

## **CURTAIN WALLING REHAU-POLYTEC 50 S**

# REHAU-POLYTEC 50 S

## Profile Design and Technical Data

Sight Lines	50 mm
Range of Profile Depth	71 - 134 mm
Range of Glazing Size	6 - 40 mm
Max. Glazing Weight	up to 180 kg
Thermal Performance	$U_f = 0.88 - 1.3 \text{ W/m}^2\text{K}$ (depending on profile combination)
Max. „I“ Value (Steel)	$I_{x, \text{Steel}}$ up to 221 cm <sup>4</sup> (equivalent of 663 cm <sup>4</sup> in Aluminium)
Weather Performance (EN 12154 / ENV 13050)	RE 1950
Wind Resistance (EN 13116)	$\pm 2.0 \text{ kN/m}^2$ (Safety test $\pm 3.0 \text{ kN/m}^2$ )
Air Permeability (EN 12152)	AE
Impact Resistance (EN 14019)	E5 / I5
Sound Insulation (EN ISO 140-3)	$R_{wp}$ up to 43 dB (depending on glass spec)

## Application

Curtain Walling	Warm Façade (thermally broken), Stick System
Flat Screen (Plan View)	
Facetted Screen (Plan View)	Convex transom angle 0 - 45° Concave transom angle 0 - (-5°)
Vertical Inclination/Slope	Inclination outward, up to 15° from vertical Inclination inward, up to 30° from vertical

## Glazing/Panels

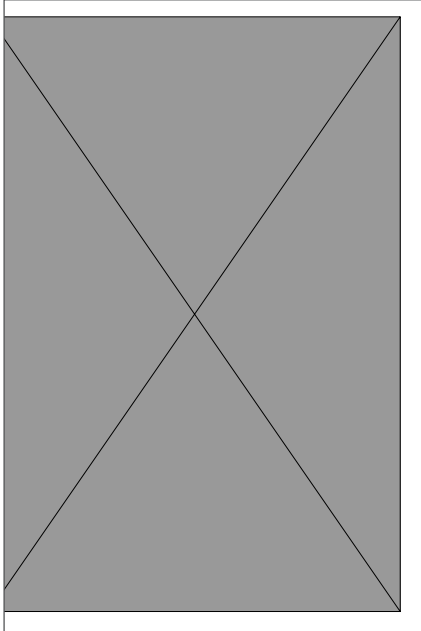
Glazing	Single/Double/Triple glazing
Opaque Panels	Panels with various finishes
Openings	REHAU Window and Door Systems, Aluminium Doors and Automatic Sliding Doors

## Colour Options

External	Mill finish, Anodised finish, Powder coating (RAL colours, DB- Metallic)
Internal	PVC-Extrusion finish in white (similar to RAL 9016), Painting in REHAU-Acryl II (REHAU Colour chart)

# REHAU-POLYTEC 50 S

## Thermal Performance Testing



## System Test Report

**Evidence of Performance**  
 Air permeability  
 Water-tightness static  
 Resistance to wind load  
 Impact resistance

Test Report 186 SAT12a  
 Institution of Test Report 200 947 10 (page 1 of 2 pages) 2007

Client: REHAU AG + Co.  
 Versandweg Elberfeld  
 70629 Stuttgart  
 Germany

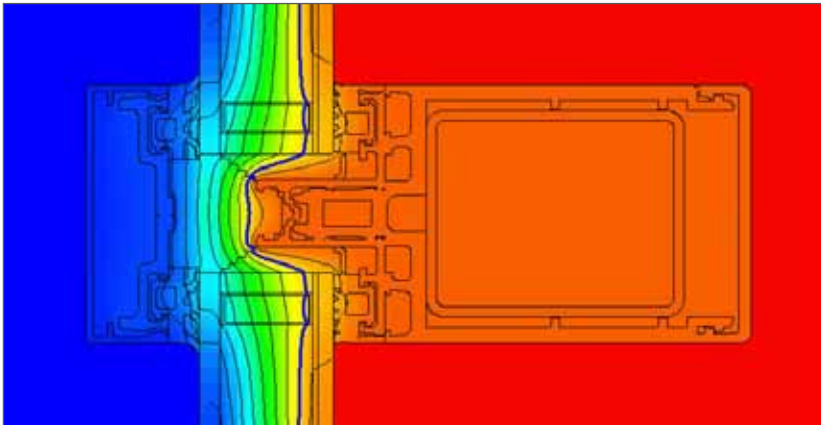
Site construction:  
 REHAU Polytec 50 S  
 4000 mm x 1200 mm  
 Steel profiles with PVC treatment

Test	Classification
Water-tightness	Class 4 rating
Air permeability	AE
Impact resistance	RE 1000
Resistance to wind load	Design load $\pm 2.0 \text{ kN/m}^2$ ( $\pm 41.77 \text{ psf}$ ) Safety load $\pm 3.0 \text{ kN/m}^2$ ( $\pm 62.66 \text{ psf}$ )
Resistance to impact	IS / ES

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## Isotherms

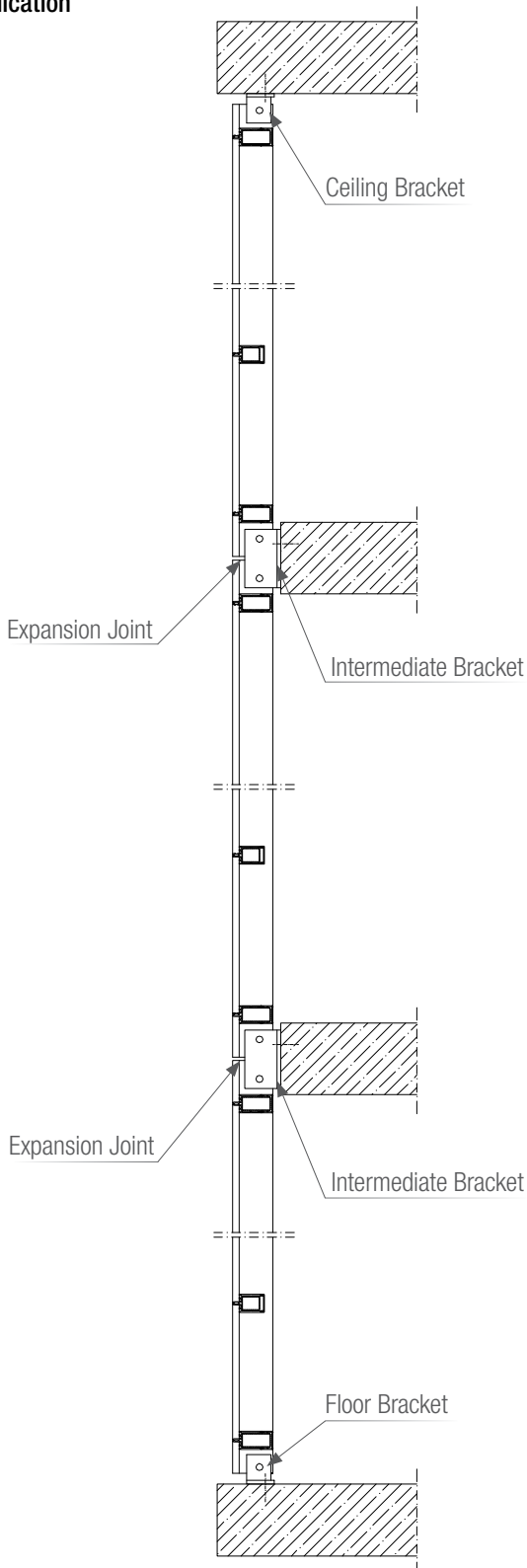


## Benefits of the composite curtain walling system REHAU-Polytec 50 S

- Thermal Performance with  $U_f$ -Value up to  $0.88 \text{ W/m}^2\text{K}$  to minimise energy losses through the building shell and to avoid thermal bridging for sustainable building solutions.
- Structural Strength with minimal profile depth because of box steel sections which provide outstanding wind resistance ( $E_{\text{Steel}} = 3 \times E_{\text{Aluminium}}$ ).
- High Weather Performance because of mullion drained and pressure equalised system design. Dry joint system ensures reliable solution and ease of installation.
- Attractive design and finish properties of Aluminium Cover Profiles with 50 mm sight lines to suit the architecture of the building.
- Colour options with powder coated Aluminium Cover Profiles to the outside and Acryl II painted internal sections (RAL colour, DB metallic).
- Tried and tested system used throughout Europe on low rise as well as high rise buildings. System Test according to EN 13830.

# REHAU-POLYTEC 50 S

## Application



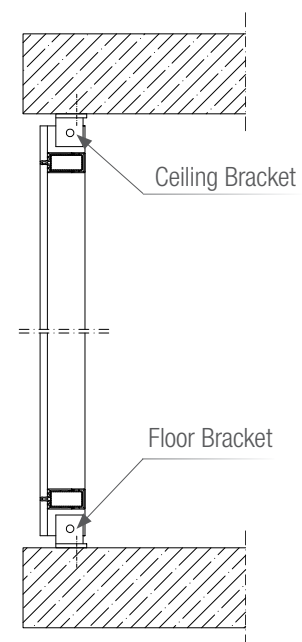
Multi-storey Curtain Walling.

The curtain walling REHAU-Polytec 50 S is a warm facade (thermal broken) in stick system design, which separates the interior and exterior climate regarding weather protection and thermal insulation.

REHAU-Polytec 50 S can be installed in front of the floor slabs (multi-storey) or in between the floor slabs (single-storey). The area of application is limited to vertical constructions and those inclined up to  $15^\circ$  to the outside and up to  $30^\circ$  to the inside.

Fixing brackets are used to anchor the mullions to the building structure to transfer the wind, traffic and dead loads.

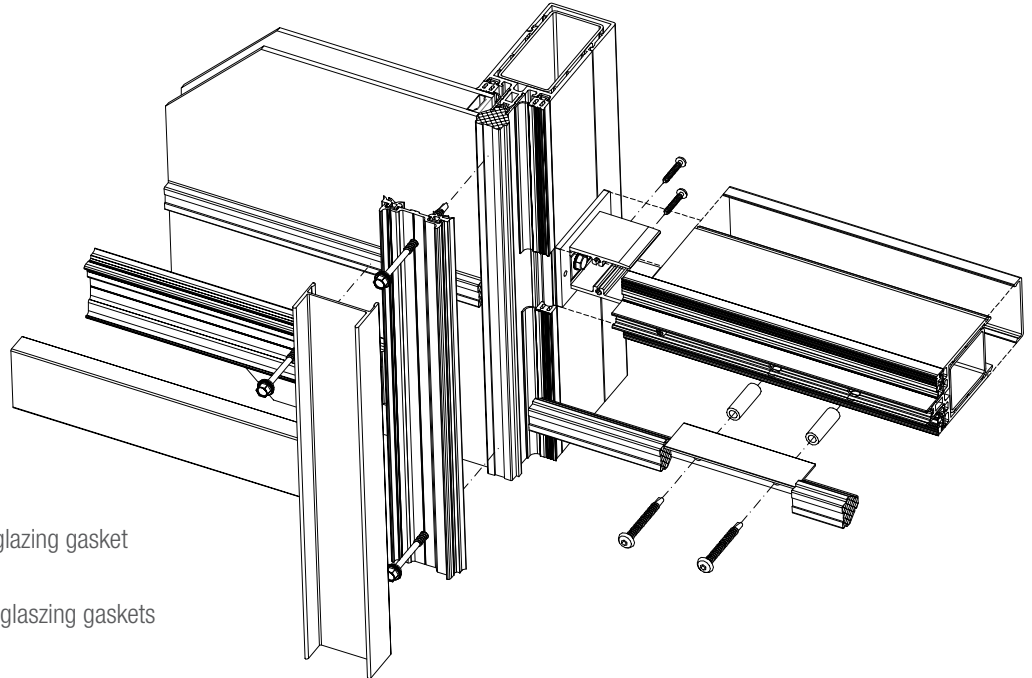
Loose bearings compensate for thermal expansion and building movements.



Single-storey Curtain Walling.

# REHAU-POLYTEC 50 S

## Construction principle

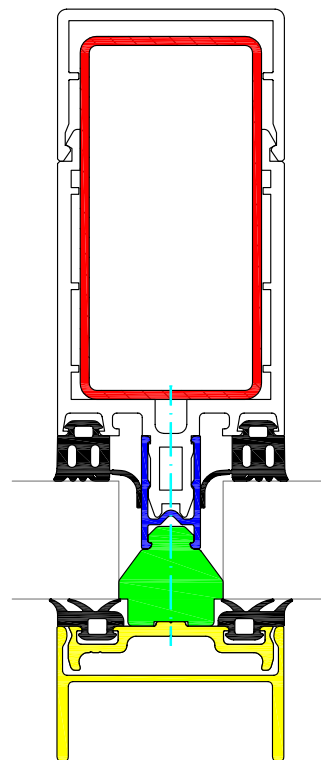


### Construction Assembly:

- Aluminium Cover Profile
- Aluminium Pressure Plate with glazing gasket
- Glazing/Panels (Insulation Area)
- Box Steel and PVC profiles with glazing gaskets

## Characteristics

- Galvanised Box Steel sections provide the structural strength required for wind resistance, imposed and dead loads.
- PVC Profiles provide means of inserting glazing gaskets and other auxiliary profiles and by encasing the box steel sections to offer a warm internal surface.
- PVC Isolator overlap the mullion joint to ensure excellent weather performance and to create the dedicated drainage path (mullion drained). All profiles are square cut, no end milling required.
- PE Foam Isolator to improve the thermal and weather performance as well as the air tightness.
- EPDM Glazing gaskets create the seal to glazing and panels.
- Stainless Steel Pressure Plate Fixing
- Aluminium Pressure Plates and Cover Profiles form the external finish and provide the necessary glazing pressure. A wide range of different Cover Profiles are available to suit the architecture of the building.



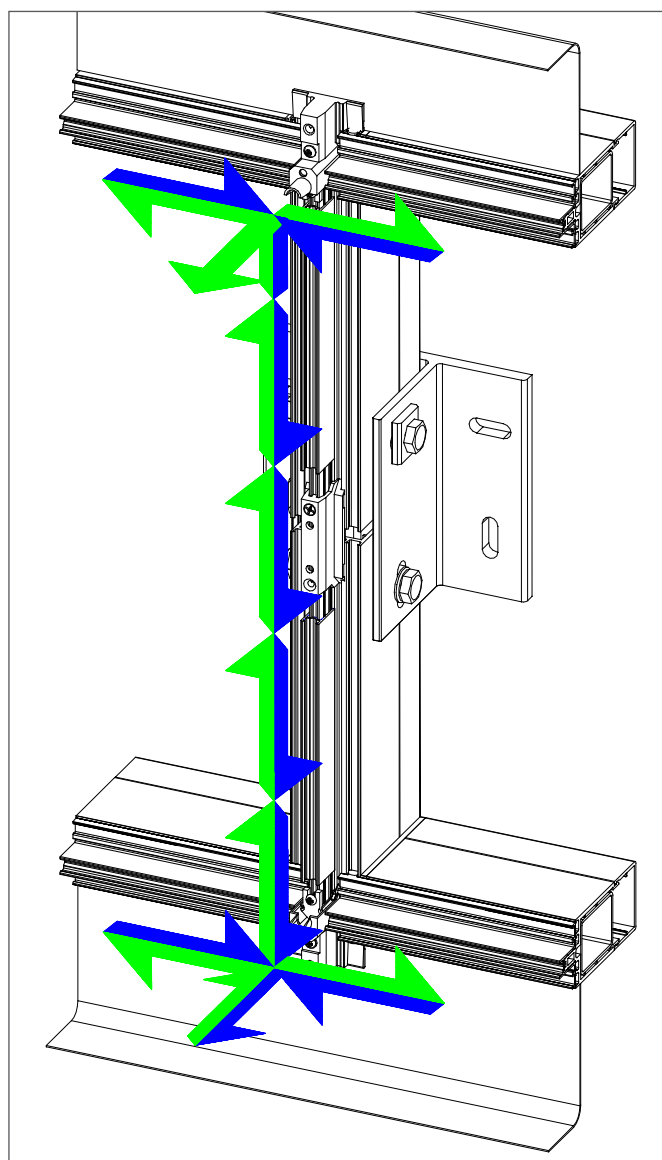
Mullion Cross Section

# REHAU-POLYTEC 50 S

## Mullion Drained and Pressure Equalised System

For long lasting sealed unit performance it is vital that the glazing rebates are dry or able to dry quickly. This is achieved via the drainage and ventilation path within the system design. The drainage path follows the transom isolator to the mullion. Dedicated mouldings which penetrate the pressure plate at each storey direct the water out of the system and create pressure equalisation & ventilation, which ensures high weather performance.

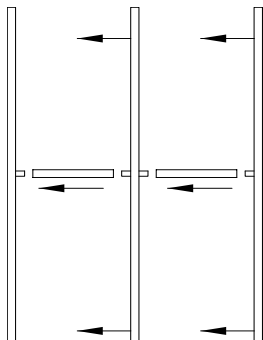
- Drainage path
- Equalisation/Ventilation path



# REHAU-POLYTEC 50 S

## Installation

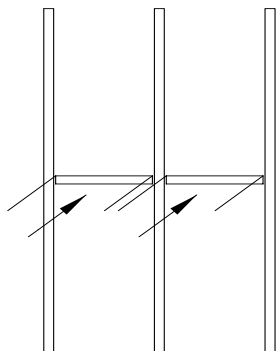
### „Side Installation“



The installation method for REHAU-Polytec 50 S depends on the type of connector used.

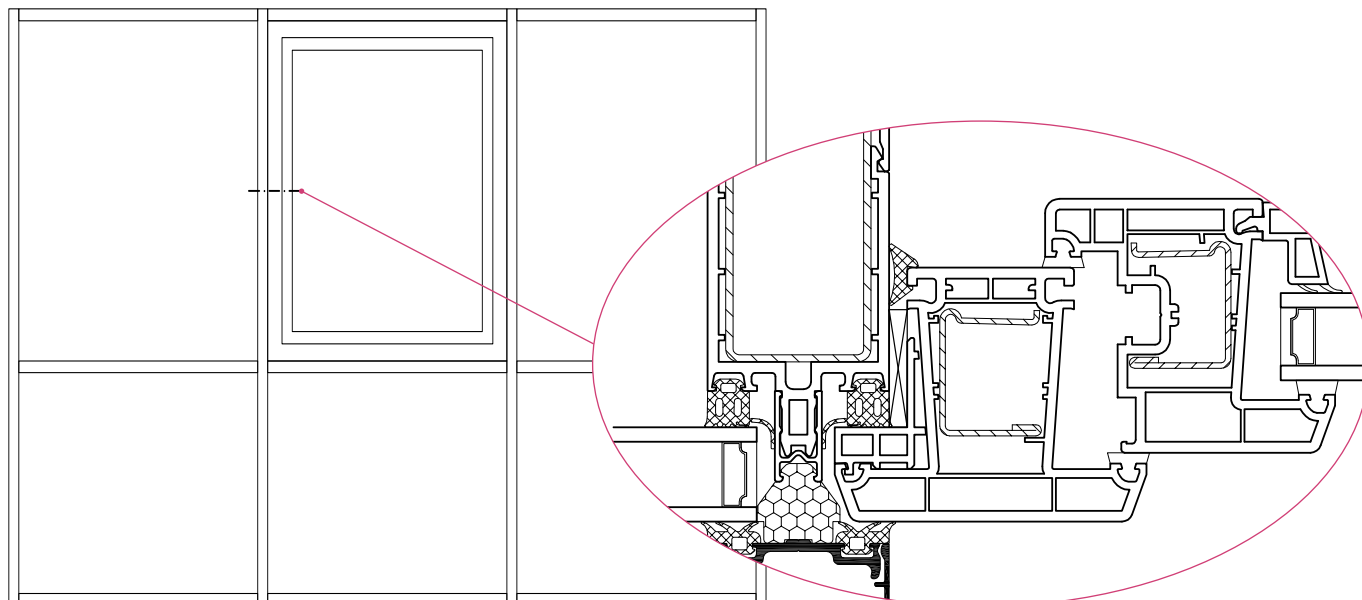
When using the Connector 50/80/120 the first mullion gets installed followed by the transoms and the next mullion and so on.

### „Front Installation“

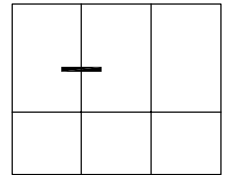


When using the Sliding Connector 50/80 the mullions can be positioned and installed first, followed by the transoms which get pushed on from the front. It is advisable to insert the top and bottom transom when installing the mullions at the same time.

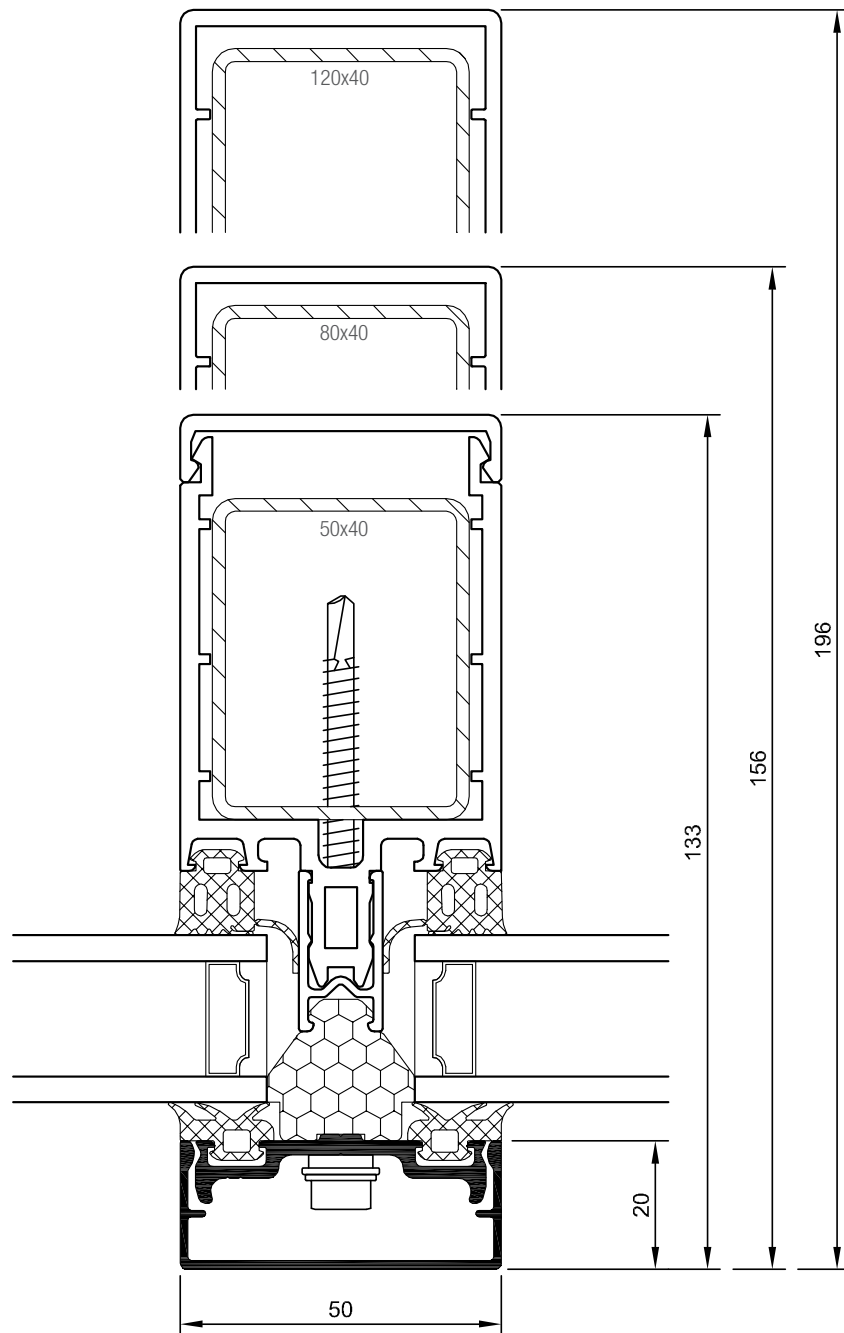
## Openings



# REHAU-POLYTEC 50 S

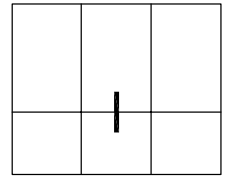


## Vertical Mullion

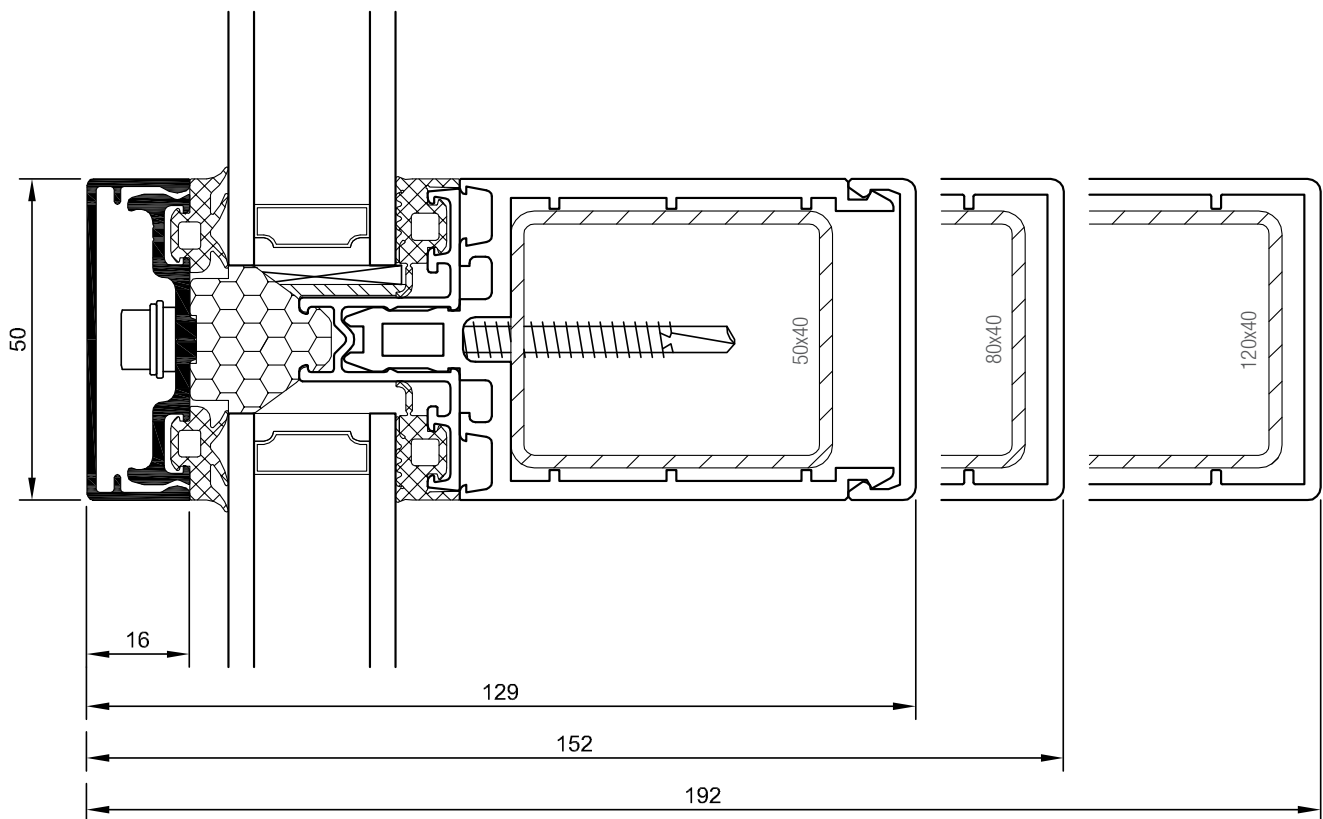




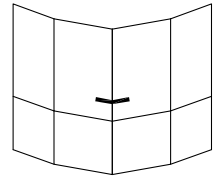
# REHAU-POLYTEC 50 S



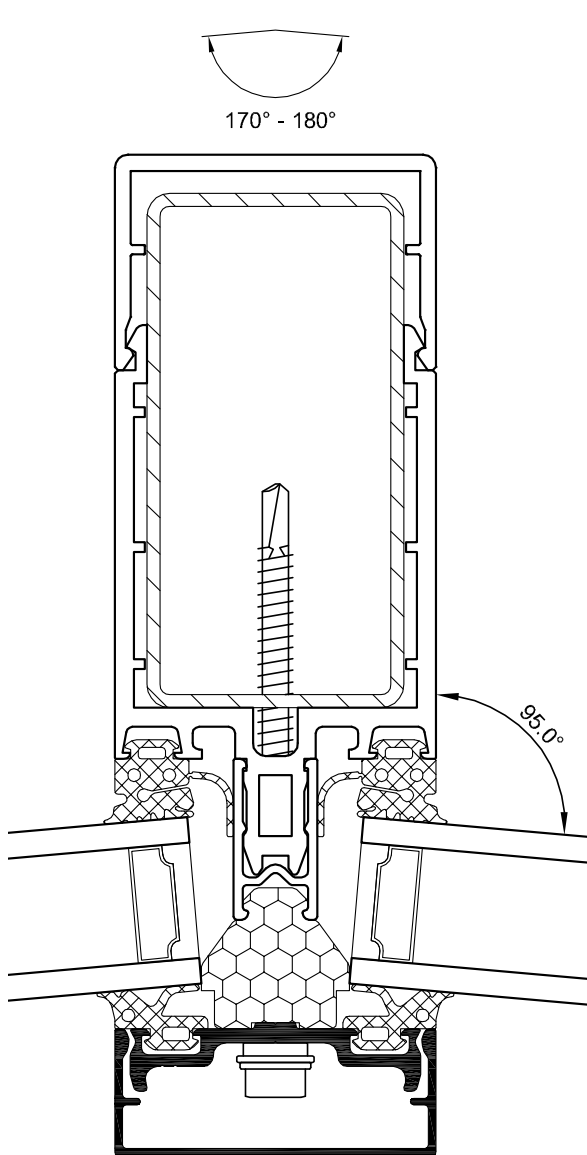
## Horizontal Mullion/Transom



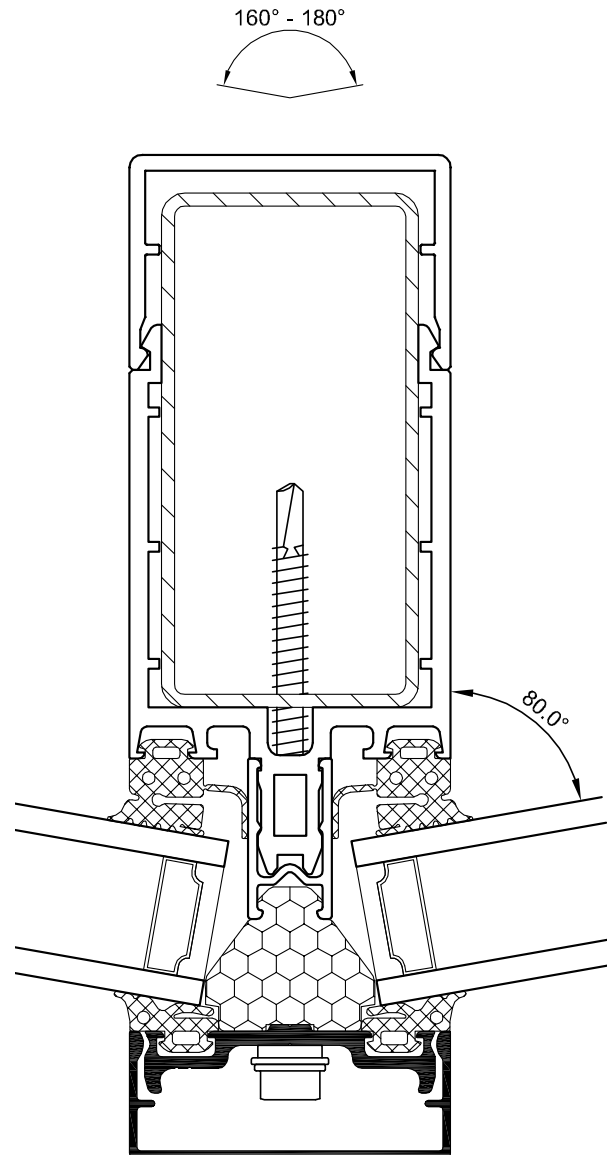
# REHAU-POLYTEC 50 S



## Polygonal (Facetted) Curtain Walling



Concave



Convex

# REHAU-POLYTEC 50 S

## References



*Office Building Raumedic, Münchberg (Germany)*



*Day Care Center Lebenshilfe, Schwabach (Germany)*



*Apartments Centrium, Woking (UK)*



*Apartments East Hill, London (UK)*



*Apartments, Jekatarinburg (Russia)*



*Office Building Donenergo, Rostow a. Don (Russia)*



*Office Building Reform, Steyr (Austria)*



*Volvo Showroom, Jekatarinburg (Russia)*

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