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# MODAL

## LOW RISE FAÇADE SYSTEM

A modular framing solution - revolutionising low rise glazing applications. Rapid build technology, design flexibility and performance for new build and refurbishment projects.



# MODAL



Simplicity,  
Innovation and  
Performance in  
Low Rise Glazing



MODAL is a new, cost-effective and high performance aluminium modular framing system which is set to revolutionise low rise glazing.

Developed by Technal as part of its commitment to innovation, design excellence and continuous technological improvement, this framing system is ideal for a wide range of single and two-storey 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
- faster installation
- reduced work on site and earlier completion
- greater quality control
- enhanced aesthetics
- unrivalled design flexibility
- superior thermal efficiency
- additional acoustic performance
- suitability for both new build and replacement glazing projects.

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



A

## Comprehensive Range of Module Options

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

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



# MODAL



## Innovative Design Detailing to Enhance Low Rise Glazing

### Key Features and Innovations

- **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 greater quality control, faster installation and on site glazing
- **Cost-effective performance.** The transom and mullion design optimises performance and cost efficiency for façades up to two storeys high
- **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  $U_{cw}$  values in a range of 1.0 - 1.75 W/m<sup>2</sup>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 a more attractive, contemporary appearance. An integral opening vent minimises the visible aluminium and maintains the mullion sight lines
- **Wider range of compositions.** The modular framing design allows an even wider 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 FXi casement window suite and its CD and PXi commercial door systems
- **Integrated door and window system.** A specially designed module allows the GXi sliding door and window system to be inserted into the MODAL frame, whilst still achieving 65mm sight lines for improved aesthetics and less visible aluminium
- **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.

# 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 an 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
- **Easier 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 the FXi window system.** Clip-in cills which are consistent with the FXi casement window suite, create high quality interfaces between the MODAL framing modules and FXi windows for improved weather performance.

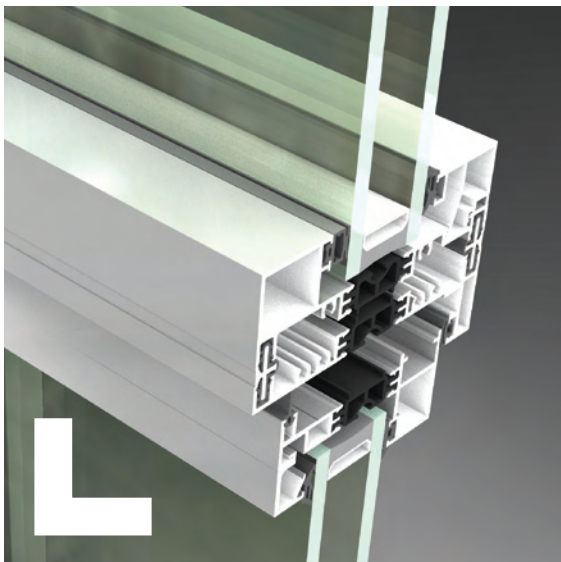


# MODAL



## An Even Wider Choice of Design Options for Low Rise Glazing

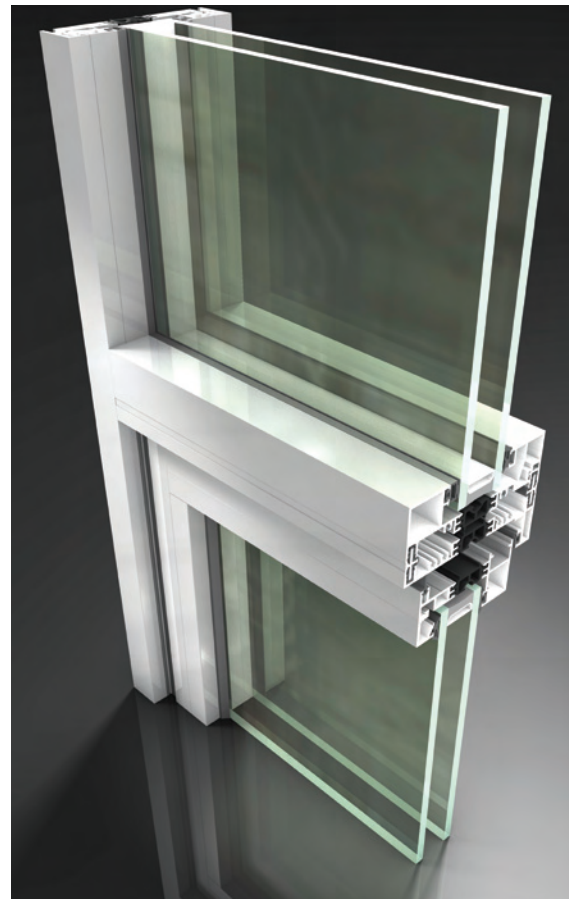
### Glazing and Infills



- **Choice of glazing.** The MODAL framing system can accommodate single, 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 school 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.

# 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 FXi 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 more 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.



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## 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

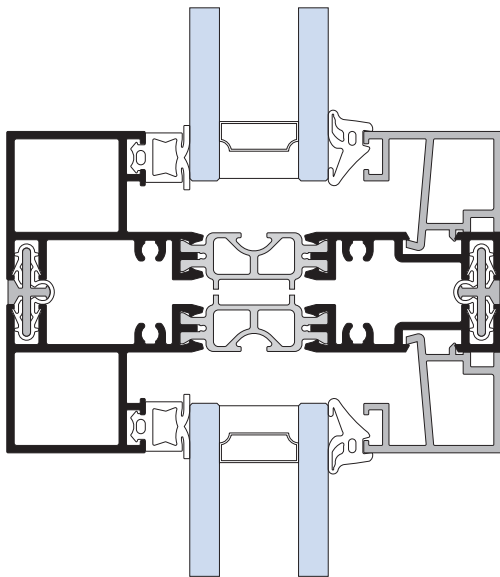
- **Maximum sizes and weight.** The open-out vents are designed to a size of 550mm to 1600mm wide, 500mm to 1500mm high and a maximum weight of 60kg.

A MODAL integral open-out vent

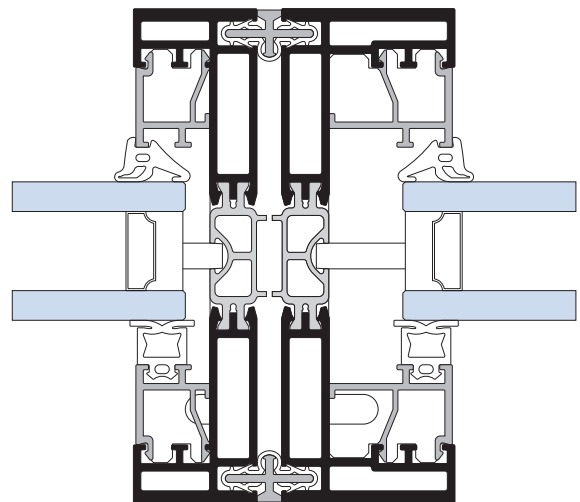
# MODAL



## Low Rise Façade Modules

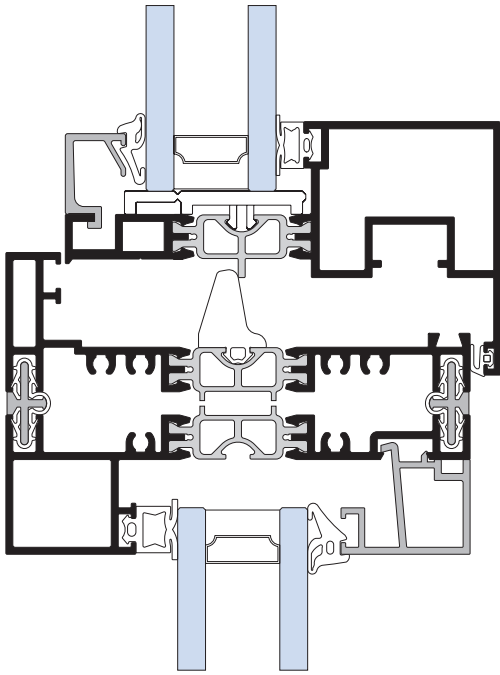


A MODAL transom assembly

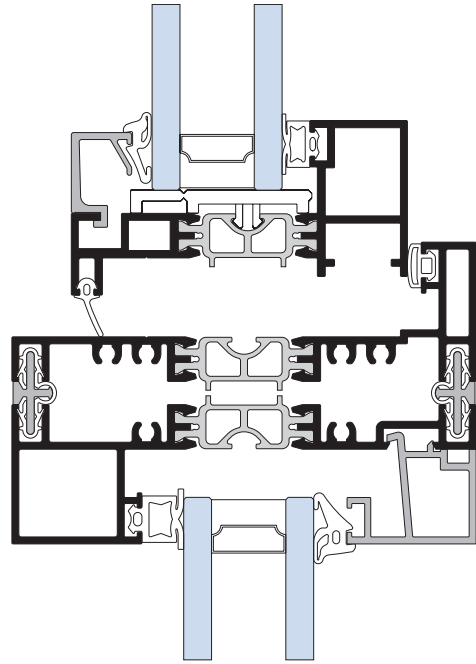


B MODAL mullion assembly

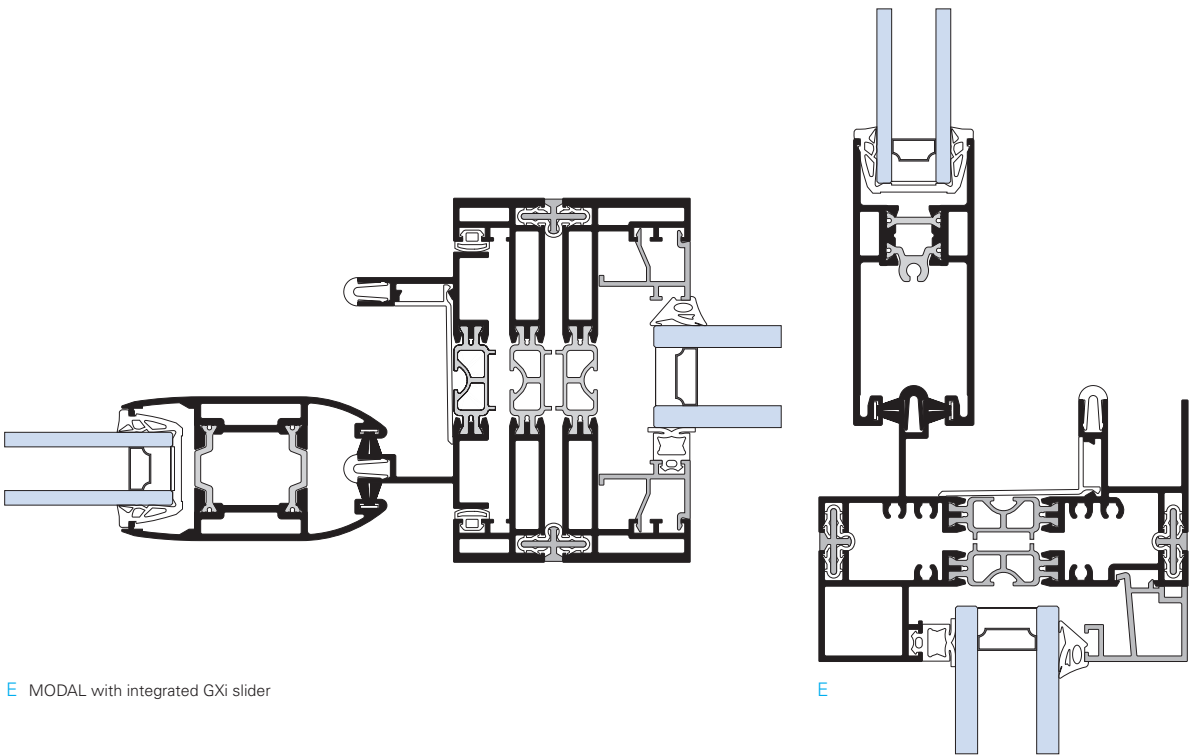




C MODAL integral vent - open-in



D MODAL integral vent - open-out



E MODAL with integrated GXi slider

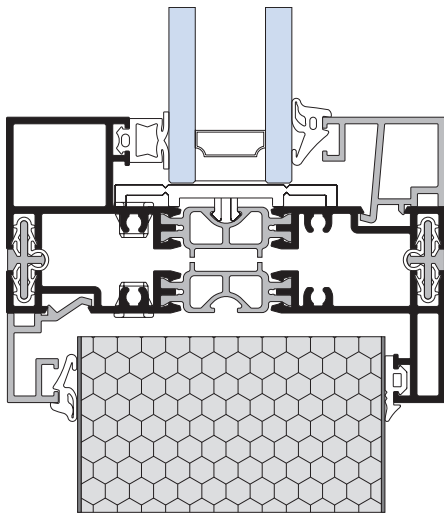
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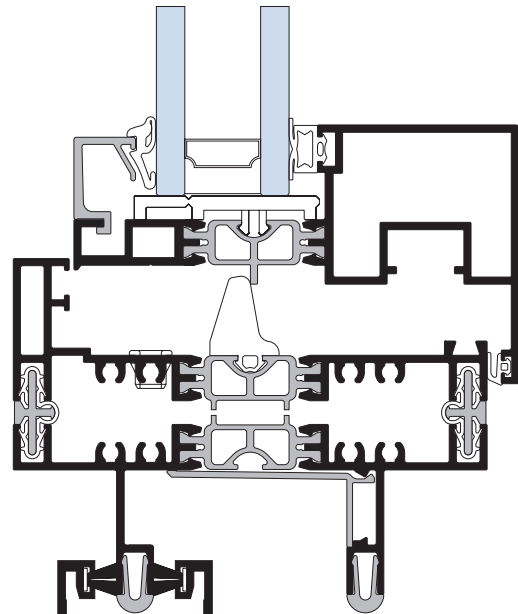
# MODAL



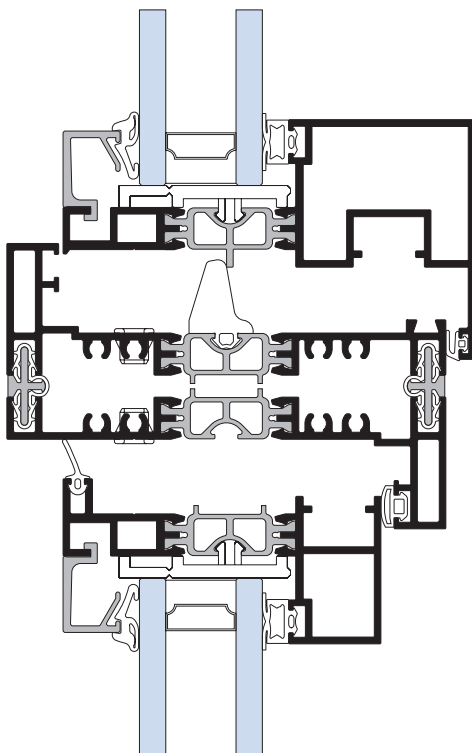
## Configuration Examples



A MODAL glaze-in/glaze-out transoms



C MODAL GXi with open-in vent



B MODAL open-in/open-out vents

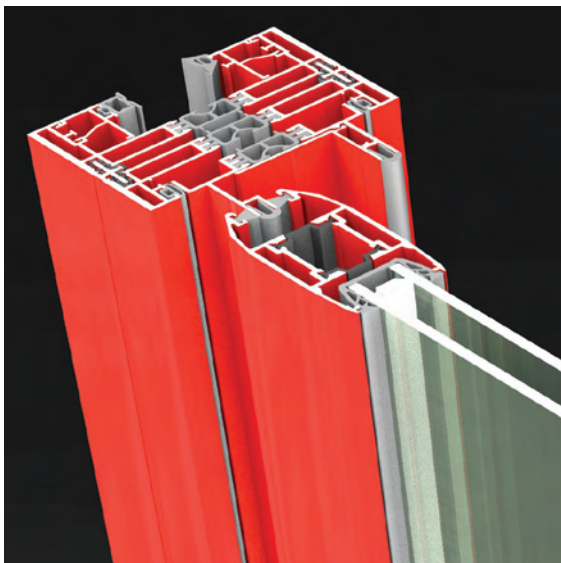


# Integrated Slider System

- **Sliding door and window option.** The GXi sliding window and door is a strong, high specification solution, developed by Technal for comfort, safety, appearance and long-term durability
- **Integral GXi outer frame.** The MODAL system has the benefit of a specially designed and fully integrated outer frame for GXi. 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 GXi 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 GXi 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 GXi sliding window or door to meet individual project requirements and ventilation strategies.



D MODAL with integrated GXi slider





## Design Specifications

### Thermal Performance

$U_{ow}$  Coefficient of the Frame (W/m<sup>2</sup>K)

2 frames; 1 transom per frame

L = 1.2m, H = 3m

Up Panel = 0.4

Ug 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

Up Panel = 0.4

Ug 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 1200Pa wind loading, 1m transom centres

**Transom span:** up to 2m

**Glazing:** 6 - 48m

**Infills:** up to 70mm

**Open-in vent:** 400 - 1200 wide  
400 - 1600mm high  
Maximum weight 100kg

**Open-out vent:** 550 - 1600mm wide  
500 - 1500 high  
Maximum weight 60kg

### Weather Performance

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

**Air permeability:** A4 (less than 1.5m<sup>3</sup>/h/m<sup>2</sup> 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)

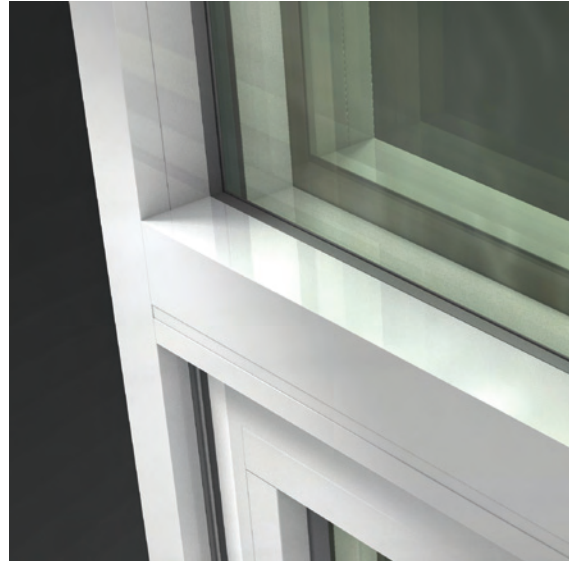
**Impact resistance:** I5/E5



## 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.



# TECHNAL



## Inspirational Façade Solutions



### Innovative Product Portfolio

The Technal brand from Hydro Building Systems was created 50 years ago and is a pioneering international specialist in architectural aluminium façade systems.

Technal has established an unrivalled reputation for innovative and inspirational design solutions and has built up an impressive portfolio of award-winning projects.

With a history in the UK which spans more than 30 years, Technal's systems have been used to create purpose-designed façades for buildings in sectors as diverse as offices, airports, leisure, schools and higher education, healthcare and apartments.

Technal has a clear understanding of the requirements of architects, contractors, developers, building occupiers and fabricators, which has enabled it to engineer an innovative, technically advanced and highly flexible product portfolio.

### Technical Support for Architects and Contractors

A comprehensive range of support services is available to architects and contractors, which includes technical assistance with design development, through to the preparation of specifications.

To help specifiers in the production of faster and more accurate project drawings, CAD files for all the façade systems offered by Technal can be downloaded from the specification section of the Technal website.

Technal also has the capabilities and resources to respond to individual project needs through more bespoke designs for specific schemes, performance enhancements and new innovations to enhance both new and existing architecture.

# National Network of Fabricators and Installers

Technal has a national network of approved fabricators and installers, and recognises the importance of fabrication and installation for the long-term performance of its systems.

As a subscribing sponsor of the Centre for Window and Cladding Technology and an active member of the Council for Aluminium in Building, Technal is committed to advising and providing training support for its network of fabricators and installers from its dedicated training centre to ensure standards of the very highest quality.



## Committed to Sustainability and Recycling

Technal is working with leading industry specialists and associations to continually improve the recyclability of aluminium and to reduce carbon emissions during the life cycle of its products.

Its research and development work has also achieved an impressive four-fold increase in the thermal performance of its systems over the last 20 years. And the demand for larger glazed spans generates increased solar gain in winter and reduces the reliance on artificial lighting.

The inherent qualities of aluminium, its infinite recyclability, strength and lightness, durability and low maintenance qualities mean it is one of the most sustainable building materials.

An average of 95 per cent of the aluminium in buildings is collected for recycling. This process saves 95 per cent of the energy needed to produce prime metal and typically, 95 per cent or more of the original material is still recoverable (*source*: Council for Aluminium in Building).



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Ref: CB/MODAL/V001/May09

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Technal is a Hydro brand

Patent pending reference: 0951542.  
Technal's continuous development programme may result in product modifications. Consequently, Technal reserves the right to vary the specification shown in this literature without notice.

