RAICO

WINDOW | DOOR | CURTAIN WALL

We put a face on buildings

„We see ourselves not just as part of your solution – but as part of your team!“

Managing directors Dr. Stefan Lackner and Manfred Hebel

Ladies and Gentlemen!

You're holding the 2019 RAICO System Overview – and thus multiple innovative solutions – in your hands. One of our latest is the RAICO THERM^{+} FS-I curtain wall system with an integrated screw channel. Thanks to its versatile design, it wins architects over straight away. And it also won GOLD in the "Product Innovation – Technology" category of the Architects' Darling Award 2017.

The high quality of the THERM^{+} series is equalled in every respect by the RAICO FRAME^{+} Window and Door Systems, as well as our WING System. You'll find all the product benefits plus the most important technical data, test values, models and variations listed in the following pages – as well as inspiring reference projects, ideas and solutions for ambitious architecture.

In addition to the many product highlights, you'll certainly notice another innovation. With the RAICO added benefits, we also show our calibre as people. Whether architect, planner or partner – take a look behind the RAICO façade and find out what makes the collaboration with us so unique.

Enjoy planning, designing and discovering!

Dr. Stefan Lackner *Manfred Hebel*

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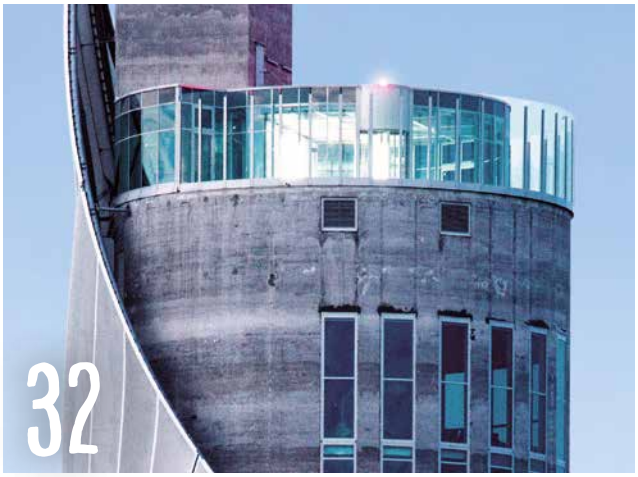
Added benefits

Curtain wall system THERM+

Window system FRAME+



Door system FRAME+

Window system WING

Credits & Projects

RAICO IS ...

... CURIOUS AND INVENTIVE.

„Why are we always open to new things?
Because we've always believed in the best solution."

Curiosity enables constant further development. As a dynamic, medium-sized company, we at RAICO are inherently open to new things. Thirst for knowledge, creativity and ingenuity are an important part of our profile.

That's why we focus on new tasks and challenges time and again. We listen with interest and attentiveness – and thus inspire ourselves and our customers to seek the best solution for everyone: real added benefits for builder-owners, architects and planners.

RAICO THINKS ...

... IN A CONSTRUCTIVE AND SOL

We stock the right solution for any challenge. But we're not content to stop there. Thanks to our constructive collaboration with customers and partners, architects and planners, new systems and models are constantly being added.

Over the past 25 years, the RAICO Research & Development Team has been able to register over 100 patents and industrial property rights. From the add-on system for timber and steel façades, or the aluminium façade, window and door, to our prize-winning steel façade system. Are you looking for a very special solution, beyond the range offered in our System Overview? In that case, we'll develop it together with you.

UTION-ORIENTED WAY.

„Our strength lies in creating innovative solutions from ambitious remits."

RAICO ACTS ...

... IN A SINCERE AND PERSONAL MANNER.

„We are developers, suppliers, partners and – first and foremost – people."

Invented by RAICO. Made for people. Whatever we do at RAICO, we do it together. Because we're team players. Because we're reliable partners. Because we believe in a sincere and personal way of getting along together. In which people can fulfil themselves. And we can fulfil our company targets.

So it's not just the international RAICO reference projects which have become a special architectural flagship over the years, but also the special quality of the interaction between staff and customers.

RAICO INSPIRES ...

... WITH HIGH STANDARDS AND QUAL

Our customers' satisfaction over many years is still the best confirmation. It motivates us, inspires us and shows that we're on the right path.

The premium product quality and the design potential which you can fully utilise with our systems also testify to this. Not forgetting RAICO's exemplary development as an employer.

- **2017 Architects' Darling Award, in the "Best Product Innovation – Technology" category GOLD for the RAICO THERM^{+} FS-I System**
- **2017 Architects' Darling Award, in the "Best Reference Building" category BRONZE for the La Seine Musicale, Paris – France**
- **2018 Architects' Darling Award, in the "Best Product Innovation – Technology" category SILVER for the RAICO ETFE_THERM^{+} system solution**
- **TOP 100 Innovation prize – We're therefore among the most innovative of Germany's medium-sized enterprises.**
- **EUROPE's 500 Job Creating Companies**

We are proud of these and many other awards, and likewise proud of every single one of our reference projects.

„It's always worth getting just that bit better."

University library – Freiburg, DE

THERM+

Curtain wall system

Based on its consistent modular design the THERM+ curtain wall system provides you with almost unlimited possible combinations using its various components. With this unique flexibility you will find the most suitable, safe, viable and economic solution for every individual project.

Climbing hall – Bruneck, IT

Exhibition hall 3A – Nuremberg, DE

Teamtechnik – Freiberg am Neckar, DE

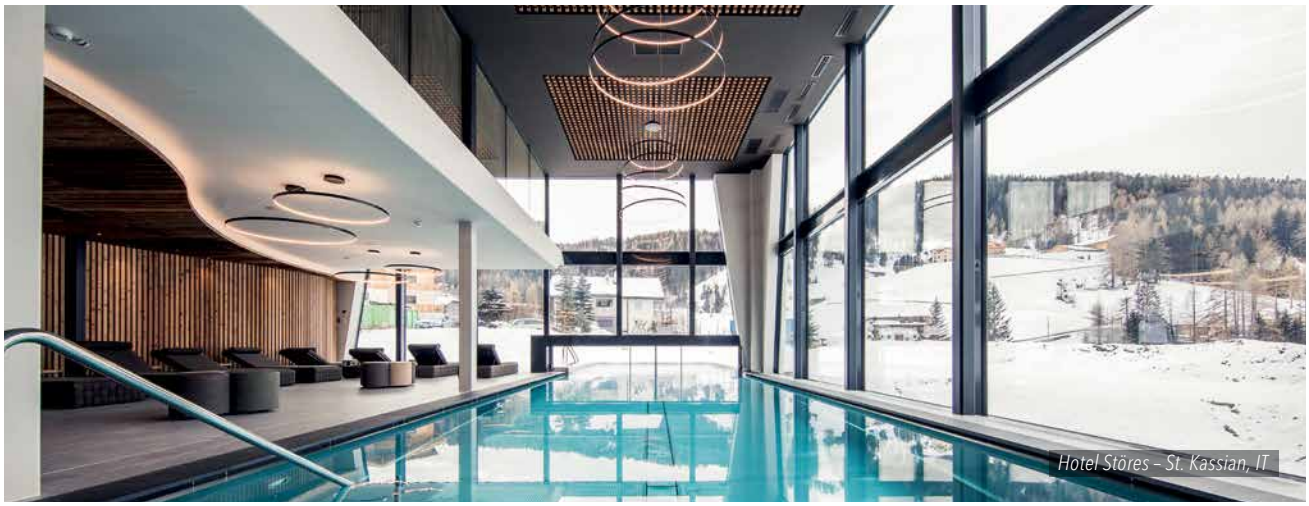
Flexhouse – Meilen, CH

NEST – Dübendorf, CH

La Seine Musicale – Paris, FR

THERM+ A-I/A-V

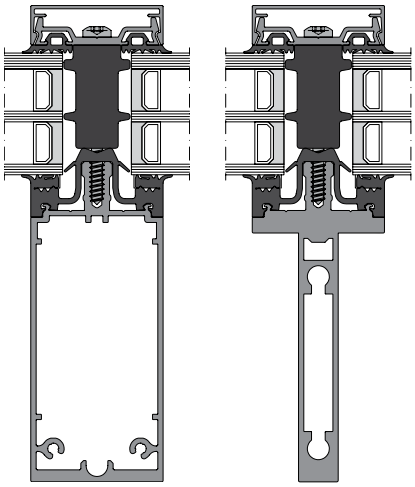
Aluminium curtain wall



The THERM+ aluminium curtain wall stick system combines maximum application of the range with straight forward planning and manufacture, providing high processing reliability due to the consistent modular technology.

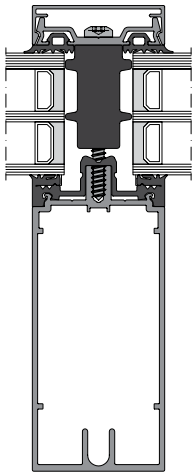
Advantages

- Passive house certified in all system widths (A-V)
- Maximum thermal insulation with insulating block variant down to $U_{m,t}$ =0.85 W/(m²K) including screw influence
- Excellent aesthetics to the flush faced transoms by sharp edge cross sections
- Profiles are all suited for mullion and transom
- Numerous options for the T-connection technology
- A large selection of rectangular and T-shaped structural profiles is available
- Wide range of system accessories available (e. g. sun protection fixation)
- Integrated drainage system in the continuous hat sealing in three levels
- Stepless thermal insulation by means of RAICO Insulating Block Technology
- Maximum inertia values by means of optimised profile design

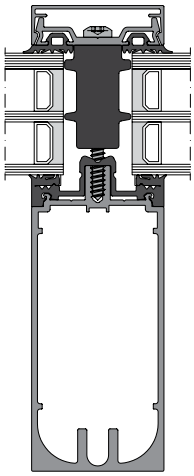


50 A-I with insulating block P

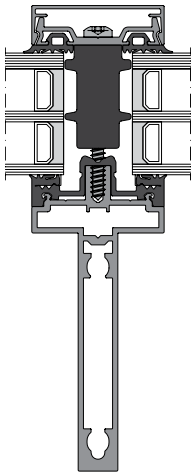
50 A-I with insulating block P and T profile



50 A-V with insulating block P



50 A-V with insulating block P and reinforced structural profile

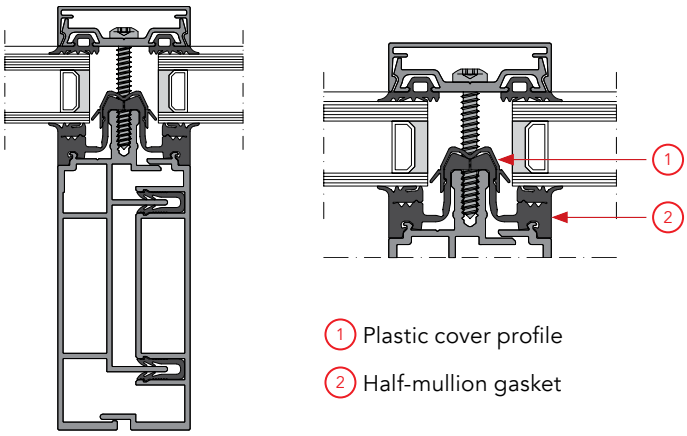


50 A-V with insulating block P and T profile

Expansion profiles

THERM+ A-I

Maximal glazing finished pre-assembly of complete mullion-transom-elements. Easy plug-in system using half-mullion gasket for pressing to the aluminium expansion profile. Plastic cover profile for pressing to the gasket. All features as tightness, thermal insulation and easy handling and assembling identical to the basic system.



1 Plastic cover profile

2 Half-mullion gasket

50/56 A-I Expansion profile

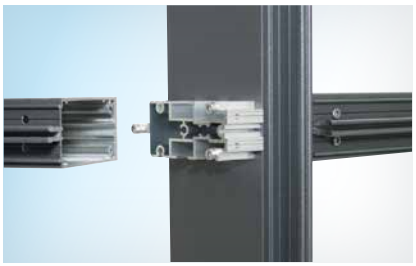
Technical Data

	System width [mm]	Rectangular profile depth [mm]	Expansion profile depth [mm]	T profile depth [mm]	T profile width [mm]	Infill thickness [mm]	Glass weight [kg]	Drainage levels	Polygonal assembly	Application Glass roofs	Application Conservatories
A-I	50/56	25 to 200	75 to 200	50 to 200	50	4 to 64	up to 600	2 or 3	up to 45°	up to 2° inclination	Yes
A-V	50/56	25 to 200	100 to 200	50 to 175	50	10 to 64	up to 600	2 or 3	up to 45°	–	–
A-V reinforced	50/56	100 to 200	–	–	–	10 to 64	up to 600	2 or 3	up to 45°	–	–

T-connector — Innovation down to the last detail

A distinctive feature of the THERM+ aluminium curtain wall system is the innovative T-connection technology. Every single detail in its development has been analysed to provide an abundance of advantages:

- Identical for THERM+ A-I/A-V in all system widths
- Easy butt joint with straight profile cuts, no notching required
- Various options for structural requirements and assembly methods
- THERM+ A-V is also available with a reinforcement option for high structural requirements
- T-connectors for vertical loads up to 600 kg (verified under German Type Approval)
- Also possible angular connected and polygonal
- Extremely rigid connections due to the spreader-clamp mechanism when screw fixed
- Pre-fabrication of elements suitable for transport in the workshop
- Aesthetically pleasing joints due to the optimum contact between mullion and transom across the entire profile
- The T-connector profiles can be used for structural reinforcement, head and sill fixings as well as expansion joint spigots



Mullion-transom connector

T-connector interior view

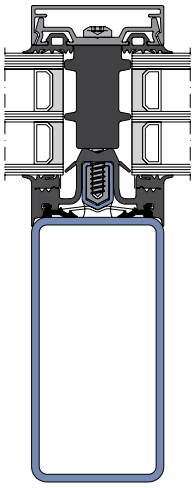
THERM+ S-I

Steel curtain wall

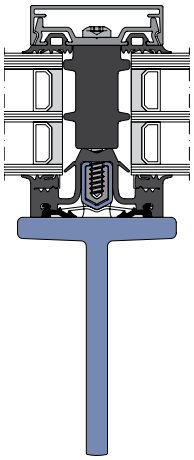
The THERM+ mullion-transom curtain wall system using steel combines the advantages of set-on-top construction with those offered by curtain wall systems with integrated screw channel. Additionally, the fixture technique of the steel curtain wall system makes it possible to select from standard steel profiles and the special set-on-top construction guarantees an optimum corrosion protection.

Advantages

- Passive house certified in system widths 50 and 56
- Maximum thermal insulation with insulating block variant down to $U_{m,t}$=0.78 W/(m²K) including screw influence
- Stepless thermal insulation by means of RAICO Insulating Block Technology
- Set-on-top construction for any steel support profile with a width from 50 mm
- Integrated drainage system in the continuous hat sealing in three levels
- Steel profiles in T-shape with a face width of 60 mm and a depth of 60, 90, 120 mm; these profiles are ideally suited for sophisticated glass façades
- Total load chain with approved connection, from the welding with the supporting structure and the glass load transmission to the screwing of the pressure profile
- Safe and easy glass load transmission for heavy panes up to 1,500 kg



50 S-I with insulating block



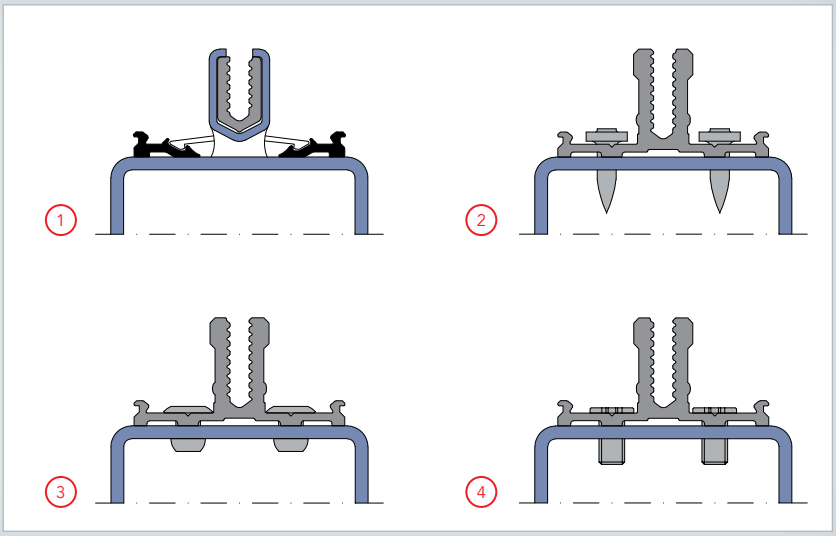
50 S-I with insulating block P and T profile

Mounting variants for base profiles

System variants

The THERM+ S-I offers different mounting options for basic profiles.

1. Welding with basic profile
2. HILTI-actuated fastening technology
3. With blind rivet
4. With thread-forming screw



Technical Data

	System width [mm]	For steel profiles from [mm]	Steel profiles in T shape [mm]	Infill thickness [mm]	Glass weight [kg]	Drainage levels	Polygonal assembly	Application Glass roofs	Application Conser-vatories
S-I	50/56/ 76/96	width: 50	width: 60, depth: 60/90/120	4 to 64	up to 1.500	2 or 3	up to 45°	up to 2° inclination	Yes

Perfect corrosion protection thanks to plastic base profile

With its specific material properties, steel offers an extremely rich variety of forms and therefore a diverse range of creative possibilities. The unique patented fixture principle of the THERM+ system has been developed from real-life requirements in order to extend those possibilities further without limiting itself to glazed curtain walling, and at the same time to reach a safe but simple assembly as well as providing maximum protection against corrosion.

- Perfect protection against corrosion due to a 3 mm safety distance between structural profile and system base profile, thus no metal components in direct contact with each other (see fig. 1)
- Patented base profile system with stainless steel clad and aluminium screw channel, for easy fabrication and reliable mounting
- High screw retention values and smooth screw fastening due to the aluminium screw channel
- Option for galvanised structures in coastal areas or within swimming pool environment: the S235JR mild steel shroud with retro fit powder coated aluminium screw channel
- Spot-welding fixation for reduced production times
- Easy and efficient fabrication with practical system tools
- Mounting of the base profile with fastener, blind rivet or thread-forming screw

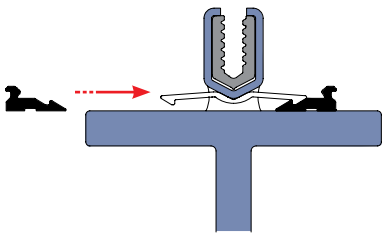


fig. 1: Perfect protection against corrosion

THERM+ FS-I

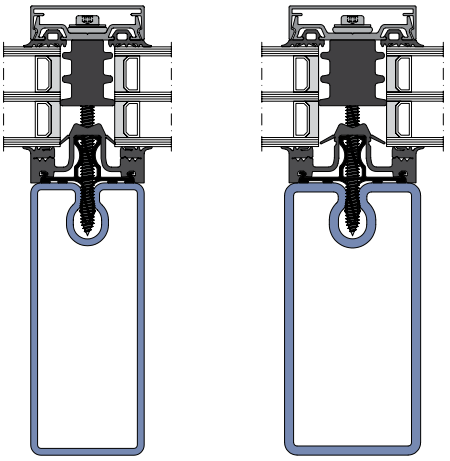
Steel curtain wall

Civic centre – Böheimkirchen, AT

Thanks to the steel façade system THERM+ FS-I you can connect the pressure profile of the glass façade directly with the steel substructure – without welding. The integrated screw channel in the profile tube makes it possible.

Advantages

- Passive house certified in all system widths
- Maximum thermal insulation with insulating block variant down to $U_{m,t}$ =0.75 W/(m²K) including screw influence
- Sharp edged profiles due to small radii
- Strip galvanizing of the profiles ex works
- Profiles are all suited for mullion and transom
- Integrated screw channel in tube reduces planning, manufacturing and installation costs
- Separation of screw penetration and water-bearing level by hat gaskets
- Wide range of THERM+ system accessories available e. g. sun protection fixation
- No welding needed for the curtain wall construction


50 FS-I
with insulating block

56 FS-I
with insulating block

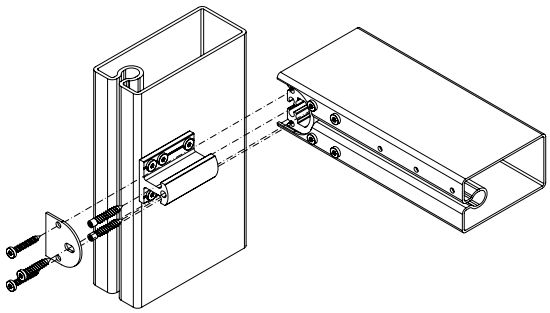
Technical Data

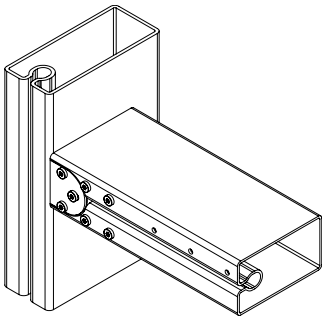
	System width [mm]	For steel profiles from [mm]	Infill thickness [mm]	Glass weight [kg]	Drainage levels	Polygonal assembly	Application Glass roofs	Application Conser-vatories
FS-I	50/56	50 and 60 width	4 to 64	up to 1.000	2 or 3	up to 45°	up to 2° inclination	yes

T-connectors

Standard connector SC

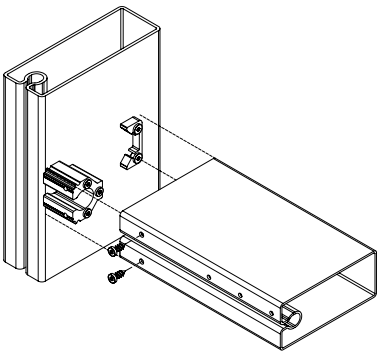
- Connecting element of the mullion and transom profiles
- Variably adjustable fixing part for the tolerance compensation of the tube interior dimensions
- Smart connector concept for the tolerance compensation in the façade grid
- Threaded tube and customary steel profile on contact pressure and as twist lock screwable and stable for transport
- Suitable for the subsequent installation of the transom

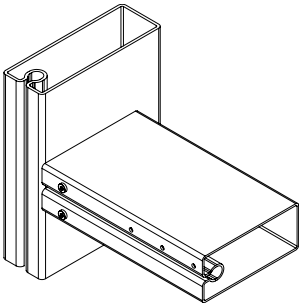




Ladder connector SCL

- For threaded tubes and customary steel profiles
- On contact pressure screwable
- Can be used in the façade and in the roof
- Also possible angular connected and polygonal





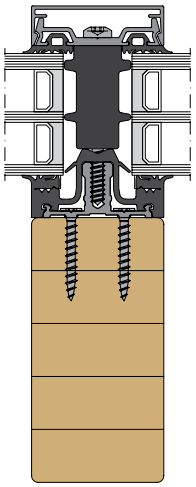
THERM+ H-I/H-V

Timber curtain wall

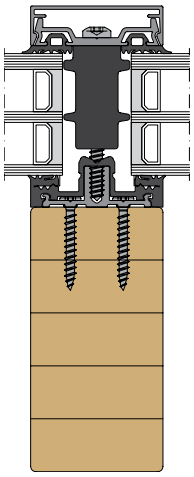
The THERM+ timber curtain wall system provides an approved glazing technology application to structural frames made of any timber based material from 50 mm width. For a sustainable and lasting function the consistent system design assures strict separation between the structural elements and the functional components of aluminium profile and gaskets.

Advantages

- Passive house certified in system widths 50, 56 and 76
- Maximum thermal insulation with insulating block variant down to $U_{m,t}$=0.76 W/(m²K) including screw influence
- Two types of screw fixed aluminium base profiles; with or without profile locator
- Screw fixings officially endorsed by European Technical Approval, for timber product derivatives having widths of 50 mm
- Quick and easy fitting of the base profiles; also suitable for assembly with magazine fed electric screwdrivers
- No external components penetrate through to the timber frame
- Integrated drainage system in the continuous hat sealing in three levels
- Stepless thermal insulation by means of RAICO Insulating Block Technology

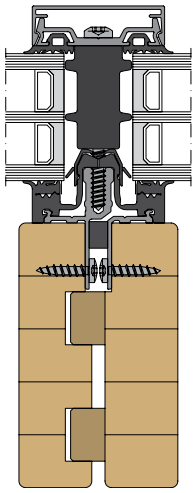


50 H-I with insulating block P



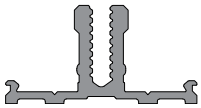
50 H-V with insulating block

Variants

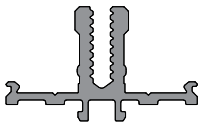


Coupling mullion

An ideal aid for efficient assembly. Pre-fabricated frames can be finished in the workshop with split coupling mullions, base profiles, interior gaskets and glass supports. On site these frames are simply coupled, glazed and finished with pressure profiles.



Base profile without foot



Base profile with foot

Base profiles

Suitable for all system variations. Specific gasket holding fixture for easy fixing of the silicon-free EPDM gasket. Slottet holes for integrated expansion compensation. With or without foot.

Technical Data

	System width [mm]	For timber profiles from [mm]	Infill thickness [mm]	Glass weight [kg]	Drainage levels	Polygonal assembly	Application Glass roofs	Application Conser-vatories
H-I	50/56/76/96	width: 50	4 to 64	600	2 or 3	up to 45°	up to 2° inclination	yes
H-V	50/56/76	width: 50	10 to 64	600	2 or 3	up to 45°	–	–

The RAICO timber connector TC

The connectors between mullion and transoms on a timber curtain wall must fulfill additional specific requirements. The dead load of the infill units is positioned in front of the timber structure, and the connectors must compensate for this torsional effect in addition to wind pressure and suction forces:

- Two patented RAICO timber connector options: SOLO and KOMBI for glass weights up to 481 kg
- For THERM^{+} H-I/H-V
- For transom depth from 60 up to 300 mm
- Minimum preparation: rebated grooves at each end of the transom and drilled holes to both the mullion and transom
- Simplified assembly: fix mullions – insert transom – secure transom with nail screws – finished
- Automatic flush position of the transom due to the integrated stop device
- Option to pre-fabricate into transportable units
- Aesthetically correct joints due to T-connector pressure across the profiles

Timber connector TC SOLO

Timber connector TC KOMBI

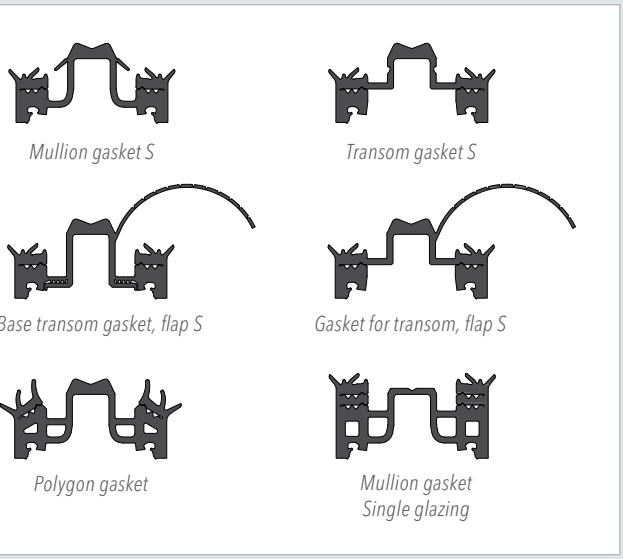
COMPONENTS

Combination possibilities down to the tiniest detail

With its consistent modular design, the THERM+ system offers almost limitless combination options for the various components. In this way you can achieve the right practical and economical solution for every individual requirement.

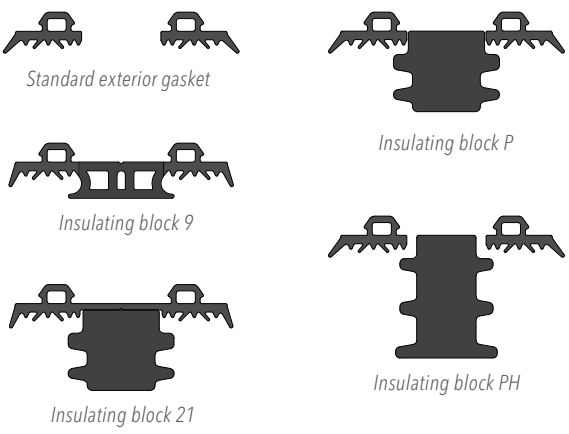
Transom and mullion gaskets

- Optimised shape for maximum thermal insulation and efficient processing
- Complete covering and sealing of the base profile
- Two options of gaskets with flaps for transom and base drainage as well as draining within the continuous gasket at the structural connections
- Reliable drainage in two or three levels by simply notching
- Special accessories for all applications, e. g. transom and mullion sealing elements
- Available in EPDM or silicone materials



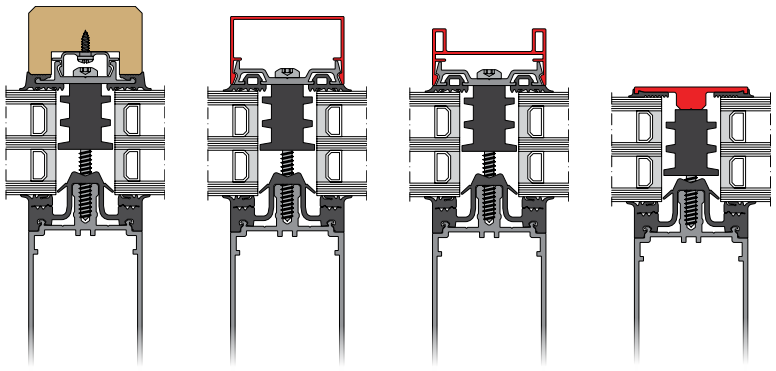
Exterior gasket

- Various exterior gaskets and insulating block options available
- Certified passive house façade
- Gradual adaptation of the insulation value
- Economic solution
- Maximum thermal insulation down to $U_{m,t}$ = 0.75 W/(m²K) including screw influence



Pressure and cover profiles for curtain wall and roof applications

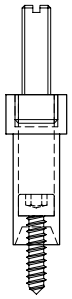
- A large selection of cover profiles for all system widths
- Bespoke profiles available on a short lead time for specific projects
- Aesthetically pleasing flat pressure profile with only 4 mm glass offset
- Optimal sealing of the cross-point via special accessories
- Find more types in the THERM+ product range



Timber cover profile | *Cover profile 50/30* | *Cover profile U-shape* | *Flat pressure profile*

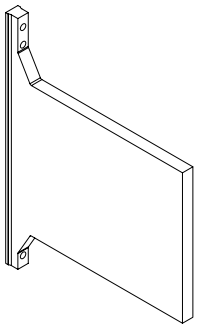
Accessories for façade and roof applications

Solar protection fastening



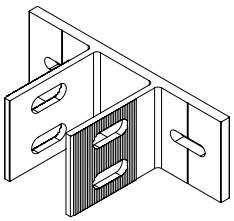
For all THERM+ systems of the I- and V-series

Fixture unit



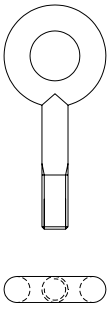
For all THERM+ systems in all face widths

Fastening bracket



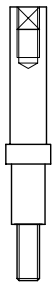
For all THERM+ systems of the I- and V-series

Scaffolding fixation



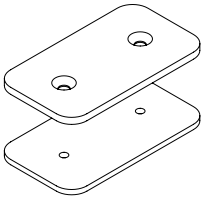
For all system widths

Canopy fastening



For all THERM+ aluminium systems in all face widths

Suction disc



For all THERM+ systems of the I- and V-series

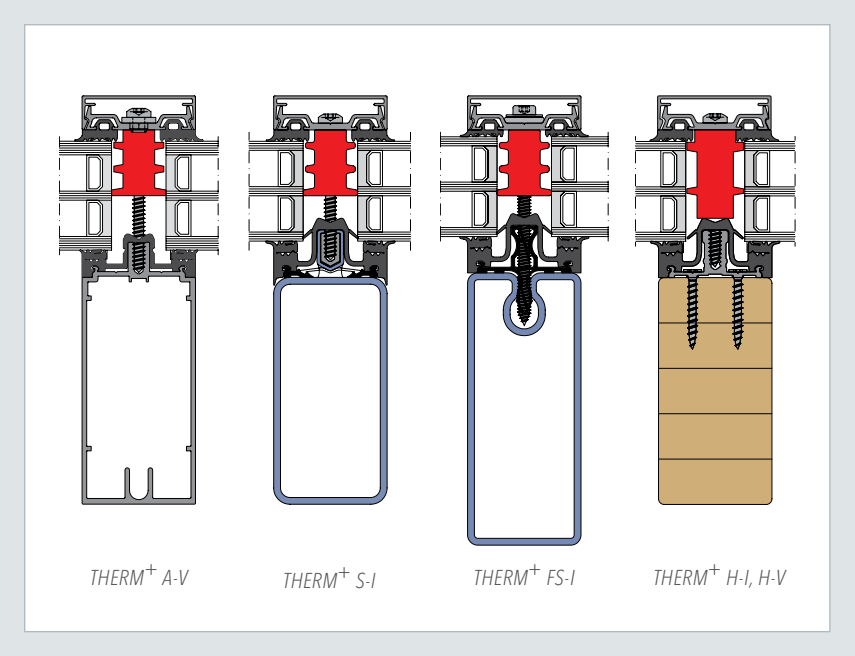
PASSIVE HOUSE CURTAIN WALL

An energy gain for sustainable architecture

The standard THERM^{+} system can easily be upgraded to passive house certified standard with minimal additional components. Passive house projects can therefore be fitted with energy saving glazing in a generous, cost effective way, independent of their supporting projects.

Advantages

- Certified by the European passive house Institute Dr. Feist in Darmstadt for curtain walls and glass roofs
- Installations achieve high levels of air tightness (Blower Door Test)
- Certified with triple glazing, argon gas filling and acrylic spacer
- Specific accessories (sealing membranes and connection panel profiles) maintain integral passive house quality
- All pressure and cover profiles from the standard systems can be applied
- First passive house certified „opening element in the glass roof"



Technical Data

	A-V	S-I	FS-I	H-I	H-V
System width [mm]	50/56	50/56	50/56	50/56/76	50/56/76
$U_{m,t}$-value in W/(m²K)	down to 0.85	down to 0.83	down to 0.78	down to 0.91	down to 0.93

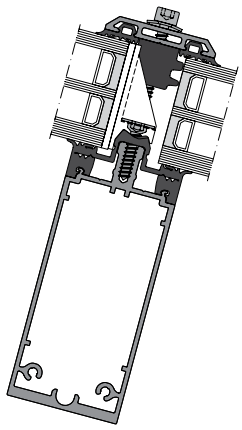
GLASS ROOF CONSTRUCTION

A bright glimpse of roofing heaven

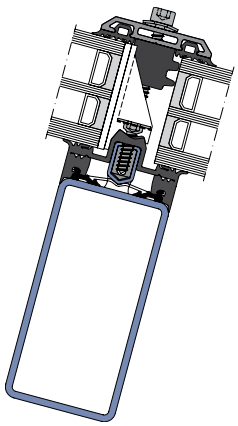
The creation of bright, light-flooded rooms with all-spanning glass roofs is one of the central challenges of modern architecture. In order to be able to realise the most diverse designs into reality, the mullion-transom systems THERM$^+$ A-I, S-I, FS-I and H-I are available for architects and planners.

Advantages

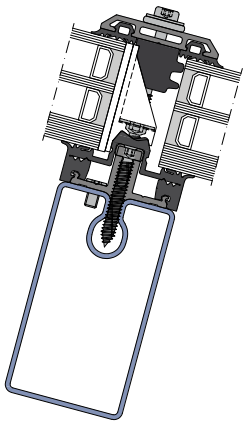
- Tested with an inclination of only 2°, with outstanding results and classifications (Accessories such as sun protection devices and building connection components were included in the testing.)
- The system structure is identical to the THERM$^+$ standard systems
- Outlets at the end of the pressure profiles provide efficient drainage and avoid stagnant water
- The low pitch construction is made feasible with bevelled pressure profiles, flat pressure profiles, silicone joints or any combination of these
- Natural and smoke ventilation can be achieved by inserting our aesthetically pleasing WING 105 DI and FRAME$^+$ 100/120 RI opening roof-lights which have also been tested down to 2° from horizontal



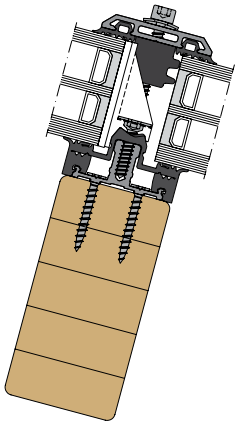
THERM$^+$ 50/56 A-I



THERM$^+$ 50/56/76/96 S-I



THERM$^+$ 50/56 FS-I



THERM$^+$ 50/56/76/96 H-I

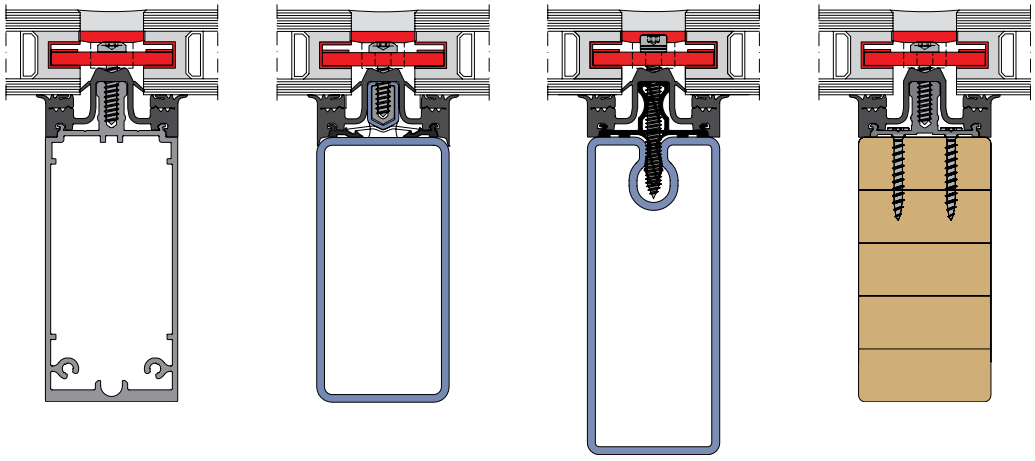
STRUCTURAL GLAZING SG

A slimline look with hefty insulation values

The THERM+ Structural Glazing SG2 curtain wall systems feature the most intricate glazing technique. A narrow silicone joint is the only visible line between the insulation glass panes. Retention of the internal pane is enabled easily, quickly and securely with the use of SG glazing toggles. By utilising the SG insulating block, curtain walls achieve outstanding thermal insulation values.

Advantages

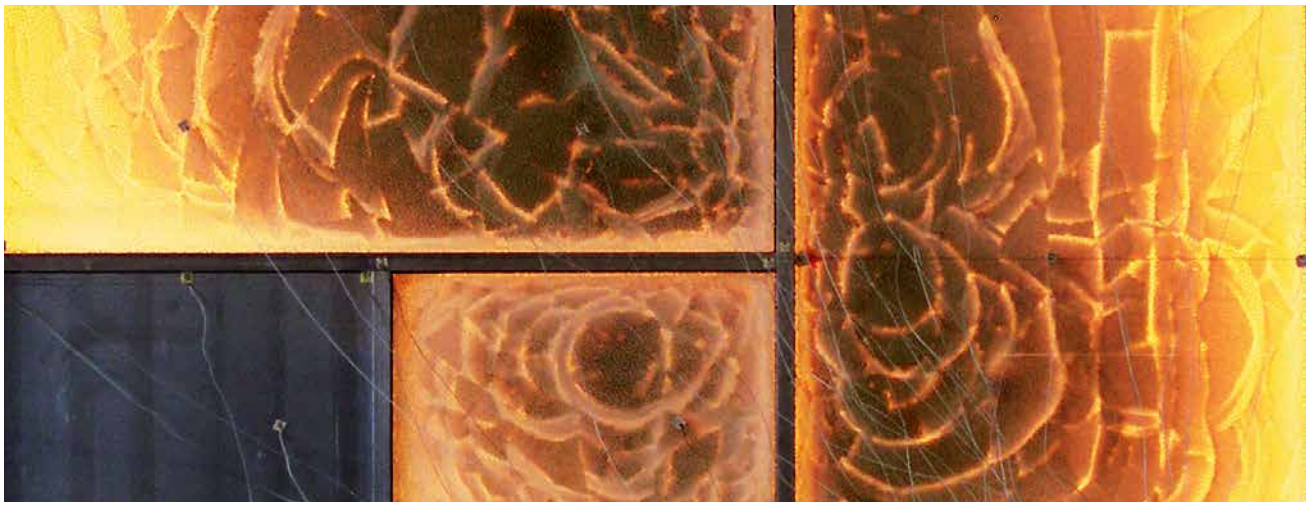
- Can be combined with any of our other system variations, with any pressure profiles and also with suction discs
- For double or triple glazing, from 32 to 64 mm thickness
- Efficient and safe glass fixation with structural glazing toggles
- High thermal insulation down to $U_{m,t}$ = 0.90 W/(m²K) (including screw influence)
- Available in 50 and 56 mm versions of all THERM+ systems
- Application in glass curtain wall and glass roof possible



THERM+ 50/56 A-I/A-V *THERM+ 50/56 S-I* *THERM+ 50/56 FS-I* *THERM+ 50/56 H-I/H-V*

FIRE PROTECTION

Lit up with enthusiasm for invisible fire safety



Minor additions to the standard THERM+ system are all that is needed to construct fire resistant curtain wall in a range of protection classes. The maximum size of 1,920 mm x 3,000 mm glazing panels provides a new dimension in fire protection.

Advantages

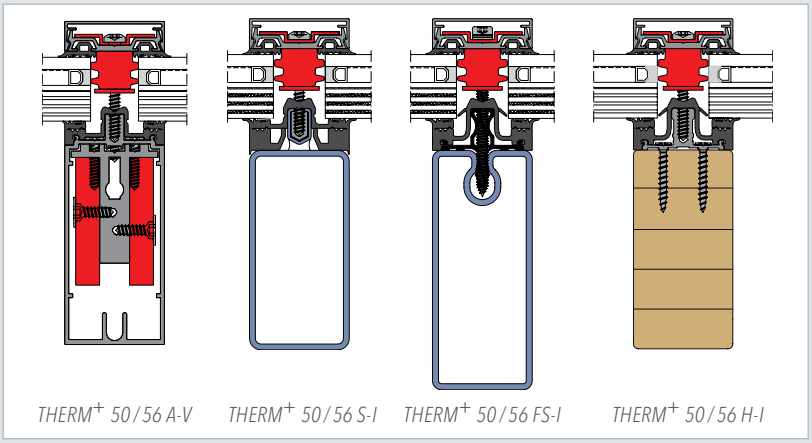
- The design of fire protection curtain wall is identical to the standard systems, thus requiring a minimum of additional cost and fabrication effort
- No visual difference between the variations
- All standard structural profiles can be applied
- Application of standard gaskets
- Only a few additional components necessary
- Maximum freedom of design with storey height screens

Technical Data

	System width 50/56 mm	Fire resistance class	Max. glass formats	General approval
A-V	structural profiles from 50 mm	EI30	1,400 x 3,000 mm	Classification report No. 14-002042-PR01 (ift Rosenheim)
S-I	structural profiles from 60 mm	EI30	1,500 x 3,000 mm	Classification report No. 17-002326-PR01 (ift Rosenheim)
FS-I	structural profiles from 60 mm	EI30	1,500 x 3,000 mm	Classification report No. 17-002326-PR01 (ift Rosenheim)
H-I	structural profiles from 60 mm	F30/G30	1,500 x 3,000 mm	German general approval No. Z-70.4-166
H-I	structural profiles from 60 mm	EI30	1,920 x 3,000 mm	Classification report No. C-16-002772-PR01 (ift Rosenheim)

Technology in detail

- Aluminium glass carrier
- Short length stainless steel reinforcement to pressure plate
- Fire protection block (intumescent strip in glazing rebate)



THERM+ 50/56 A-V *THERM+ 50/56 S-I* *THERM+ 50/56 FS-I* *THERM+ 50/56 H-I*

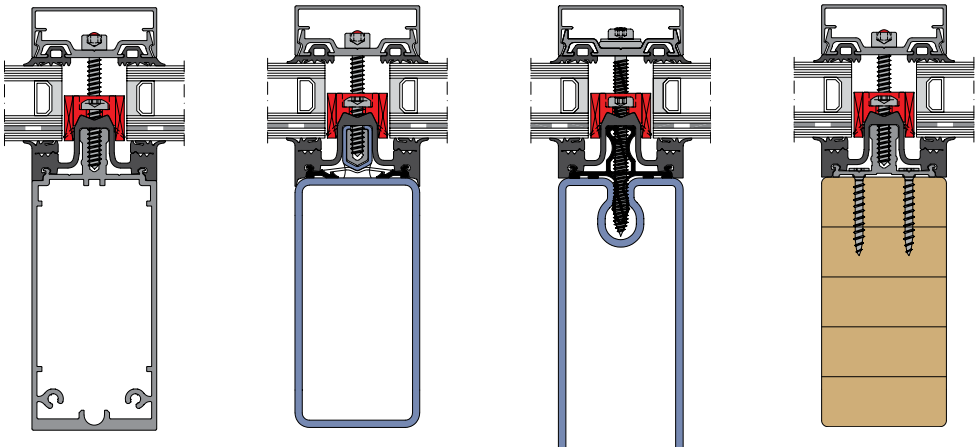
BURGLAR RESISTANCE

No one can get past these solutions

All THERM+ curtain wall variants may be made burglar resistant in accordance with the German resistance categories RC2 and RC3 by adding a few supplementary system components. Providing maximum creative possibilities, all system widths and all types of pressure plates with clip on cover caps, visible screw fixings, as well as flat pressure profile plates (in RC2) may be used.

Advantages

- Extension of the standard systems by using additional shims with pressure-resistant backing and captivated ball bearing screw heads
- For RC3 supplementary reinforcement to the pressure profile, captivated ball bearing screw heads, reduced screw spacing
- No visual difference between the variations
- Wide selection of pressure and cover profiles
- System width and infill thickness as for standard systems
- Manufacture is identical to the standard system, thus production and assembly is rationalised to the standard system
- The production of glass roofs in class RC2 and RC3 is also available
- The following insertion elements can be applied:
  Aluminium window system FRAME+ (from page 33)
  Aluminium door system FRAME+ (from page 51)
  Aluminium window system WING (from page 61)



THERM+ 50/56 A-I
THERM+ 50/56 A-V

THERM+ 50/56/76 S-I

THERM+ 50/56 FS-I

THERM+ 50/56/76 H-I
THERM+ 50/56/76 H-V

Approvals / Certification / CE-labelling

based on product standard for curtain walling EN 13830

	THERM+ A-I	THERM+ A-V	THERM+ S-I	THERM+ FS-I	THERM+ H-I	THERM+ H-V
Thermal insulation incl. screw influence	down to $U_{m,t}$ = 0.85 W/(m²K)	down to $U_{m,t}$ = 0.89 W/(m²K)	down to $U_{m,t}$ = 0.78 W/(m²K)	down to $U_{m,t}$ = 0.75 W/(m²K)	down to $U_{m,t}$ = 0.76 W/(m²K)	down to $U_{m,t}$ = 0.76 W/(m²K)
Wind resistance	1.875 / 2.813 kN/m²	1.875 / 2.813 kN/m²	2.5 / 3.75 kN/m²	2.5 / 3.75 kN/m²	2.5 / 3.75 kN/m²	2.5 / 3.75 kN/m²
Resistance against impact	interior I5, exterior I5	interior I5, exterior I5	–	–	interior I5, exterior I5	interior I5, exterior I5
Air permeability	AE (>600)	AE (>600)	AE (>600)	AE (>600)	AE (>600)	AE (>600)
Water tightness	RE 1,650	RE 1,650	RE 1,950	RE 1,950	RE 2,100	RE 2,100
Airborne sound insulation	$R_w(C;C_{tr})$ = 35(-1;-3) dB $R_w(C;C_{tr})$ = 40(-1;-4) dB $R_w(C;C_{tr})$ = 44(-2;-5) dB	$R_w(C;C_{tr})$ = 36(-1;-4) dB $R_w(C;C_{tr})$ = 40(-1;-5) dB $R_w(C;C_{tr})$ = 45(-2;-6) dB	$R_w(C;C_{tr})$ = 36(-1;-4) dB $R_w(C;C_{tr})$ = 42(-2;-6) dB $R_w(C;C_{tr})$ = 47(-2;-6) dB	$R_w(C;C_{tr})$ = 34(-1;-4) dB $R_w(C;C_{tr})$ = 37(-2;-4) dB $R_w(C;C_{tr})$ = 41(-2;-5) dB $R_w(C;C_{tr})$ = 47(-1;-3) dB	$R_w(C;C_{tr})$ = 36(-1;-3) dB $R_w(C;C_{tr})$ = 41(-2;-5) dB $R_w(C;C_{tr})$ = 46(-1;-5) dB	$R_w(C;C_{tr})$ = 36(-1;-3) dB $R_w(C;C_{tr})$ = 41(-2;-5) dB $R_w(C;C_{tr})$ = 46(-1;-5) dB
Fall protection (TRAV)	yes, without additional measures					
German general approval	curtain wall system Z-14.4-454 T-connector Z-14.4-461	curtain wall system Z-14.4-504 T-connector Z-14.4-461	curtain wall system Z-14.4-446	–	curtain wall system Z-14.4-455	curtain wall system Z-14.4-516
European Technical Approval	–	–	–	OIB, Vienna	ETA-13/0765	ETA-13/0765
Fire resistance	–	EI30	E30 / EW30 / EI30	E30 / EW30 / EI30	F30 / G30 / EI30	–
Burglar resistance	RC2 / RC3	RC2 / RC3	RC2 / RC3	RC2 / RC3	RC2 / RC3	RC2 / RC3

Product standard for curtain walling EN 13830:

Features and classification for CE-Labelling (tested with an inclination of 2°)

	Test type/Standard	THERM+ A-I	THERM+ S-I	THERM+ FS-I	THERM+ H-I
No. 4.1	Wind resistance (EN 13116)	Wind pressure up to 2.6 kN/m² Wind suction up to 2.7 kN/m²	Wind pressure up to 2.6 kN/m² Wind suction up to 2.7 kN/m²	Wind pressure up to 2.6 kN/m² Wind suction up to 2.7 kN/m²	Wind pressure up to 2.6 kN/m² Wind suction up to 2.7 kN/m²
No. 4.4	Air permeability (EN 12152)	Class AE (2,100)	Class AE (2,100)	Class AE (2,100)	Class AE (2,100)
No. 4.5	Water penetration (EN 12154)	Up to class RE 2,550[1)]	Up to class RE 2,550[1)]	Up to class RE 2,550[1)]	Up to class RE 2,550[1)]

[1)] Test deviating from EN 12155 with a water quantity of 3.4 l/(m² min). The standard specifies a water quantity of 2 l/(m² min).

Test tower Thyssenkrupp – Rottweil, DE

FRAME+

Window system

With the award winning FRAME+ aluminium window system, RAICO meets architectural demands whilst setting bench marks in the industry for thermal performance requirements. FRAME+ offers a convenient range of thermal performance levels for opening lights, fixed glazing and roof-lights where thermal transfer coefficients of U_f = 0.79 W/(m²K) are possible.

B+B Hotel – Ulm, DE

Pariser Höfe – Stuttgart, DE

Lohn AG – Baden-Baden, DE

MTZ service centre – Örlenbach, DE

French Consulate – Stuttgart, DE

BIZZZ – Offenburg, DE

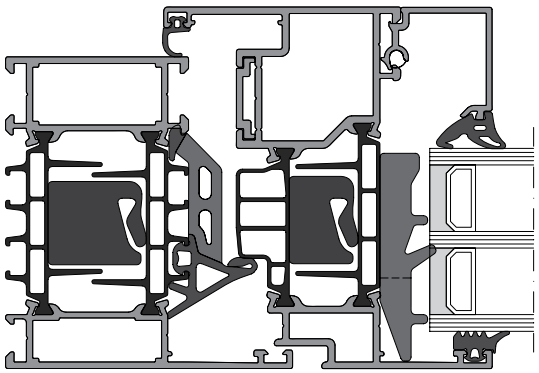
FRAME+ 75 WI

Insert window

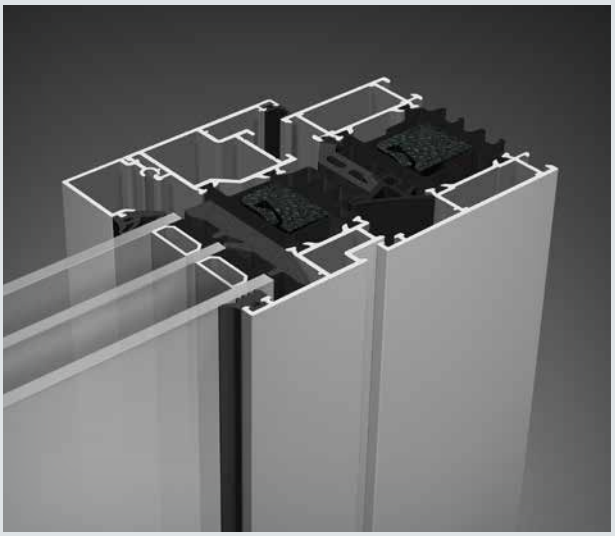
The innovative FRAME+ system concept with its modular composition: The system profiles consist of identical interior and exterior aluminium extrusions and can be adapted to the required depth and thermal insulation by selection of the THERMORIT insulation bars.

Advantages

- Maximum energy savings with variable adjustment of the insulation values down to U_f = 0.81 W/(m²K)
- System depth 75 mm
- Stepless thermal insulation
- Innovative system components, such as THERMORIT insulation bars featuring distinctly reduced heat transmission values
- Co-extruded centric gaskets
- Integration of efficient insulation areas
- A range of opening options is available
- Consistent thermal optimization of the modular system
- Concealed fitting up to 150/180 kg
- Available as system for self-fabrication or as pre-assembled units

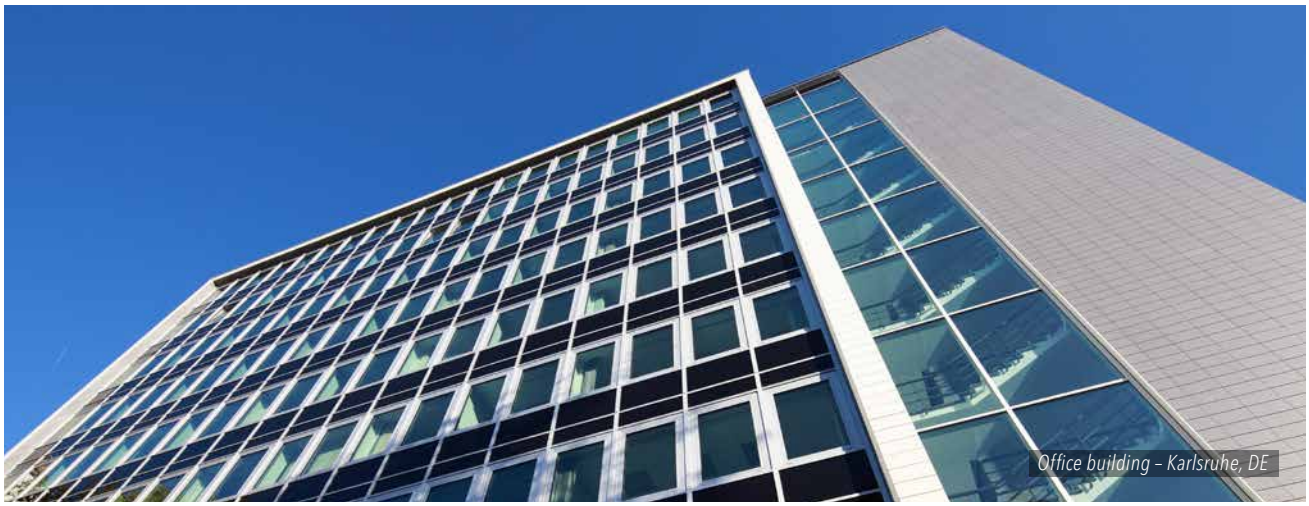


FRAME+ 75 WI



FRAME^{+} 75 SF

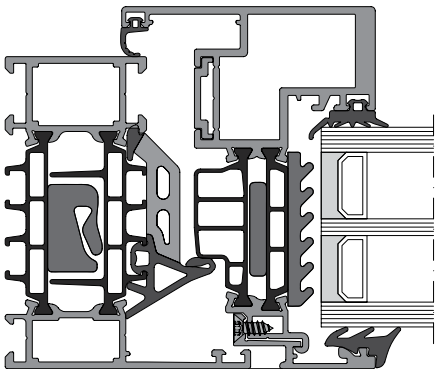
Insert window



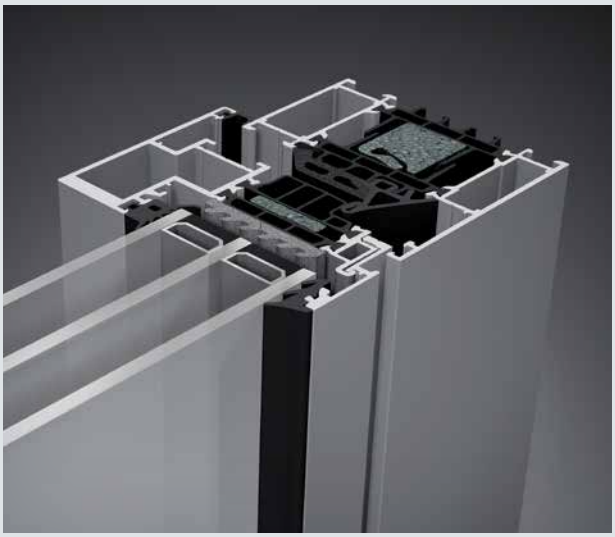
FRAME^{+} with filigree slim design: With the FRAME^{+} 75 SF we offer you a window system with extremely slim visual appearance. The face width of the exterior view of the sash of only 23 millimetres enables the realization of timelessly elegant architecture with exclusive detailing.

Advantages

- Extremely slim exterior view of the sash with a face width of only 23 mm
- Increased airtightness and cleaning-friendly execution without visible glazing beads in the sash
- Mitred cut exterior glazing bead with stabilising corner plate
- Maximum thermal insulation with U_f-values down to 1.1 W/(m²K)
- All sashes are executable in two colours without elaborate half-shell coating
- Application of all outer frames of the proven FRAME^{+} 75 WI
- Optionally with overlapping and concealed fitting
- Similarly executable also as FRAME^{+} 90 SF



FRAME^{+} 75 SF outer frame with sash and triple glazing



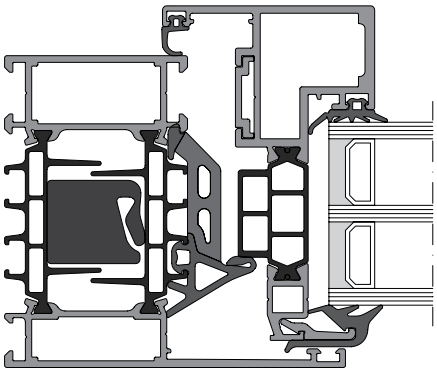
FRAME+ 75 WB

Casement sash window

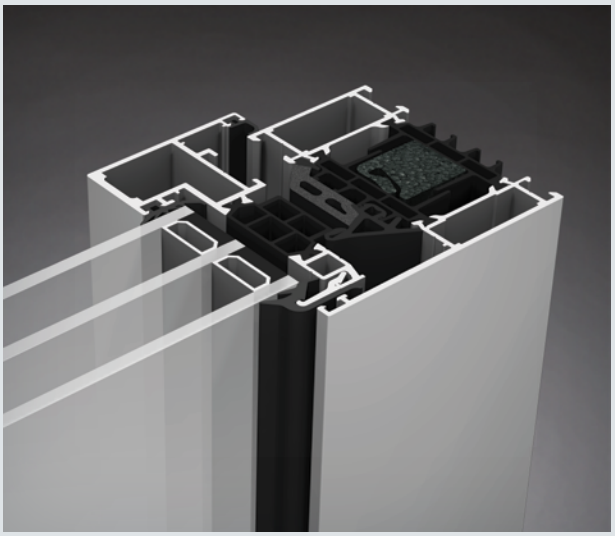
Using FRAME+ 75 WB as a concealed sash window offers very filigree elevation widths, not showing any visible window bars. This version is also available as a floating window, with overlapping casement, and with decorative glazing bars. For built-in punched opening windows, the opening elements and window elements have an identical face width.

Advantages

- High-insulation windows with U_f = 1.1 W/(m²K)
- System depth 75 mm
- Application as window for punched openings or, with outer frame extension, for integration into curtain wall
- No visible glazing beads
- Very slim visual appearance
- Available as a dummy mullion sash



FRAME+ 75 WB



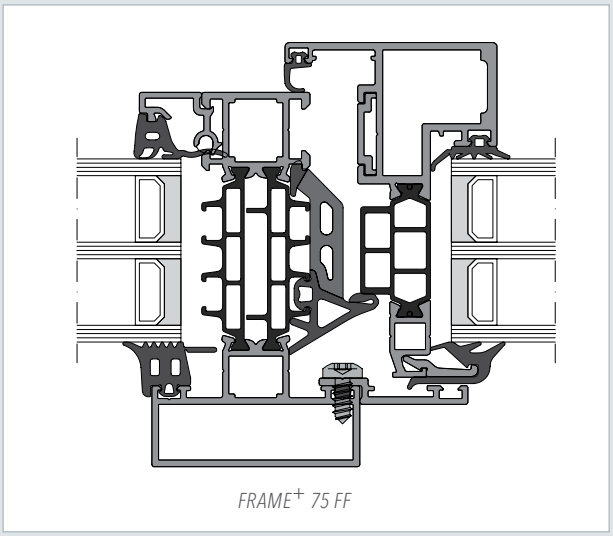
FRAME^{+} 75 FF

Window curtain wall

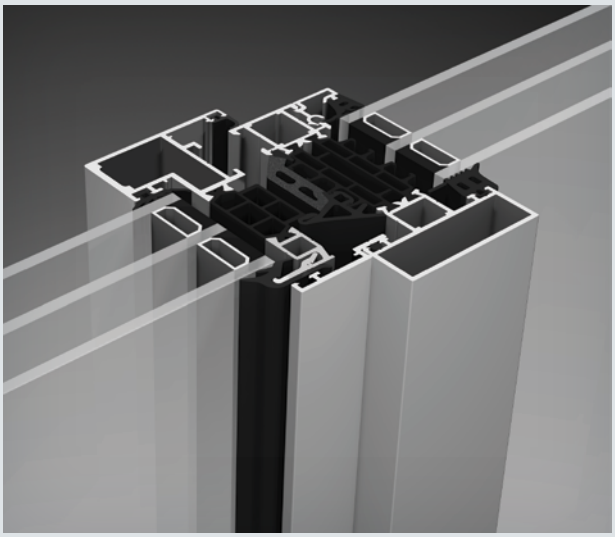
The version FRAME^{+} 75 FF offers additional advantages of this trendsetting window technology, such as a slim-line mullion-transom design model featuring elevation widths of only 50 mm.

Advantages

- Window curtain wall system with stick system appearance and an external face width of only 50 mm
- System depth 75 mm
- Ideal for economic ribbon windows up to storey height
- High-insulation windows with U_f down to 0.98 W/(m²K)
- Slim curtain wall appearance with sashes or fixed glazing
- Comprehensive diversity of design with various cover profiles from the THERM^{+} curtain wall system
- Available as a dummy mullion sash



FRAME^{+} 75 FF



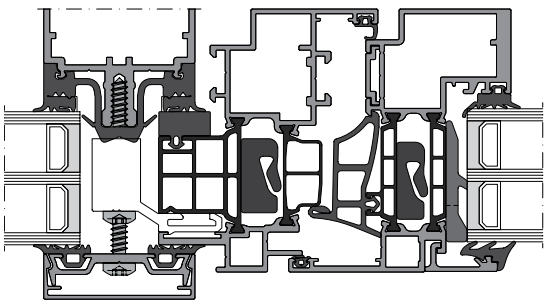
FRAME+ 75 WA

Outward opening

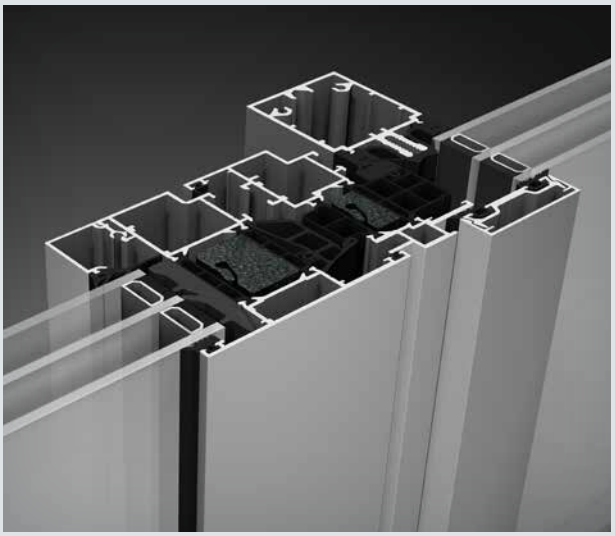
The FRAME+ 75 WA version offers several usage as bottom-hung, top-hung, side-hung, top-hung projecting all outward openings.

Advantages

- High-insulation windows with U_f down to 1.4 W/(m²K)
- System depth 75 mm
- Minimal sight lines
- Opening options: bottom-hung, top-hung, side-hung, top-hung projecting
- Internal or external glazing options
- Available with curtain wall adapter outer frame profile
- Installation of casement sash of the FRAME+ WB series is possible by simple additional measures, which reduces the face width of the opening elements



FRAME+ 75 WA



FRAME+ 75 WI PSK

Parallel tilt and slide door

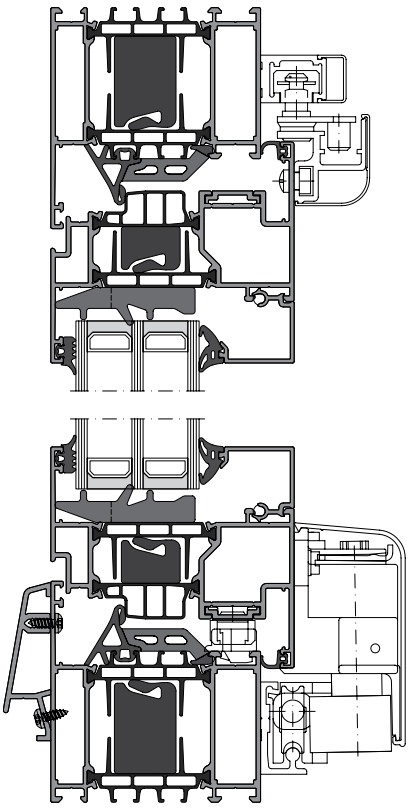
With its choice of space saving opening methods (slide to step through / tilt to provide ventilation) coupled with its outstanding thermal performance and its very high air tightness qualities, the parallel tilt and slide door is ideally suited for use as a terrace or balcony door.

Advantages

- Outstanding insulating properties
- Innovative, space-saving runner technology
- Large openings up to a sash width of 2 m
- High sash weights up to 200 kg
- For sash weights over 150 kg,
  hardware assisted operation for ease of use
- Excellent ventilating properties using a storm proof tilting position
- Highly impermeable by circumferential medial gasket technology
- Broad range of applications for extensive terrace and balcony openings in the private and commercial buildings
- Various ways of opening:

  - space-saving due to slide position

  - long-term ventilation in tilt position



FRAME+ 75 WI PSK

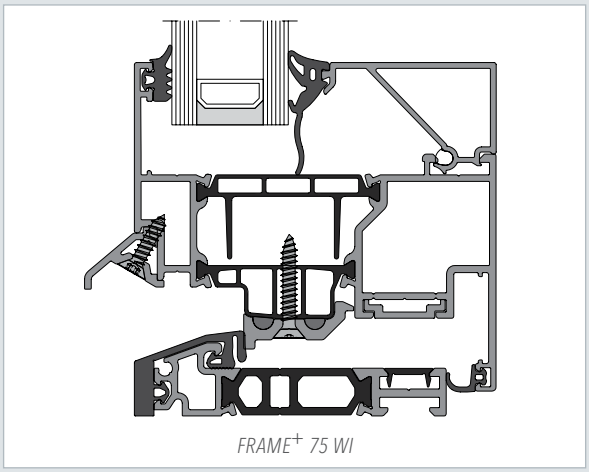
FRAME+ 75 WI/90 WI

Barrier-free threshold

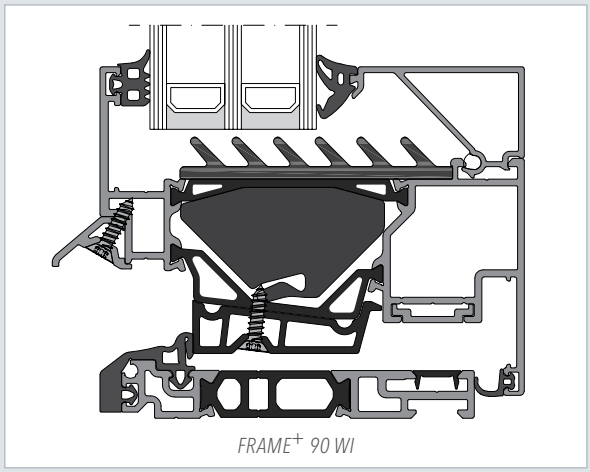
The threshold belongs to the most sensitive parts of french doors. Especially in the threshold area thermal insulation and air tightness is a real challenge. With our new barrier-free threshold we are offering a product that meets all requirements on modern and safe construction ergonomics.

Advantages

- The thermally separated aluminium sill is possible for barrier-free threshold acc. to DIN 18040 with a maximum height of 20 mm
- Increased safety due to additional horizontal locking
- Visually attractive solution by small face widths
- Standard fittings applicable as surface mounted or concealed option for an attractive appearance
- Application as window for punched openings or, with outer frame extension, for integration into curtain wall
- Substructure of sill with standard enlargement of FRAME+ series
- System depth 75 or 90 mm
- Infill thicknesses 22 to 68 mm
- Opening options:
  One-leaf: turn and turn-tilt
  Double-leaf: turn-tilt/turn and turn/turn
- Maximum sash dimensions of
  1,100 x 2,500 mm / 1,450 x 2,200 mm
- Available as system for self-fabrication or as pre-assembled units
- Tested U_f-values
  75 WI: 1.8 W/(m²K)
  90 WI: 1.4 W/(m²K)



FRAME+ 75 WI



FRAME+ 90 WI

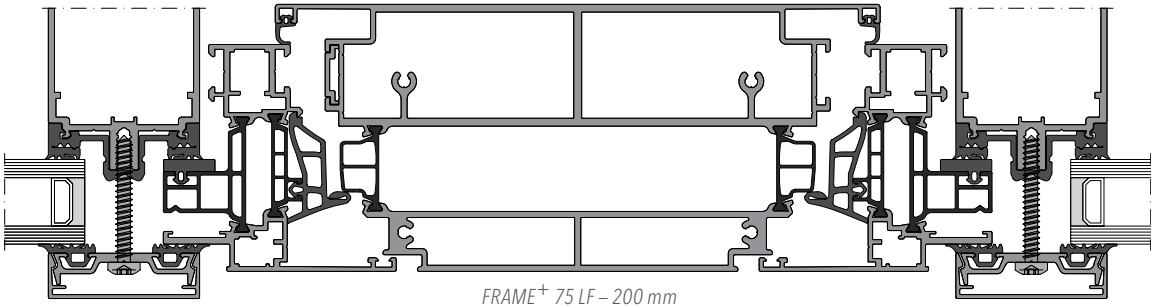
FRAME+ 75 LF 200 / 300

Ventilation flap

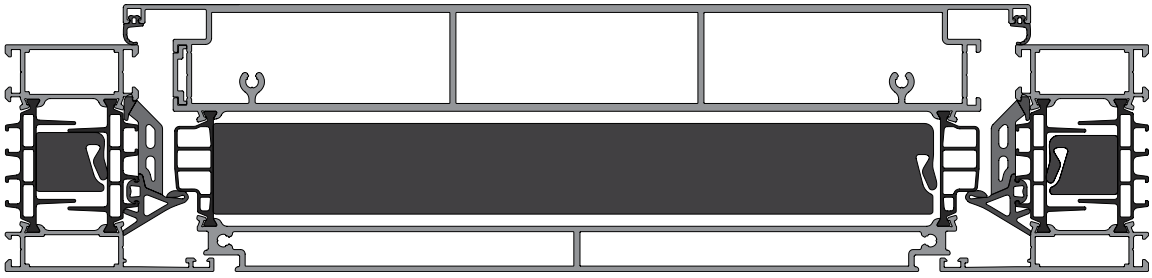
Completing the FRAME+ product series, two ventilation flaps are available for the curtain wall system THERM+ (elevation width of 200 mm) and the aluminium window system FRAME+ (elevation width of 300 mm). The ventilation flap gives an extraordinary impression regarding a façade's design, due to its characteristic narrow elevation width.

Advantages

- Storey height ventilation with a single thermally broken profile without the need for a frame or glazing beads
- Inside and outside homogeneous, flat surface
- Burglar resistant
- U-values down to U_{eq} = 0.86 W/(m²K)
- Impact resistant fixed opening width of 120 mm (for FRAME+ 75 LF 200)
- With outer frame profile also possible for integration into curtain wall
- Available as system for self-fabrication or as pre-assembled units



FRAME+ 75 LF – 200 mm



FRAME+ 75 LF – 300 mm

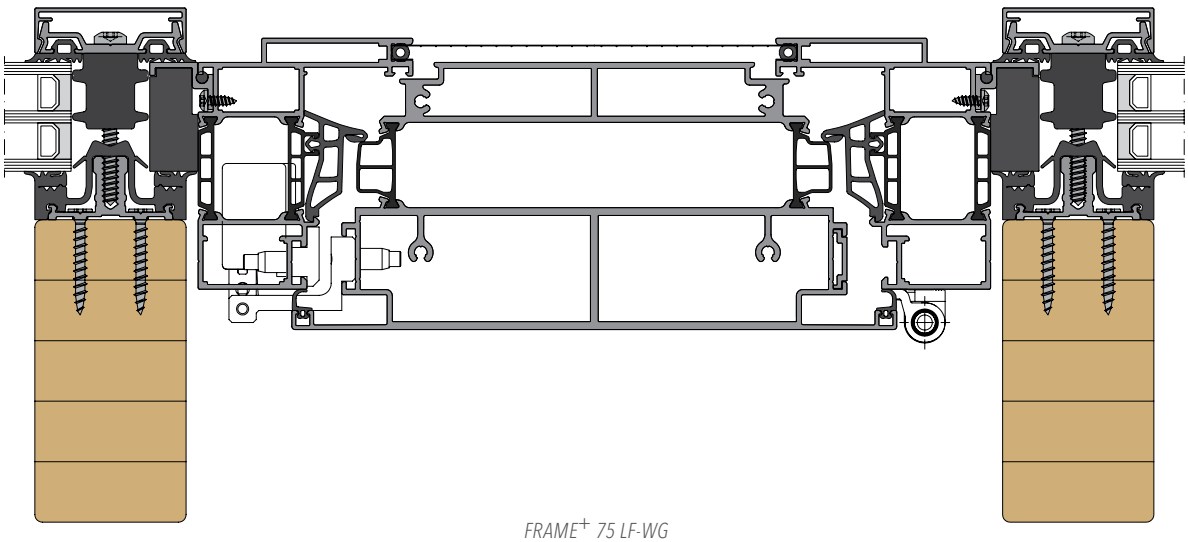
FRAME+ 75 LF-WG

Automatic Ventilation flap

The automatic ventilation flap FRAME+ 75 LF-WG has invisible integrated motor technology and a special outer frame design, enabling the incorporation of an insect protection or perforated sheet metal plate. It ensures the optimal ventilation and aeration of conservatories and other buildings.

Advantages

- By the fixed opening width of 120 mm without further action in the open condition, the flap is burglar and impact-proof
- The motor drive is perfectly integrated under the continuous center gasket, invisible in the fixed frame
- Available as system for self-fabrication or as pre-assembled units
- By running a highly insulated composite airfoil without frame and glazing beads and both sides homogeneous planar surfaces results in a particularly inconspicuous design
- Integrable inconspicuous insect protection with a 80 % open area ventilation



FRAME+ 75 LF-WG

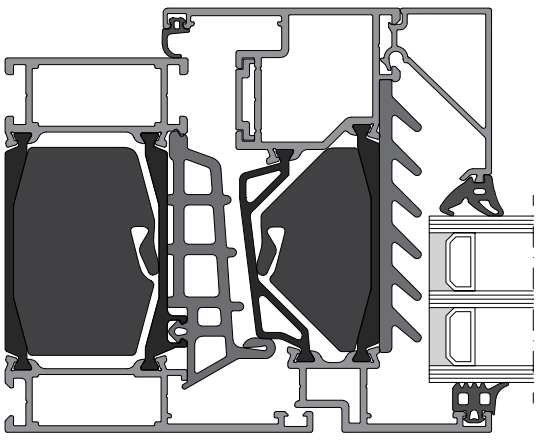
FRAME+ 90 WI

Insert window

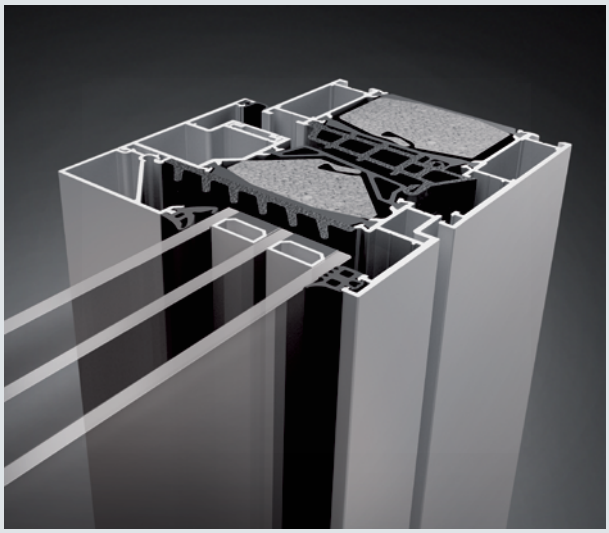
The solution's outstanding energy efficiency was one of the reasons for the FRAME+ 90 WI aluminum window system being awarded the "Component Award 2014". Additionally it is exceptionally economical and maximizes overall savings at the level of both investment and energy costs compared to standard windows.

Advantages

- Outstanding thermal insulation with a volume fraction of 60 % of the innovative material used for THERMORIT bars: U_w = 0.75 W/(m²K) | U_f-value = 0.79 W/(m²K)
- Maximum thermal insulation and glass infill thicknesses up to 80 mm (in the sash)
- High performance thermal insulation insert with a depth of 60 mm
- Available as system for self-fabrication or as pre-assembled units
- Simplified, more flexible installation into curtain wall with range of variable system components
- Opening variants: Turn-tilt/Turn/Tilt-turn (tilt first)/Tilt/Parallel tilt and slide door
- Clean and easy corner cleat bonding using innovative adhesive injection method into synthetic distribution channel
- Suitable for composite coating and anodising



FRAME+ 90 WI



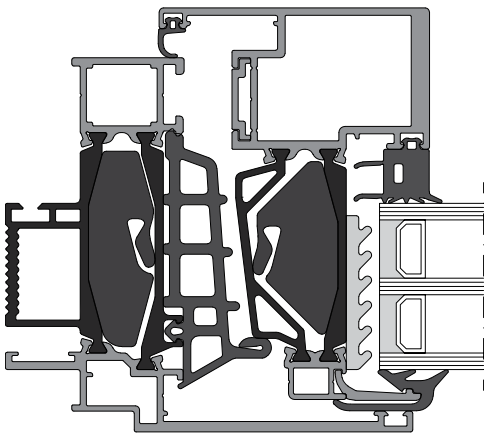
FRAME+ 90 WB

Casement sash window

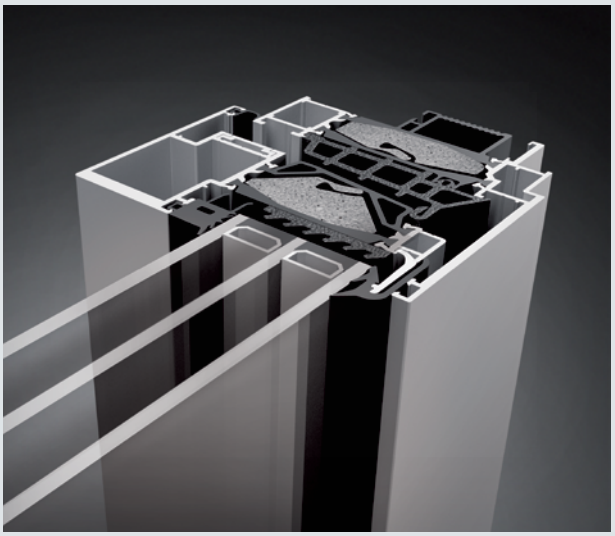
Using FRAME+ 90 WB as a concealed sash window offers very filigree elevation widths, not showing any visible window bars. This version is also available as a floating window, with overlapping casement, and with decorative glazing bars.

Advantages

- Outstanding thermal insulation with a volume fraction of 60 % of the innovative material used for THERMORIT bars: U_w = 0.76 W/(m²K) | U_f-value ≥ 0.89 W/(m²K)
- Safe glazing technology in conformity with the standards offering large ventilation spaces and an exterior gasket frame with corner vulcanisation
- Individual design options for the interior outer frame profile by using colour adaptable cover profiles
- One piece coextruded medial gasket with insulating foam percentage
- Insulation of the glazing rebate by glazing rebate insulating block with large ventilation spaces and insulation of the hollow profile sections by high thermal insulating insertions
- Fitting variants:
  - Concealed fitting, thereby invisible parts, low-maintenance
  - Surface-mounted fitting with enhanced version of the standard corner bearing enables higher sash weights and increased stability



FRAME+ 90 WB with integration outer frame



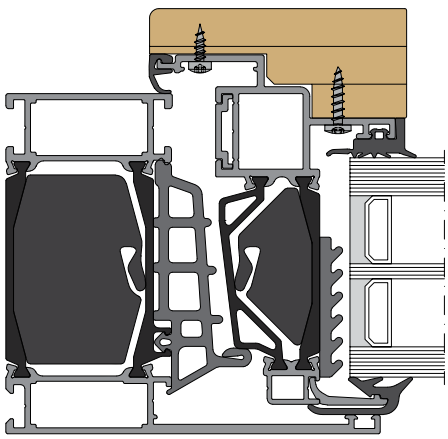
FRAME+ 90 WB-T

Aluminium timber window

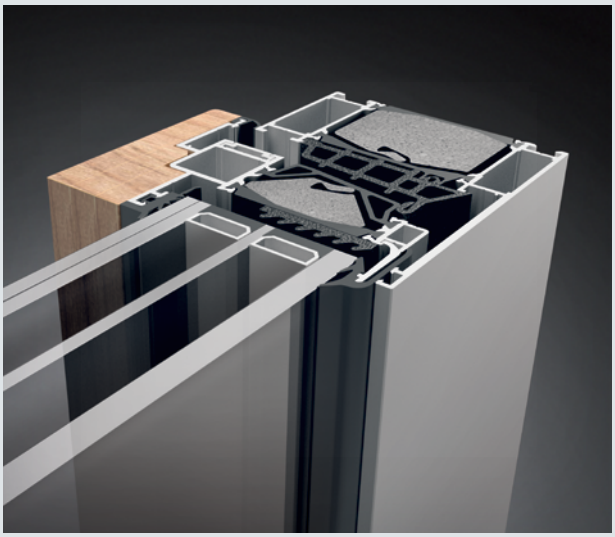
In the new RAICO aluminium timber window FRAME+ 90 WB-T, a warm living ambience meets the most modern composite technology made of highly thermally insulating THERMORIT. Enjoy cosiness in the interior area provided by the use of wood, and classical functionality due to weatherproof aluminium on the outside.

Advantages

- Aluminium timber window with identical processing technology of standard aluminium windows
- Outstanding thermal insulation with a volume fraction of 60 % of the innovative material used for THERMORIT bars: $U_w = 0.77$ W/(m²K) | U_f-value = 0.89 W/(m²K)
- Real wood cladding on the inside as a decorative element, perfectly suited to the optical appearance of the curtain wall. Wide range of different types of wood
- Individual design options for the interior outer frame profile by using colour adaptable cover profiles
- Integral sash made of dimensionally stable aluminium-THERMORIT composite construction without considering the interior timber frame, therefore exchangeable at any time
- Real wood cladding on the inside with simple screw connection technique on production or construction site, exchangeable after installation
- Compensation of glass infill thickness by special clip gaskets
- Opening variants: Tilt and turn/turn/tilt before turn/tilt
- Available as system for self-fabrication or as pre-assembled units



FRAME+ 90 WB-T



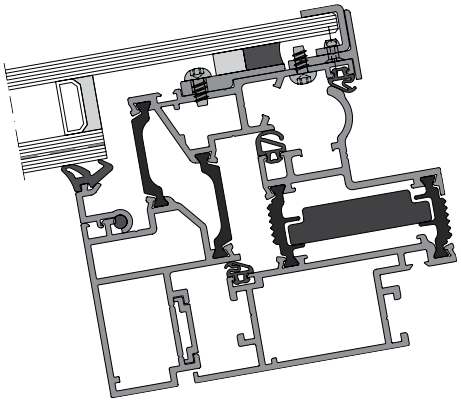
FRAME+ 100/120 RI

Rooflight window

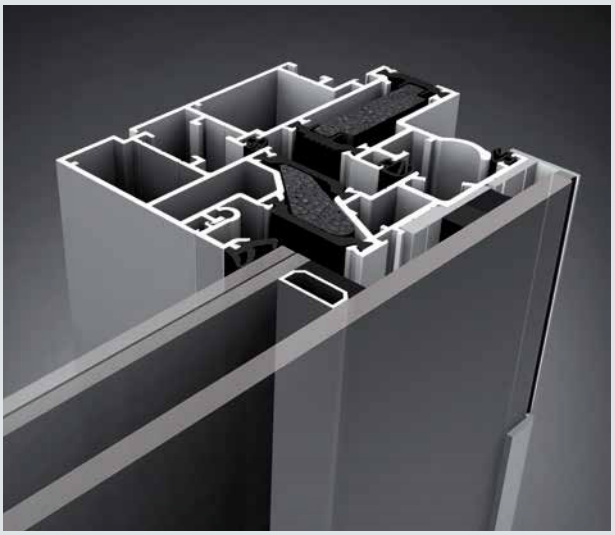
With its new FRAME+ 100/120 RI rooflight window, RAICO is once again opening up a range of new possibilities in the field of functional and aesthetic roof design – thanks to their special depth of section, passive house certification and lean, elegant appearance which perfectly matches the proven THERM+ roof and curtain wall systems.

Advantages

- Innovative insulating bar material THERMORIT with very low thermal conductivity and suitable for composite coating and anodising
- Two different glazing variants due to the option for the screw connection of the cover profile (visible or concealed)
- Tested with a roof inclination of up to 2° it forms the perfect complement to the THERM+ glass roof systems
- System depth 100/120 mm
- High degree of tightness by three peripheral seal levels with medial gasket frame
- High burglar resistance (RC2) due to concealed turning hinges
- Maximum airflow effect due to an opening angle of up to 90°; Tested for natural ventilation as well as a smoke and heat exhaust ventilator acc. to DIN EN 12101-2
- Various opening possibilities due to mounting options on all four sides, manual or with motor drive; wide selection of linear or chain drives
- Opening variants: Turn, Tilt, Top-hung
- First passive house certified „opening element in the glass roof"
- Available as system for self-fabrication or as pre-assembled units



FRAME+ 100 RI – Variant stepped edge glazing



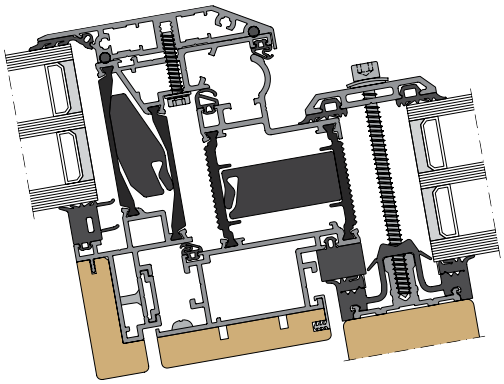
FRAME+ 100/120 RI-T

Timber rooflight window

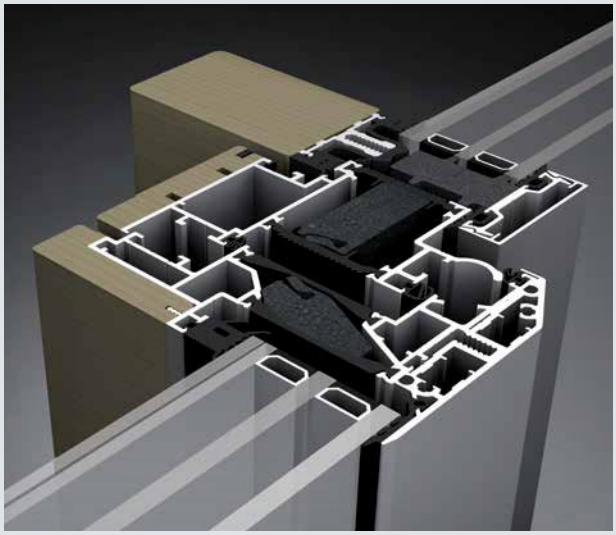
The interior real wood cladding turns the FRAME+ 100/120 RI-T into a design highlight that is ideally integrated in the THERM+ H-I/H-V timber curtain wall system.

Advantages

- Aluminium timber window with identical processing technology of standard aluminium windows
- Outstanding thermal insulation with a volume fraction of 60 % of the innovative material used for THERMORIT bars: U_f-value = 1.4 W/(m²K)
- Real wood cladding on the inside as a decorative element, perfectly suited to the optical appearance of the curtain wall; wide range of different types of wood
- Real wood cladding on the inside with simple screw connection technique on production or construction site, exchangeable after installation
- Integral sash made of dimensionally stable aluminium-THERMORIT composite construction without considering the interior timber frame, therefore exchangeable at any time
- Compensation of glass infill thickness by special clip gaskets
- Tested with a roof inclination of up to 2° it forms the perfect complement to the THERM+ glass roof systems
- Tested for natural ventilation as well as a smoke and heat exhaust ventilator
- High degree of tightness by three peripheral seal levels with medial gasket frame
- Available as system for self-fabrication or as pre-assembled units



FRAME+ 120 RI-T – Variant real wood cladding



Quality in detail

The FRAME+ window series also guarantees a high degree of design freedom, in addition to a high energy saving thanks to maximized thermal insulation. The following table shows the achieved values and possible applications of the different systems.

	FRAME+ 75 WI Insert window	FRAME+ 75 SF Insert window	FRAME+ 75 WB Casement sash window	FRAME+ 75 FF Window curtain wall	FRAME+ 75 WA Outward opening	FRAME+ 90 WI Insert window	FRAME+ 90 WB Casement sash window	FRAME+ 90 WB-T Al. timber window	FRAME+ 100/120 RI Rooflight window	FRAME+ 100/120 RI-T Timber roof-light window
System values										
U_w-value [1] passive house in W/(m²K)	–	–	–	–	–	= 0.80	= 0.79	–	= 1.0	–
U_f-value [2] in W/(m²K)	≥ 1.0	≥ 1.0	≥ 1.5	≥ 1.7	≥ 1.4	≥ 0.70	≥ 0.75	≥ 0.89	≥ 1.40	≥ 1.40
System depth [mm]	75	75	75	75	75	90	90	90	88/100/120	88/100/120
Applications										
Punched opening window	X	X	X			X	X	X		
Curtain wall insertion element	X	X	X		X	X	X	X		
Casement sash			X	X			X	X		
Window curtain wall				X						
Opening element in the glass roof									X	X
Application limits [3]										
Max. weight turn-tilt surface-mounted fitting [kg]	130/160/200 *	130/160/200 *	130/160/200 *	130/160/200 *	–	130/200*	130/200 *	130	225	225
Max. weight turn surface-mounted fitting [kg]	130/160/200/300 *	130/160/200/300 *	130/160/200/300 *	130/160/200/300 *	130	130/200/300 *	130/200/300 *	130	225	225
Max. weight consealed fitting [kg]	150/180	150/180	150/180	150/180	–	150	150	150	–	–
Max. sash dimensions [mm] [4]	1,600 x 2,100/1,600 x 3,000	1,600 x 2,100/1,600 x 3,000	1,450 x 1,900/1,450 x 3,000	1,450 x 1,900/1,450 x 3,000	2,500 x 2,000/2,000 x 2,500	1,600 x 2,100/1,100 x 2,500	1,600 x 2,100/1,100 x 2,500	1,600 x 2,100/1,100 x 2,500	3,500 x 1,500/2,100 x 2,500	3,500 x 1,500/2,100 x 2,500
Infill thickness sash [mm]	22 to 68	22 to 68	24 to 44	24 to 44	22 to 68	34 to 80	40 to 60	40 to 60	10 to 80	10 to 80
Infill thickness fixed glazing [mm]	10 to 56	10 to 56	4 to 50	4 to 56	–	36 to 65	–	–	11 to 68	11 to 68

[1] Determined with glass U_g = 0.7 W/(m²K)

[2] Thermal insulation based on DIN ISO 10077-2

[3] Applications outside these limits, would be subject to an assessment by our Technical Department

[4] For authorized sash sizes, see fitting diagram in the relevant planning documents

* 130 / 160 kg with standard fitting up to 200 / 300 kg with reinforced fitting

Tests

The FRAME^{+} window system has undergone rigorous testing according to the product standard for windows and exterior doors EN 14351.1 and achieved the following classification. These values are at the same time the base for simplified CE marking of windows.

	FRAME^{+} 75 WI Insert window	**FRAME^{+} 75 SF** Insert window	**FRAME^{+} 75 WB** Casement sash window	**FRAME^{+} 75 FF** Window curtain wall	**FRAME^{+} 75 WA** Outward opening	**FRAME^{+} 90 WI** Insert window	**FRAME^{+} 90 WB** Casement sash window	**FRAME^{+} 90 WB-T** Al. timber window	**FRAME^{+} 100/120 RI** Rooflight window	**FRAME^{+} 100/120 RI-T** Timber roof-light window
Air permea-bility [1]	Class 4	Class 4	Class 4	Class 4	Class 4	Class 4	Class 4	Class 4	Class 4	Class 4
Resistance to wind load [1]	Class C5	Class C5	Class C5	Class C5	Class C4	Class C5	Class C5	Class C5	Class C3/C4 *	Class C3/C4 *
Resistance against impact [1]	Class 5	Class 3	Class 3	Class 3	–	Class 5	Class 5	Class 5	–	–
Water tightness [1]	up to E 900	up to E 900	up to E 900	up to E 900	up to E 900	up to E 900	up to E 900	up to E 900	up to E 1500	up to E 1500
Operating forces [1]	Class 1 and 2	Class 1 and 2	Class 1 and 2	Class 1 and 2	Class 1	Class 1	Class 1	Class 1	–	–
Airborne sound insulation [2]	$R_w(C;C_{tr})$ up to 45 dB	$R_w(C;C_{tr})$ up to 45 dB	$R_w(C;C_{tr})$ up to 45 dB	$R_w(C;C_{tr})$ up to 45 dB	–	$R_w(C;C_{tr})$ up to 43 dB	$R_w(C;C_{tr})$ up to 43 dB	$R_w(C;C_{tr})$ up to 43 dB	$R_w(C;C_{tr})$ up to 43 dB	$R_w(C;C_{tr})$ up to 43 dB
Mechanical strength [1]	Class 4	Class 4	Class 4	Class 4	–	Class 4	Class 4	Class 4	–	–
Burglar resistance	Class RC2/RC3	–	Class RC2/RC3	Class RC2/RC3	–	Class RC2/RC3	Class RC2/RC3	Class RC2/RC3	Class RC 2	Class RC 2
Continuous-operational testing EN 12400	Class 2	Class 2	Class 2	Class 2	Class 2	–	–	–	Class 3	Class 3

[1] Tested to RAL GZ 695

[2] The values are referred to the standard size of 1.23 x 1.48 m

* Values are maxium tested/max. classification
The classification must be realized according to the requirements of the specifications.

Primary school – Neubiberg, DE

FRAME+

Door system

The FRAME+ door system is based on the well proven concept of the FRAME+ window series. The door profiles are designed to match the window profiles. In addition, many products from the window range are compatible with the door system. When used as an insert element, the door series can be integrated perfectly into the tried and tested THERM+ passive house curtain wall system.

Private house

Furniture Store Finke – Hamm-Rhynern, DE

medXpert – Eschbach, DE

Umweltarena – Spreitenbach, CH

Peninsula Aquatic Recreation Centre – Frankston, AUS

Private house

FRAME+ 75 DI

Aluminium door

FRAME+ 75 DI fulfils all the requirements for a high quality entrance door. Special profile contours enable simple installation. The series is characterised by short production times and efficient manufacturing. Smooth rebate geometries enable fast installation of all types of hardware in the rebate. Large internal chambers within the profiles provide acceptance of all fittings, such as electrical door release mechanisms.

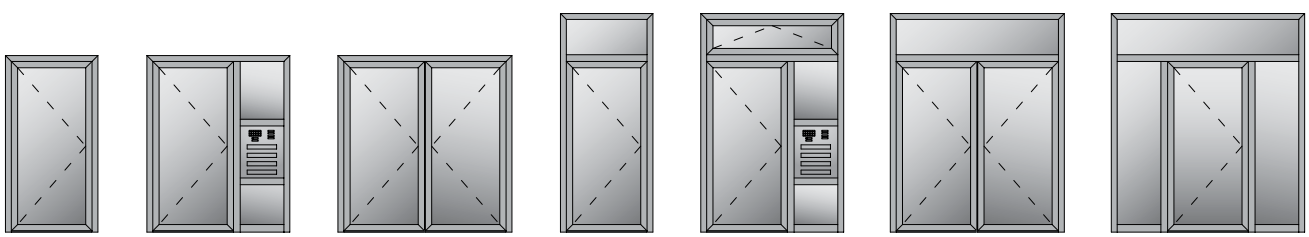
Advantages

- Featuring U_D-values down to 0.69 W/(m²K) to meet passive house standards
- Buildings, curtain wall and residential project installations
- Extensive design options within the series
- Standard fittings
- Ease of manufacture with innovative features
- Sturdy composite profiles ensuring long-lasting functionality
- Inward and outward opening single doors
- Inward and outward opening double doors
- Leaf-enclosing doors on one side, inward/outward opening
- Leaf-enclosing doors on both sides, inward opening
- Tested to EN 12208 for water tightness:
  - Inward opening door to Class 9A (600 Pa)
  - Outward opening door to Class 8A (450 Pa)
- Integral sidelights and fanlights
- Outward opening escape doors to EN 179 / 1125

3D Concept

- High degree of tightness due to innovative sealing concept
- Improved insulation of down to U_f = 1.4 W/(m²K)
- Large dimensions, up to 3.0 m height

Selection of door combinations



DESIGN VARIANTS

Welcome to individuality

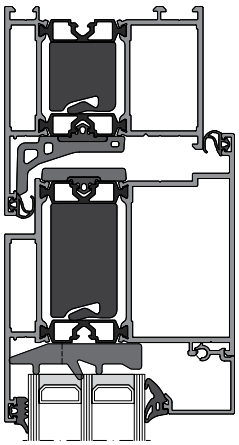
Individuality and appearance are of high importance when considering the design of entrance doors, to enable symbiosis with the building. The FRAME^{+} door system offers creative options through the large range of profiles that can be perfectly combined with decorative door panels.

Aluminium front doors with an individual design

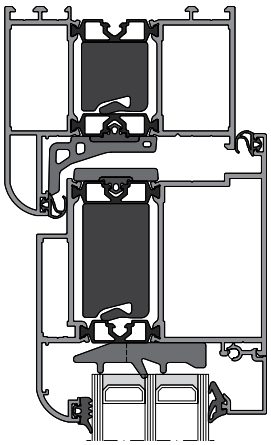
Three different design versions offer a wide range of individual design options. Nearly any design – from an expressive linear composition to soft flowing shapes – can be created with the FRAME^{+} door system.

- Three different design types:
  Basic Style – lineal profile
  Modern Style – softer edges with curved contours
  Classic Style – distinguished lines with bevelled contours
- Optional grey gaskets to minimise optical contrasts
- All design variations are compatible in any combination

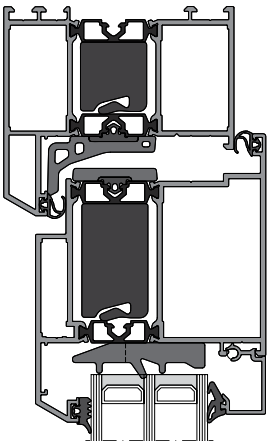
Design variant Basic Style



Basic Style
Clear lines



Modern Style
Rounded contours



Classic Style
Slanted contours

FLOOR CONNECTIONS/DOOR SILLS

Perfect insulation, maximum tightness

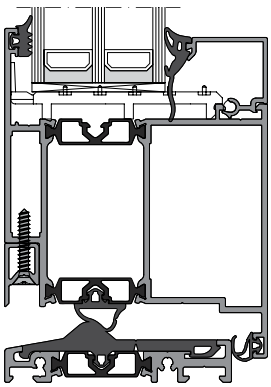
The threshold is one of the most vulnerable parts of an entrance door. In particular, the threshold requires high levels of weather tightness and thermal performance. RAICO has chosen a totally new path to address these problems, and has developed a completely new threshold concept, resulting in an even higher level of impermeability.

Innovative threshold concept

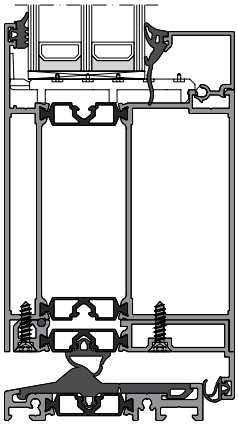
The door threshold needs to ensure perfect weather tightness. With its excellent insulation within the threshold area, reliable protection against driving rain and draught is guaranteed, reducing expensive heat losses. The low profile ensures comfortable barrier free access.

- Highest degree of weather tightness
- Barrier free accessibility
- Excellent insulation to threshold areas, down to U_f 1.6 W/(m²K)
- Retro fit exchangeable threshold connector – easy assembly
- Thermally separate aluminium threshold with replaceable gasket
- Threshold base structure options

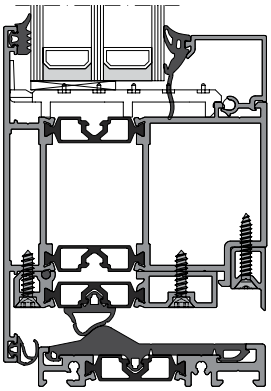
Basic Style with doorsill



Inward opening



Inward opening with door stop profile



Outward opening

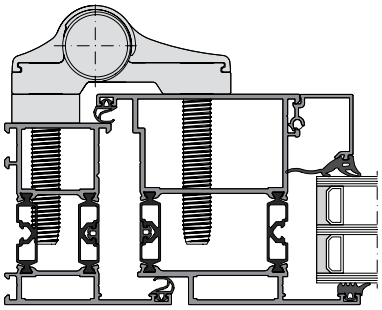
HINGES

Here, the whole focus is on function and design

Door hinge requirements are highly complex – from both functional and aesthetic perspectives. The FRAME+ 75 DI door system fittings fulfil these requirements perfectly. For example, they offer a variety of setting options and can accommodate heavy sash weights as well as provide aesthetically pleasing stainless steel finishes.

Face fixed flag hinges

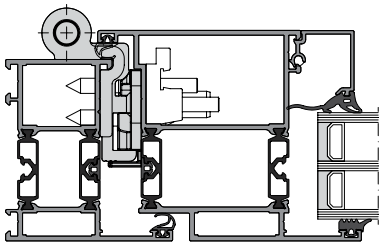
- Intricate shapes through optimised dimensions
- Inward and outward opening options
- Anchor screw or mounting plate fixings
- Large colour range in aluminium or stainless steel finish
- Two and three part hinge options
- Post installation three way adjustment without unhinging the sash
- Maximum weight of 200 kg



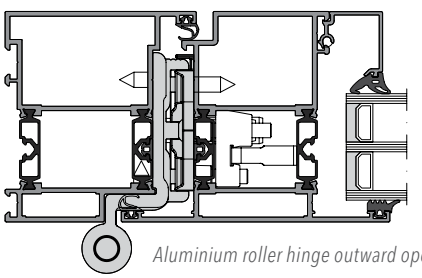
Screw-on hinge, three parts, with fixation, inward opening

Roller Hinge

- Inward or outward opening profile adapted hinges
- Direct screw fixing to outer frame without hinge plates
- Sash fixing utilises a multifunctional hinge body with integral adjustment
- Large colour range in aluminium or stainless steel finish
- Generous post installation multi-directional adjustment without unhinging the sash (Rebate adjustment ± 2 mm, height adjustment ± 3 mm)
- Efficient production utilising pre-assembled hinge parts
- Material optimisation in the 7 mm rebate enables a very high load capacity up to 250 kg
- Integrated visual control of hinge adjustment on the sash hinge body
- Stainless steel option with high load bearing capacity up to 250 kg
- Air permeability test to class 3



Roller hinge with fixation inward opening



Aluminium roller hinge outward opening

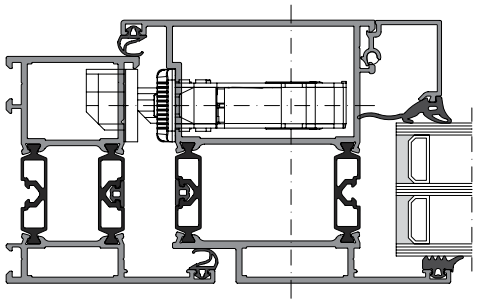
DOOR LOCKS

Your key to rational security

FRAME+ profiles have been designed to accommodate open market standard fittings. Smooth rebate construction enables fast and easy installation of a wide range of products (i. e. concealed door locks). Using a standard milling template for all lock types provides optimised fabrication as well as offering simple replacement or change of use options. A large range of accessories caters for individual customer requirements.

Standard lock for inward or outward opening doors

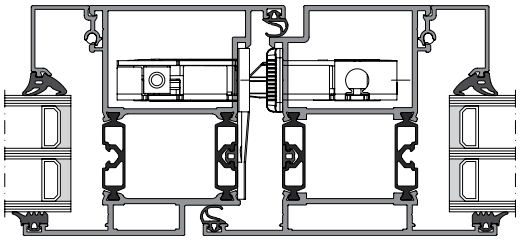
- Standardised profile processing for locks and strike plates
- Latch lock / dead locks
- Multi-point locking system with shoot or hook bolts
- Automatic locking with or without electrical release mechanism



FRAME+ 75 DI standard lock

Emergency exit / panic lock in accordance with EN 179 / 1125

- Emergency exit and panic doors
- Tested in accordance with EN 179 / 1125 for ability to release
- Latch lock / dead locks with shift function E
- Latch lock / dead locks with changeover function B
- Single and multi point locking
- Integral electrical release and monitor options
- Automatic locking to the slave leaf of a pair of doors with full or partial escape mechanism



FRAME+ 75 DI panic lock

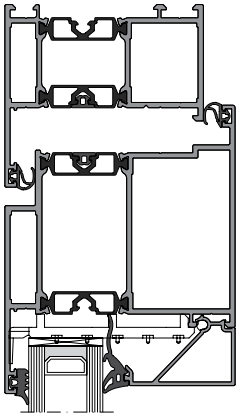
BURGLAR RESISTANCE

Better safe than sorry

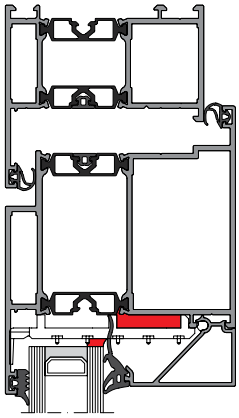
Feel secure by night and day. With innovative technology, the RAICO door system can be individually equipped with burglar resistant components to suit your security requirements. With analogue installation options in all design variations, you don't have to forgo any creative freedom.

Optimum safety based on the latest Know-How

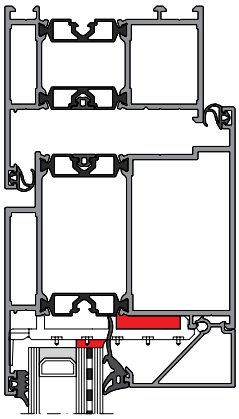
Just by adding a few supplementary system components the RAICO door system can be equipped with burglar resistant properties in resistance classes RC1, RC2 and RC3. Maximum creative freedom is enabled via analogue installation options with Modern Style and Classic Style design variants.



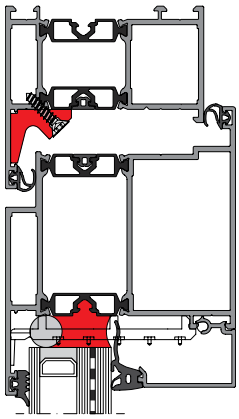
RC1N – Standard glass additional blocking



RC2N – Standard glass additional blocking + bonding



RC2 – Special glass additional blocking + bonding

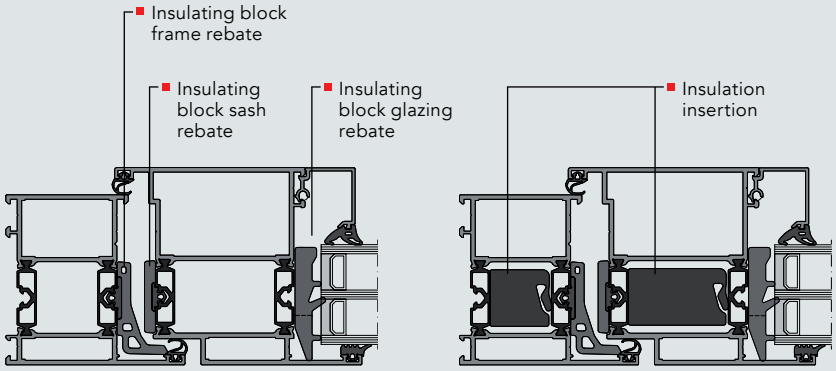


RC3 – Special glass, rebate reinforcement; additional blocking + circular bonding

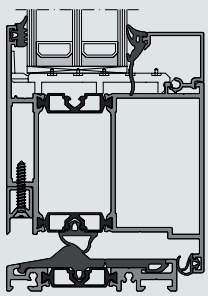
Thermal insulation for door system FRAME+ 75 DI

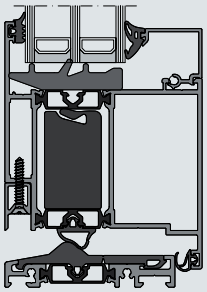
Individual thermal insulation

- Incremental adjustment of insulation values – to meet the project specific requirements
- Featuring U_D values down to 0.69 W/(m²K) for use in passive-houses



	Without insulation insertion down to U_f				With insulation insertion down to U_f			
	Standard W/(m²K)		Leaf-enclosing W/(m²K)		Standard W/(m²K)		Leaf-enclosing W/(m²K)	
	inward	outward	inward	outward	inward	outward	inward	outward
Without insulating block rebates	2.0	2.0	2.1	2.0	1.6	1.6	1.7	1.7
Insulating block glazing rebate	2.0	2.1	2.0	2.0	1.6	1.7	1.6	1.6
Insulating block frame rebate and sash rebate	1.9	1.9	1.8	1.8	1.4	1.5	1.4	1.4
Insulating block frame rebate and sash rebate and glazing rebate	1.8	1.8	1.7	1.8	1.3	1.3	1.3	1.4





	Without insulation insertion down to U_f				With insulation insertion down to U_f			
	Standard W/(m²K)		Leaf-enclosing W/(m²K)		Standard W/(m²K)		Leaf-enclosing W/(m²K)	
	inward	outward	inward	outward	inward	outward	inward	outward
Without insulating block rebates	2.1	2.3	2.2	2.3	1.7	1.9	1.8	2.0
Insulating block glazing rebate	2.0	2.2	2.1	2.2	1.6	1.7	1.7	1.8

Approvals

The FRAME^{+} door system has undergone rigourous testing according to the product standard for windows and exterior doors and achieved the following classifications. These values (regarding to EN 14351-1) are at the same time the base for simplified CE marking of windows.

	Inward opening		Outward opening	
	Single sash	**Double sash**	**Single sash**	**Double sash**
Air permeability / EN 14351-1	Class 4	Class 4 / 3 *	Class 4 / 3 *	Class 4 / 3 *
Resistance to wind load EN 12210	Class C4	Class C3	Class C4 / C3 *	Class C3
Water penetration / EN 12208	Class 9A	Class 7A	Class 8A / 5A *	Class 7A / 5A *
Operating forces / EN 12217	Class 2	Class 1	Class 2	Class 2
Burglar resistance / EN 1627	Class RC3	Class RC3	Class RC3	Class RC3
Sound insulation / EN ISO 717-1	$R_w(C;C_{tr})$ up to 44 dB	$R_w(C;C_{tr})$ up to 43 dB	$R_w(C;C_{tr})$ up to 44 dB	$R_w(C;C_{tr})$ up to 43 dB

* Value is referred to the execution with roller hinge

	FRAME^{+} 75 DI Aluminium door
System values	
System depth [mm]	75
Applications	
Punched opening window	X
Curtain wall insertion element	X
Leaf-enclosing infills	X
Application limits	
Min. width active leaf	310 mm [1,5]
Min. width inactive leaf	310 mm [2]
Min. height active/inactive leaf	720 mm [3] / 2.010 mm [4]
Max. width active/inactive leaf	1.400 mm
Max. height active/inactive leaf	2.950 mm
Max. sash weight	250 kg [5]
Glass infill thickness sash	10 to 68 mm [6]
Glass infill thickness frame	10 to 56 mm
Leaf-enclosing infill thickness	31 to 77 mm

1 For a clear passage width ≥ 800 mm with 90° opening min. width = 940 mm

2 At EN 179 / EN 1125 as well as standard with closing sequence control min. width = 450 mm

3 For a clear passage width ≥ 1,800 mm with interlocking catch lock min. height = 1,821 mm

4 At multipoint locking with pusher height 1,050 mm

5 Depending on the hinge equipment, see diagram 6000 in the planning manual "FRAME^{+} 75 DI fittings". More specific requirements (oversized dimensions) on request.

6 Depending on profile, see selection tables glazing beads in the planning manual "FRAME^{+} 75 DI fittings".

Landessparkasse – Oldenburg, DE

WING

Window system

The WING window system provides you a comprehensive range of window types which allows you to make the best choice for every individual application. All WING window variants meet the aesthetic requirements of modern architecture and thus become a creative element for your façade design.

Th. Willy car centre – Bern, CH

Ozeaneum – Stralsund, DE

SchattDecor AG – Thansau, DE

Swinhay – Gloucestershire, UK

Office building – Bad Sankt Leonhard, AT

Energieforum – Berlin, DE

WING 50 A

Top-hung / Side-hung / Bottom-hung window

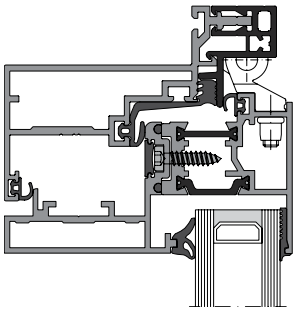
Thanks to its narrow sight line widths and patented concealed fittings, the WING 50 A window meets the requirements of modern architecture for natural ventilation as well as a smoke exhaust ventilator.

Advantages

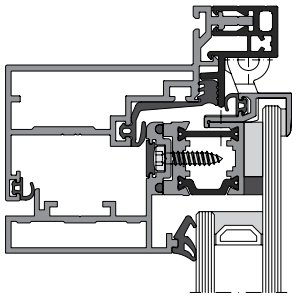
- Outward opening window in its most attractive design with stepped edge glazing
- Economic alternative with standard glass and slim profile design
- Maximum airflow effect due to an opening angle of 60°
- Ideal for very large sash formats
- Concealed hinges, mountable on any side
- No visible screws or glazing strips
- Advantages in production and logistics due to SG bonding of WING 50 A-S with split sash frame
- Various motor drives
- Available as system for self-fabrication or as pre-assembled units
- Available for natural ventilation as well as a smoke and heat exhaust ventilator in large sash sizes up to 5.2 m²

Variants: WING 50 A

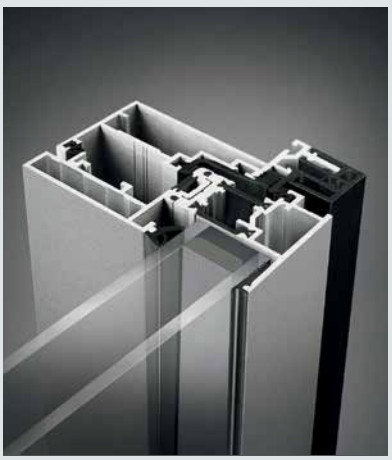
- Variant 1: WING 50 A-R with standard sealed units and low profile sash frame without glazing beads – the cost saving alternative
- Variant 2: WING 50 A-S with stepped edge glazing



Variant 1: WING 50 A-R standard glass

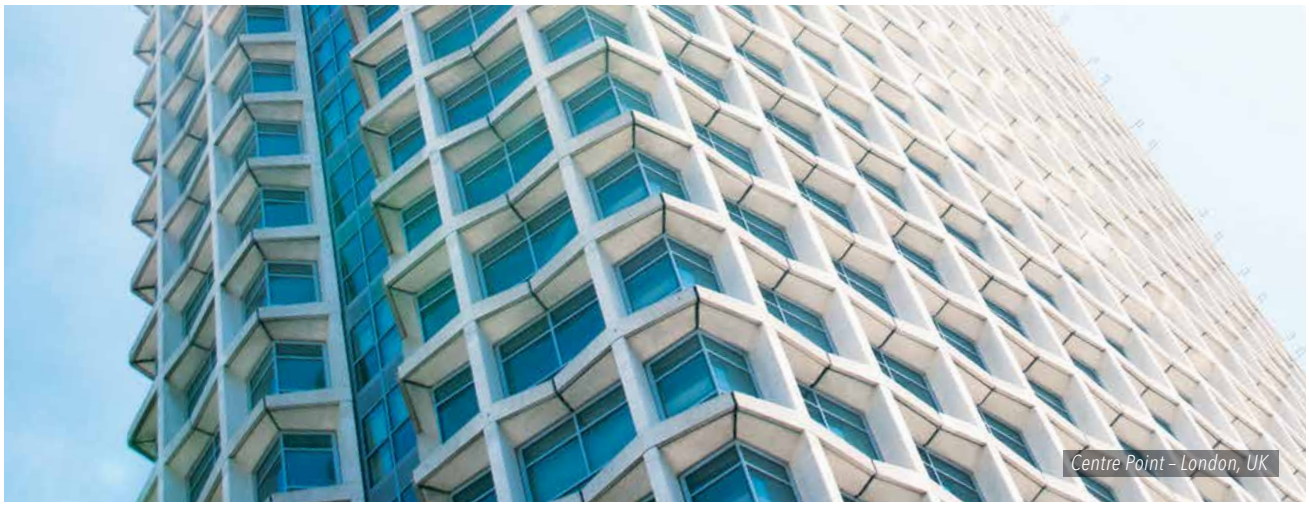


Variant 2: WING 50 A-S stepped edge glazing and static adhesion



WING 50 SK

Top-hung projecting window



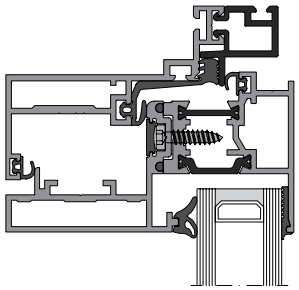
The innovative glazing technology of WING 50 SK features the option of a glass surface on the outside using structurally bonded stepped edge glazing, or a low profile frame with standard sealed units.

Advantages

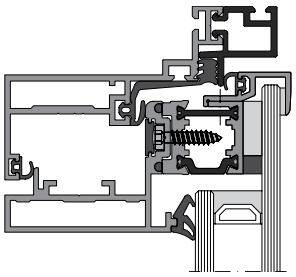
- Outward opening projecting window with stepped edge glazing
- Economic alternative with standard glass and slim profile design
- For large sashes up to 150 kg
- No visible screws or glazing beads
- Very slim design: inside 52 mm, outside 50 mm
- Various motor drives and handles available
- Available as system for self-fabrication or as pre-assembled units
- Advantages in production and logistics due to SG bonding of WING 50 SK-S with split sash frame
- Available for natural ventilation as well as a smoke and heat exhaust ventilator in large sash sizes up to 3.5 m²

Variants: WING 50 SK

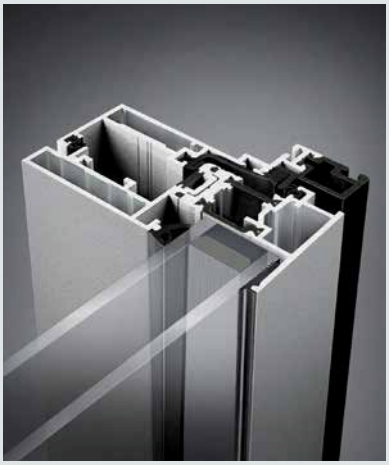
- Variant 1: WING 50 SK-R with standard sealed units and low profile sash frame without glazing beads or visible screws
- Variant 2: WING 50 SK-S with stepped edge glazing



Variant 1: WING 50 SK-R standard glass



Variant 2: WING 50 SK-S stepped edge glazing and static adhesion



WING 105 DI

Rooflight window

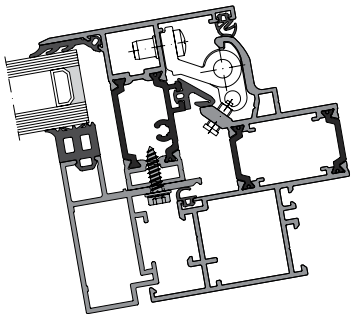
With its low profile height, its large sash dimensions and its specific sealing technique, the WING 105 DI skylight is the perfect solution for almost any application with an inclination down to 2° from horizontal.

Advantages

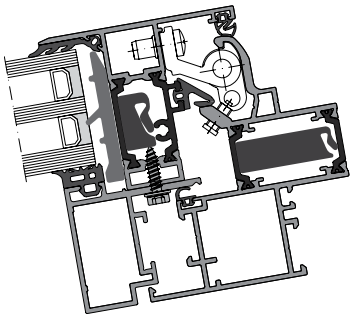
- Two-frame sash design without any visible screws or glazing beads on the outside
- Reliable drainage due to a special profile design and triple sealing system for safe water tightness
- Completely concealed hinges, mountable on any side
- Infill thickness 9 to 48 mm
- Maximum airflow effect due to an opening angle of 65° (90° available)
- Available for natural ventilation as well as a smoke and heat exhaust ventilator in large sash sizes up to 4.0 m²
- Designed to complement the THERM^{+} glass roof systems, even down to 2° inclination
- Only 37 mm of glass offset between the glass roof and the rooflight window
- Available as system for self-fabrication or as pre-assembled units

Variants: WING 105 DI

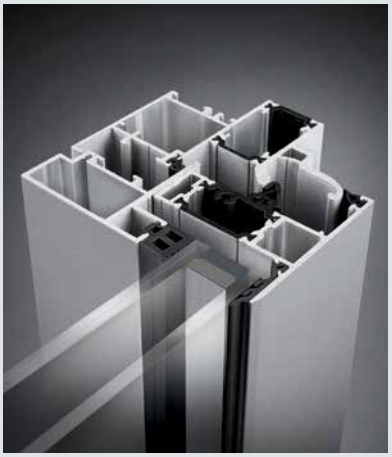
- Variant 1: Standard with twofold glazing
- Variant 2: High thermal insulation with threefold glazing and insulation insertion



Variant 1: WING 105 DI standard



Variant 2: WING 105 DI high thermal insulation



Quality in detail

	WING 50 A	WING 50 SK	WING 105 DI*
Technical Data			
Max. width [mm]	2,700	2,700	2,500
Max. height [mm]	2,500	2,700	2,500
Max. sash weight [kg]	150 kg (60 kg side hung)	180 kg	165 kg (110 kg side hung)
Opening types	60°	20°/30°/45°/50°	65° (90°)
Infill thickness [mm]	24 to 46 mm	24 to 46 mm	9 to 48 mm
Approvals based on product standard for window EN 14351-1			
Wind resistance	Class C4	Class C4	Class C4
Air permeability	Class 4	Class 4	Class 4
Water penetration	E 1,800	E 1,800	E 1,500
Airborne sound insulation	Rw = 43 dB	Rw = 43 dB	–
Burglar resistance	RC2	RC2	–
Continuous-operational testing	Class 2	Class 2	–
Thermal insulation	–	–	U_f = 2.7 W/(m²K) up to 3.2 W/(m²K)

* tested with 2° inclination

The NRWG-System

- Efficient natural and smoke ventilation due to wide opening angles of 60° in curtain walls and up to 90° in glass roofs
- WING 50 A and WING 50 SK available in framed and stepped edge structurally bonded options
- Available for self-fabrication or as pre-assembled units
- Top hung / projecting top hung / side hung / bottom hung outward opening options within curtain walls and glass roofs
- Large window formats possible, up to 3.5 m² in the curtain wall and 4 m² in the glass roof
- Range of actuator and motor options for high performance requirements

NRWG — Technical Data according to EN 12101-2 smoke and heat control systems

	WING 50 A Single flap		WING 50 SK Single flap	WING 105 DI Single flap	WING 105 DI Two-fold single flap		
Opening variant	Tilt/Top-hung	Turn	Top-hung projecting	Tilt	Tilt/Top-hung		
Installation situation	–		–	–	Roof/Barrel roof		Saddleback roof
Position	90°	90°	90°	25 to 60°	2 to 15°	16 to 30°	2 to 30°
Max. width [mm]	2,700	1,400	2,700	2,500	2,500 *	2,500 *	2,500 *
Max. height [mm]	2,500	2,400	2,700	2,500	5,000 *	2,500 *	5,000 *
Max. sash surface in m²	3.5	1.89	3.5	4 (inst. position 25-30°) 3.75 (inst. position 30-60°)	4 **	4 **	4 **
Max. A_V in m²	–	–	–	–	7.35 *	5.76 *	7.35 *
Max. sash weight [kg]	150	60	136	165	165 **	165 **	165 **
Max. opening angle	60°	60°	50°	65° (90°)	65° (90°)	65° (90°)	65° (90°)

* Specifications refer to the complete element (two-fold single flap)
** Specifications refer to the wing of the single flap

PHOTO CREDITS

& Project information

Below you will find the reference projects presented in this brochure with detailed information. Further references can be found on ***www.objektiv-online.de/en/.***

P. 1

Bürgenstock Hotel – Obbürgen, CH

BUILDER:
The Bürgenstock Selection, Zug Kawara Hospitality Switzerland AG
ARCHITECT:
Rüssli Architekten AG
FABRICATOR:
Ruch AG
BUILD DATE
2017
RAICO SYSTEM:
THERM+ S-I
PHOTOGRAPHY:
AURA Fotografie

P. 14

University library – Freiburg, DE

BUILDER:
State Baden-Württemberg
ARCHITECT:
Degelo Architekten
FABRICATOR:
Früh Umkirch
BUILD DATE
2013 - 2015
RAICO SYSTEM:
THERM+ S-I, WING 105 DI
PHOTOGRAPHY:
Daniel Vieser

P. 15

Climbing hall – Bruneck, IT

BUILDER:
Autonome Provinz Bozen - Council for building
ARCHITECT:
Stifter + Bachmann
FABRICATOR:
Lanz Metall SRL Schlosserei Fabbro
BUILD DATE
2014 - 2015
RAICO SYSTEM:
THERM+ S-I
PHOTOGRAPHY:
René Riller

Exhibition hall 3A – Nuremberg, DE

BUILDER:
Messe Nuremberg
ARCHITECT:
Zaha Hadid Büro Hamburg
FABRICATOR:
Roschmann Konstruktionen aus Stahl und Glas GmbH
BUILD DATE
2012 - 2013
RAICO SYSTEM:
THERM+ S-I
PHOTOGRAPHY:
Fair Nuremberg / Heiko Stahl

Teamtechnik – Freiberg am Neckar, DE

BUILDER:
Teamtechnik Maschinen und Anlagen GmbH
ARCHITECT:
KMB PLAN I WERK I STADT I GmbH
FABRICATOR:
Freyler Metallbau GmbH
BUILD DATE
2016
RAICO SYSTEM:
THERM+ A-V
PHOTOGRAPHY:
Teamtechnik

Flexhouse – Meilen, CH

BUILDER:
Evolution Design
ARCHITECT:
Stefan Camenzind
FABRICATOR:
Hammer Metallbau
BUILD DATE
2016
RAICO SYSTEM:
THERM+ S-I
PHOTOGRAPHY:
© Peter Würmli

NEST – Dübendorf, CH

BUILDER:
Empa Dübendorf
ARCHITECT:
Fabio Gramazio & Matthias Kohler Architekten ETH SIA BSA
FABRICATOR:
Surber Metallbau AG, Krapf, Ernst Schweizer AG
BUILD DATE
2014
RAICO SYSTEM:
THERM+ S-I, H-I
PHOTOGRAPHY:
Zooey Braun/ Stuttgart

La Seine Musicale – Paris, FR

BUILDER:
Bouygues Construction
ARCHITECT:
Shigeru Ban Architects Europe + Jean de Gastines Architects
FABRICATOR:
MTECH
BUILD DATE
2013 - 2016
RAICO SYSTEM:
THERM+ A-I
PHOTOGRAPHY:
Laurent Blossier

P. 16

Hotel Störes – St. Kassian, IT

FABRICATOR:
METEK
BUILD DATE
2017
RAICO SYSTEM:
THERM+ A-V
PHOTOGRAPHY:
© Florian Andergassen

P. 18

see p. 1

P. 20

Civic centre – Böheimkirchen, AT

BUILDER:
Community Böheimkirchen
ARCHITECT:
NMPB Architekten
FABRICATOR:
Ing. A. Sauritschnig GmbH
BUILD DATE
2017
RAICO SYSTEM:
THERM$^+$ FS-I
PHOTOGRAPHY:
Hertha Hurnaus

P. 22

The GlaxoSmith-Kline Centre for Sustainable Chemistry – Nottingham, UK

BUILDER:
Morgan Sindall
ARCHITECT:
Fairhursts Design Group
FABRICATOR:
Pacegrade Ltd
BUILD DATE
2016
RAICO SYSTEM:
THERM$^+$ H-I
PHOTOGRAPHY:
Martine Hamilton-Knight

P. 24

Shopping centre Fischapark – Vienna, AT

BUILDER:
Fischapark Errichtungsgesellschaft m.b.H.
ARCHITECT:
Fairhursts Design Group
FABRICATOR:
Architektur Consult ZT GmbH
BUILD DATE
2012 - 2015
RAICO SYSTEM:
THERM$^+$ S-I, H-I, FRAME$^+$ 75 WB, WING 105 DI, 50 SK
PHOTOGRAPHY:
RAICO

P. 26

Private house – Schwabmünchen, DE

ARCHITECT:
Oberbeck & Weiher
BUILD DATE
2011
RAICO SYSTEM:
THERM$^+$ H-I Passivhaus
PHOTOGRAPHY:
Oberbeck & Weiher

P. 27

Badewelt – Sinsheim, DE

BUILDER:
Unternehmensgruppe Wund
ARCHITECT:
Architekturbüro Josef Wund
FABRICATOR:
Stahlbau Pichler, Bozen
BUILD DATE
2011-2012
RAICO SYSTEM:
THERM$^+$ S-I, H-I
PHOTOGRAPHY:
Badewelt Sinsheim

P. 28

R&M – Wetzikon, CH

BUILDER:
Reichle & De Massari
ARCHITECT:
Designfunktion AG
FABRICATOR:
Scheidegger Metallbau AG
BUILD DATE
2009
RAICO SYSTEM:
THERM$^+$ S-I
PHOTOGRAPHY:
RAICO Swiss

P. 30

© Depositphotos.com/stokkete

P. 32

Test tower Thyssenkrupp – Rottweil, DE

BUILDER:
Thyssenkrupp
ARCHITECT:
Helmut Jahn & Werner Sobek
FABRICATOR:
Strabag Metallica
BUILD DATE
2017
RAICO SYSTEM:
THERM$^+$ S-I, FRAME$^+$ 75 WI, WING 105 DI
PHOTOGRAPHY:
Qube's Pictures

P. 33

B+B Hotel – Ulm, DE

BUILDER:
Matthäus Schmid, Baltringen
ARCHITECT:
Mühlich, Fink & Partner
FABRICATOR:
Dodel, Ulm
BUILD DATE
2013
RAICO SYSTEM:
FRAME$^+$ 75 WI
PHOTOGRAPHY:
Matthäus Schmid GmbH & Co. KG

Pariser Höfe – Stuttgart, DE

BUILDER:
Bayerische Versorgungskammer
ARCHITECT:
KSP Engel und Zimmermann GmbH
FABRICATOR:
Wölz Siegfried Stahl- und Metallbau GmbH & Co. KG
BUILD DATE
2010-2012
RAICO SYSTEM:
FRAME$^+$ 75 WB
PHOTOGRAPHY:
Reiß & Co. Real Estate Munich GmbH

Lohn AG – Baden-Baden, DE

BUILDER:
lohn-ag.de Verwaltungs-GmbH
ARCHITECT:
Kühnl + Schmidt; Dipl.-Ing. Freie Architekten BDA Karlsruhe
FABRICATOR:
Freyler Metallbau GmbH
BUILD DATE
2013-2014
RAICO SYSTEM:
THERM$^+$ S-I, A-V, FRAME$^+$ 75 WI, DI
PHOTOGRAPHY:
Heinz Heister

MTZ service centre – Örlenbach, DE

BUILDER:
MTZ Metalltechnik Zitzmann GmbH
ARCHITECT:
Rudloff, Wild & Partner Architekten; Diplomingenieure GbR
FABRICATOR:
MTZ Metalltechnik Zitzmann GmbH
BUILD DATE
2013-2014
RAICO SYSTEM:
THERM$^+$ A-V, FRAME$^+$ 75 WB, WING 105 DI
PHOTOGRAPHY:
MTZ service centre

French Consulate – Stuttgart, DE

BUILDER:
Bruchteilsgemeinschaft: Stiftung Institut Français, Stuttgart; Landeshauptstadt Stuttgart, Amt für Liegenschaften und Wohnen
ARCHITECT:
Kyra Bullert and Arthur Hagen, Stuttgart
FABRICATOR:
Trumpf Metallbau
BUILD DATE
2013
RAICO SYSTEM:
FRAME$^+$ 75 WB
PHOTOGRAPHY:
RAICO

BIZZZ – Offenburg, DE

ARCHITECT:
Architekturbüro Müller + Huber
FABRICATOR:
Freyler Metallbau GmbH
BUILD DATE
2013
RAICO SYSTEM:
THERM$^+$ A-V, FRAME$^+$ 75 WI
PHOTOGRAPHY:
Echomar

P. 34

Police Department – Mönchengladbach, DE

BUILDER:
Bau- und Liegenschaftsbetrieb NRW
ARCHITECT:
fps - Funke Popal Storm
FABRICATOR:
Hunsrücker Glasveredelung Wagener
BUILD DATE
2017
RAICO SYSTEM:
FRAME$^+$ 75 WI, 90 WI
PHOTOGRAPHY:
BLB Nordrhein-Westfalen/Arnold Glas

P. 35

Office building – Karlsruhe, DE

FASSADEN-PLANUNG:
Freyler Metallbau GmbH
FABRICATOR:
Freyler Metallbau GmbH
BUILD DATE
2012
RAICO SYSTEM:
THERM+ A-V, FRAME+ 75 WI
PHOTOGRAPHY:
Johannes Hopermann

P. 36

Children's hospital/Mother-child-centre Swabia – Augsburg, DE

BUILDER:
Hospital Augsburg
ARCHITECT:
Ludes Architekten-Ingenieure GmbH
FABRICATOR:
Hackenbuchner Fassadenbau GmbH & Co. KG
BUILD DATE
2014
RAICO SYSTEM:
THERM+ S-I, H-V FRAME+ 75 WI, 75 WB, 75 DI
PHOTOGRAPHY:
Mark Wohlrab

P. 37

Material Arts – Frankfurt, DE

BUILDER:
Material Arts GmbH, Herr Ardi Goldman
ARCHITECT:
hgp. Architekten
BUILD DATE
2012
RAICO SYSTEM:
THERM+ S-I, A-I FRAME+ 75 WB, FF
PHOTOGRAPHY:
hgp. Architekten

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Siemens Headquarter – Forchheim, DE

BUILDER:
Siemens Real Estate GmbH & Co. KG
ARCHITECT:
Henn Architekten
BUILD DATE
2015 - 2016
RAICO SYSTEM:
THERM+ A-I, FRAME+ 75 WB, WA, WING 50SK, 105 DI
PHOTOGRAPHY:
RAICO

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IsarBelle – Munich, DE

BUILDER:
PANDION IsarBelle GmbH & Co. KG
ARCHITECT:
Hierl Architekten, Munich
FABRICATOR:
Alukonstrukt Kft.
BUILD DATE
2011-2014
RAICO SYSTEM:
THERM+ A-I FRAME+ 75 WI
PHOTOGRAPHY:
RAICO

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Civic centre – Gilching, DE

BUILDER:
Community Gilching
ARCHITECT:
mrb Architekten
FABRICATOR:
Hackenbuchner Fassadenbau GmbH & Co. KG
BUILD DATE
2016
RAICO SYSTEM:
THERM+ H-V FRAME+ 75 LF
PHOTOGRAPHY:
RAICO

P. 42

Private house – Mindelheim, DE

BUILDER:
Private
BUILD DATE
2014
RAICO SYSTEM:
FRAME+ 75 LF-WG
PHOTOGRAPHY:
RAICO

P. 43

Secondary school – Fully-Saxon, CH

ARCHITECT:
Architektenbüro Lemanarc, Lausanne
FASSADEN-PLANER:
Préface Sàrl, Le Landeron
FABRICATOR:
Progin Sa Metal, Bulle
BUILD DATE
2015
RAICO SYSTEM:
FRAME+ 90 WI, WB
PHOTOGRAPHY:
Préface Sàrl, Le Landeron

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Hangar 108 - Siège Rouen Métropole – Rouen, FR

BUILDER:
Métropole Rouen Normandie
ARCHITECT:
Jacques Ferrier Architecture
FABRICATOR:
CTI BAT
BUILD DATE
2017
RAICO SYSTEM:
THERM+ H-I, FRAME+ 90 WB
PHOTOGRAPHY:
Luc Boegly

P. 45

West Buckland School – Devon, UK

BUILDER:
Pearce Construction Ltd
ARCHITECT:
MRJ Rundell & Associates
FABRICATOR:
Ridlands Ltd
BUILD DATE
2011
RAICO SYSTEM:
THERM+ H-I
PHOTOGRAPHY:
MRJ Rundell

P. 46

City Cube – Berlin, DE

BUILDER:
Messe Berlin GmbH
ARCHITECT:
Code Unique Architekten GmbH, Dresden
FABRICATOR:
Metallbau Windeck GmbH
BUILD DATE
2014
RAICO SYSTEM:
THERM+ S-I WING 105 DI
PHOTOGRAPHY:
Metallbau Windeck GmbH

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Passive house school – Roodt-sur-Syre, LU

BUILDER:
Commune de Roodt s/Syre
ARCHITECT:
Bureau Marc Dieschbourg
FABRICATOR:
Batichemie, Lang Window
BUILD DATE
2012
RAICO SYSTEM:
THERM+ H-I
PHOTOGRAPHY:
Rainer Rehfeld

P. 50

Primary school – Neubiberg, DE

BUILDER:
Community Neubiberg
ARCHITECT:
Krug & Grossmann Architekten, Munich
Fabricator: Pazdera GmbH, Metallbautechnik
BUILD DATE
2007-2008
RAICO SYSTEM:
THERM+ H-I
PHOTOGRAPHY:
Peter Franck

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Private house

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Furniture Store Finke – Hamm-Rhynern, DE

BUILDER:
finke - Das Erlebnis-Einrichten GmbH & Co. KG
ARCHITECT:
Blocher Blocher Partners
FABRICATOR:
Freyler Metallbau GmbH
BUILD DATE
2015
RAICO SYSTEM:
THERM+ S-I, A-I, A-V, FRAME+ 75 DI
PHOTOGRAPHY:
BREMER AG

medXpert – Eschbach, DE

BUILDER:
Claudia Reisberg, Eschbach
ARCHITECT:
a plus Architekten, Kirchzarten
FABRICATOR:
Freyler Metallbau GmbH, Kenzingen
BUILD DATE
2011-2012
RAICO SYSTEM:
THERM^{+} A-I FRAME^{+} 75 WI, DI
PHOTOGRAPHY:
Johannes Hopermann

Umweltarena – Spreitenbach, CH

BUILDER:
W. Schmid AG, Glattbrugg
ARCHITECT:
rené schmid architekten ag, Zürich
BUILD DATE
2012
RAICO SYSTEM:
THERM^{+} S-I FRAME^{+} 75 WI
PHOTOGRAPHY:
Bruno Helbling

PARC / Peninsula Aquatic Recreation Centre – Frankston, AUS

BUILDER:
Frankston City Council
ARCHITECT:
Williams Ross Architects
Fassadenplaner: LAROS Technologies Pty Ltd., Canberra
FABRICATOR:
Mercury Industry Pty Ltd. (über Laros)
BUILD DATE
2012-2014
RAICO SYSTEM:
THERM^{+} A-I FRAME^{+} 75 DI
PHOTOGRAPHY:
RAICO

Private house

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Lohn AG – Baden-Baden, DE

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© Fotolia

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Landessparkasse – Oldenburg, DE

BUILDER:
Landessparkasse zu Oldenburg
ARCHITECT:
RKW Architekturbüro Rhode, Kellermann, Wawrowsky
FABRICATOR:
Roschmann Konstruktionen aus Stahl und Glas GmbH, Oltmanns Metallbau GmbH
BUILD DATE
2007-2009
RAICO SYSTEM:
THERM^{+} S-I, A-I WING 105 DI, WING 50 A-S
PHOTOGRAPHY:
Roschmann Konstruktionen aus Stahl und Glas GmbH

Th. Willy car centre – Bern, CH

BUILDER:
Th. Willy AG Auto-Zentrum, Schlieren
FABRICATOR:
Scheidegger Metallbau AG
BUILD DATE
2011
RAICO SYSTEM:
THERM^{+} A-I WING 105 DI
PHOTOGRAPHY:
RAICO

OZEANEUM – STRALSUND, DE

BUILDER:
Stiftung Deutsches Meeresmuseum, Stralsund
ARCHITECT:
Behnisch Architekten, Stuttgart
FASSADEN-PLANER:
EURO-Fassadentechnik GmbH, Bad Hersfeld
FABRICATOR:
Trube & Kings Fassadentechnik GmbH
BUILD DATE
2005-2008
RAICO SYSTEM:
THERM^{+} S-I WING 105 DI
PHOTOGRAPHY:
Johannes-Maria Schlorke

SchattDecor AG – Thansau, DE

BUILDER:
Schattdecor AG, Thansau
ARCHITECT:
Bernd Obersteiner, Munich
FABRICATOR:
Thierron Fassadensysteme GmbH,
BUILD DATE
2007
RAICO SYSTEM:
THERM^{+} S-I WING 105 DI, 50 SK-S
PHOTOGRAPHY:
RAICO

Swinhay – Gloucestershire, UK

BUILDER:
Privat
ARCHITECT:
Roberts Limbrick Architects
FABRICATOR:
MERO-Schmidlin (UK) plc
BUILD DATE
2006
RAICO SYSTEM:
THERM^{+} S-I
PHOTOGRAPHY:
Roberts Limbrick Architects

Office building – Bad Sankt Leonhard, AT

BUILDER:
Geislinger GmbH
ARCHITECT:
Atelier Volkmar Burgstaller ZT GmbH, Salzburg
FASSADEN-PLANER:
face of buildings planning stimakovits GmbH
FABRICATOR:
SFL Technologies GmbH, Stallhofen
BUILD DATE
2016
RAICO SYSTEM:
THERM^{+} S-I, H-I
PHOTOGRAPHY:
RAICO

Energie-forum – Berlin, DE

BUILDER:
HPE Hanseatica Property GmbH
ARCHITECT:
Neubau: BRT Architekten LLP, Hamburg
Altbau: Jentsch Architekten, Berlin
BUILD DATE
2003
RAICO SYSTEM:
THERM^{+} S-I
PHOTOGRAPHY:
Rainer Rehfeld

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Dorotheen-quartier – Stuttgart, DE

BUILDER:
DOQU
ARCHITECT:
Behnisch Architectes
FASSADEN-PLANUNG:
PBI Planungsbüro, Wertingen
FABRICATOR:
Roschmann GmbH
RAICO SYSTEM:
THERM^{+} S-I, WING 50 A
PHOTOGRAPHY:
Breuninger/Thomas Niedermüller

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Centre Point – London, UK

BUILDER:
Almacantar
ARCHITECT:
Conrad and P artners
FABRICATOR:
Lindner Fassaden GmbH
BUILD DATE
2017
RAICO SYSTEM:
THERM^{+} A-V, WING 50 SK
PHOTOGRAPHY:
RAICO

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Höfe am Brühl – Leipzig, DE

BUILDER:
mfi management für immobilien AG
ARCHITECT:
Grüntuch Ernst Architekten, Berlin
FABRICATOR:
Roschmann Stahl und Glas GmbH
BUILD DATE
2011-2012
RAICO SYSTEM:
WING 105 DI
PHOTOGRAPHY:
D+H Mechatronic AG

WHO IS ACTUALLY BEHIND OUR FAÇADE?

Architects and planners appreciate the versatility and reliability of the RAICO solutions. Innovative facade, window and door systems that turn functional building envelopes into sophisticated architecture.

Like these systems, the RAICO Team is also made up of many perfectly coordinated components. First and foremost – motivated, dedicated staff. Add to this extra-ordinary team spirit and cohesion, plus knowledge and experience.

The different characters and talents give RAICO its unique profile – and enable our solutions to give an individual face to buildings all over the world.

*Find out more about working at RAICO at the **Career Portal** on our homepage!*

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