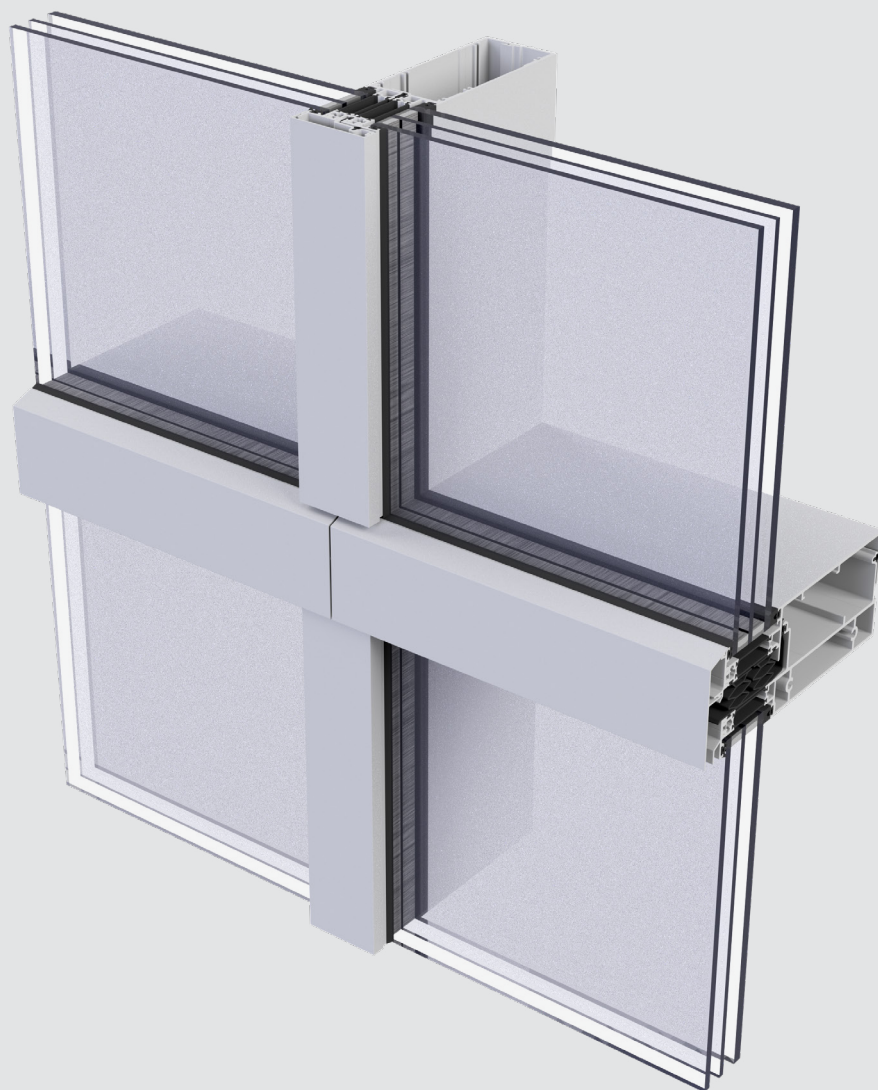


FACADE ELEMENT SYSTEM P76E



Facade element system P76E

Applications

- Easy-to-install element system for **facade construction**.

Features

- Highly insulated aluminium element facade system, U_{cw} -value down to **0,49 W/m²K** (1500x3300).
- Appearance according to the facade system from the inside and outside, without visible sealing groove.
- Powder coated or anodized surface treatment. Different finishes of inside and outside possible.
- New profile shapes can be produced easy and quickly from our experienced design and production teams.
- Minimal care and maintenance required.
- High resistance to Nordic weather conditions
- Air permeability **AE 1200** (EN 12152)
- Water tightness **RE 1050** (EN 12154)
- Standard frame width vertical 75-80 mm, horizontal 90-120 mm
- Standard frame depth 170 mm.
- Glass thickness from 56 mm up to 61 mm.
- P76E-system will always be tailored to the project.
- Element mounting
- Panels

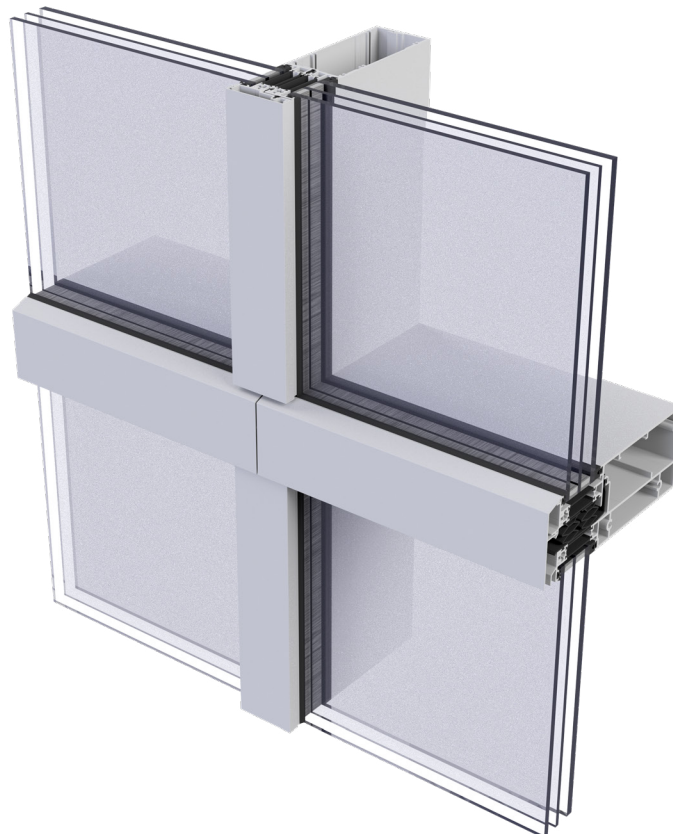
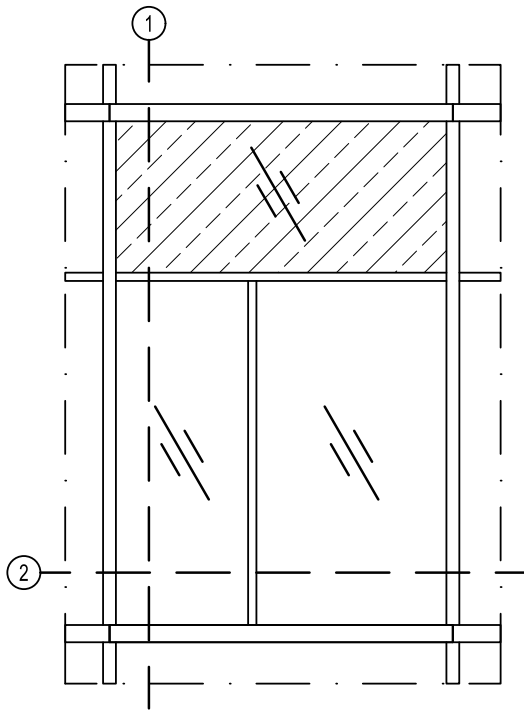
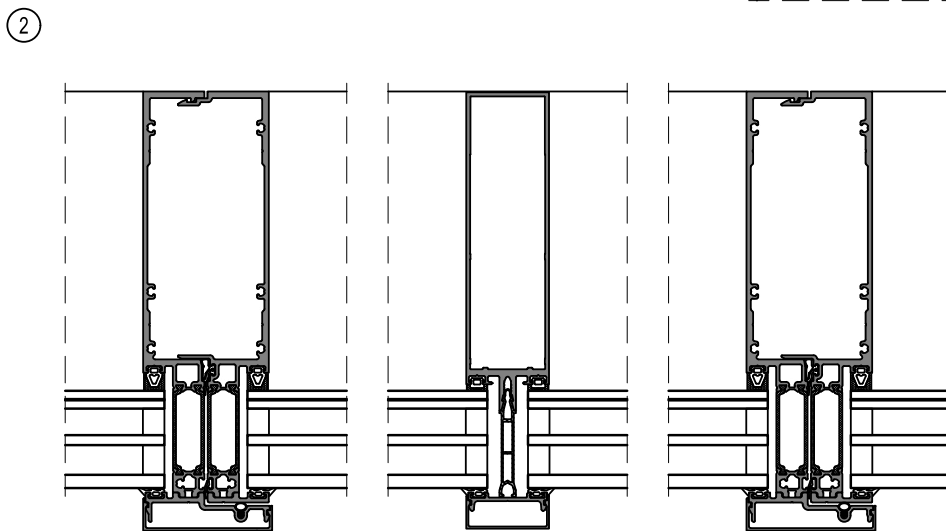
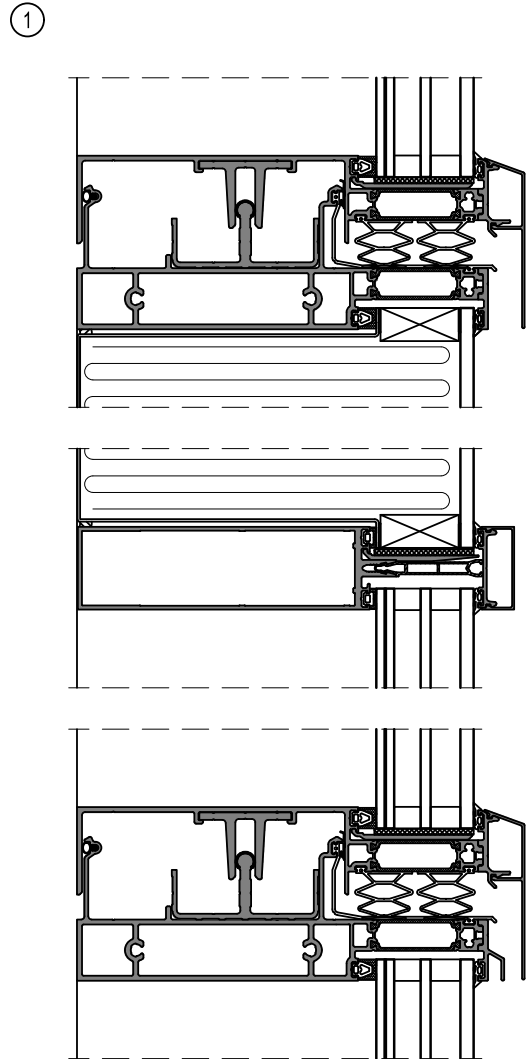


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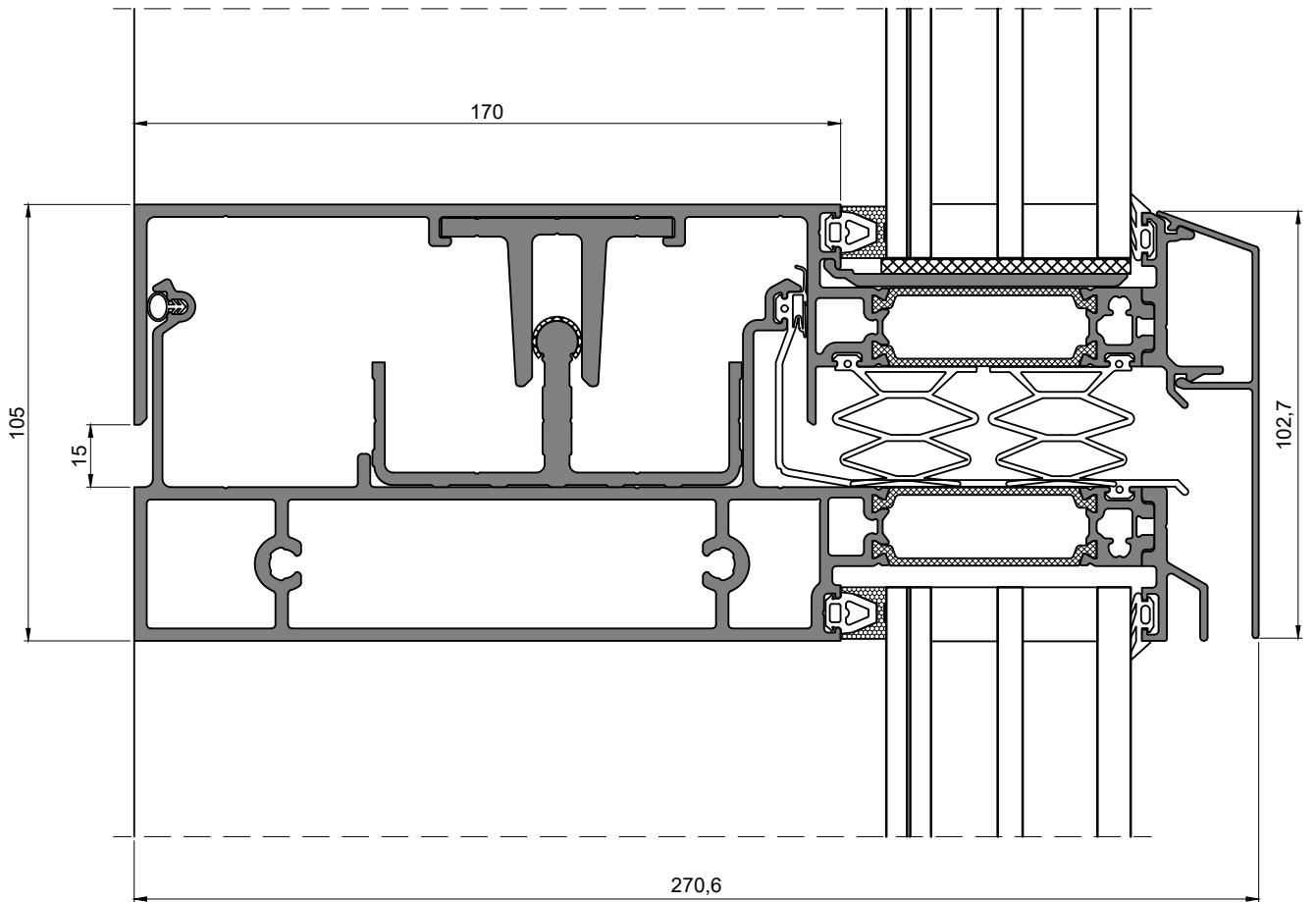


GLASS-ELEMENT



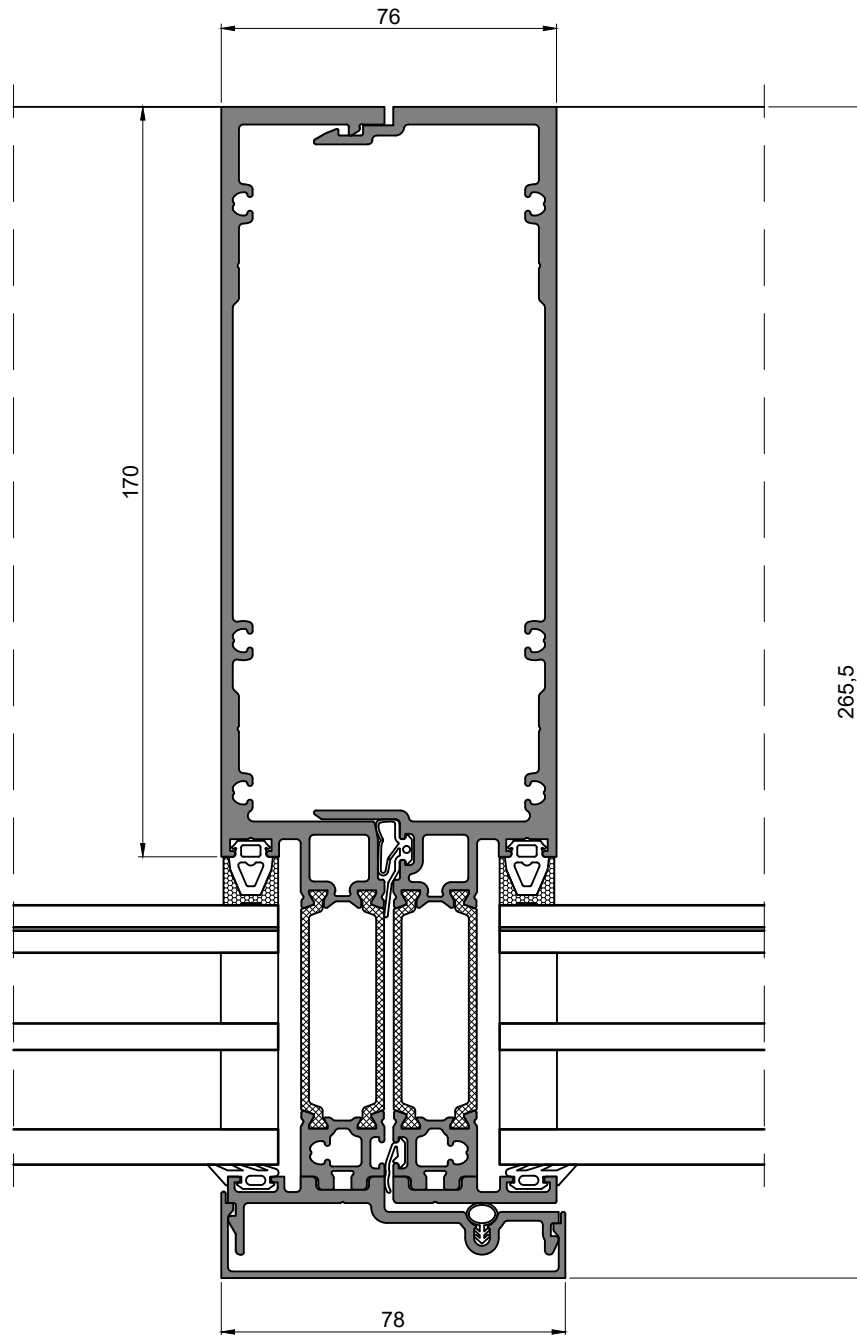
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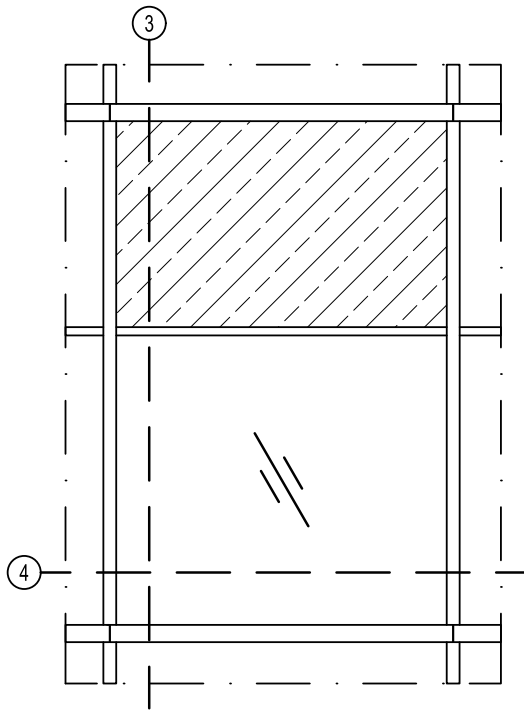
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DETAIL 2

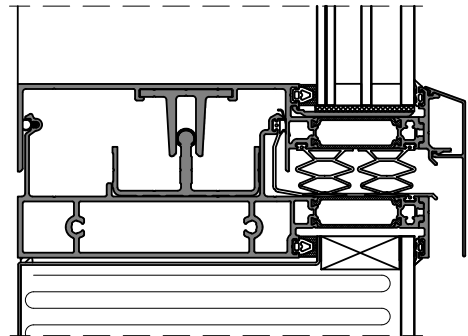
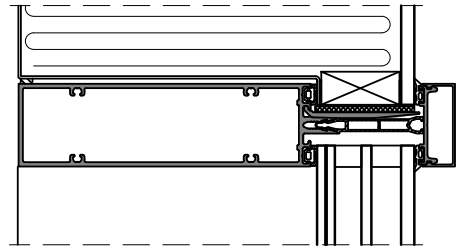
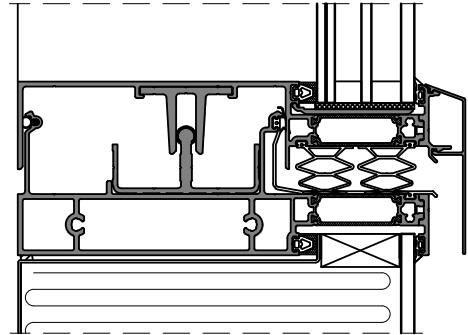
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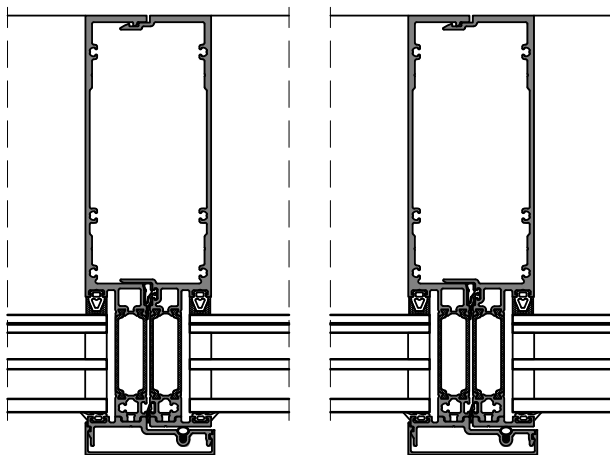


PANEL-GLASS-ELEMENT

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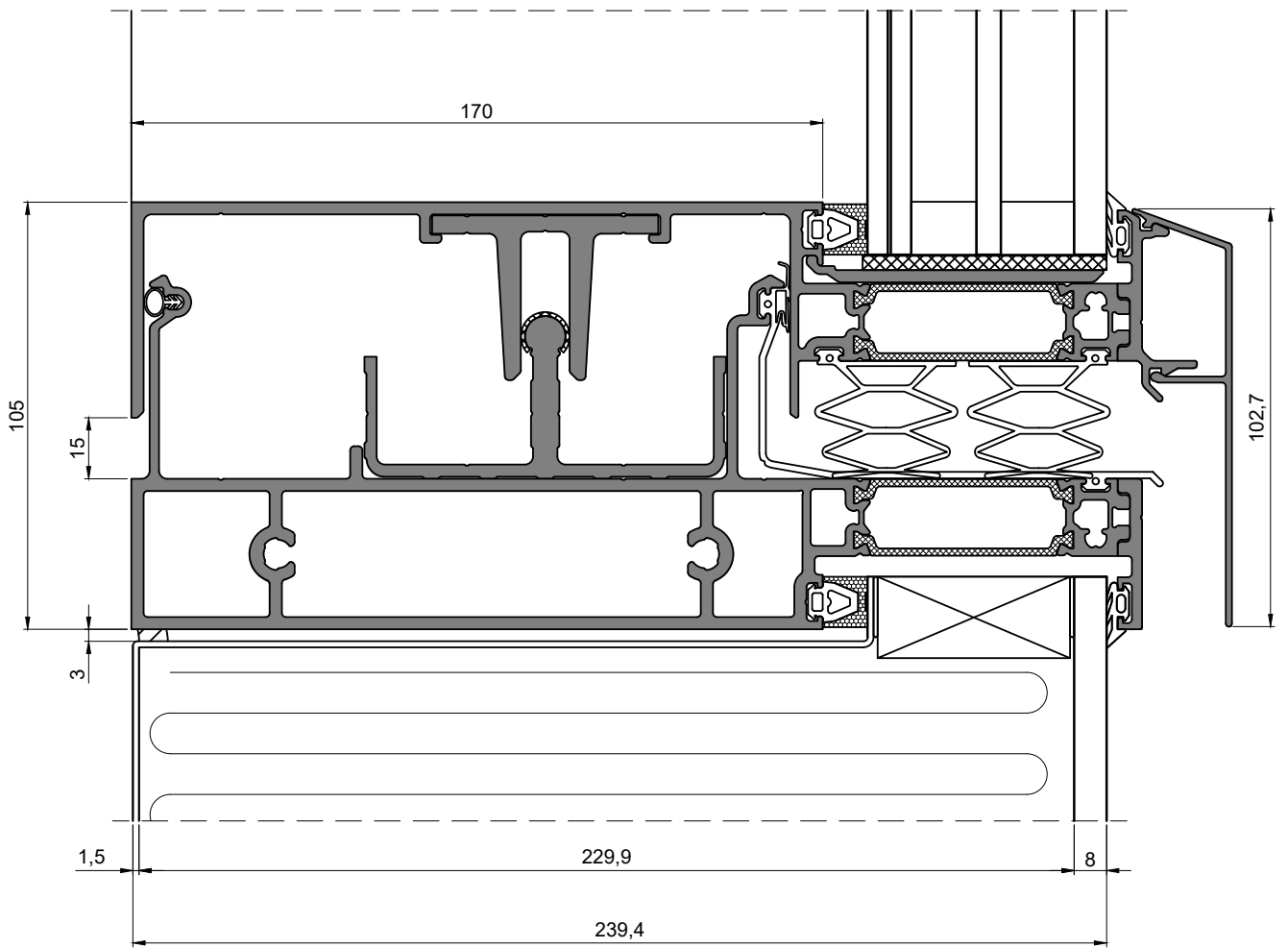


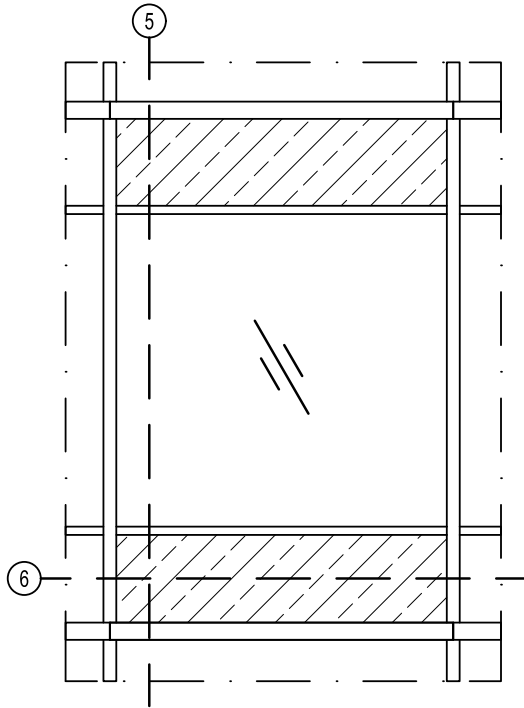
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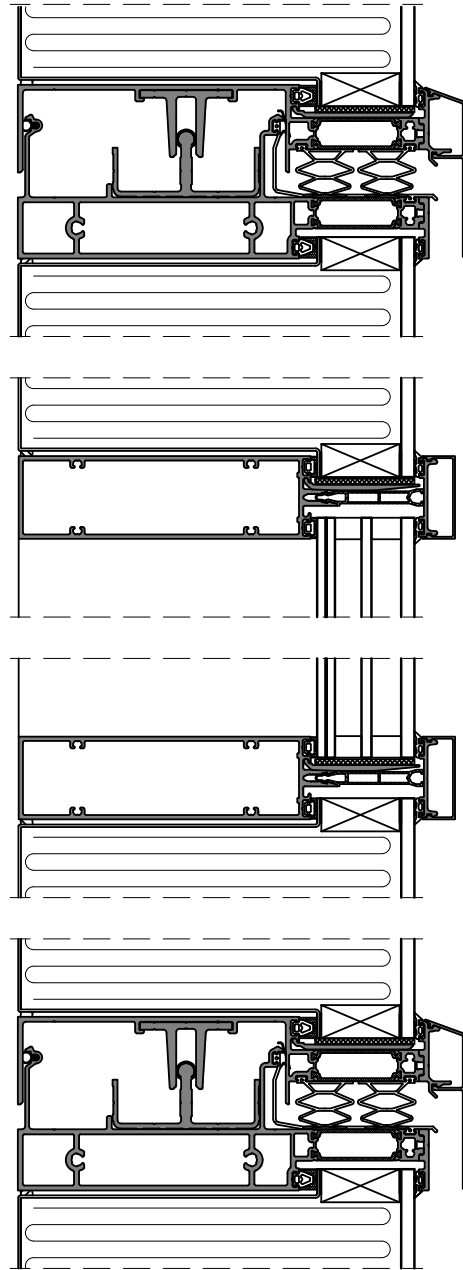
DETAIL 3

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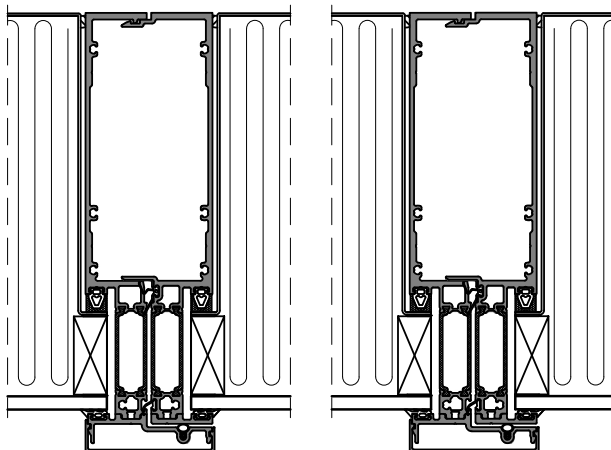


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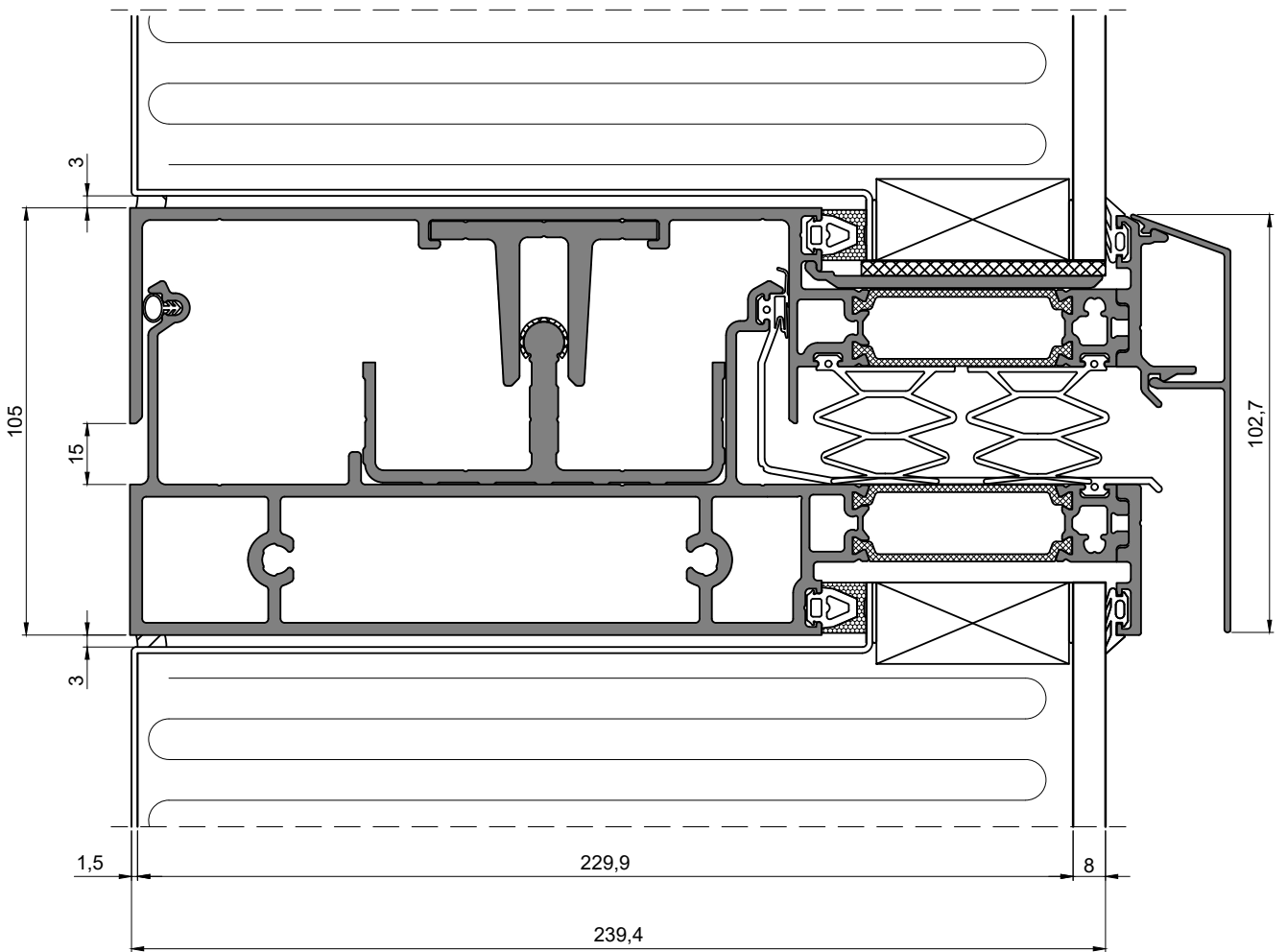
PANEL-GLASS-PANEL-ELEMENT

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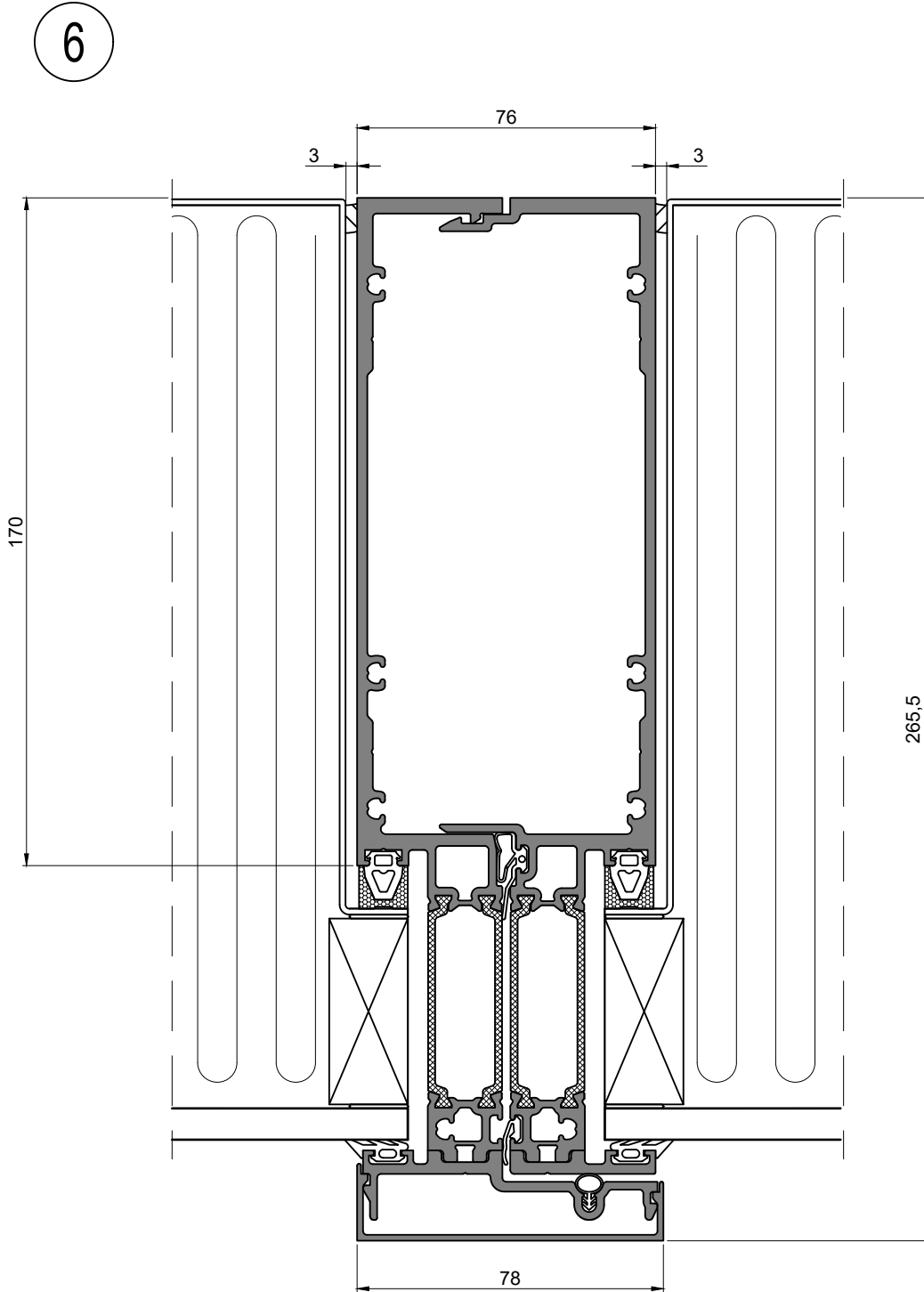


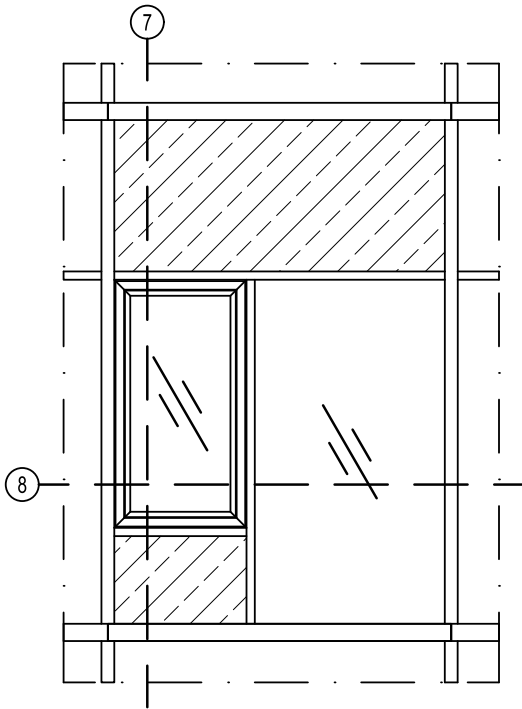
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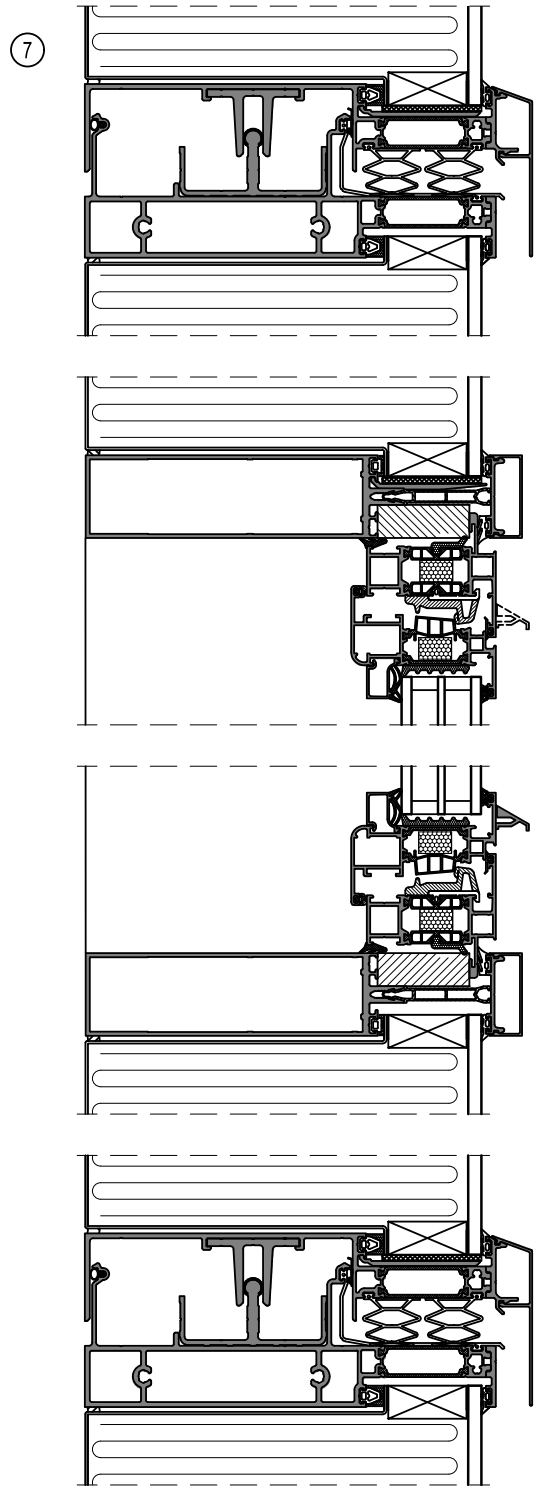


DETAIL 6

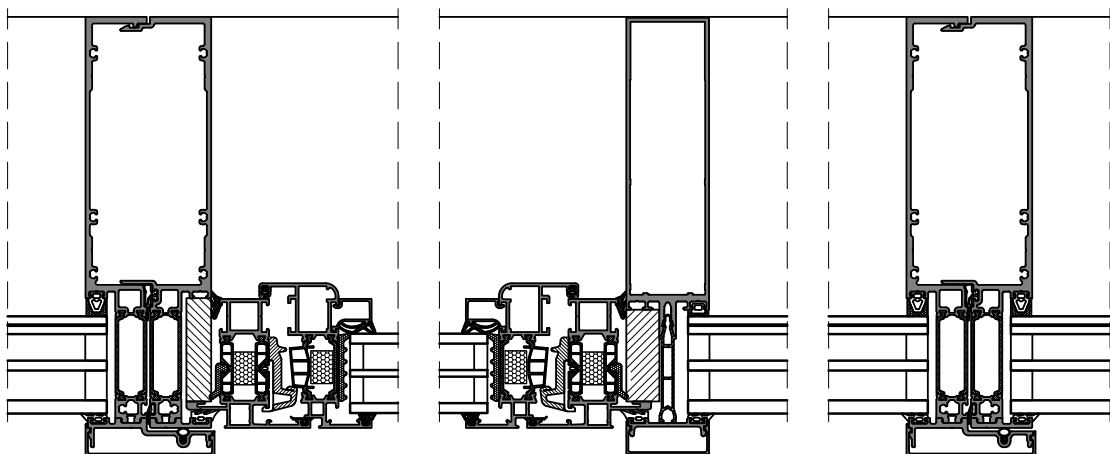




WINDOW-ELEMENT

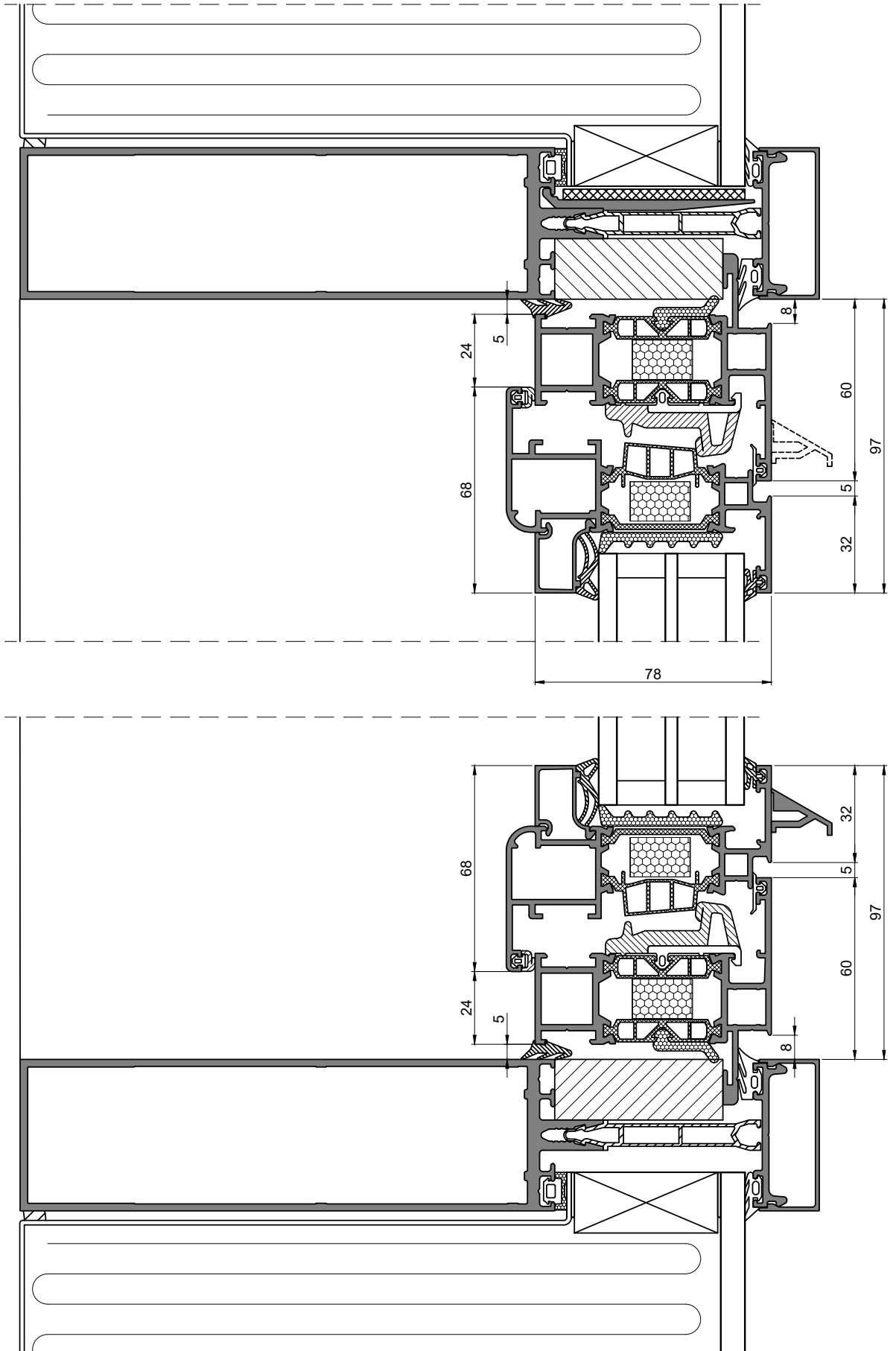


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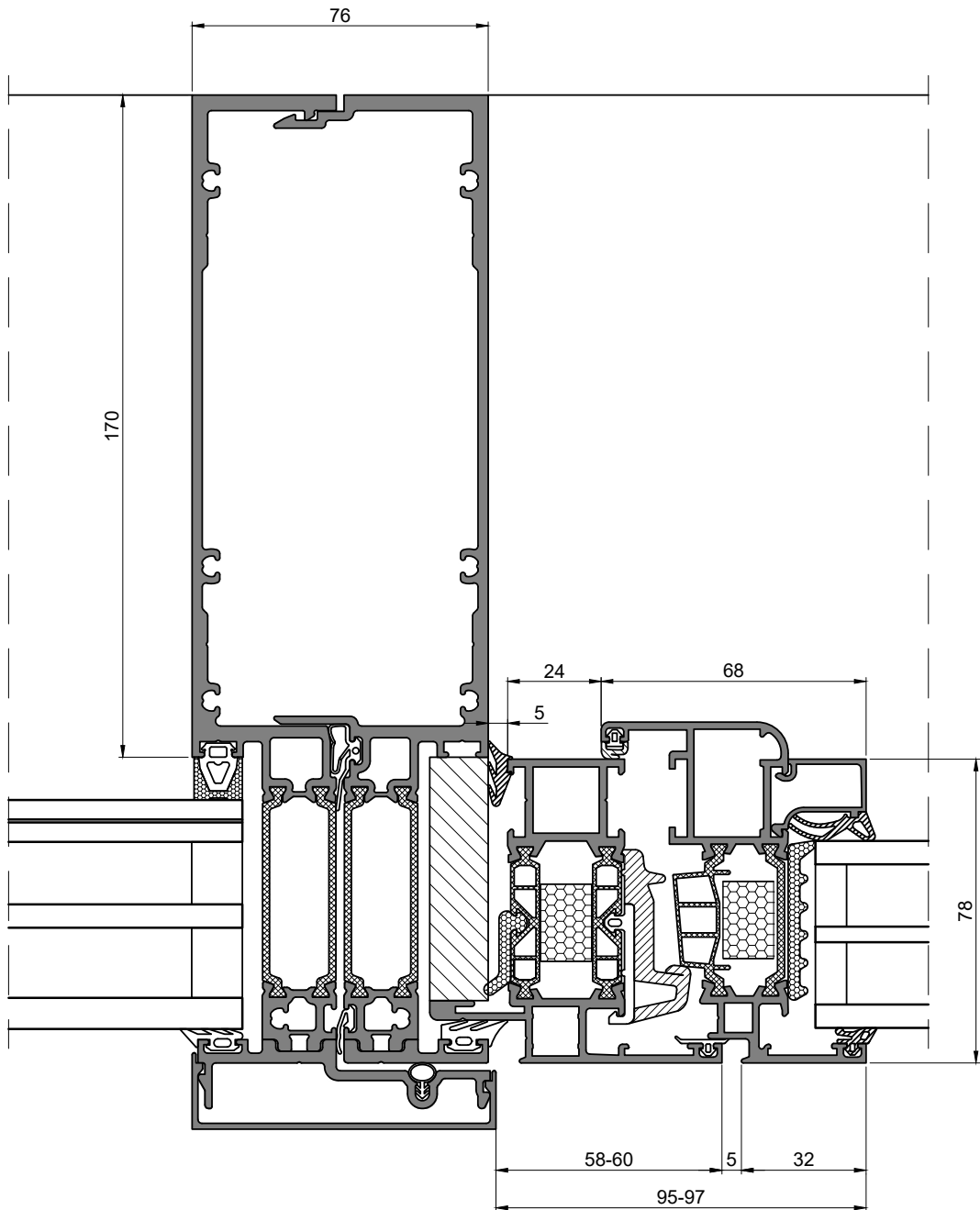
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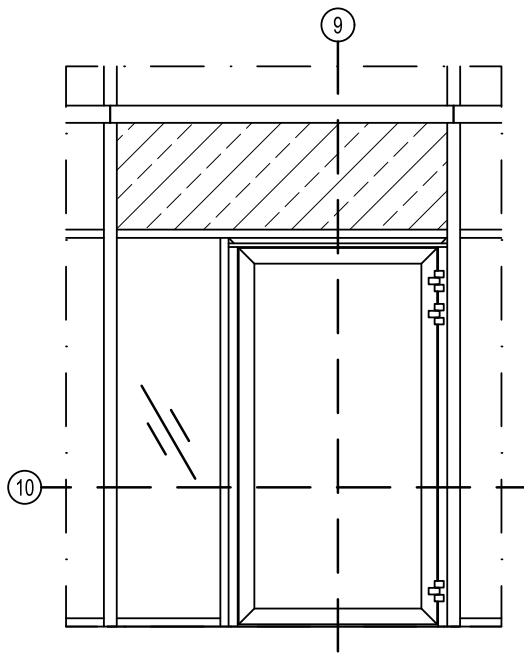
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DETAIL 8

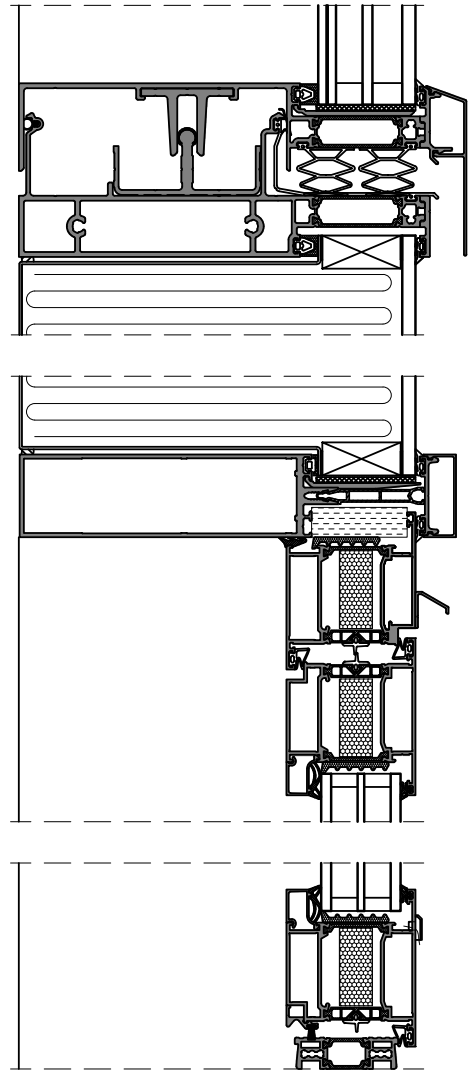
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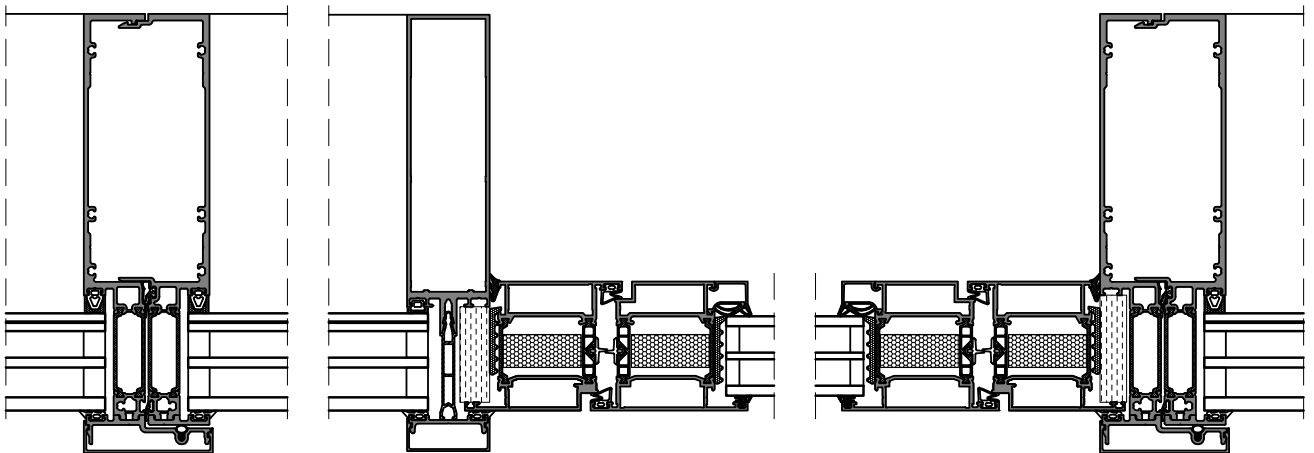


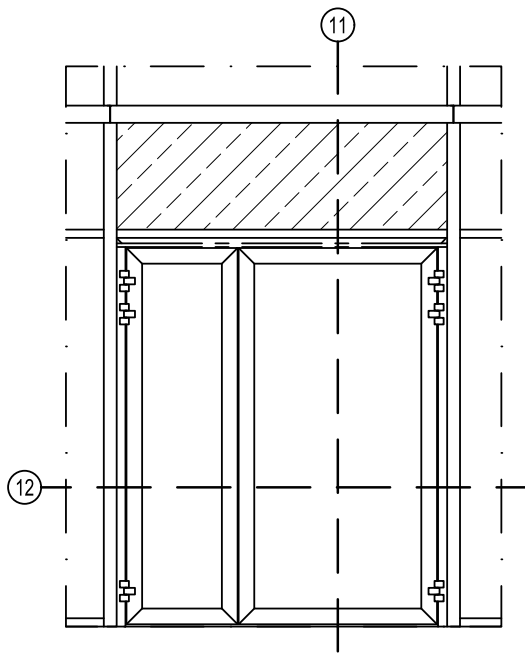
DOOR-ELEMENT

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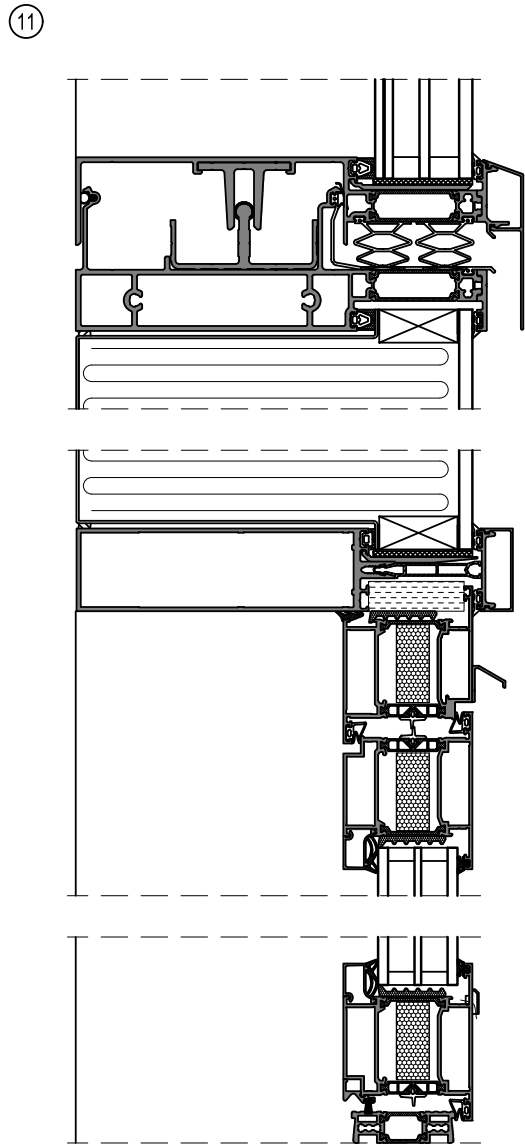


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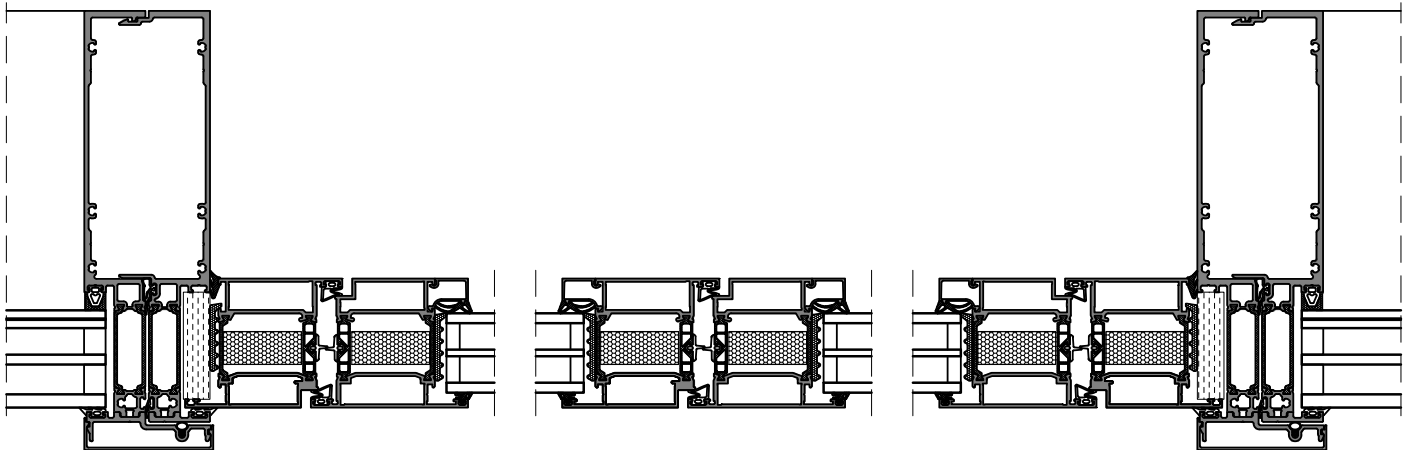




DOUBLE DOOR-ELEMENT

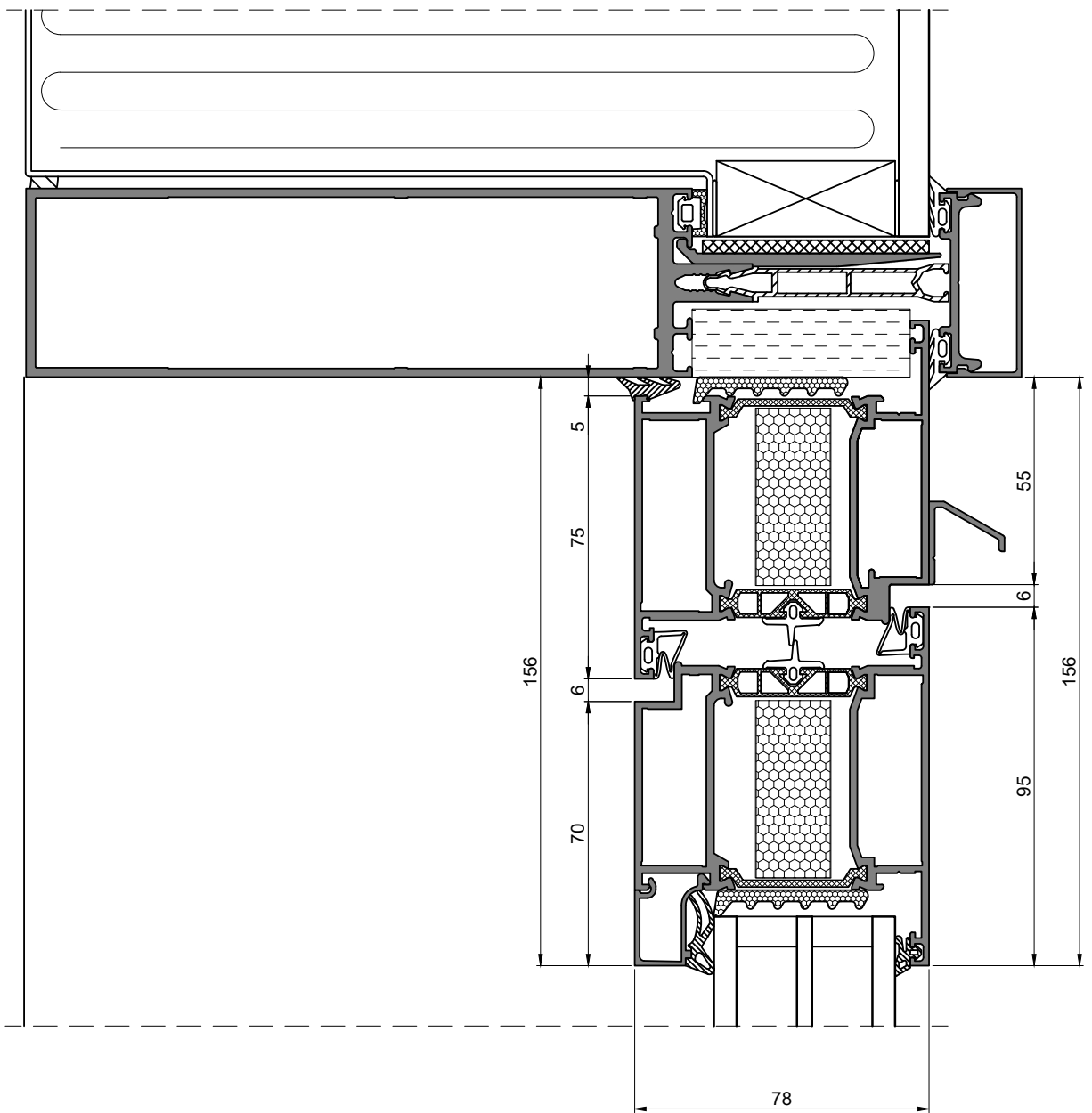


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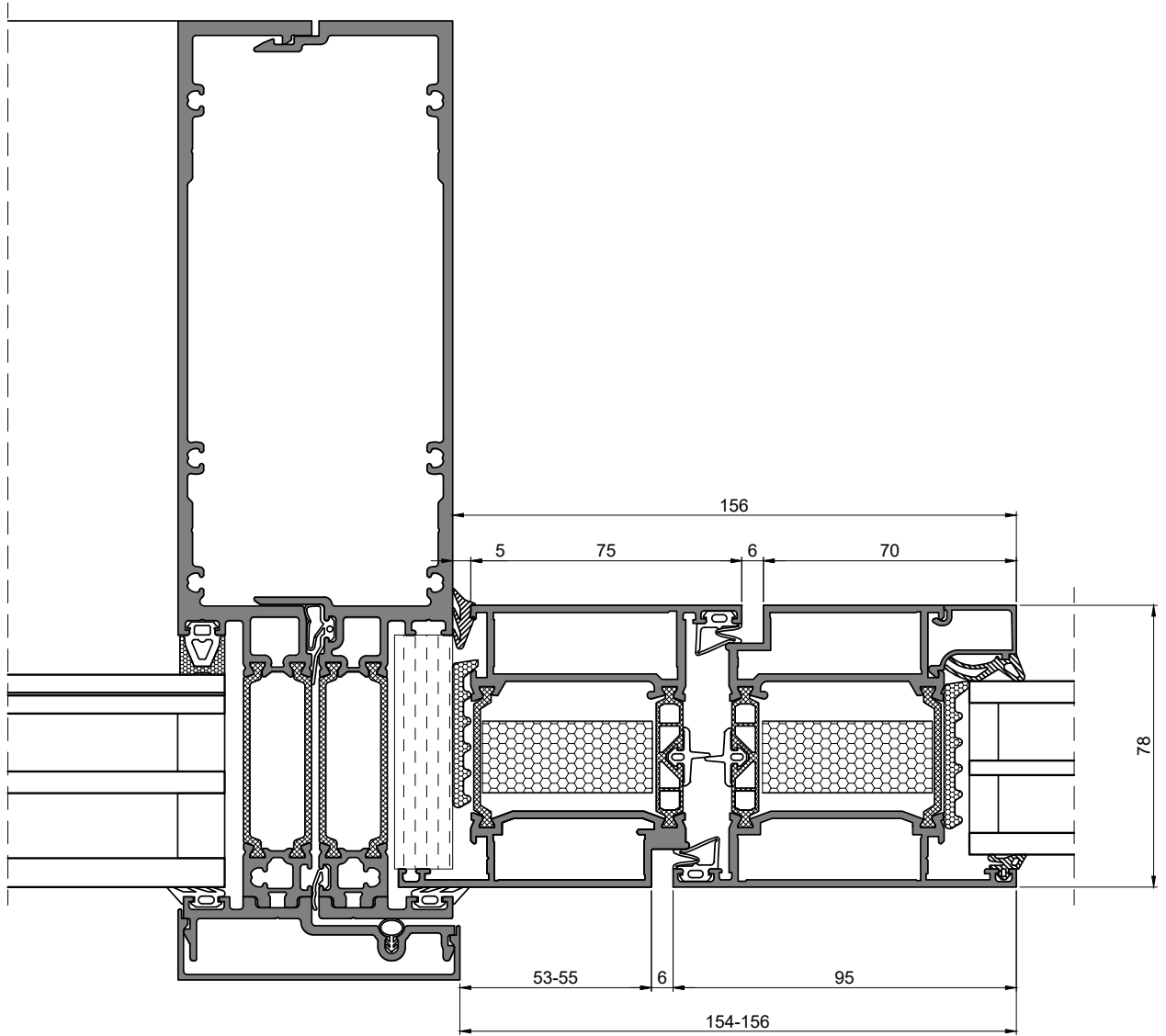
DETAIL 11

11

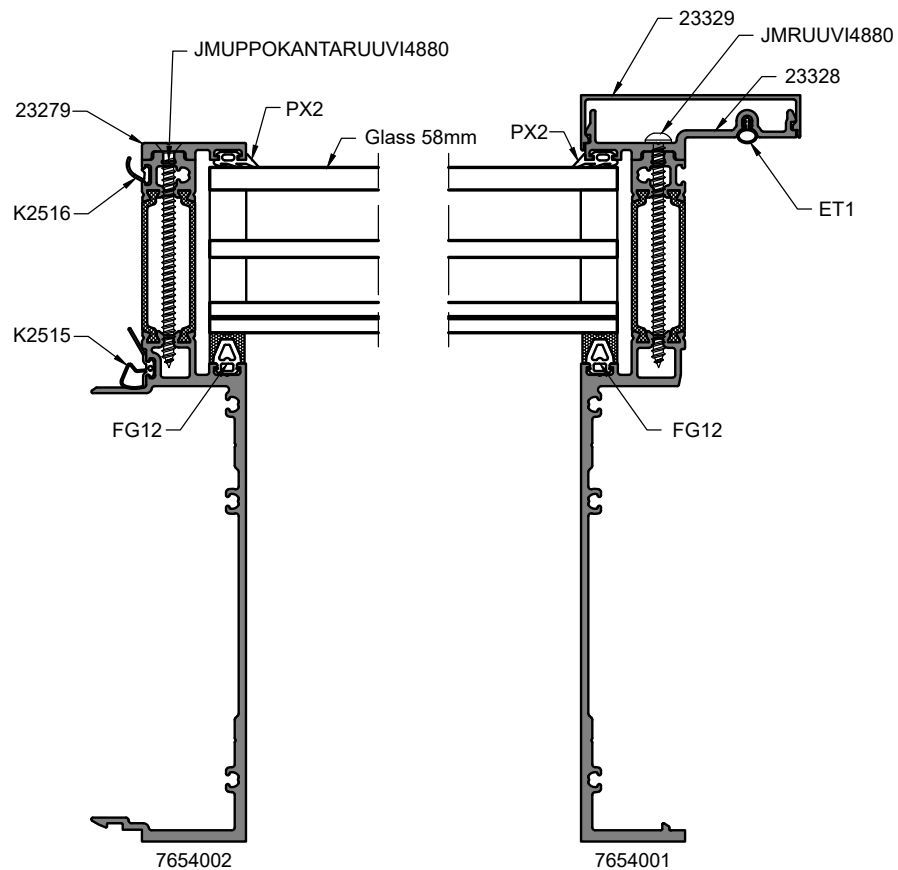
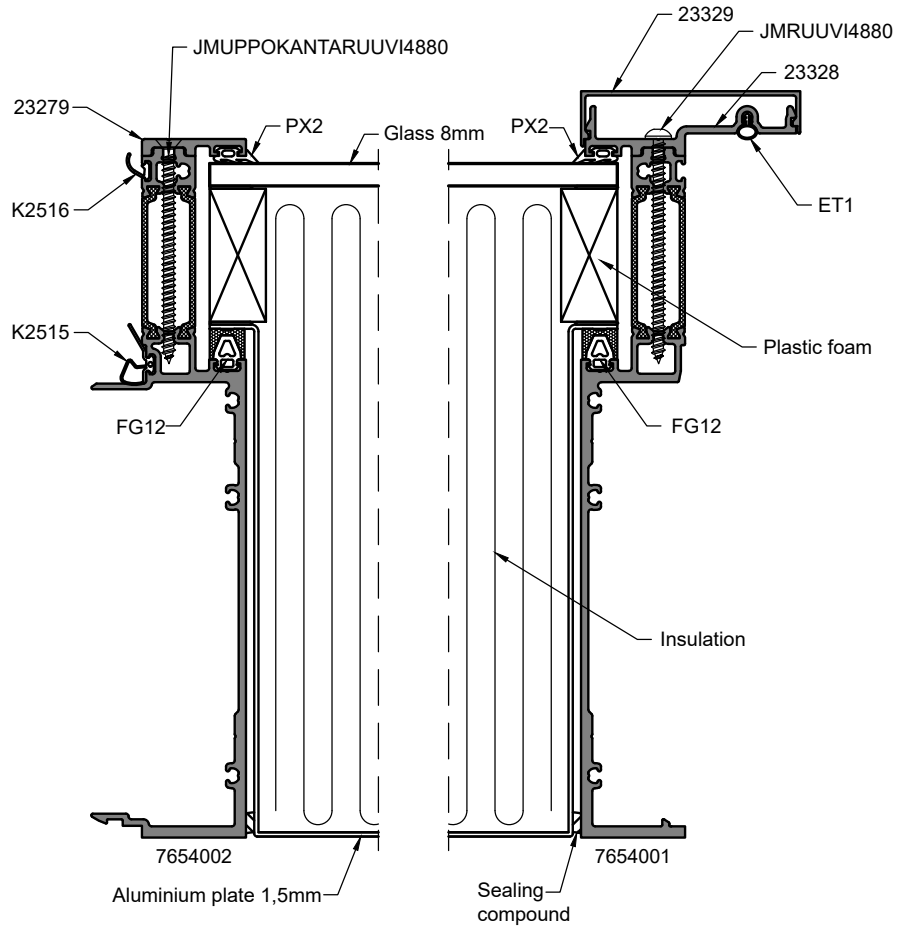


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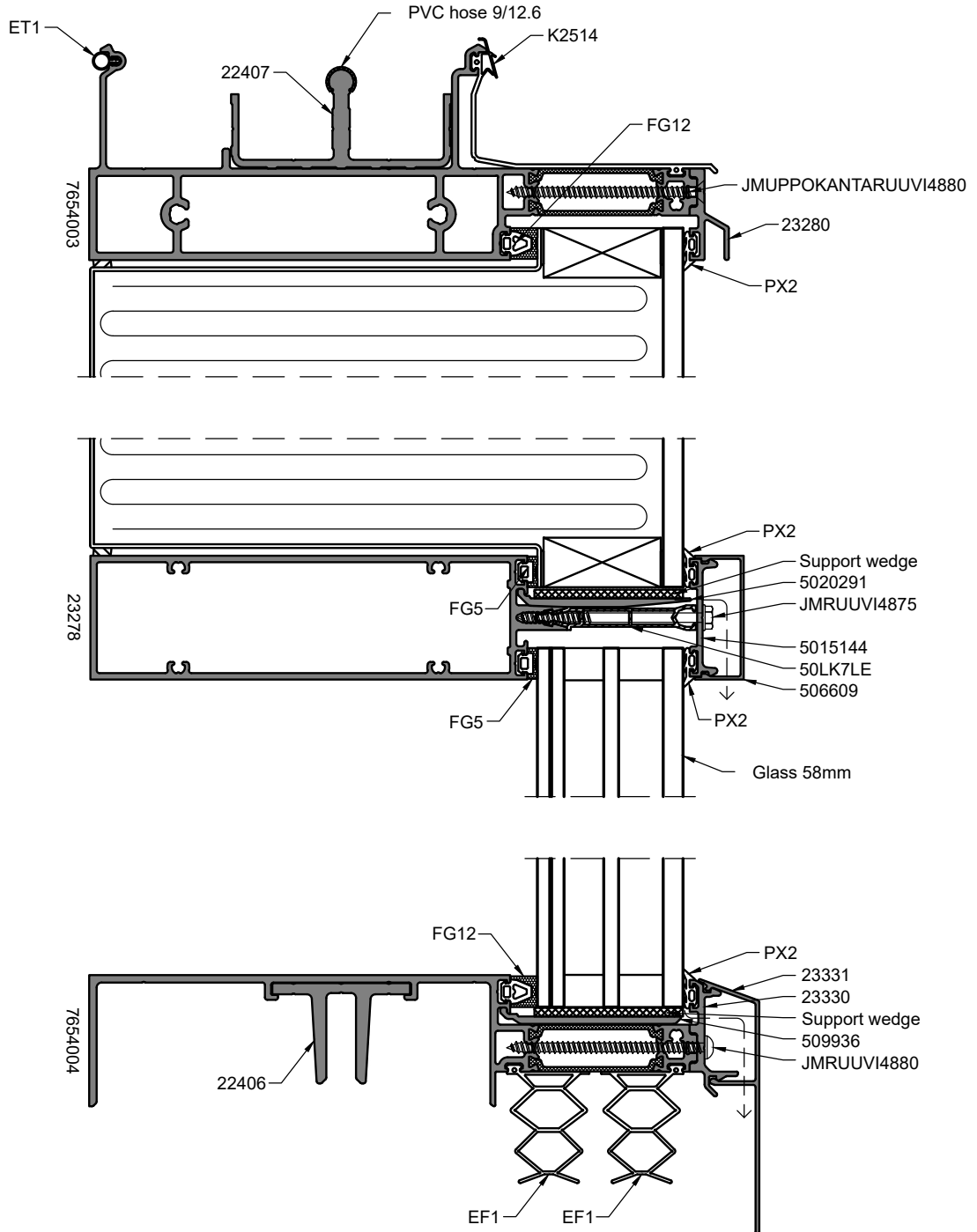
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HORIZONTAL SECTION



VERTICAL SECTION



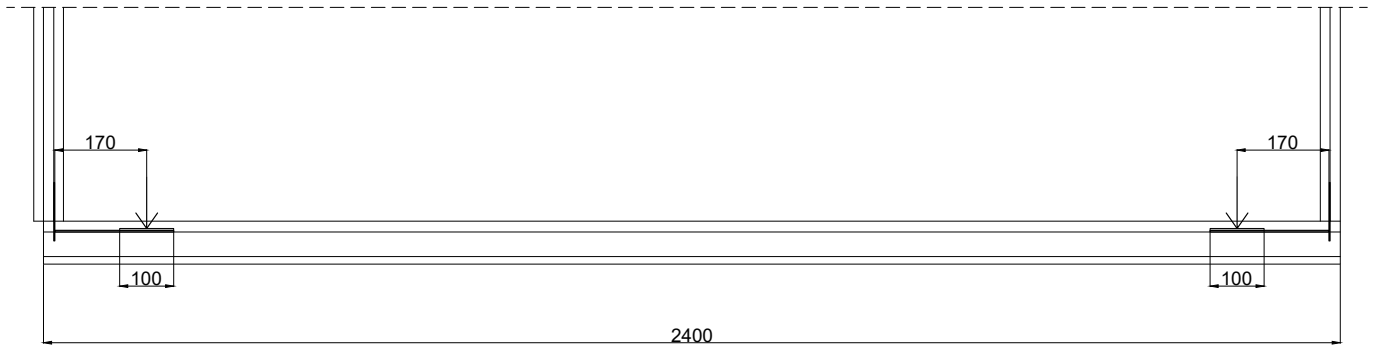
PROPERTIES/ CLASSIFICATION ACCORDANCE TO EN 13830

Properties	P76E Element systems		
Fire resistance (E / EI) (EN 13501-2)	npd		
Watertightness (EN 12154)	RE1050		
Resistance to its own dead loads	Declared value according to project		
Wind load resistance (EN 13830) (EN 13116)	Declared value according to project ($\leq 2 \text{ kN/m}^2$)		
Direct airborne sound insulation ¹⁾ (EN ISO 717-1)	R_w npd	R_w+C npd	R_w+C_{tr} npd
Thermal transmittance (U_{cw}) ¹⁾ (EN 13947)	Declared value according to project (W/m ² K)		
Air permeability (EN 12152)	AE1200		

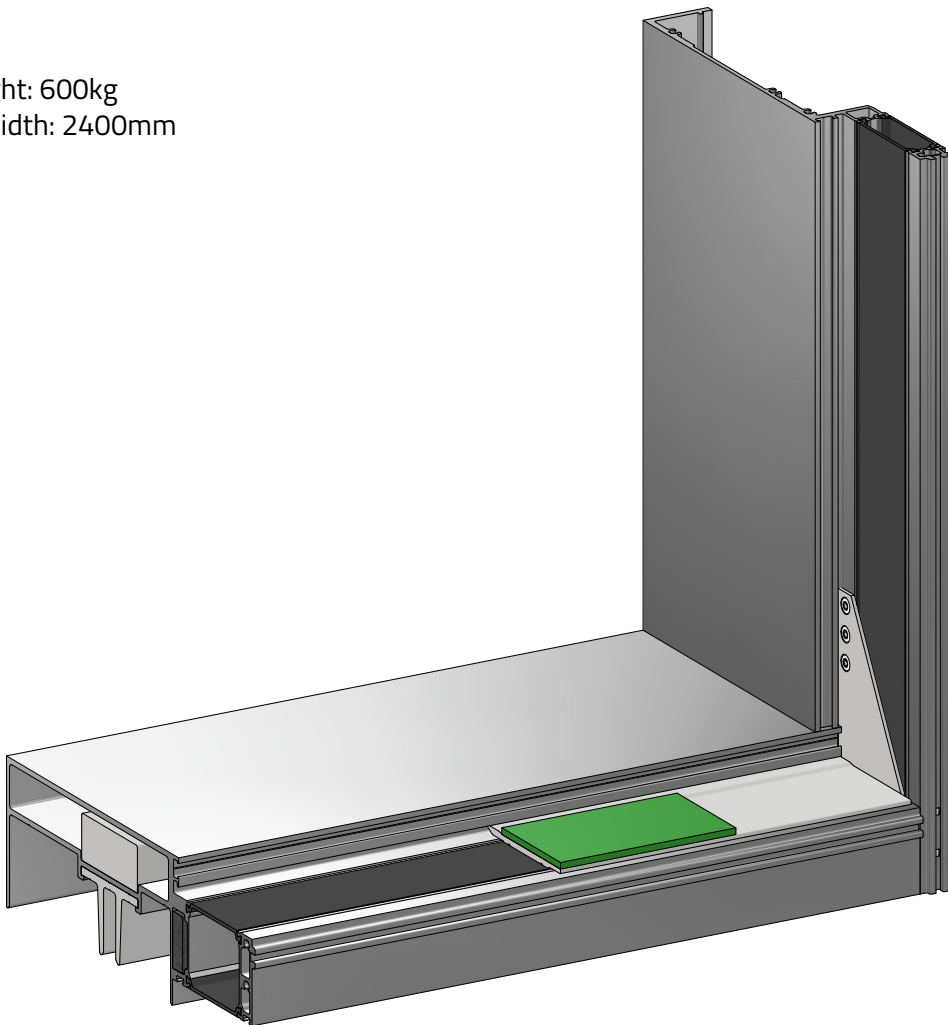
NOTE! Values in the table apply for tested elements

¹⁾ Values according to project are declared separately

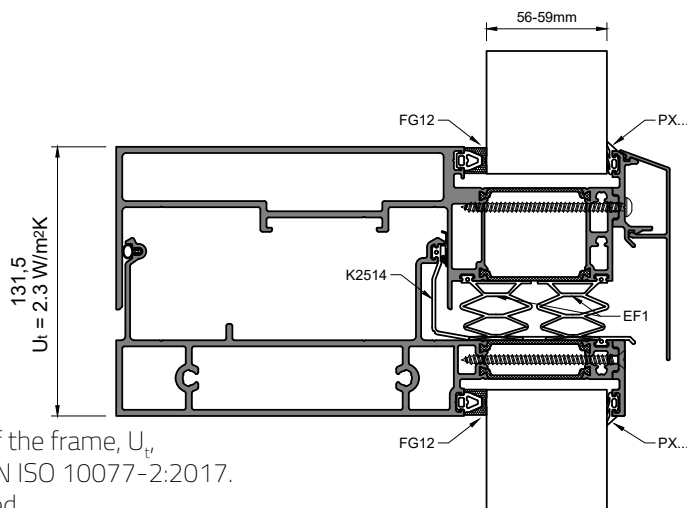
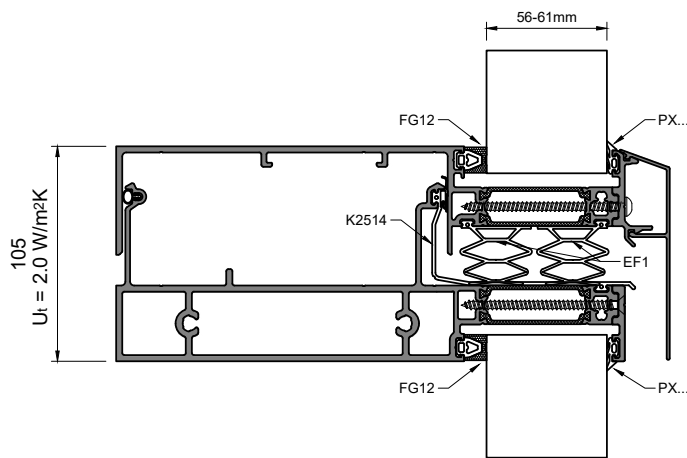
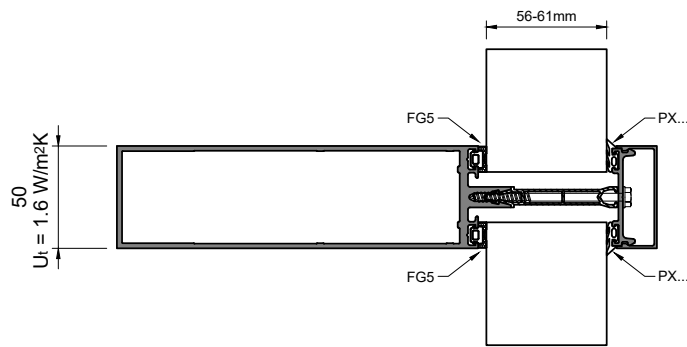
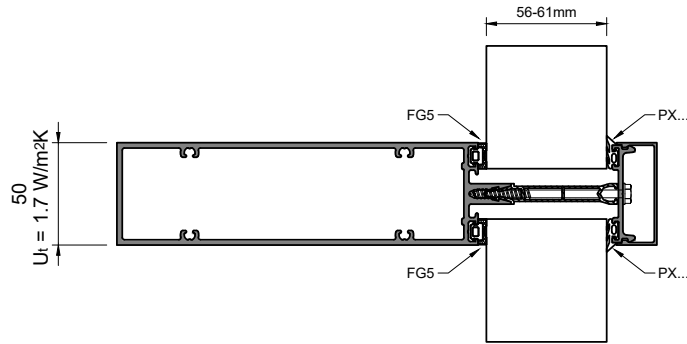
GLASS SUPPORT PROPERTIES



Glass weight: 600kg
Element width: 2400mm

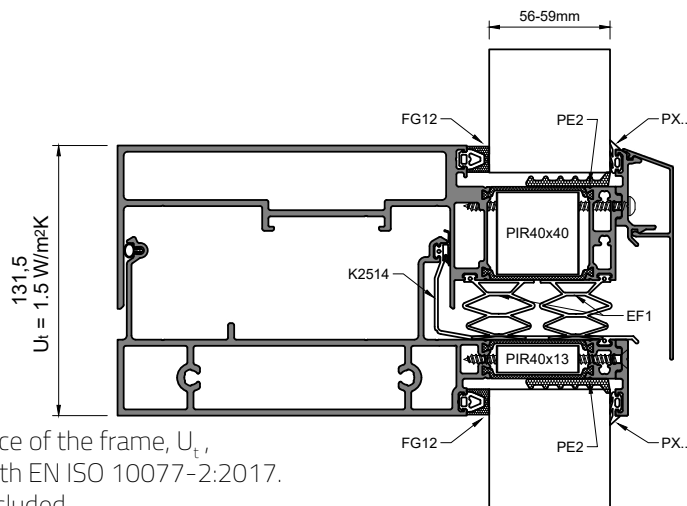
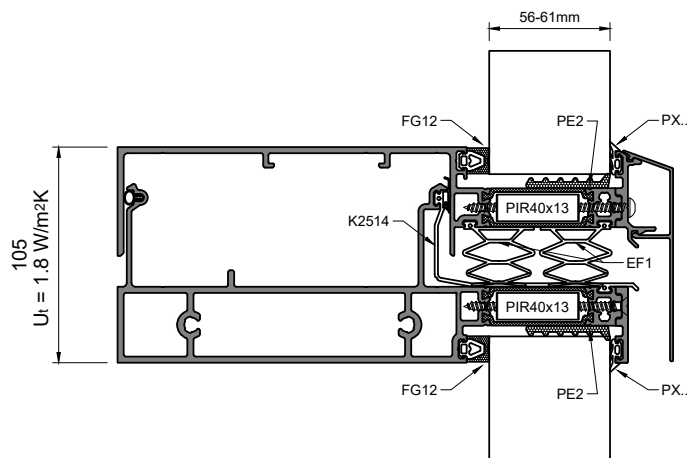
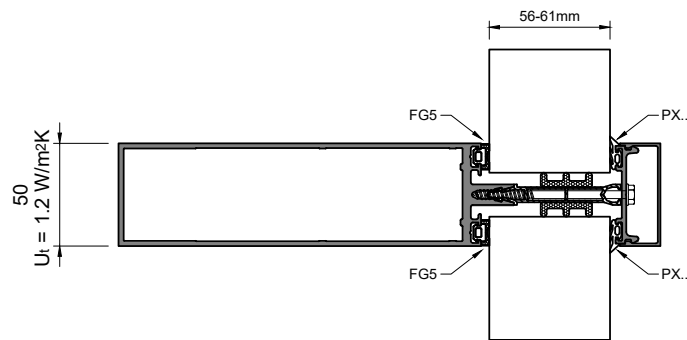
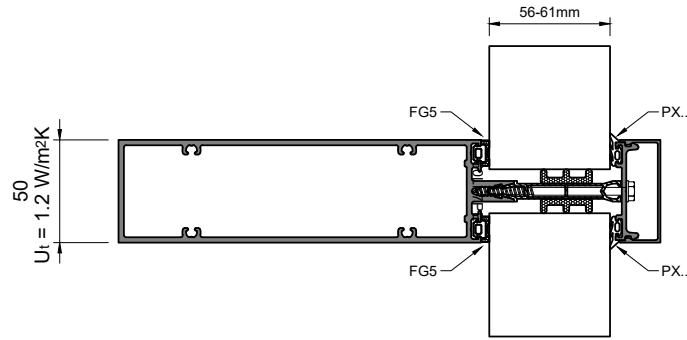


ELEMENT SYSTEMS U_T -VALUES



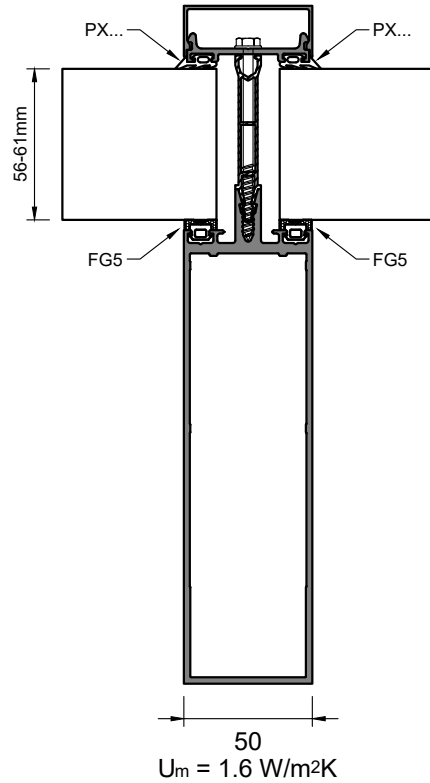
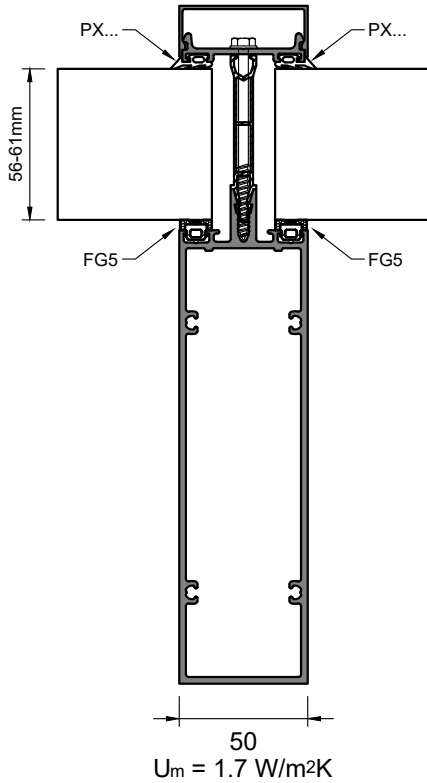
The thermal transmittance of the frame, U_{Tf} , calculated accordance with EN ISO 10077-2:2017. The screw influence is included.

INSULATED ELEMENT SYSTEMS U_t -VALUES

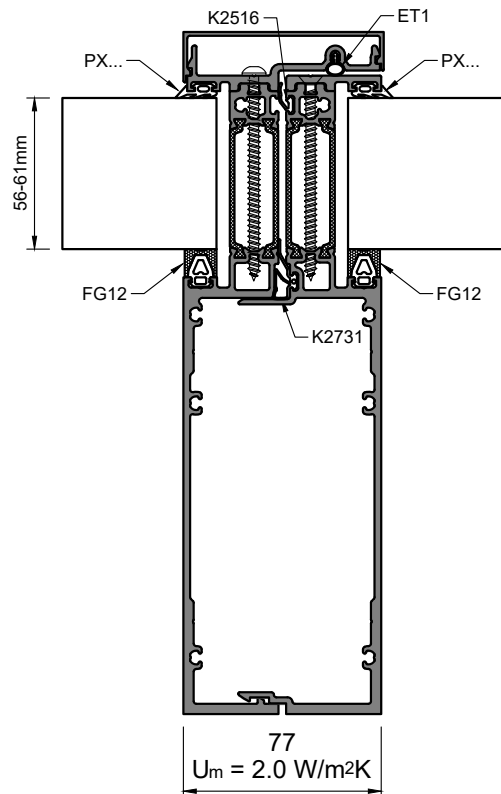
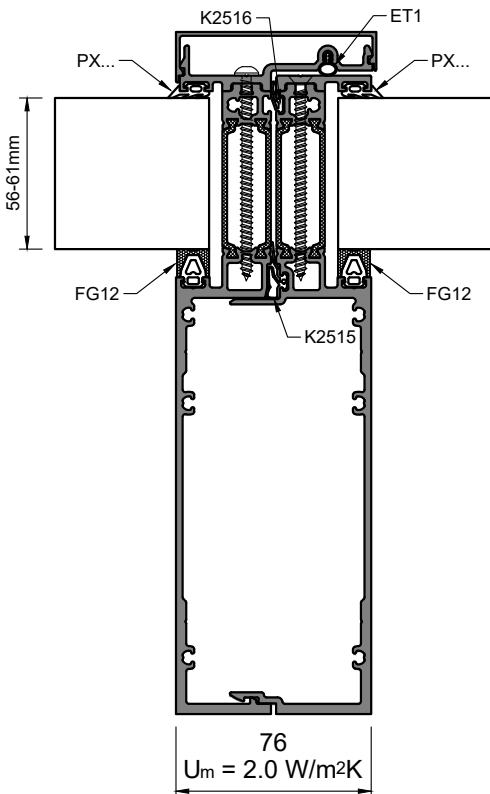


The thermal transmittance of the frame, U_t ,
calculated accordance with EN ISO 10077-2:2017.
The screw influence is included.

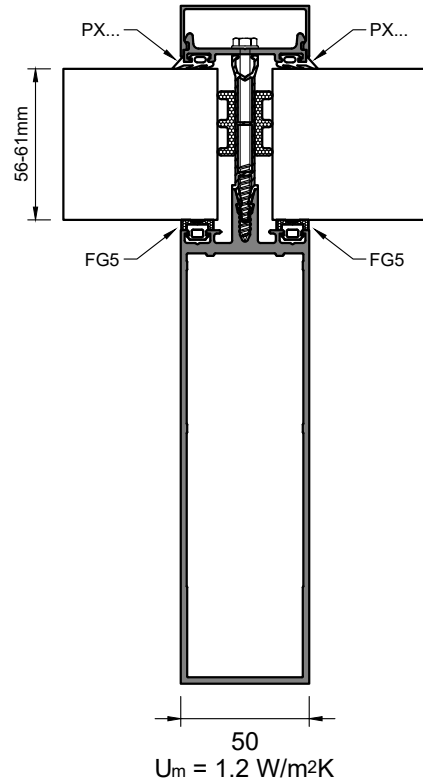
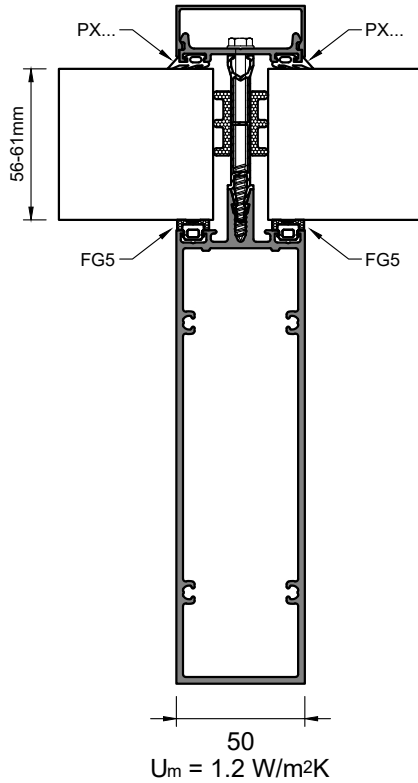
ELEMENT SYSTEMS U_M -VALUES



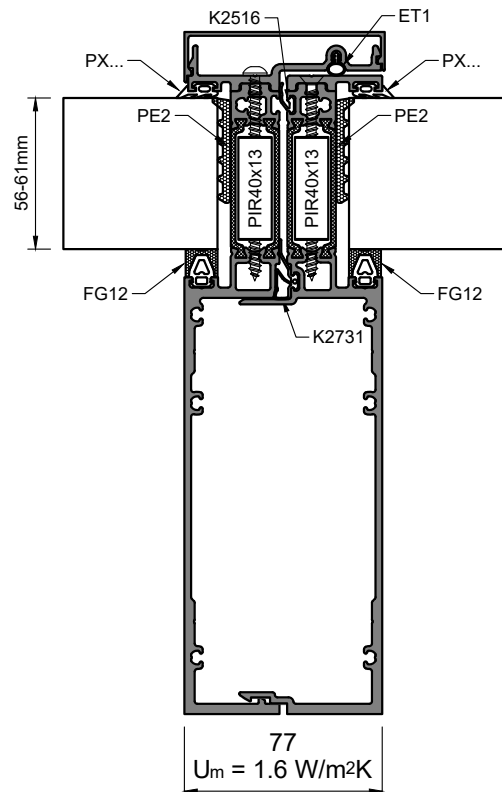
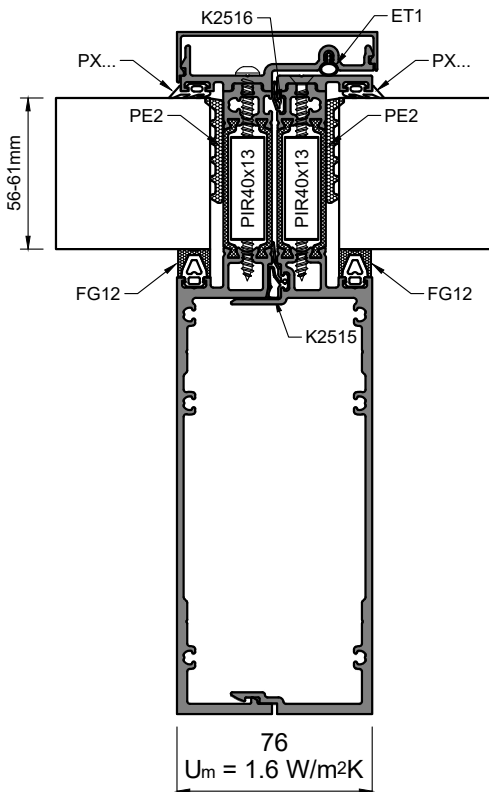
The thermal transmittance of the frame, $U_{m'}$, calculated accordance with EN ISO 10077-2:2017. The screw influence is included.



INSULATED ELEMENT SYSTEMS U_M -VALUES



The thermal transmittance of the frame, $U_{m'}$, calculated accordance with EN ISO 10077-2:2017. The screw influence is included.



EXAMPLE OF U-VALUE CALCULATION OF THE PANEL-GLASS-ELEMENT

The average heat transfer coefficient of the facade

Calculation according to SFS-EN ISO 12631:2017

Target:

Purso P76E element system

Insulated Glass/ solid element

Dimensions of the element:

Width	1500 mm
Height	3300 mm
Height of the glass part	1572.5 mm
Height of the closed part	1572.5 mm
Horizontal frame width	105 mm
Transom width	50 mm
Vertical frame width	76 mm

A total	4.95 m ²
Aperture	2.24 m ²
Horizontal frame	1.42 m
Vertical frame	3.30 m
Transom frame	1.42 m

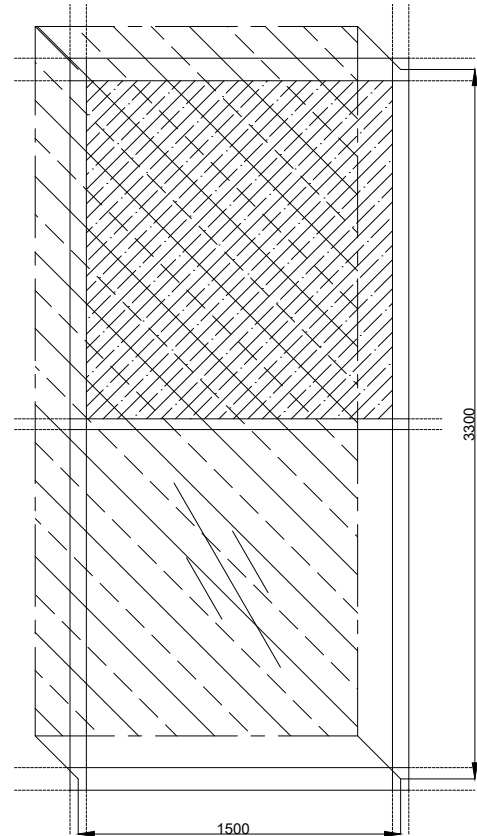
Calculation:

Horizontal frame	A_{TJ}	0.15 m ²	U_{TJ}	2.0 W/(m ² K)	0.29 W/K
Vertical frame Panel-Panel	A_{TJ}	0.13 m ²	U_{TJ}	1.7 W/(m ² K)	0.21 W/K
Vertical frame Glass-Glass	A_{TJ}	0.13 m ²	U_{TJ}	2.3 W/(m ² K)	0.29 W/K
Transom frame	A_{TJ}	0.07 m ²	U_{TJ}	2.8 W/(m ² K)	0.20 W/K
Glazing	A_g	2.24 m ²	U_g	0.50 W/(m ² K)	1.12 W/K
Panel	A_p	2.24 m ²	U_p	0.14 W/(m ² K)	0.31 W/K
					2.43 W/K

$U_{cw} = 0.49 \text{ W/(m}^2\text{K)}$

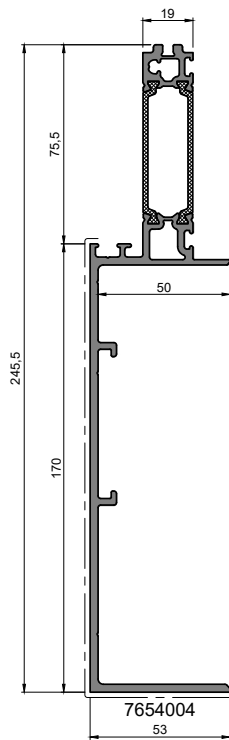
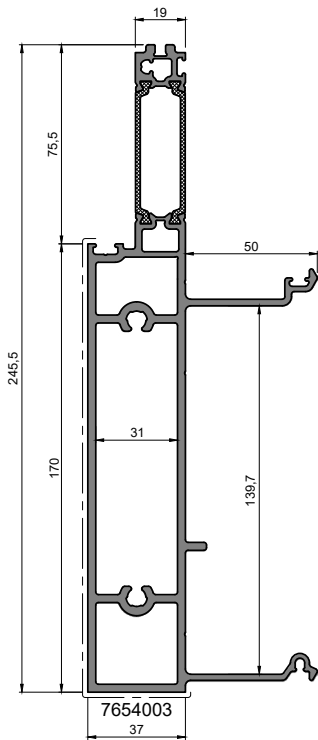
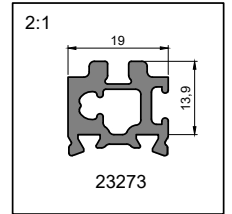
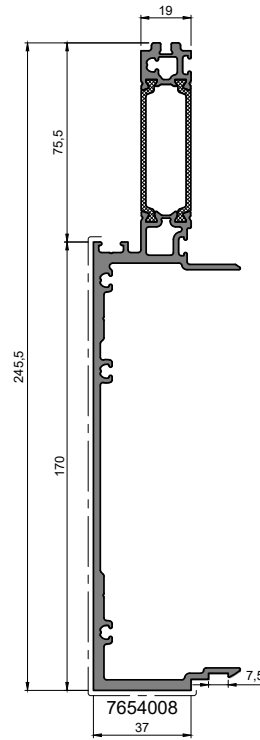
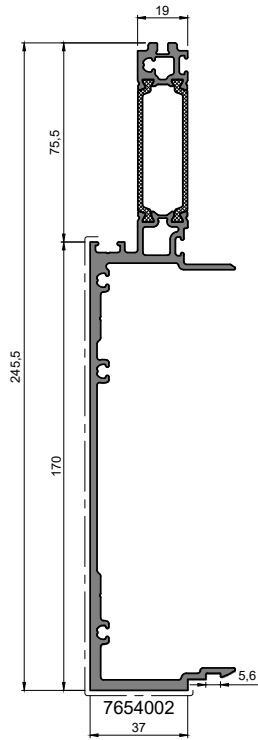
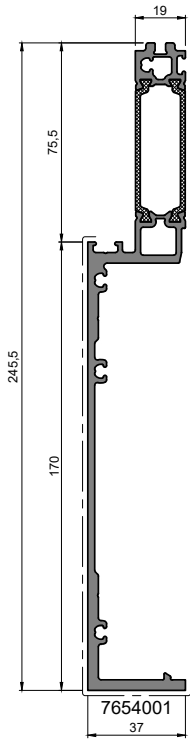
$$U_{cw} = \frac{\sum A_g U_g + \sum A_p U_p + \sum A_{TJ} U_{TJ}}{\sum A_g + \sum A_p + \sum A_{TJ}}$$

$U_{cw} = 0.49 \text{ W/(m}^2\text{K)}$

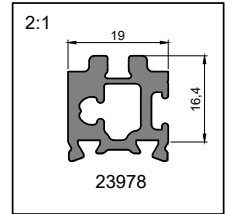
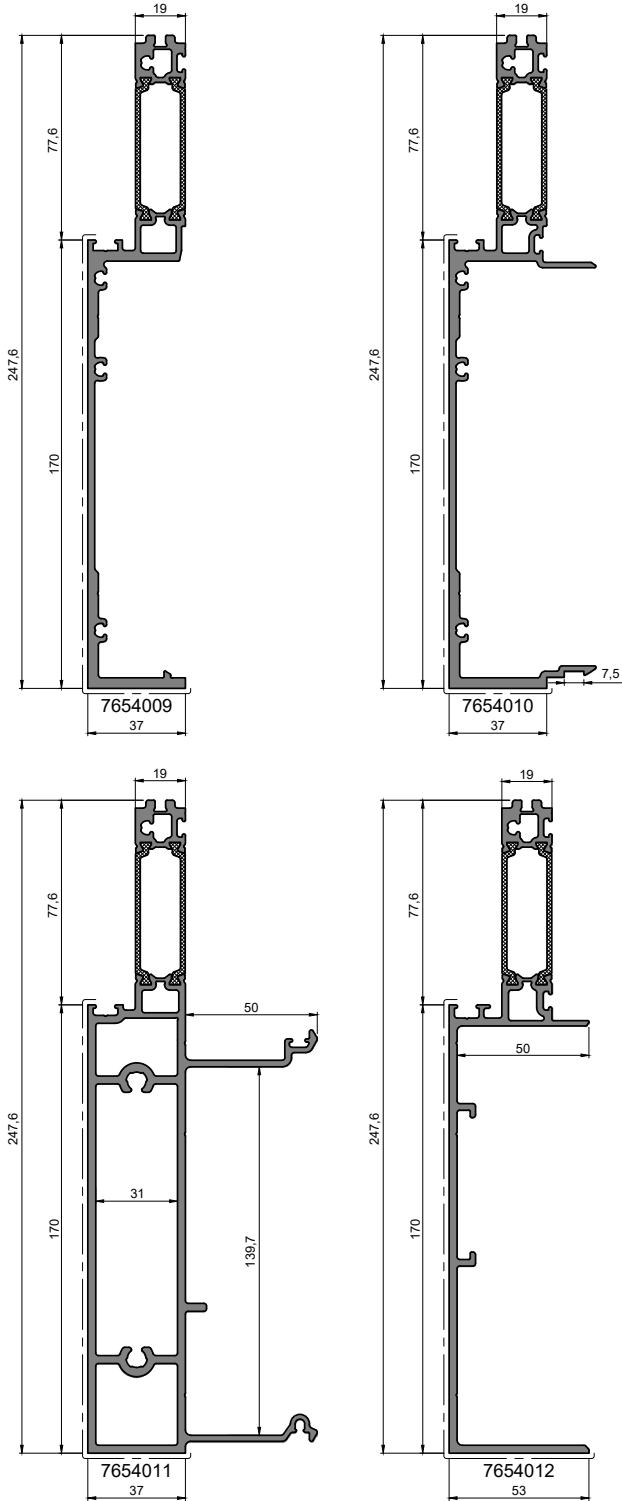


The thermal transmittance of the frame U_{TJ} includes the glass and panel linear thermal transmittance values.
The screw influence is included.

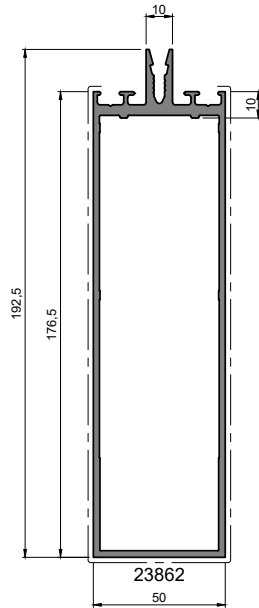
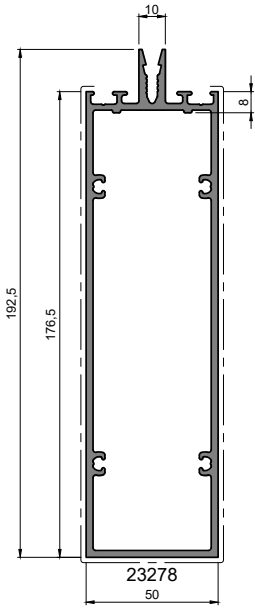
FRAME PROFILES



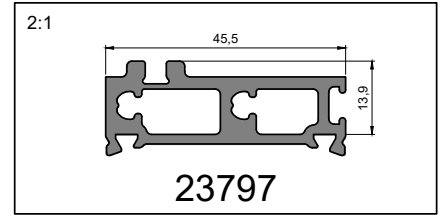
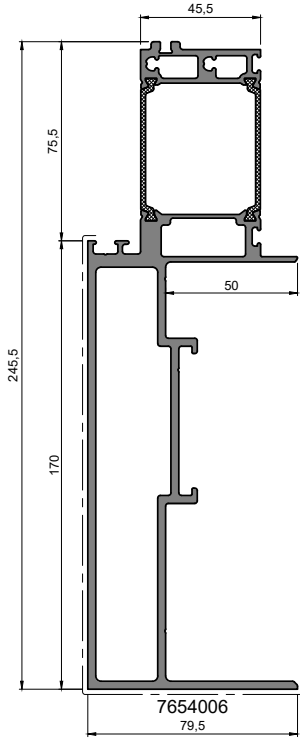
FRAME PROFILES



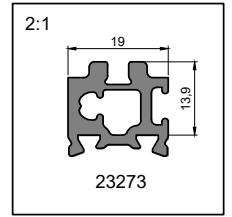
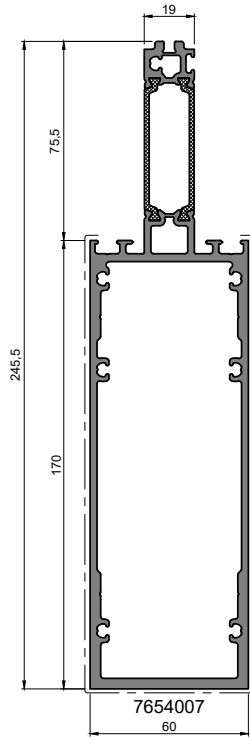
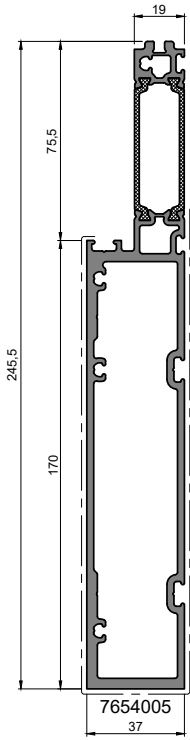
TRANSOM PROFILES



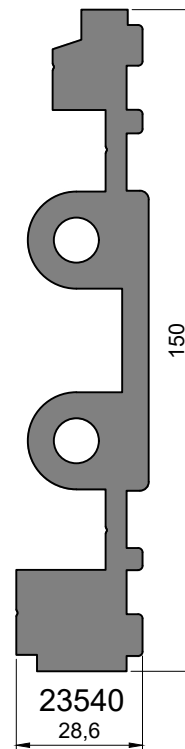
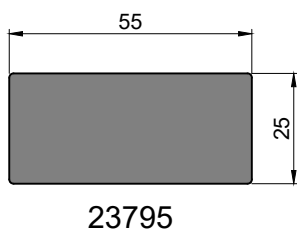
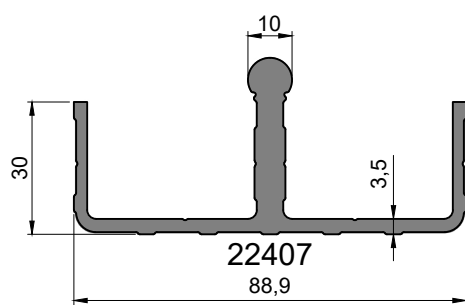
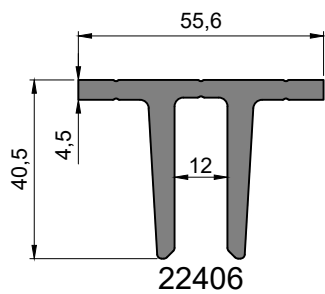
FRAME PROFILES



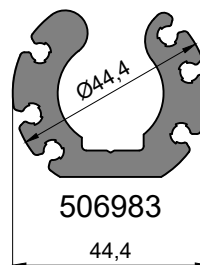
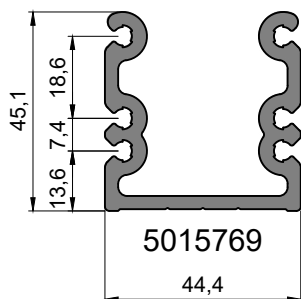
SPECIAL PROFILES



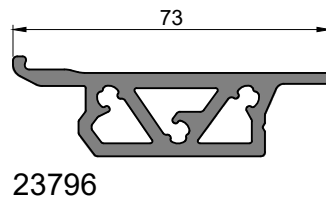
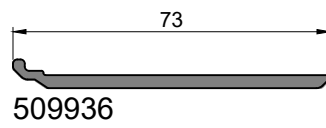
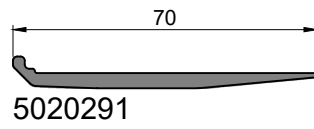
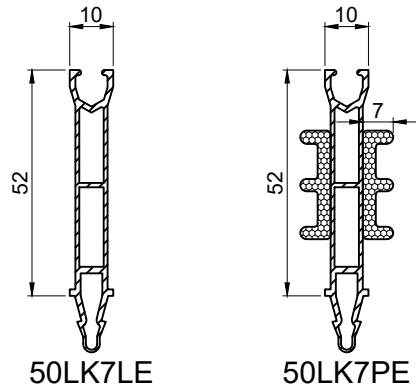
ACCESSORIE PROFILES



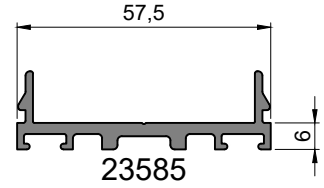
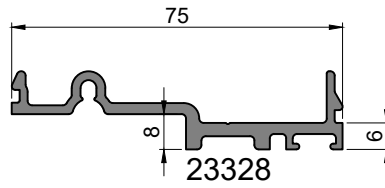
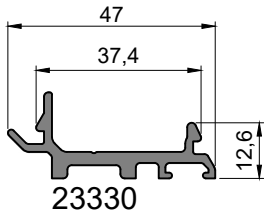
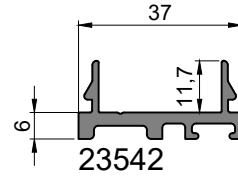
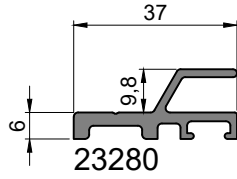
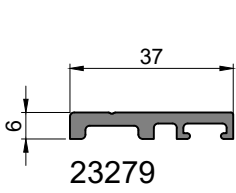
CONNECTION PROFILES



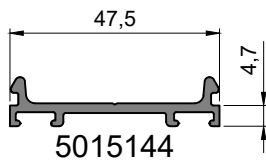
ACCESSORIE PROFILES



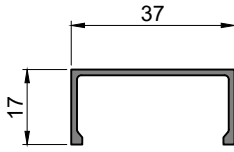
GLAZING BEADS



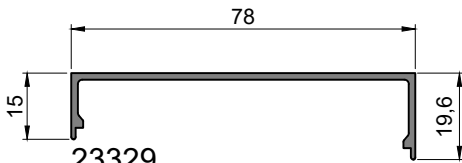
**GLAZING BEADS
(P50L)**



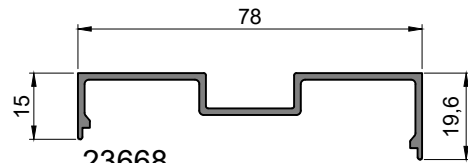
COVER STRIPS



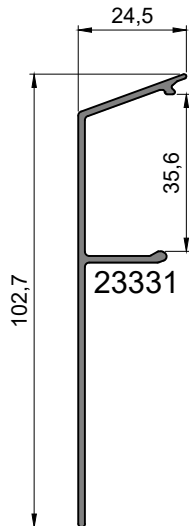
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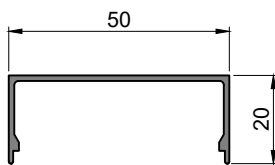


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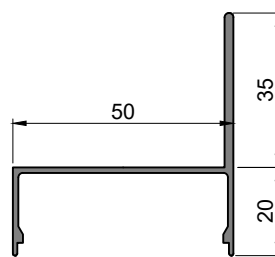


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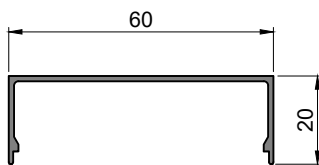
**COVER STRIPS
(P50L/P60L)**



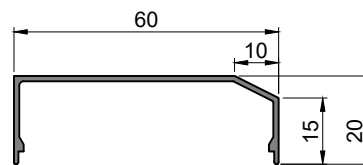
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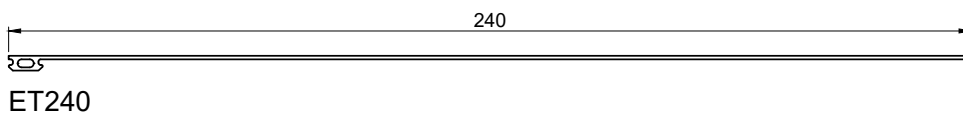
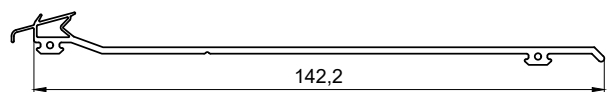
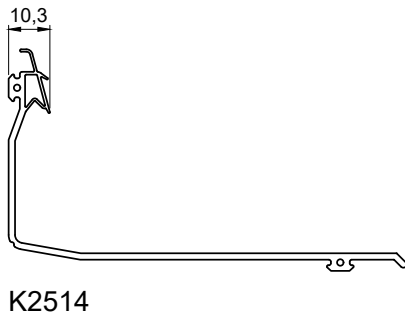
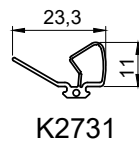
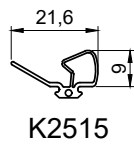
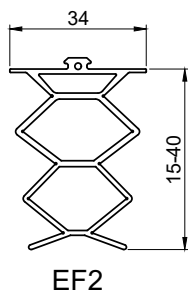
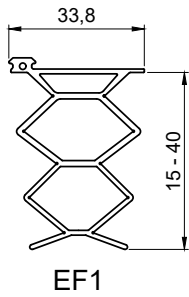
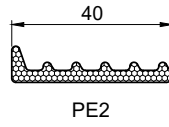
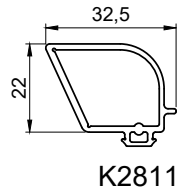
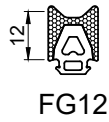
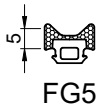
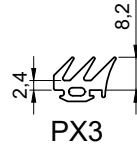
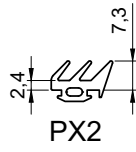
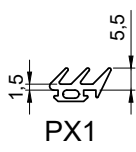


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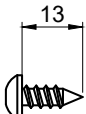

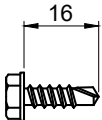

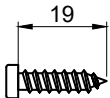

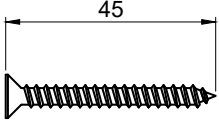

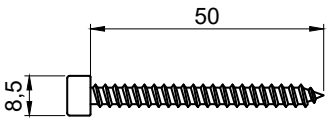

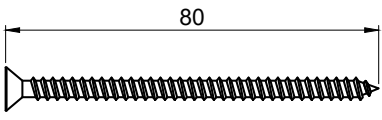

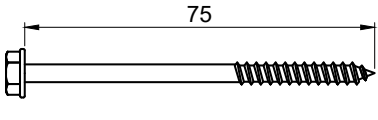

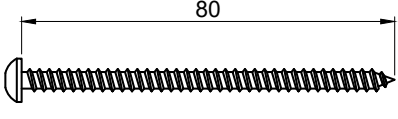

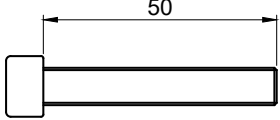
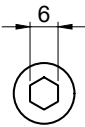
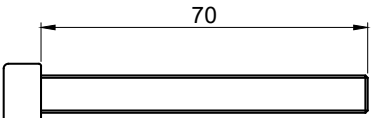
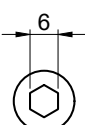


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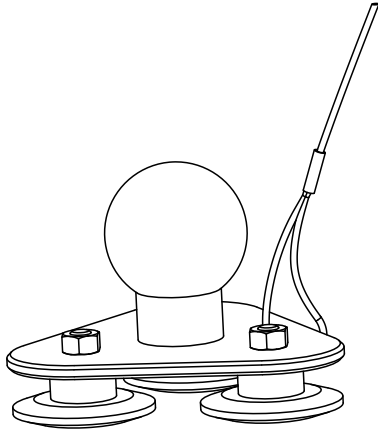
GASKETS



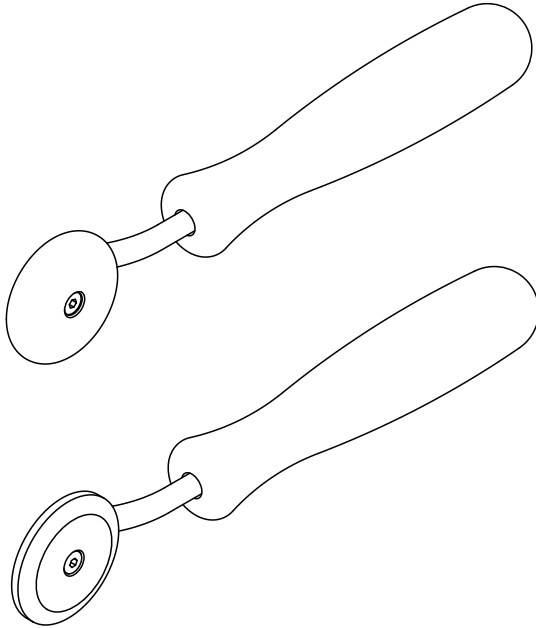
SCREWS

Screw 4,8x13 ISO 14585 A2	JMRUUUVI4813 Package 1000 pcs.		
Drill screw 4,8x16 DIN 7504K A2	JMPORARUUUVI4816 Package 200 pcs.		
Connecting screw 4,8x19 AISI 410, T-20	JMRUUUVI4819 Package 500 pcs.		
Screw 4,8x45 DIN 7982T A2, T-25	JMRUUUVI4845 Package 200 pcs.		
Screw 4,8x50 DIN 912 A2, T-25	JMKIINNITYSRUUUVI4850 Package 200 pcs.		
Glazing screw 4,8x80 DIN 7982 A2, T-25	JMUPPOKANTARUUUVI4880 Package 200 pcs.		
Glazing screw 4,8x75/30 DIN 7976 A2, T-25	JMRUUUVI4875 Package 200 pcs.		
Glazing screw 4,8x80 ISO 14585-C A2, T-25	JMRUUUVI4880 Package 250 pcs.		
Bolt M8x50 DIN 912 Zn A2, Hex socket	JMPULTTIM8x50/50 Package 200 pcs.		
Bolt M8x70 DIN 912 Zn A2, Hex socket	JMPULTTIM8x70/70 Package 200 pcs.		

TOOLS



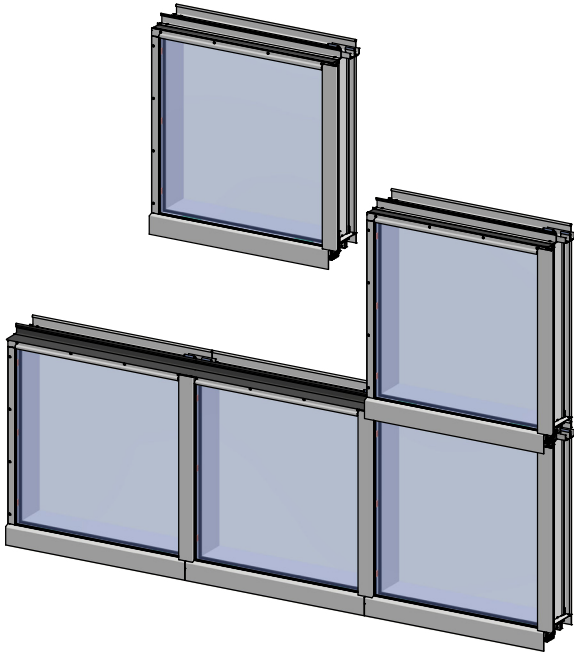
JMK2514
Installation tool for gasket K2514



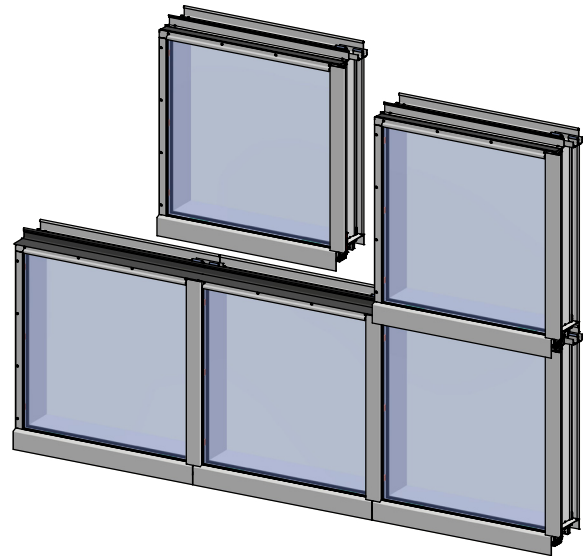
JMK2515
Installation tool for gasket K2515

JMK2516
Installation tool for gasket K2516

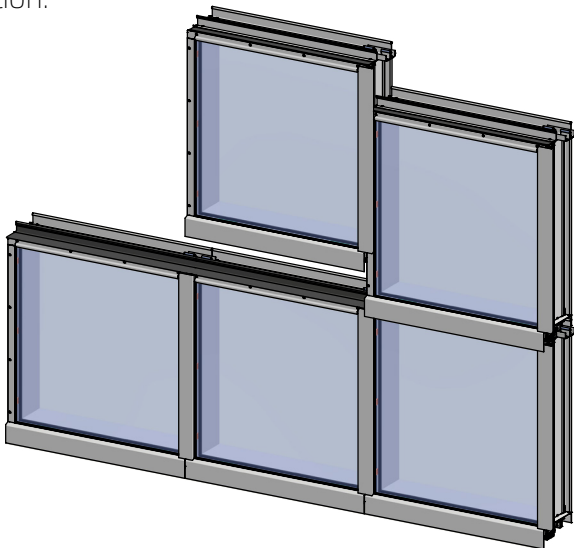
ELEMENT INSTALLATION



The element is lowered down 50-100mm from the upper surface of the lower element.

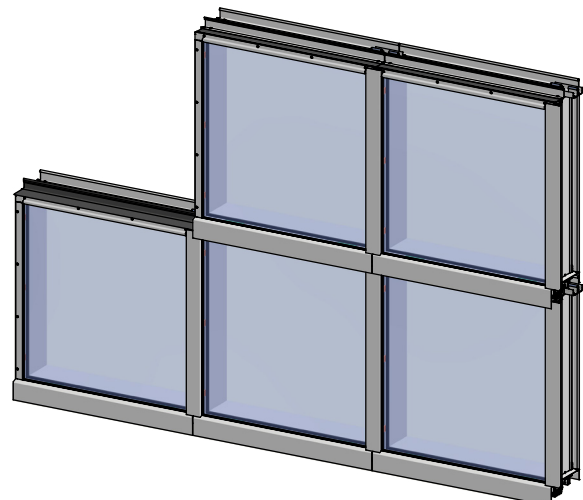


Install the vertical edge of the element by pressing the vertical profiles together in lateral direction.

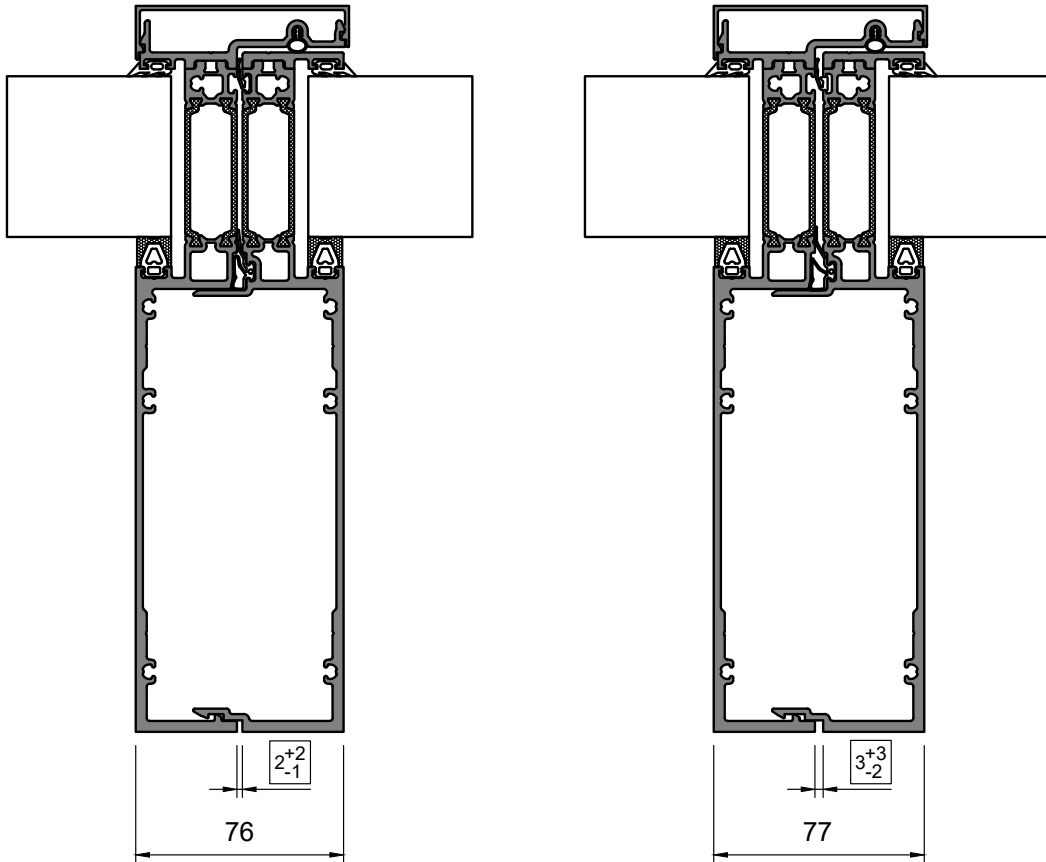


Lower the element into place and check that the K2514 gasket has remained in place.

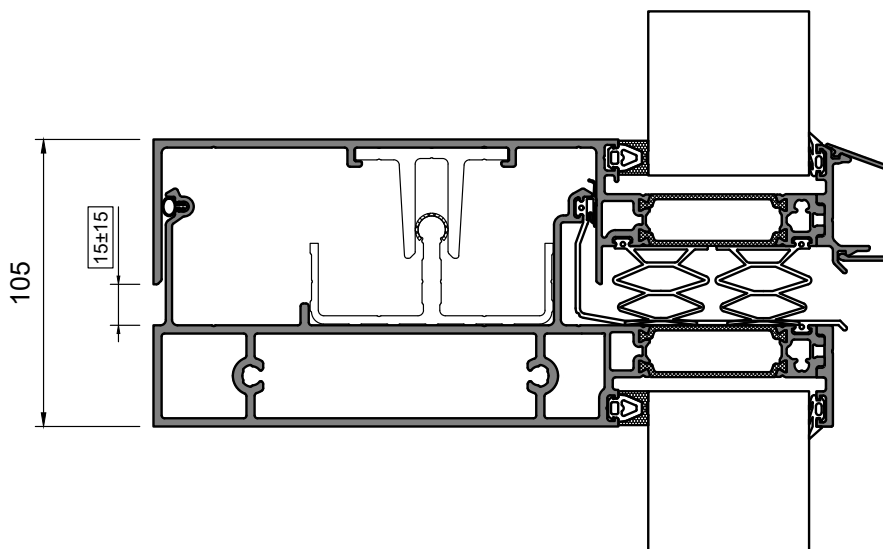
Attach the element to intermediate floor.



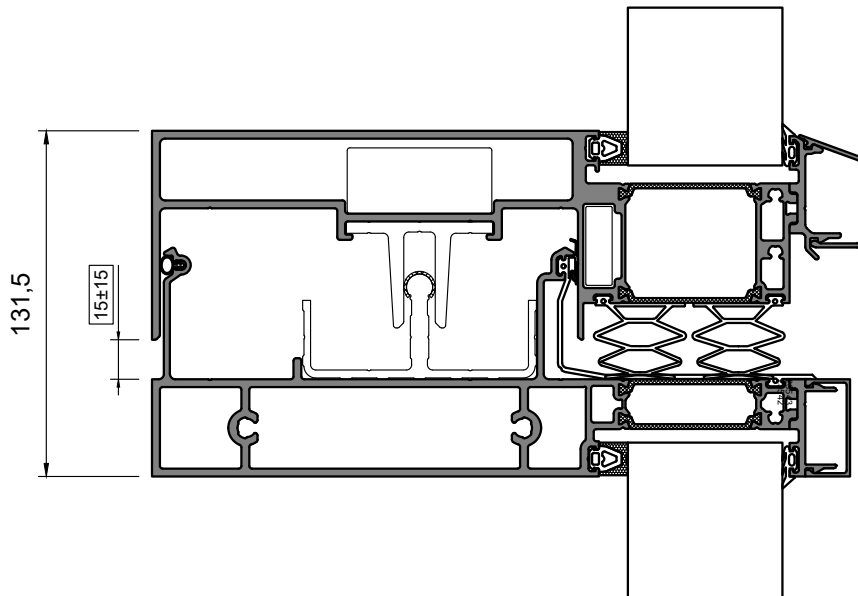
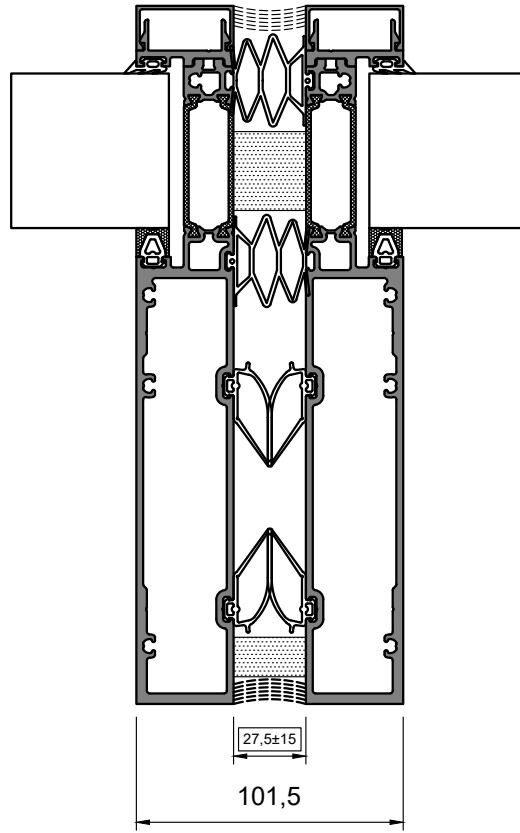
INSTALLATION TOLERANCES



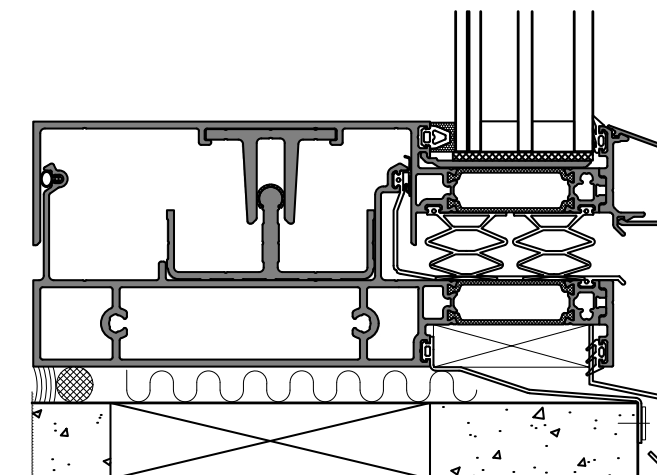
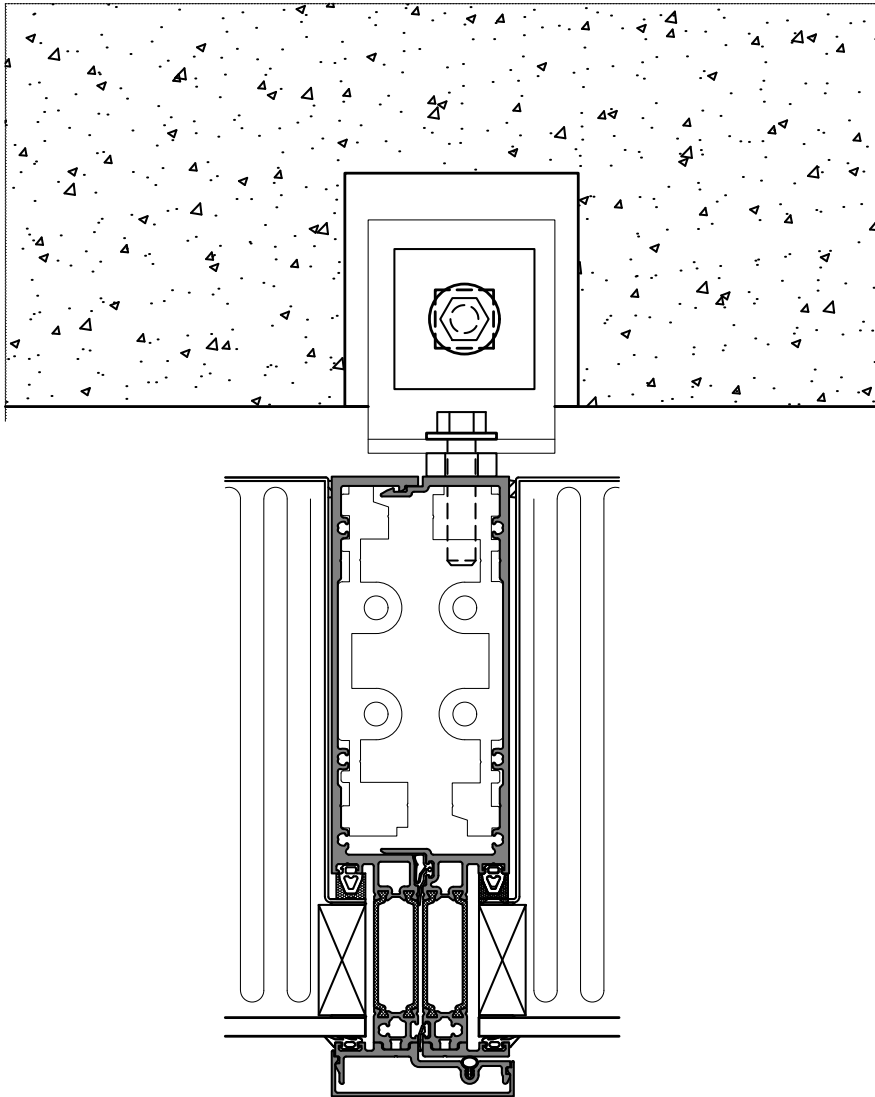
76mm joint width male profile: 7654002
77mm joint width male profile: 7654008



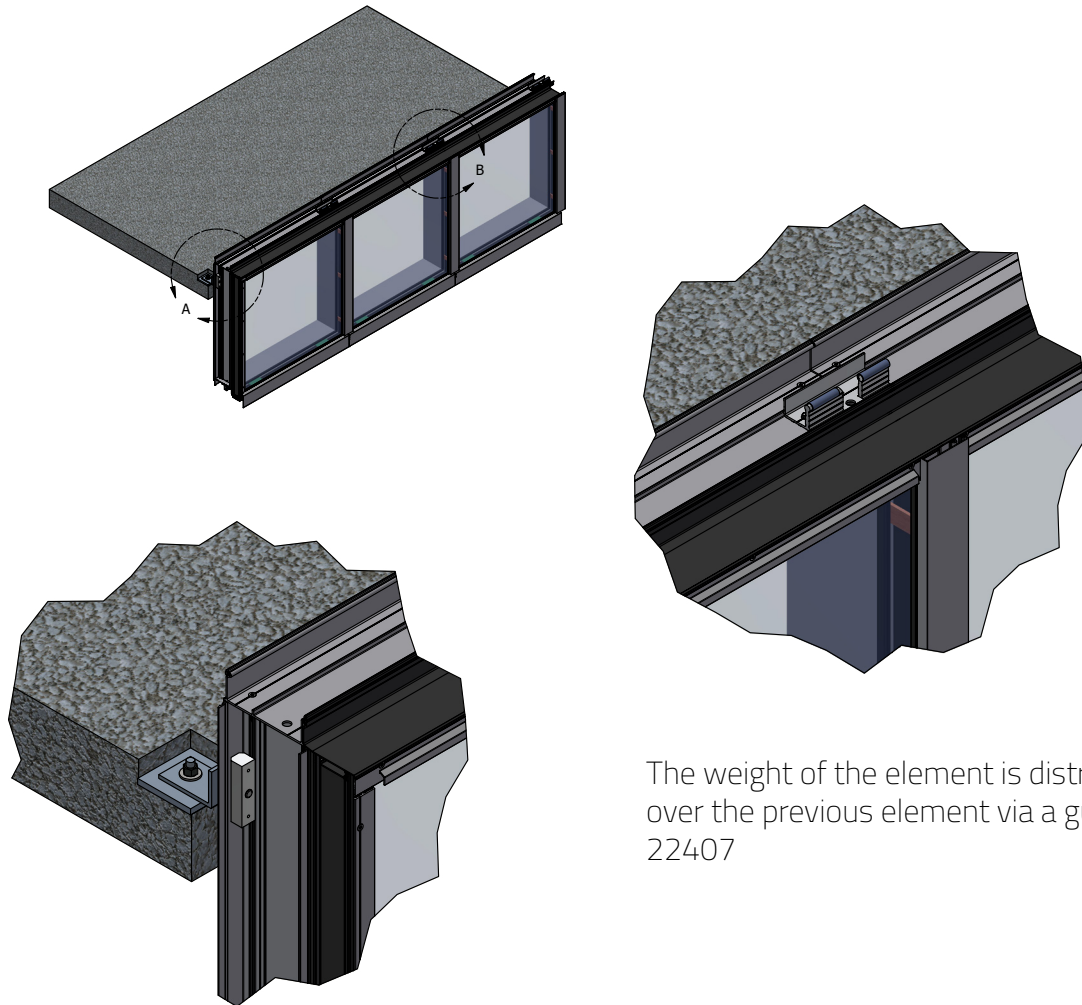
SPECIAL CONNECTIONS



ELEMENT MOUNTING EXAMPLE 2D

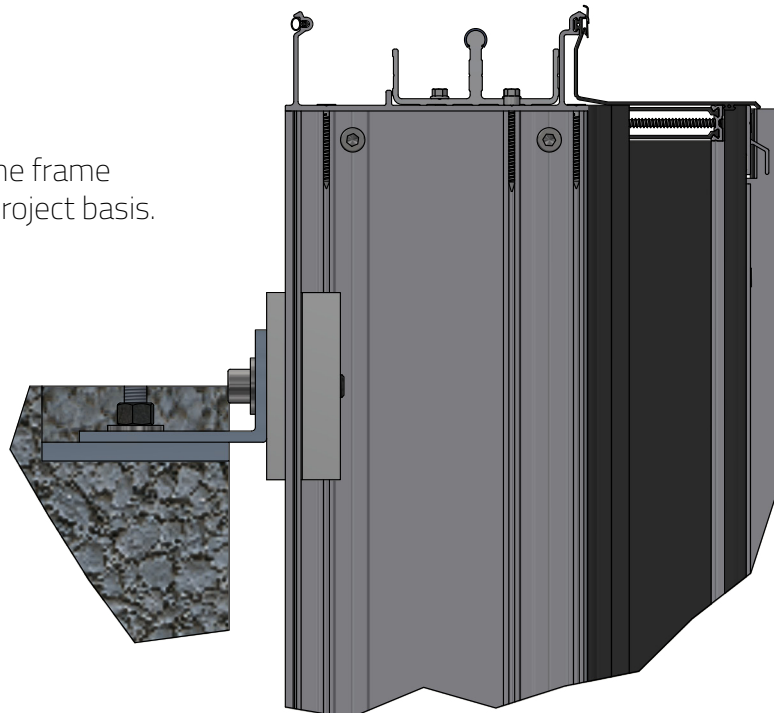


ELEMENT MOUNTING EXAMPLE 3D



The weight of the element is distributed over the previous element via a guide profile 22407

Attaching the elements to the frame structure is inspected on a project basis.



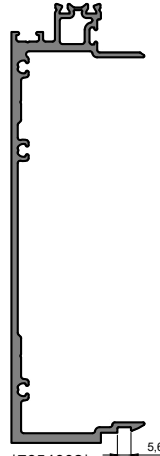
P76E CROSS-SECTIONAL VALUES OF THE FRAME PROFILES

Ix	410.84 cm ⁴
Wx	44.19 cm ³
Iy	12.06 cm ⁴
Wy	4.23 cm ³



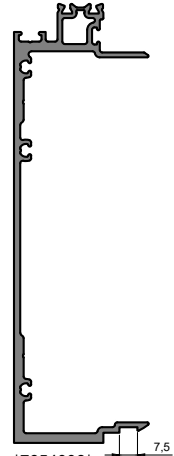
7654001

Ix	467.61 cm ⁴
Wx	50.57 cm ³
Iy	22.55 cm ⁴
Wy	5.32 cm ³



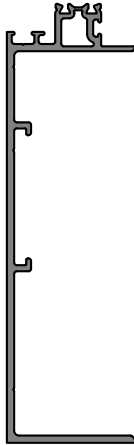
7654002

Ix	468.49 cm ⁴
Wx	50.63 cm ³
Iy	22.99 cm ⁴
Wy	5.35 cm ³



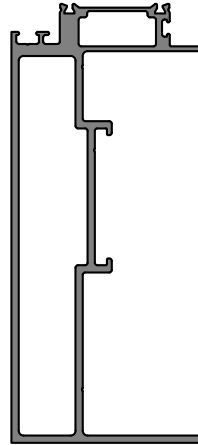
7654008

Ix	405.44 cm ⁴
Wx	42.46 cm ³
Iy	21.81 cm ⁴
Wy	5.42 cm ³



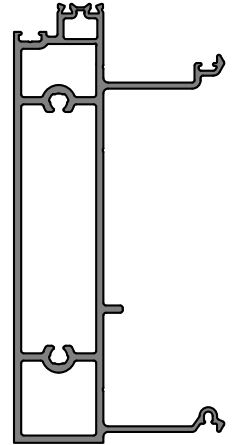
7654004

Ix	706.72 cm ⁴
Wx	72.96 cm ³
Iy	72.74 cm ⁴
Wy	13.36 cm ³



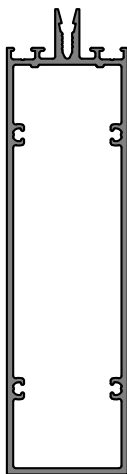
7654006

Ix	669.78 cm ⁴
Wx	72.28 cm ³
Iy	90.58 cm ⁴
Wy	14.88 cm ³



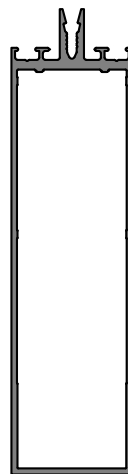
7654003

Ix	522.33 cm ⁴
Wx	54.18 cm ³
Iy	58.91 cm ⁴
Wy	23.56 cm ³



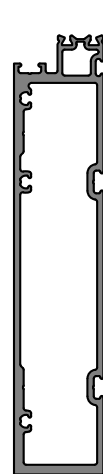
23278

Ix	515.96 cm ⁴
Wx	50.91 cm ³
Iy	52.55 cm ⁴
Wy	21.02 cm ³



23862

Ix	508.96 cm ⁴
Wx	55.87 cm ³
Iy	32.35 cm ⁴
Wy	16 cm ³



7654005

CE marking of construction products

CE marking is a common EU-wide system for certifying the characteristics of construction products. By CE marking, a manufacturer declares that their product complies with the applicable harmonised product standard or with a European Technical Approval.

The standards applicable for buildings and building elements are defined on a national level.

Product Standard EN 13830:2003 requirements for facades:

Resistance to wind load:

Facades shall be rigid enough to withstand planned wind loads and transfer them back onto the building frame.

The maximum allowed deflection of frames is $L/200$ or up to 15 mm.

The allowed deflection on glass panes is $L/300$. (The product standard does not require this; it is a recommendation from specialty glass industry.)

Resistance to dead weight:

The facade shall withstand its dead weight load and transfer it onto the building frame.

The maximum allowed deflection of horizontal frames due to the weight of the structures (e.g. glass weight) is $L/500$ or up to 3 mm.

Air permeability:

The air permeability of facades is tested in accordance with Standard EN 12153. The classification is based on Standard EN 12152.

Purso P76E facade system comply with air permeability class AE1200 requirements.

Watertightness:

The watertightness of facades is tested in accordance with Standard EN 12155. The classification is based on Standard EN 12154.

Purso P76E facade systems comply with watertightness class RE1050 requirements.

Resistance to horizontal loads:

Facades shall withstand the variable horizontal loads they are subjected to.

Building movement and thermal movement:

Facade design shall take into account structural thermal movement and building movement.

Thermal transmittance:

The thermal transmittance coefficient U_{cw} of facades shall be defined in accordance with Standard SFS-EN ISO 12631:2017.

The following factors influence thermal transmittance:

- The distribution and size of aluminium frames.
- The U_g value of glass and the type of strip.
- Possible filling pieces.

Other characteristics commonly required from facades:

- Airborne sound insulation
- Resistance to impact
- Resistance to fire

CE marking-related requirements to take into account in the Purso P76E facade design

- The maximum allowed deflection caused due to the wind load complies with Standard EN 13830:2003.
- Lap joint technique shall be used.
- Frame sealings FG5 and FG12.

Manufacturer's actions:

- Factory production control (FPC)
- Declaration of performance (DoP)
- The manufacturer must attach the CE mark.

An updated version of Product standard EN 13830 has been published: EN 13830:2015. However, as it has not yet been published in the Official Journal of the European Union, it cannot be used in CE marking (as of 20 June 2022). One of the updates in the new standard version concerns less strict deflection conditions.

TECHNICAL INFORMATION

Profiles

- Aluminium alloy usually EN-AW 6060 T6
 - $R_{p0,2} \text{ min} = 150 \text{ N/mm}^2$
 - $R_m \text{ min} = 190 \text{ N/mm}^2$
 - $E = 70000 \text{ N/mm}^2$
- Thermal transitions caused by changes in temperature must be taken into account in the design
- Thermal expansion coefficient of aluminium is $24 \times 10^{-6}/\text{K}$
- Shape tolerances of profiles according to EN 755-9 or EN 12020-2
- Alloy is well suited for anodizing
- Delivery length of profiles normally 6,6 m, other lengths available on request
- Material of thermal breaks is polyamide which endures anodizing and powder coating

Surface treatment

Anodizing

Anodizing is an electrochemical method for increasing the thickness of the natural oxide layer of aluminium. Anodizing forms a hard, mechanical wear-resistant surface with excellent weather resistance.

Powder Coating

In powder coating the powder is injected into the surface of the profiles, which then is melted in a furnace into a durable and smooth surface. Before painting, the profiles are pre-processed, in order to ensure the endurance of the coating. Normally profiles are painted with RAL color shades, but other colors are also possible.

Gaskets

Material: EPDM-rubber
Colour: black



Valmistus, myynti ja tekninen neuvonta
Manufacturing, sales and technical information

Purso Oy

Rakennusjärjestelmät
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