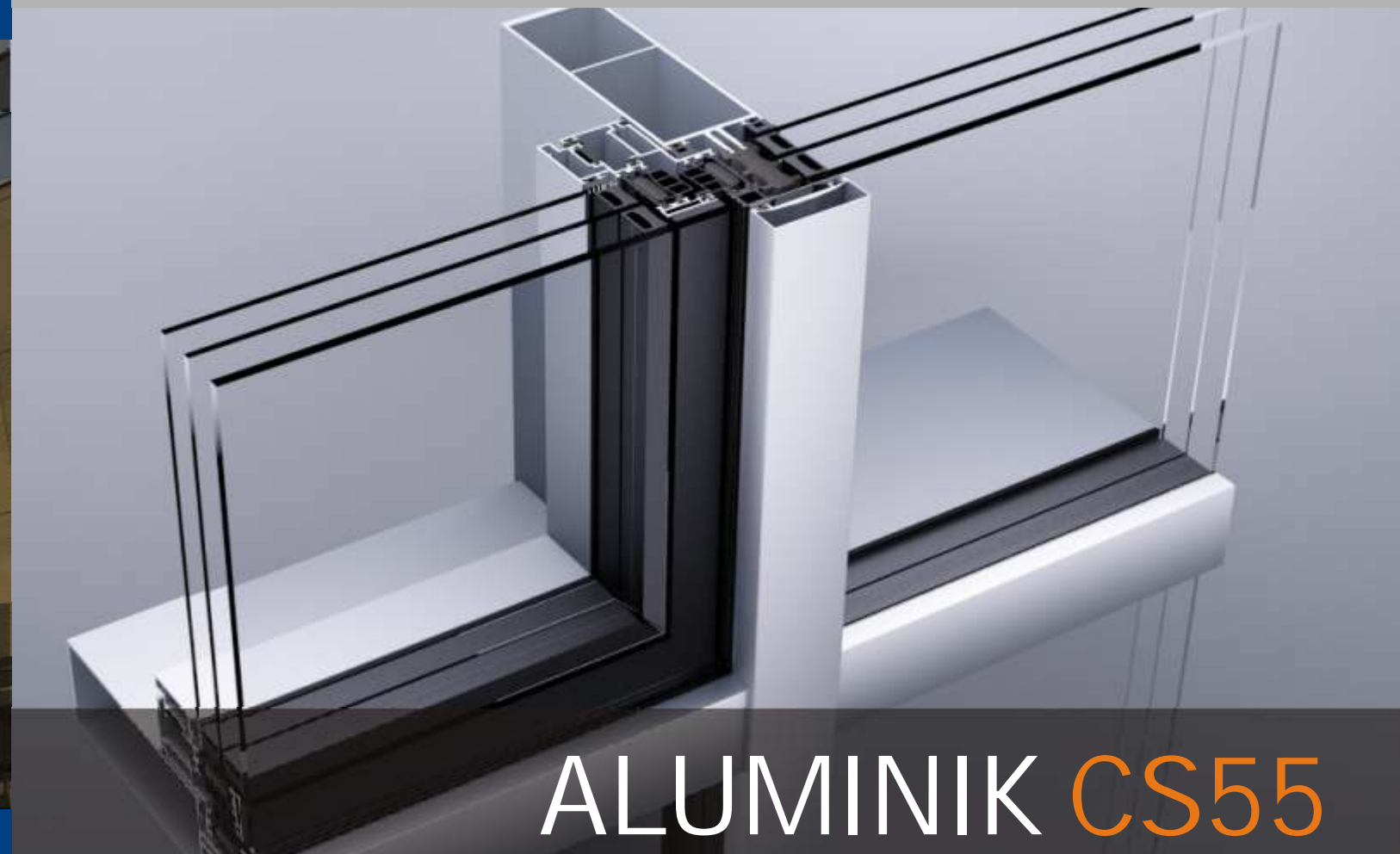




THE NEW GENERATION OF CURTAIN WALLS



ALUMINIK CS55

ALUMINIUM FACADE SYSTEMS

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DESIGNED AND MANUFACTURED BY TEHNOMARKET





ALUMINIK CS55

Tehnomarket Aluminik CS55 glass facade systems represent an optimal, contemporary and energy efficient solution that offers number of advantages over classic materials and occupies an important position in contemporary architecture.

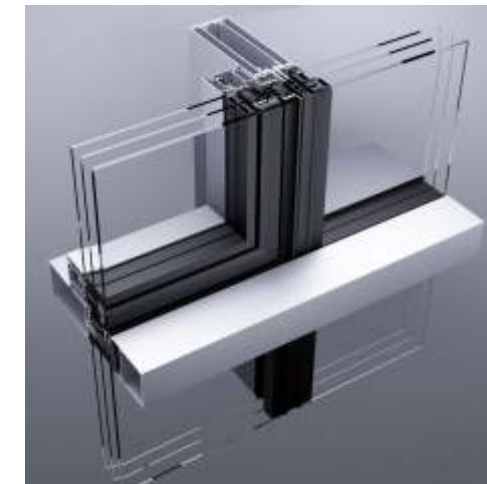
Aluminik CS55 curtain wall consists of main, load bearing aluminium substructure assembled from vertical and horizontal profiles with 55mm visible width and glass infill, while the continual and combined facades feature additional decorative aluminium cover caps. Depending on the project location and requirements, adequate double or triple layered glass packages are selected based on their specific performances and coefficient of thermal conductivity (Ug value). If required, any other appropriate panel for facade applications with 6mm to 60mm thickness (system dependent) can be used instead of the glass.

The installation method for glass panels depends on the facade type and it can be fixed either by mechanical connection, with pressure plates and cover caps, or glued with special compounds designed specifically for installation of structural facades.

THE NEW GENERATION OF FACADE SYSTEMS



CONTINUAL



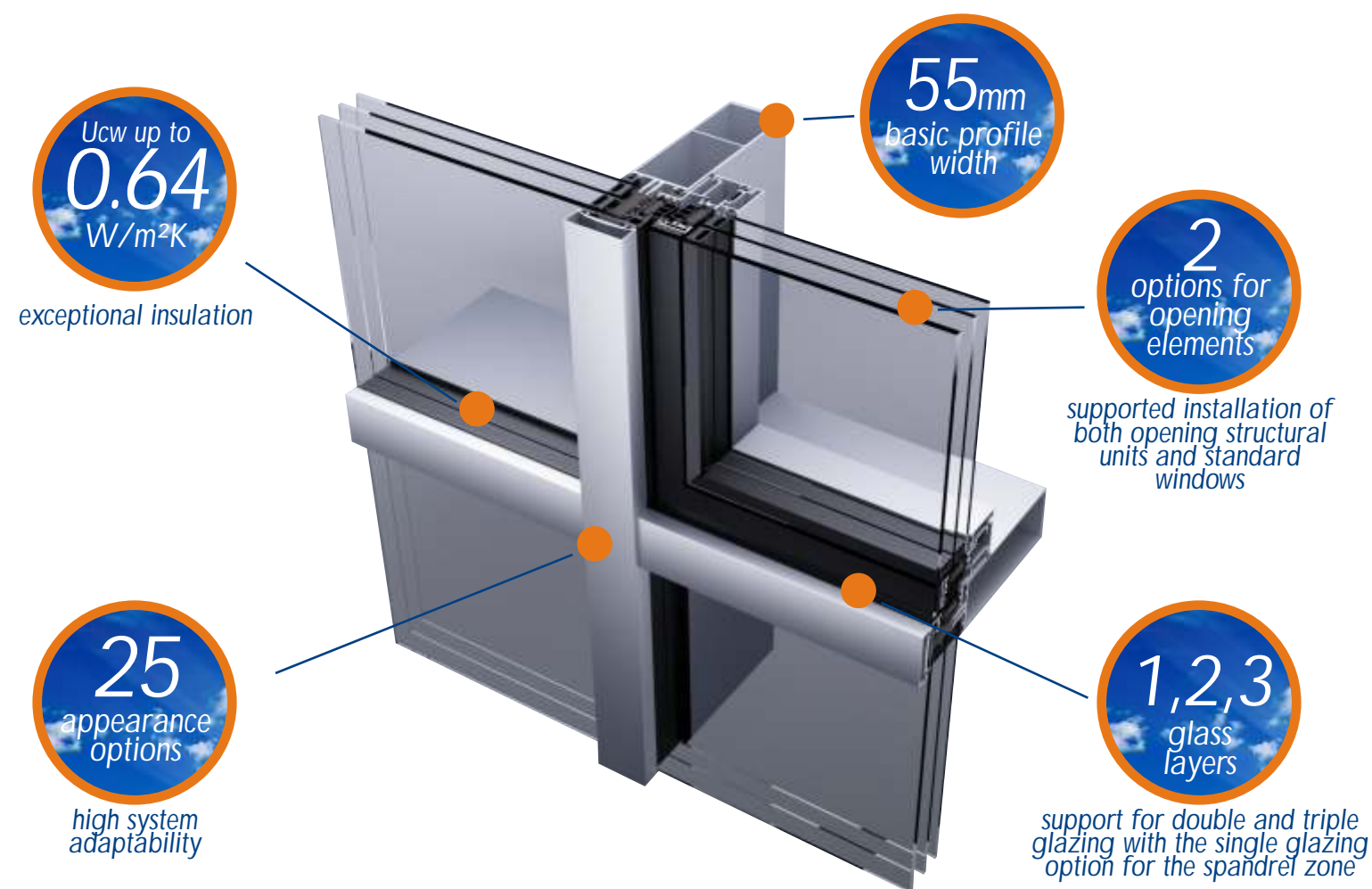
COMBINED



STRUCTURAL

Aluminik CS55 facades can be divided into three basic groups based on the exterior design: continual, structural and combined. With different visual appearance of the finished facade, installation depth from 100mm to 250mm and different options for integration of windows, doors or opening structural facade units, Aluminik CS55 system offers an optimal solution for all types of projects that require large glazed surfaces and high level of transparency.

Aluminik CS55 is used for facades, glass roofs and roof skylights with minimal slope of 7%. The primary load bearing profiles come in depths from 75mm up to 175mm depending on the requested calculated static moment of inertia. System allows for a maximal single facade unit width up to 3m, or height up to 6m, while maximal facade unit dimensions are calculated with specific glazing taken into consideration and it may vary.





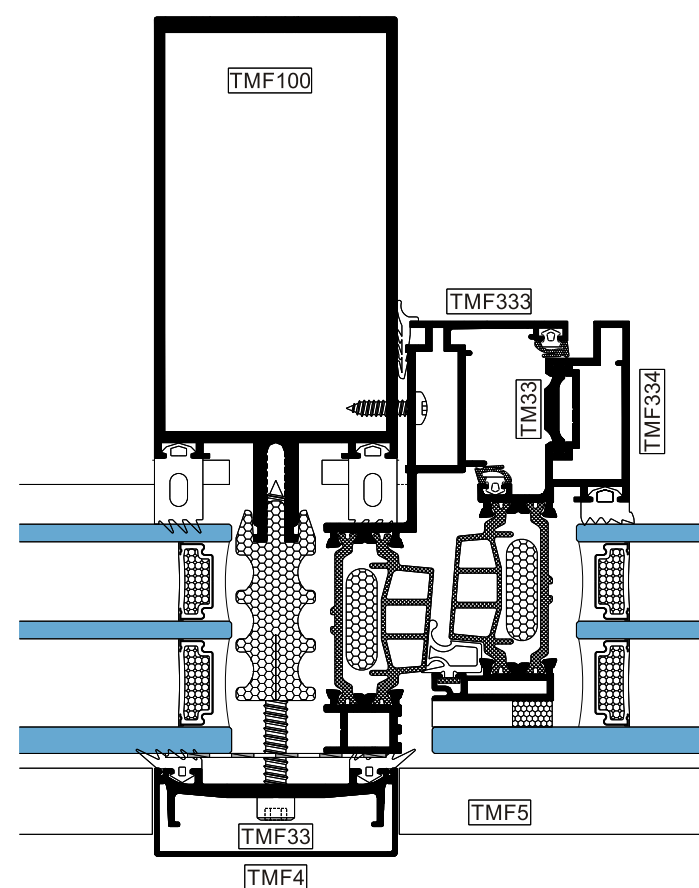
triple glazing and structural sash option



The continual facade system features emphasized vertical and horizontal profiles. These cover caps, with underlying pressure plates, are used for final installation of glazing panels onto primary load bearing aluminium facade structure. This facade system allows for different combinations of horizontal and vertical cover caps that are available in many different design options for unique visual appearance of the finished building.

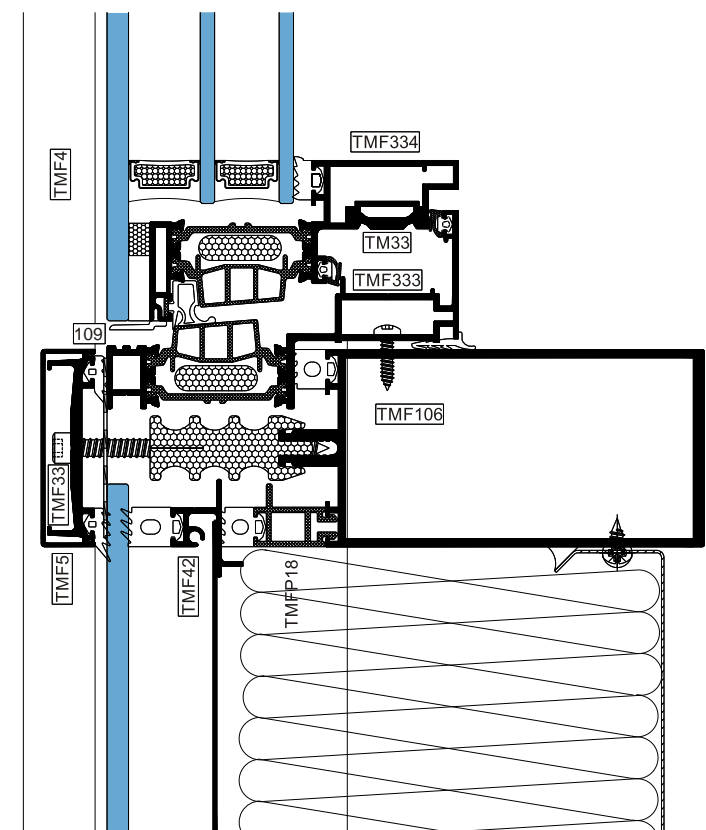
With support for double and triple glass panes, this facade system offers exceptional thermal insulation performance up to $U_{cw}=0,64\text{W/m}^2\text{K}$, thus making it suitable for advanced, energy efficient projects.

HORIZONTAL CROSS SECTION



triple glazing and structural sash option

VERTICAL CROSS SECTION



single glazing with thermal insulation in spandrel zone



DESIGN

continual facade features highlighted horizontal and vertical cover caps in numerous design options, with 35mm to 55mm width and 5mm to 100mm depth



PERFORMANCE

carefully designed system features: low thermal conductivity of $U_f > 0.7\text{W/m}^2\text{K}$, water impermeability of 1500Pa, and windload resistance of $\pm 2.00\text{kN/m}^2$



FLEXIBILITY

beside different exterior options, the continual facade offers optional steel or wooden load bearing substructure in the interior

U_{cw}
0.64
 $\text{W/m}^2\text{K}$
exceptional insulation

number of cover cap designs and solutions



simple integration of windows, doors and opening structural facade units

single glazing optional in the spandrel zone



triple glazing and structural sash option



The structural glass facade system features minimal, pure glass design without the use of the visible outer aluminium profiles. Hidden brackets are used for attachment of glass panels to transom and mullion load bearing aluminium substructure. Gaps between panels are only 20mm wide and sealed with special structural silicone in black color.

This system elegantly combines advanced engineering concepts with transparent, luxury appearance and insulation performance with thermal conductivity coefficient of $U_{cw} \geq 0,79 \text{ W/m}^2\text{K}$ that is in line with current and upcoming energy efficiency standards.



DESIGN

unique, luxury appearance without visible profiles on the exterior and minimal, 20mm wide gaps filled with structural silicone



PERFORMANCE

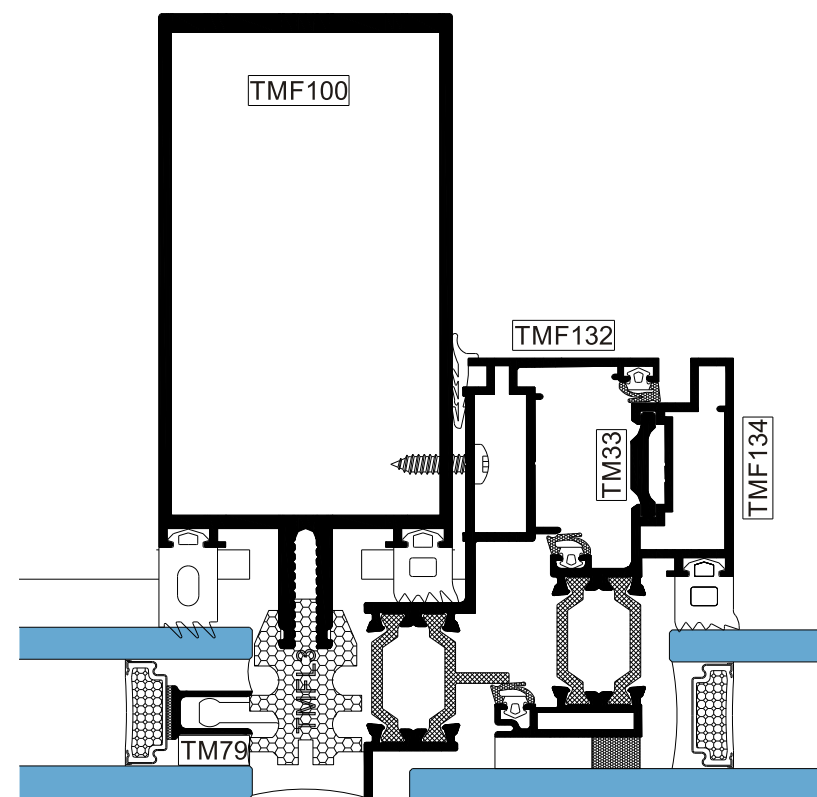
excellent sealing and compatibility with both double and triple glazing packages 32mm to 58mm wide result in excellent thermal performance of $U_f \geq 0,79 \text{ W/m}^2\text{K}$



TRANSPARENCY

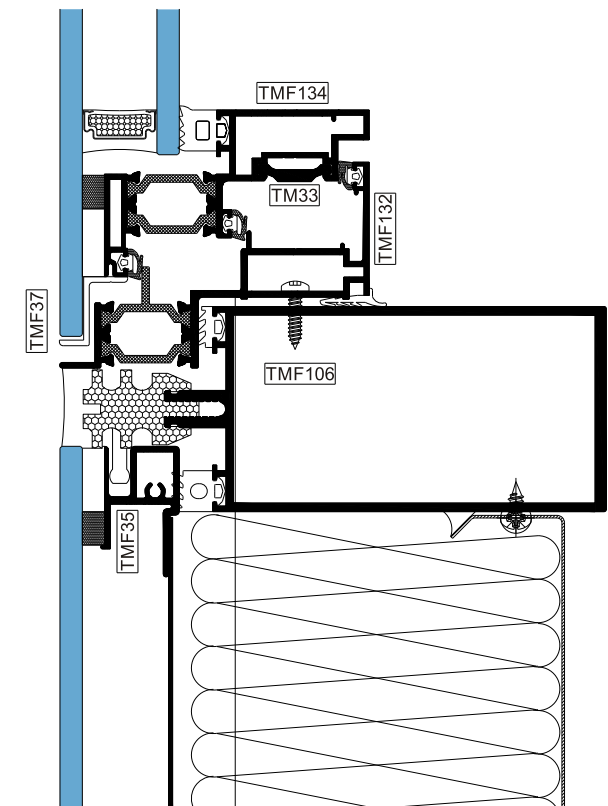
the greatest advantage of structural glass facades is the amount of light that they let into interior and cosy, airy environment it creates

HORIZONTAL CROSS SECTION



double glazing and structural sash option

VERTICAL CROSS SECTION



single glazing with thermal insulation in spandrel zone

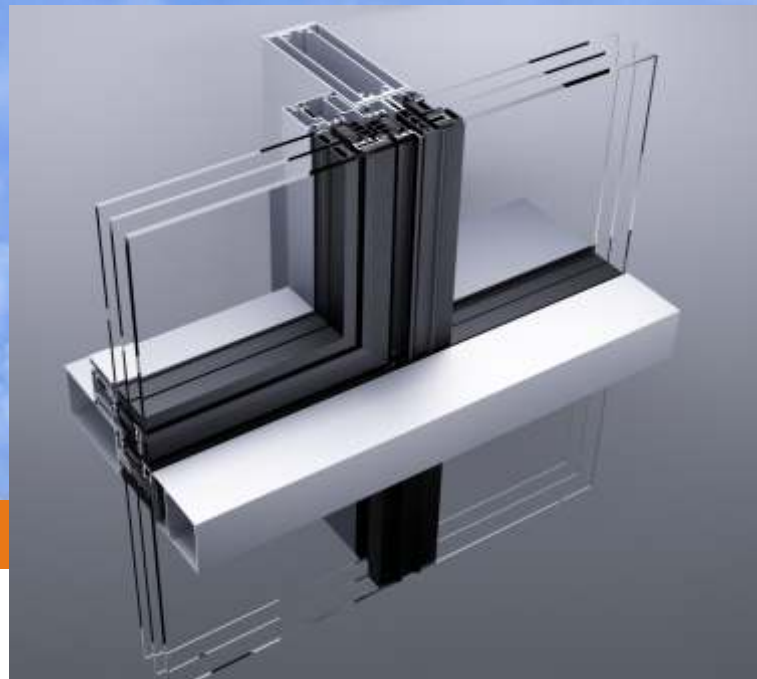
U_{cw}
0.79
 $\text{W/m}^2\text{K}$
exceptional
insulation

integrated
opening
facade units

luxurious
appearance
of pure glass
facade

single glazing
optional in the
spandrel zone





additional vertical reinforcement, triple glass and structural sash option



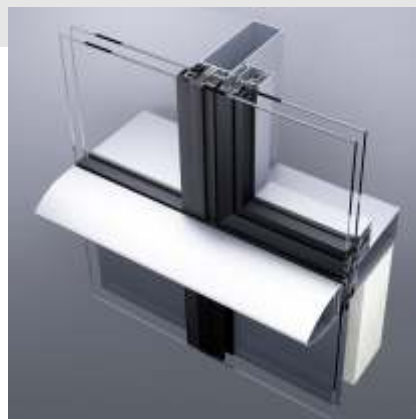
The combined facade system offers visual appearance where the horizontal cover caps are emphasized and the verticals are finished in structural type of glazing without cover caps. Combination of structural and continual facade systems offers a wide range of different design options and accentuation of pre-selected facade lines and directions.

With support for double and triple glazing panels, this facade systems can be used in all segments of modern architecture and civil engineering, especially in projects where good thermal performance and high energy efficiency are required with thermal conductivity coefficient of $U_{cw}=0,68 \text{ W/m}^2\text{K}$.



DESIGN

combined facade system uses visual design elements from both continual and structural facade systems to achieve unique, contemporary visual appearance



PERFORMANCE

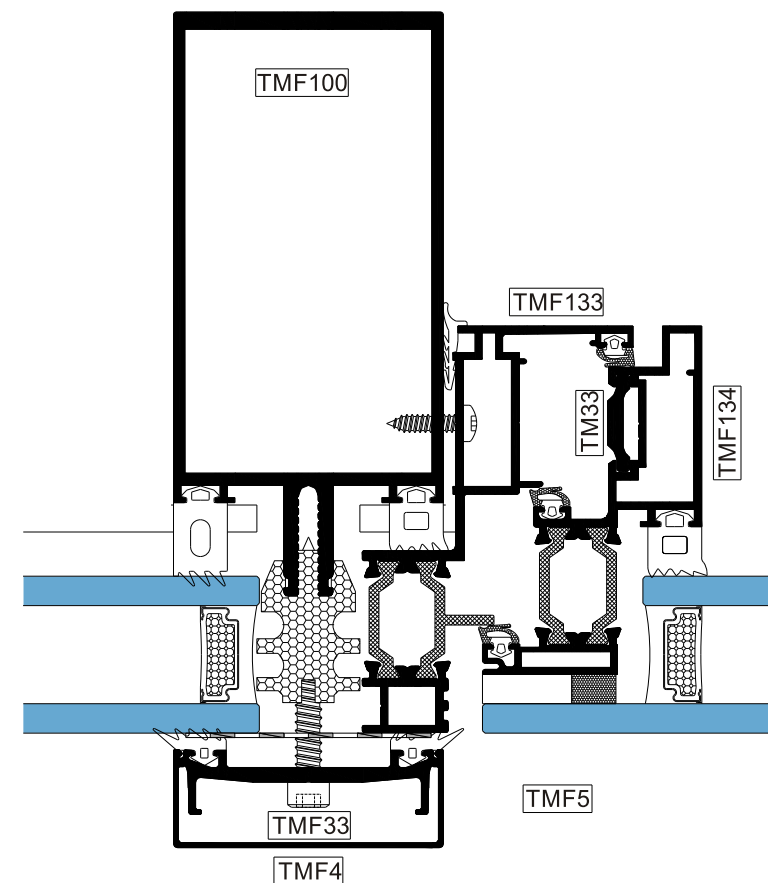
the combination of structural and continual facade system offers additional mechanical fixing of glass packages 28mm to 58mm wide and coefficient of $U_f > 0.68 \text{ W/m}^2\text{K}$



DYNAMICS

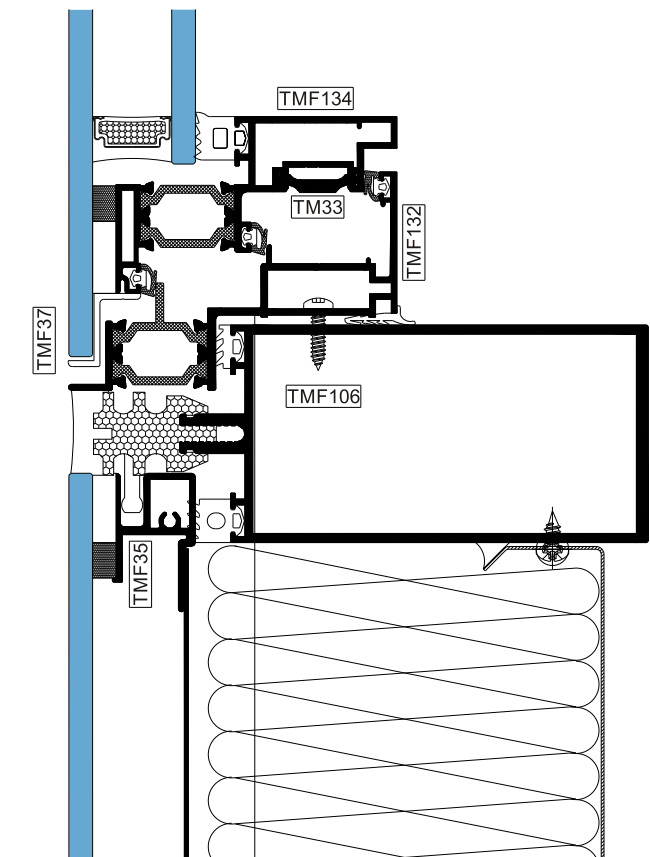
exceptional design freedom is achieved with the help of two different glass fixing systems used in construction of the combined facade

HORIZONTAL CROSS SECTION



double glazing and structural sash option

VERTICAL CROSS SECTION



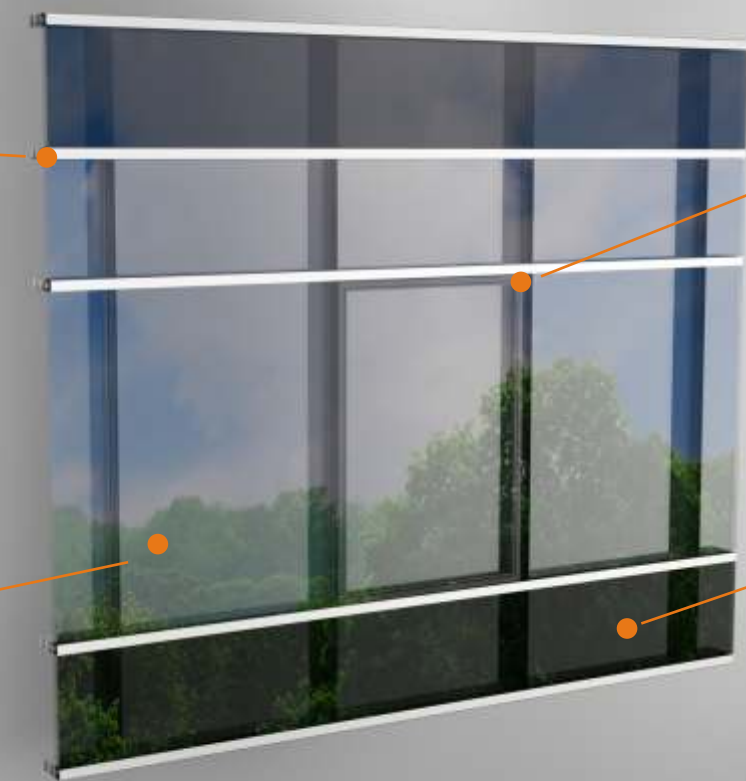
single glazing with thermal insulation in spandrel zone

U_{cw}
0.68
 $\text{W/m}^2\text{K}$
exceptional insulation

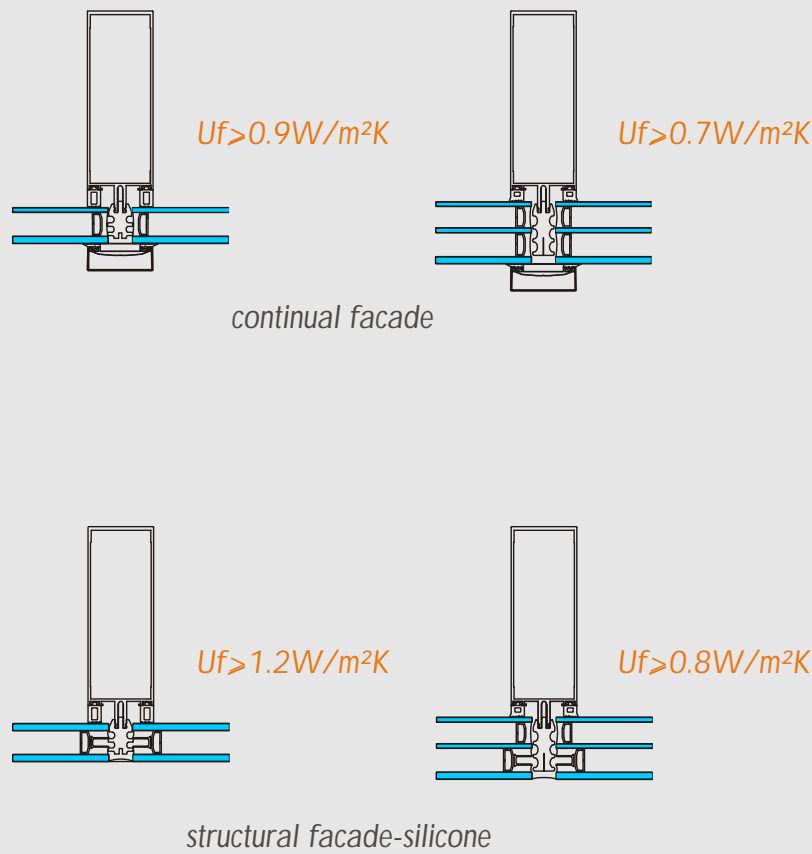
opening structural facade units or standard windows

dynamic exterior facade appearance

single glazing optional in the spandrel zone



THERMAL CONDUCTIVITY COEFFICIENT
comparative review



IFT ROSENHEIM
test results for continual facade



Thermal performance
EN ISO 12631:2012-10
 $U_{cw}=0,64 \text{ W/(m}^2\text{K)}$



Water impermeability
EN 12154:1999-12
CLASS RE1500



Air impermeability
EN 12152:2002-02
positive pressure negative pressure
CLASS 4 CLASS 3



Windload
EN 13116:2001-07
design load: $\pm 2.00 \text{ kN/m}^2$
safety load: $\pm 3.00 \text{ kN/m}^2$



Thermal conductivity
coefficient of the frame
EN ISO 10077-2:2012-02
transom $U_f=0,72 \text{ W/(m}^2\text{K)}$
mullion $U_f=0,80 \text{ W/(m}^2\text{K)}$

STATIC PERFORMANCE

transom facade profiles	lx - transom	lx-reinforcement	lx-reinforcement
TMF75 - 75mm	74,06	37,39	115,01cm ⁴
TMF100 - 100mm	147,83	92,8	243,85cm ⁴
TMF125 - 125mm	262,66	172,33	438,75cm ⁴
TMF150 - 150mm	428,81	278,28	708,71cm ⁴
TMF10 - 150mm	430,97	83,47	549,15cm ⁴
TMF57 - 150mm	494,18	171,48	666,00cm ⁴
TMF175 - 175mm	678,33	415,97	1094,47cm ⁴



THERMAL PERFORMANCE

GLASS	double glazing	triple glazing	double glazing	triple glazing	
	Uf	Uf	Ucw*	Ucw*	
continual	0,91	0,72	0,90	0,64	W/m ² K
structural	1,22	0,79	0,93	0,79	W/m ² K
infill thickness					
continual	6-12mm	28-41mm	47-60mm		
structural		32-41mm	49-58mm		

* Facade unit size 2635mm x 3765mm (3 transom+ 4 mullion; Double glazing Ug: 1.0 W/m²K (2x1668mm x 2445mm); Triple glazing Ug: 0.5 W/m²K; Spandrel Ug: 0.19 W/m²K (2x1235mmx1500mm), Glass spacer - Warm Edge Swisspacer W 0.03

recommended Ug glass values:
- for double glass: $\leq 1.3 \text{ W/m}^2\text{K}$
- for triple glass: $\leq 0.7 \text{ W/m}^2\text{K}$
optimal glass performance is achieved
with Warm Edge glass spacers

