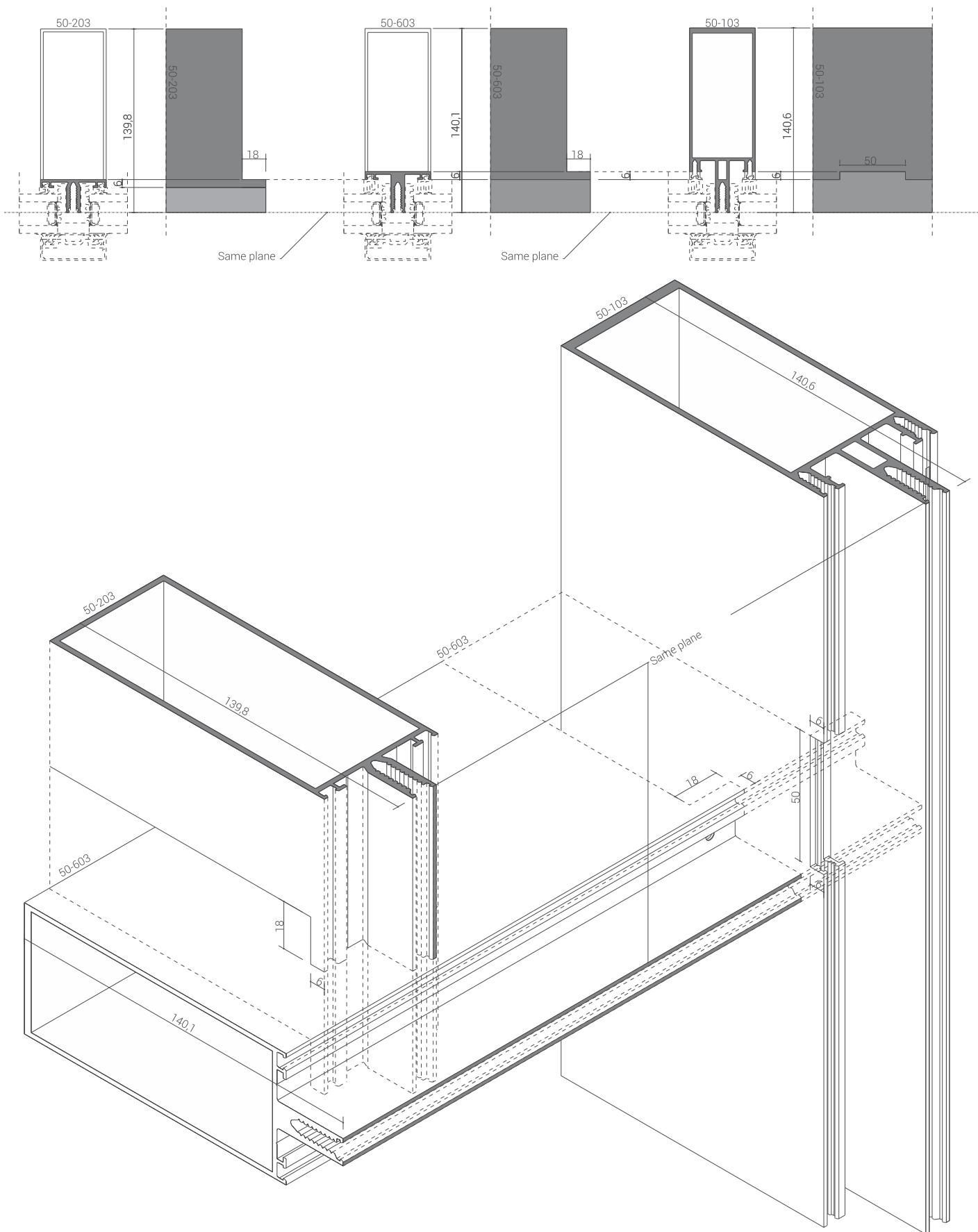
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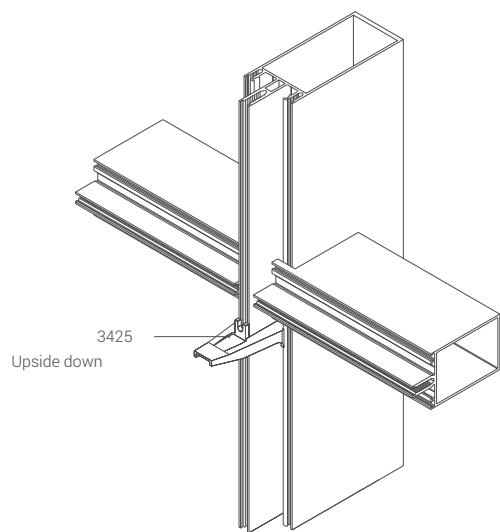
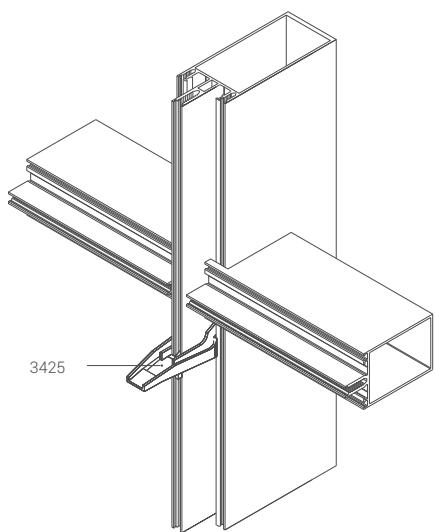
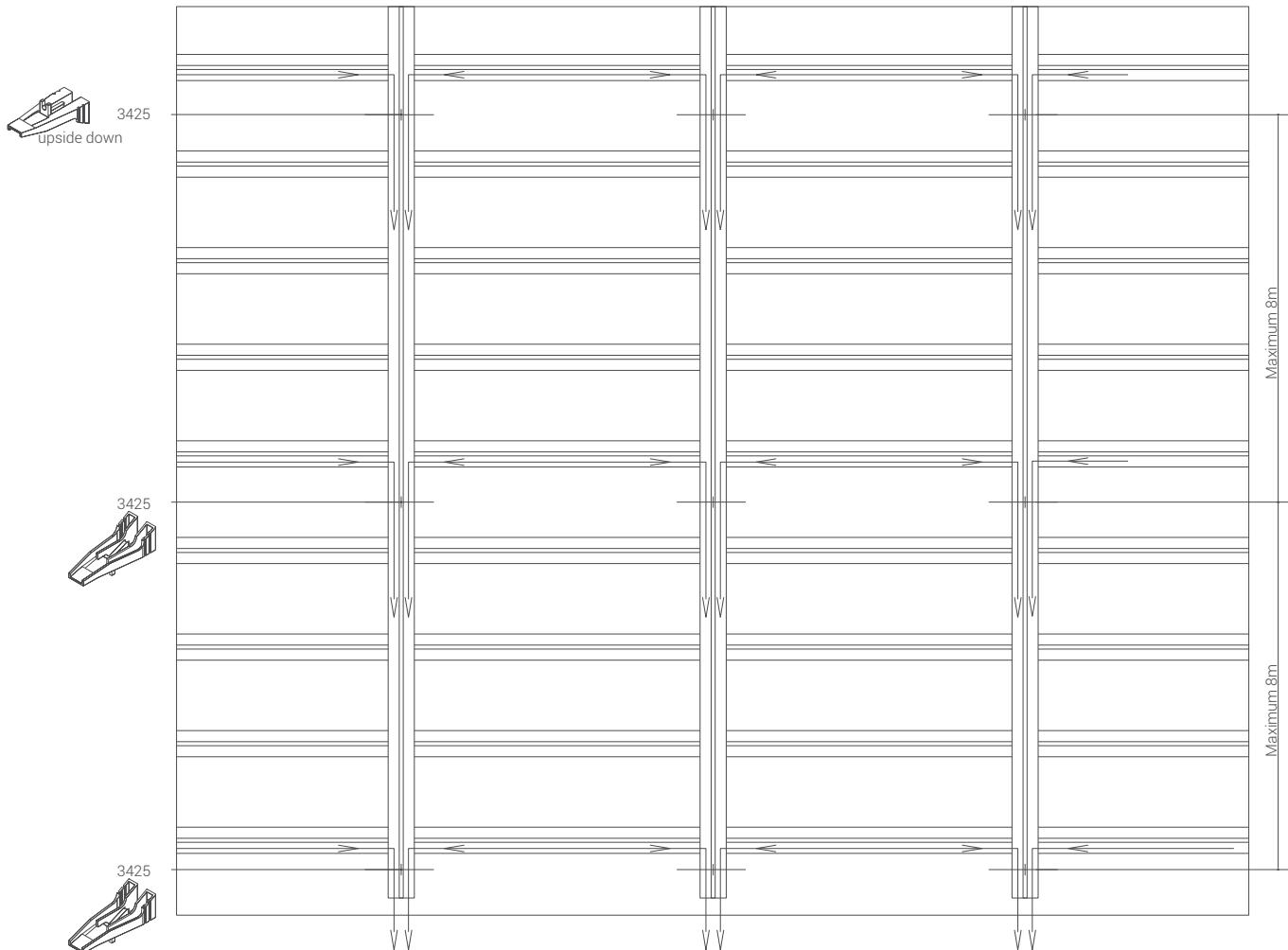


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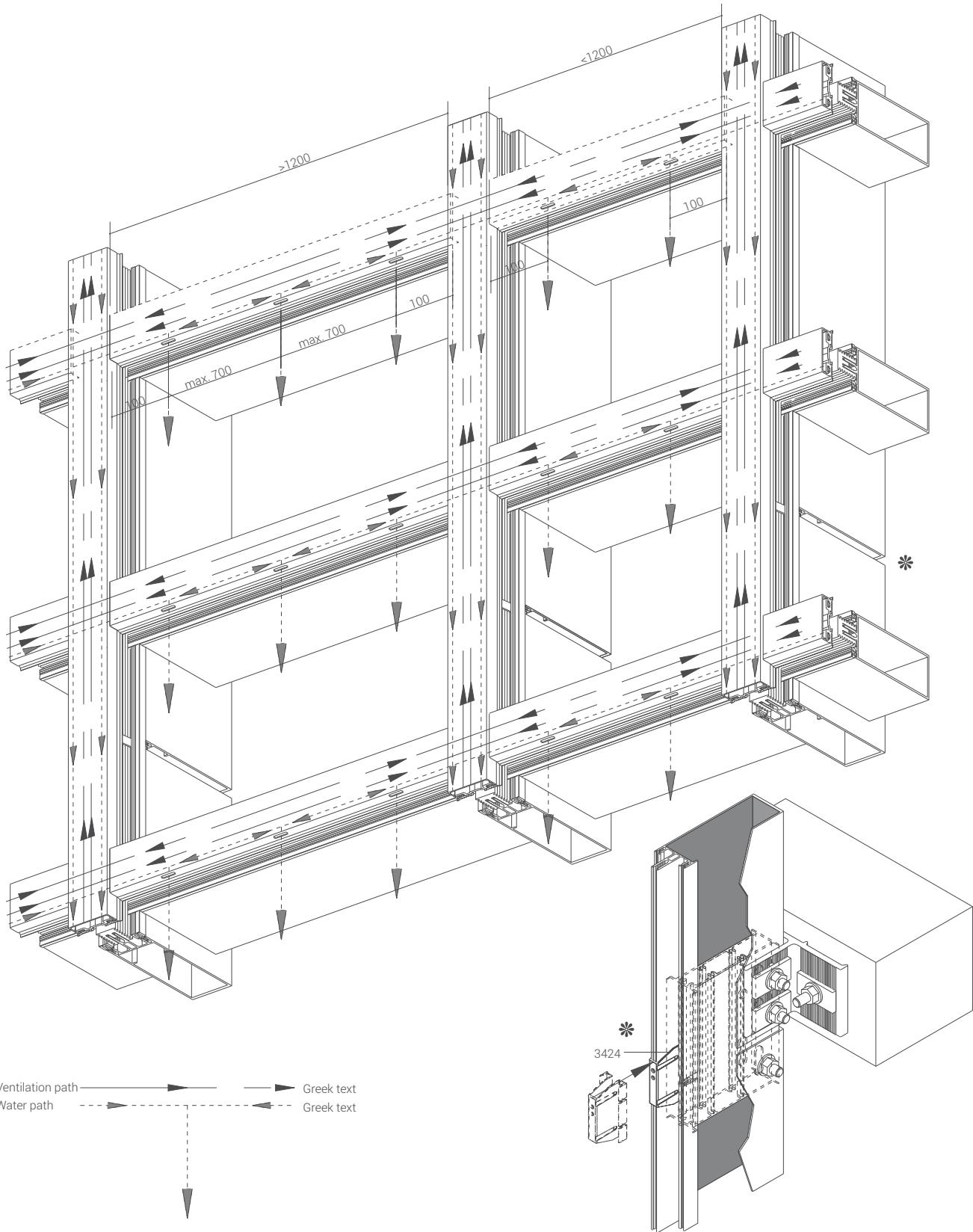


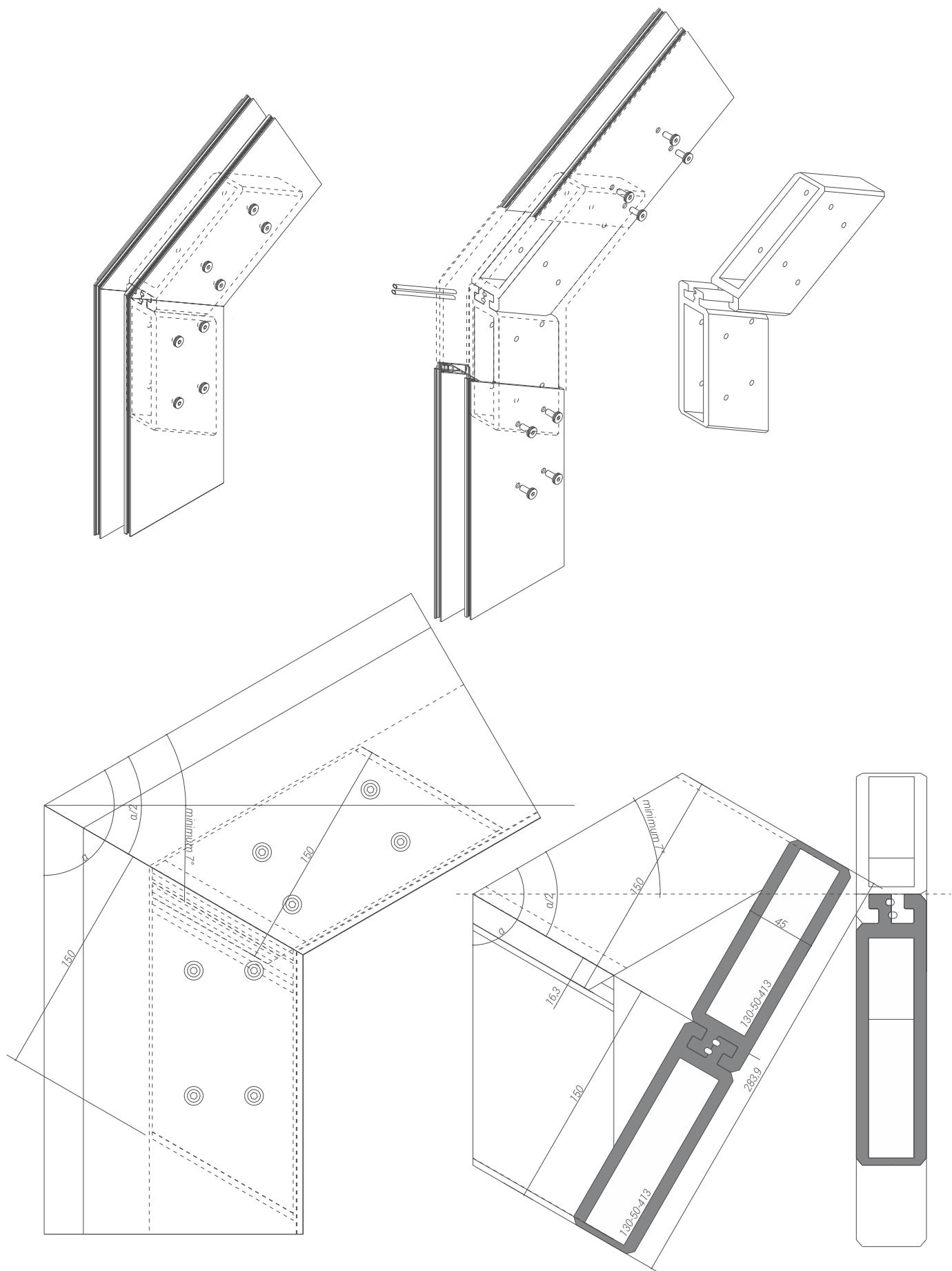


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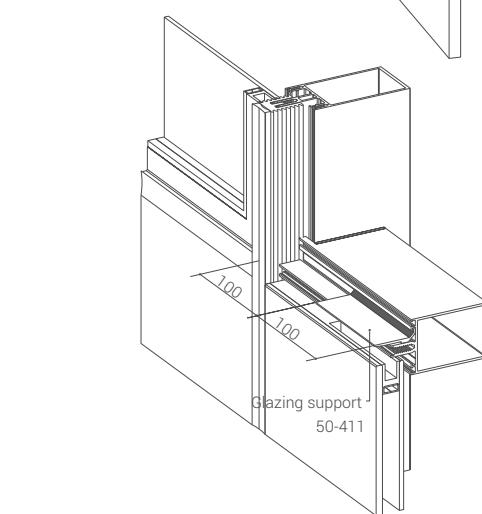
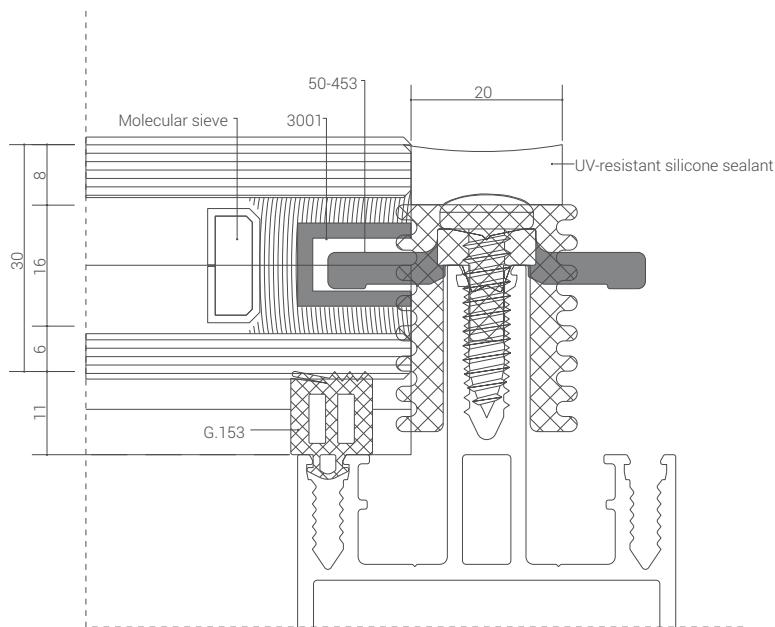
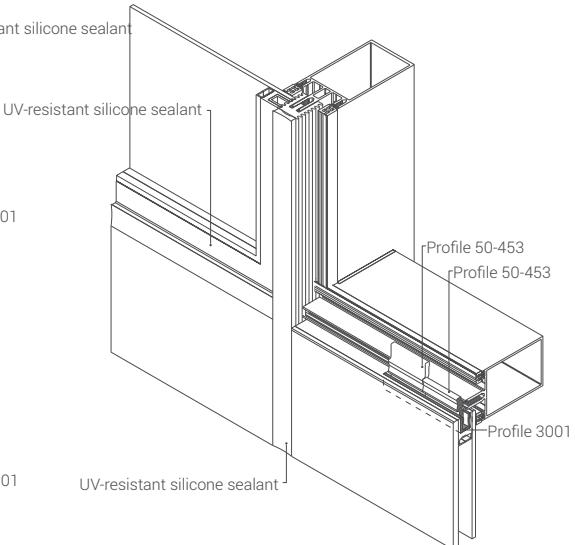
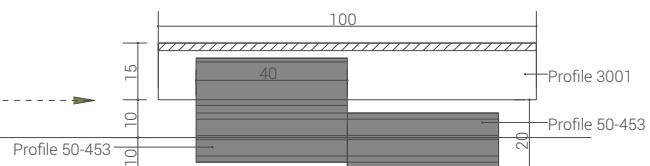
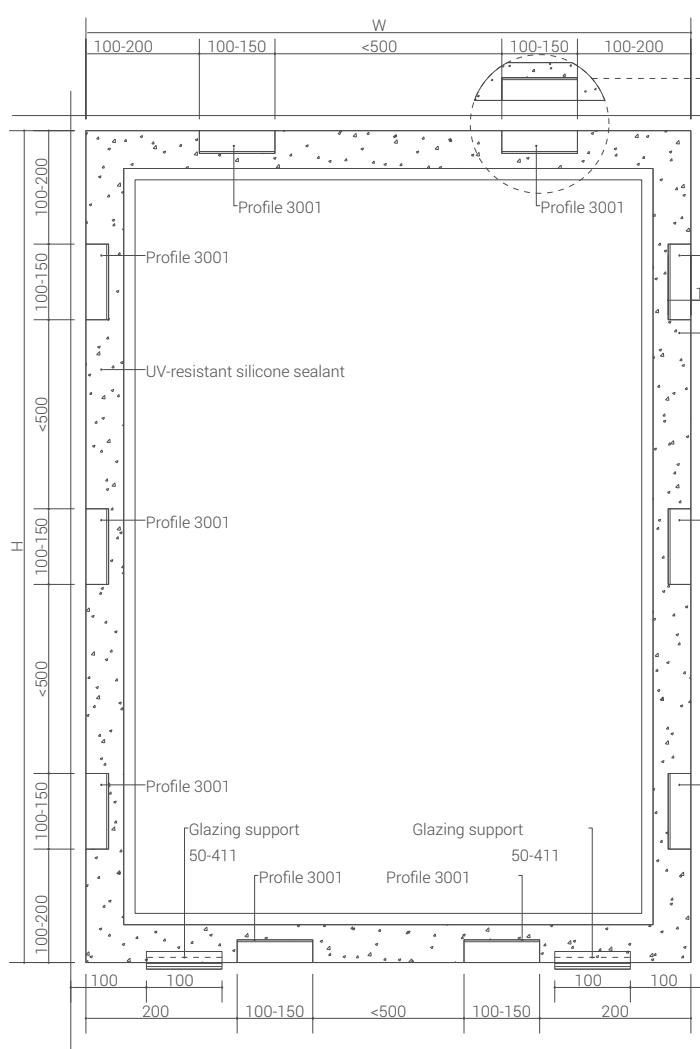


No scale





No scale

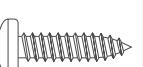
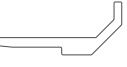


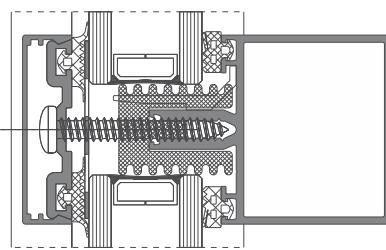
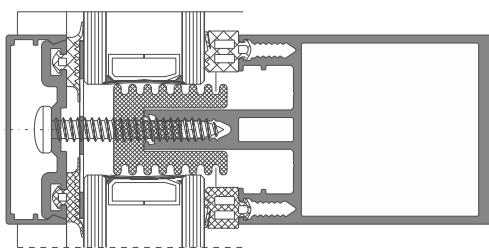
\* for more important informations see chapter 1



No scale

\* for more important informations see chapter 1

Exterior gasket	Glazing	Mullion gasket	Screw	Insulator	Transom gasket	Glazing support	Reducer
Gasket 133							
	8	Gasket 152 (11 mm)	Screw 6.3x25 - PH3		Gasket 152 (11 mm)	50-410 (32.5 mm)	50-450 (6 mm)
	10	Gasket 152 (9 mm)	Screw 6.3x25 - PH3		Gasket 152 (9 mm)	50-410 (32.5 mm)	50-450 (6 mm)
	12	Gasket 155 (13 mm)	Screw 6.3x32 - PH3		Gasket 151 (7 mm)	50-410 (32.5 mm)	
	24	Gasket 152 (9 mm)	Screw 6.3x38 - PH3		Gasket 150 (3 mm)	50-411 (38.5 mm)	
	26	Gasket 152 (9 mm)	Screw 6.3x38 - PH3		Gasket 150 (3 mm)	50-411 (38.5 mm)	
	28	Gasket 152 (9 mm)	Screw 6.3x45 - PH3		Gasket 150 (3 mm)	50-411 (38.5 mm)	
	30	Gasket 153 (11 mm)	Screw 6.3x45 - PH3		Gasket 154 (5 mm)	50-412 (43 mm)	
	32	Gasket 152 (9 mm)	Screw 6.3x45 - PH3		Gasket 150 (3 mm)	50-412 (43 mm)	
	34	Gasket 152 (9 mm)	Screw 6.3x50 - PH3		Gasket 150 (3 mm)		
	36	Gasket 152 (9 mm)	Screw 6.3x50 - PH3		Gasket 150 (3 mm)		
	38	Gasket 152 (9 mm)	Screw 6.3x50 - PH3		Gasket 150 (3 mm)		
	40	Gasket 152 (9 mm)	Screw 6.3x60 - PH3		Gasket 150 (3 mm)		
	50	Gasket 152 (9 mm)	Screw 6.3x70 - PH3		Gasket 150 (3 mm)		

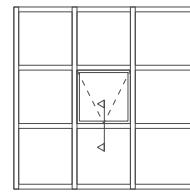


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\* for more informations contact EXALCO technical department

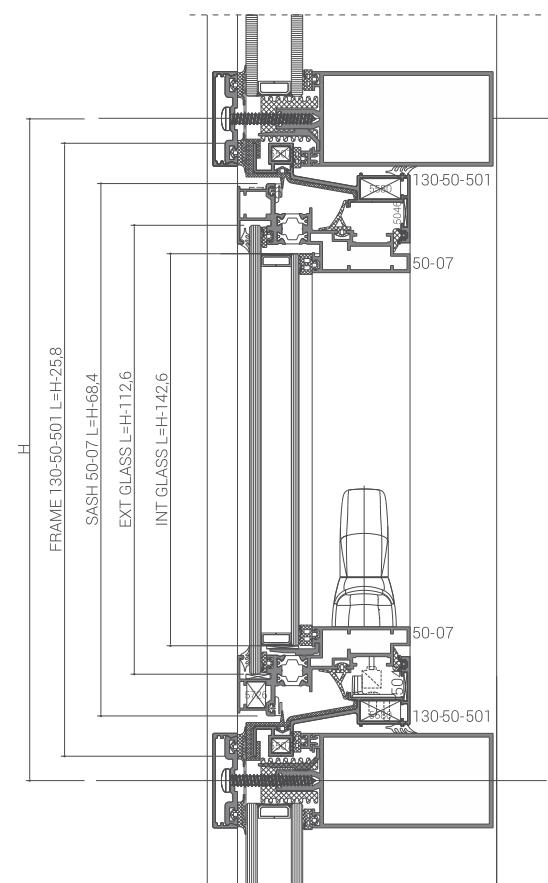
## Vertical elements

Element / profile	Profile code	Cutting length	Cutting angle (mm)	Number of pieces
Frame	130-50-501	H-25,8mm	45°	2
Sash	50-07	H-68,4mm	45°	2
External glass		H-112,6mm		1
Internal glass		H-142,6mm		1



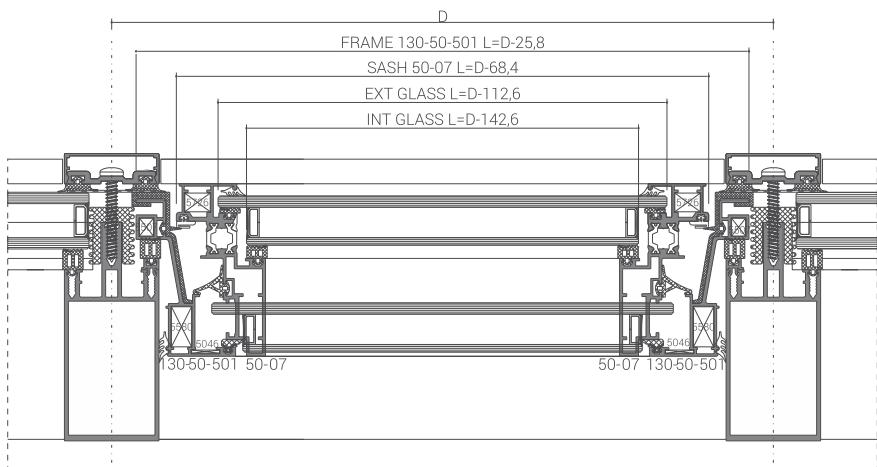
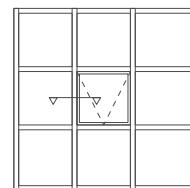
## Horizontal elements

Element / profile	Profile code	Cutting length	Cutting angle text(mm)	Number of pieces
Frame	130-50-501	D-25,8mm	45°	2
Sash	50-07	D-68,4mm	45°	2
External glass		D-112,6mm		1
Internal glass		D-142,6mm		1



## Corners

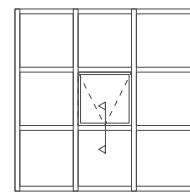
Profile code	Corner	Number of pieces
130-50-501	5046	4
	5580 / 7018B	4
	5507	4
50-07	5580	4
	5726	4



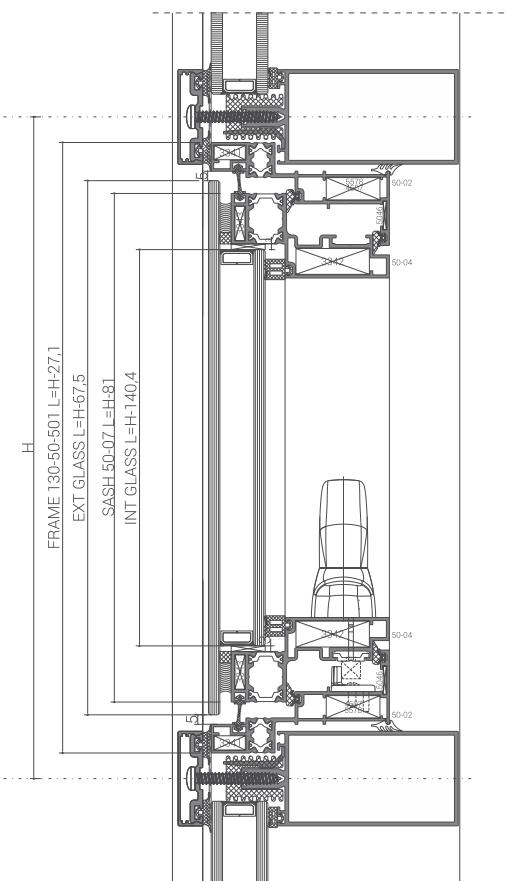
Scale 1:4

**Vertical elements**

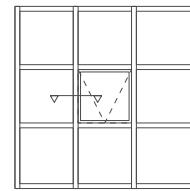
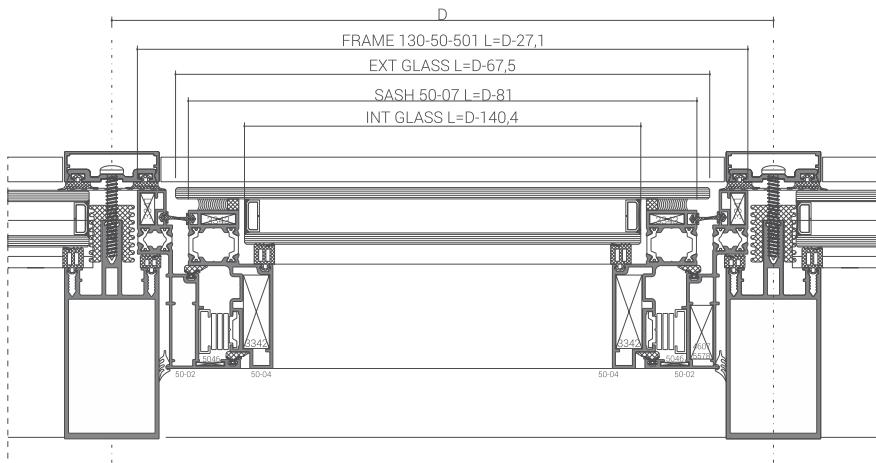
Element / profile	Profile code	Cutting length	Cutting angle text(mm)	Number of pieces
Frame	50-02	H-27,1mm	45°	2
Sash	50-04	H-81mm	45°	2
External glass		H-67,5mm		1
Internal glass		H-140,4mm		1


**Horizontal elements**

Element / profile	Profile code	Cutting length	Cutting angle text(mm)	Number of pieces
Frame	50-02	D-27,1mm	45°	2
Sash	50-04	D-81mm	45°	2
External glass		D-67,5mm		1
Internal glass		D-140,4mm		1


**Corners**

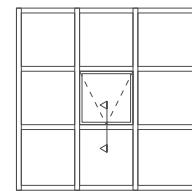
Profile code	Corner	Number of pieces
50-02	5046	4
	4607 / 5578	4
	3341	4
50-04	3343	4
	3342	4



Scale 1:4

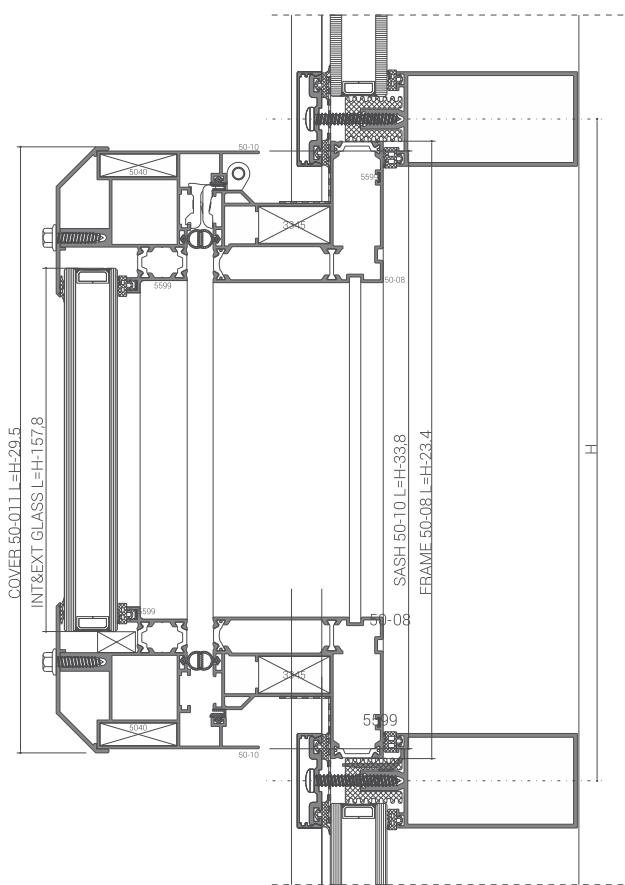
## Vertical elements

Element / profile	Profile code	Cutting length	Cutting angle text(mm)	Number of pieces
Frame	50-08	H-23,4mm	45°	2
Sash	50-10	H-33,8mm	45°	2
Cover	50-011	H-29,5mm	45°	2
External glass		H-157,8mm		1
Internal glass		H-157,8mm		1



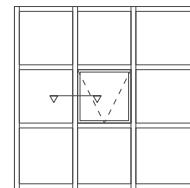
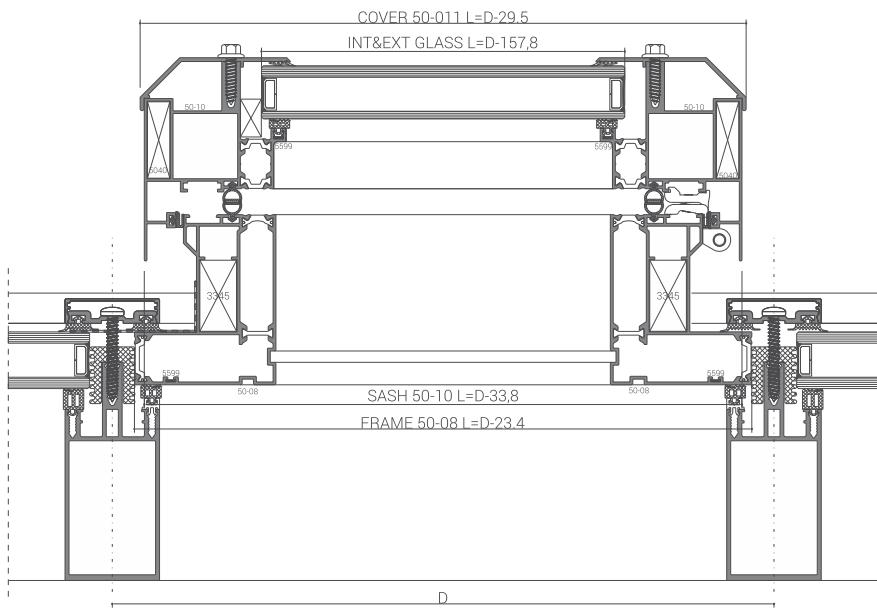
## Horizontal elements

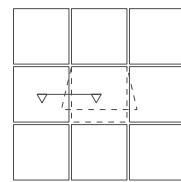
Element / profile	Profile code	Cutting length	Cutting angle text(mm)	Number of pieces
Frame	50-08	D-23,4mm	45°	2
Sash	50-10	D-33,8mm	45°	2
Cover	50-011	D-29,5mm	45°	2
External glass		D-157,8mm		1
Internal glass		D-157,8mm		1



## Corners

Profile code	Corner	Number of pieces
50-08	3345	4
	5599	4
50-10	5040	4
	5599	4




**Vertical elements**

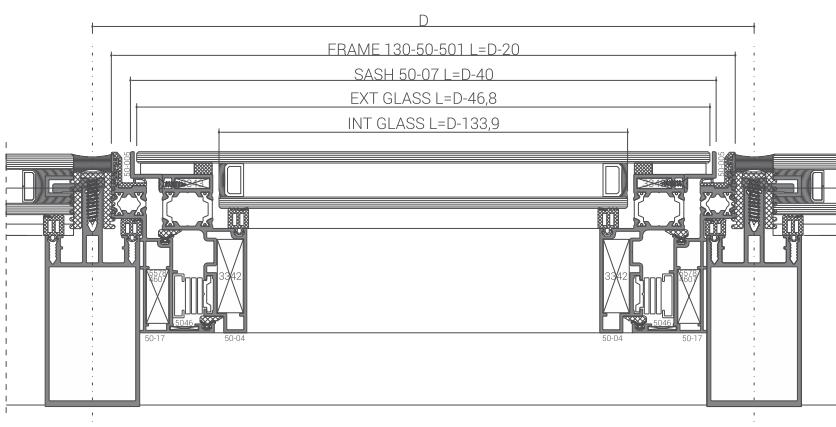
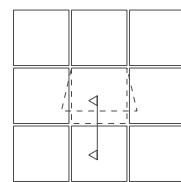
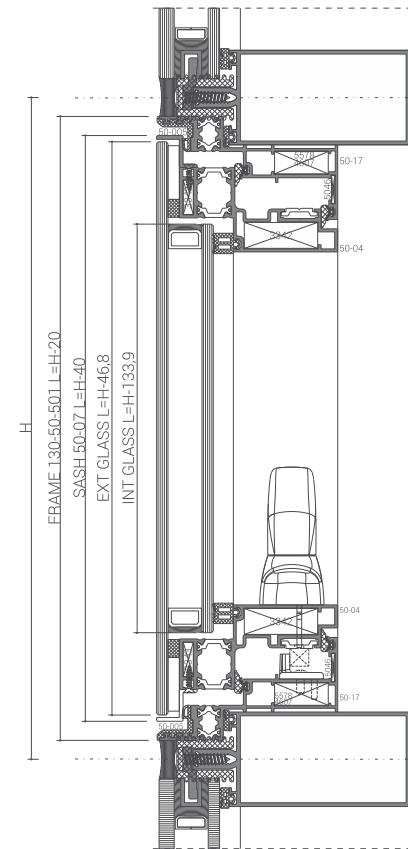
Element / profile	Profile code	Cutting length	Cutting angle text(mm)	Number of pieces
Frame	50-17	H-20mm	45°	2
Sash	50-04	H-40mm	45°	2
External glass		H-46,8mm		1
Internal glass		H-133,9mm		1

**Horizontal elements**

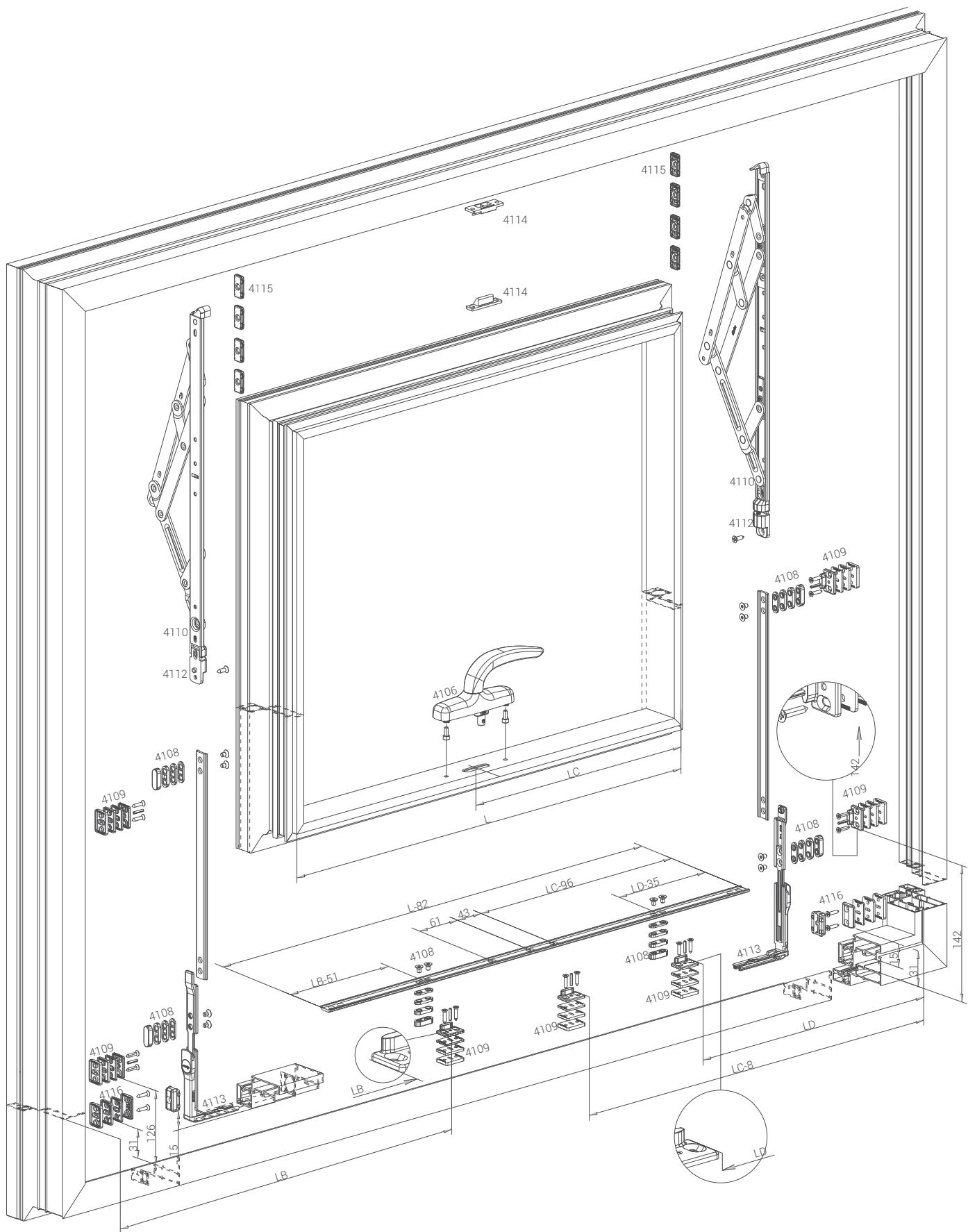
Element / profile	Profile code	Cutting length	Cutting angle text(mm)	Number of pieces
Frame	50-17	H-20mm	45°	2
Sash	50-04	H-40mm	45°	2
External glass		H-46,8mm		1
Internal glass		H-133,9mm		1

**Corners**

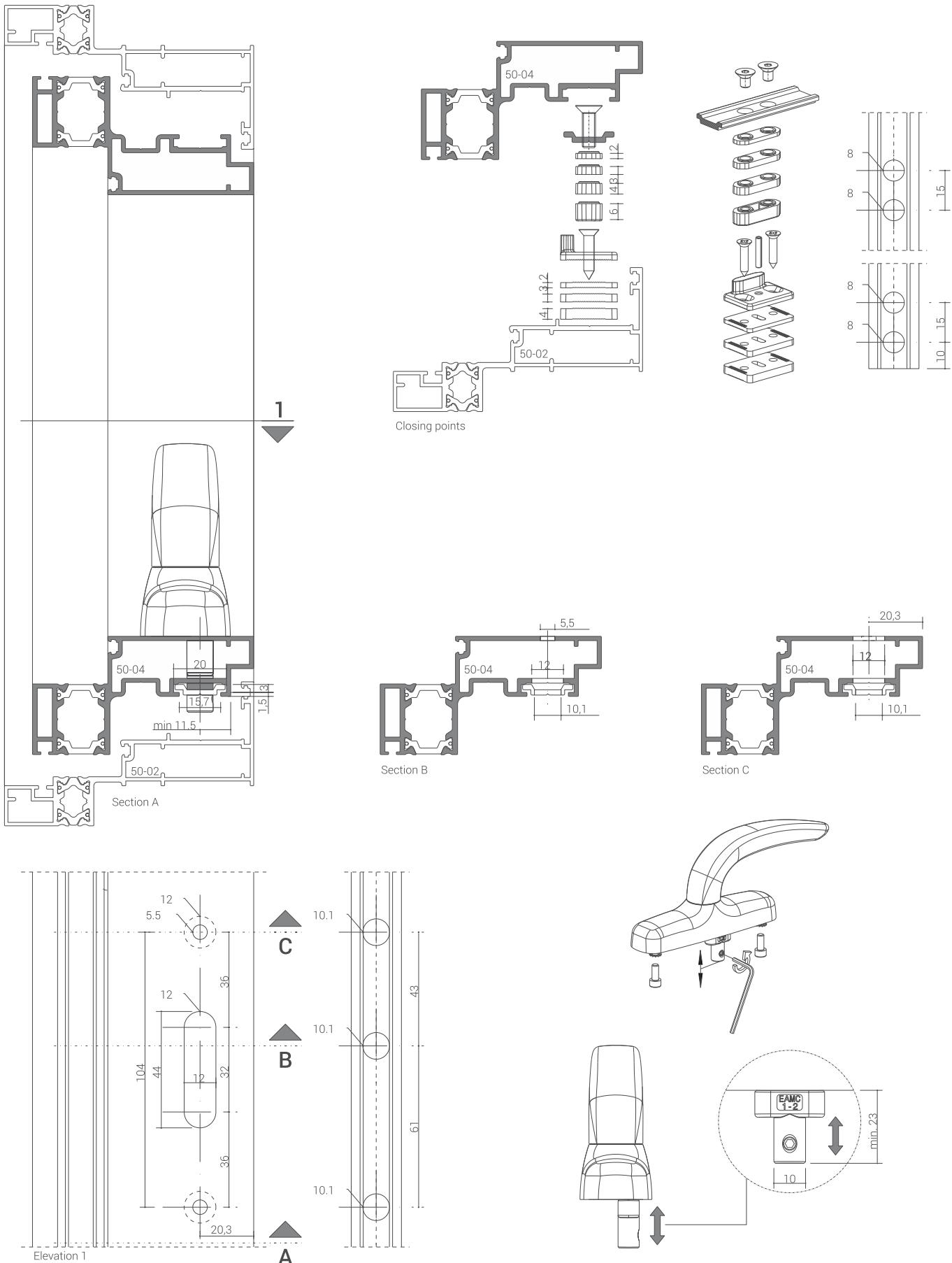
Profile code	Corner	Number of pieces
50-17	5046	4
	4607 / 5578	4
50-04	3343	4
	3342	4



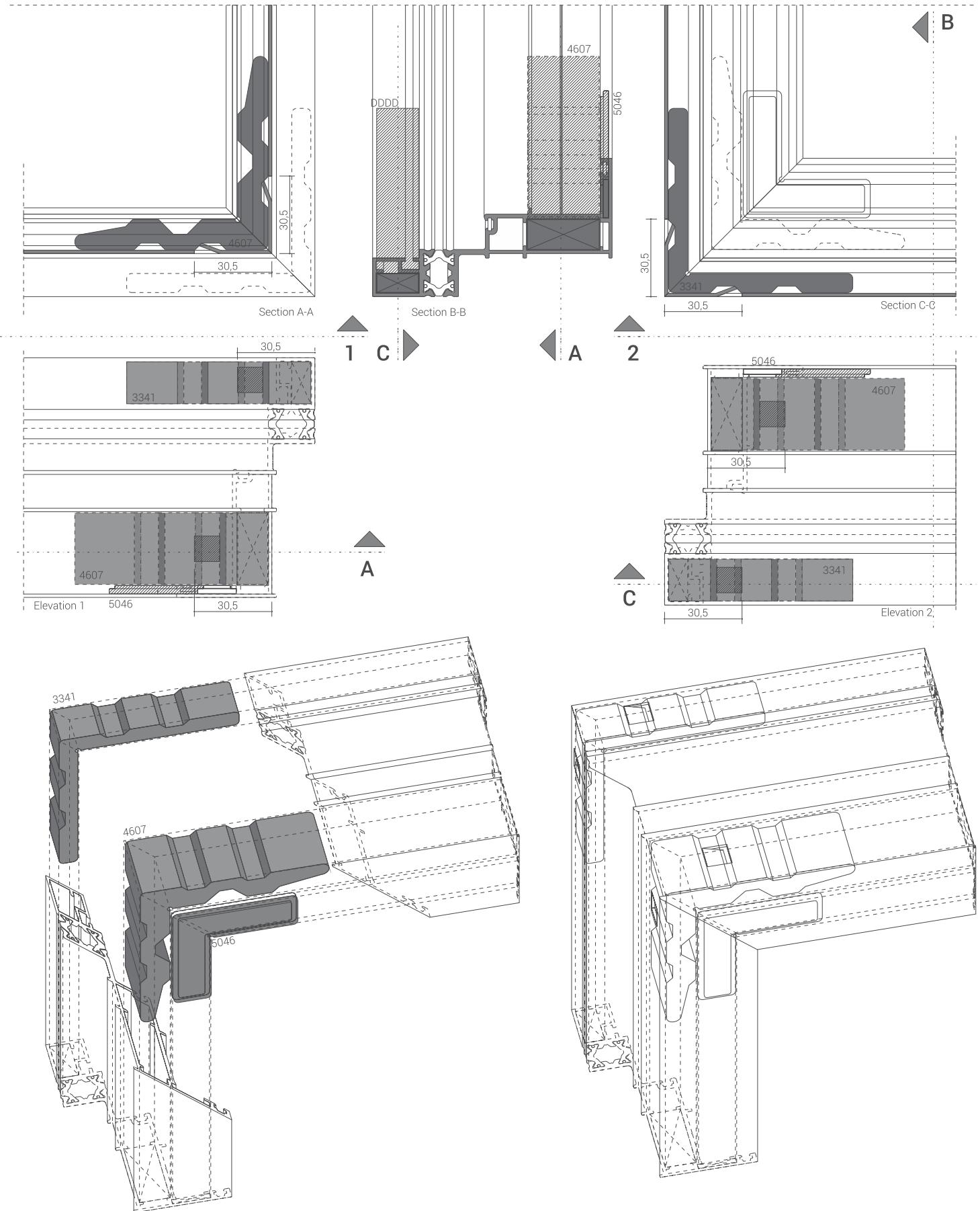
Scale 1:4



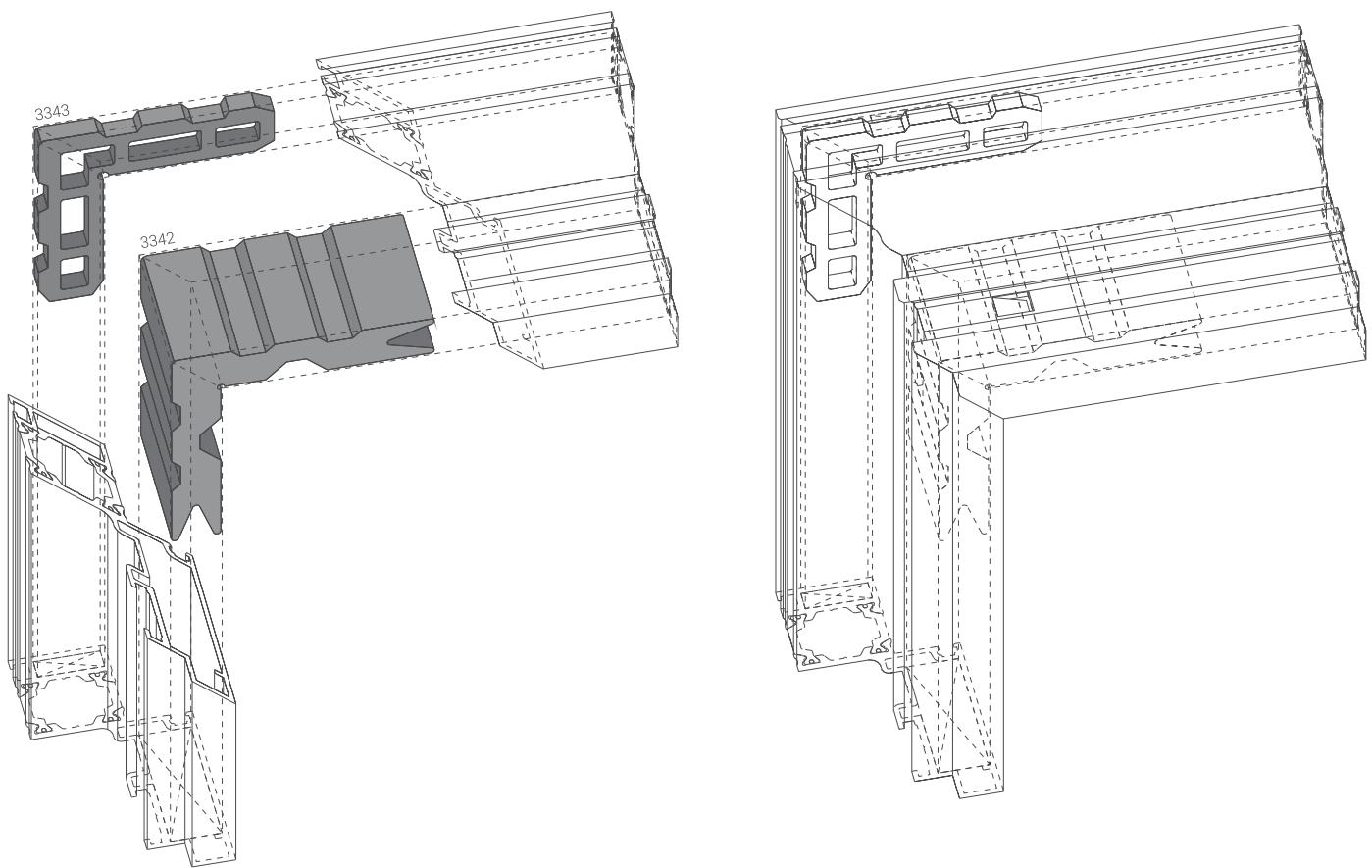
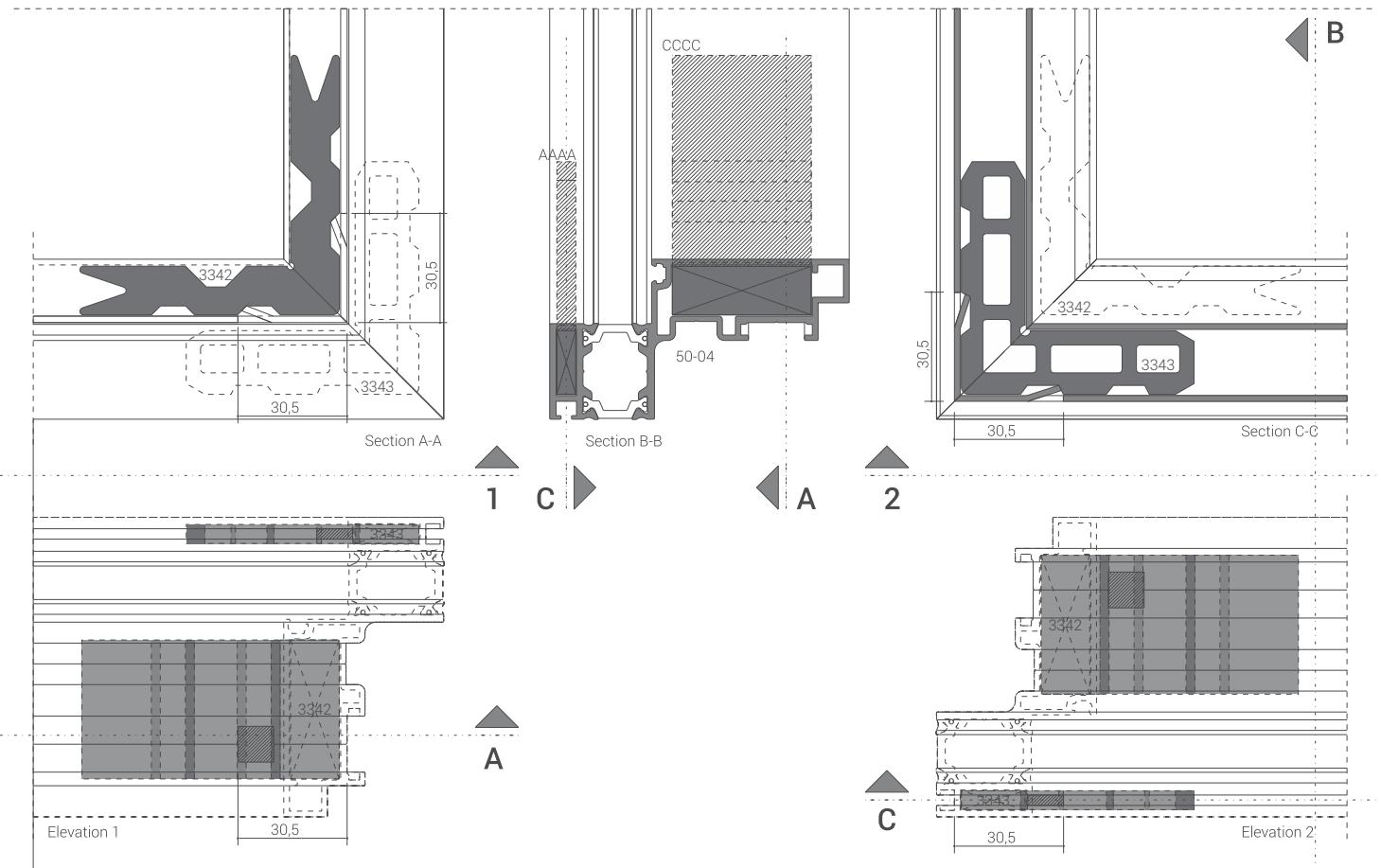
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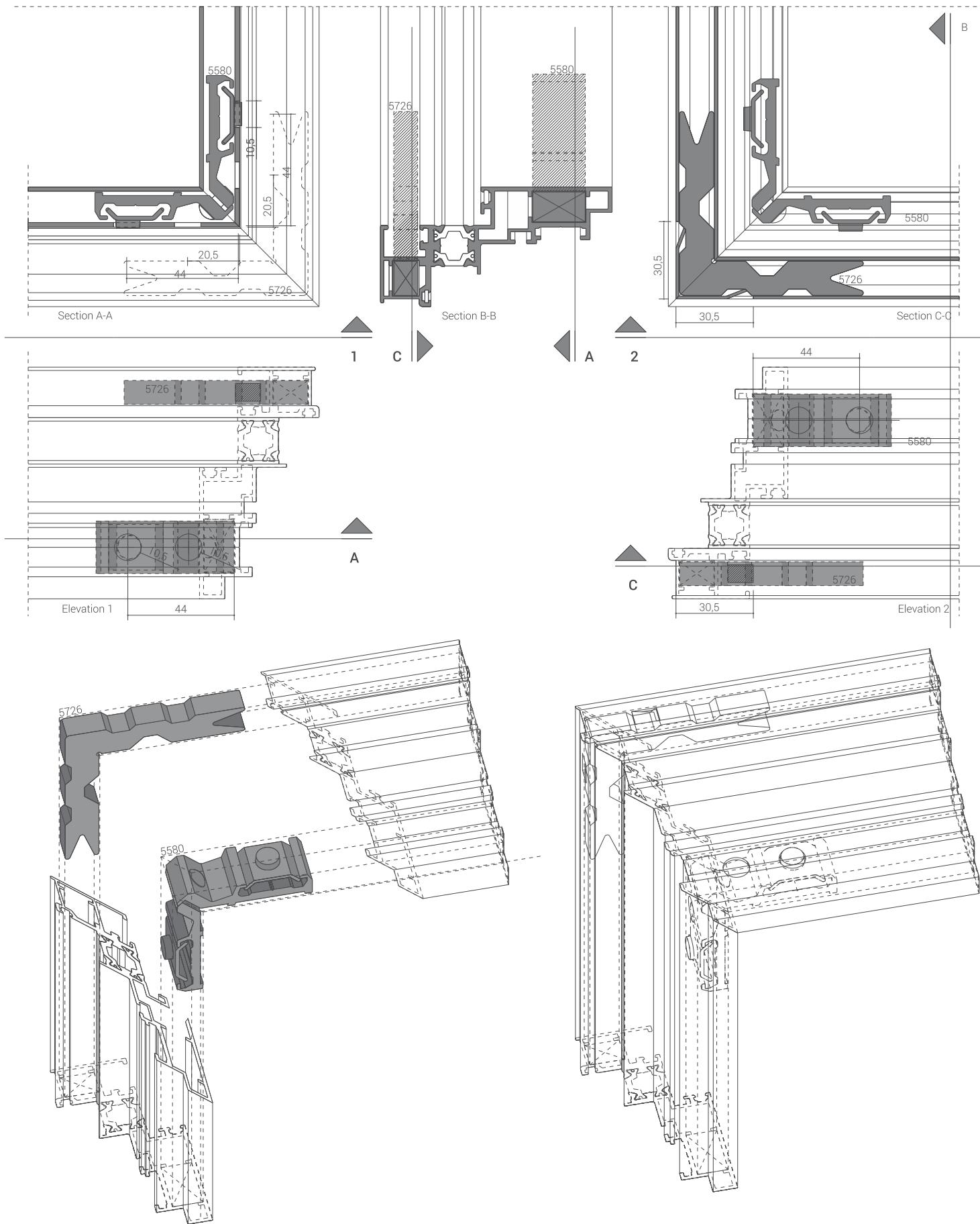
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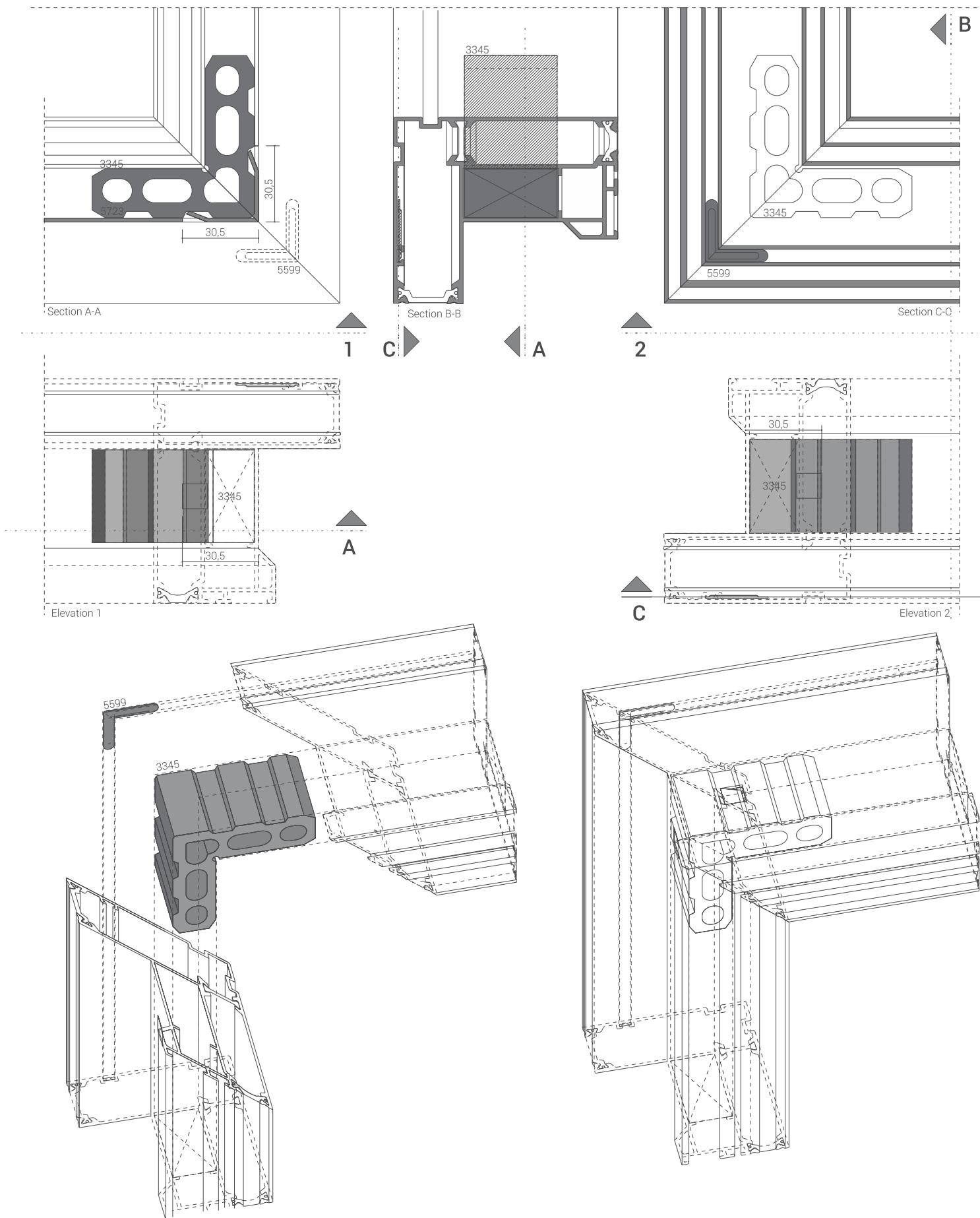
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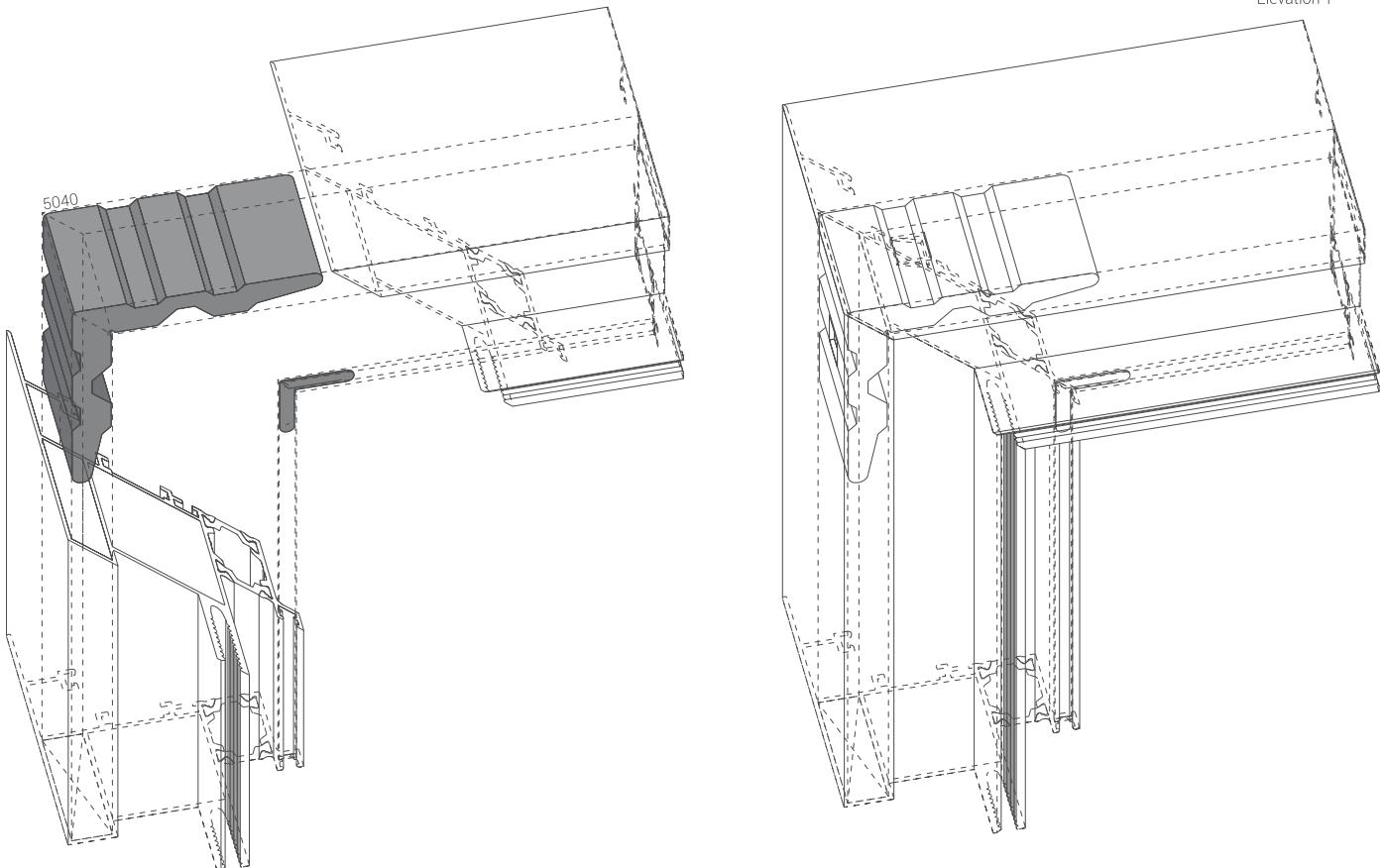
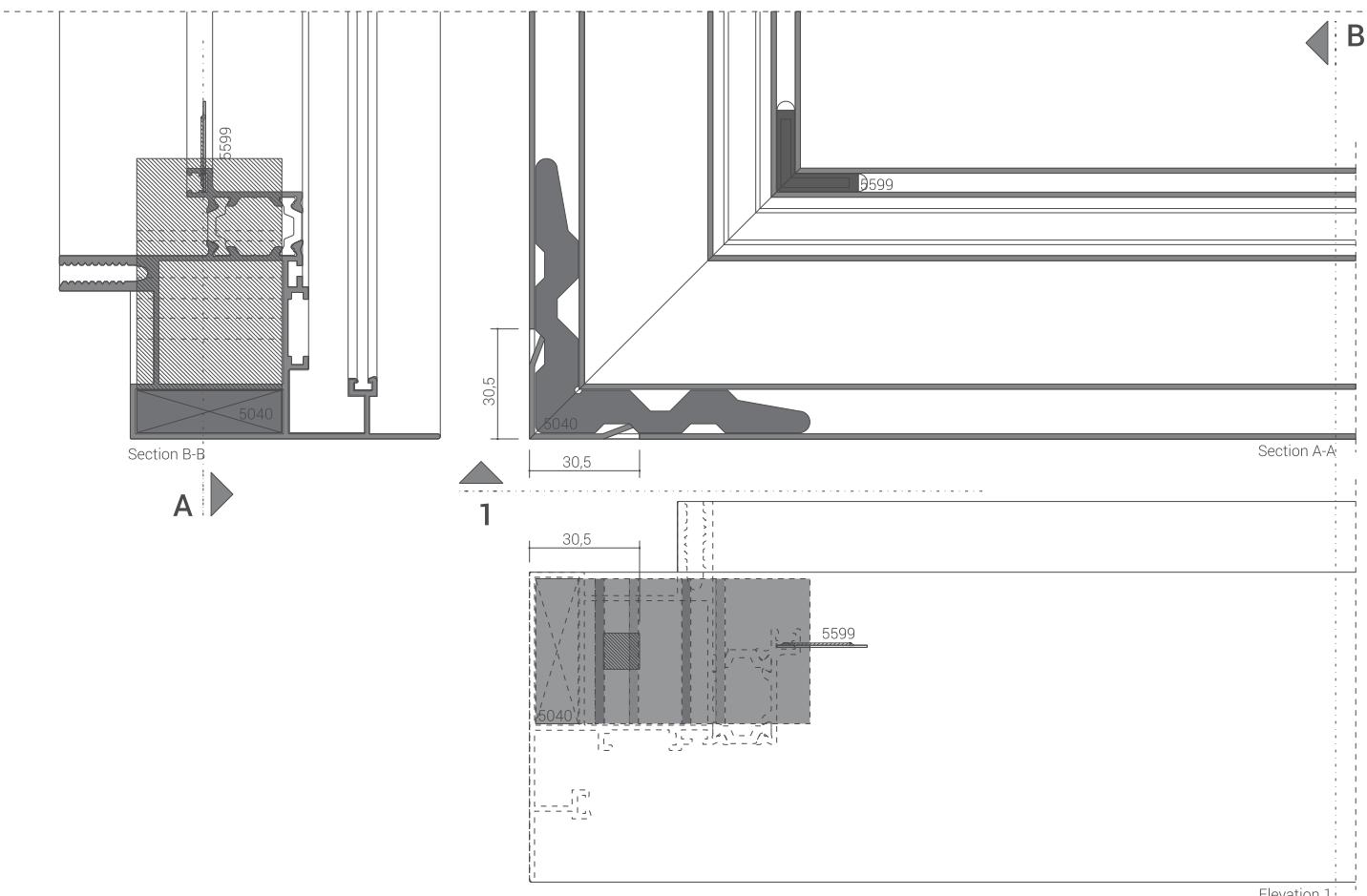
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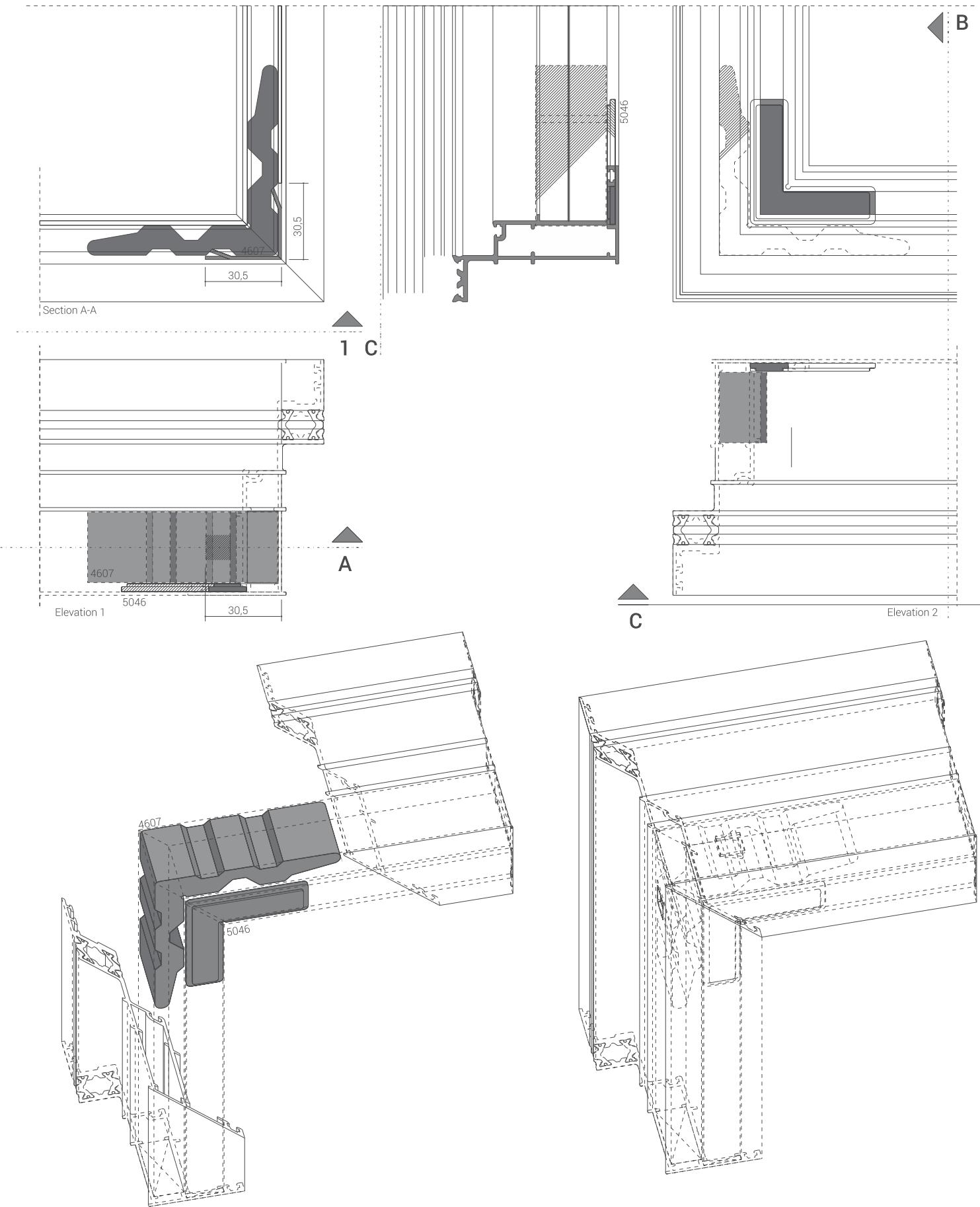
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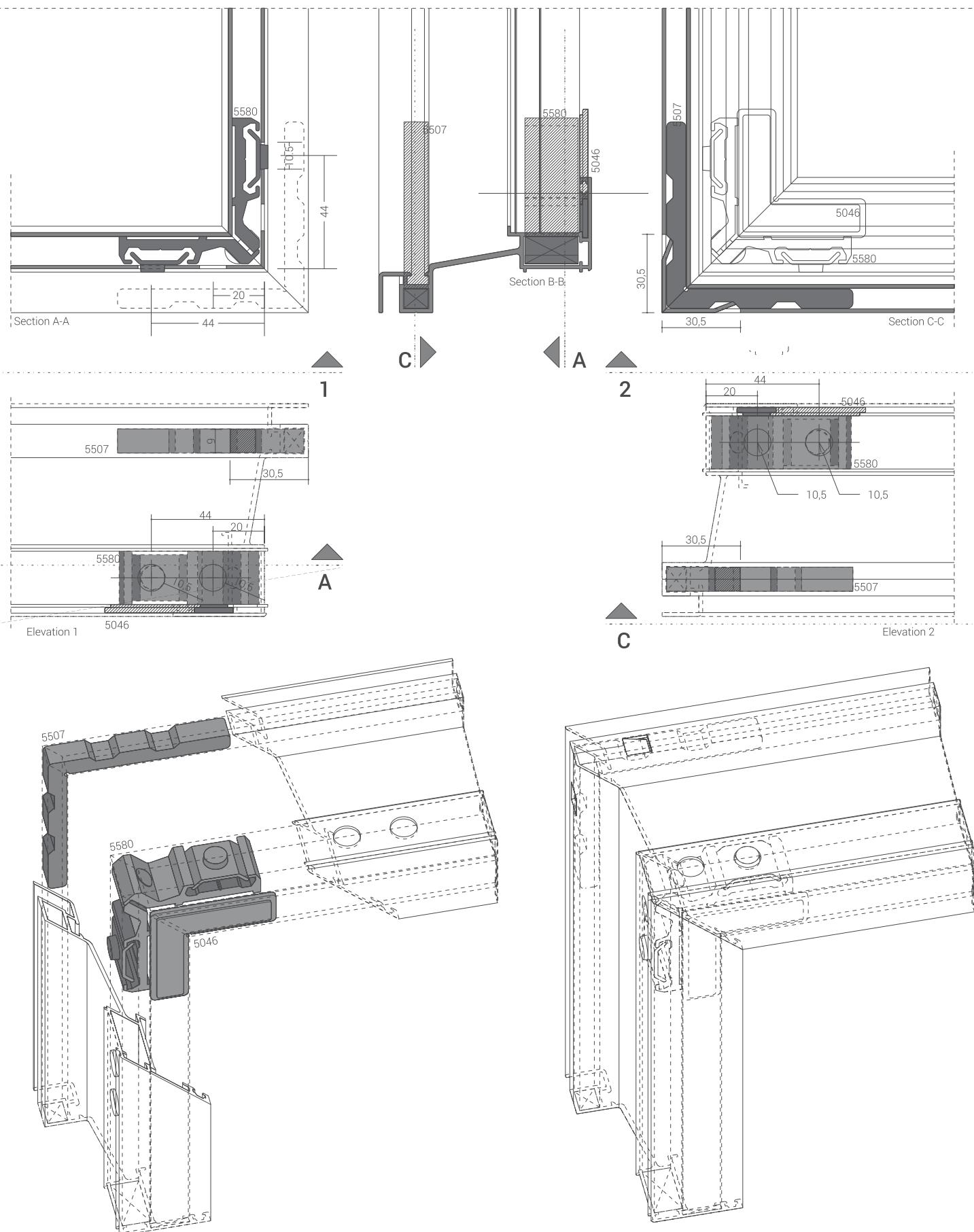
Scale 1:2



Scale 1:2



Scale 1:2



Scale 1:2