



Architect: Esther Santos - Photography: Wenzel

LUMEAL

THE MINIMALIST HORIZONTAL SLIDER







LUMEAL, design to enhance performance



Architect: B720 Arquitectos Photography: Sandra Karro

Design and innovation

LUMEAL Minimal, 100mm module, is a minimalist sliding system with a concealed opening sash. Its minimalist design ensures an 8 to 14% gain in glass surface area depending on the application. LUMEAL Minimal can be used to create different opening configurations combining a fixed section and sliding section, associated with a slim central meeting stile.

A solution for your low energy projects

LUMEAL Minimal offers a real solution for low energy building projects due to its very low air permeability and outstanding thermal performance. $0,52 \text{ m}^3/\text{h}/\text{m}^2$. $Q4 = 0,16$

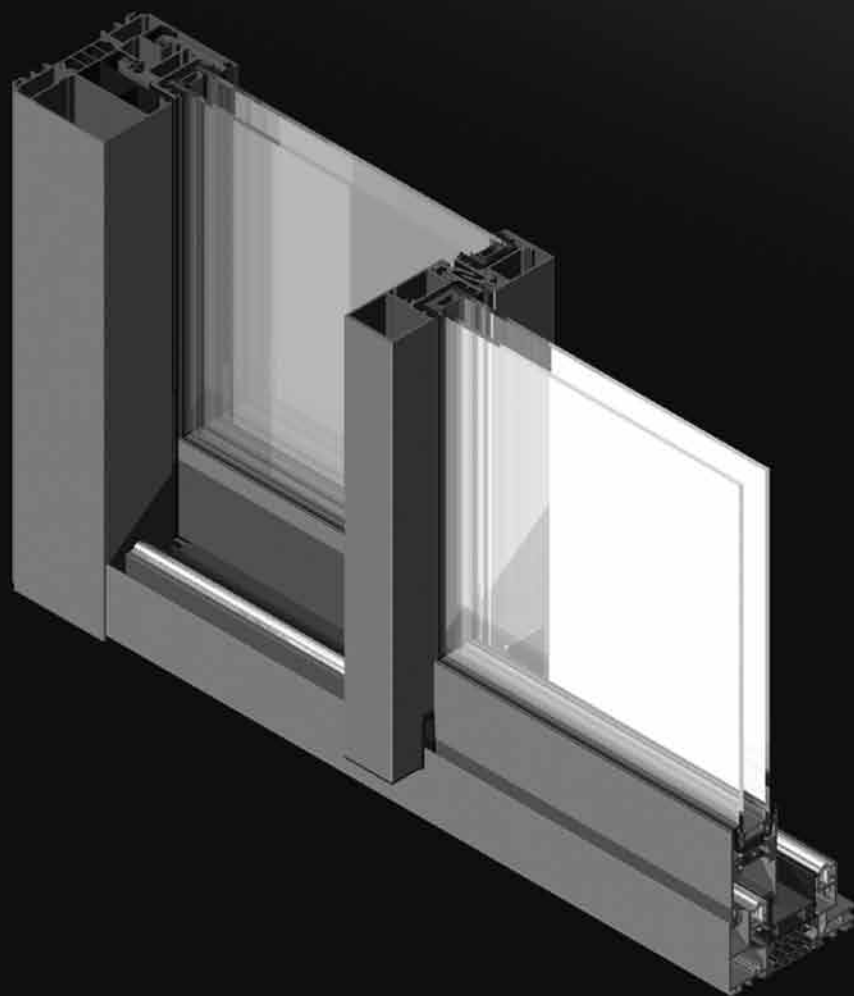
1 leaf + fixed section patio door (W: 3 m - H: 2,50 m)

$Uw = 1,2 \text{ W}/\text{m}^2.\text{K}$ et $Sw = 0,45$ TLw = 0,64

Double glazing with $Ug = 1,0 \text{ W}/\text{m}^2.\text{K}$ + insulating spacer with dimensions (W: 4,50 m - H: 2,70 m).



LUMEAL, an innovative sliding system



Features and key innovations

Large dimensions

- Maximum sizes up to W: 4,50 m - H: 2,70 m

Thermal performances

- Very low thermal conductivity $TLw = 0,65$
 - Up to $Uw = 1,2 \text{ W/m}^2\cdot\text{K}$ et $Sw = 0,45$
- Double glazing with $Ug = 1,0 \text{ W/m}^2\cdot\text{K}$ + insulation spacer with dimensions W: 4,50 m - H: 2,70 m.

Weather performances

Air permeability

- Very little loss, a solution for low energy building projects
- Up to $0,52 \text{ m}^3/\text{h}/\text{m}^2$ (1 leaf + fixed section: W: 3 m - H: 2,50 m) $Q4 = 0,16$

Acoustic performance

- Reduction equivalent to a hinged window / patio door
- 1 leaf + fixed section patio door (W: 2,8 m - H: 2,2 m) + fixed section: 37 dB (Ra, Tr)

Design

- Lighter aluminium weight (-35%) with only 68mm and 77mm of visible aluminium
- Slim central meeting stile
- Concealed drainage for all applications

Accessibility

- Device adapted for easy access.

Locking mechanisms

- Several handle options with a refined design, non-locking or 2-point and 3-point locking.



LUMEAL, an exclusive design

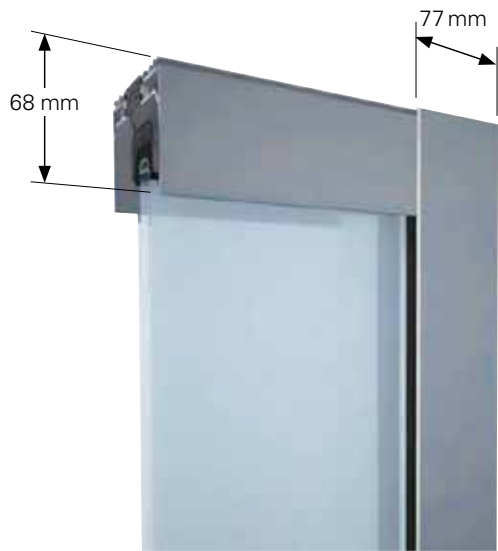
This attractive and effective solution is created using minimalist lines and an exclusive design.

The design optimises natural light. The pocket window has a distinct refined finish with no overlapping of profiles and concealed drainage. Square-jointed assembly also helps to refine the structure.

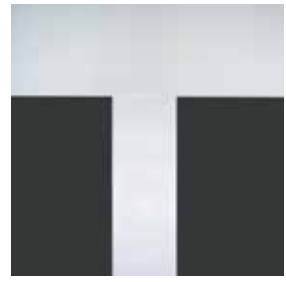
The concealed opening sash principle is used to create a more attractive finish. Only the frame remains visible with a 68mm aluminium sight line (in relation to a 150mm conventional sliding system) which maximises the glass surface area by +8%.

Several exclusive design handles are available to customise the sliding pocket window.





Frame detail:
frame-opening sash



Central mullion



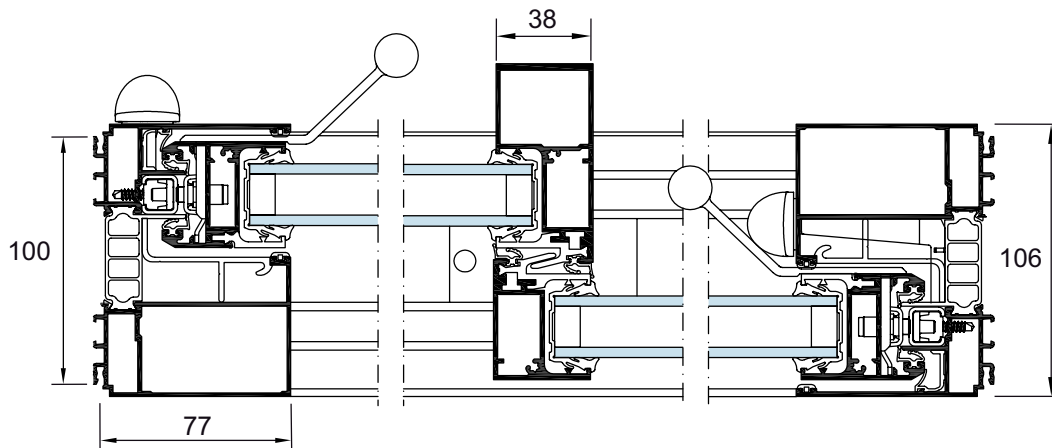
Exterior detail of frame:
frame-lower transom

Architect: Raimon Parera Photography: Eugeni Pons

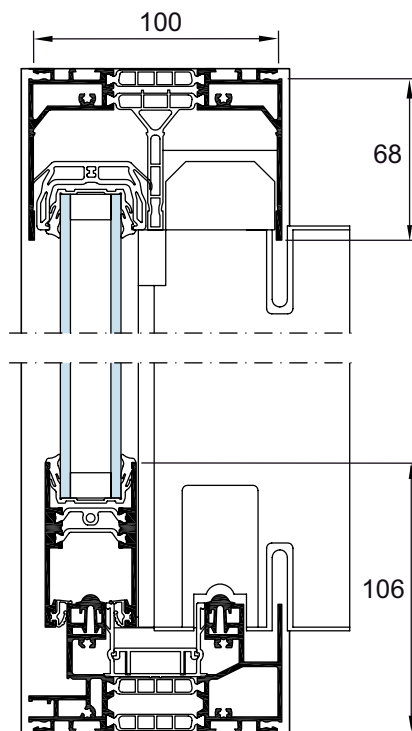


Section

2 leaves - 2 tracks



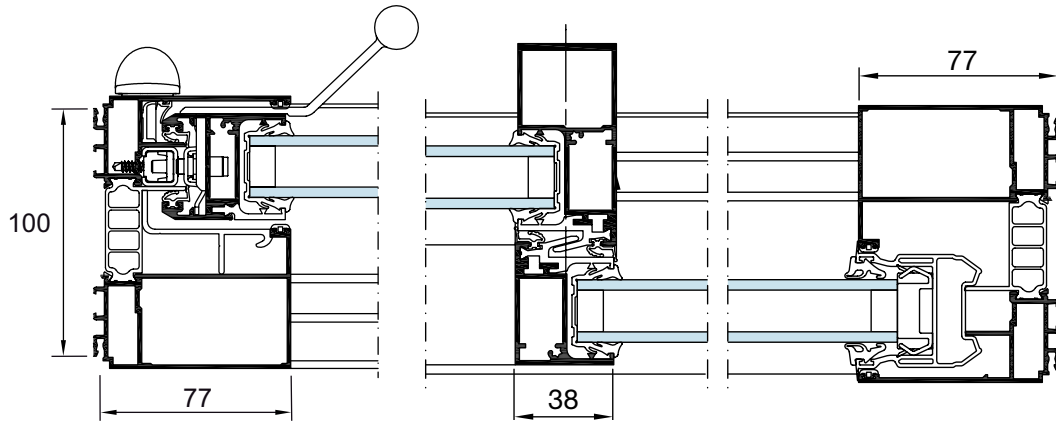
Horizontal section



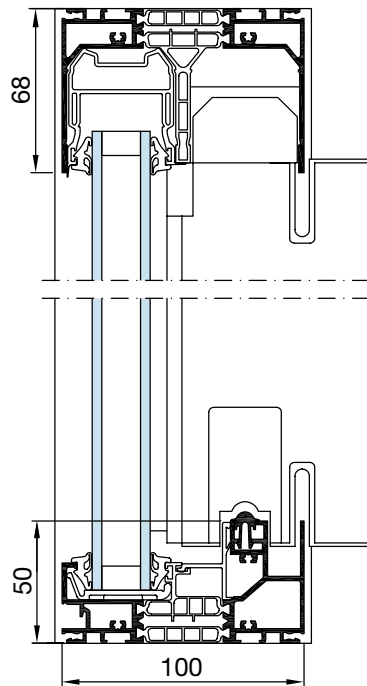
Vertical section



1 leaf + 1 fixed section - 2 tracks

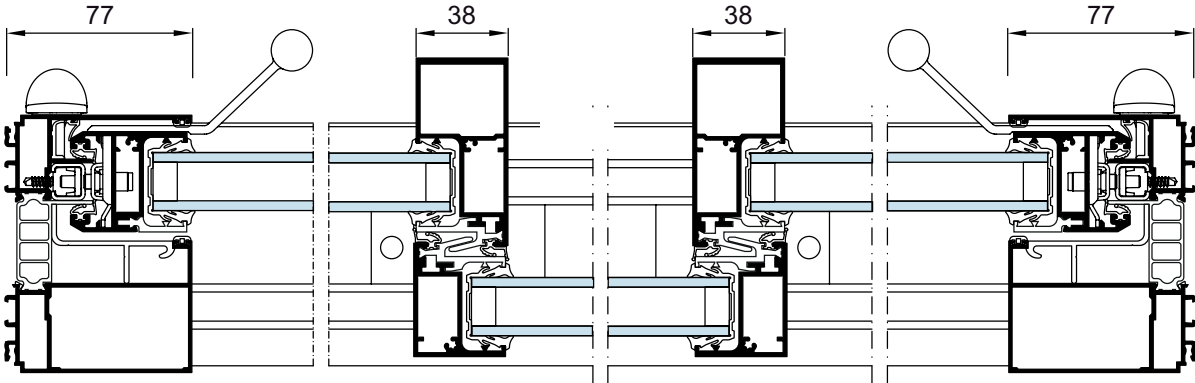


Horizontal section

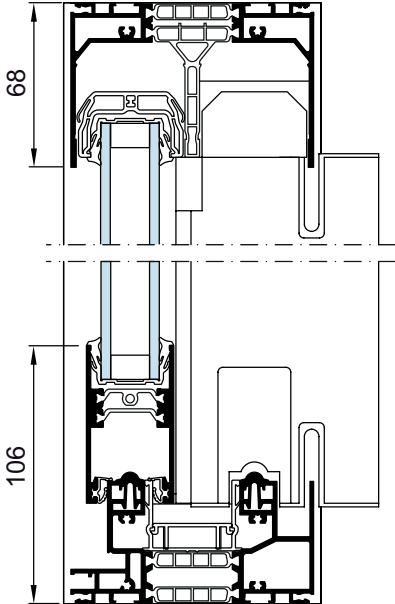


Vertical section

3 leaves - 2 tracks



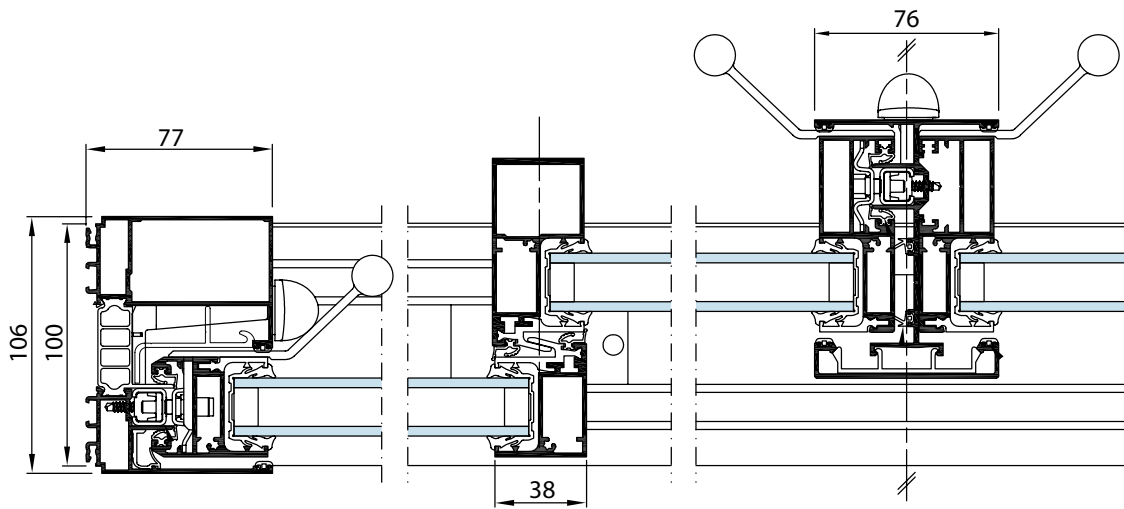
Horizontal section



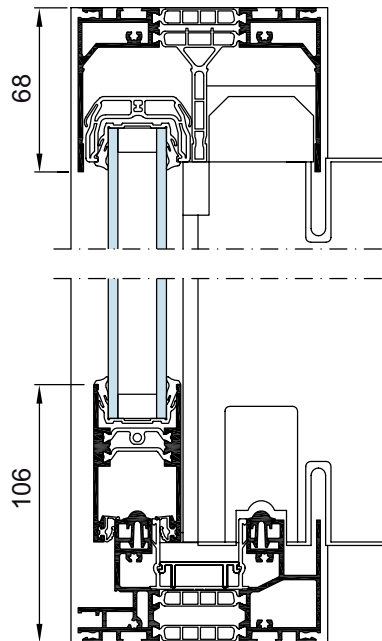
Vertical section



4 leaves - 2 tracks



Horizontal section



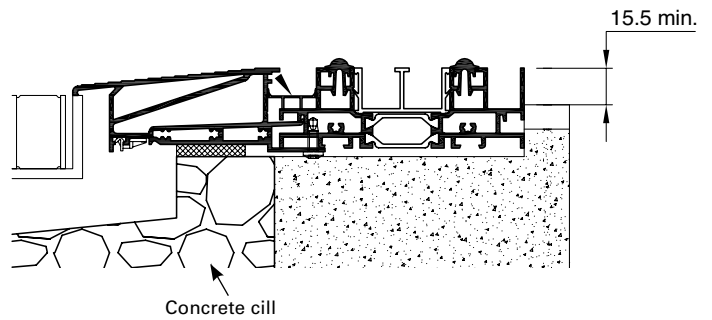
Vertical section

LUMEAL, accessibility

The LUMEAL patio door threshold complies with the French law N° 2005-102 passed on 11/02/2005 concerning building accessibility regulating patio door access whilst ensuring watertightness.

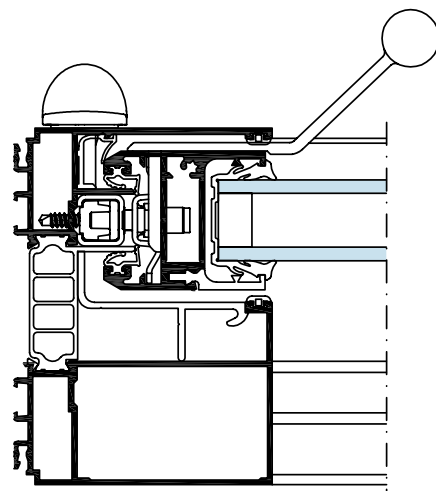


Disabled access
threshold



Security, forcible entry delay

Locking system inaccessible from the outside, with either non-locking or 2-point and 3-point locking.

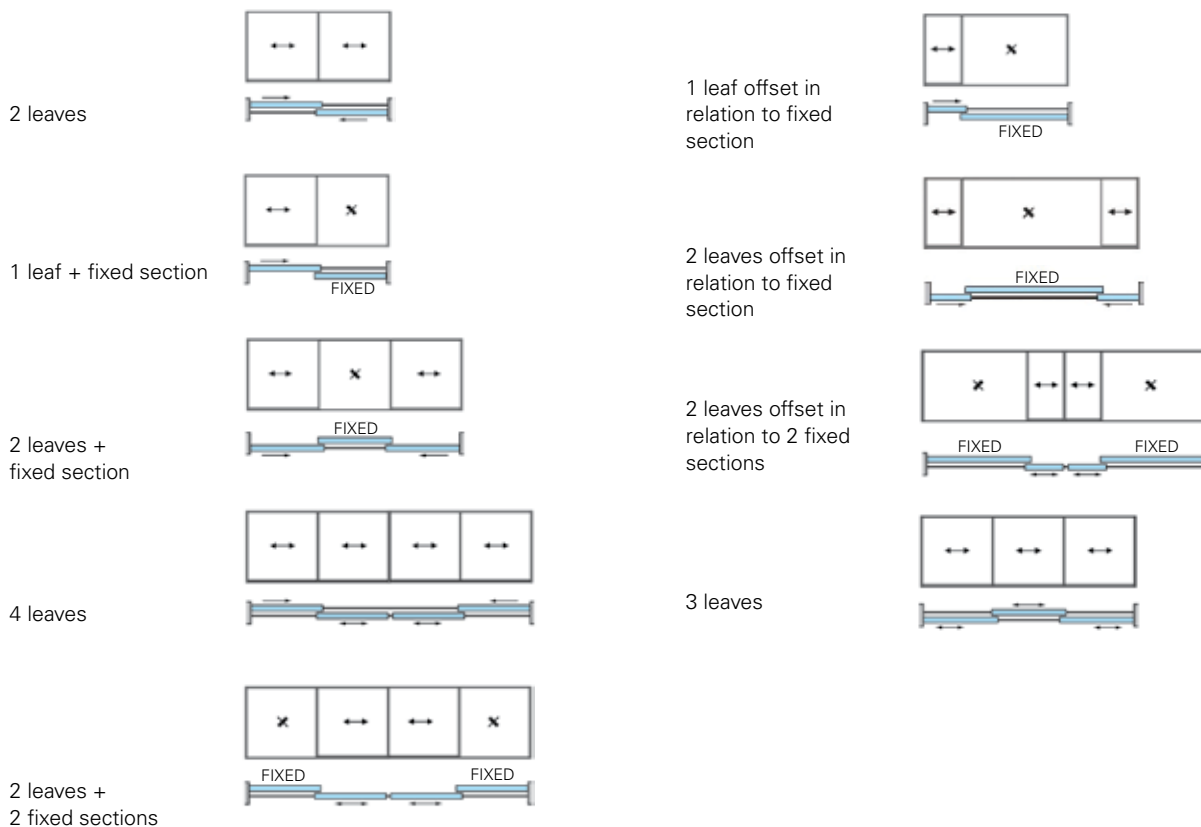


Multipoint lock inaccessible from outside

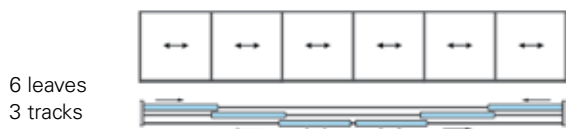
Applications

All of these applications are available with concealed drainage.

2 tracks

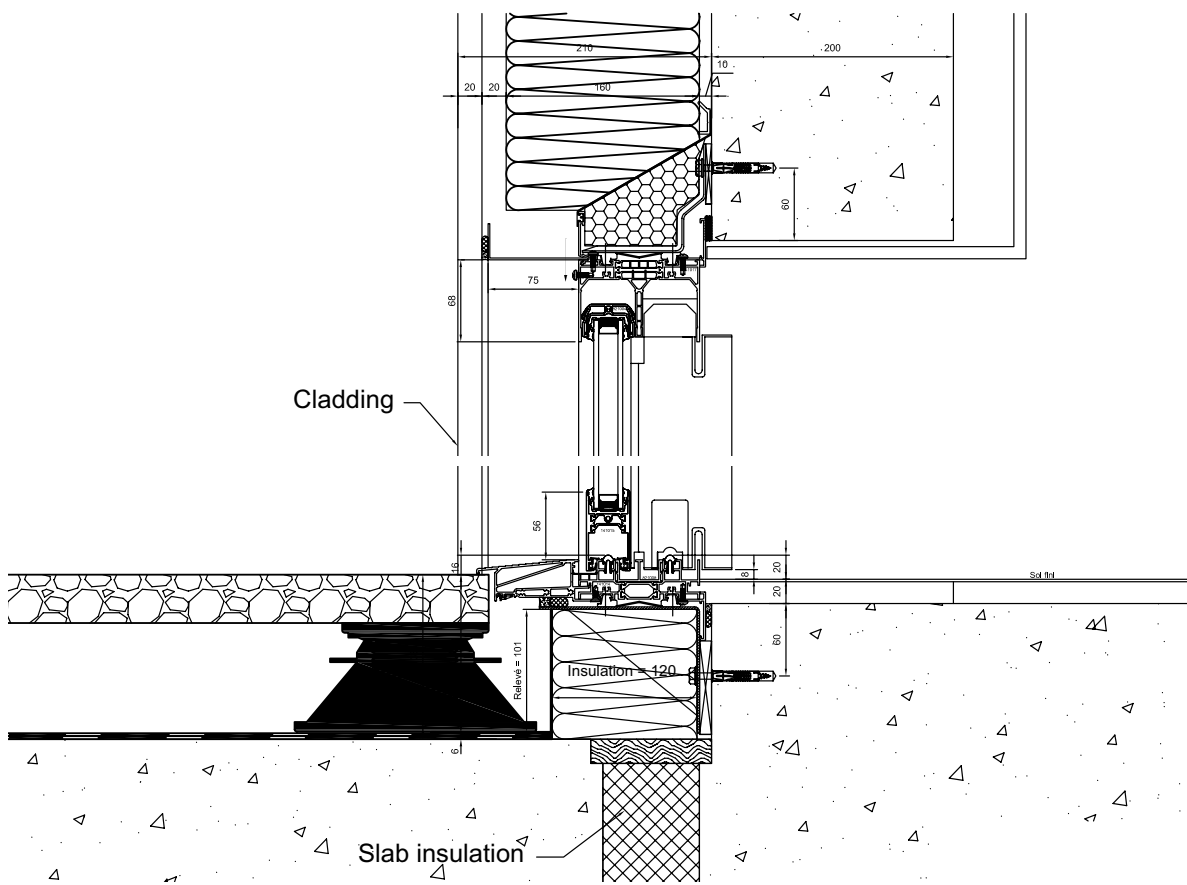


3 tracks



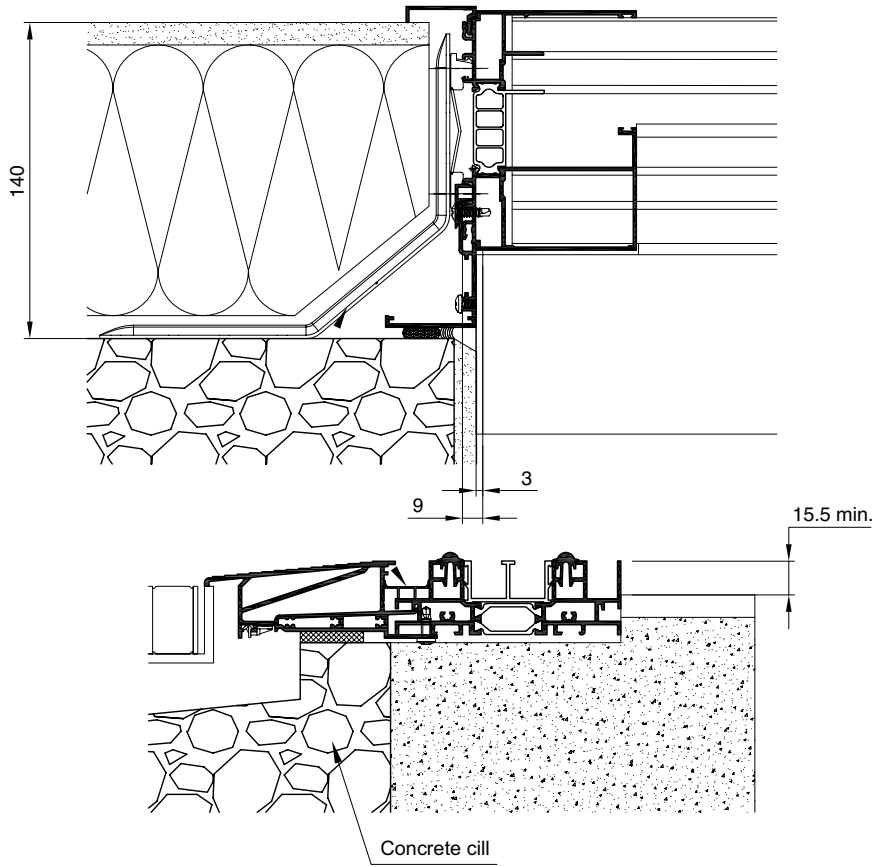
Installation options

Exterior insulation installation





Inside installation



Performance

Whether for residential or office buildings, the thermal regulations RT 2012 aim to fix a maximum energy consumption for new buildings.

These regulations do not impose a minimum requirement: Technal aims to support architects in this new objective.

The LUMEAL sliding system preserves the permeability of the building envelope due to its excellent Q100* and Q4 values.

*Q100 represents leakage from the frame at 100 Pascals. For Low Energy Consumption Building. Q100 must not exceed 5.1 for single-family housing or 8.5 apartment blocks (in m³/h.m²).

AIR, WATER, WIND SEALING PERFORMANCE						
Applications	W x H dimensions in mm	A	E	V	Q100	Q4
2 tracks – 1 leaf + 1 fixed section	3 x 2.5	4	7A	B3	1.39	0.16
2 tracks – 1 leaf + 1 fixed section – disabled access threshold	2.97 x 2.482	4	5A	B2	1,92	0.22
2 tracks – 2 leaves	3 x 2.5	4	7A	B3	1.9	0.22
2 tracks – 2 leaves – disabled access threshold	2.4 x 2.15	4	5B	B2	2.28	0.27
2 tracks – 4 drilled section leaves	3.5 x 2.35	4	5A	C3	2.93	0.34
3 tracks – 3 leaves	3.5 x 2.348	4	6A	B2	2,24	0.26

AIR PERMEABILITY FOR LOW ENERGY CONSUMPTION BUILDINGS (average per m ² including walls)		
	Q4 Pa Max	equivalent to Q100 Pa Max
Private housing m ³ /h.m ²	0.6	5.1
Apartment blocks m ³ /h.m ²	1	8.5

Note : $Q = Q_{100} \times (P/100)^{2/3}$

Q₁₀₀ = Leakage flow at 100 Pa
P = Pressure Pa
Q = Leakage flow at P Pa

ACOUSTIC PERFORMANCE								
Applications	Description	H x W dimensions in mm	Glazing			Windows		
			Ra	Ra,Tr	Rw (C; Ctr)	Ra	Ra,Tr	Rw (C; Ctr)
Window								
2 tracks – 1 leaf + 1 fixed section	44 - 1 Where (14)10	1.39 x 1.40	40	38	42	39	37	40
2 tracks – 1 leaf + 1 fixed section with disabled access threshold	44 - 1 Where (14)10	1.39 x 1.40	40	38	42	39	37	39
2 tracks – 2 leaves	44 - 1 Where (14)10	1.39 x 1.40	40	38	42	38	36	38
2 tracks – 2 leaves + 1 fixed section with disabled access threshold	44 - 1 Where (14)10	1.39 x 1.40	40	38	42	37	35	37
Patio door								
2 tracks – 1 leaf + 1 fixed section	44 - 1 Where (14)10	2.8 x 2.2	40	38	42	37	35	38
2 tracks – 2 hidden frame leaves	44 - 1 Where (14)10	2.954 x 2.268	40	38	42	36	34	37
2 tracks – 2 leaves	44 - 1 Where (14)10	2.8 x 2.2	40	38	42	37	35	38

In accordance with EN 14351-1, these window performances are valid for:

- Rw+Ctr (for index RA,tr) glass greater than or equal to the values of the glass tested-corrections
- 1 dB for leaf surface + 50% to + 100% / - 2 dB for + 100% to + 150% / - 3 dB for + 150% to + 200%

THERMAL PERFORMANCE - U _w				
Applications	W x H dimensions in mm	U _w with Ug 1.1	U _w with Ug 1.1 warm edge	U _w with Ug 1.0 warm edge
2 tracks – 1 leaf + 1 fixed	2.3 x 2.18	1.5	1.5	1.4
2 tracks – 2 leaves	2.3 x 2.18	1.6	1.5	1.5
2 tracks – 4 leaves	4.6 x 2.18	1.6	1.5	1.4
3 tracks – 3 leaves	3.45 x 2.18	1.7	1.6	1.5
3 tracks – 6 leaves	6.5 x 2.18	1.7	1.6	1.5

PERFORMANCE - SOLAR FACTOR			
Applications	W x H dimensions in mm	Sw with Ug 1.1 Sg of single glazing 0.6 *	Sw with Ug 1.0 Sg of single glazing 0.5
2 tracks – 1 leaf + 1 fixed	2.3 x 2.18	0.53	0.44
2 tracks – 2 leaves	2.3 x 2.18	0.53	0.44
3 tracks – 3 leaves	3.45 x 2.18	0.54	0.45

* Dark coloured sections, absorption equal to 1.0

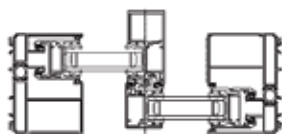
PERFORMANCE - LIGHT TRANSMISSION			
Applications	W x H dimensions in mm	TL _w with Ug 1.1 TL _g of single glazing 0.8 *	TL _w with Ug 1.0 TL _g of single glazing 0.7
2 tracks – 1 leaf + 1 fixed	2.3 x 2.18	0.68	0.6
2 tracks – 2 leaves	2.3 x 2.18	0.67	0.59
3 tracks – 3 leaves	3.45 x 2.18	0.69	0.6



Environmental Product Declaration (EPD)

Life cycle indicators	Unit per window	Results
Non-renewable primary energy	(MJ)	2912
Renewable primary energy	(MJ)	184.5
Water consumption	(kg)	3261
Reduction in abiotic resources	(kg Sb eqv.)	1.634
Climatic warming potential	(kg CO2 eqv.)	313.1
Ozone layer depletion potential	(kg R11 eqv.)	6.892E-005
Acidification potential	(kg SO2 eqv.)	1.33
Eutrophication potential	(kg PO4 eqv.)	0.1406
Photochemical ozone creation potential	(kg ethene eqv.)	0.1653
Non-hazardous waste	(kg)	10.14
Hazardous waste	(kg)	6.116

The indicators are calculated based on mean representative data for the production of aluminium in the European Union, and on generic data for a standard glass unit and standard gaskets.



Horizontal section of the system tested



Saint-Paul-lès-Dax College - Architect: Cabinet Hubert Photography: P. Loubet

Materials and components

As with all Technal systems, only high-quality materials and components are used to reduce maintenance and guarantee long-term performance.

- Aluminium sections are extruded using 6060 T5 EN 12020, EN 573-3, EN 515 and EN 775-1 to 9.
- Accessories are cast using Zamak 5 as in EN 12844.
- All gaskets are Thermoplastic elastomer (TPE) EPDM.
- Polyamide thermal breaks are extruded using PA6-6 (0,25 FV).
- Screws are stainless steel.

Finishes and colours

A wide range of finishes is available to meet the requirements of individual projects, to enhance existing buildings and to offer increased design choice to architects and designers.

- Natural anodised in compliance with EN123731: 2001.
- Polyester powder coating finishes in an extensive range of colours, in compliance with «QUALICOAT» standards.
- LUMEAL is also available in painted finishes in Exclusives Technal colours for a stylish and modern appearance.





1



2



3

1. Architect: José Luis Orobitg Photography: Wenzel
2. Architect: Raimon Parera Photography: Eugeni Pons
3. Architect: Stephane Giraud