



MODAL

LOW RISE FAÇADE SYSTEM





2

MODAL, Simplicity, Innovation and Performance in Low Rise Glazing

- MODAL is a cost-effective and high performance aluminium modular framing system which is revolutionising low rise glazing.

- The system is ideal for a wide range of applications – from schools and colleges to healthcare facilities, retail projects and other building types.

MODAL is a unique, rapid build solution, which combines exceptional design detailing, quality components, and an advanced yet simple modular system to add value to a building project by offering:

- Robust and durable low rise glazing
- Fast installation
- Reduced work on site and earlier completion
- Outstanding quality control
- Enhanced aesthetics
- Design flexibility
- Excellent thermal efficiency
- High levels of acoustic performance
- Suitability for both new build and replacement glazing projects.

Extensive Range of Module Options

MODAL is a highly engineered modular framing system, which has an extensive range of options, including fully integrated opening vents for low rise glazing, allowing architects to create design-orientated, energy-efficient solutions for combinations of:

- Double or triple glazed units
- Fixed lights
- Fully integrated opening vents
- Doors
- Integrated sliding door and window system
- Infill panels.





MODAL with infill panel,
integral open-in vent, fixed light,
integral open-out vent configuration



Innovative Design Detailing to Enhance Low Rise Glazing

Key Features

■ **Innovative modular construction.**

The MODAL system uses a sophisticated engineered design to allow the framing modules to be fully fabricated and assembled off site for outstanding quality control, rapid installation and on-site glazing

■ **Patented design.** MODAL has received a European patent for its innovative clip and gasket system and three further patents for the aesthetic appearance of the profiles when assembled

■ **Cost-effective performance.** The transom and mullion design optimises performance and cost efficiency

■ **Suitability for new build and refurbishment.** The standard 100mm module can be adapted to 115mm to accommodate refurbishment projects

■ **Thermal efficiency.** A highly efficient 30mm polyamide thermal break gives excellent thermal performance and U_g values in a range of 1.0 – 1.75 W/m².K can easily be achieved

■ **Exceeding Building Regulations.** The system is pressure equalised, and is designed to optimise weather performance. Importantly, it can also exceed current Building Regulations for thermal insulation

■ **Spans.** The mullions can span up to two storeys with a wind loading of up to 1200 Pa and the transom spans can be up to 2m

■ **Visual consistency.** Sight lines are consistent at 65mm across the range of options for an attractive, contemporary appearance. An integral opening vent minimises the visible aluminium and maintains the mullion sight lines

■ **Wide range of compositions.** The modular framing design allows a wide choice of compositions, such as vent over panel, vent over fixed light, and glaze-in and glaze-out units within one frame module

■ **Full system compatibility.** MODAL is fully compatible with Technal's high performance casement window suite, commercial door systems and brise soleil solar shading range.

■ **Integrated door and window system.** A specially designed module allows Technal's sliding door and window system to be inserted into the MODAL frame, whilst still achieving 65mm sight lines for less visible aluminium and aesthetic appeal

■ **Dual colour option.** The MODAL system is available in a choice of single or dual colours for further architectural variety

■ **Fully tested.** This low rise framing solution is fully tested to BS EN performance standards for further quality assurance.

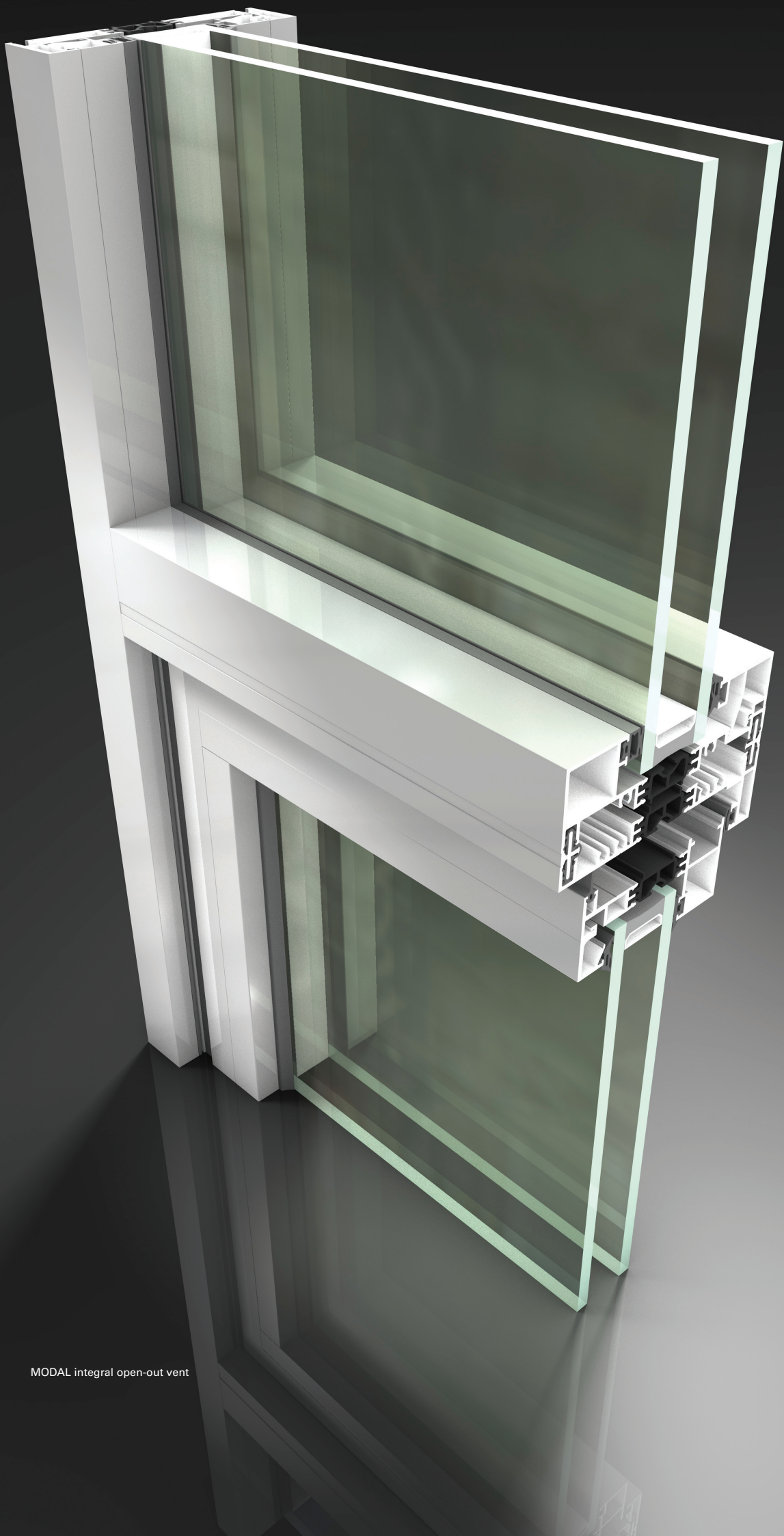
Glazing and Infills

■ **Choice of glazing.** The MODAL framing system can accommodate double or triple glazing from 6mm to 48mm, for further choice and flexibility of specification

■ **Infill panels.** The system can also carry up to 70mm insulated panels, which are often required for education projects and where additional acoustic and thermal performance is specified

■ **Ease of maintenance.** Because of its modular construction and simple detailing, the system is fast and easy to re-glaze, with no disassembly required

■ **Internal or external glazing.** MODAL fixed lights can be internally or externally glazed according to project requirements, with an additional security clip for external glazing – and within the same module.



MODAL integral open-out vent



Vent Options

■ **Choice of specifications.** There is the choice of an integral open-in or open-out vent and the option of inserting casement windows from the Technal range

■ **Wide range of configurations.** The vent configurations use the minimum number of profiles to maximise cost efficiency. The options are:

- Vent with vent
- Vent with glazed-out fixed light
- Vent with glazed-in fixed light
- Vent with 70mm infill panel

■ **Maximising work off site.** The integral vents can be fully fabricated, glazed and installed into the framing module in the factory for further quality assurance and to reduce time on site

■ **Simple construction.** The outer frame has a square cut, screw-port construction, and the vent frame has mitred joints

■ **Consistent sight lines.** The outer frame is formed by the transom with a jamb insert. This design is cost efficient, reduces the visible aluminium and maintains the 65mm sight lines for enhanced aesthetics whilst allowing natural ventilation

■ **External glazing.** Both the open-out and open-in vent options are externally glazed to simplify fabrication and installation

■ **Additional security.** An innovative pinned external bead gives added security, preventing the unwanted removal of glass from the outside

■ **Stylish handle options.** The MODAL handle range is Technal's own exclusive design which offers reassuring quality, security and robust performance. Slim and ergonomic, the espagnolette open-out and tilt/turn open-in handles will provide a modern and consistent appearance across a building project.

Open-in vent

■ **Consistent aesthetics.** The open-in vent option uses the same transom, mullion insert and beads as the open-out vent, for visual consistency, cost efficiency and ease of specification and fabrication

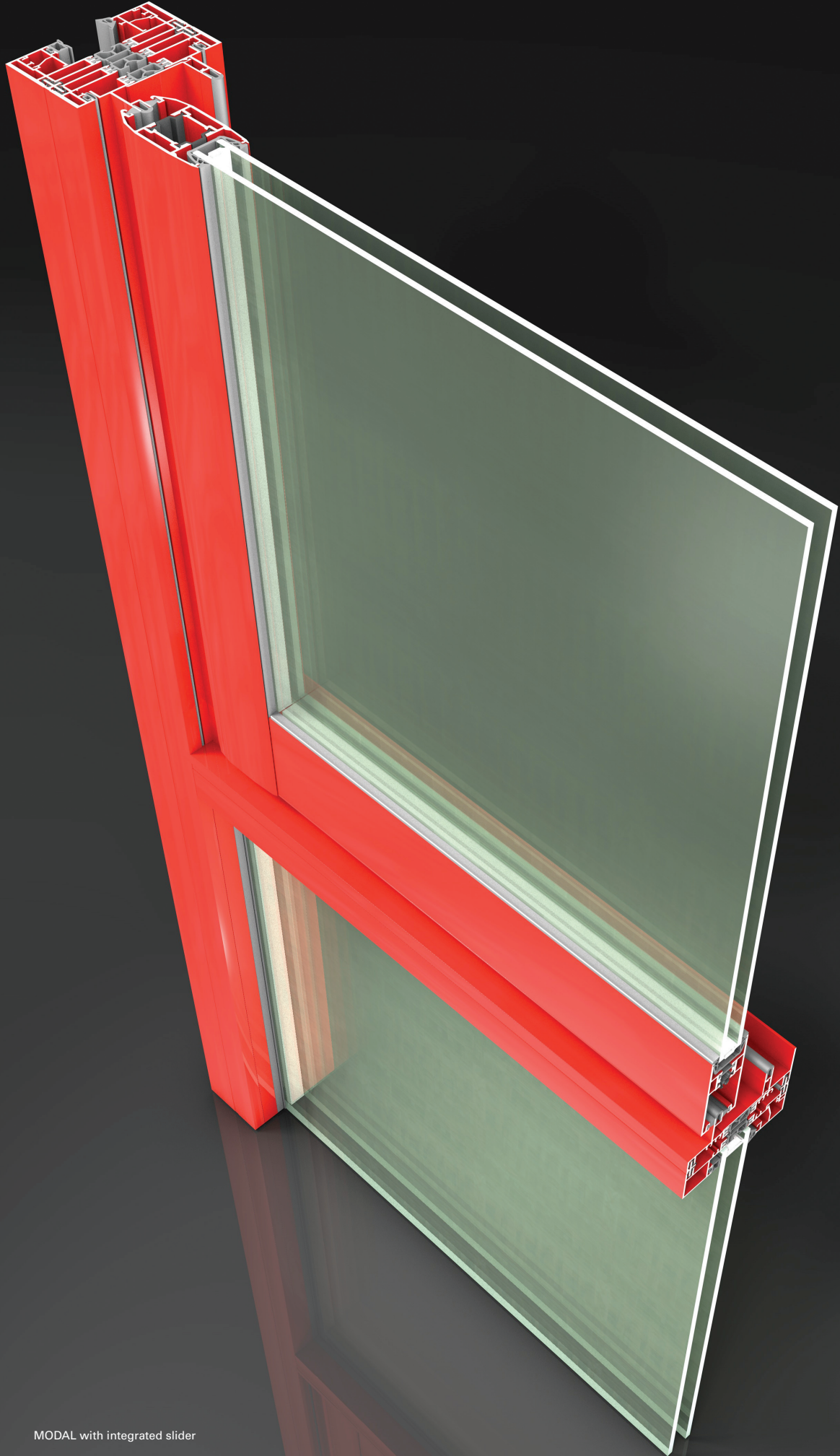
■ **Concealed hinges.** Hinges are fully concealed, providing added security and safety for education situations, and allowing a continuous weather gasket for better weather performance

■ **Maximum sizes and weight.** The open-in vents are designed to a size of 400mm to 1200mm wide, 400mm to 1600mm high and a maximum weight of 100kg.

Open-out vent

■ **Maximum sizes and weight.** The open-out vents are designed to a size of 550mm to 1600mm wide, 500mm to 1500mm high and a maximum weight of 60kg.





MODAL with integrated slider



Integrated Sliding Door and Window System

- **Sliding door and window option.** The Technal sliding window and door is a strong, high specification solution, developed for comfort, safety, appearance and long-term durability
- **Integral sliding outer frame.** The MODAL system has the benefit of a specially designed and fully integrated outer frame for the slider. This maintains both the 65mm mullion sight line for significantly improved aesthetics, and a 30mm thermal break for insulation efficiency
- **Minimising work on site.** The sliding system is glazed and fixed into the MODAL frame off site in the factory
- **Narrower inner sight lines.** The fully integrated slider has the additional advantage of narrower sight lines as an alternative to the standard frame. This design feature uses less aluminium without compromising strength or durability, for even greater cost efficiency and visual appeal
- **Design flexibility.** Open-in or open-out vents can be incorporated into the MODAL framing system directly adjacent to the Technal sliding window or door to meet individual project requirements and ventilation strategies.

Fabrication and Installation

- **Unparalleled design flexibility.** Technal has developed unique modular transom and mullion designs for the MODAL system, for a wide variety of infill panel, glazing unit and vent combinations, and even greater design flexibility
- **Innovative assembly system.** The mullions and transoms have a simple square-cut and screw-port construction to create the framing modules. These modules are assembled using a patented airtight clip system, which allows them to be fully constructed off site in controlled factory conditions, ready for site installation and glazing

- **Loadings.** A 100kg load can be achieved with a 1m transom
- **Spans.** Vertical spans of up to 2.7m high with wind loadings of 1200pa can be accommodated with 1m transom centres, maximising natural light
- **Ease of fabrication.** All machine operations can be performed using specially designed punch tooling to reduce fabrication time and cost, and to achieve consistent quality
- **Simple interface detailing.** The highly engineered simplicity of the MODAL system gives a quality finish and time-saving installation
- **Long-term performance.** Quality components and accessories, and advanced manufacturing techniques also help to facilitate installation and continued performance to specification.

Weather Performance

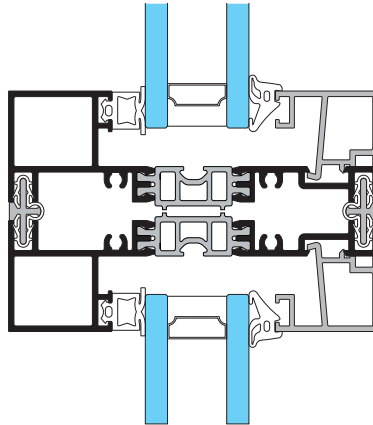
- **Enhanced weather resistance.** A specially designed airtight perimeter interface provides a higher quality finish for excellent weather resistance. A continuous gasket at the cill maintains an airtight seal, further improving weather performance
- **Highly efficient concealed drainage.** The MODAL system is designed for efficient drainage using a concealed system through the front chamber, ensuring there are no unsightly caps on the frame or the vents, and making MODAL ideal for the most demanding school environments
- **Consistency with Technal's window systems.** Clip-in cills which are consistent with Technal's casement window suite, create high quality interfaces between the MODAL framing modules and the windows for improved weather performance.



TECHNAL

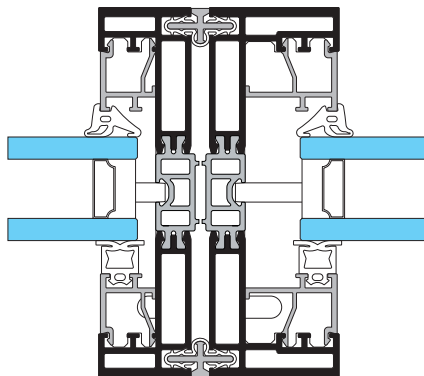
Modules

MODAL transom assembly

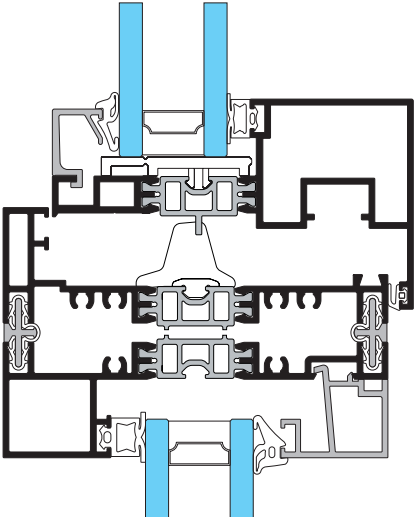


10

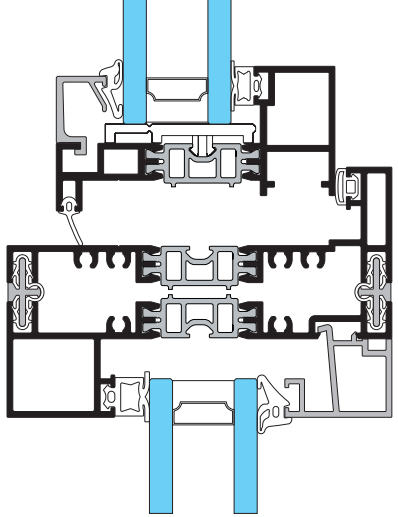
MODAL mullion assembly



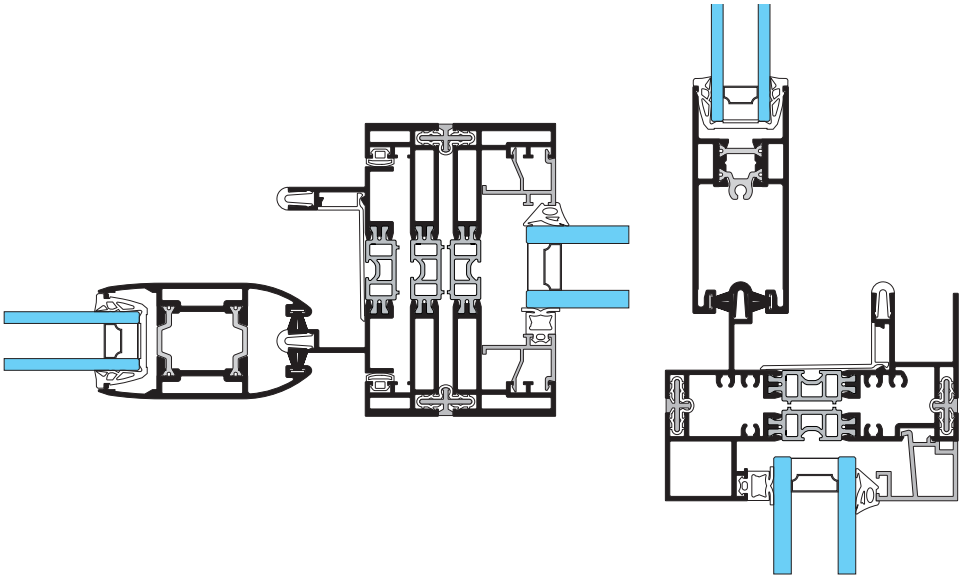
MODAL integral vent - open-in



integral vent - open-out

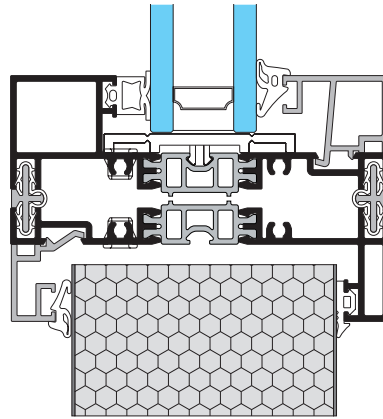


MODAL with integrated slider



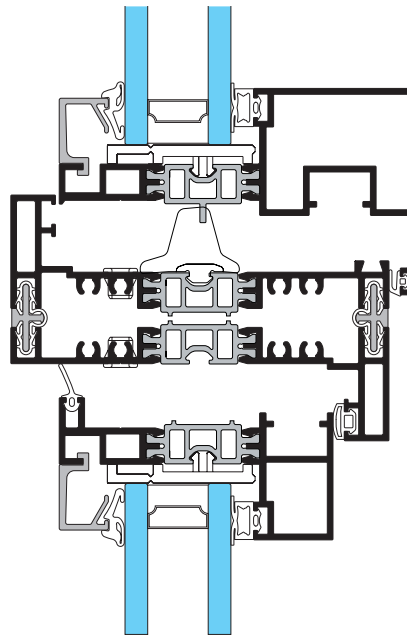
Configuration examples

MODAL glaze-in/glaze-out transoms

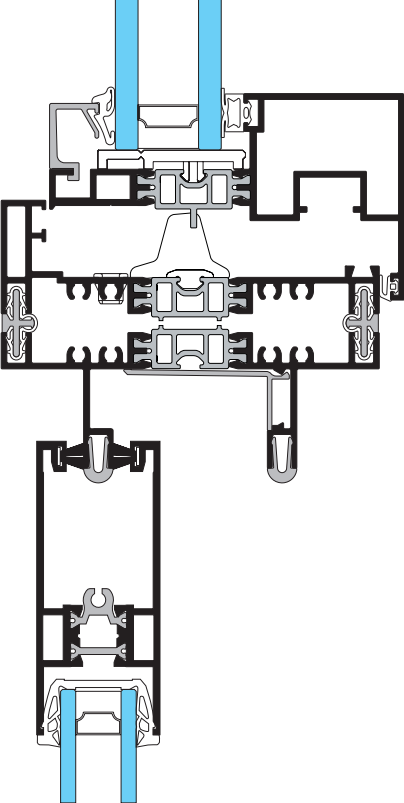


12

MODAL open-in/open-out vents



MODAL sliding open-in vent



Design Specifications

Applications

- Fixed light
 - glaze in
 - glaze out
- Fixed infill panel
- Integral vents
 - Tilt-turn
 - Projected top hung (open-out)
 - Projected side hung (open out)
- Integrated slider
- Compatible Technal products

Thermal Performance

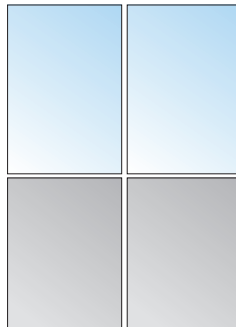
U_{cw} Coefficient of the Frame (W/m²K)

2 frames; 1 transom per frame

L = 1.2m, H = 3m

U^p Panel = 0.4

U^g value of glass	75% Glazed	50% Glazed
1.1	1.20	1.00
1.5	1.45	1.20
1.9	1.75	1.35

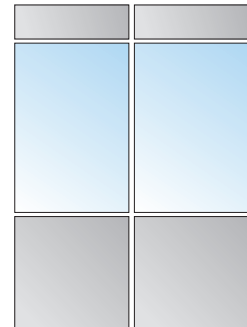


2 frames; 2 transom per frame

L = 1.2m, H = 3m

U^p Panel = 0.4

U^g value of glass	75% Glazed	50% Glazed
1.1	1.25	1.00
1.5	1.50	1.20
1.9	1.75	1.40



SIZE AND WEIGHT LIMITATIONS

Mullion span	up to 2.7m (2 storeys) with 1200 Pa wind loading, 1m transom centres
Transom span	up to 2m
Glazing	6 to 48mm
Infills	up to 70mm
Open-in vent	400 to 1200mm wide 400 to 1600mm high Maximum weight 100kg
Open-out vent	550 to 1600mm wide 500 to 1500mm high Maximum weight 60kg

WEATHER PERFORMANCE

The **MODAL integrated window**, in both open-in and open-out configurations, has been tested to BX EN 14351-1 and achieved the following results:

Air permeability	A4 (less than 1.5 ³ /h/m ² at 600 Pa)
Water performance	E9 (no leakage at 600 Pa)
Wind load	C4 (safety up to 2000 Pa)

A **6m x 6m MODAL fully glazed frame** was tested to BS EN 13830 and BS EN 14019 (curtain walling standards), and achieved the following results:

Air permeability	A4
Water performance	R7
Wind load	1600 Pa; 2400 Pa (safety)
Impact resistance	I5/E5





Materials and components

As with all Technal façade systems, only the highest quality materials and components are used for the MODAL system for low maintenance and performance over time:

- Aluminium profiles are extruded from alloys 6005 T6, 6063 T6 or 6060 T5 to BS EN 12020, BS EN 573-3, BS EN 515 and BS EN 775-1 to 9
- Accessories are cast from Zamak 5 or A-S9G03 to BS EN 12844
- All glazing gaskets are EPDM SH 60-75
- Polyamide thermal breaks are extruded from PA6-6 (0.25 FV)
- Screws are austenitic stainless steel.



Finishes and colours

A wide range of finishes is available for the MODAL framing system to meet individual project requirements, complement existing buildings and offer additional design freedom for architects and specifiers:

- Stoved polyester powder coated finishes in a wide palette of colours and in accordance with BS 6496
- Natural self-colour or Anolok anodised in accordance with BS EN 12373-1:2001 and BS 3987

- MODAL can be supplied in both single and dual colours
- The MODAL system is also available in Technal's exclusive flecked gloss Cendré polyester powder coated colours for a stylish and contemporary appearance.







Uniclass	EPIC
L381:P43	
Cl/SfB	
(31)	Xh4



Photography: Balfour Beatty
Technal

European patents: 10156365.8; 001702960 - Technal's continuous development programme may result in product modifications. Consequently, Technal reserves the right to vary the specifications shown in this literature without notice.



UK Headquarters:
Hydro Building Systems,
The HBS Centre,
Silkwood Park, Wakefield,
West Yorkshire WF5 9TG
T: 01924 232323 • F: 01924 232300
www.technal.co.uk • info@technal.co.uk

Eire:
Hydro Building Systems,
Unit J1,
Baldonnell Business Park,
Naas Road, Dublin 22
T: 01 4105766 • F: 01 4105774
www.technal.ie • info@technal.ie