

TENTAL

THE CIRCULAR FACADE



sapa:

By  Hydro



TENTAL

/ THE CIRCULAR FACADE

WITH TENTAL, ARCHITECTS CAN NOT ONLY IMAGINE THE WORLD WE ALL WANT, THEY CAN ALSO BUILD IT.

MORE POSSIBILITIES

The TENTAL curtain wall was created with a view to offering architects and consultants an extensive range of solutions, giving them as much creative freedom as possible when designing a facade.

TENTAL is a platform, with 50 mm and 60 mm wide aluminium profiles, that allows designing modular curtain walls with large-sized glazing units; seeking the maximum sensation of transparency along with a minimum sightline. Each module can integrate panels weighing up to 850 kg with a surface area up to 12.25 m², depending on the type of glass used. With a complete collection of caps, TENTAL offers a wide range of aesthetic solutions creating a smooth look.

Users can choose from an extensive range of windows, doors and sliding doors compatible with this curtain wall system. Complying to international standards, TENTAL reaches excellent weather and thermal performances but also high burglar resistance.

LESS IMPACT

Using Hydro CIRCAL[®], an alloy made with a minimum of 75% recycled end-of-life aluminium (post-consumer scrap), allows tons of scrap that would otherwise become solid waste to be reintroduced into the system. TENTAL's thermal break elements are made from partially recycled xPET, a material that gives a second life to drink bottles.

Four new patents allow for optimizing materials, simplifying manufacture, and facilitating installation, which is carried out dry, with no glue or sealants used on-site, no packaging and no waste. TENTAL has also been developed with an eco-design mindset to facilitate disassembly and circularity.

TENTAL is under certification to obtain Cradle to Cradle label. The specific characteristics contributes to constructing sustainable buildings that are eligible to be awarded to the main environmental certifications.

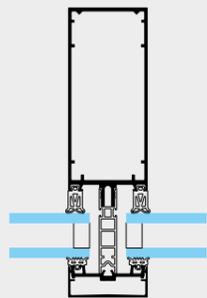
The TENTAL curtain wall is the perfect solution for current needs in terms of design and sustainability in the building industry.

TENTAL

/ THE WIDEST POSSIBLE RANGE OF FACADE SOLUTIONS

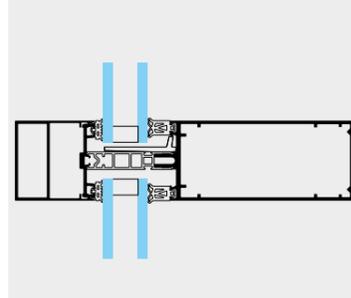
TENTAL FEATURE CAPS

- Sightline: 50 or 60 mm
- Infill: 6 to 62 mm
- Standard or high insulation level
- Pane drainage or mullion drainage
- Facet solution up to +/- 10°
- 90° corner solution
- Anti-burglary: RC2, RC3



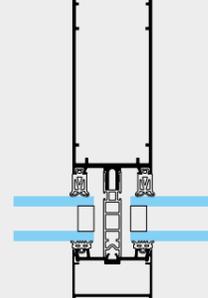
TENTAL HORIZONTAL LINE

- Sightline: 50 or 60 mm
- Infill: 6 to 62 mm
- Standard insulation level
- Pane drainage or mullion drainage



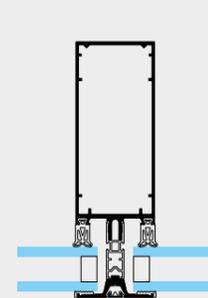
TENTAL VERTICAL LINE

- Sightline: 50 or 60 mm
- Infill: from 6 to 62 mm
- Standard insulation level
- Pane drainage or mullion drainage
- Facet solution up to +/- 10°



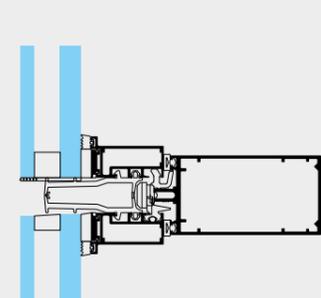
TENTAL FLAT CAP

- Sightline: 50 or 60 mm
- Infill: from 6 to 62 mm
- Standard or high insulation level
- Pane drainage or mullion drainage



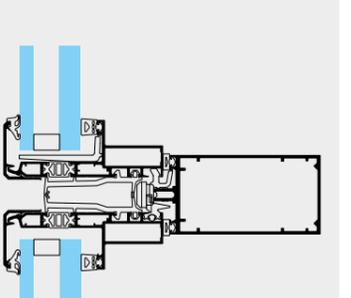
TENTAL SSG

- Sightline: 50 or 60 mm
- Infill: from 28 to 44 mm
- Standard insulation level
- Pane drainage



TENTAL BG

- Sightline: 50 or 60 mm
- Infill: from 28 to 44 mm
- Standard insulation level
- Pane drainage



TENTAL

/ MORE POSSIBILITIES. LESS IMPACT.



TENTAL

/ KEY FEATURES & INNOVATIONS

AESTHETICS AND MODULARITY

- Available in 50 and 60 mm module
- Multiple exterior aspects:
 - Feature cap aspect
 - Horizontal line aspect
 - Vertical line aspect
 - Flat cap aspect
 - Structural silicone glazed aspect
 - Bead glazed aspect
- Collection of caps that mark the identity of each facade
- A full pallet of exclusive colours
- Facet solution up to +/- 10°
- 90° corner post
- Concealed drainage with a central seal for panel drainage

EXTERNAL CLADDING

- The fixing bracket allows elements to be incorporated onto the outside of the facade for enhanced thermal comfort (management of solar gain):
- Envelope cladding: variety of decorative elements

INTERIOR AND EXTERIOR OPENINGS

- Compatible with a full range of present and future window, door and sliding systems
- High weather-tightness performances, for openings:
 - Air permeability: up to Class 4
 - Water tightness: up to E1500 Pa
 - Resistance to wind pressure: up to C5
 - Mechanical resistance: up to Class 3

LARGE DIMENSIONS

- Large infills up to 12,25 m²
- Maximum infill weight: up to 850 kg according to EN 13830, up to 820 kg according to NF DTU 33.1
- Maximum glazing thickness 62 mm

PERFORMANCES

(according to EN standards)

- Air permeability: up to AE 1500 Pa
- Water tightness: up to RE 1500 Pa
- Wind pressure resistance:
 - Service pressure: up to 2000 Pa
 - Security pressure: up to 3000 Pa
- Burglar resistance: RC2 and RC3
- Impact resistance: up to I5/E5
- Thermal performance:
 - U_i: up to 0.52 W/m²K
 - U_{cw}: up to 1.4 W/m²K (with U_g 1.1 W/m²K)
- Acoustic performance:
R_w [C;C_{tr}] = 43 [-1 ; -3] dB

INSTALLATION AND ASSEMBLY

- 3 glazing installation techniques:
 - Continuous pressure plate
 - Punctual pressure plate
 - Structural glazing
- Patented dry connection method⁽¹⁾

SOFTWARE

- Available in TechDesign and Tech3D.
- Available BIM models

SUSTAINABLE CIRCULAR FACADE

- Designed for assembly and disassembly
- Components are made of 75% recycled and 95% recyclable material
- Cradle to Cradle® under certification
- Available in Hydro CIRCAL®, aluminium made with a minimum of 75% recycled end-of-life aluminium. This aluminium has one of the lowest CO₂ footprints worldwide: 2.3 kg of CO₂/kg aluminium.
- Dynamic EPD available on TechDesign

⁽¹⁾ Available in 2022.

TENTAL

/ MORE INNOVATION

ASSEMBLY

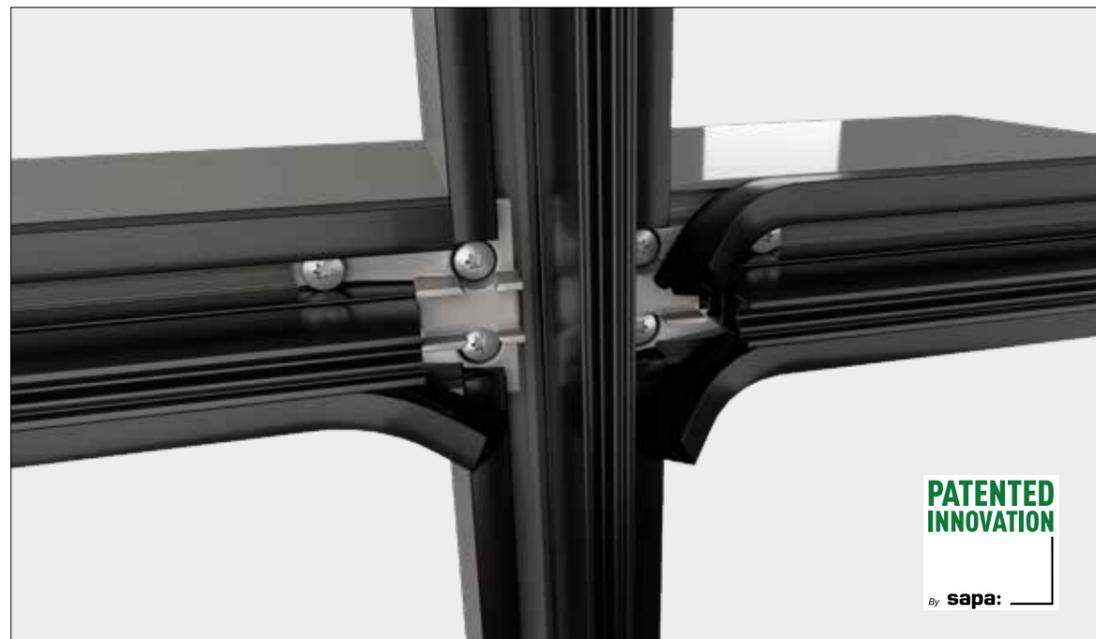
- Simple and quick to manufacture:
 - Patented dry connection of the internal glazing gaskets
 - Patented dry transom/transom connection ⁽¹⁾
- Developed for an improved and reliable assembly in a controlled workshop environment.

BIG GLASS SURFACES

- Maximum glass loads (up to 850 kg according to EN 13830, up to 820 kg according to NF DTU 33.1) are reached by means of:
 - Dedicated and reinforced transoms.
 - Reinforced “tubular” glass supports.
 - Screwed T-blocks.
 - Heavy load pins between connecting transom and mullion

CIRCULARITY

- All aluminium profiles are made of recycled aluminium with a minimum of 75% post-consumer scrap.
- Ecodesign: developed for easy disassembly.



Dry connection of inner gaskets

**PATENTED
INNOVATION**
By **sapa:**

TENTAL

/ MORE DESIGN

COLLECTION OF CAPS

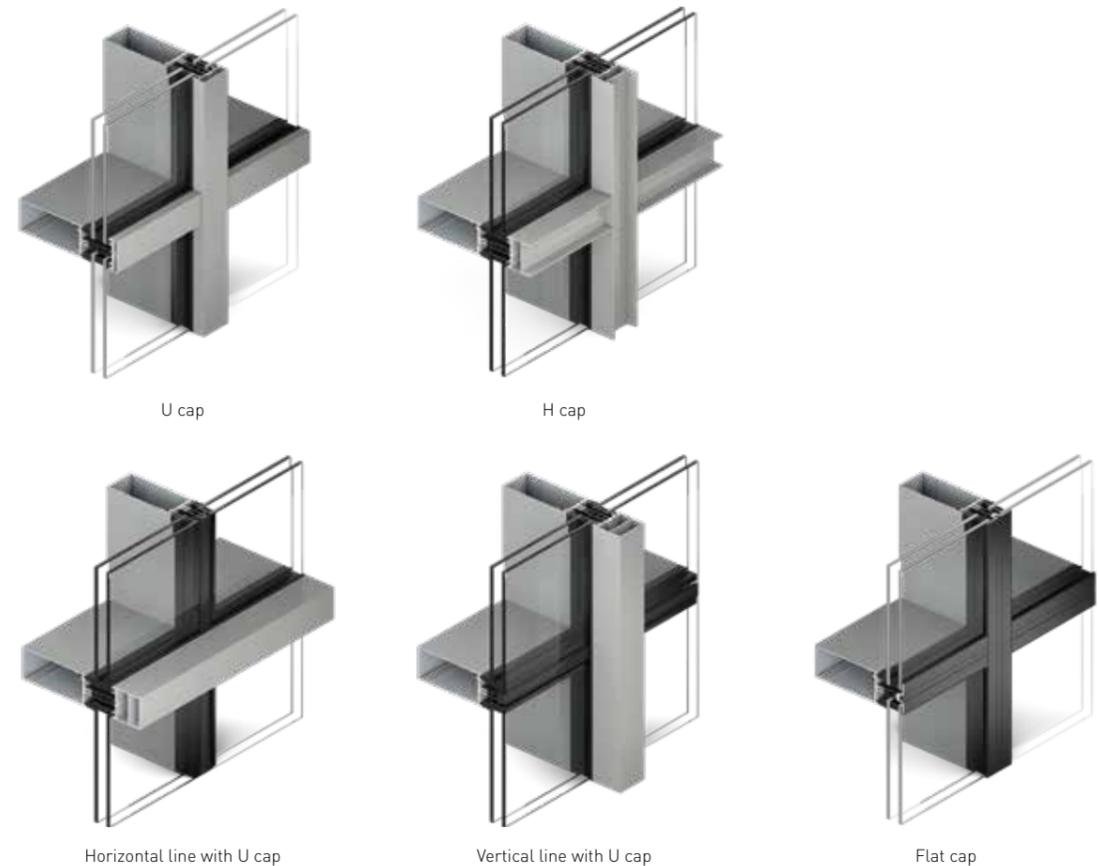
SAPA offers a complete collection of caps that marks the identity of each facade. A flat and discrete design (height 4.5 mm) for providing a crystal-clear envelope, an “Aero”, “H” shape or “U” shape for accentuating lines. These shapes can also be combined for reinforcing the original character of the building in order to meet the specific requirements of specifiers.

90° ANGLE, THIN ALUMINIUM VIEW

With corner post implementation it allows to make 90° angles with less aluminium seen from inside.

They contribute to the fineness of the structure while supporting the construction of large glazed surfaces.

TENTAL also enables 90° convex angles to be created with edge-to-edge glazing in accordance with French building regulation P39 1-1.



U cap

H cap

Horizontal line with U cap

Vertical line with U cap

Flat cap

TENTAL

/ MORE POSSIBILITIES

LARGE DIMENSIONS

Based on a 50 or 60 mm module and featuring several patents, TENTAL curtain walling optimizes grids of residential and commercial buildings, new builds or renovations. It offers large glazed surfaces up to 12.25 m² and weighing up to 850 kg.

CHOICE OF ASSEMBLY TECHNOLOGIES

TENTAL gives the opportunity to choose between:

- transom / transom or mullion / transom technology
- continuous pressure plate or punctual pressure plate

VARIETY OF SHAPES

- Visual consistency between the transoms and mullions to create a continuous line
- Possibility of a continuous or asymmetric grid
- Facade can be faceted +/- 10°



TENTAL

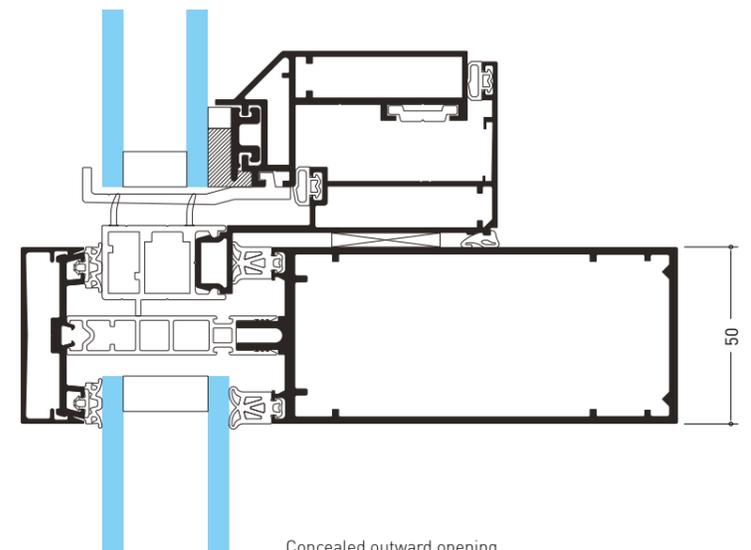
/ OPENING INTEGRATIONS

INWARD AND OUTWARD OPENING WINDOWS

Concealed windows specially designed for TENTAL facade allowing inward openings (side hung, tilt and turn or turn and tilt) or outward openings (top hung or parallel). Innovative solution of fixed frames with thermal barrier created, enabling 2 openings side by side or in alternation with a fix frame.

The concealed opening aspect is made by using SSG technique.

Integration is possible with feature caps, horizontal line, vertical line and flat cap exterior designs.



TENTAL

/ MORE COMFORT

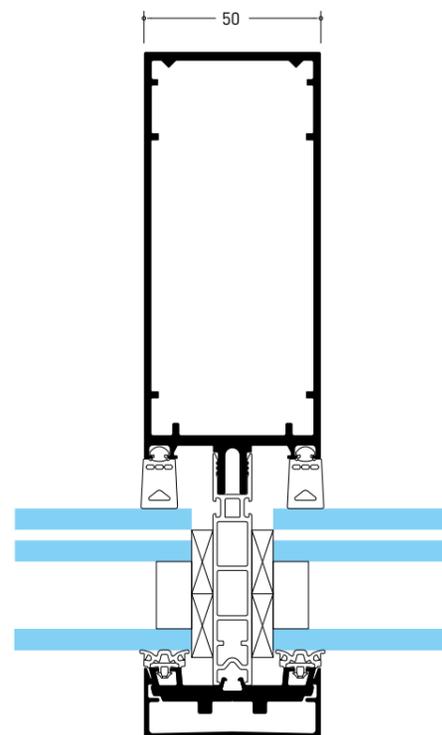
TENTAL offers an elevated level of comfort:

- Compatibility with full range of windows, doors and sliders
- Integration of solar control
- Complying to the highest international standards
- Tested burglary resistance

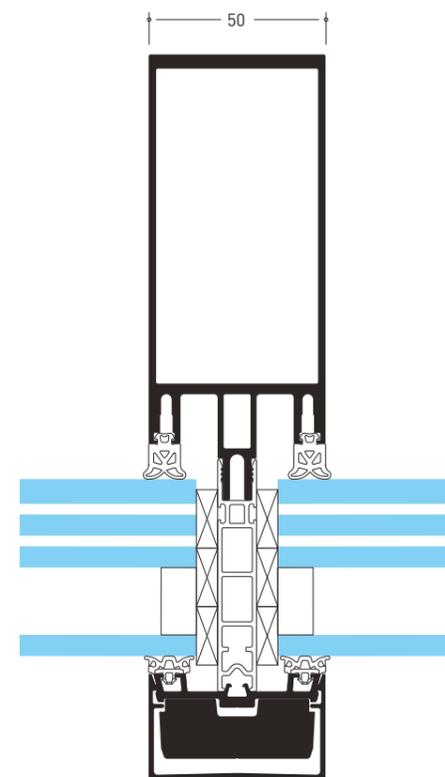
Facade TENTAL grid aspect is burglary resistant according to the EN 1628 -2011, EN1629 - 2011 and EN 1630 -2011 standards.

Ideal for car dealerships, banks, jewellers, luxury brands, police stations, etc.

- Resistance class level 2 with glazing P4A
- Resistance class level 3 with glazing P5A



Resistance class level 2



Resistance class level 3

TENTAL

/ MORE COMFORT

A SOLUTION TO MEET YOUR NEEDS

SAPA has developed fixing brackets which are positioned on the mullion of TENTAL curtain walling and allow for the integration of sun shading blades or a stretched canvas solution whilst maintaining the overall performance - a perfect combination of aesthetics and efficiency. This range enables you to personalise the design and to optimise comfort with a wide choice of solutions: vertical or horizontal sun blinds, fixed or motorised with many possibilities.

SUN SHADING: DESIGN AND PROTECTION

The SUNEAL sun shading can be integrated with all aspects of TENTAL curtain walling: grid or vertical frames as well as independent structure. This SUNEAL sun shading allows you to customise the design and optimise comfort with a wide choice of solutions: vertical or horizontal, fixed or moveable, manual or motorised sun shading.

From 100 mm to 300 mm fixed blades are adaptable and the multitude of available shapes (ogive, rectangular, louvre or perforated sheets) increase the wall cladding options.

Interior comfort is optimised and you can enjoy warmth from the sun in the winter and solar protection in the summer, as well as energy savings by adjusting the amount of natural light entering the rooms.



Photographer: Hans Couckuyt

TENTAL

/ MORE COLOURS



SAPA RELEASES THE COLOURS FOR A LIVING ARCHITECTURE

Ever faithful to its creative and architectural logic, SAPA has enriched its colour range with different collections. To highlight the EXCLUSIVE COLLECTION.

At first glance, it's the material that speaks. This voice comes from the colours themselves, which are sometimes concrete and solid and sometimes light and volatile.

This choice of material is also enhanced by looks or finishes: the classic / satin / gloss duo is joined by textured, matt, metallised, spangled or even iridescent finishes.

This visual and tactile experience is primarily an echo of noble and ancestral materials - the rustic character of the earth, the raw harshness of adobe, the grain of stone - all expressed through colour.

It's also the imprint of innovation which mixes the ephemeral play of light and the changing nature of pigment in colour and recreates a new materiality that has never been seen before.

FINISHES AND COLOURS

A wide range of finishes and colours is available to meet individual project requirements, enhancing existing buildings and offering architects and designers greater design freedom:

- Natural anodised in accordance with "QUALANOD" instructions. EN 23731:2001.
- Polyester coating finishes in a wide range of colours in accordance with "QUALICOAT" and "QUALIMARINE" instructions.
- TENTAL is also available in lacquered finishes with the colour range EXCLUSIVE® for a stylish and contemporary look.

EXCLUSIVE / CLASSIC COLLECTION

The Classic Collection is made up a unique selection of aluminium finishes offering different material effects: grained, frosted and patina. Every face of metal is explored to combine colour, texture and light.



EXCLUSIVE / DOWNTOWN COLLECTION

Developed in collaboration with architects, this collection is made up of eight 100% exclusive colours which enhance the aluminium. The combination of materials and light effects highlight the simplicity and elegance of the subtle colours which are reminiscent of natural materials.





TENTAL

/ LESS IMPACT

Producing aluminum has an impact on the environment: locally where we operate, and on the global climate due to greenhouse gas emissions. The main inputs related to our production, are bauxite, energy, water. As the leading fully integrated aluminum company, we are responsible for operating in an environmentally conscious way.

By continuously improving the way we produce our aluminum building systems, we strive to minimize the impact our activities have on the environment, especially in biodiversity, water stewardship and climate change.

TENTAL

/ COMMITMENT AND SUSTAINABILITY

SAPA demonstrates its strong commitment to the environment in all areas: by using recycled and low-carbon materials, with a product design that is adapted to a circular economy, and produced within a responsible supply chain. In addition, these statements are certified by external organisations to ensure maximum transparency.

HYDRO CIRCAL®

We are demonstrating our focus on sustainability by using Hydro CIRCAL® for our system solutions, one of the most sustainable aluminium alloys in our sector. Hydro CIRCAL® is a range of prime quality aluminium made with a minimum of 75% recycled end-of-life aluminium (post-consumer scrap). The production process is verified by an independent third party (DNV-GL), and confirmed by an EPD (Environmental Product Declaration). Hydro CIRCAL® also has **one of the smallest CO₂ footprint worldwide: 2.3 kg CO₂ per kilo of aluminium** – 4.5 times less than the world global primary average.

RECYCLED & RECYCLABLE

Following our path to the certified circular economy, all of our systems are composed with a majority of materials and components that can be infinitely recyclable, that can come from recycled raw materials, that can be recycled to have a second life or components that can also be reused.

In rough figures, we're talking about **75% recycled content and 95% recyclable content**. It's an efficient way to drastically reduce the impact of materials on the life cycle of a building. Finally, our greener approach goes a step further thanks to recycled thermal strips for 75 mm modules.

75% RECYCLED POST CONSUMER
Hydro CIRCAL® is the world's first certified recycled aluminium which means that at least 75% of the prime-quality aluminium alloy comes from post-consumer materials.

95% ENERGY SAVED
By recycling post-consumer scrap aluminium, the remelting process saves up to 95% of energy that would normally be spent and maintain the same high quality as primary aluminium.

85% REDUCTION OF CO₂ EMISSIONS
The consequence of using Hydro CIRCAL® is the drastic reduction in CO₂ emissions which sums more than 85% when compared with the global average for primary aluminium production.

TENTAL

75% RECYCLED
95% RECYCLABLE



TENTAL

/ CERTIFICATIONS



CRADLE TO CRADLE (C2C) CERTIFICATION

From its design to the selection of materials and how it is manufactured, the product must offer the level of performance required by the market by reducing, to the greatest extent possible, environmental impacts such as energy consumption or greenhouse gas emissions. We classify our range under the criteria of the Cradle to Cradle seal, an independent institute that certifies products and processes from a circular economy perspective. We have numerous Cradle to Cradle certified series, including the manufacturing in our plants. In this way, we are able to ensure that the carbon footprint of transporting our products is as low as possible.

Our facade is under certification.



ALUMINIUM STEWARD INITIATIVE (ASI)

ASI is a multi-stakeholder, non-profit, standards-setting and certification organisation. It is the most internationally recognised standard, which addresses the environmental, social and governance (ESG) aspects of the entire aluminium value chain. The assessment is based around the sustainable production of aluminium, from bauxite or mining to the production of semi-fabricated products, taking into account the recycling of pre- and post-consumer scrap. Hydro was one of the first companies, that received this recognition, in accordance with its commitment to a more sustainable future.

100% of our extrusion plants are ASI Performance Standard Certified.



ENVIRONMENTAL PRODUCT DECLARATION

An Environmental Product Declaration (EPD) is an independently third party-verified document that communicates precise, transparent and comparable information about the life-cycle environmental impacts of a product. But it is not only limited to products, such as a window, but can also be applied to materials (an aluminium billet), assembly parts of products or even for services (like maintenance). This document is used for many different applications, e.g. public procurement or green building rating schemes (i.e. BREEAM, LEED, DNGB).

Thanks to our software TechDesign, it's possible to generate a dynamic EPD according specified dimensions, applications any type of glazing.



Architect: OECO Architectes
Photographer: Kevin Dolmaire



TENTAL

/ FEATURE CAPS



FLAT OR FACETED FACADES

Glazing available from 6 mm to 62 mm for flat or faceted curtain wall up to +/- 10°.

OPTIMISED DISTRIBUTION OF LOADS

To prevent unacceptable deflection of the transoms and to allow the use of heavy and large glazing infills (up to 850 kg), a connector, an anti-rotation spigot and heavy load pins are used.



CONCEALED OPENING WINDOWS

The projecting top-hung, parallel, tilt-turn or emergency access opening vents provide natural ventilation whilst maintaining the aesthetic lines whatever the appearance of the external facade.

COMMON STRUCTURE FOR 50 AND 60 MODULE PROFILES

Range of profile depths to meet the needs of each project.

CHOICE OF GASKETS

Available as large vulcanised rubber frames or linear pieces depending on project requirements.

ENHANCED THERMAL AND ACOUSTIC PERFORMANCE

Enhanced thermal performance is reached by means of xPET insulators. Enhanced acoustic and thermal performances with glazing up to 62 mm.

INFILLS

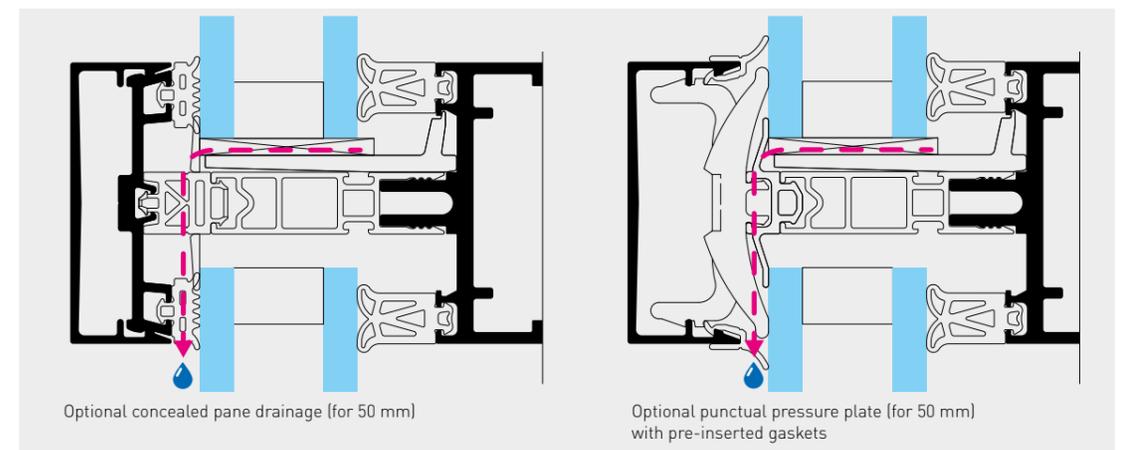
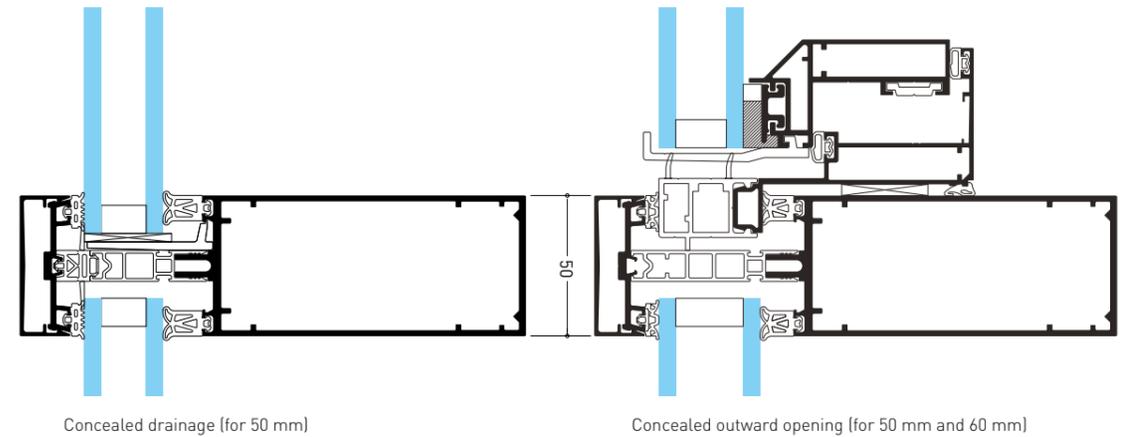
The infills are held in place with a continuous aluminium pressure plate or a specific punctual polyamide pressure plate for 50 mm.

DRY GLAZING

Patented dry connection of the internal glazing gaskets
Patented dry transom/transom connection

DESIGN

Choice of aluminium caps to highlight the external design of the facade.



CONSTRUCTION

- Simplified manufacturing. The mullions and transoms are optionally straight cut and assembled using a combination of cast spigots face fixed and concealed anti-rotation spigots for ease of manufacture.
- Faceted facades. For facets up to ±10°, standard connectors may be used.
- Special option. The transom assembly block options offers an alternative to anti-rotation spigots in order to meet requirements of design or the project in general.

PERFORMANCE

- Advanced thermal performance. The thermal insulation of the standard TENTAL feature capped solution is obtained via an ABS thermal insulator between the pressure plates and the mullion and transom structure. This principle ensures optimal thermal performance and meets or exceeds building regulations' requirements. Optional xPET insulators can be applied to reach the highest thermal performances.
- Thermal insulation with glazing
 - Fixed curtain wall (transom-transom) with 80% glazing (24 mm insulating panel, $U_p = 1.2 \text{ W/m}^2\text{K}$) $U_{cw} = 1.4 \text{ W/m}^2\text{K}$.
 - Fixed curtain wall (mullion-transom) with 50% glazing (80 mm insulating panel, $U_p = 0.37$) $U_{cw} = 1.0 \text{ W/m}^2\text{K}$.
- Air, water and wind resistance in accordance with European standards.

TENTAL

/ HORIZONTAL LINE - VERTICAL LINE



FLAT OR FACETED FACADES

Glazing available from 6 mm to 62 mm for flat or faceted curtain wall up to +/- 10°.

OPTIMISED DISTRIBUTION OF LOADS

To prevent unacceptable deflection of the transoms and to allow the use of heavy and large glazing infills (up to 850 kg), a connector, an anti-rotation spigot and heavy load pins are used.

INFILLS

The infills are held in place with a continuous aluminium pressure plate or a specific punctual polyamide pressure plate for 50 mm

CONCEALED OPENING WINDOWS

The projecting top-hung, parallel, tilt-turn or emergency access opening vents provide natural ventilation whilst maintaining the aesthetic lines whatever the appearance of the external facade.

COMMON STRUCTURE FOR 50 AND 60 MODULE PROFILES

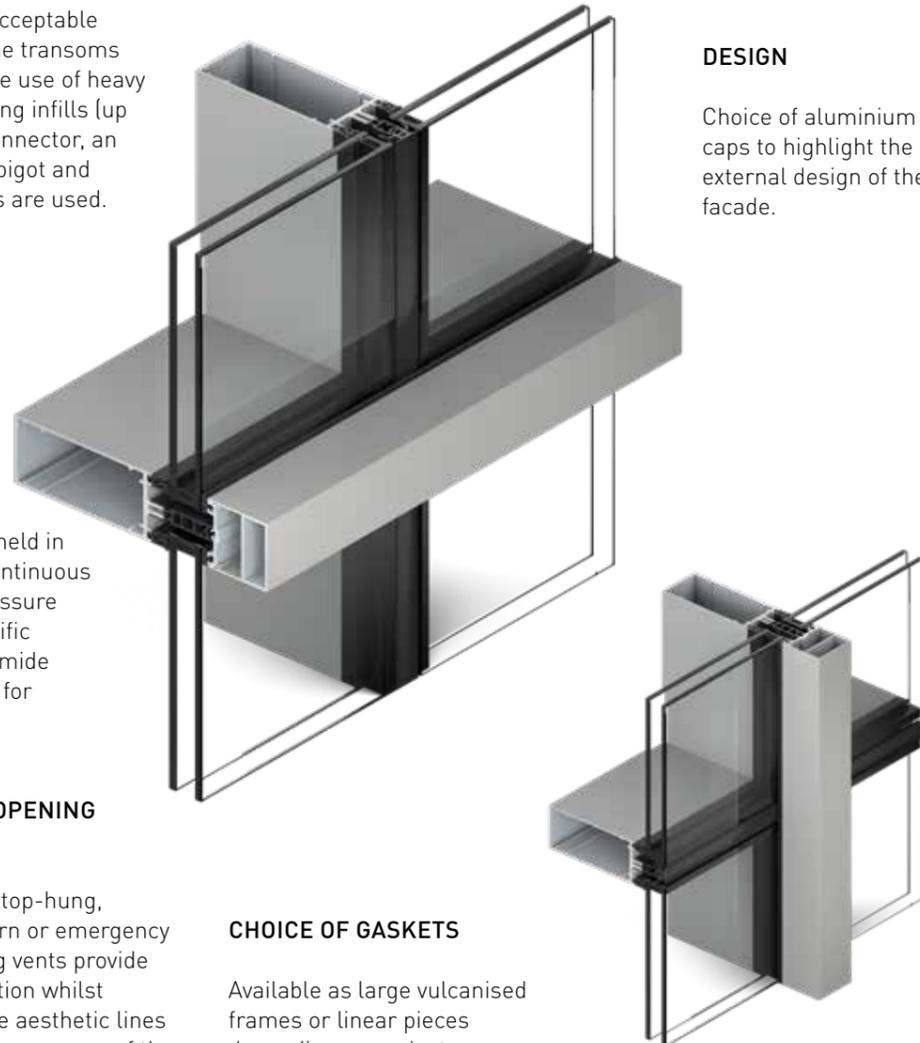
Range of profile depths to meet the needs of each project.

ENHANCED THERMAL AND ACOUSTIC PERFORMANCE

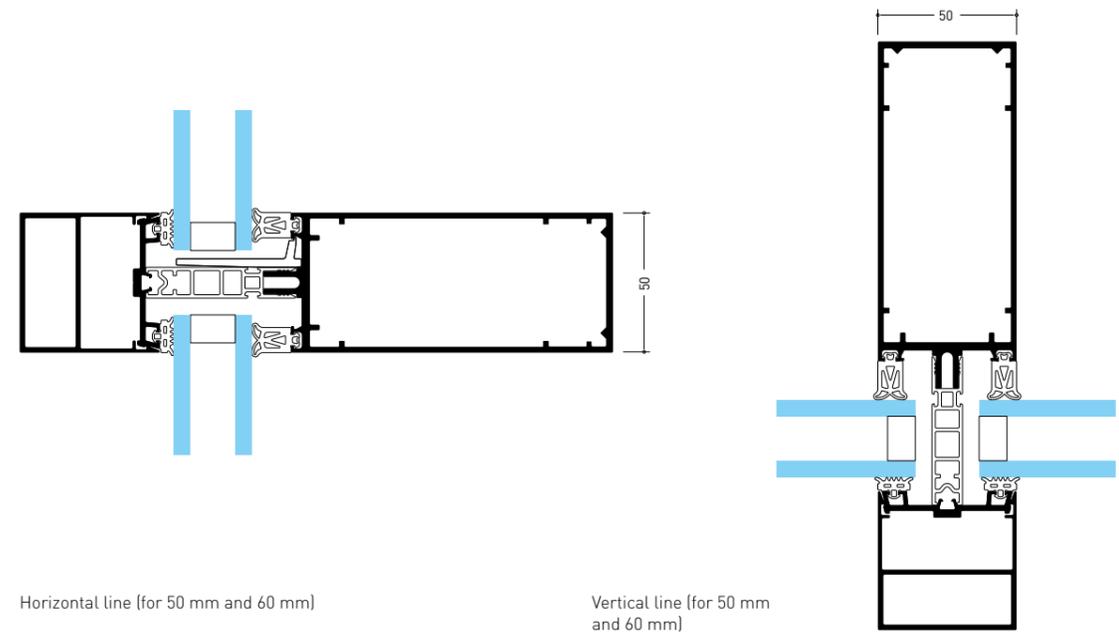
Enhanced thermal performance is reached by means of xPET insulators on the horizontal or vertical line. Enhanced acoustic and thermal performances with glazing up to 62 mm.

DESIGN

Choice of aluminium caps to highlight the external design of the facade.



Vertical Line



Horizontal line (for 50 mm and 60 mm)

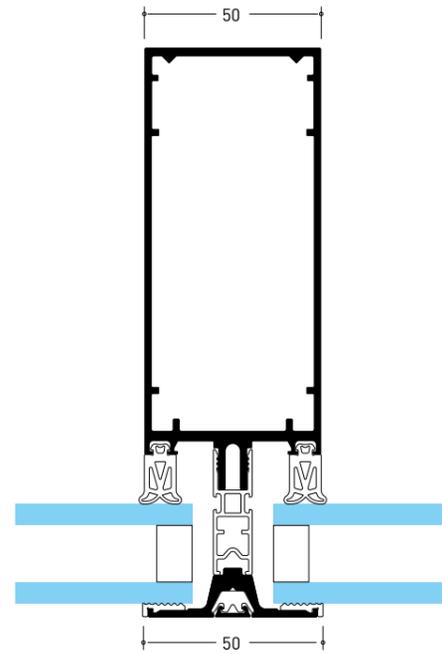
Vertical line (for 50 mm and 60 mm)



Architect: Valenti Alvarez Planas
Photographer: Simón Garcia

TENTAL

/ FLAT CAP



FEATURES

- For 50 mm and 60 mm module
- Black anodized flat pressure plate of 4.5 mm depth
- Infill up to 62 mm
- Maximum weight: 850 kg by glazing panel
- Possibility to realize an all-glass facade with horizontal or vertical line

PERFORMANCES

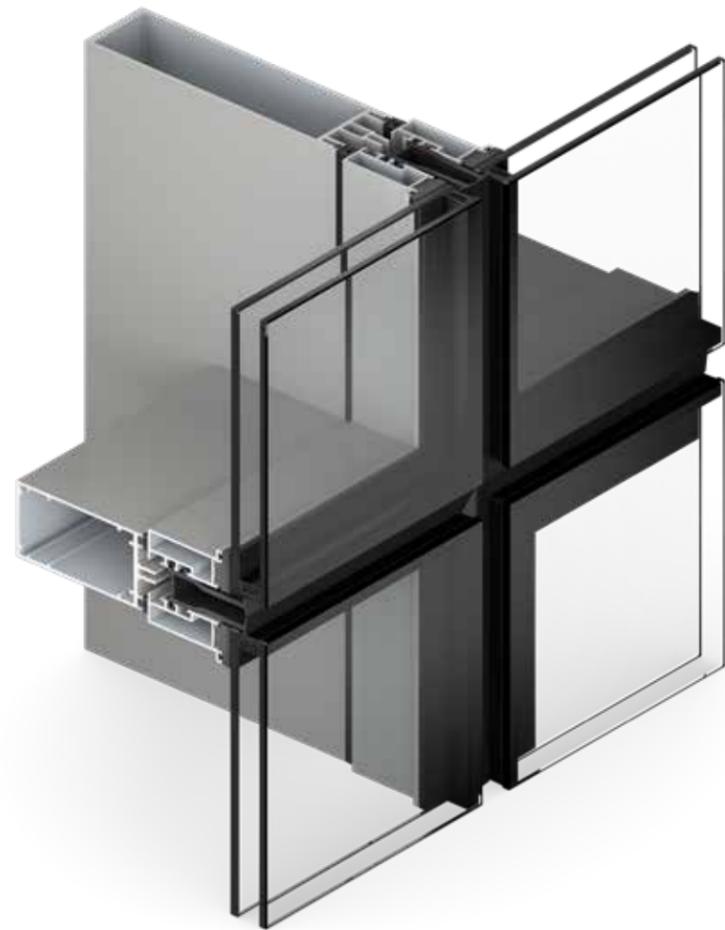
- Advanced thermal performance. The thermal insulation of the standard TENTAL feature capped solution is obtained via an ABS thermal insulator between the pressure plates and the mullion and transom structure. This principle ensures optimal thermal performance and meets or exceeds building regulations' requirements. Optional xPET insulators can be applied to reach the highest thermal performances.
- Air, water and wind resistance in accordance with European standards.



Photographer: Hans Couckuyt

TENTAL

/ STRUCTURAL SILICONE GLAZING



LESS VISIBLE ALUMINIUM

The TENTAL SSG system meets the demand for glazed facades with a smooth finish and no externally visible aluminium. The glazing units panels are bonded onto the carrier frames with silicone.

GLAZING

from 28 to 44 mm

COMMON STRUCTURE FOR 50 AND 60 MODULE PROFILES

Range of profile depths to meet the needs of each project

FLAT OR FACETED FACADES

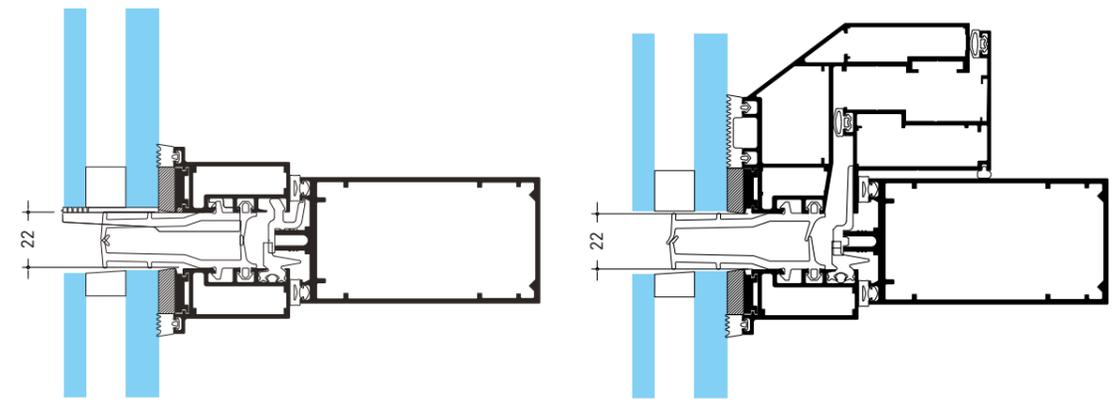
Outgoing angle 0 / +5°

CONCEALED OPENING WINDOWS

- Integrated inward opening:
- Side hung
 - Tilt & Turn
 - Fireman's access
- Integrated outward opening:
- Top hung
 - Parallel opening

QUALITY ASSURANCE

The system is manufactured and bonded in the factory by certified companies in accordance with European standards.



Fixed Structural Silicone Glazing (SSG)

Concealed outward opening window



Photographer: John Kees

GLASS PANELS

- Fixed frames:
- W 1,35 m x H 3.00 m
 - Max weight: 250 kg
- Openings:
- W 1,35 m x H 1,80 m
 - Max weight top-hung: 160 kg
 - Max weight parallel: 200 kg

TENTAL

/ BEAD GLAZING



A CONTEMPORARY ALTERNATIVE

The external beaded frame option of the TENTAL system makes it possible to create curtain walling with a "frame" aspect.

GLASS PANELS

Fixed frames:

- W 1,35 m x H 3.00 m
- Max weight: 250 kg

Openings:

- W 1,35 m x H 1,80 m
- Max weight top-hung: 160 kg
- Max weight parallel: 200 kg

GLAZING

from 28 to 44 mm

COMMON STRUCTURE FOR 50 AND 60 MODULE PROFILES

Range of profile depths to meet the needs of each project.

GLAZING FROM THE OUTSIDE

The top and bottom glazing beads are riveted to the frame to guarantee additional security.

CONCEALED OPENING WINDOWS

Integrated inward opening:

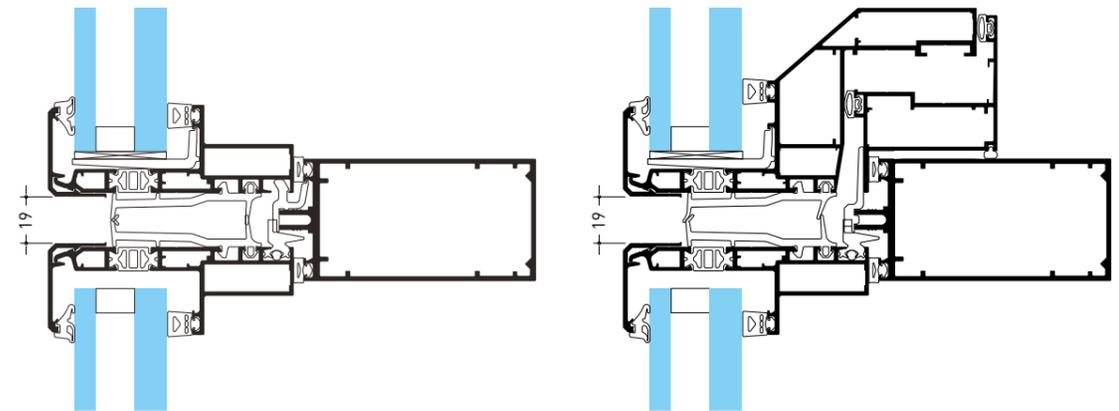
- Side hung
- Tilt & Turn
- Fireman's access

Integrated outward opening:

- Top hung
- Parallel opening

FLAT OR FACETED FACADES

Outgoing angle 0 / +5°



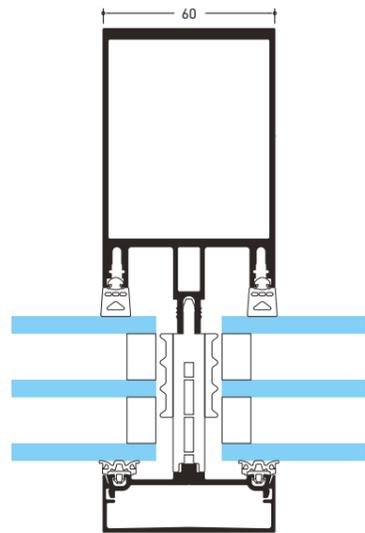
Fixed Bead Glazing (BG)

Concealed outward opening window



Photographer: Georges Paté

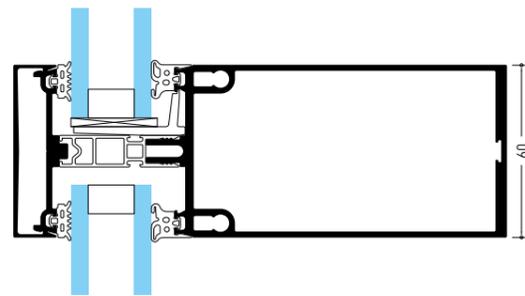
TENTAL 60



High insulation level (for 50 mm and 60 mm)

LARGE DIMENSION GLAZING

TENTAL 60 is an option that uses 60 mm module mullions and transoms to increase the dimensions of the glazing and thus maximizing natural light.



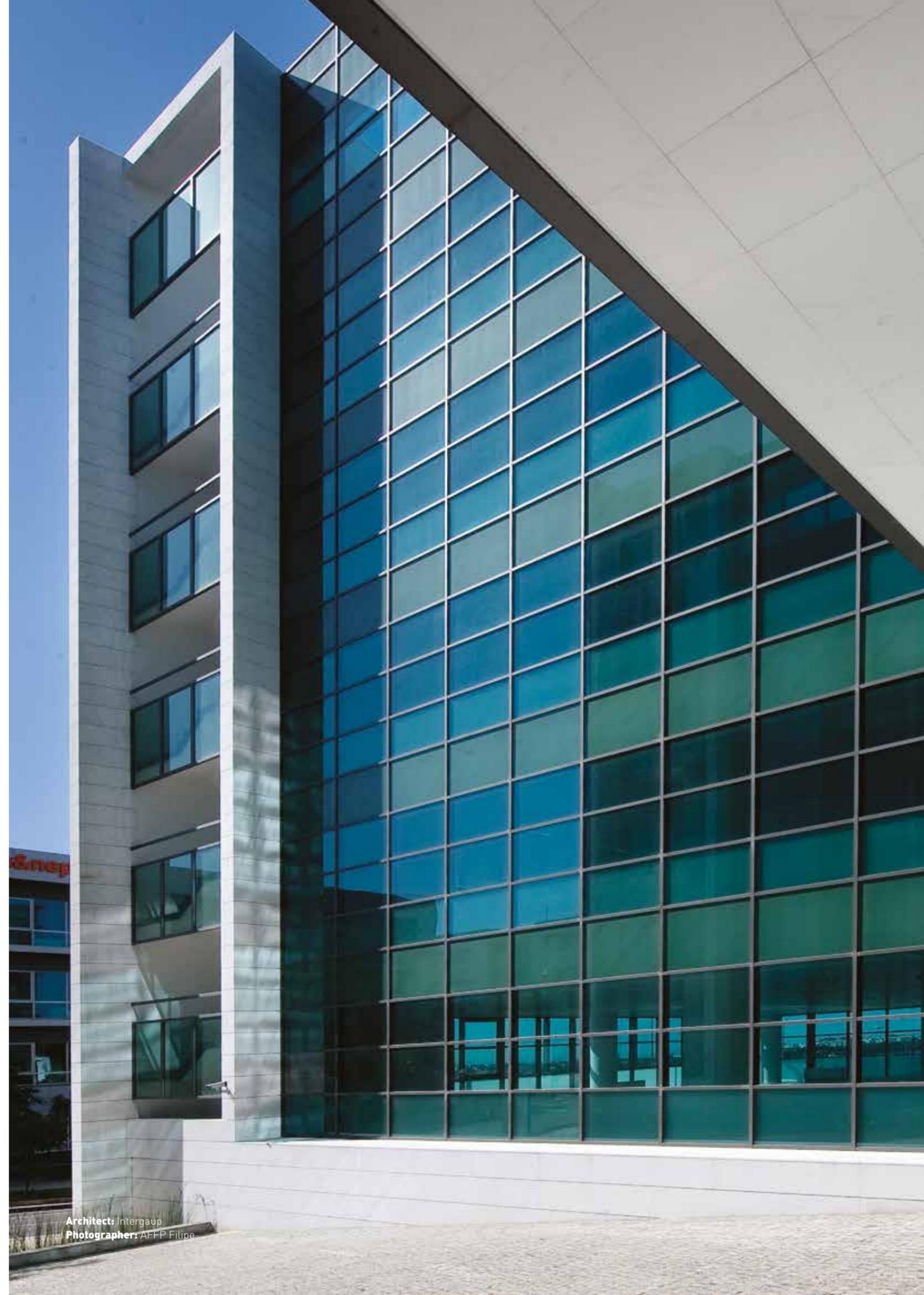
Standard insulation level (for 50 mm and 60 mm)

CONSTRUCTION

- Simplified manufacturing. The transoms are notched and overlapped on to the mullions.
- Faceted facades. For facets up to $\pm 10^\circ$.
- Special option. The transom assembly block options offers an alternative to anti-rotation spigots in order to meet requirements of design or the project in general.

PERFORMANCE

- Advanced thermal performance. The thermal insulation of the standard TENTAL feature capped solution is obtained via an ABS thermal insulator between the pressure plates and the mullion and transom structure. This principle ensures optimal thermal performance and meets or exceeds building regulations' requirements. Optional xPET insulators can be applied to reach the highest thermal performances.
- Thermal insulation with glazing
Air, water and wind resistance in accordance with European standards.



Architect: Intergaup
Photographer: AFP Filipe



TENTAL

/ WEATHER AND RESISTANCE PERFORMANCES

The curtain wall system has been tested in accordance with the requirements of the European standard EN 13830. Further information is available upon request.

TENTAL 50 WEATHER PERFORMANCES (A.E.V.)			
	Air permeability	Water tightness	Resistance to wind pressure
Features caps	AE 1500 Pa	up to RE 1500 Pa	Service 2000 Pa Security 3000 Pa
Horizontal line	AE 1200 Pa	RE 1500 Pa	Service 2000 Pa Security 3000 Pa
Vertical line	AE 1200 Pa	RE 1500 Pa	Service 2000 Pa Security 3000 Pa
Flat cap	AE 1200 Pa	RE 1500 Pa	Service 2000 Pa Security 3000 Pa
Concealed inward opening	Class 4	RE 1500 Pa	Class C5
Concealed outward opening	Class 4	RE 1500 Pa	Class C5

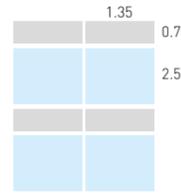
TENTAL 60 WEATHER PERFORMANCES (A.E.V.)			
	Air permeability	Water tightness	Resistance to wind pressure
Features caps	AE 1200 Pa	RE 1500 Pa	Service 2000 Pa Security 3000 Pa
Horizontal line	AE 1200 Pa	RE 1500 Pa	Service 2000 Pa Security 3000 Pa
Vertical line	AE 1200 Pa	RE 1500 Pa	Service 2000 Pa Security 3000 Pa
Flat cap	AE 1200 Pa	RE 1500 Pa	Service 2000 Pa Security 3000 Pa
Concealed inward opening	Class 4	RE 1500 Pa	Class C5
Concealed outward opening	Class 4	RE 1500 Pa	Class C5

TENTAL 50 & TENTAL 60 RESISTANCE PERFORMANCES			
	Burglary resistance		Impact resistance
	transom - transom	mullion - transom	
TENTAL 50	RC1N, RC2N, RC2	RC1N, RC2N, RC2, RC3	I5 / E5
TENTAL 60	-	RC1N, RC2N, RC2, RC3	I5 / E5

TENTAL

/ SUSTAINABLE PERFORMANCE

LIFE CYCLE INDICATOR		
Global warming potential in (kg CO ₂ eq.)	double glazing	triple glazing
TENTAL 50	44.2	57.9
TENTAL 60	46.9	59.8



Thanks to the property of our recycled aluminium, we are able to reduce the CO₂ footprint on stage A1 to A3 (raw material supply, transport and manufacturing). Glazing is included in the calculation.
Product: TENTAL 50. Area: 17.74 m². Transparent area: 16.12 m². Surface treatment: painted. Glazing: float.



Architect: Peter Hunt
Photographer: Scott Shirley

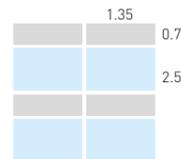
TENTAL

/ THERMAL PERFORMANCES

The precise performance depends on a combination of the size of the frames, the thickness of the glass, the type of infill and the options chosen. The values below are provided for indicative purposes only. Further information is available upon request.

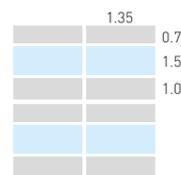
TENTAL - U _f (W/m ² K)				
U _f (W/m ² K)	transom / transom		mullion / transom	
	standard insulation	high insulation	standard insulation	high insulation
TENTAL 50	1.20 - 1.79	0.55 - 1.01	1.15 - 2.02	0.53 - 1.18
TENTAL 60	-	-	1.09 - 2.05	0.52 - 1.42

TENTAL - U _g (W/m ² K)										
U _g (W/m ² K)	Triple glazing (36 mm)				Double glazing (24 mm)					
	0.5 + Swisspacer Ultimate	0.5	0.7	0.9	1.0 + Swisspacer Ultimate	1.1	1.3	1.5	1.7	1.9
TENTAL 50										
Feature caps transom/transom	0.73	0.86	1.0	1.1	1.2	1.4	1.5	1.7	1.8	2.0
Features caps mullion/transom	0.73	0.88	1.0	1.2	1.2	1.4	1.6	1.7	1.9	2.0
TENTAL 60										
Features caps mullion/transom	0.74	0.87	1.0	1.2	1.2	1.4	1.6	1.7	1.8	2.0



Each section (100% glazed looking from inside to outside): glazed section + opaque spandrel panel + 2 frames per level.
W 1.35 m x H (0.7 m spandrel+ 2.5 m glazing)
24 mm spandrel in combination with double glazing: U_g 1.2 W/m²K
36 mm spandrel in combination with triple glazing: U_g 0.79 W/m²K

TENTAL - U _g (W/m ² K)										
U _g (W/m ² K)	Triple glazing (36 mm)				Double glazing (24 mm)					
	0.5 + Swisspacer Ultimate	0.5	0.7	0.9	1.0 + Swisspacer Ultimate	1.1	1.3	1.5	1.7	1.9
TENTAL 50										
Feature caps transom/transom	0.87	1.0	1.1	1.1	1.3	1.5	1.5	1.6	1.7	1.8
Features caps mullion/transom	0.88	1.0	1.1	1.2	1.4	1.5	1.6	1.7	1.7	1.8
TENTAL 60										
Features caps mullion/transom	0.85	0.95	1.0	1.1	1.4	1.5	1.6	1.7	1.7	1.8



Each section (60% glazed looking from inside to outside): glazed section + 2 opaque spandrel panels + 3 frames per level.
W 1.35 m x H (0.7 m spandrel + 1.5 m glazing + 1 m spandrel)
24 mm spandrel in combination with double glazing: U_g 1.2 W/m²K
36 mm spandrel in combination with triple glazing: U_g 0.79 W/m²K



IMAGINE WHAT'S NEXT

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