

SBS India Profile Booklet: Architectural Aluminium Solutions

sapa:



Amit Bhadu
Jan 2017

You meet our products every day



At home

- Windows & doors
- Furniture
- Electronics
- Greenhouses



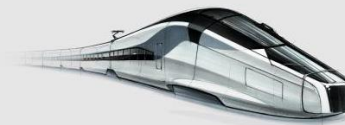
In your car

- Interior
- Exterior
- Chassis
- E-mobility



At the office

- Facades
- Windows
- Walls
- Electronics



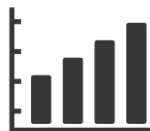
When travelling

- Train and subway sides
- Flooring
- Handrails
- Luggage compartments

Now meet Sapa



22,800 people



Net sales NOK
55 billion



1.3 million tonnes
delivered



More than
100 locations



Present in more
than 40 countries



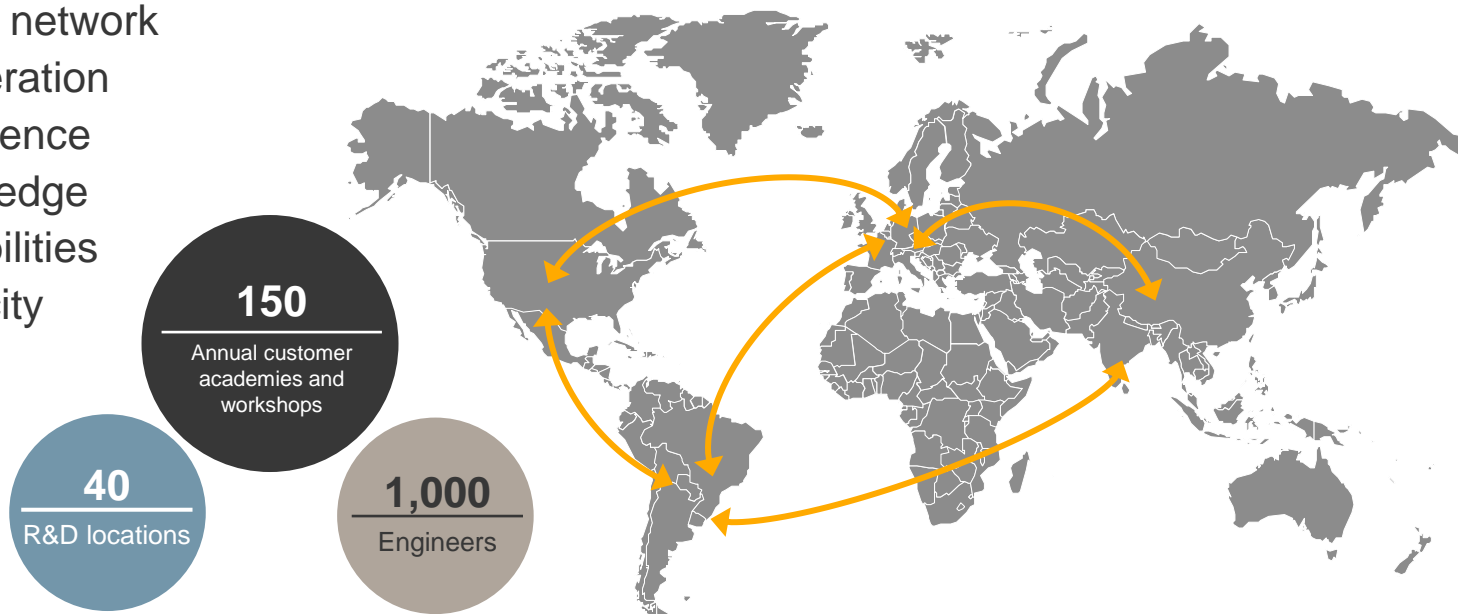
50% of production based
on recycled aluminium

The world is changing – Sapa is part of the solution



We are aluminium

- A strong network
 - Cooperation
 - Experience
 - Knowledge
 - Capabilities
 - Capacity



A story of entrepreneurship

Vetlanda, Sweden
Karmøy, Norway

Europe

North and South
America

Asia



1963

1970s

1980-2000

2000s

The world has changed and so have we

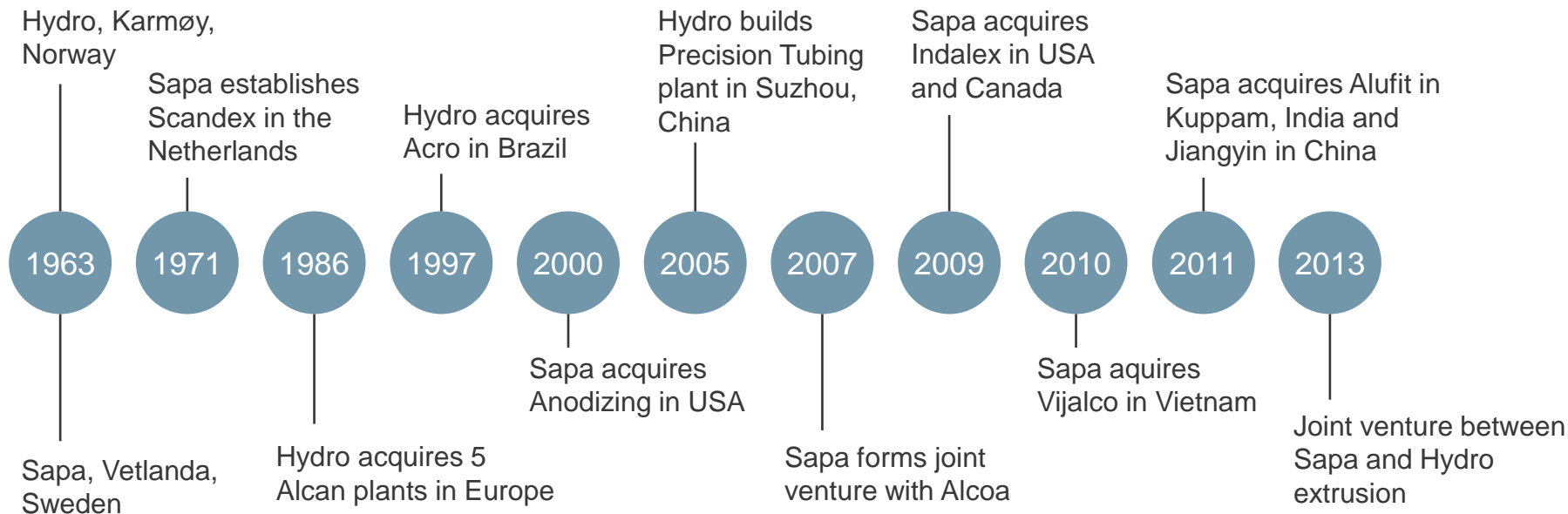
Vetlanda, Sweden
1963



Toulouse, France
2016

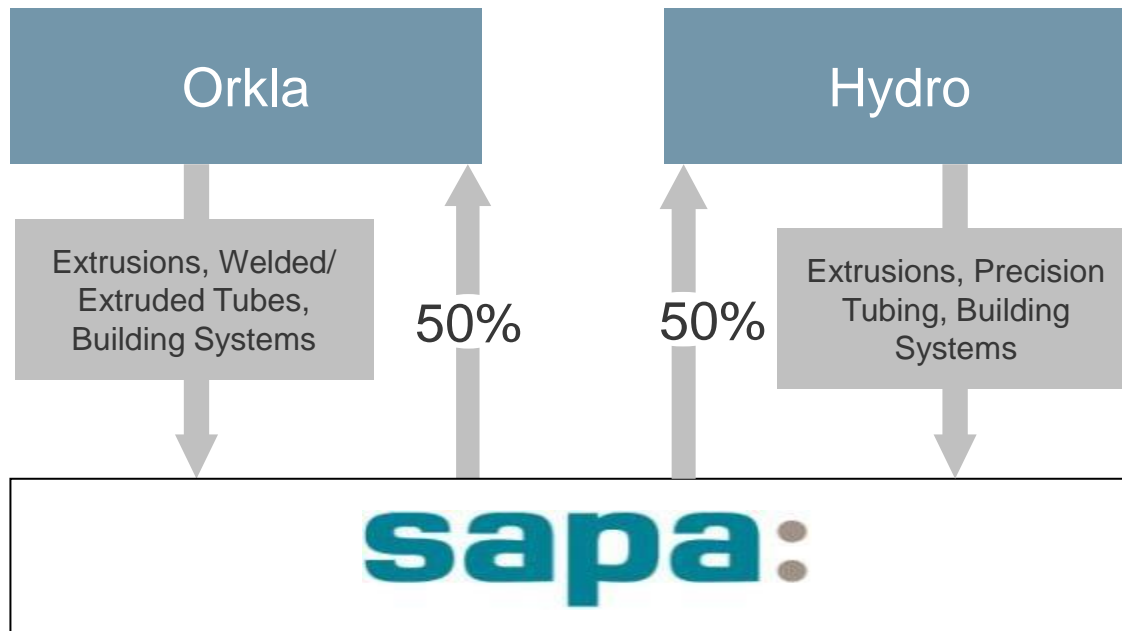


A story of structural growth

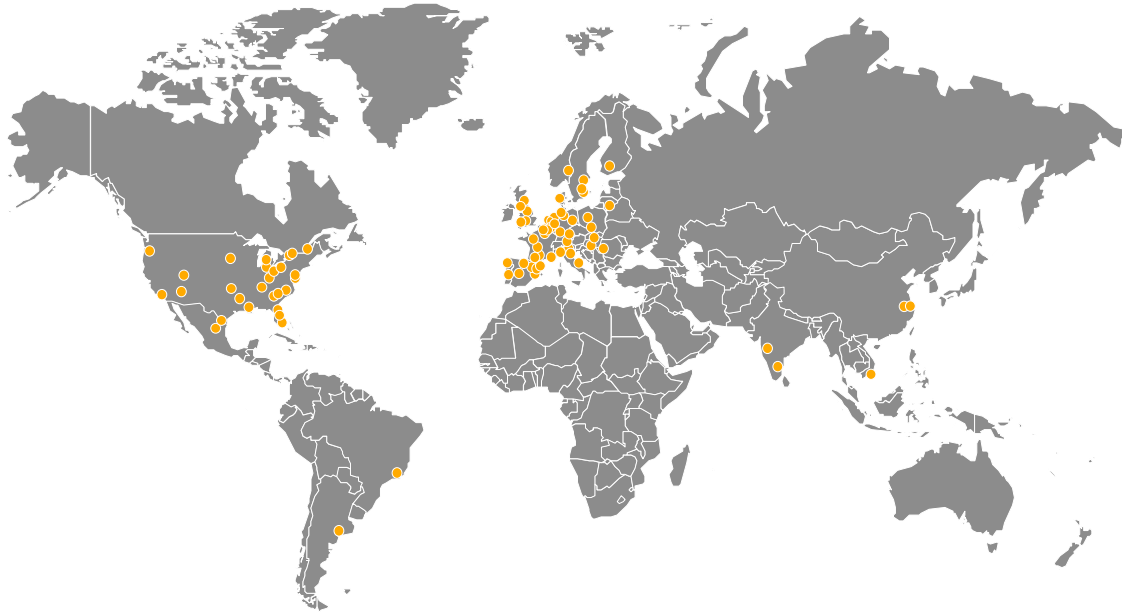


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The JV is 50:50 owned by Orkla/Hydro



We are present across the globe



Our three core areas

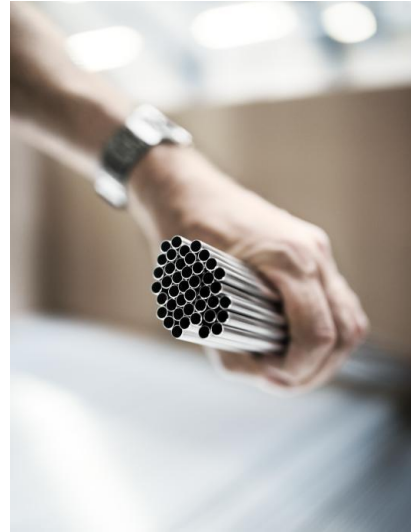
Extrusion



Building Systems



Precision Tubing



Extrusion

Europe



10,000 people



Sales: NOK 18.5 billion



40 locations



Market share

North America



6,500 people



Sales: NOK 22.6 billion



23 plants



Market share



sapa:



Building Systems

About the business area



2,900 people



Sales: NOK 7.1 billion



Employees in 29 countries



Market share

Global brands



WICONA®

sapa:
buildingsystem
ARCHITECTURAL ALUMINIUM SOLUTIONS



Our values are the foundation



Customer first



Trustworthy



Entrepreneurship



One company



Accountability

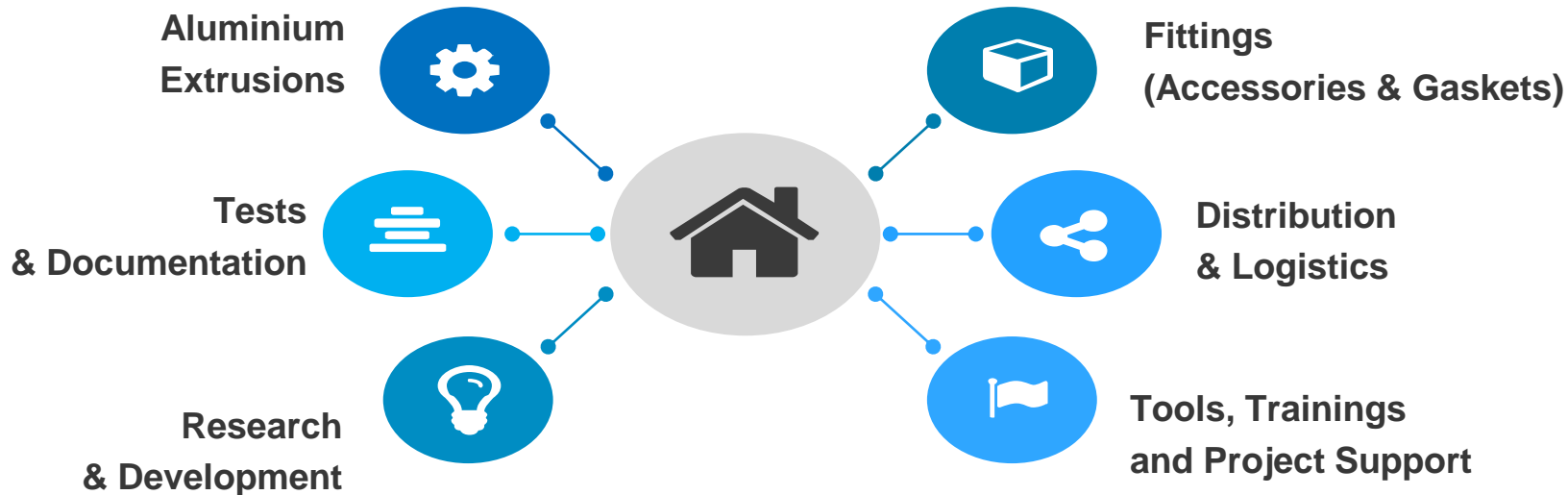
sapa:



We are Sapa Building System- India

- ☐ More than 20 Years of presence in India
- ☐ Headquarter in Bangalore
- ☐ Presence in Delhi, Mumbai, Kolkata
- ☐ Exclusively dedicated to TECHNAL® brand

Understand building systems:



Pre-determined & Guaranteed Performances

TECHNAL® - A Brand driven by Innovation

- ❑ TECHNAL® products are designed, tested and distributed as Full System
- ❑ Only original top quality components tested under strict standards are used in TECHNAL® products
- ❑ Emphasize on aesthetic design and maintenance free.
- ❑ A full dedicated team of specialists constantly working on up-grading and developing the products to meet the stringent requirement of the different business related standards and architect's innovative design
- ❑ TECHNAL® liability and Warranty
- ❑ Working with selected quality oriented and loyal fabricator's network
- ❑ Dedicated highly qualified technical team based in Bangalore to provide technical assistance and support to the customers' network



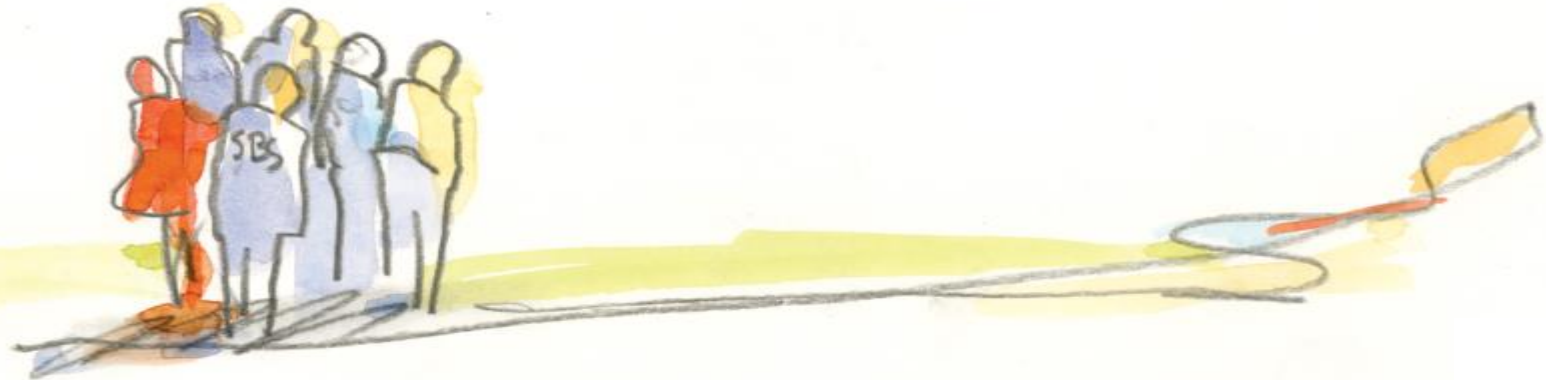
sapa:

Design efficient solutions



TECHNAL®

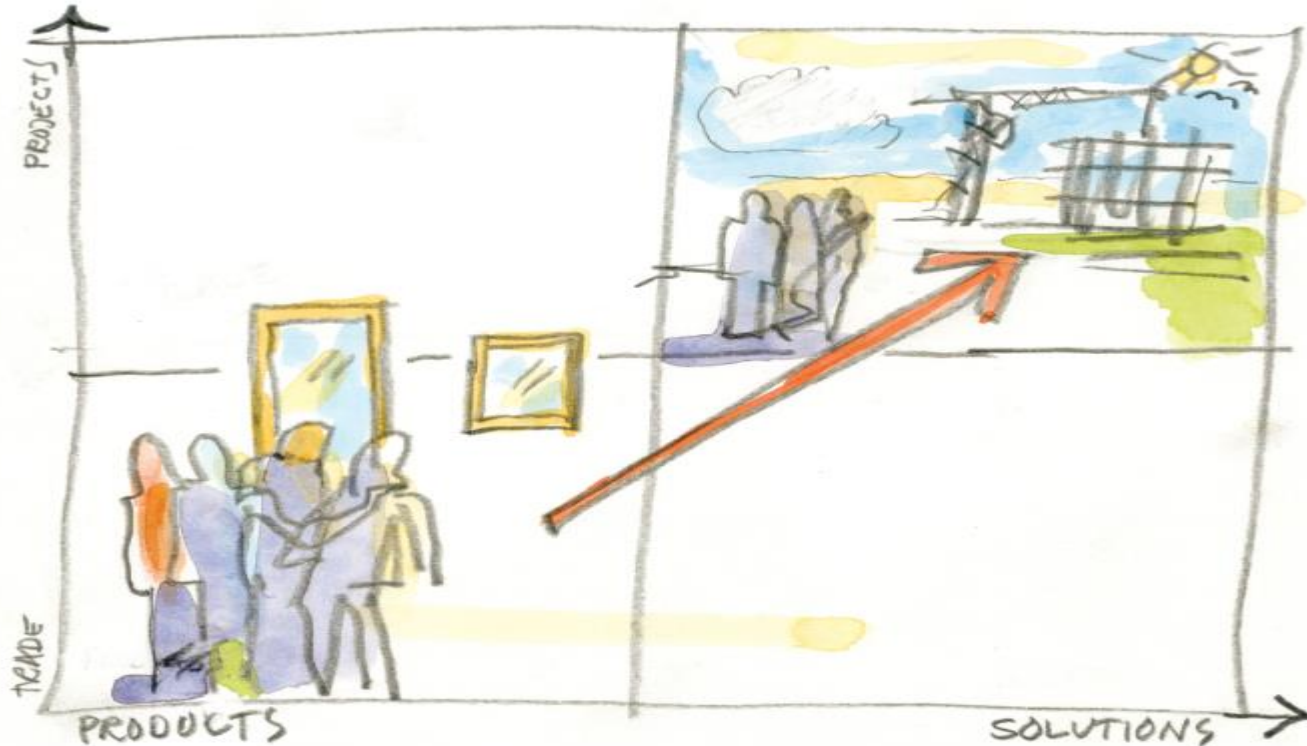
WE HELP YOU TO
DESIGN GOOD
ARCHITECTURE !



sapa:

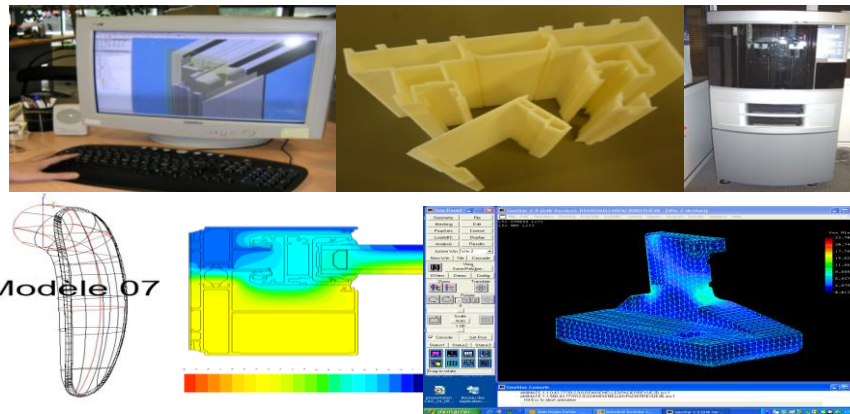
Products part of the solution

Curtain walling, windows, doors, solar shading, glazed roof, BIPV...



A customized solution and project guidance

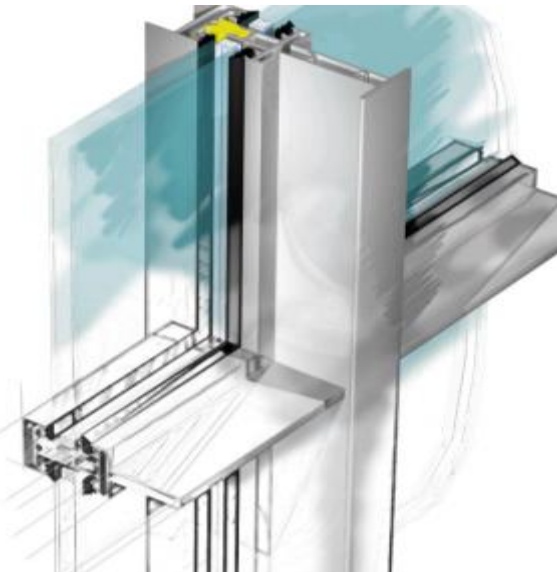
- ❑ The design and technical support teams are based on site so that they can work closely with architects and fabricators to produce high quality installations for all types of buildings, and also develop unique profiles.
- ❑ Technal has the resources to fulfil the requirements of each and every project through tailor-made designs: for specific applications, performance enhancements and innovations.
- ❑ Support for architects:
 - ✓ Engineering service
 - ✓ Structural and thermal calculations
 - ✓ Costing
 - ✓ CAD
 - ✓ Weather resistance tests in our ITC test centre



sapa:

Project Specification

Active specification work with architects, investors, general contractors...
System / Profile choice, calculations, constructional solutions and adaptation



A comprehensive range of software developed for aluminium professionals

- ❑ This software is supplied ready to use and with a comprehensive database of products from the TECHNAL range.
- ❑ Tech3D Façade: 3D modelling.
- ❑ TechDesign: quotes, joinery output, orders for suppliers, manufacturing records.
In order to build faster and better, we must modify our methods and move from sequential to collaborative work flows.
- ❑ Through digital 3D modelling, or BIM, which has gradually taken root in the world of building, in anticipation of regulations, TECHNAL offers TECH3D, an exclusive BIM software dedicated to specifiers.



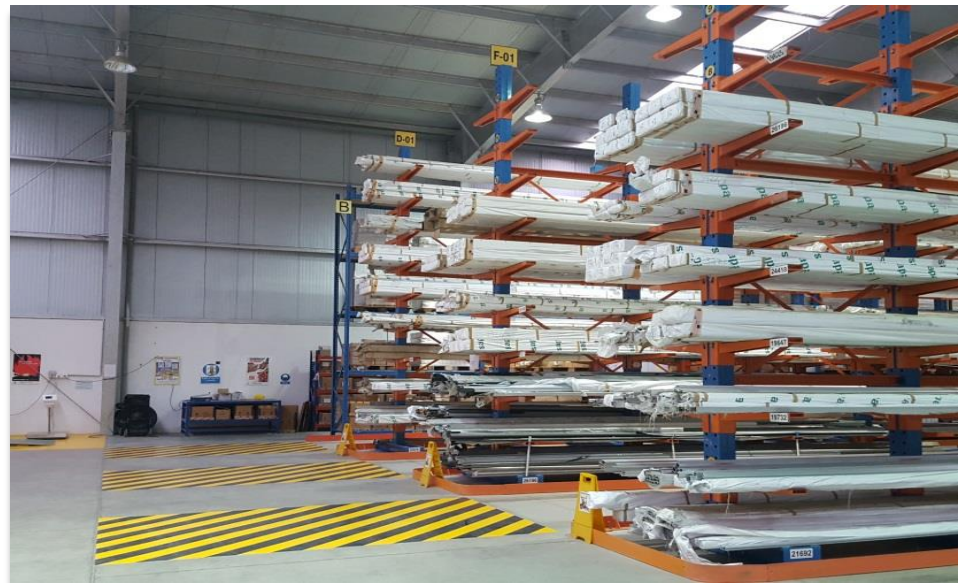
A high quality training centre

- ❑ Our training centre has built its strategy and training programmes on a strong conviction: the success of any business depends on the ability of its staff to adapt to change (technical, regulatory, IT, etc.), to increase its productivity and to constantly improve the quality of the services offered to its clients.
- ❑ The training programme offered by TECHNAL is based on a constant and comprehensive assessment of clients' needs and expectations.
- ❑ It has been developed by professionals for professionals and is fully operational.



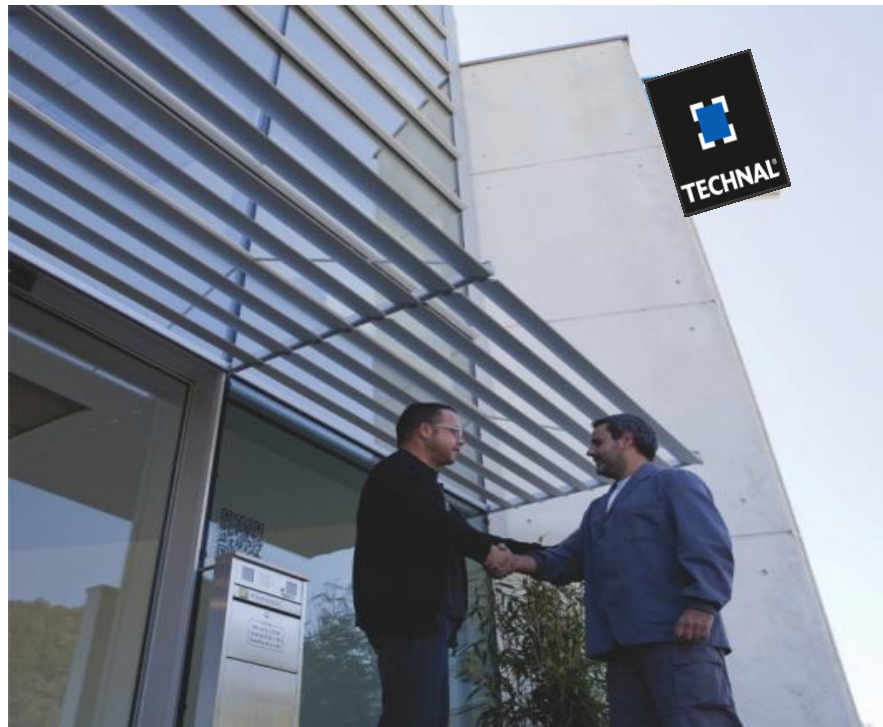
High- level industrial and logistics services across production sites from extrusion to distribution

- ❑ Located in Bangalore- *Within three (3) days reach by truck to most of the destinations in the India*
- ❑ Sapa Extrusion Kupam (2 hrs from SBS India HQ)- *uninterrupted supply of profiles guaranteed regardless of order volume.*
- ❑ Storage Area about 1593 Sq. Meters
- ❑ Inventory about INR 6,44,18,066.91
- ❑ 1060 different articles in Stock
- ❑ Profiles 49,935 Kgs
- ❑ Only Accessories value INR - 5,19,22,808.70.



SBS India : Approved Fabricators Network.

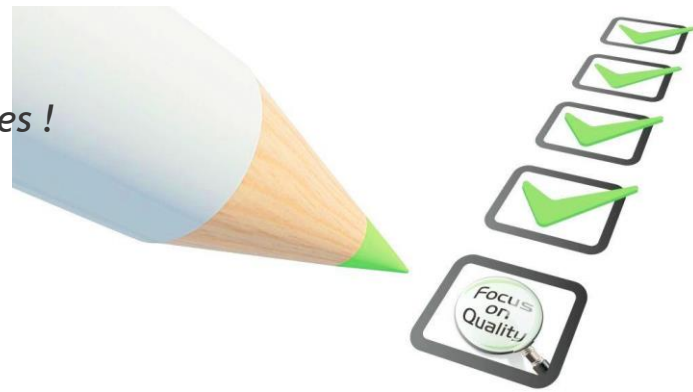
- ❑ Well organized and well-equipped facilities.
- ❑ Loyal to TECHNAL® .
- ❑ Sound & well-equipped engineering office.
- ❑ Full professional teams that can master the works at sites in compliance with the level of quality required by Technal.
- ❑ Use the TECHNAL® quotations software, and fabrication tools.



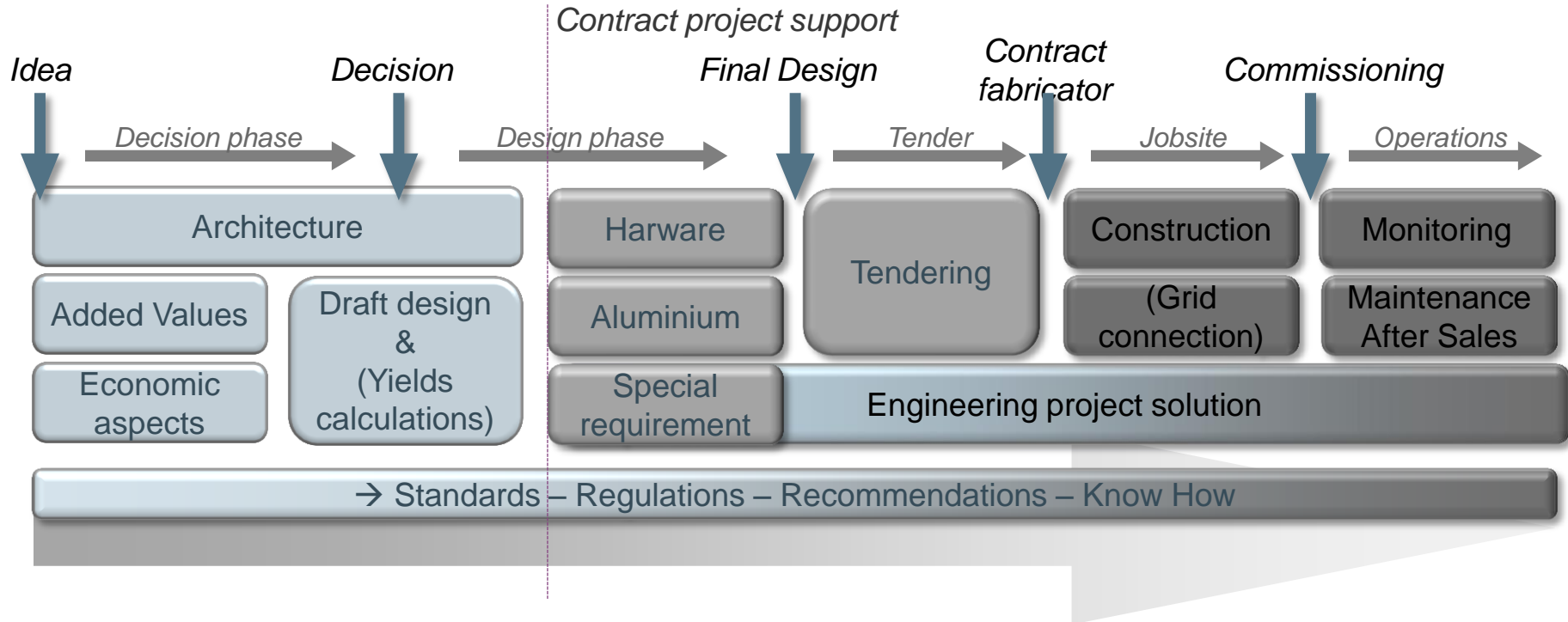
TECHNAL[®] Assurance

- ☐ Review Shop drawings.
- ☐ Provide / verify calculations (structural, thermal etc....).
- ☐ Train the metal builders for proper fabrication.
- ☐ Ensure deliveries are on-time to suit project schedule and constrains.
- ☐ Inspect the workmanship of our metal builders to ensure fabrication is done according to Technal specifications.
- ☐ Visit job sites to ensure installation works are carried out properly to Technal standards.

To Guarantee the system & its performances !



Project - From Ideas to Operations



sapa: Complete Building Envelope Solutions



Window systems



Door systems



Sliding systems



Facade systems



Sun shading systems



Guardrails



Fire protection systems



Bullet & Blast Proof Systems



Internal Partitions Systems



Exclusive Colours



TECHNAL®

SLIDING SYSTEMS

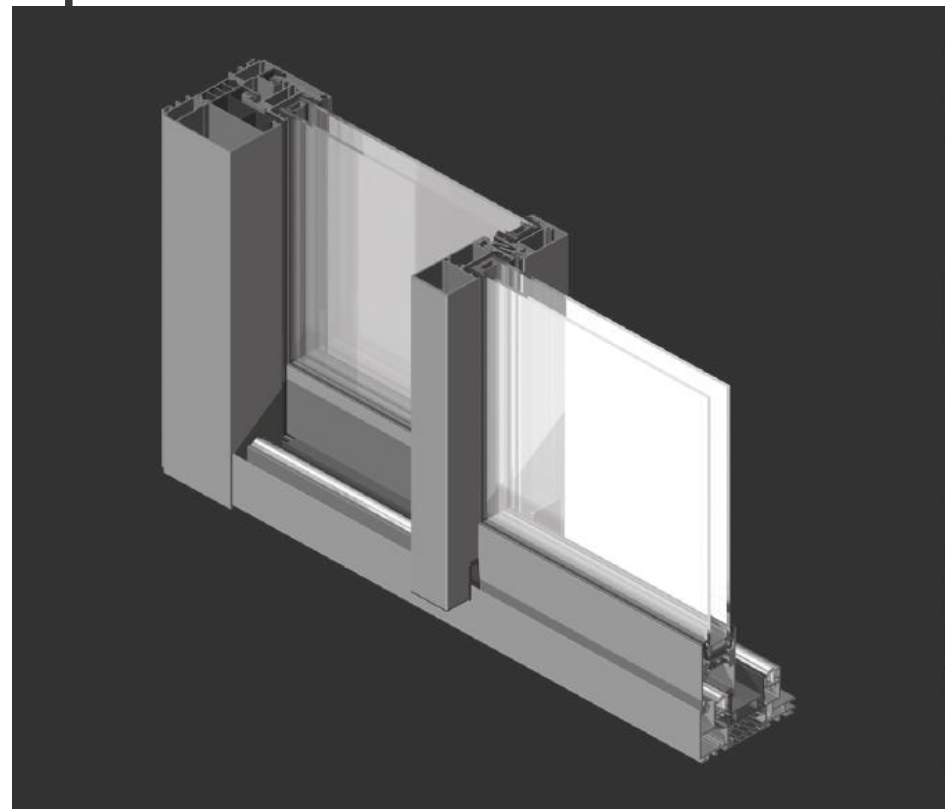
LUMEAL · GALENE · SOLEAL · TOPAZE · DOMAL 40



LUMEAL, the minimal sliding system with a concealed opening frame: where design meets performance

□ PRODUCT BENEFITS

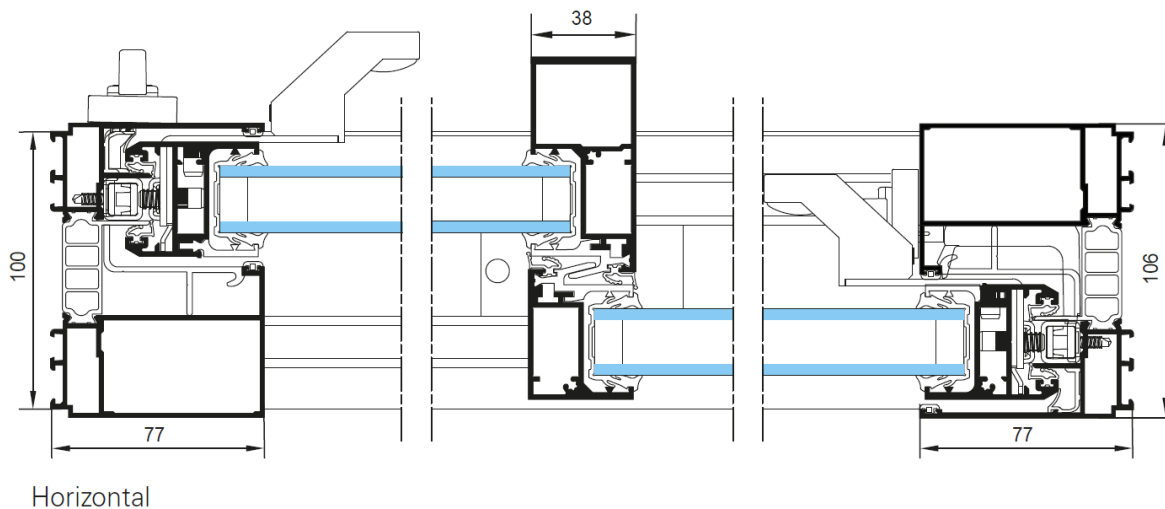
- ✓ Discreet aluminium frame with a visible 38 mm and 77 mm central aluminium stile
- ✓ Large sizes up to W 5.30 m x H 2.70 m available for 2-leaf patio doors
- ✓ Concealed drainage in all configurations
- ✓ Threshold adapted for disabled persons
- ✓ Enhanced security: RC3 resistance class according to European standard EN 1627-30
- ✓ Motorisation (optional)



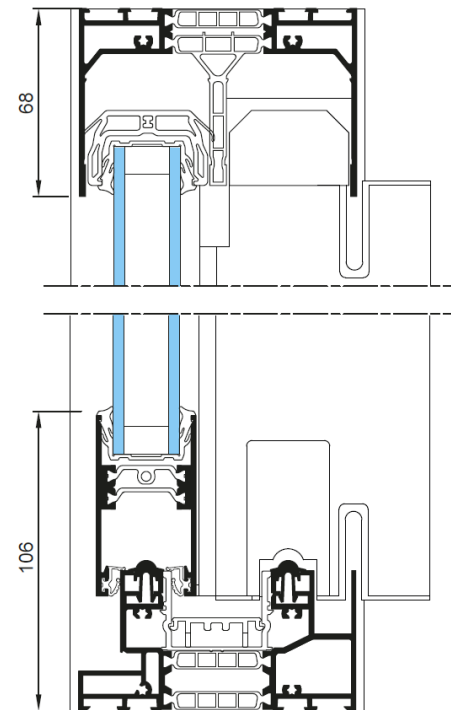
sapa:



Lumeal: Cross sections










Vertical



sapa:

Lumeal: Performance



	MAXIMUM DIMENSIONS	Up to W 5.30 m x H 2.70 m. 2-leaf patio door on 2 tracks
	MAXIMUM WEIGHT PER LEAF	Up to 300 kg
	THERMAL	$U_w = 1.2 \text{ W/m}^2\cdot\text{K}$ and $S_w = 0.46$ $T_{Lw} = 0.65$ Double glazing with $U_g = 1.0 \text{ W/m}^2\cdot\text{K}$ + insulating crossbar (W 4.50 m x H 2.70 m)
	ACOUSTIC	-35 dB (R_a, T_r) Patio-door with 2 tracks - 1 leaf + 1 fixed light (W 2.8 m x H 2.2 m)
	WEATHER PERFORMANCE	A ₄ - E _{7A} -V _{B3} * Patio door with 1 leaf + 1 fixed light (W 3 m x H 2.50 m)
	ACCESSIBILITY	Disabled access threshold
	SECURITY	Class 3 break-in resistance classification according to the European standard EN 1627-30

Test results according to product standard NF 270-1

*(A = Air, E = Water, V = Wind)

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Lumeal: Handles



Thumb pull
handle



Minimal design
pull handle



Minimal design
handle, central
opening
4-leaf



Inclined
handle



Inclined handle,
central service
opening frame



Straight handle
for service
opening frames



Locking button

Also available:

- External handle with key lock



Architects: Dank Architectes Photography: DR Technal

sapa:

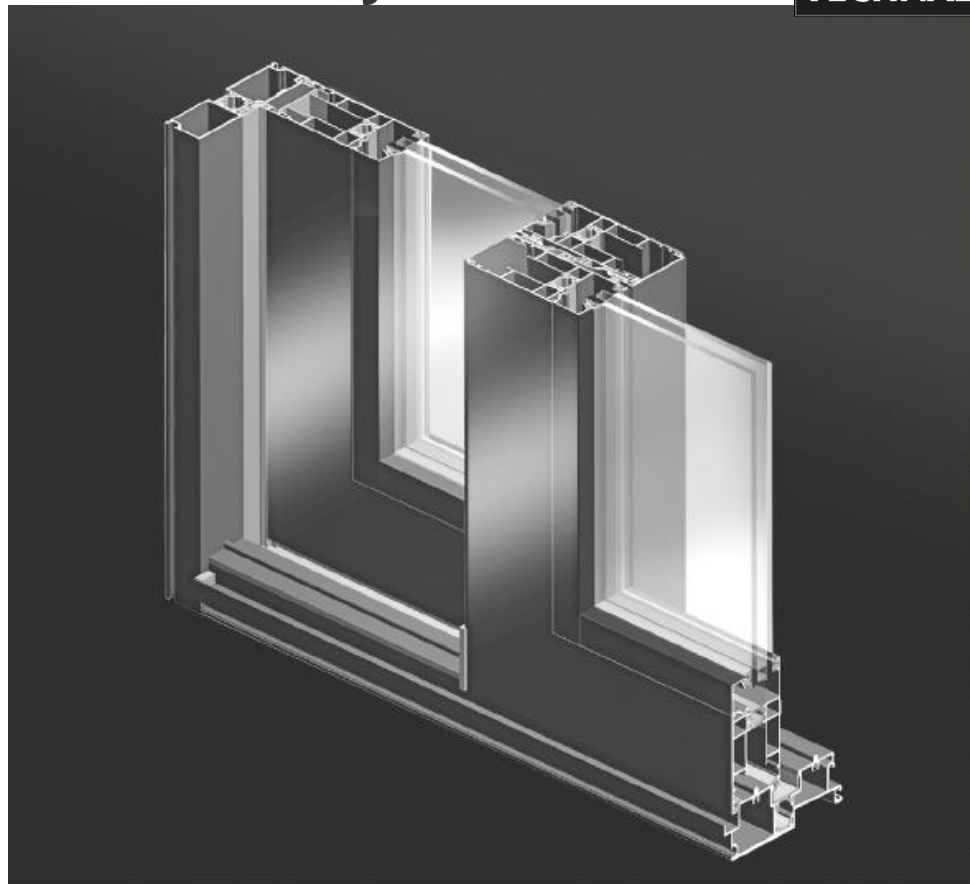
GALENE, the panoramic lift-and-slide system



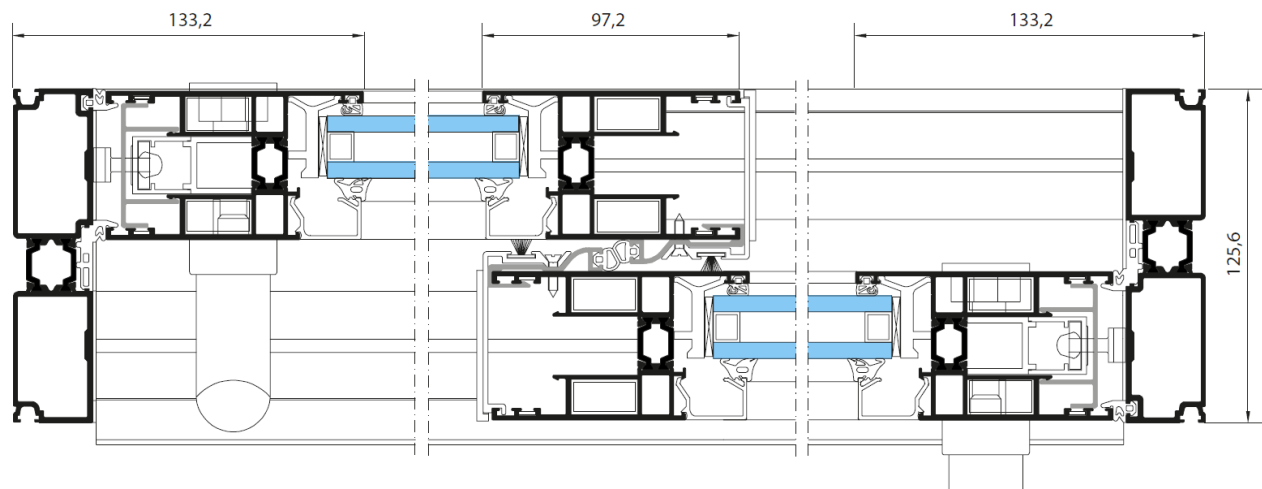
TECHNAL®

□ PRODUCT BENEFITS

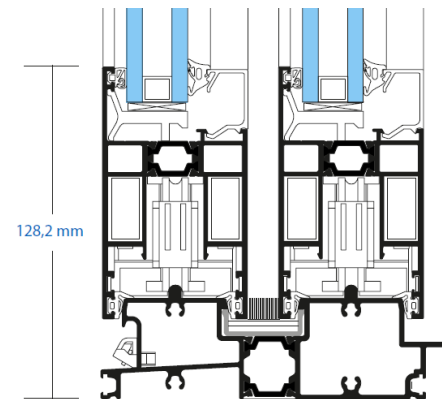
- ✓ Lift-and-slide system with a 126 mm module
- ✓ Available with or without a thermal break
- ✓ Various configurations possible to meet the requirements of even the most ambitious architectural projects (including 90° angle sliding frames).
- ✓ Large sizes up to W x H = 6.5 m x 2.5 m available for the 2-leaf frame
- ✓ 2-, 3- or 4-point locking systems activated by a special handle (single or double)
- ✓ Possibility of glazing with an integrated blind for solar protection



GALENE: Cross sections







Horizontal cross-section, 2 tracks, 2 leaves



Vertical cross-section, 2 tracks

GALENE: Performance

	MAXIMUM DIMENSIONS	Up to W 6.50 m x H 2.50 m. 3-leaf patio door on 3 tracks
	MAXIMUM WEIGHT PER LEAF	Up to 300 kg
	THERMAL	$U_w = 1.6 \text{ W/m}^2 \cdot \text{K}$ With $U_g = 1.0 \text{ W/m}^2 \cdot \text{K}$ + insulating crossbar
	WEATHER PERFORMANCE	$A_4 E_7 V_{C5}^*$ 2-leaf patio door on 2 tracks (W 3 m x H 2.20 m)

*(A = Air, E = Water, V = Wind)

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GALENE: Handles



- Straight
designed handle

Also available:

- Finger grip handle
- Grip pull handle
- Lift thumb pull handle
- Fire access opening frames
- External handle with key lock



Long lift-and-slide handle

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Architect: Mora, Sant Vicens Arquitectes Associats Photographer: Lluís Casals

SOLEAL 55, the universal sliding system suitable for all your large-scale projects

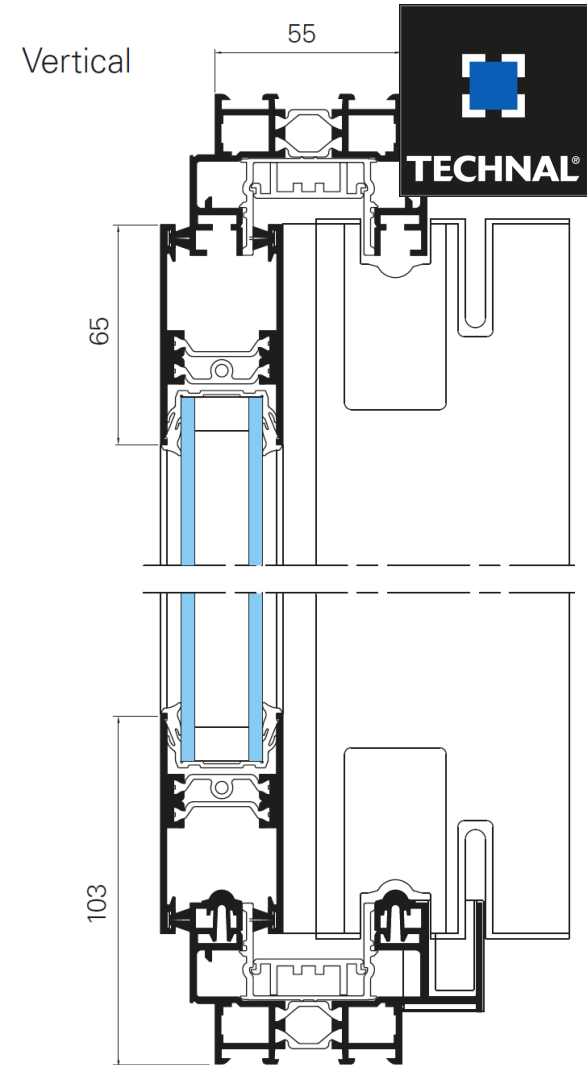
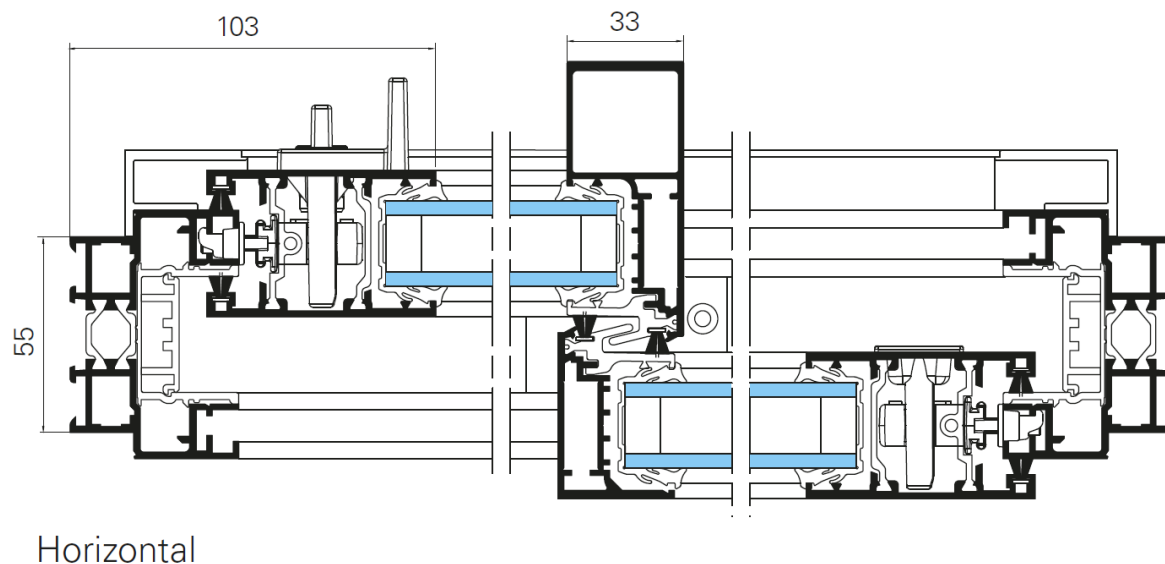
□ PRODUCT BENEFITS

- ✓ Many different configurations to meet the requirements of residential and tertiary sector projects
- ✓ Multipoint locking system (from 1 to 4 points) with a key lock option
- ✓ Tubular or blade-shaped reinforcer with optional decorative elements
- ✓ Concealed drainage in all configurations
- ✓ Accessibility solutions in accordance with legislation on access for disabled persons for all configurations



sapa:

SOLEAL 55: Cross sections



SOLEAL 55: Performance

	MAXIMUM DIMENSIONS	Up to W 4.30 m x H 2 .60 m. 2-leaf patio door on 2 tracks
	MAXIMUM WEIGHT PER LEAF	Up to 200 kg
	THERMAL	Up to 1.4 W/m ² .K, Sw: 0.45 and TLw: 0.59 Double glazing with Ug = 1.0 W/m ² .K + insulating crossbar (W 4.30 m x 2.60 m)
	ACOUSTIC	-35 dB (Ra, Tr) Patio door with 2 tracks - 2 leaves (W 1.85 m x H 1.48 m)
	WEATHER PERFORMANCE	A ₄ - E _{6A} -V _{B2} * Patio door with 2 tracks - 2 leaves (W 3 m x H 2.50 m)
	ACCESSIBILITY	Disabled access threshold

Test results according to product standard NF 270-1

*(A = Air, E = Water, V = Wind)



TECHNAL®

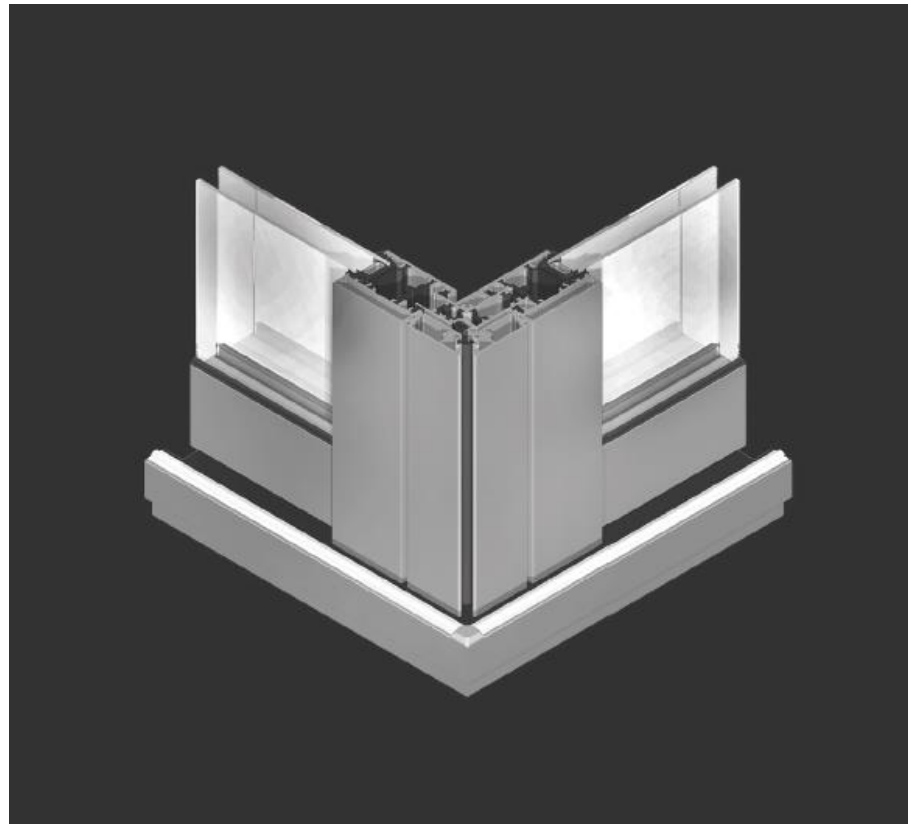


Architects: Lacaton & Vassal Photography: DRTechnal

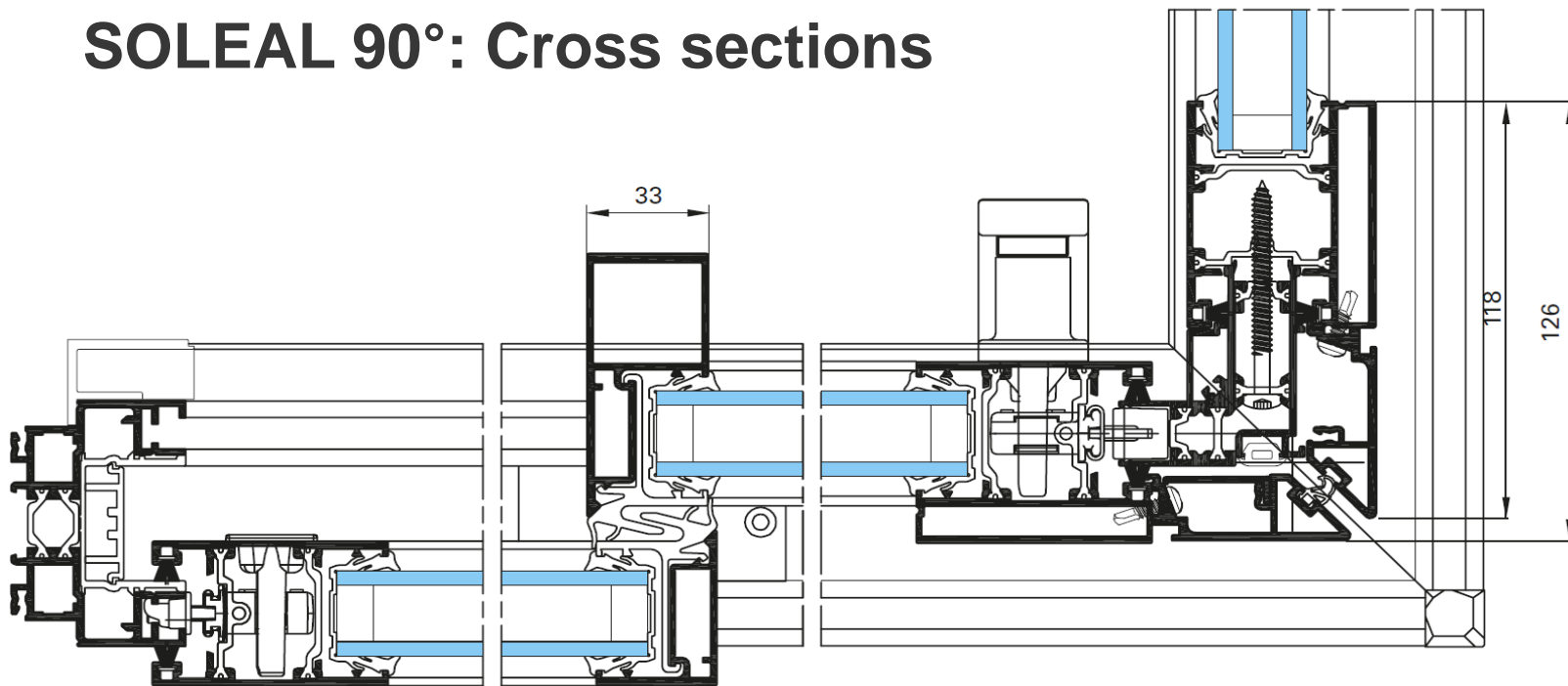
SOLEAL, the 90° corner sliding system for large contemporary openings

❑ PRODUCT BENEFITS

- ✓ Basic configurations from 2 to 4 tracks and full-access up to 3 tracks
- ✓ Opening with a concave or convex angle
- ✓ Large sizes available up to W 6 m x H 2.50 m per side, on 3 tracks
- ✓ Discreet corner post
- ✓ Concealed drainage in all configurations
- ✓ Accessibility solutions in accordance with legislation on access for disabled persons available for all configurations



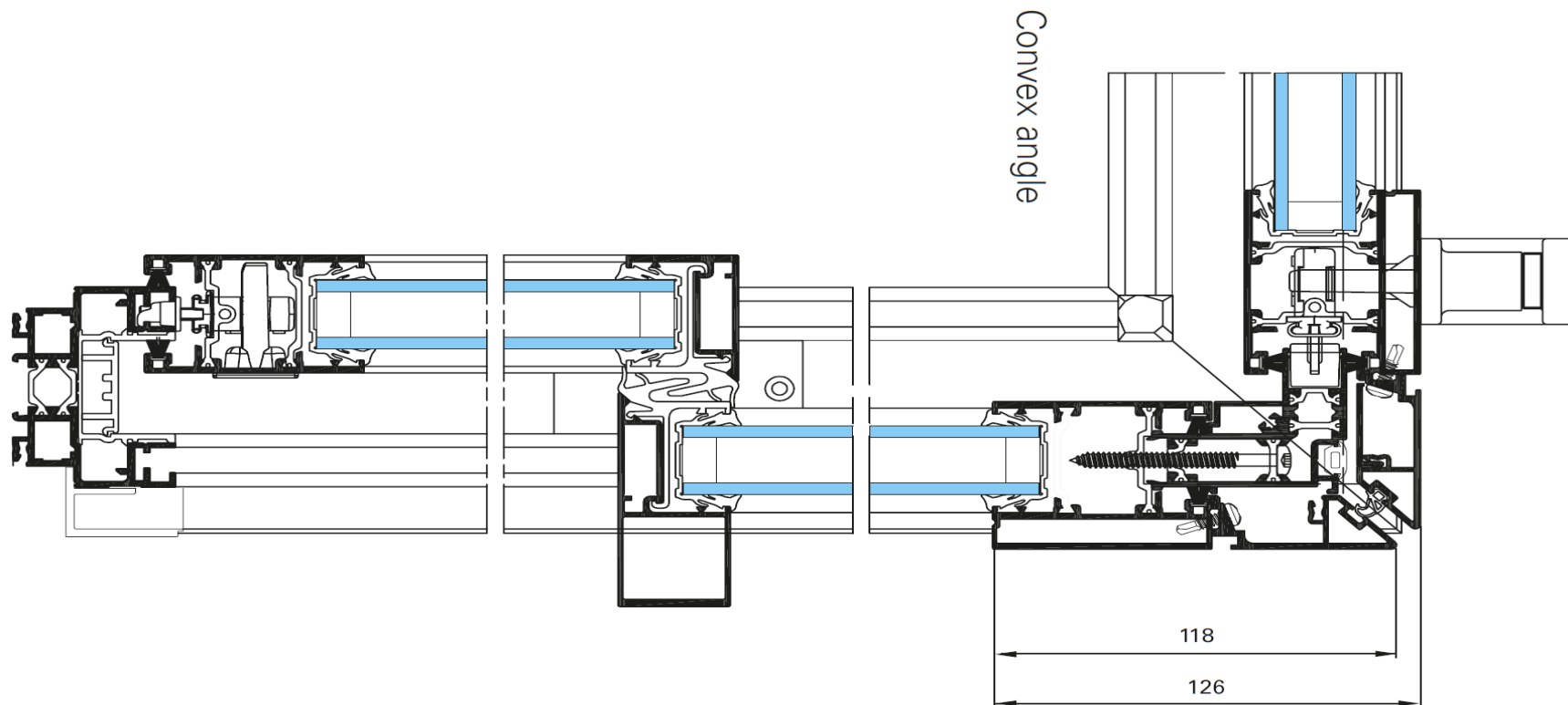
SOLEAL 90°: Cross sections



Concave angle

sapa:

SOLEAL 90°: Cross sections



SOLEAL 90°: Performance

	MAXIMUM DIMENSIONS	Up to W 4.30 m x H 2 .60 m. 2-leaf patio door on 2 tracks
	MAXIMUM WEIGHT PER LEAF	Up to 200 kg
	THERMAL	Up to 1.4 W/m ² .K, Sw: 0.45 and TLw: 0.59 Double glazing with Ug = 1.0 W/m ² .K + insulating crossbar (W 4.30 m x 2.60 m)
	ACOUSTIC	-35 dB (Ra, Tr) Patio door with 2 tracks - 2 leaves (W 1.85 m x H 1.48 m)
	WEATHER PERFORMANCE	A ₄ - E _{6A} -V _{B2} * Patio door with 2 tracks - 2 leaves (W 3 m x H 2.50 m)
	ACCESSIBILITY	Disabled access threshold

Test results according to product standard NF 270-1

*(A = Air, E = Water, V = Wind)

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SOLEAL: Handles



Designed handle
TECHNAL



Stainless
steel handle



Long
stainless
steel handle



Locking
button



Service opening
frame handle



TECHNAL exclusive
semi-fixed thumb
pull handle



TECHNAL®

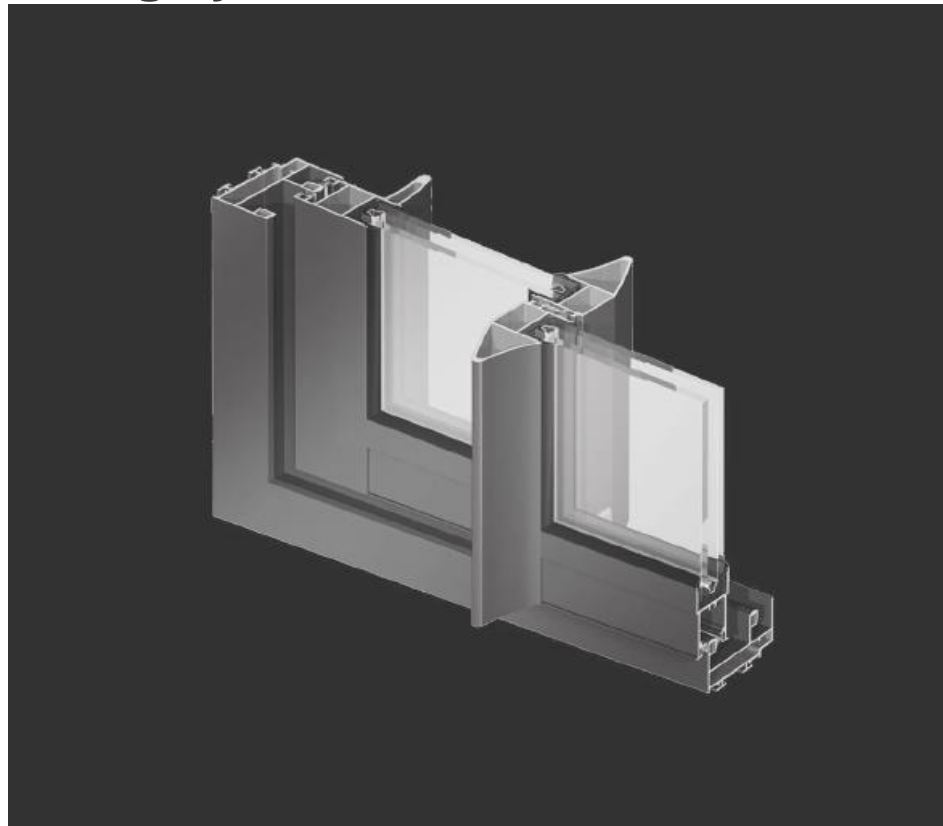


Photography: DRTechnal

TOPAZE GB20, the contemporary sliding system that combines subtlety and simplicity

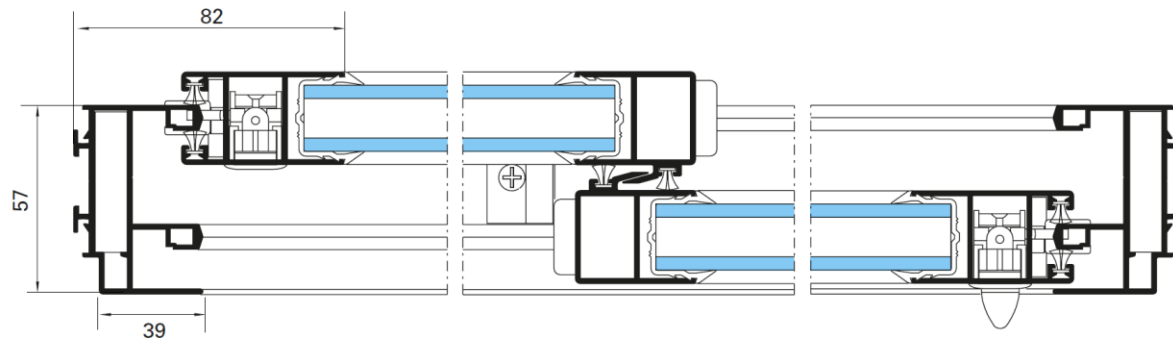
❑ PRODUCT BENEFITS

- ✓ 46 mm module with no thermal break
- ✓ Significant glazed area
- ✓ Discreet 36 mm central stiles
- ✓ Infill from 5 to 20 mm
- ✓ Full range of closing mechanisms
- ✓ Tested for class 5 cyclone resistance
- ✓ Suitable for tropical zones
- ✓ Compatible with doors and windows from the same range



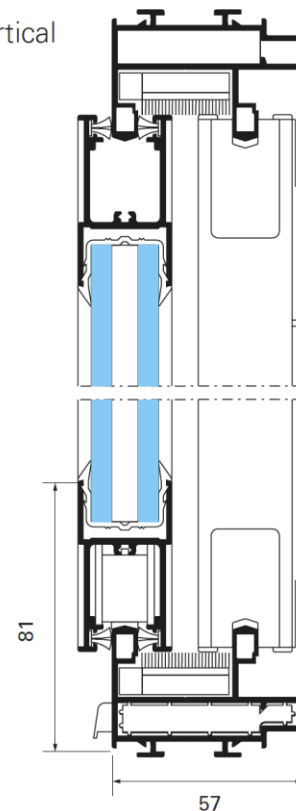
sapa:

TOPAZE: Cross sections








Horizontal

Vertical



TOPAZE: Performance

	MAXIMUM DIMENSIONS	Up to 2.60 m high
	MAXIMUM WEIGHT PER LEAF	Up to 140 kg
	THERMAL	No thermal break
	ACOUSTIC	-35 dB (Ra, Tr) 2-leaf window W 1.47 m x H 1.48 m
	WEATHER PERFORMANCE	A ₃ -E _{4A} -V _{A5} * Patio door with 2 cyclone-resistant leaves W 2.20 m x H 2.15 m

Test results in accordance with European standards in force

*(A = Air, E = Water, V = Wind)



TECHNAL®

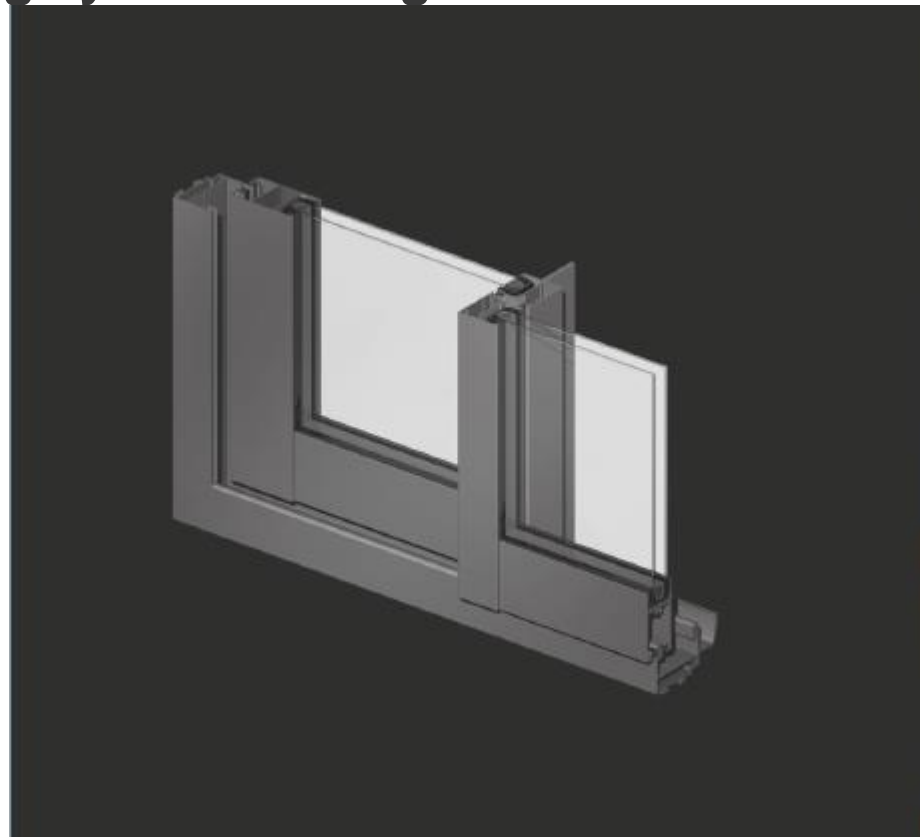


Architects: Cabinet KOFFI and DIABATE Architectes Photographer: DRTechnal







TOPAZE +, the contemporary sliding system for large openings

□ PRODUCT BENEFITS

- ✓ 46 mm module with no thermal break
- ✓ Variety of different creations with straight or curved designs
- ✓ Discreet 36 mm central stiles
- ✓ Infill from 6 to 31 mm
- ✓ Full range of closing mechanisms
- ✓ Subjected to more than 20,000 open and close test cycles
- ✓ Suitable for tropical zones
- ✓ Compatible with doors and windows from the same range and SAFETYLINE louver window compositions



TOPAZE +: Performance

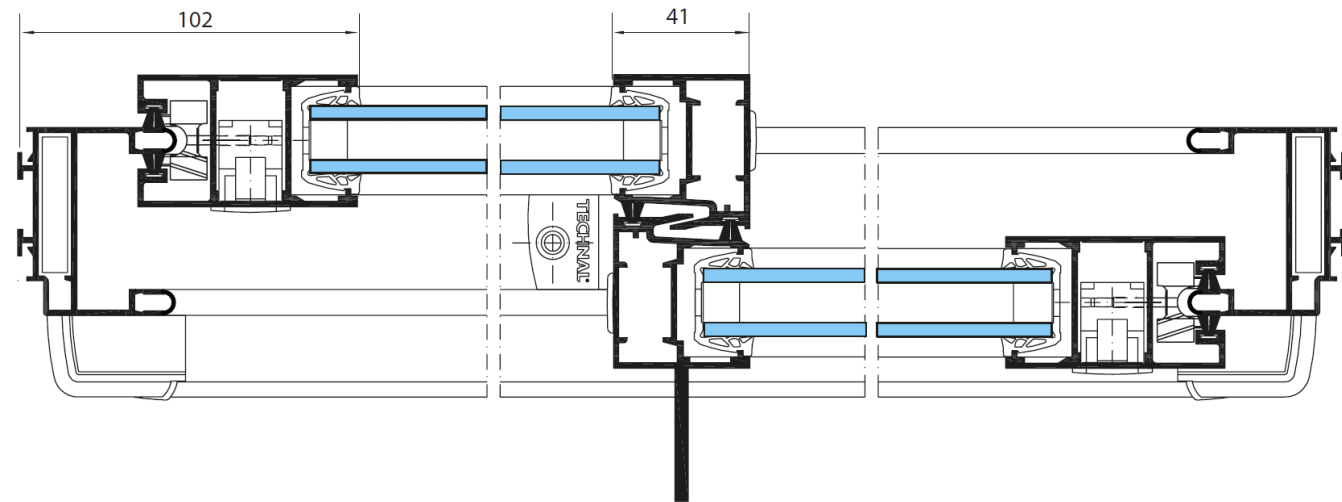
	MAXIMUM DIMENSIONS	Up to 3 m high
	MAXIMUM WEIGHT PER LEAF	Up to 200 kg
	THERMAL	No thermal break
	ACOUSTIC	-33 dB (Ra, Tr) 2-leaf window W 1.47 m x H 1.48 m
	WEATHER PERFORMANCE	A ₃ - E _{A7} -V _{C3} * 2-Leaf patio door W 1.80 m x H 2.15 m
	ACCESSIBILITY	Disabled access threshold

Test results in accordance with European standards in force

*(A = Air, E = Water, V = Wind)

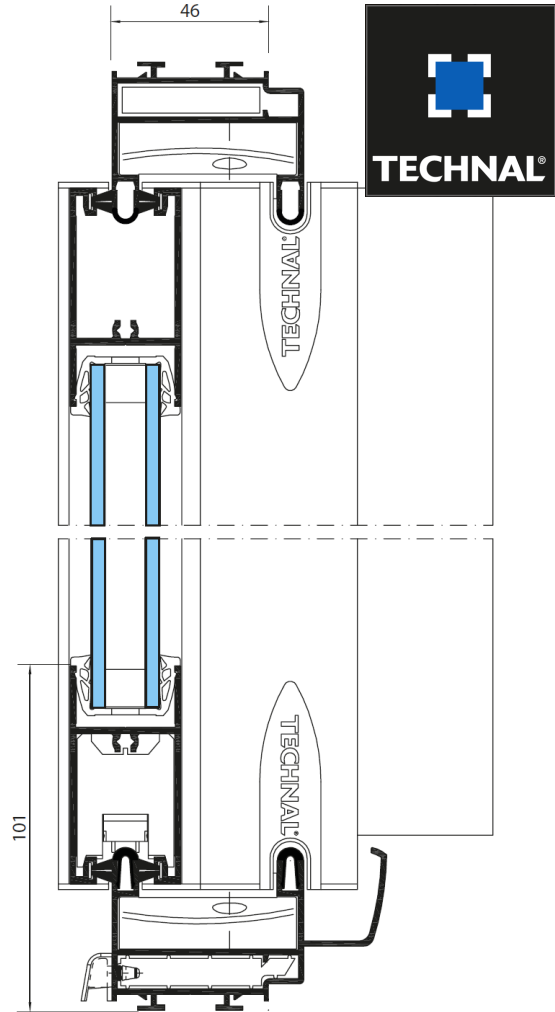
sapa:

TOPAZE +: Cross sections



Horizontal cross-section, 2 tracks - 2-leaf

Copyright © 2015 Sapa Group



Vertical cross-section



TECHNAL®

sapa:
TOPAZE: Handles



Pull handle



Half-moon
handle



Single recessed
handle



Recessed
handle for multi-
point closure
systems



Pull handle with
key lock



Grip
handle



Thumb pull
handle



Single barrel
or lever lock



TECHNAL®



Architects: A+A Photography: A + A



TECHNAL®

WINDOWS AND PATIO DOORS

SOLEAL 55 · SOLEAL 65 · TOPAZE · SAFETYLINE · DOMAL

SOLEAL 55 Minimal, the universal window that highlights the finer points of designs

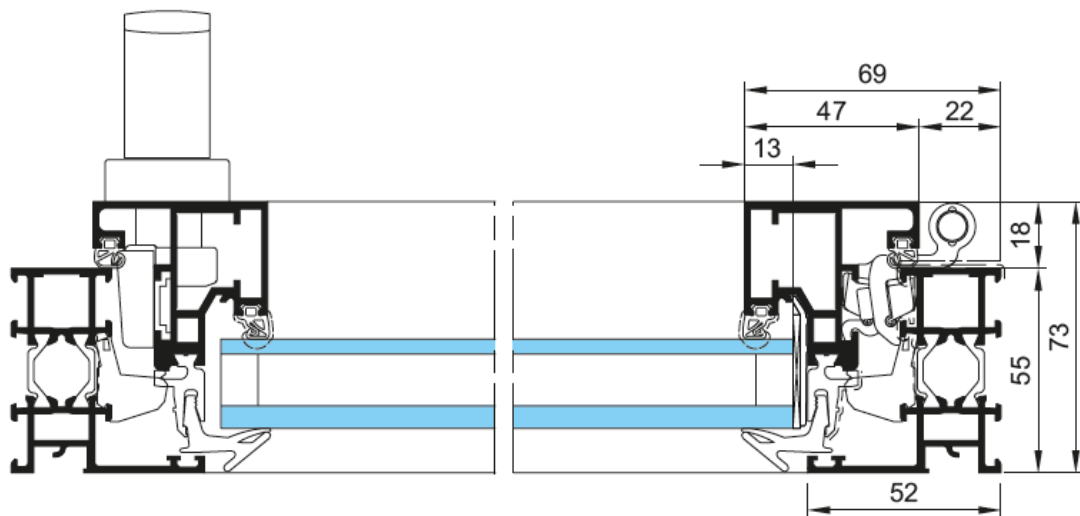
□ PRODUCT BENEFITS

- ✓ Discreet profiles, 52 mm circumference and 66 mm central post
- ✓ 3 attractive designs: Contemporary, Classic or Traditional
- ✓ Clip-on-trim to tastefully highlight the opening frame
- ✓ "Equilibre" version: harmonious balance between the mullions and transoms
- ✓ 24 to 32 mm infill for the opening section and 6 to 42 mm for the fixed section
- ✓ Concealed drainage in frames and composite assemblies
- ✓ Compatible with the range's sliding systems and doors



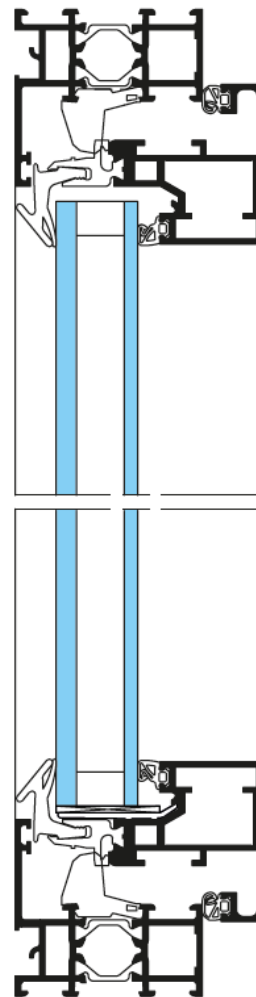
sapa:

SOLEAL 55 Minimal : Cross sections









Horizontal

Vertical



SOLEAL 55 Minimal : Performance

	MAXIMUM DIMENSIONS	Up to W 1 m x H 2.50 m
	MAXIMUM WEIGHT PER LEAF	Up to 130 kg
	THERMAL	Uw up to 1.4 W/m ² .K, Sw =0.43 and TLw = 0.57 with with triple glazing (Ug = 0 + warm edge) (W 1.25 x H 1.48 m)
	ACOUSTIC	-38 dB (Ra,Tr) 1-leaf tilt and turn Minimal opening Frame
	WEATHER PERFORMANCE	A4- E9A-VC3* 1-leaf tilt and turn window (W 1.20 m x H 1.60 m)
	ACCESSIBILITY	Patio door with disabled access threshold

Test results according to product standard NF 270-1

*(A = Air, E = Water, V = Wind)



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SOLEAL 55 Visible sash, the universal window suitable for all styles

□ PRODUCT BENEFITS

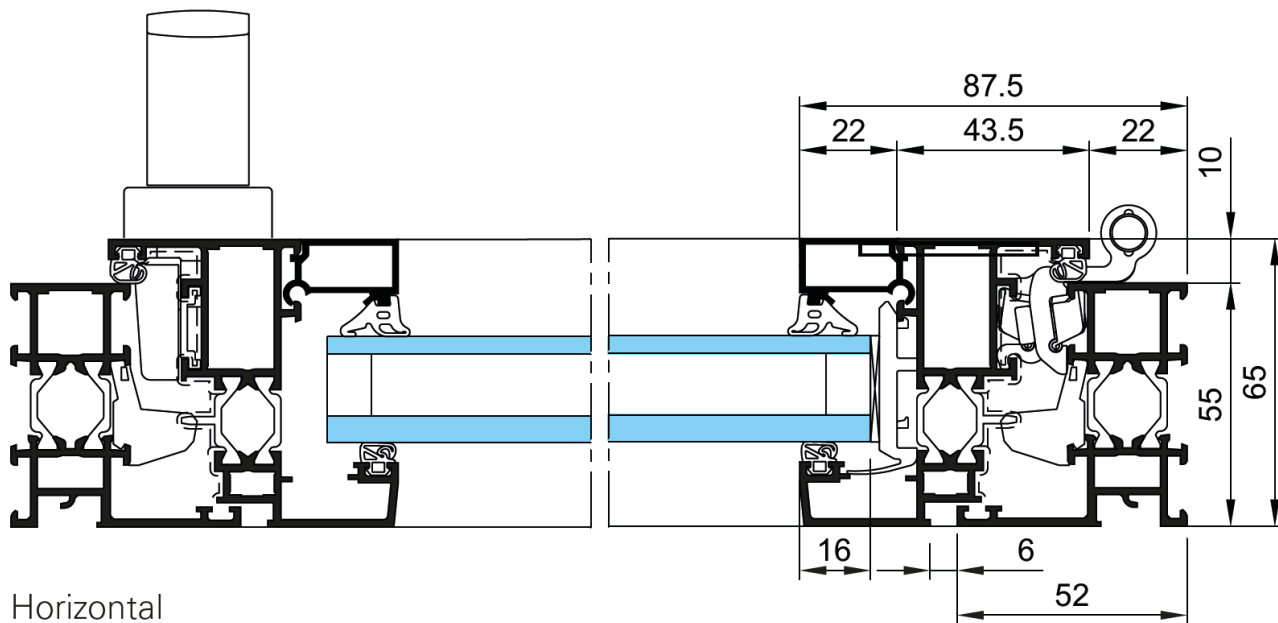
- ✓ Wide selection of configurations to better meet the needs of each project
- ✓ 3 attractive open-out designs: Contemporary: straight and minimalist Classic: curved and round Traditional: with moulding for greater authenticity
- ✓ 3 open-in styles to customise the joinery
- ✓ Clip-on flashing for all 3 styles
- ✓ Concealed drainage on the frames and composite assemblies



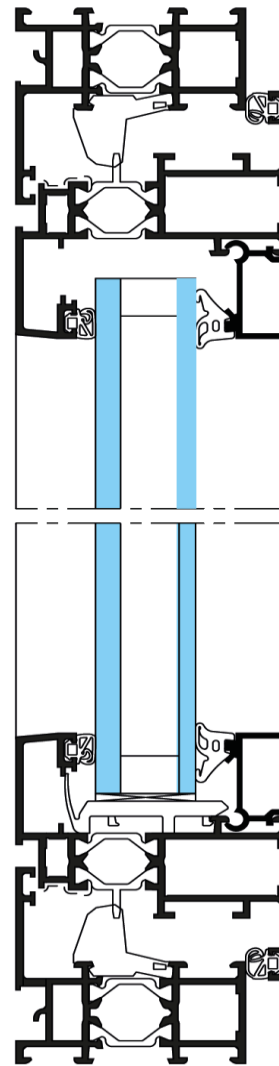
sapa:

Vertical







SOLEAL 55 Visible sash: Cross sections



Horizontal



SOLEAL 55 Visible sash: Performance

	MAXIMUM DIMENSIONS	Up to W 1 m x H 2.5 m
	MAXIMUM WEIGHT PER LEAF	Up to 130 kg
	THERMAL	Uw up to 1.2 W/m ² .K, Sw = 0.39 and TLw = 0.54 with triple glazing (Ug = 0.6 + warm edge) (W 1.25 x H 1.48 m)
	ACOUSTIC	-40 dB (Ra, Tr) 1-leaf tilt and turn window
	WEATHER PERFORMANCE	A ₄ - E _{9A} -V _{C3} * 1-leaf tilt and turn window (W 1.20 m x H 1.60 m)
	ACCESSIBILITY	Patio door with disabled access threshold

Test results according to product standard NF 270-1

*(A = Air, E = Water, V = Wind)



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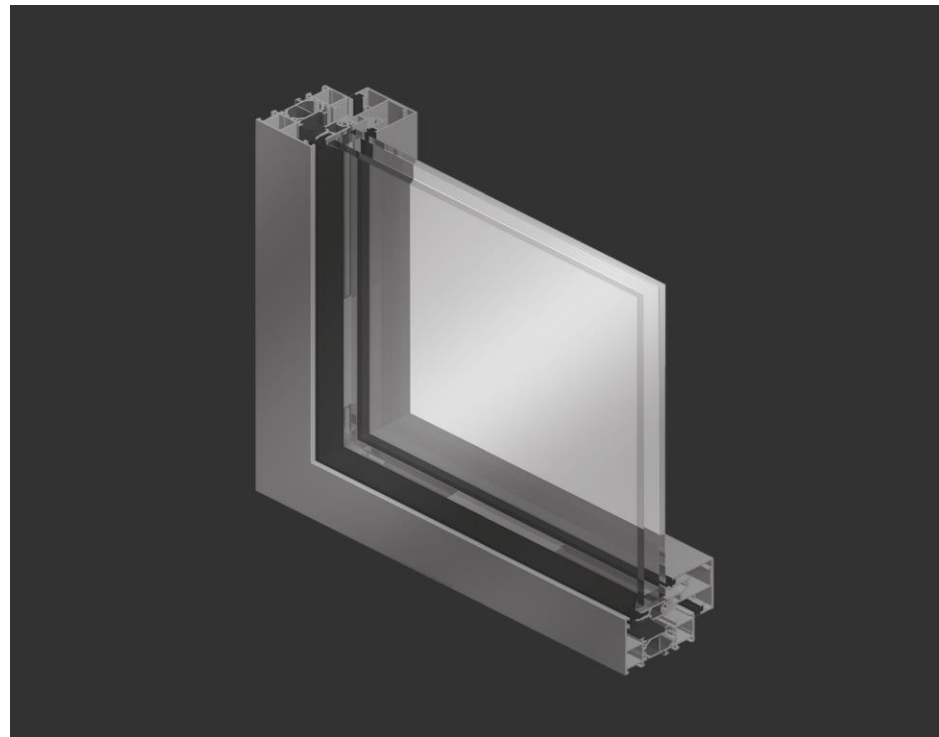


Architects: Agence Architecture Séquences Photographer: DRTechnal

SOLEAL 65 Minimal, the universal high performance window offering sleek design

❑ PRODUCT BENEFITS

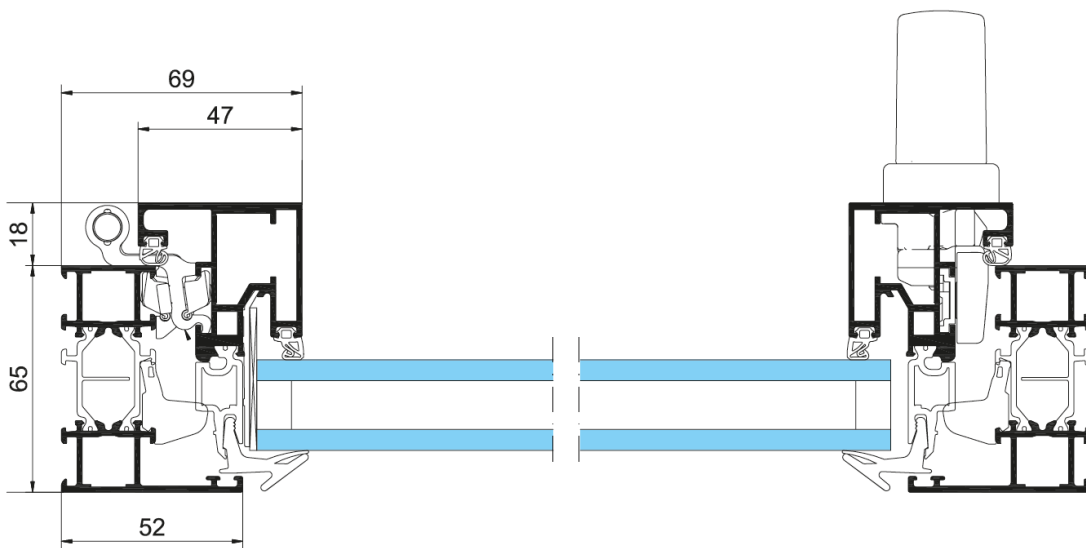
- ✓ 65 mm module and 30 mm polyamide strip
- ✓ Minimal open-in frame
- ✓ Discreet profiles, 52 mm circumference and 66 mm central hinge
- ✓ Clip-on-trim to tastefully highlight the opening frame
- ✓ Concealed drainage on frames and transoms
- ✓ Infill: From 24 to 42 mm on the opening frame
From 24 to 54 mm on the fixed section
- ✓ Compatible with the range's sliding systems and doors



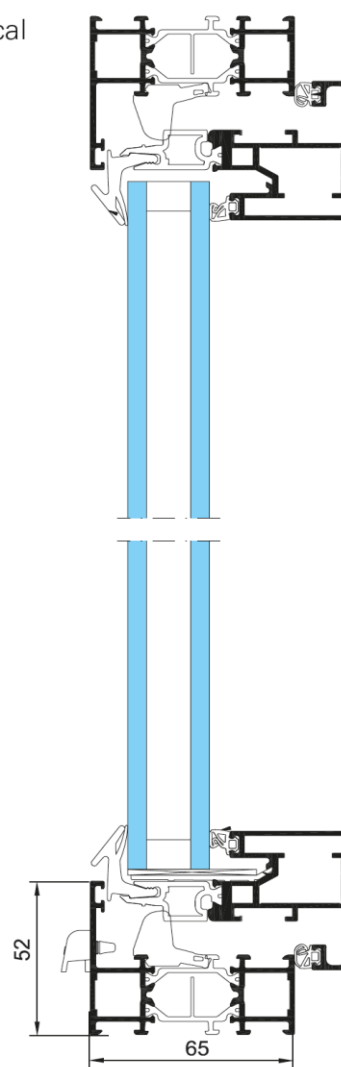
sapa:

SOLEAL 65 Minimal : Cross sections







Vertical



Open-in
1-leaf window and patio door



SOLEAL 65 Minimal : Performance

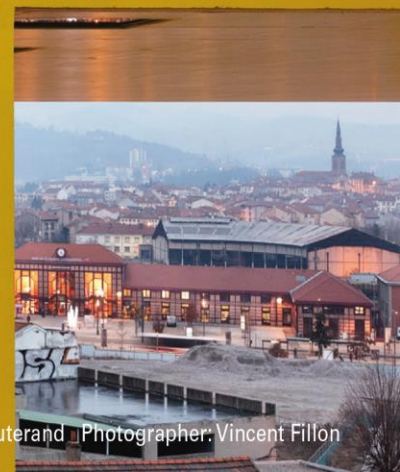
	MAXIMUM DIMENSIONS	Up to W 1 m x H 2.70 m
	MAXIMUM WEIGHT PER LEAF	Up to 130 kg
	THERMAL	Uw up to 1.0 W/m ² .K, Sw = 0.43 and TLw = 0.57 with triple glazing (Ug = 0.6 + warm edge) 1-leaf window W 1.25 m x H 1.48 m
	ACOUSTIC	38 dB 1-leaf turn and tilt Minimal opening frame 44-1SI(20) 12 (W 1.23 m x H 1.48 m)
	WEATHER PERFORMANCE	A4- E750-V _{C4} * 1-leaf tilt and turn window
	ACCESSIBILITY	Patio door with disabled access threshold

Test results according to product standard NF EN 13380

* (A = Air, E = Water, V = Wind)



TECHNAL®

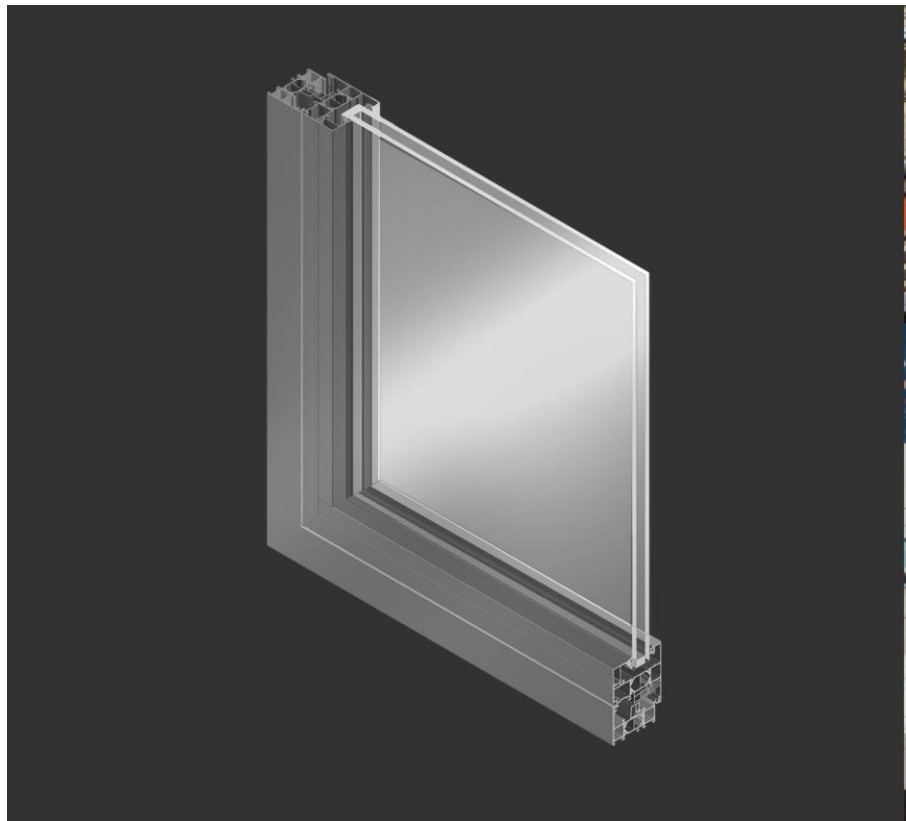


Architect: Manuelle Gautrand | Photographer: Vincent Fillon

SOLEAL 65 Visible sash, the universal window for optimum performance

□ PRODUCT BENEFITS

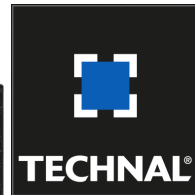
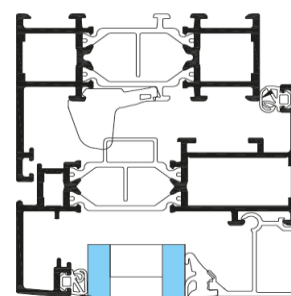
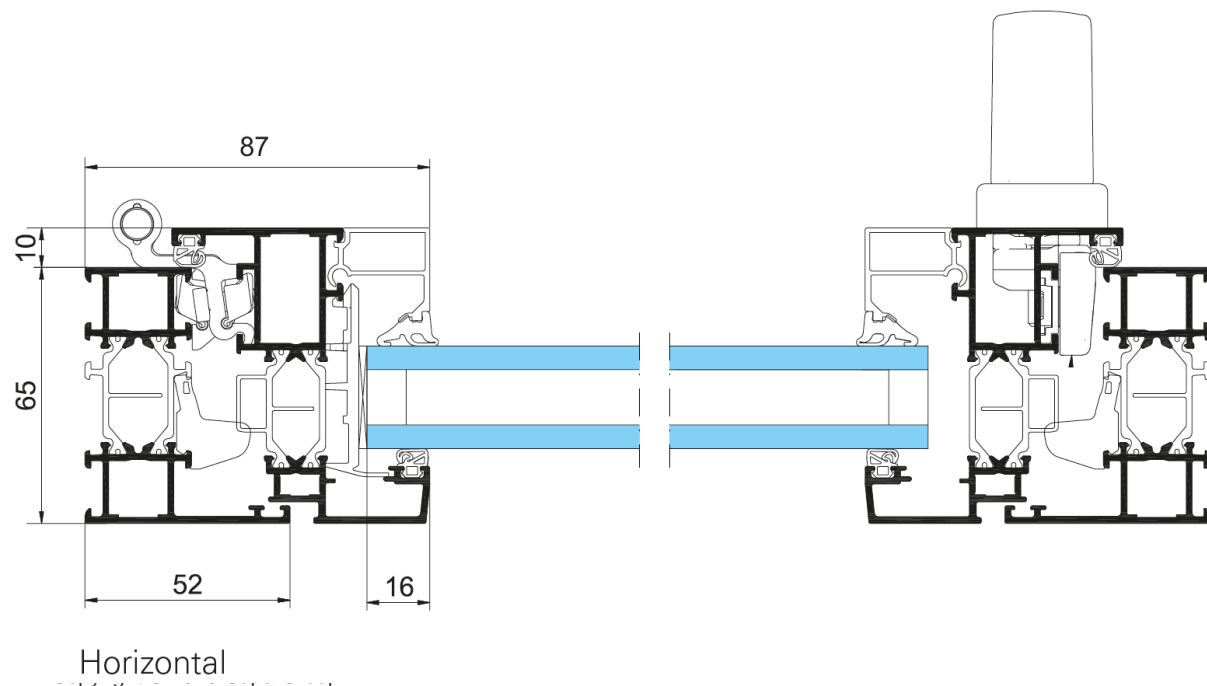
- ✓ 65 mm module and 30 mm polyamide strip
- ✓ Open-in and open-out Visible sash opening frame
- ✓ Wide selection of configurations to better meet the needs of each project
- ✓ Concealed drainage in frames and composite assemblies
- ✓ Version with concealed hardware available for large openings with an opening frame up to W 1.70 m x H 2.50 m
- ✓ Enhanced security: RC2 resistance class according to European standard EN 1627-30










sapa:

Vertical

SOLEAL 65 Visible sash: Cross sections



SOLEAL 65 Visible sash: Performance

	MAXIMUM DIMENSIONS	Up to W 1.70 m x H 2.50 m for 1-leaf patio door
	MAXIMUM WEIGHT PER LEAF	Up to 160 kg with concealed hardware Up to 130 kg with standard hardware
	THERMAL	Uw up to 0.9 W/m ² .K, Sw = 0.41 and TLw = 0.54 with tripe glazing (Ug = 0.5 + warm edge) 1-leaf window with concealed hardware W 1.25 m x H 1.48 m
	ACOUSTIC	-43 dB (Ra, Tr) Test on window with 88.1/-20/-66.2 sound-proof glazing
	WEATHER PERFORMANCE	A ₄ - E ₁₀₅₀ -V _{C4} * 1-leaf tilt and turn window
	ACCESSIBILITY	Patio door with disabled access threshold
	SECURITY	RC2 break-in resistance class (turn and tilt - tilt and turn)

Test results according to product standard NF EN 13380

* (A = Air, E = Water, V = Wind)

sapa:
SOLEAL: Handles



Designer handle
TECHNAL



Double low profile
handle



Handle with lock



Stainless steel
handle



Long stainless steel
handle



TECHNAL®

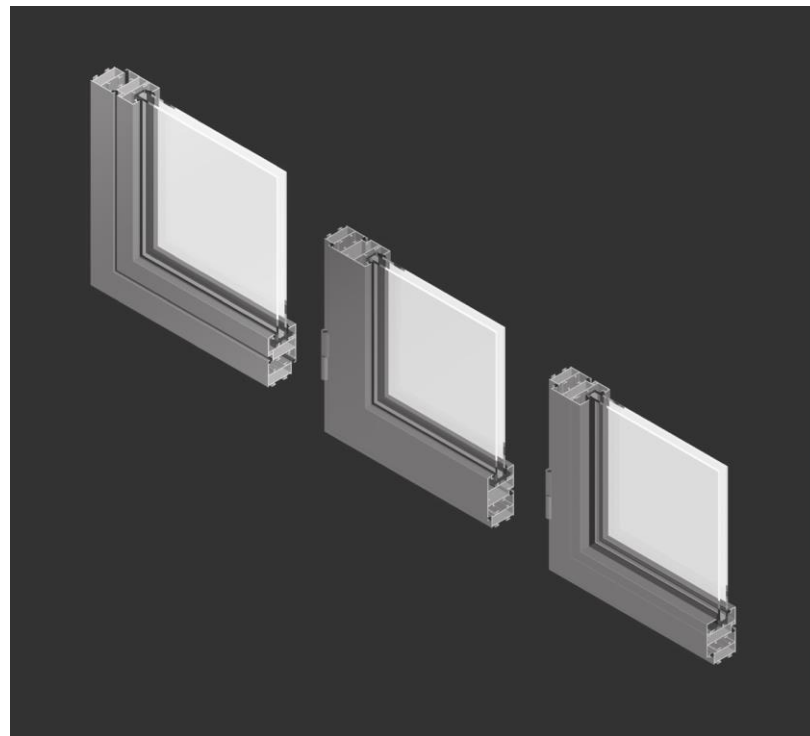


Architects: A.D.H. Photo: DRTechnal

TOPAZE, the contemporary window that combines subtlety, simplicity and versatility

□ PRODUCT BENEFITS

- ✓ 46 mm module with no thermal break 3 styles of open-in frames: straight, curved or basic
- ✓ Square or rounded glazing beads on the inside
- ✓ Infill from 6 to 33 mm
- ✓ Double sealed fixed/opening frames via an internal/external multi-purpose gasket
- ✓ Recessed casement for multipoint locks
- ✓ Suitable for tropical zones
- ✓ Compatible with doors and sliding systems from the same range



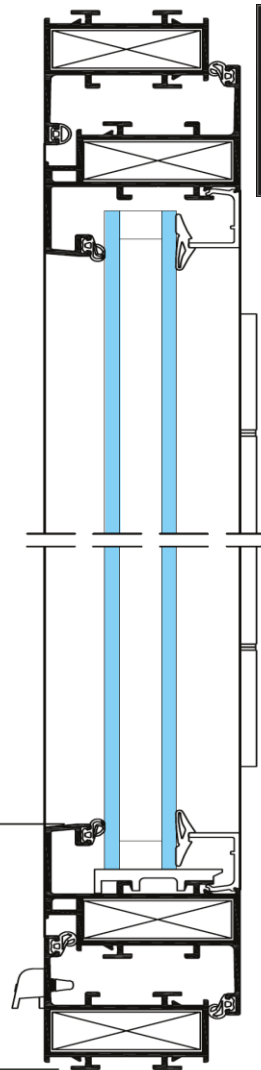
sapa:

TOPAZE: Cross sections










Horizontal

Vertical



TOPAZE: Performance

	MAXIMUM DIMENSIONS	Up to W 1.1 m x H 2.35 m 1-leaf patio door with lock
	MAXIMUM WEIGHT PER LEAF	Up to 100 kg
	THERMAL	No thermal break
	ACOUSTIC	Rw (C ; Ctr) < 38 dBa (-1 ; -4) depending on the glazing
	AIR PERMEABILITY	Up to 600 Pa (class 4)
	WATERTIGHTNESS	Up to 1200 Pa (class 1200A)
	WIND RESISTANCE	Up to 2000 Pa (class 5)

sapa:
TOPAZE: Handles



Designed handle
TECHNAL



Classic handle



"Eco" handle



Stainless steel
handle



Long stainless steel
handle



TECHNAL®

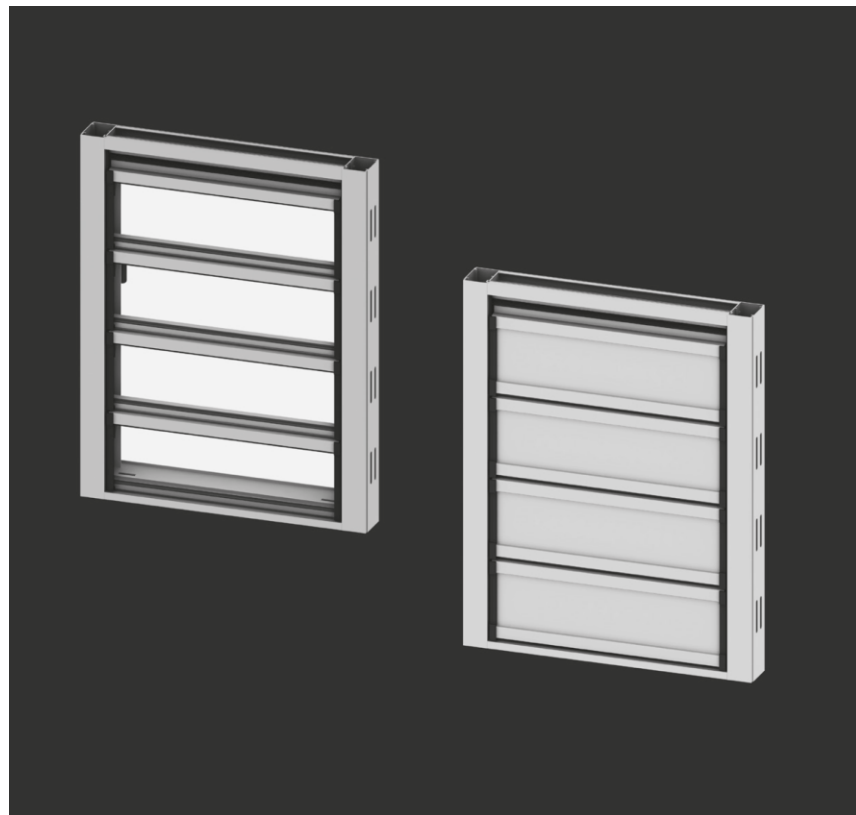


Architects: Cruz y Ortiz Arquitectos Photographer: Pedro Pegenaute

SAFETYLINE, the contemporary louver window: natural ventilation and solar protection

□ PRODUCT BENEFITS

- ✓ Ideal for new builds or renovations
- ✓ Large sizes up to 1.4 m wide available with high performance levels
- ✓ Multiple compositions to choose from: fixed/mobile louvers, aluminium/glass/combination
- ✓ Integrated fly screen
- ✓ Compatible with the entire TOPAZE range
- ✓ Optional concealed motorisation that is compatible with home automation systems

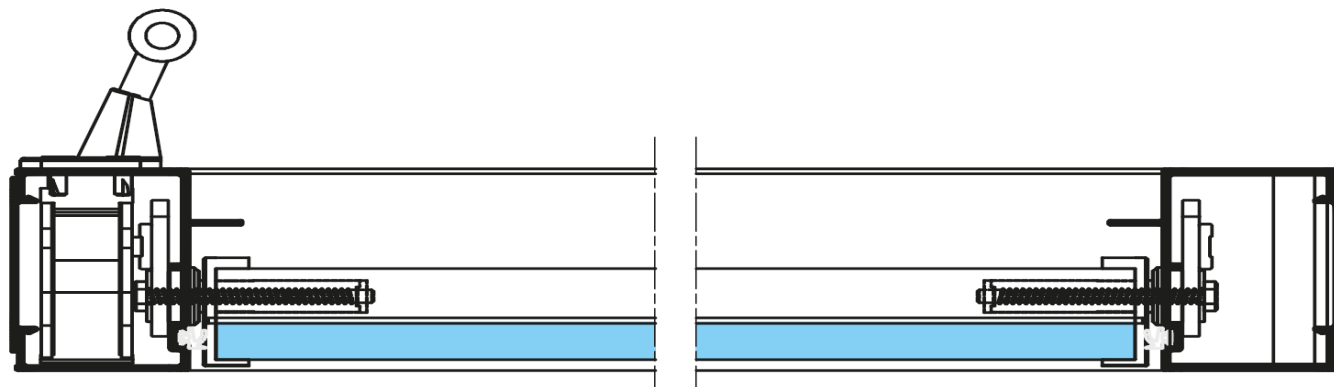


SAFETYLINE: motorisation features

- ✓ Motor integrated into the standard fixed frame
- ✓ A single motor can power up to 18 aluminium louvers or 12 glass louvers
- ✓ Possibility of using several motors
- ✓ Louvers driven by cassettes
- ✓ No need for compensation springs
- ✓ Integration into a home automation system/centralised control system
- ✓ Energy efficient motor (12 VDC / 10 W)
- ✓ Wired or remote control
- ✓ Endurance tested over 30,000 cycles
- ✓ Weather resistance is the same for the manual and motorised versions

sapa:

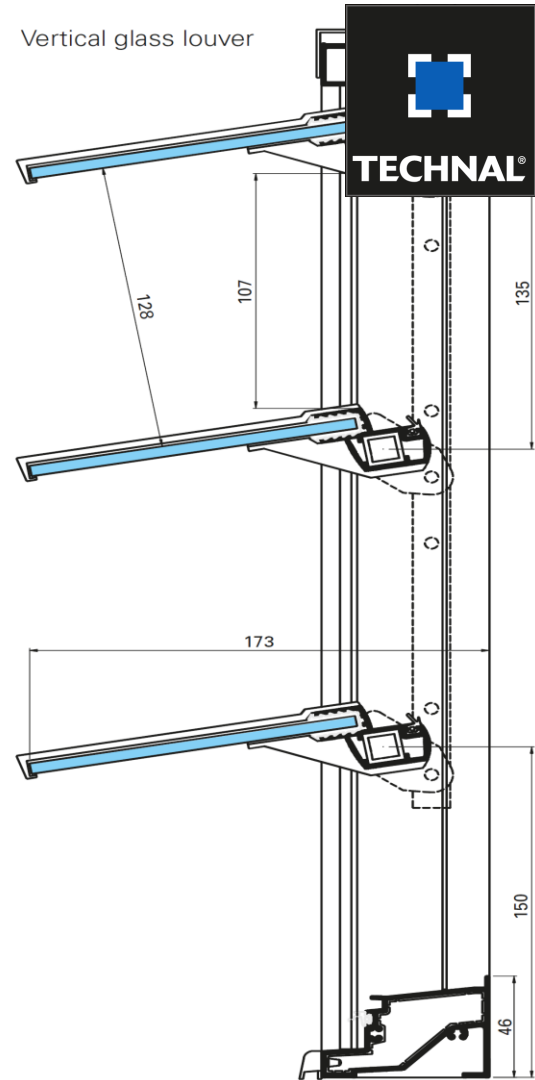
SAFETYLINE: Cross sections








Horizontal glass louver

Copyright © 2015 Sapa Group

Vertical glass louver



SAFETYLINE: Performance

	LOUVER DIMENSIONS	Up to 135 mm
	MAXIMUM DIMENSIONS	Up to 1.4 m wide
	WEATHER PERFORMANCE	A ₂ E _{7B} V _{C5} * Glass louvers (W 1 m x H 1.14 m)
	CYCLONE RESISTANCE	Class 5
	ORIENTATION	Up to 80°

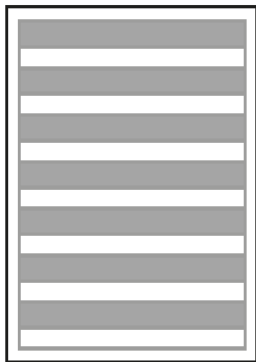
Tested according to European standards EN1026 – EN1027 – EN12211

* (A = Air, E = Water, V = Wind)

SAFETYLINE: Configurations



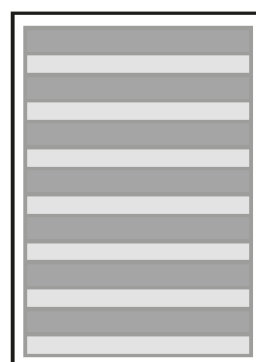
Frame with
glass louvers



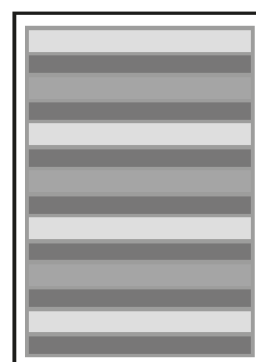
Frame with
aluminium
louvers



Combination
frame with glass
and aluminium
louvers



Frame with
monobloc
window



Frame with
fly screen and
monobloc
window

sapa:
SAFETYLINE: Handles



Reversible handle



Indexed lever handle



Lever handle



TECHNAL®



DOORS

AMBIAL · SOLEAL 55 · TITANE · TOPAZE · DOMAL 40



TECHNAL®



AMBIAL, the multi-space folding door

□ PRODUCT BENEFITS

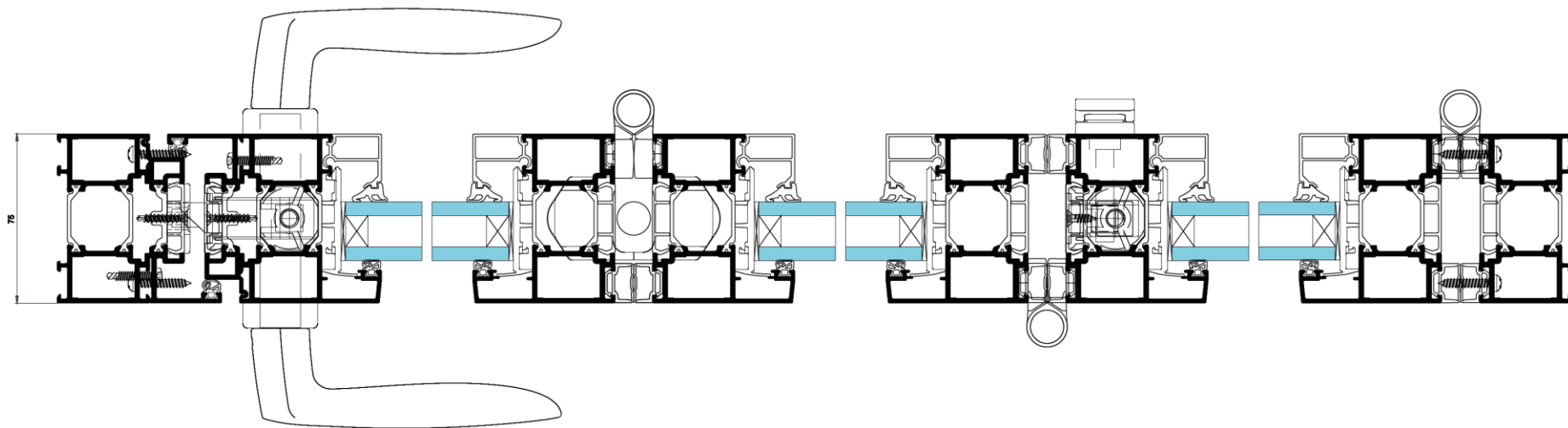
- ✓ 75 mm module for the opening and fixed frame
- ✓ Large sizes available up to 12 m long in 10 leaves
- ✓ Infill from 14 to 52 mm
- ✓ Sleek design: -
 - Straight uniform black lines in the open position thanks to the black gasket and hardware
 - Black hinges concealed in the vertical line of the gasket in the closed position
 - Exclusive Technal handle solution with an integrated or removable key, no visible fixings in the closed position
- ✓ Advanced thermal performance
- ✓ 3-point locking system with insulated key lock



sapa:



AMBIAL: Cross sections



AMBIAL: Product focus



Bottom rollers concealed by black covers



Screw heads covered with black caps which also contribute to weather performance



Black painted lock and hardware faceplates








Extra-flat leaf handles and half-cylinder key covers which can be powder-coated in any Technal colour



Opening frame groove cover: synthetic profile or black acoustic gasket

AMBIAL: Performance

	LARGE SIZES	Up to W 1,2 m x H 3 m for the 1-leaf door
	MAXIMUM HEIGHT	Up to 150 kg per leaf
	THERMAL	$U_w = 0,95 \text{ W/m}^2.\text{K}$ ($U_g = 0,5 \text{ W/m}^2.\text{K}$) (5 leaves L 6 m x H 3 m) and $TL_w = 0,53$
	WEATHER PERFORMANCES	$A_3 E_{8A} V_{C3}$
	RESISTANCE	Operating forces: Class 1 (inferior at 100 N) / Mechanical strength: Class 3



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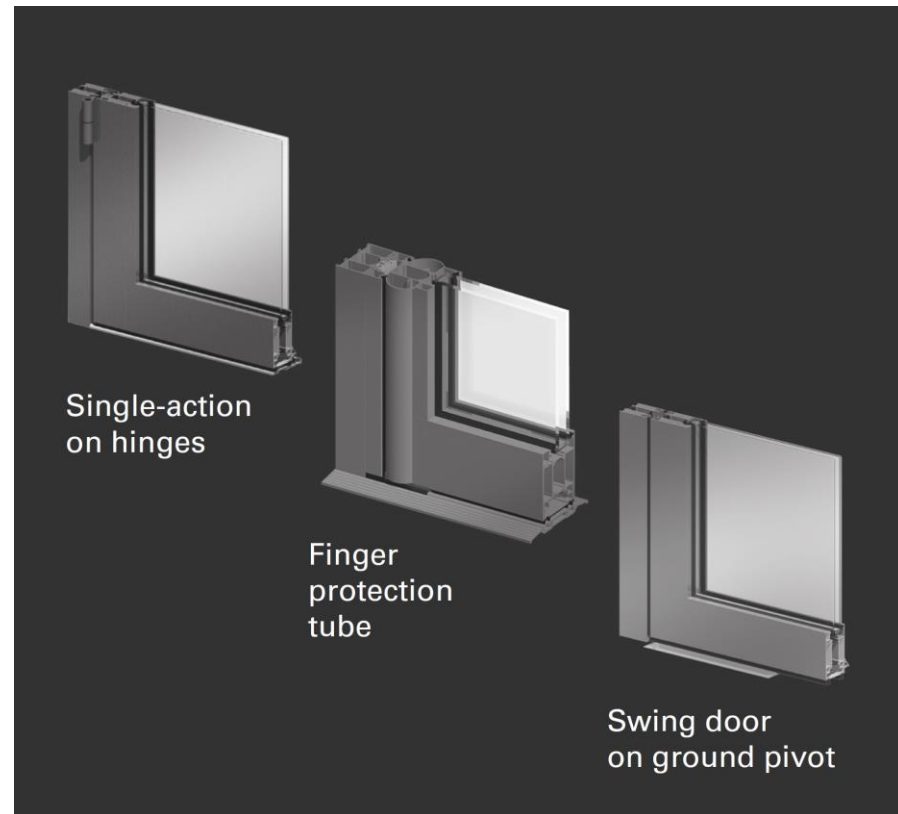


Creation: boschyserrret.com 3D Image: beauty&thebit

SOLEAL 55, the universal door that offers multiple solutions

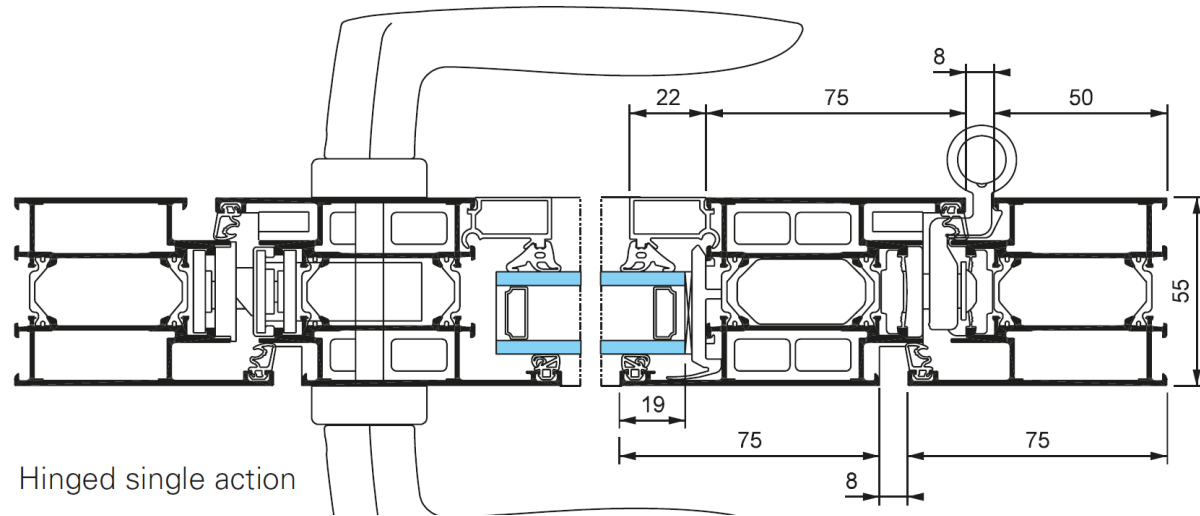
□ PRODUCT BENEFITS

- ✓ 55 mm module
- ✓ 3-In-1 design: hinged door, pivoting swing door and tube-bulb stile door all from the same base product
- ✓ Large size door available up to 3 m high
- ✓ Intensive-use door (high volumes of traffic)
- ✓ Door compatible with SOLEAL windows and sliding systems

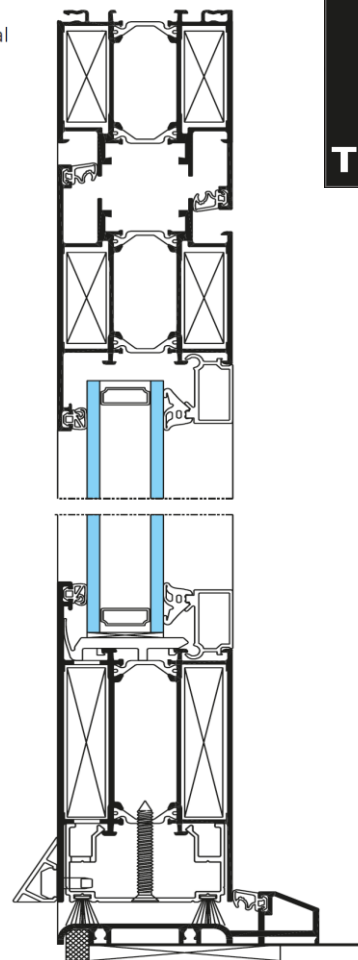


sapa:









SOLEAL 55: Cross sections



Vertical



SOLEAL 55: Performance

	MAXIMUM DIMENSIONS	Up to W 1.1 m x H 3 m
	MAXIMUM WEIGHT PER LEAF	Up to 150 kg
	THERMAL	$U_w = 1.4 \text{ W/m}^2\cdot\text{K}$, $TLW = 0.47$, $Sw = 0.37$ with triple glazing $U_g=0.6 \text{ W/m}^2\text{K}$, $TL=0.73$, $g=0.51$ and insulating glazing crossbar
	RESISTANCE	Tested at torsion and warping stresses in accordance with the standard EN 947-2 (vertical loads). 100 daN EN 948-2 (torsion). EN 949-2 (soft body shocks) 150 joules
	ENDURANCE	Subjected to more than 1 million opening/ closing test cycles in accordance with the method described in standard EN 1191: class 8 of scale EN 642-2
	WEATHER PERFORMANCE	A ₄ E _{6A} V _{C3} * (1-leaf open-out hinged door with a disabled access threshold)
	ACCESSIBILITY	Threshold-less installation to facilitate access for disabled persons.
	SECURITY	RC3 break-in resistance class (according to the standard EN 1627)

* (A = Air, E = Water, V = Wind)

sapa:

SOLEAL: Handles



Double handles
on plates



Trilobe push bar



Recessed trilobe
push bar

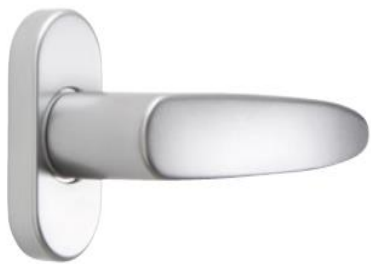


Round push bar



Recessed tubular
handle

sapa:
SOLEAL: Handles



Designed handle
TECHNAL *



Low profile
handle *



Stainless steel handle *



TECHNAL exclusi-
ve door pad handle



TECHNAL®



Photographe: Xavier Bénony

TITANE, the intensive use door with enhanced burglary resistant security features

□ PRODUCT BENEFITS

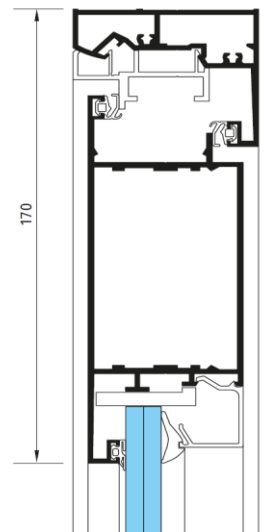
- ✓ 63 mm module
- ✓ Sleek aesthetic, elliptical lines, concealed hinges, integrated handle
- ✓ Hinge system subjected to 1 million class 8 test cycles
- ✓ Anti-finger trap version is ideal for public places
- ✓ Screwed internal glazing beads to delay burglary and vandalism
- ✓ Access controlled via an electromagnetic closure system and 3-point lock



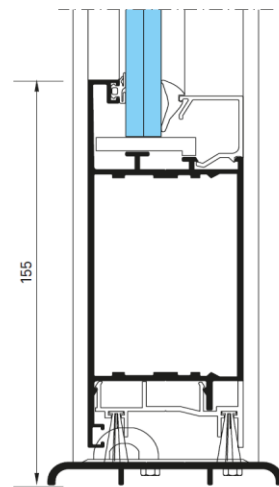
sapa:

TITANE: Cross sections

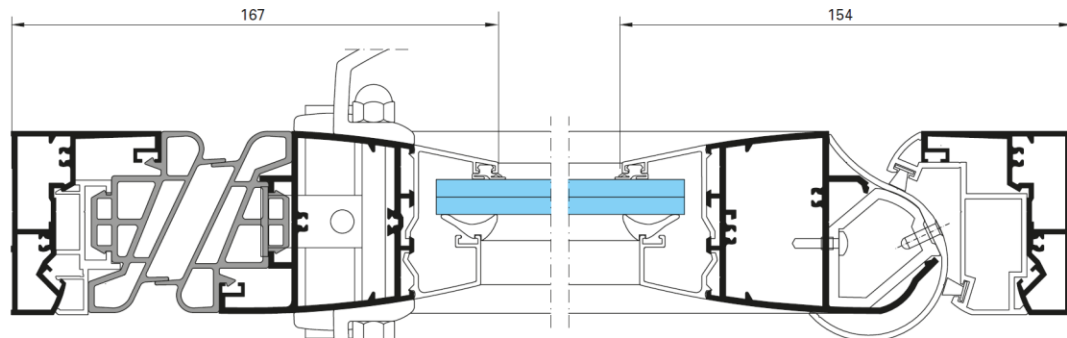
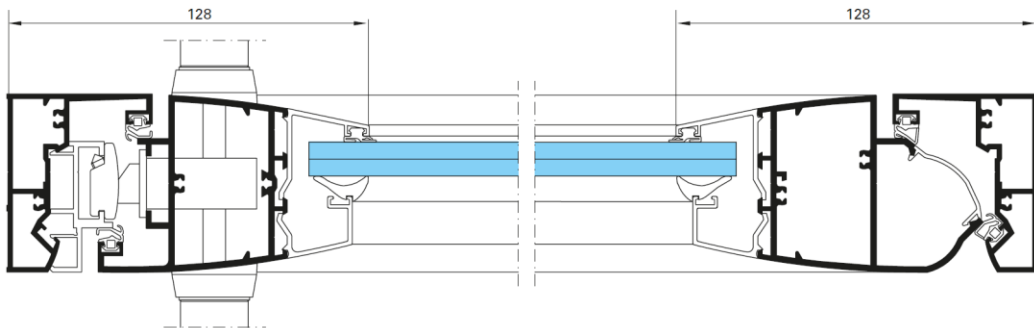
Open-out
vertical











1-leaf
Horizontal



1-leaf with level 2
anti finger-trap
Horizontal



TITANE: Performance

	MAXIMUM DIMENSIONS	Up to W 1.30 m x H 2.50 m
	MAXIMUM WEIGHT PER LEAF	Up to 140 kg
	THERMAL	No thermal break
	RESISTANCE	Subjected to torsion and warping stress tests in accordance with the standard EN 947-2 (vertical loads). 100 daN EN 948-2 (torsion). EN 949-2 (soft body shocks) 150 joules
	ENDURANCE	Subjected to more than 1 million opening/closing test cycles in accordance with the method described in standard EN 1191: class 8 of scale EN 642-2
	WEATHER PERFORMANCE	Double barrier peripheral seal (rubber and brush seals) that continue over the hinges Additional weather resistance provided by a tubular threshold
	ACCESSIBILITY	Threshold-less installation to facilitate access for disabled persons.
	SECURITY	RC2 break-in resistance class (according to the standard EN 1627)

sapa:

TITANE: Handles



Half-moon
handle



Double handles
on plates



Trilobe push bar



Recessed trilobe
push bar

sapa:

TITANE: Handles



Round push bar



Recessed tubular
handle

Also available:
- Fire access handles



TECHNAL®

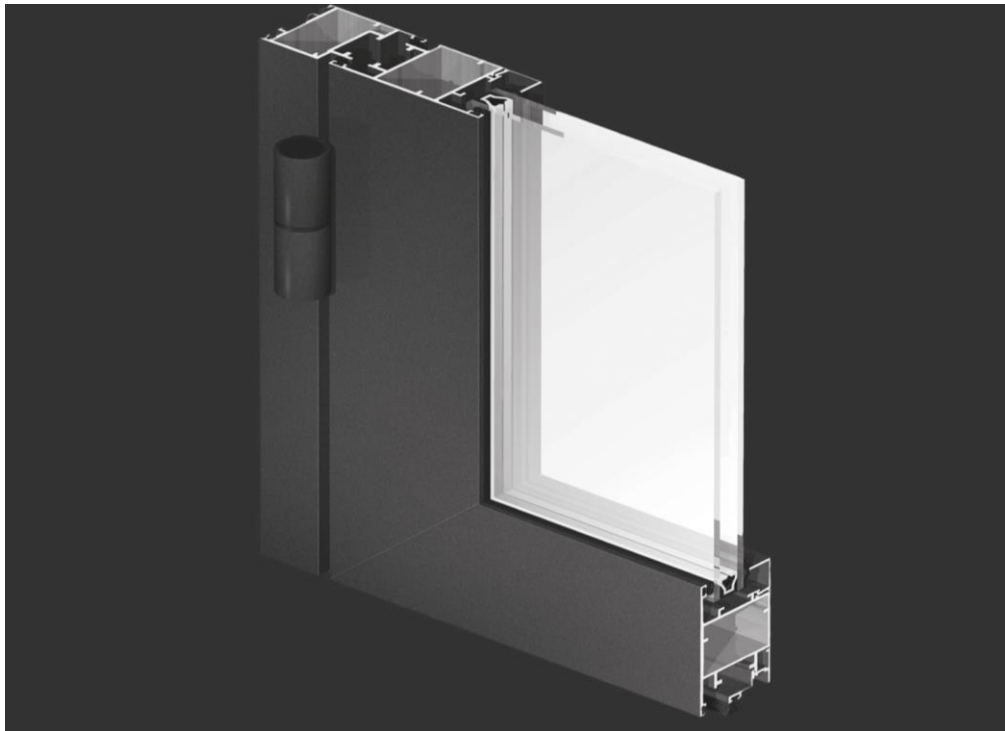


Architect: Nathalie Larradet Photographer: DRTechnal

TOPAZE, the contemporary door that can be adapted to each project

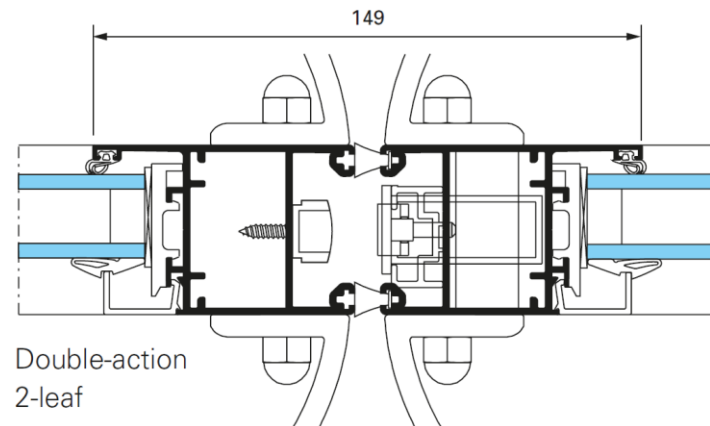
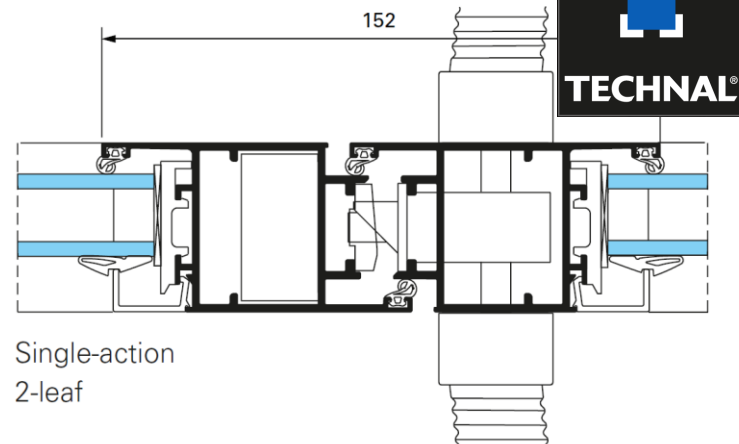
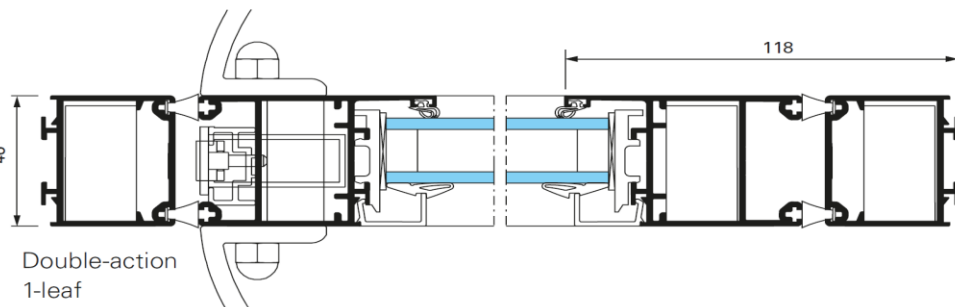
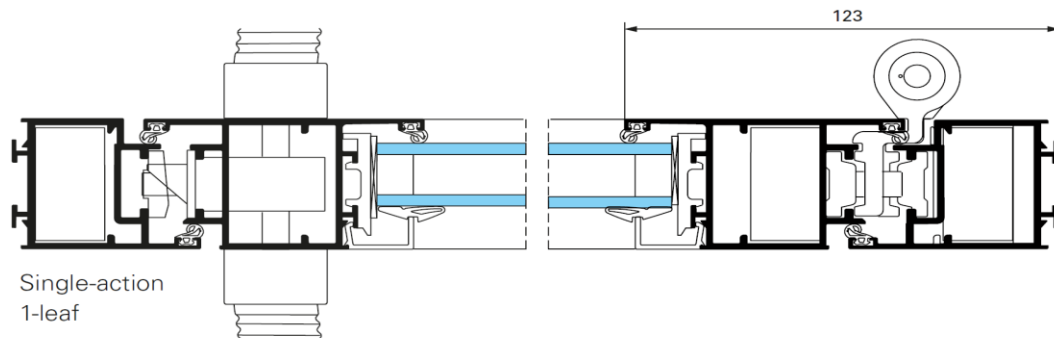
□ PRODUCT BENEFITS

- ✓ 46 mm module with no thermal break
- ✓ Hinged single-action door
- ✓ Double-action door via an in-ground pivot.
- ✓ Double-action anti finger-trap version
- ✓ Wide range of handles and closing mechanisms
- ✓ Several different thresholds suitable for different locations








sapa:

TOPAZE: Cross sections



TOPAZE: Performance

	MAXIMUM DIMENSIONS	Up to W x H = 1.10 m x 2.40 m 1-leaf door with recessed split hinges
	MAXIMUM WEIGHT PER LEAF	Up to 120 kg
	THERMAL	No thermal break
	WEATHER PERFORMANCE	Double barrier seal (EPDM gasket) and tubular threshold
	ACCESSIBILITY	Installation without a threshold or with a reduced threshold (< 20 mm)

sapa:

TOPAZE: Handles



Handle on
rosette



Trilobe push bar



Recessed trilobe
push bar



Round push bar

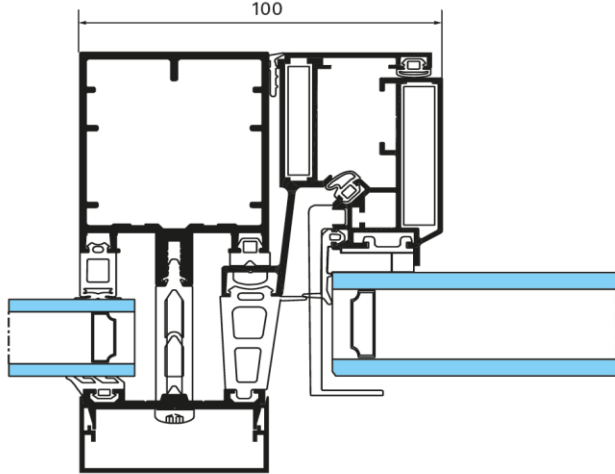
Also available:
- Flat pad

**TECHNAL®**

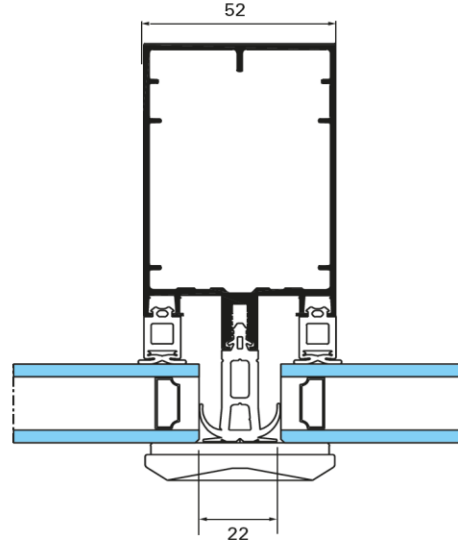


Architects: KPP Architects Photographer: DRTechnal

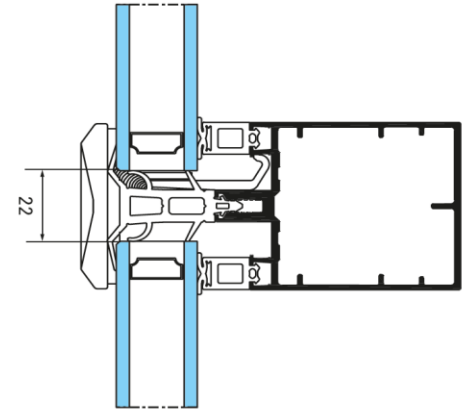
GEODE, the frame effect: Cross sections



Vertical frame with
concealed top-hung frame







Horizontal frame



Vertical frame

GEODE, the trame effect: Performance

	MAXIMUM WEIGHT PER GLASS BLOCK	300 kg per transom
	THERMAL	Fixed façade with 80% glazing: $U_{cw} = 1.6 \text{ W/m}^2\text{.K}$ with glazing $U_g = 1.3 \text{ W/m}^2\text{.k}$
	FIXED LIGHT WEATHER PERFORMANCE	A4 R7 / Satisfactory results in pressure and vacuum tests 1600 Pa and 2400 Pa (sudden pressure)
	TOP-HUNG OPENING FRAME WEATHER PERFORMANCE	$A_4 - E_{9A} - V_{C3}^*$

Test results according to the thermal standard: EN 13947, weather resistance: EN 13830

* (A = Air, E = Water, V = Wind)



Architects: AFL Architects Photographer: Shaw & Shaw

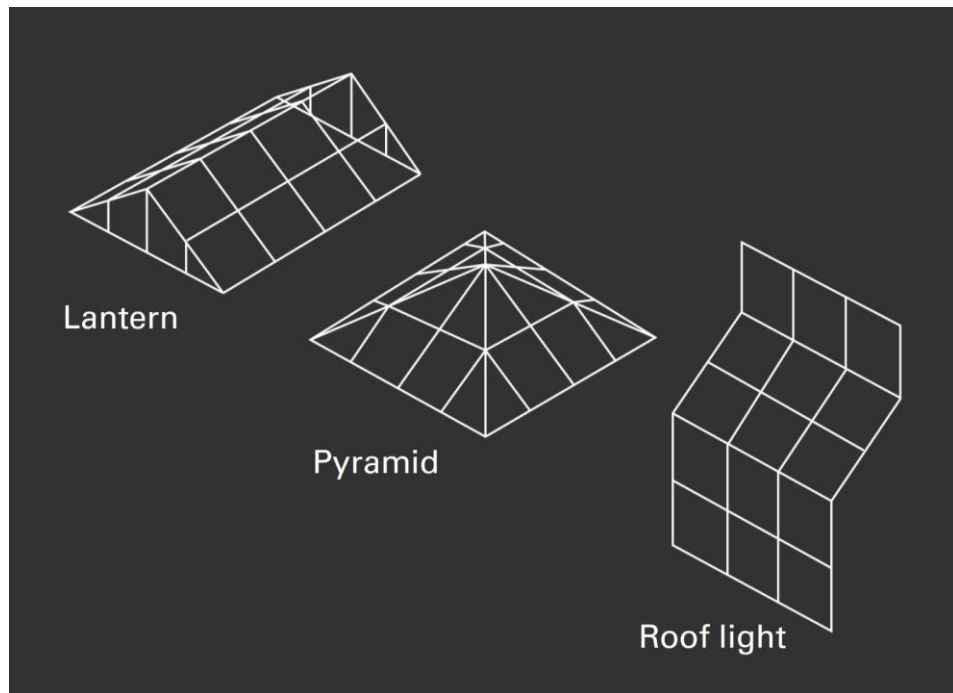


Architects: GIREC Photographer: Xavier Benony

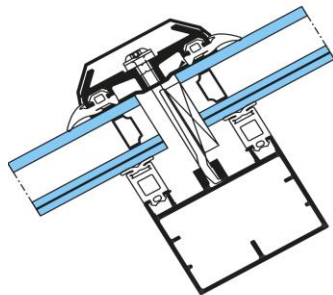
GEODE sloped glazing for inclined roofs consistent with vertical walls

□ PRODUCT BENEFITS

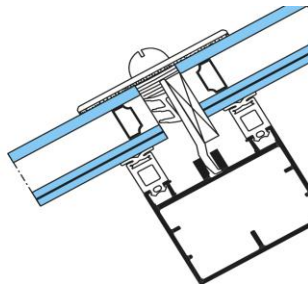
- ✓ 2 possible external looks: visible grid or vertical frame
- ✓ Water retention management with drainage at the ends of transoms through the glazing bars
- ✓ Glazing deformation is minimised thanks to the vertical caps and the silicone gasket
- ✓ Possibility of double glazing using structural silicone
- ✓ Minimum incline of 5 ° (validated by the CSTB) with double glazing
- ✓ The rafters and transoms are square cut and assembled using the penetrating transom principle
- ✓ Possibility of integrating an opening frame into the roof



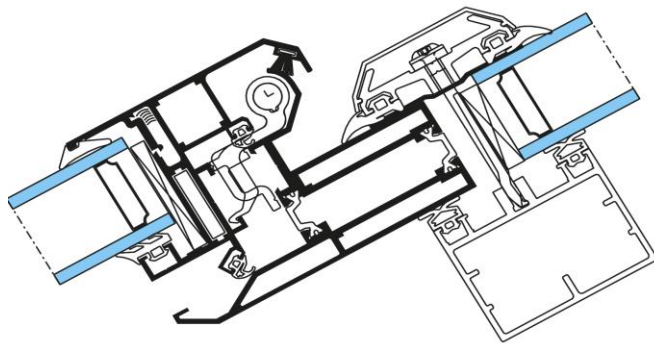
GEODE, sloped glazing: Cross sections



GEODE visible grid glass roof

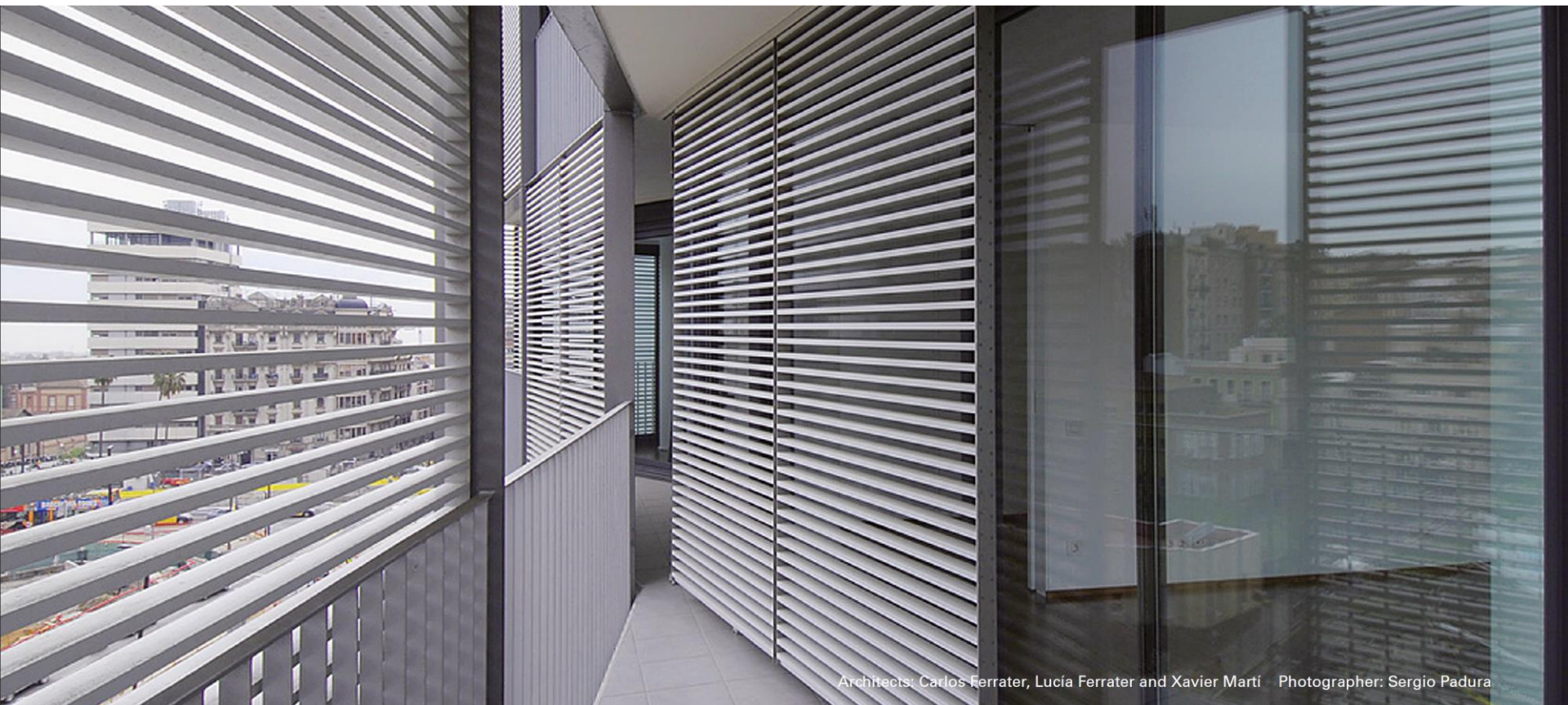


GEODE vertical frame glass roof

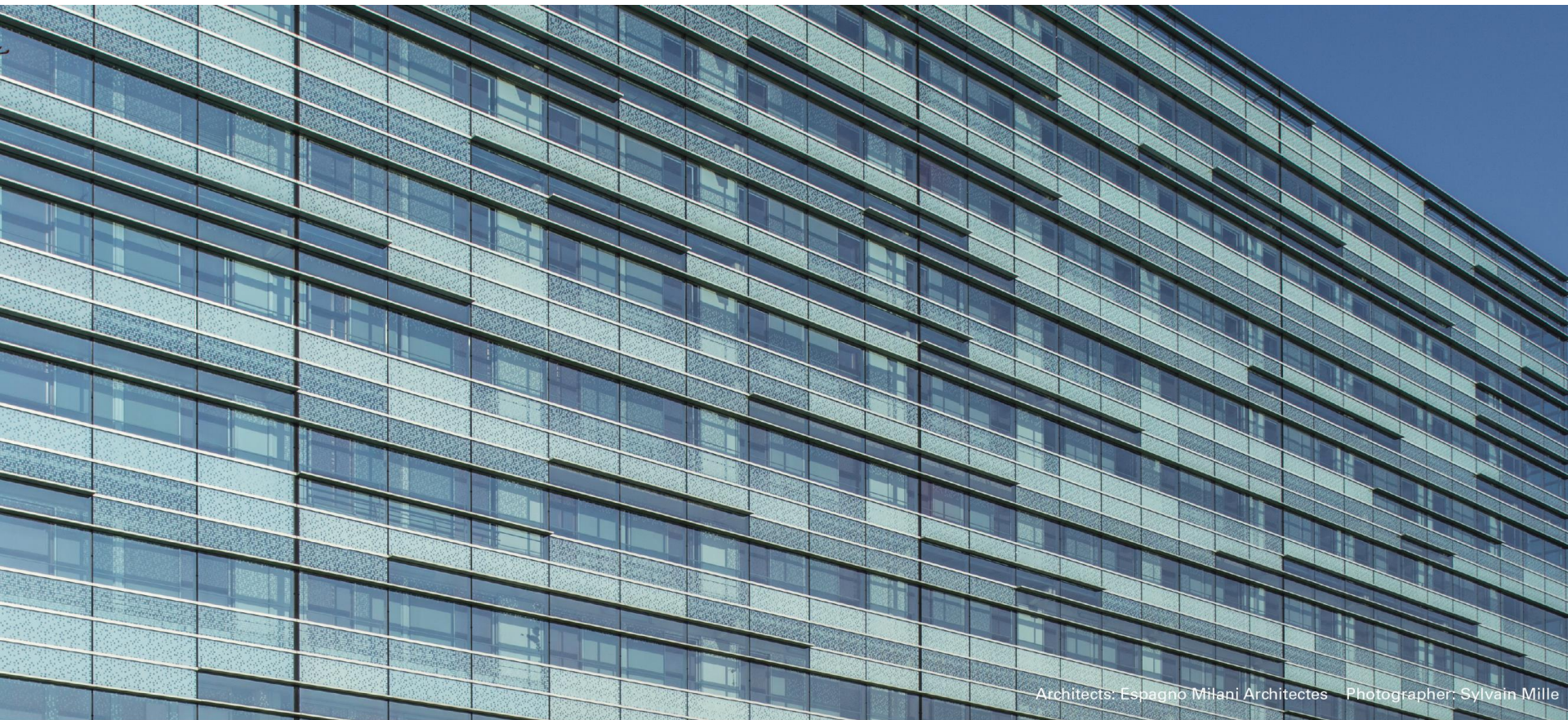


GEODE roof opening frame





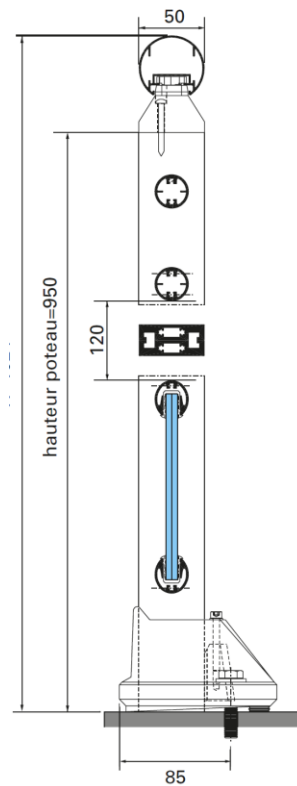
Architects: Carlos Ferrater, Lucía Ferrater and Xavier Martí Photographer: Sergio Padura



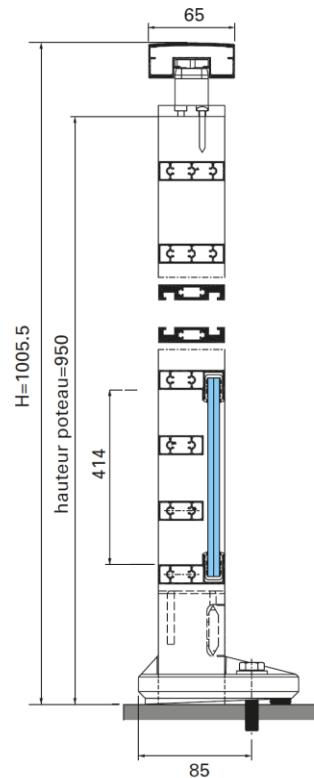
Architects: Espagno Milani Architectes Photographer: Sylvain Mille

sapa:

GYPSE, double post: Cross sections



Spaced posts
Handrail and full-height
rectangular midrails and
glass bottom section infill



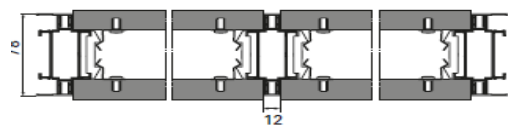
OPALE, internal partition system with multiple configurations

□ PRODUCT BENEFITS

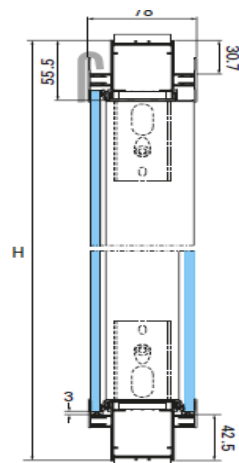
- ✓ 3 types of configurations: Standard partition, with a narrow rail or recessed junction
- ✓ Framed partitions or glazed panels fixed side by side for a sleek design
- ✓ Wide variety of infills
- ✓ Possibility of integrating: glass safety door (6 to 8 mm), wooden doors (40 mm), aluminium framed doors, full-access hinged doors or sliders
- ✓ Vertical or horizontal frames which can be customised with different trims
- ✓ Fire resistance: Schott flame guard test on OPALE structural glazing system (PF 30)
- ✓ Moveable and removable partition: CER.F.F. C.07-433R.

sapa:

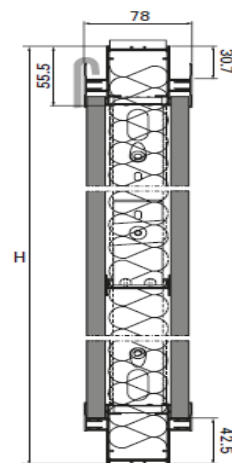
Cross section and configurations:



Flat partition with wooden recess junction



Flat and recessed
1- or 2-sided
full-height glazed
module



Flat and recessed
Full-height solid
module

CONFIGURATIONS

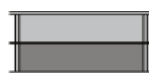
Standard partition



Full-height
solid module



Full-height
glazed module



Glazed module on
a solid apron wall

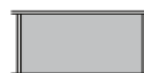


Multi-crossbar
module

Flat recessed partition



Full-height
solid module



Full-height
glazed module



Glazed module on
a solid apron wall



Multi-crossbar
module



Adjustable
module

Flat partition with wooden recess junction



Full-height
solid module



Glazed module on
a solid apron wall



Photography: DR Technal

sapa:



Project advise or study?



**Don't hesitate,
contact us**



