



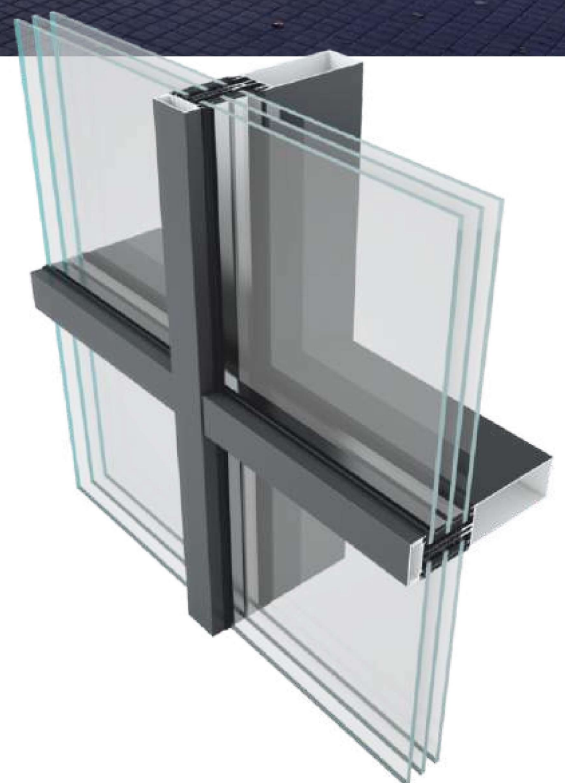
FA 50N - SYSTEM FEATURES

This system allows for designing and building light mullion-transom curtain walls.

FA 50N system is classified as one of the best curtain wall systems available on the market, considering thermal and acoustic insulation, water tightness and wind load resistance.

The great variety of solutions possible within this system provides free shaping of the facade with regard to its geometry and colour scheme. This product has undergone tests in a European test institution.

Photo: City Public Library, Sosnowiec
Design: Pracownia Projektowa AiM Arkadiusz Miśkiewicz, Katowice
Aluminium manufacturer: APS-System, Częstochowa



ADVANTAGES OF THE SYSTEM

allows for creating constructions of various shapes and dimensions, in accordance with the architect's vision,

complies with valid standards concerning water tightness, thermal insulation and fire resistance,

wide variety of masking strips allows for diversified final appearance of the curtain walls,

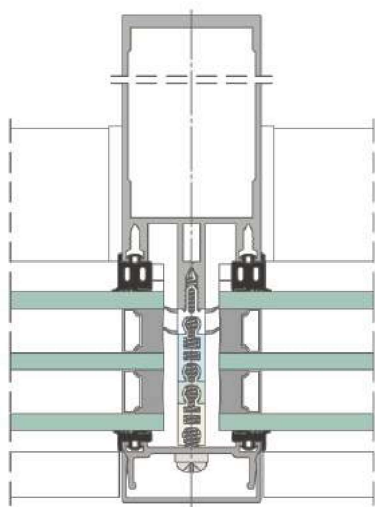
possibility of profile bending,

possibility of creating many varieties with diversified parameters,

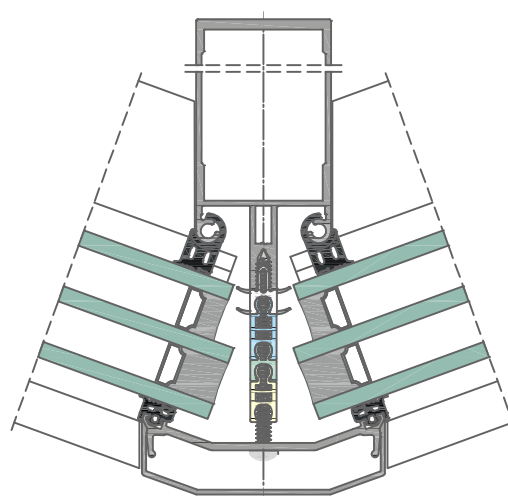
possibility of using photovoltaic cells,

possibility of combination with other Yawal systems.

MULLION CROSS-SECTION FA 50N

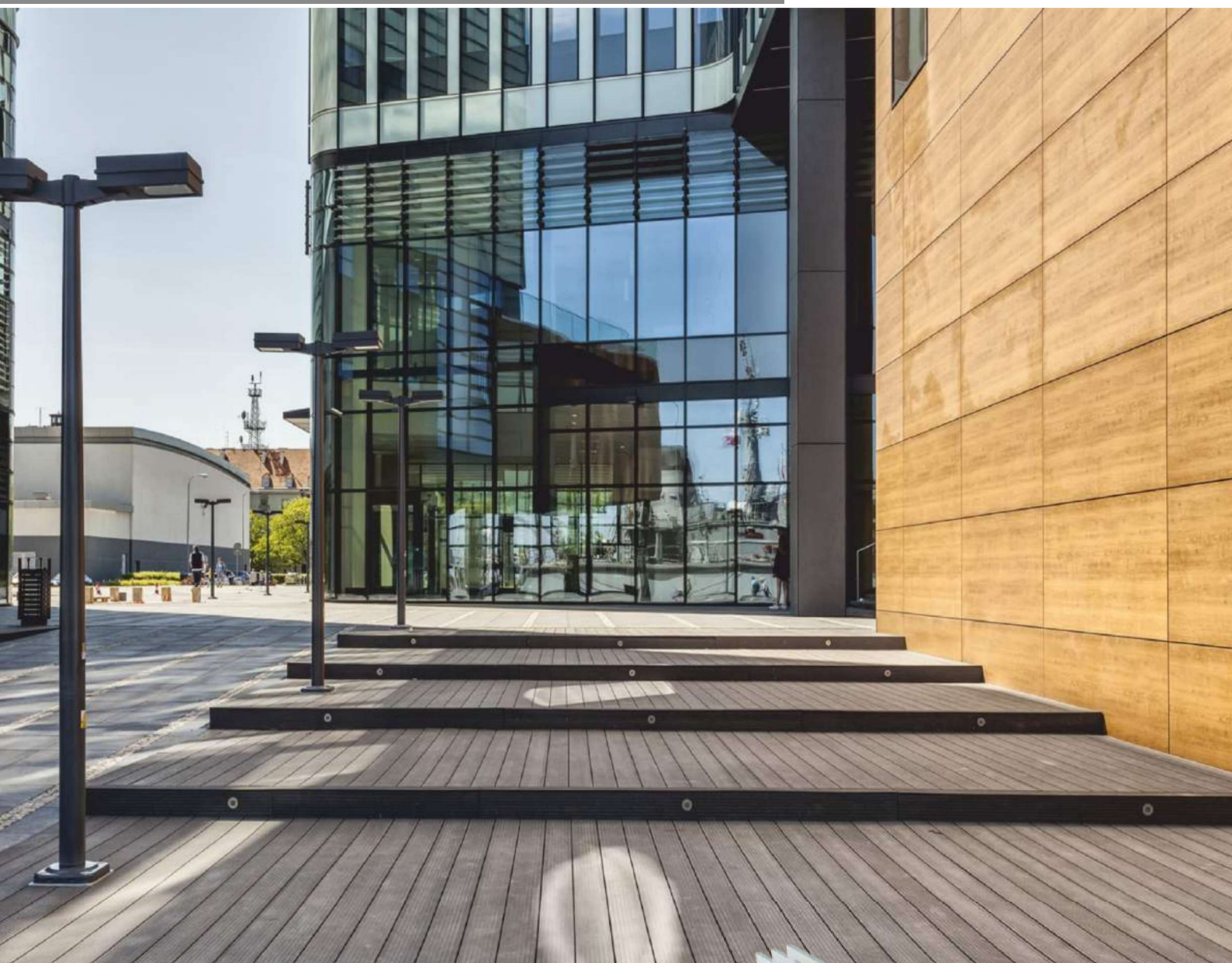


CROSS SECTION OF ANGLE STRUCTURE FA 50N



TECHNICAL PARAMETERS - FA 50N

Air permeability	class AE 1500 acc. to PN-EN 13830
Water tightness	class RE 1800 acc. to PN-EN 13830
Heat transfer coefficient	$U_f =$ from 1,2 W/m ² K acc. to PN-EN ISO 10077-2
Wind load resistance	2400 Pa acc. to PN-EN 13830
Acoustic insulation	$R_w =$ 53 dB acc. to PN-EN ISO 140-3
Impact resistance	class I5, E5 acc. to PN-EN 13830
Anti-theft protection	RC2, RC3, RC4 acc. to PN-EN 1627
External visible width	50 mm
Internal visible width	50 mm
Glazing	fixed with termination bars and masking strips
Glazing thickness	6÷62 mm
Opened elements	<ul style="list-style-type: none"> - outwards tilt / sliding windows FA 50N SW - inwards opened windows (FA 50N INV) - inwards opened windows in systems TM 62/TM 62HI , TM 74HI, TM 77HI - door TM 62/74/77/77 PRESTIGE, DP 100/150T/180, PI 50 + automatic door

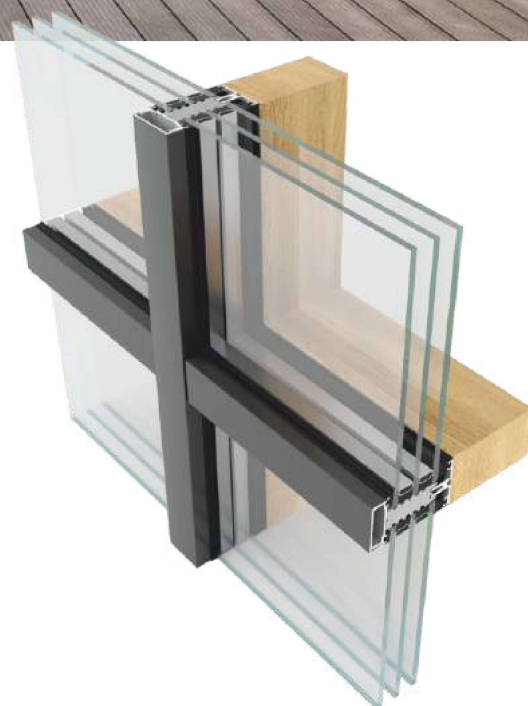


FA 50N A - SYSTEM FEATURES

Among the Yawal facade systems there is a new product - overlapping system FA 50N A.

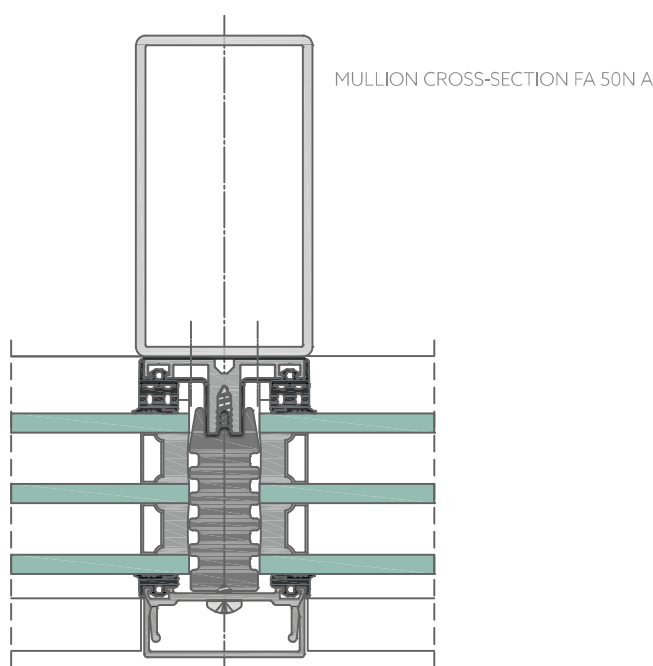
This solution is based on our recognized and appreciated basic facade system FA 50N. The structure of this system allows for designing and building light mullion-transom curtain walls, installed on wooden or steel supporting structure of a building.

Such a combination provides durable, strong and aesthetic curtain that covers the underlying architectural form.



ADVANTAGES OF THE SYSTEM

- possibility of application as facade walls,
- large selection of termination bars and masking strips,
- possibility of creating a semi-structural curtain (SL),
- excellent thermal insulation 0.6 W/m²K for HI facade and 0.8 W/m²K for semi-structural facade,
- good tightness,
- one profile per mullion and transom,
- possibility of combination with other Yawal systems,
- profile prefabricated by Yawal S.A,
- easy to assembly.



This newest system is dedicated to creating glazed facades for buildings such as banks, hotels, public buildings, offices, sports halls, etc. The glass curtain thus created provides appropriate lighting of the interiors, its presentation and protection from various weather conditions. Furthermore, due to large selection of available masking strips and termination bars, it is possible to shape the facade freely with regard to its geometry and colour scheme. It is also possible to create a semi - structural version of the facade and form homogeneous and smooth surface.

This system is perfect for designing and shaping temporary, unbounded and unlimited architectural forms.

TECHNICAL PARAMETERS - FA 50N A

Profile width	50 mm
Glazing range	6÷62 mm
Thermal insulation	U _f from 0,6 W/m ² K



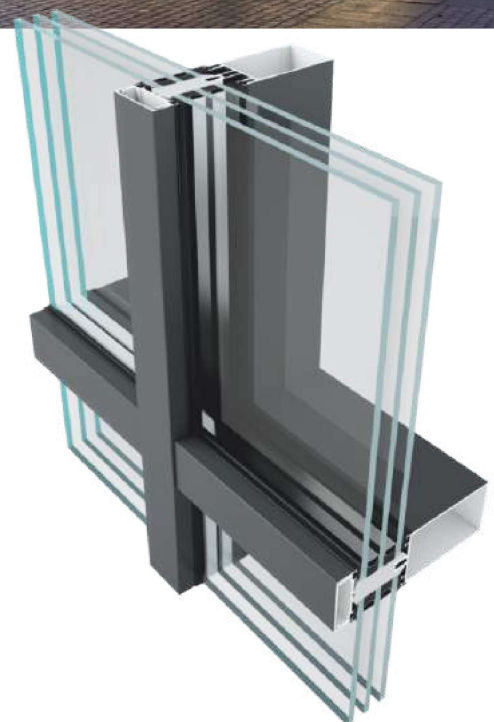
FA 50N HI - SYSTEM FEATURES

FA 50N HI is a system with highest thermal insulation properties, modern and energy-efficient, characterised by great water tightness and wind load resistance.

It is perfect for applications in office buildings or public buildings. It also provides uncountable architectural possibilities. This solution has the best parameters among all products of the same class available on the market.

Unique system of foam insulation and possibility of using double-chamber glass panes allows for obtaining excellent thermal insulation properties.

Photo: Shoppin Centre - Posnania, Poznań
Design: B.E.G. INGENIERIE Polska Sp. z o.o.; Blue Architektura Sp. z o.o.; RTKL UK Ltd; WB PROJEKT
Aluminium manufacturer: DEFOR S.A.



ADVANTAGES OF THE SYSTEM

allows for creating constructions of various shapes (turns, bends, polygonal shapes),

complies with all valid standards concerning water tightness, thermal insulation and fire resistance,

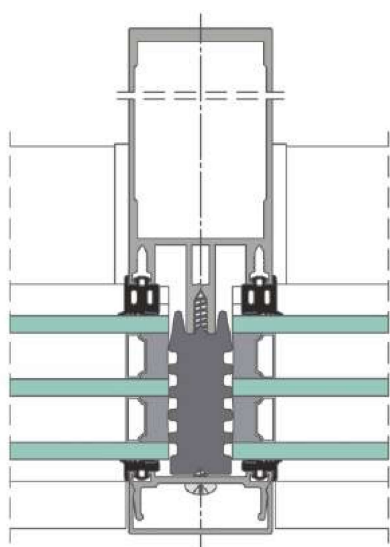
wide variety of masking strips allows for diversified final appearance of curtain walls,

possibility of profile bending,

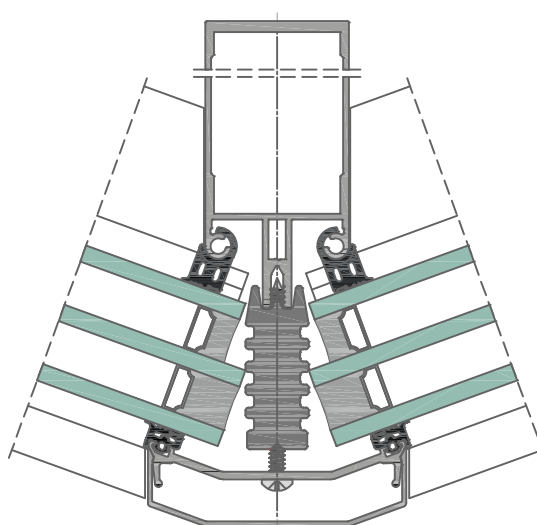
reduction of heating costs,

possibility of combination with other Yawal systems.

MULLION CROSS-SECTION FA 50N HI



CROSS SECTION OF ANGLE STRUCTURE FA 50N HI



TECHNICAL PARAMETERS - FA 50N HI

Air permeability	class AE 1500 acc. to PN-EN 13830
Water tightness	class RE 1800 acc. to PN-EN 13830
Heat transfer coefficient	$U_f = 0,63 \text{ W/m}^2\text{K}$ acc. to PN-EN ISO 10077-2
Wind load resistance	2400 Pa acc. to PN-EN 13830
Acoustic insulation	$R_w = 53 \text{ dB}$ acc. to PN-EN ISO 140-3
Impact resistance	class I5, E5 acc. to PN-EN 13830
Anti-theft protection	RC2, RC3, RC4 acc. to PN-EN 1627
External visible width	50 mm
Internal visible width	50 mm
Glazing	fixed with termination bars and masking strips
Glazing thickness	32÷62 mm
Opened elements	<ul style="list-style-type: none"> - outwards tilt / sliding windows FA 50N SW - inwards opened windows (FA 50N INV) - inwards opened windows in systems TM 62/TM 62HI, TM 74HI, TM 77HI - door TM 62/74/77/77 PRESTIGE, DP 100/150T/180, PI 50 + automatic door



FA 50N SL - SYSTEM FEATURES

FA 50N SL is used to create modern curtain walls of simple and complex shapes.

Its purpose is creating structures with flat external surface (no aluminium profiles visible). It combines the advantages of classic transom-and-mullion facade (quick assembly) with the aesthetic appearance of structural facade.

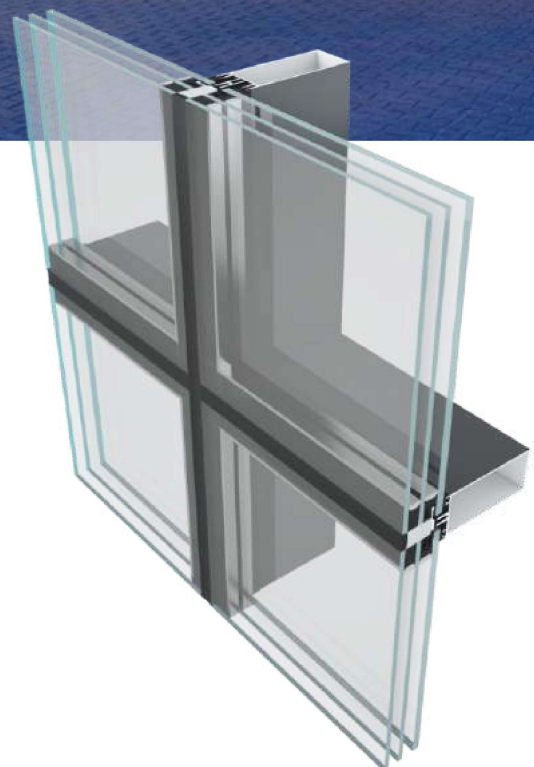
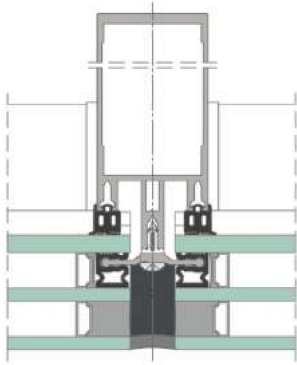


Photo: Car showroom INFINITI, Warsaw
Design: Lloyd Northover, London
Aluminium manufacturer: APS System Sp. j., Częstochowa

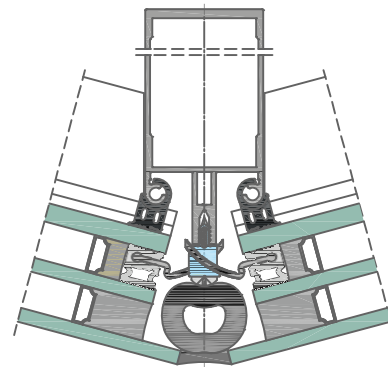
ADVANTAGES OF THE SYSTEM

- allows for creating constructions of various shapes (turns, bends, polygonal shapes),
- possibility of profile bending,
- excellent tightness and aesthetic appearance,
- quick and easy assembly,
- possibility of installing tilt or parallel sliding windows next to each other, the windows are opened independently,
- possibility of combination with other Yawal systems.

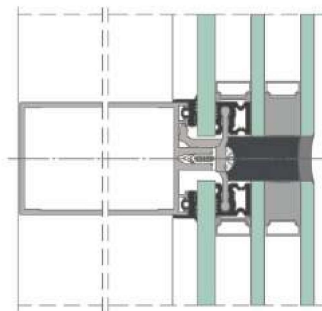
MULLION CROSS-SECTION



CROSS SECTION OF ANGLE STRUCTURE



TRANSOM CROSS-SECTION



TECHNICAL PARAMETERS - FA 50N SL

Air permeability	class AE 1200 acc. to PN-EN 13830
Water tightness	class RE 1200 acc. to PN-EN 13830
Heat transfer coefficient	$U_f =$ from 0,8 W/m ² K acc. to PN-EN ISO 10077-2
Wind load resistance	1700 Pa acc. to PN-EN 13830
Acoustic insulation	$R_w =$ 53 dB acc. to PN-EN ISO 140-3
Impact resistance	classes I4, E3 acc. to PN-EN 13830
Internal visible width	50 mm
External visible width	gap 20 mm
Glazing	mechanical assembly using internal glass pane
Glazing thickness	6÷62 mm
Opened elements	- outwards opened tilt/sliding windows (FA 50N SW), - inwards opened windows (FA 50N INV)



FA 50N HL/VL - SYSTEM FEATURES

These systems are an optional stylistic variation of FA 50N system.

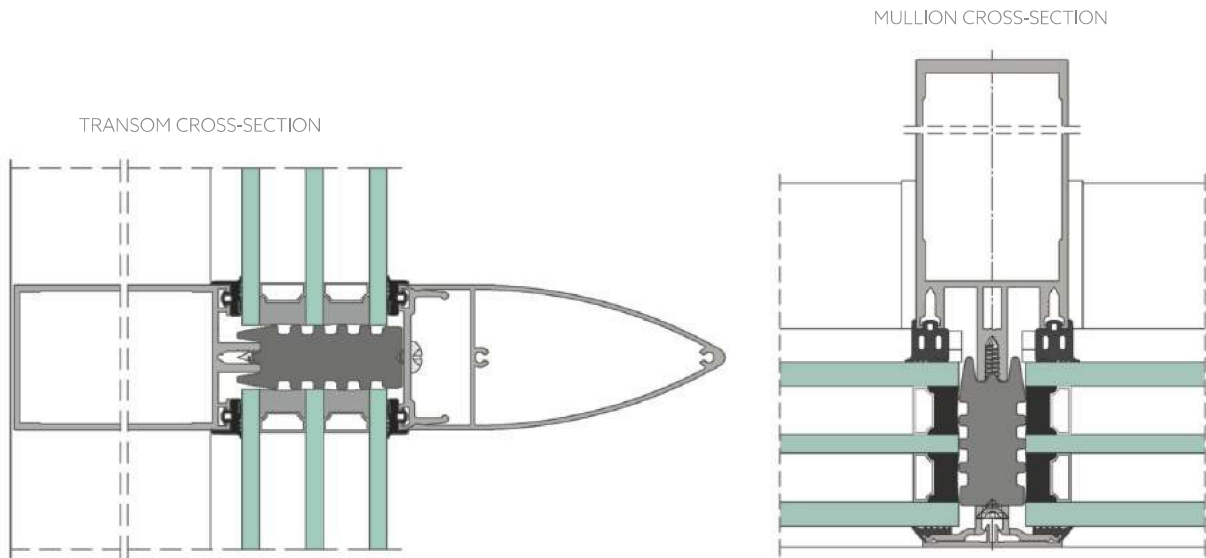
They allow for creating light mullion-transom curtain walls. Aluminium profiles, constituting a part of the system, make the vertical or horizontal division lines on the facade invisible, and the perpendicular elements are emphasised with separate decorative strip.



Photo: ŁKS Stadium, Łódź
Design: Perbo-Design, Cracow
Aluminium manufacturer: Zimny Sp. z o.o., Łódź

ADVANTAGES OF THE SYSTEM

- possibility of creating visually attractive structures,
- high water tightness and wind load resistance parameters,
- visual effect of emphasising horizontal and vertical division lines,
- possibility of using tilt windows that don't interfere with facade appearance,
- possibility of combination with other Yawal systems.



TECHNICAL PARAMETERS - FA 50N HL/VL

Air permeability	class AE 1500 acc. to PN-EN 13830
Water tightness	class RE 1800 acc. to PN-EN 13830
Heat transfer coefficient	$U_f =$ from 0,65 W/m ² K acc. to PN-EN ISO 10077-2
Wind load resistance	2400 Pa acc. to PN-EN 13830
Acoustic insulation	$R_w =$ 53 dB acc. to PN-EN ISO 140-3
Impact resistance	classes I5, E5 acc. to PN-EN 13830
External visible width	50 mm
Internal visible width	50 mm
Glazing	mechanical assembly using internal glass pane
Glazing thickness	6÷62 mm
Opened elements	<ul style="list-style-type: none"> - outwards opened tilt/sliding windows (FA 50N SW), - inwards opened windows (FA 50N INV)



FA 50N SW - SYSTEM FEATURES

The system of structural windows FA 50N SW is a universal system that allows for installation of parallel sliding, tilt or turn windows in a facade, with mechanically or structurally assembled glazing.

The windows are designed to make the aluminium frames of window sash invisible from the outside. Profiles shapes match typical (according to European standards) fittings and scissors-like mechanisms.

An important improvement is that this new solution allows for glazing with double-chamber units.

Photo: ITM POLAND, Radom
Design: WG STUDIO - Piotr Jawornik
Aluminium manufacturer: Stolrad Sp. z o.o., Radom



ADVANTAGES OF THE SYSTEM

the visual effect of an even, uninterrupted surface affects positively the general aesthetics of the building,

compatible with "intelligent house" concept,

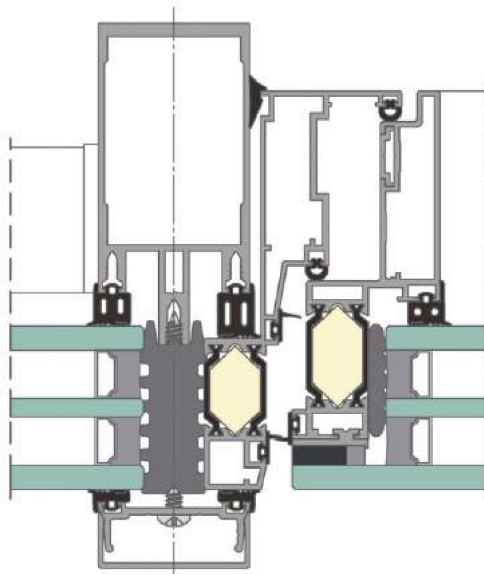
possibility of efficient ventilation without interrupting the homogeneous appearance of the facade due to using sliding windows,

possibility of natural ventilation, uniform inlet and outlet of air,

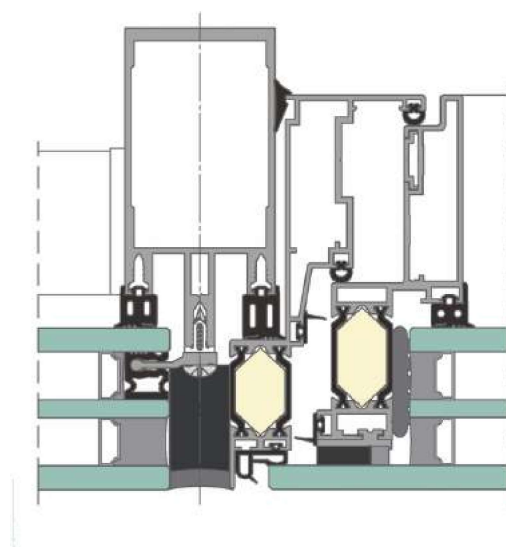
no draught and reduction of energy costs,

possibility of installation of automatic opening/closing actuators.

MULLION CROSS-SECTION - WINDOW FA 50N SW
IN FACADE FA 50N HI



MULLION CROSS-SECTION - WINDOW FA 50N SW
IN FACADE FA 50N SL



TECHNICAL PARAMETERS - FA 50N SW

Air permeability	class 4 acc. to PN-EN 13830
Water tightness	class E 1500 acc. to PN-EN 13830
Heat transfer coefficient	U_f = from 1,3 W/m ² K acc. to PN-EN ISO 10077-2
Wind load resistance	class B4 (1600 Pa)/ class C4 (1600 Pa) acc. to PN-EN 12210
Impact resistance	I5/E5 (950 mm) acc. to PN-EN 13830
Glazing	mechanical or structural assembly
Types of windows	tilt outwards, sliding, turn
Glazing thickness	single-chamber 26÷32 mm double-chamber 46÷62 mm



FA 50N INV - SYSTEM FEATURES

FA 50N INV is a modern system of windows assembled in the support grid of a mullion-transom curtain wall FA 50N and FA 50N SL.

There are many possibilities for inwards opened windows: turn & tilt, tilt & turn, tilt, turn. The characteristic feature of this system is the assembly solution that makes the frame and window sash invisible from the outside of the curtain wall.

The profiles of mullions in curtain wall are shaped in such a way, that they function as window frames.

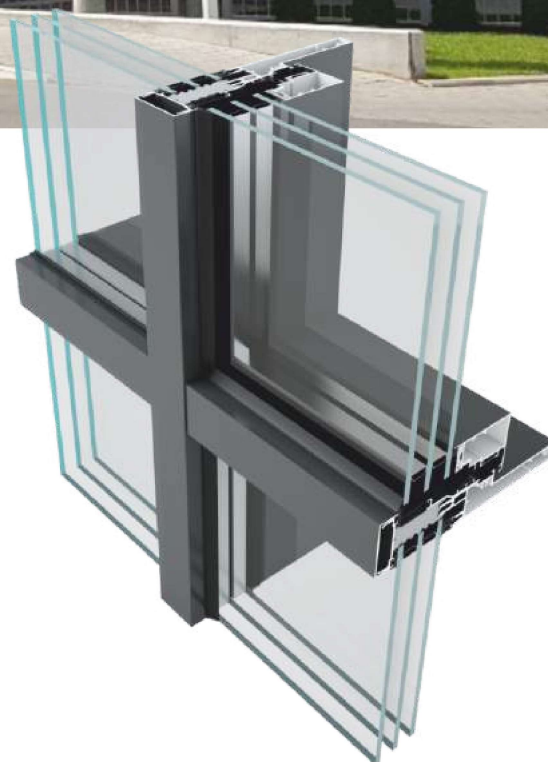
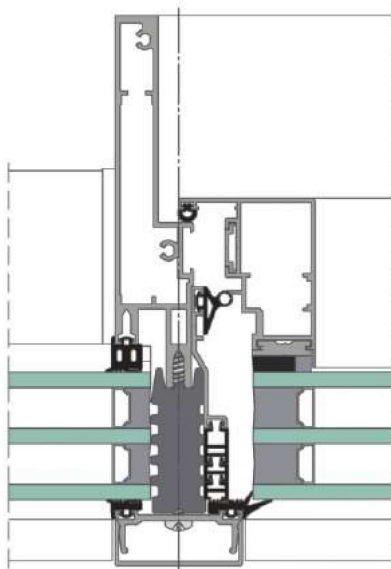


Photo: Office building in Czarnków
 Design: Kontur Studio Architektury Światopełk-Mirscy Sp. j.
 Aluminium manufacturer: GOSCO FP Sp. z o.o., Sp. k.

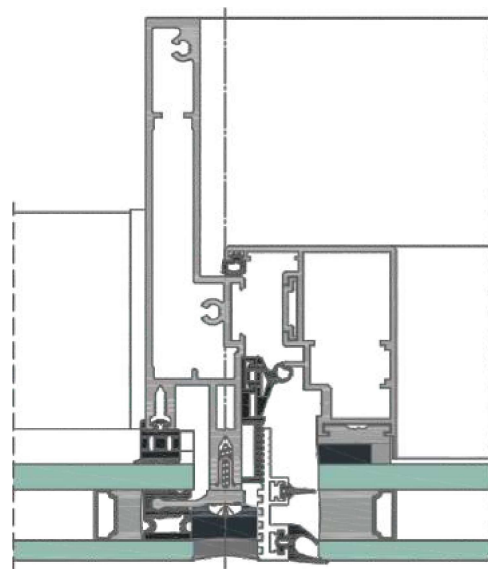
ADVANTAGES OF THE SYSTEM

- possibility of glazing with single-chamber and double-chamber units,
- a hidden sash effect from the outside of a curtain wall,
- high thermal insulation properties,
- possibility of assembly in any type of Yawal's mullion-transom facades,
- possibility of combination with other Yawal systems.

MULLION CROSS-SECTION -
WINDOW FA 50N INV
IN FACADE FA 50N HI



MULLION CROSS-SECTION -
WINDOW FA 50N INV
IN FACADE FA 50N SL



TECHNICAL PARAMETERS - FA 50N INV

Heat transfer coefficient	$U_f = \text{from } 0,7 \text{ W/m}^2\text{K}$
Internal visible width	78,5 mm
Glazing	structural assembly
Types of windows	turn & tilt (RU), tilt & turn (UR), turn (R), tilt (U)
Glazing thickness	28÷58 mm
Water tightness	E 1650 acc. to PN-EN 13830
Wind load resistance	E 1650 acc. to PN-EN 13830
Air permeability	class 4 acc. to PN-EN 13830
Impact resistance	I5/E4 acc. to PN-EN 13830



FA 50N PV - SYSTEM FEATURES

FA 50N PV system is used to create light curtain walls and roof covers as well as other space constructions where glass panes are equipped with photovoltaic cells.

The characteristic feature of this system is special set of mullions, transoms and blinds covering the chamber used to lay cables and special glass pane construction allowing for production of electrical energy.

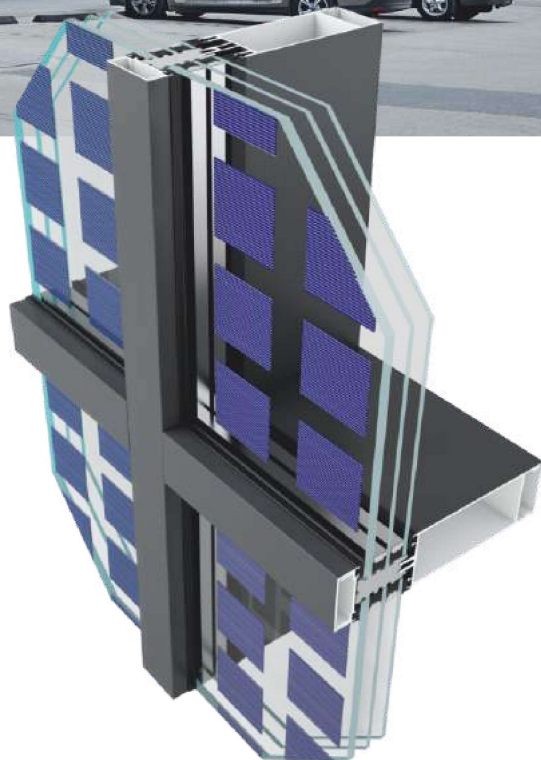
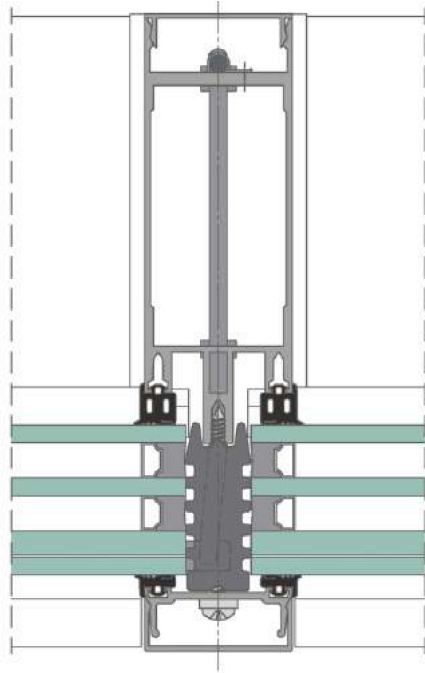


Photo: BMZ POLAND Sp. z o.o., Gliwice
Design: BAUREN Renke Piotr
Aluminium manufacturer: SBL-Zelbet Sp. z o.o.

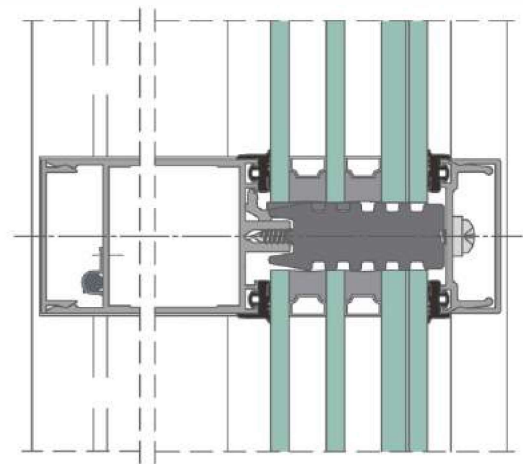
ADVANTAGES OF THE SYSTEM

- invisible cabling,
- excellent thermal insulation,
- energy efficiency,
- possibility of assembly with any of Yawal facade systems.

MULLION CROSS-SECTION



TRANSOM CROSS-SECTION



TECHNICAL PARAMETERS - FA 50N PV

Air permeability	class AE 1500 acc. to PN-EN 12152
Water tightness	class RE 1800 acc. to PN-EN 12154
Heat transfer coefficient	$U_f =$ from 0,63 W/m ² K acc. to PN-EN ISO 10077-2
Wind load resistance	2400 Pa acc. to PN-EN 13116
Acoustic insulation	$R_w =$ 31÷47 dB acc. to PN-EN ISO 140-3
Impact resistance	class I5, E5
Internal visible width	50 mm
External visible width	50 mm
Glazing	fixing by means of termination bars and masking strips or fixing behind the internal glass pane
Glazing thickness	6÷62 mm



FA 50N EI - SYSTEM FEATURES

FA 50N EI curtain wall is a skeleton construction consisting of mullions and transoms made of aluminium profiles.

The infills made of fireproof glass or insulation panels are fitted into the skeleton frame.



Photo: Water Heaters in Tarnów, Tarnowo Podgórne
 Design: Archas Design Maciej Zuber
 Aluminium manufacturer: USP Maciej Gajdziński, Poznań

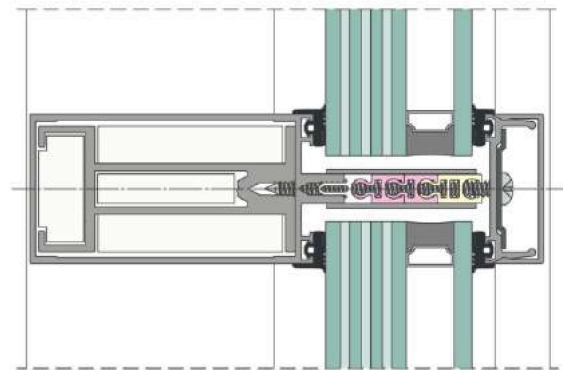
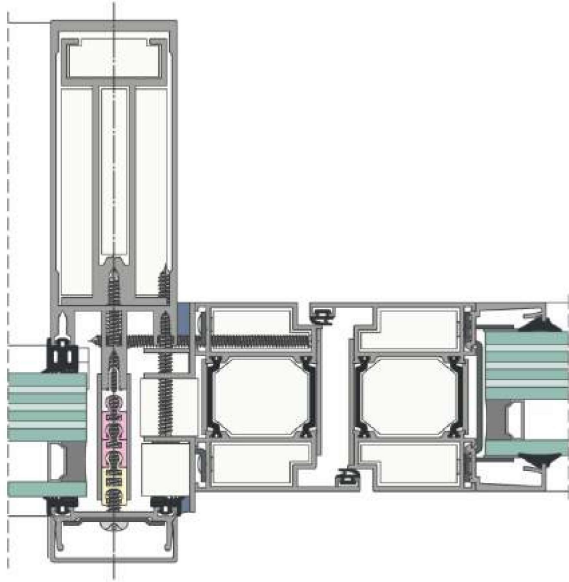
ADVANTAGES OF THE SYSTEM

possibility of creating curtain walls with various surface refractions,

complies with stringent fire protection standards,

possibility of combination with fire protection systems Yawal TM 75EI and TM 62EI.

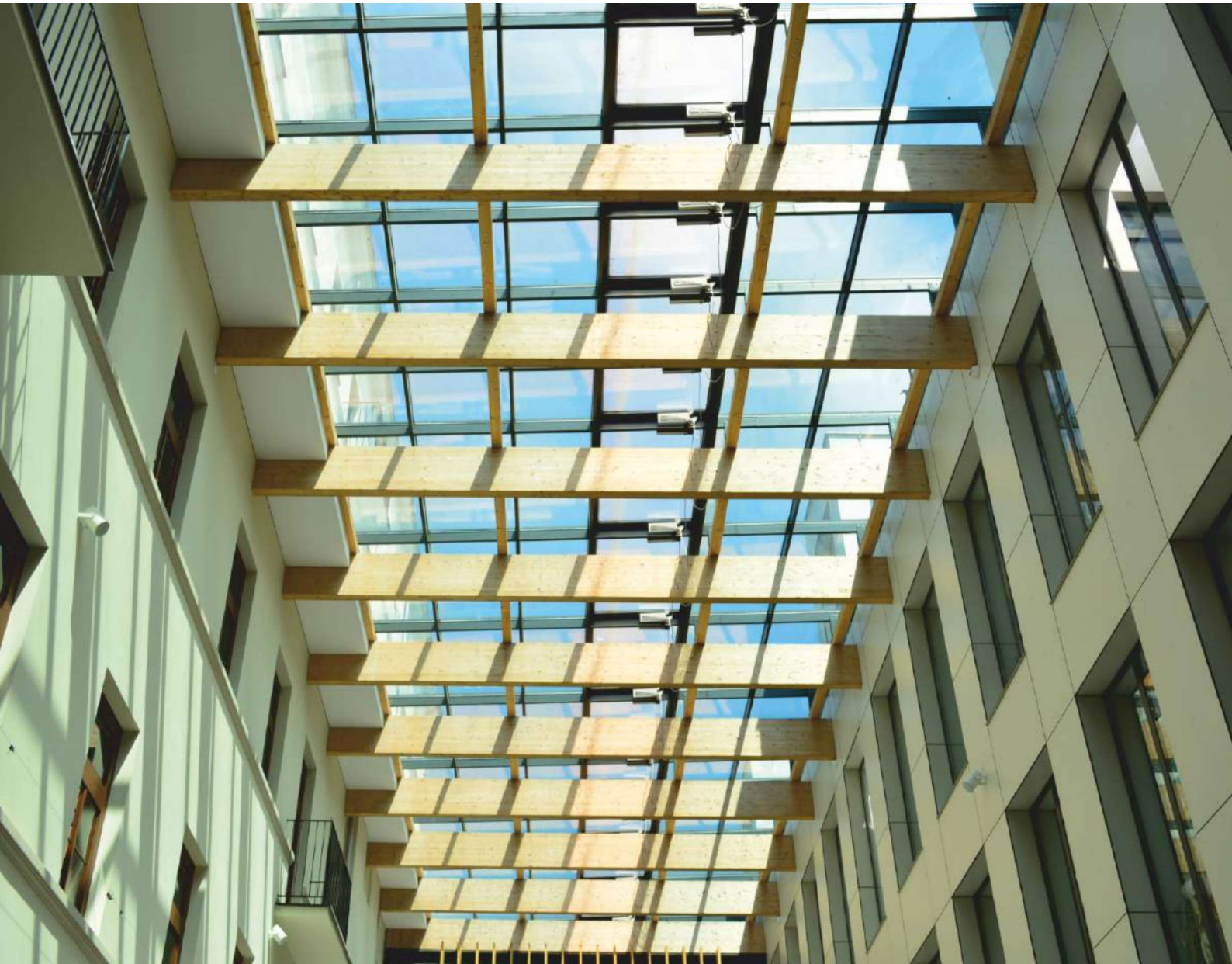
MULLION CROSS-SECTION



TRANSOM CROSS-SECTION

TECHNICAL PARAMETERS - FA 50N EI

Air permeability	class AE 1500 acc. to PN-EN 12152
Water tightness	class RE 1800 acc. to PN-EN 12154
Fire classification	class EI 15, EI 30, EI 45, EI 60 acc. to PN-EN 12501-2 A1
Heat transfer coefficient	$U_f =$ from 1,2 W/m ² K acc. to PN-EN ISO 10077-2
Wind load resistance	2400 Pa acc. to PN-EN 13116
Acoustic insulation	$R_w = 31\div 44$ dB acc. to PN-EN ISO 140-3
Impact resistance	classes I5, E5 acc. to PN-EN 14019
Anti-theft protection	RC2, RC3, RC4 acc. to PN-EN 1627
Internal visible width	50 mm
External visible width	50 mm
Glazing	assembly by means of termination bars and masking strips
Glazing thickness	10÷80 mm



FA 50N DACH EI - SYSTEM FEATURES

System FA 50N DACH REI 15, REI 20, RE 30, REW 30 allows for designing and production of a glazed roof (fireproof skylight) and a support structure made of aluminium profiles in system FA 50N.

The system is a skeleton construction, consisting of aluminium transoms and mullions. The installed transparent infills are made of fireproof, hardened glass. There are reinforcing shapes with cooling inserts in profile chambers. The structure of the roof, apart from standard elements of aluminium system, also consists of materials with excellent fire protection properties.

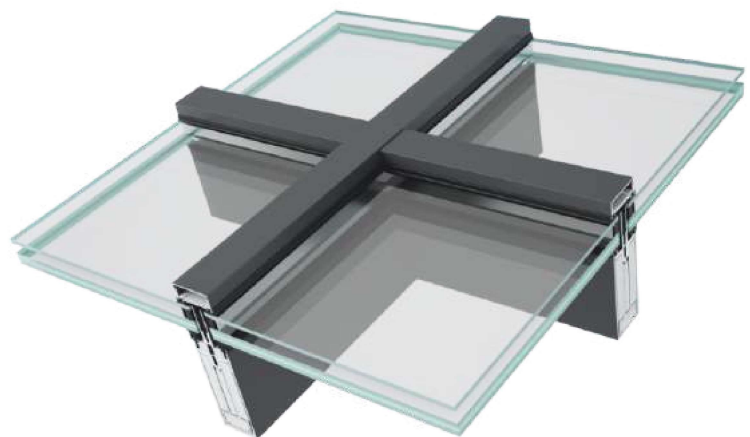
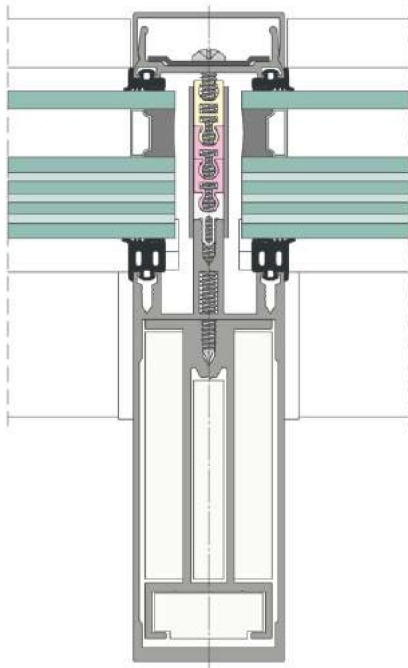


Photo: Creativity Centre Targowa, Warsaw
Design: Pracownia AKM S.C.
Aluminium manufacturer: Aluminium SPS Sp. j. Pająk i Wspólnik

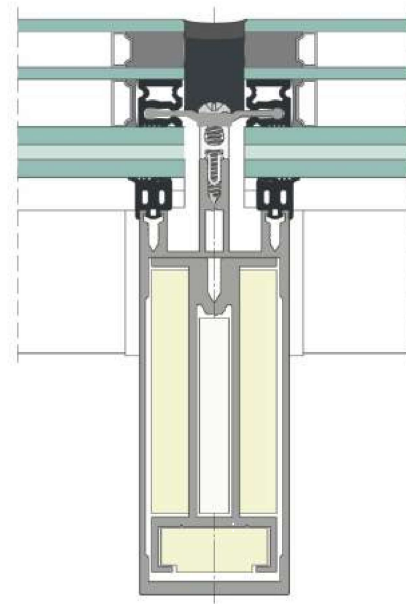
ADVANTAGES OF THE SYSTEM

- possibility of manufacturing glazed mono-pitched and double-pitched roofs, angled from 0°- 80°,
- possibility of creating a structure of various colours and with diversified surface finish,
- complies with stringent fire protection standards - class of fire resistance REI 15, REI 20, RE 30 and REW 30,
- possibility of manufacturing skylights and glazed roofs in a variety of shapes,
- possibility of manufacturing skylight in a structural version,
- possibility of combination with other Yawal systems.

RAFTER CROSS-SECTION
FA 50N REI 15, REI 20, RE 30, REW 30



RAFTER CROSS-SECTION
FA 50N SL REI 15, REI 20, RE 30, REW 30



TECHNICAL PARAMETERS - FA 50N DACH EI

Air permeability	class AE 1200 acc. to PN-EN 12152
Water tightness	class RE 1200 acc. to PN-EN 12154
Fire classification	class REI 15, REI 20, RE 30, REW 30 acc. to PN-EN 12501-2
Heat transfer coefficient	$U_f =$ from 1,27 W/m ² K acc. to PN-EN ISO 10077-2
Wind load resistance	1700-1800 Pa acc. to PN-EN 13116
Acoustic insulation	$R_w =$ 31÷44 dB acc. to PN-EN ISO 140-3
Internal visible width	50 mm
External visible width	50 mm
Glazing	fixed with termination bars and masking strips or covering with a silicone
Glazing thickness	10÷80 mm