



**Alumil**  
Building excellence every day

**Alumil**  **FIRE RATED  
SYSTEMS**



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## FIRE RATED SYSTEMS

Alumil range is enriched with a new product category, **Fire Rated Systems** which are compliant with European Standards and Directives concerning fire resistance.

**Fire Rated Systems** offer various solutions, including tilt and turn windows, both internal and external partitions with doors and façade options such as stick curtain wall system. Fire Rated systems, in addition to interfacing with each other, they can also combine with all ALUMIL's products providing a holistic approach to a project.

**ALUMIL's Fire Rated Systems** are fully certified by notified laboratories across Europe, meeting most of the fire resistant projects specifications.



The definition of **Fire Protection** of a building refers to its ability to detect...

withstand, prevent, and reduce any **damage** caused by unexpected and uncontrolled fire, in lives and property.

There are in fact two types of fire protection: **Active Fire Protection (AFP)** and **Passive Fire Protection (PFP)**. One type of protection must not be chosen over the other. On the contrary, both AFP and PFP **must be used together for full fire protection**.



### Elements of Active Fire Protection (AFP)

- Fire extinguishers
- Fire sprinkler systems
- Standpipe systems

### Elements of Passive Fire Protection (PFP)

- Fire doors.
- Fire-resistant walls, floors, ceilings, and ducts.
- Firestopping materials, designed to maintain the fireproofing of a wall or floor assembly, allowing it to impede the spread of fire and smoke
- Fire-resistant epoxy coatings.
- Protection for vital equipment such as oil or gas canisters, first-aid boxes, and anything that contains volatile materials.

# Alumil FIRE RATED SYSTEMS

A Fire Rated System is a component of **Passive Fire Protection**,

and its main philosophy is **to reduce the spread of fire and smoke** between separate compartments of a structure and **to enable safe egress from a building**.



## Classification of Fire Rated Systems

- Fire Rated Systems classification is a concatenation of two components:
- The first component refers to the combination of features that the fire rated door holds when exposed to temperatures reached in a fire. This first part could have 3 values: E, EW and EI (where: E = Integrity, W=Radiation and I = Insulation\_
  - The second component refers to the time period during which the fire rated door holds the aforementioned features. Most common values, usually seen in this second part are 30, 60, 90.

CLASSIFICATION EXAMPLE	COMBINATION OF FEATURES	TIME PERIOD (MIN)
E60	Integrity	60
EW30	Integrity & Radiation	30
EI90	Integrity & Insulation	90

## FIRE

## PROTECTION



### E-Integrity

Integrity represents how long the door and its components can prevent the passage of flames and hot gases from the heated side of the door to the non-heated side.



FIRE SMOKE HEAT

### EW-Integrity and Radiation

Radiation maintains the same performance as Integrity - resisting flames and smoke when exposed to fire on one side. However, it will also **prevent some of the heat from transferring** from the heated side to the non-heated side.



FIRE SMOKE HEAT

### EI-Integrity and Insulation

Insulation offers the **highest level of protection from fire**. Maintaining the same performance as Integrity, **Insulation also prevents any heat transferring** from the heated side to the non-heated side.



FIRE SMOKE HEAT

The performance of a **Fire Rated System** is heavily dependent on profiles, accessories and fireproof glass that interface with each other providing a fire resistant product.

ALUMIL's fire rated systems are certified according to **EN16034:2016** and classified according to **EN13501-2**

### Collaborating testing and certification Laboratories.



Alumil > FIRE RATED SYSTEMS

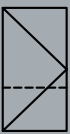
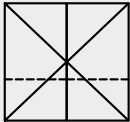
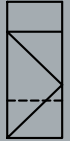
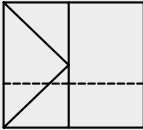
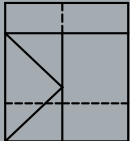
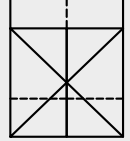
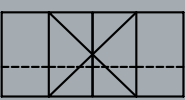
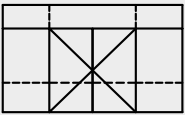
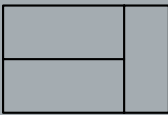

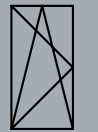
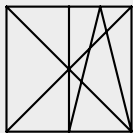
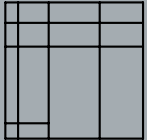
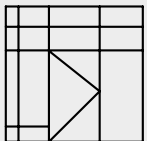
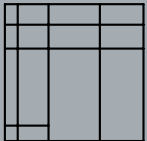
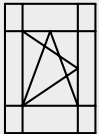
Typology	Classification Type	Use Type	Glass Type	Max Construction Dimensions WxH (mm)	Max Leaf Dimensions WxH (mm)	Max Fanlight Glass Dimensions WxH (mm)	Max Side Fixed Panel Glass Dimensions WxH (mm)
M84FR							
	EI60	Internal/ External	AGC/ Pyroguard	1300x2560	1200x2500		
	EI60	Internal/ External	AGC/ Pyroguard	2482x2560	1200x2500		
	EI60	Internal/ External	AGC/ Pyroguard	1300x3400	1200x2500	2679x762	
	EI60	Internal/ External	AGC/ Pyroguard	no limit x 2560	1200x2500		1406x2452
	EI60	Internal/ External	AGC/ Pyroguard	no limit x 3400	1200x2500	2679x762	1406x2452
	EI60	Internal/ External	AGC/ Pyroguard	2600x3400	1200x2500	2679x762	
	EI60	Internal/ External	AGC/ Pyroguard	no limit x 2560			1406x2452
	EI60	Internal/ External	AGC/ Pyroguard	no limit x 3400	1200x2500	2679x762	1406x2452

TABLE OF AVAILABLE SYSTEMS AND TYPOLOGIES

Typology	Classification Type	Use Type	Glass Type	Max Construction Dimensions WxH (mm)	Max Leaf Dimensions WxH (mm)	Max Fanlight Glass Dimensions WxH (mm)	Max Side Fixed Panel Glass Dimensions WxH (mm)
M84FR							
	EI60	Internal/ External	AGC/ Pyroguard	no limit		portait 1500x2500	landscape 2265x1500
	EI90	External	AGC	2730x2160			
S77FR							
	EI30	External	AGC	1100x2200	1068x2140		
	EI30	External	AGC	2200x2200	1068x2140		

Typology	Classification Type	Use Type	Glass Type	Max span Dimensions	Max Leaf Dimensions WxH(mm)
M7FR					
	EI60	External	Pyroguard	width ≤2000mm height ≤3000mm Area ≤6m² *all three constraints must be satisfied	
M7FR/M84FR					
	EI60	External	Pyroguard	width ≤2000mm height ≤3000mm *all constraints must be satisfied	
M50FR					
	EI30	External	AGC	width ≤1452mm height ≤3204mm Area ≤3,23m² *all three constraints must be satisfied	
M50FR /S77FR					
	EI30	External	AGC	width ≤1452mm height ≤3204mm Area ≤3,23m² *all three constraints must be satisfied	970x1370



## Alumil FIRE RATED SYSTEMS

### SYSTEM

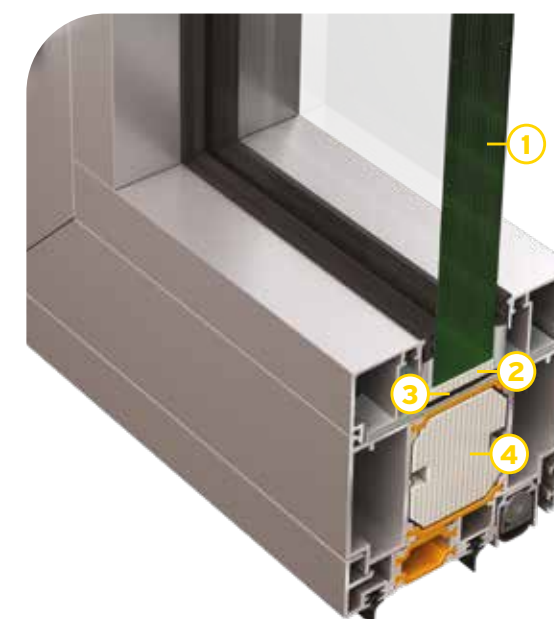
### M84FR

M84FR is a hinged insulated system that offers fire resistance to EI60 & EI90 classification. The system can be used for both internal and external use and its range can support single and for both interior and exterior doors in combination with fixed partition walls. In addition to that, M84FR has been certified to EI90

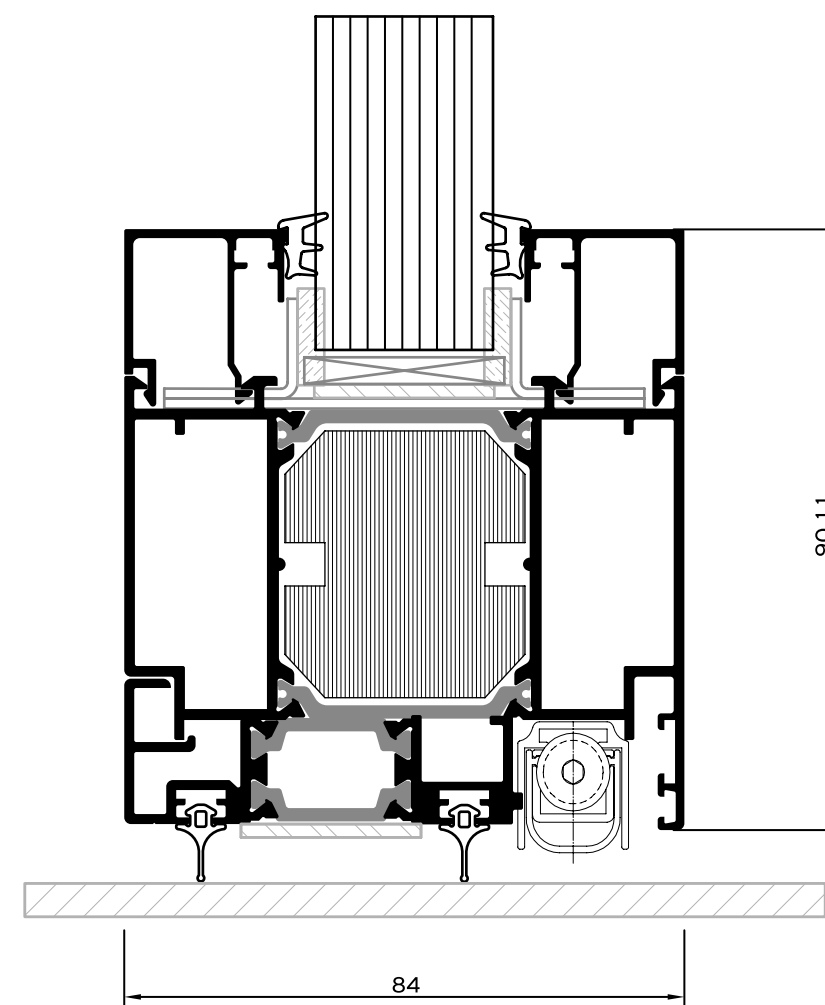
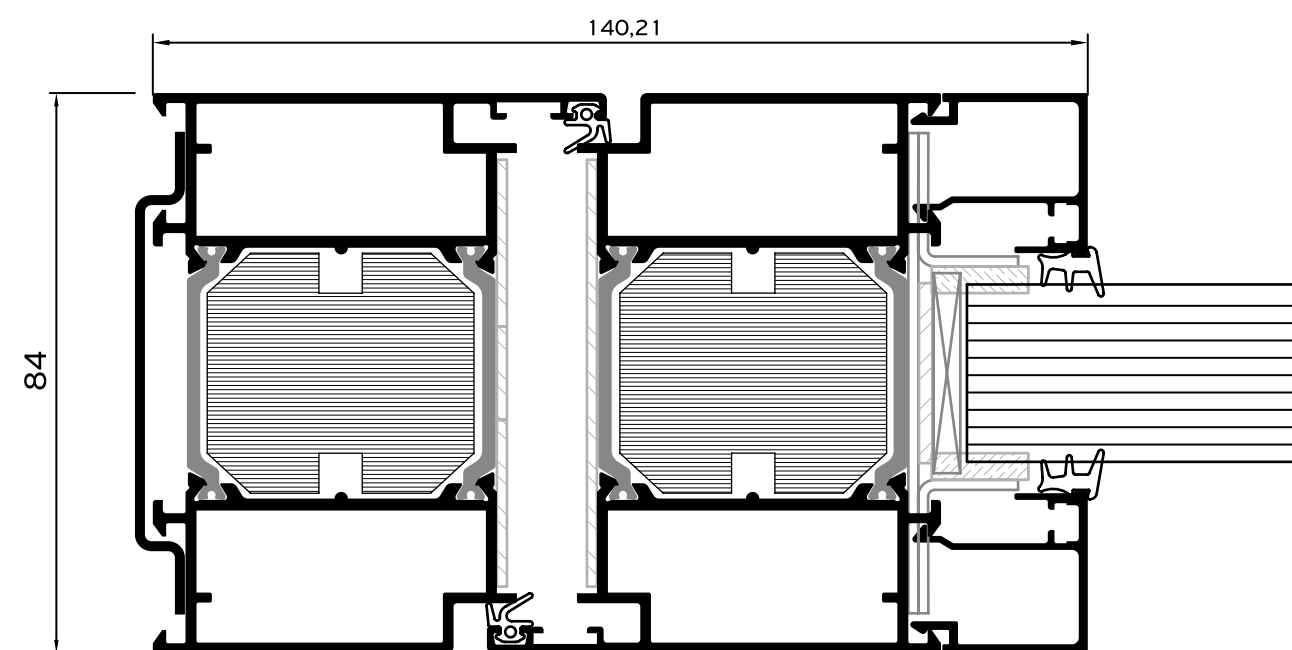
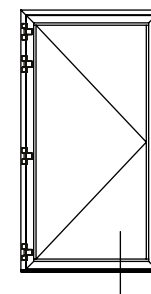
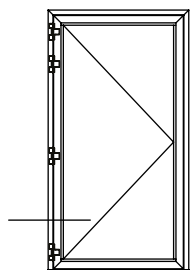
classification for fixed typologies available for external use. The performance of M84FR is achieved by using appropriate fireproof components combined with profiles and accessories. This variety of configurations can satisfy the majority of demand including even the most complicated typologies.

#### Product characteristics

- Basic system depth 84 mm.
- High thermal insulation thanks to 38 mm width polyamides.
- Use of the same profile both for frame and sash.
- Frame/sash width 68 mm.
- Visible frame/sash sightline 140 mm.
- Available solution with or without threshold.
- Available in various types of fireproof glass.
- Extensive range of accessories from locks to handles and panic bars.

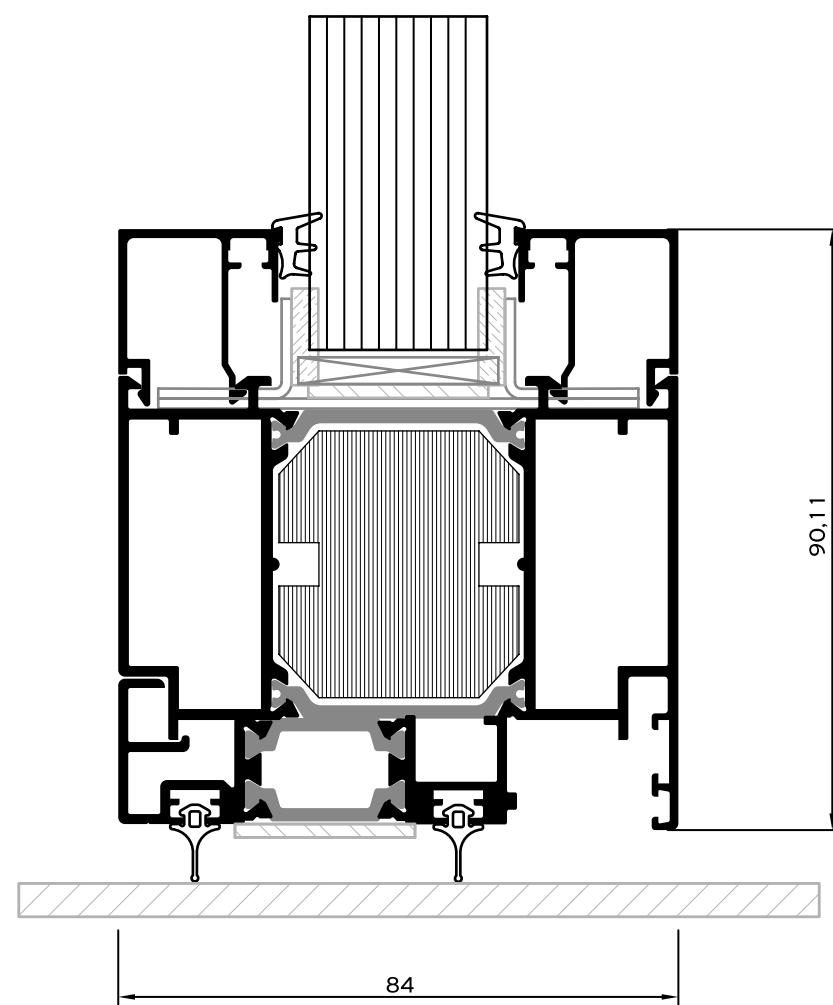
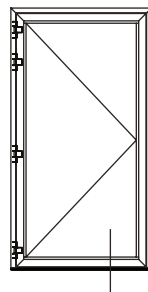


1. Fireproof glass
2. Fireproof setting block
3. Intumescent tape
4. Cooling material

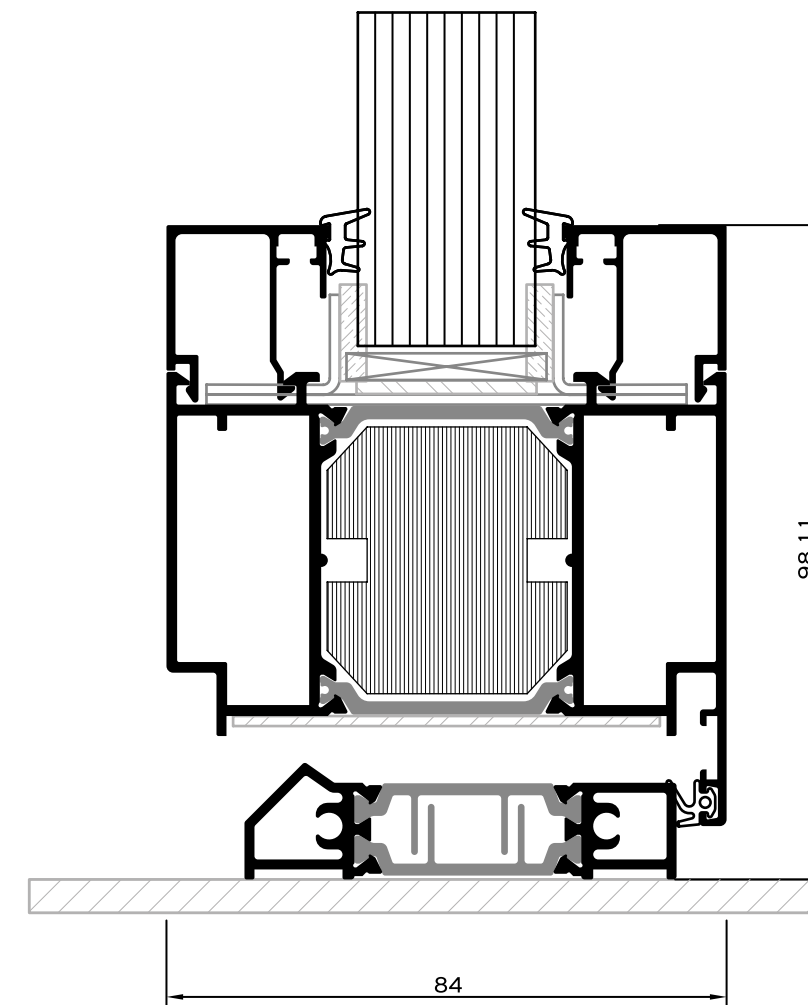
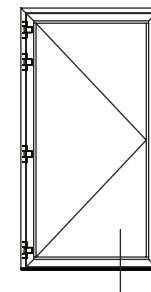


OPTION A

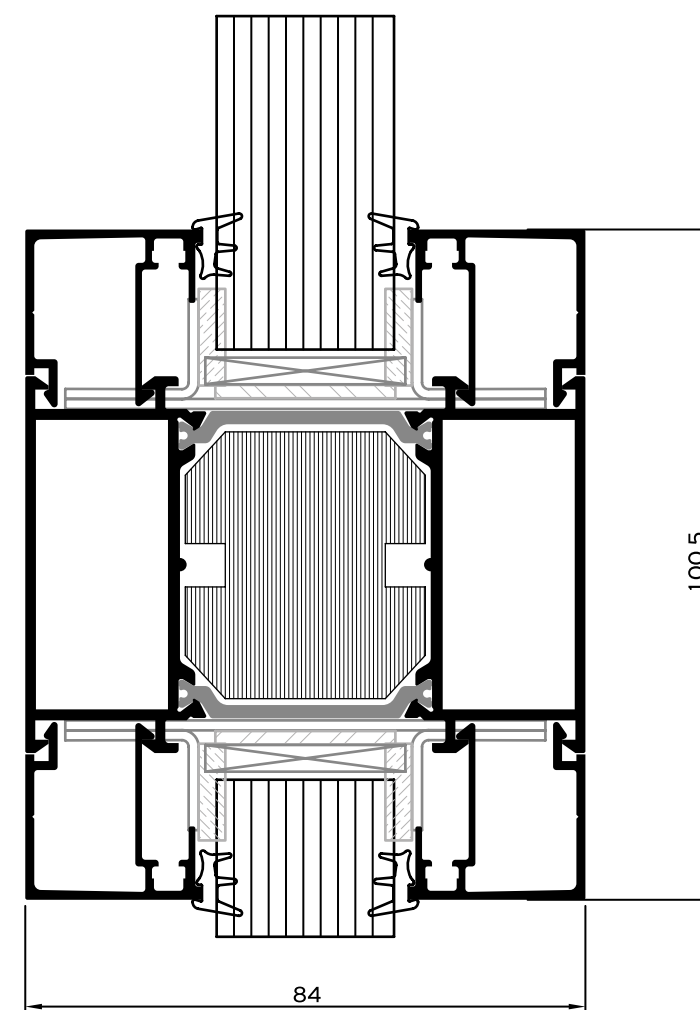
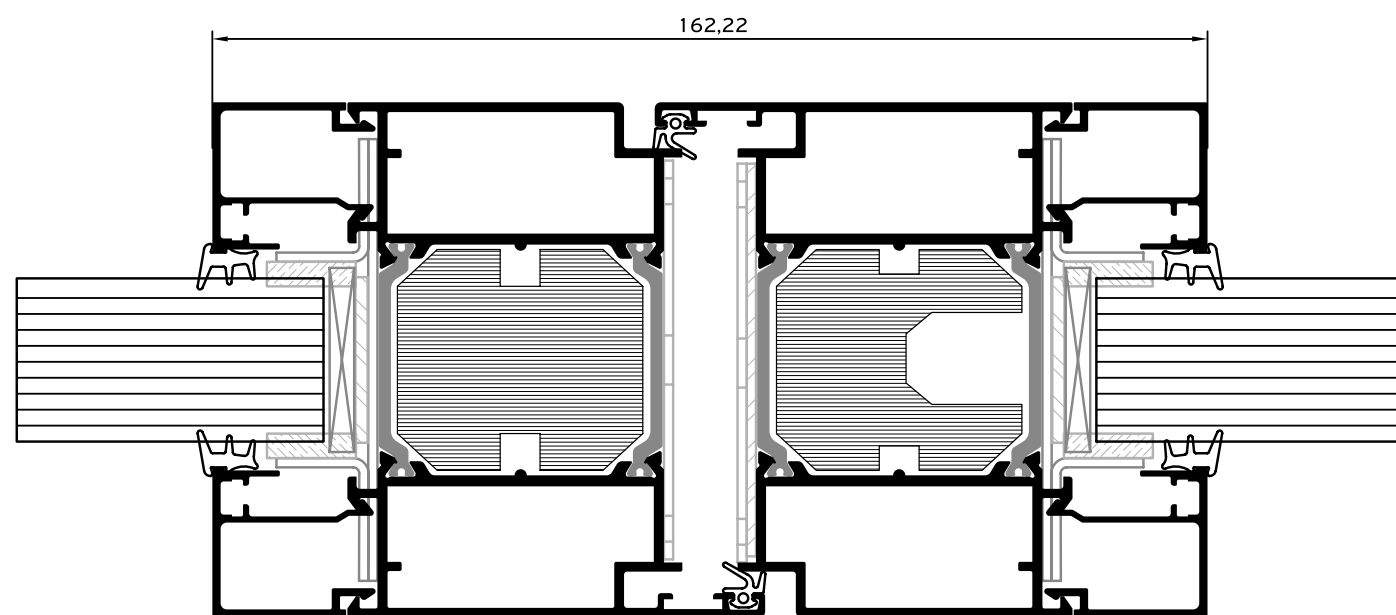
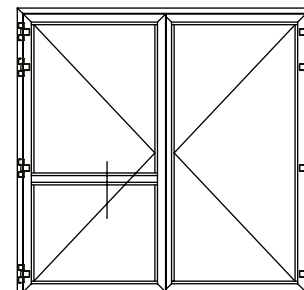
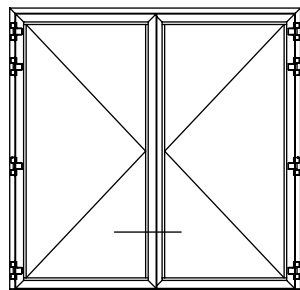


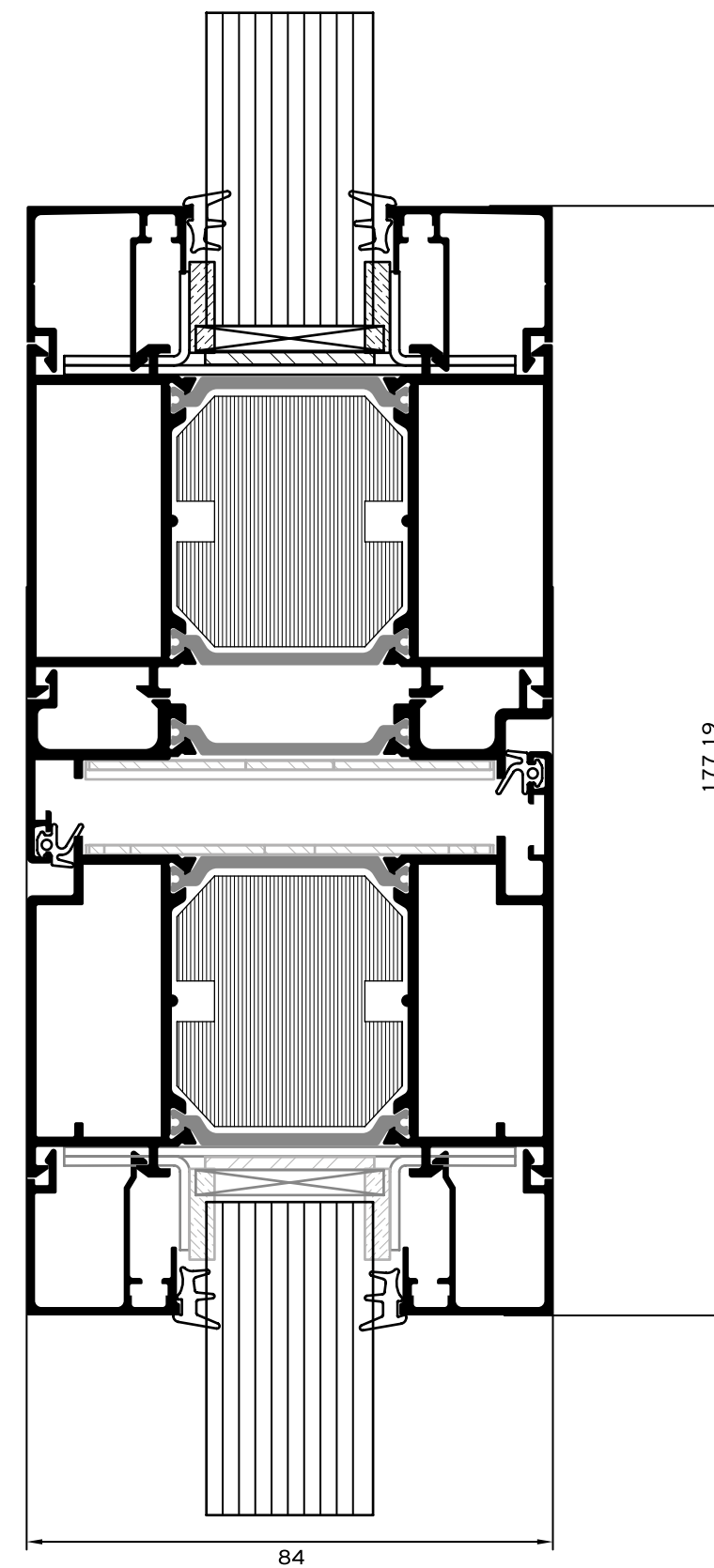
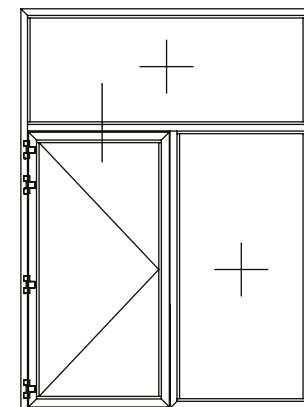
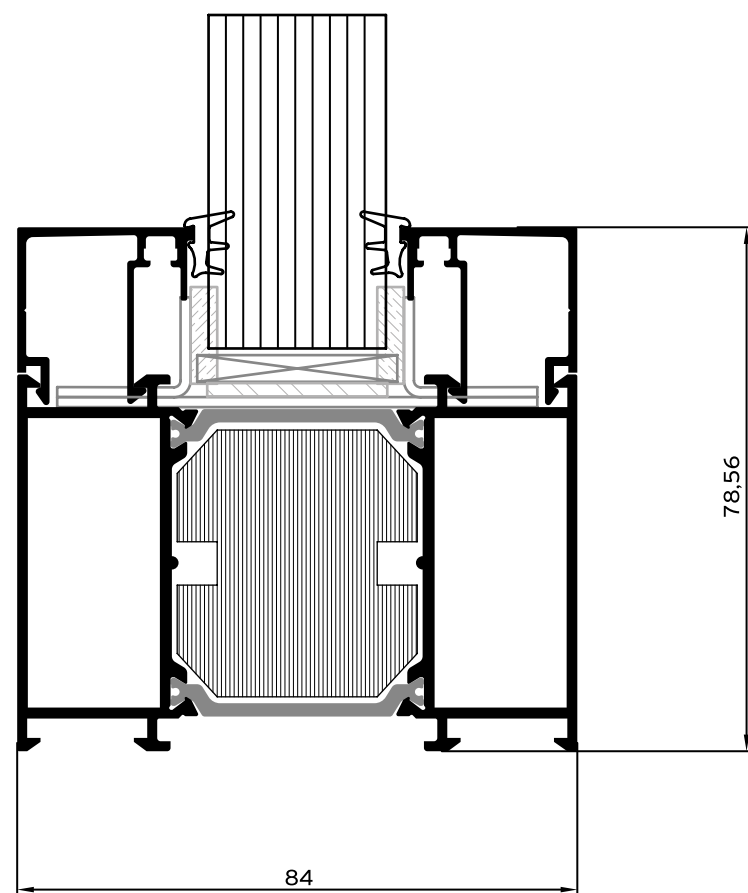
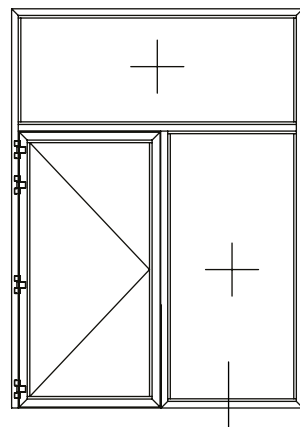


OPTION B



OPTION C









**S77FR** is a hinged insulated system that offers fire resistance to EI30 classification.

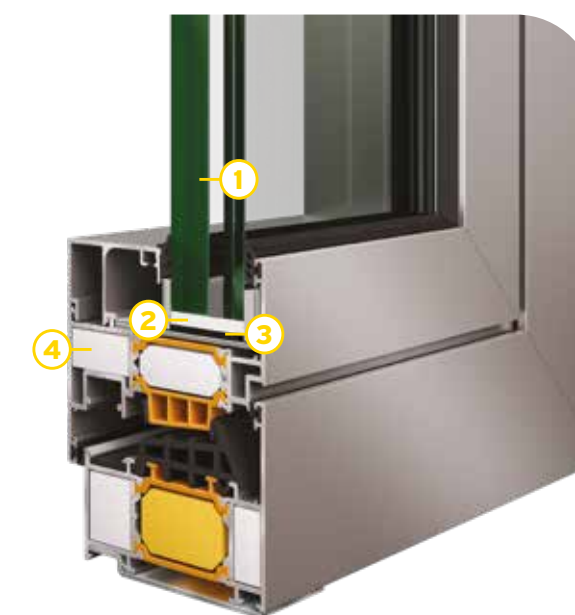
The system is based on profiles and accessories of S77 combined with appropriate fireproof components and fireproof glass.

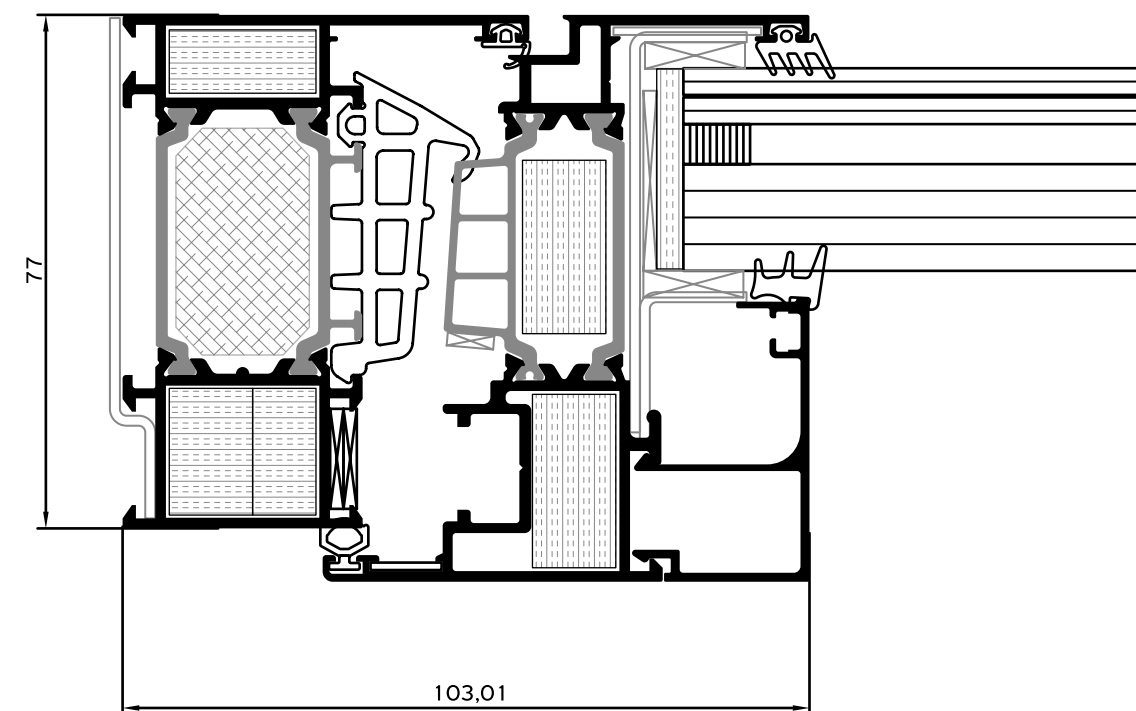
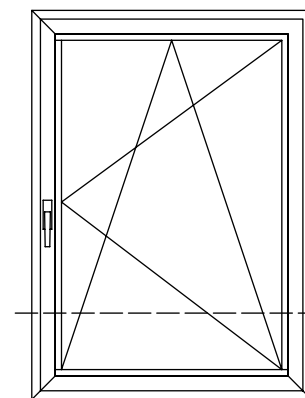
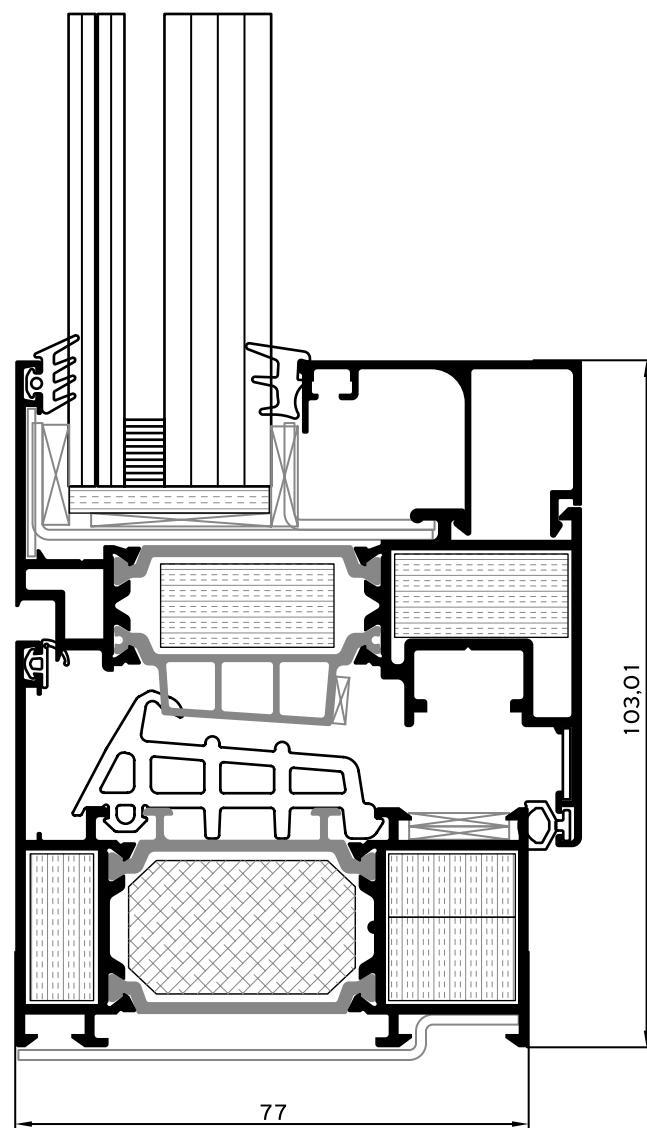
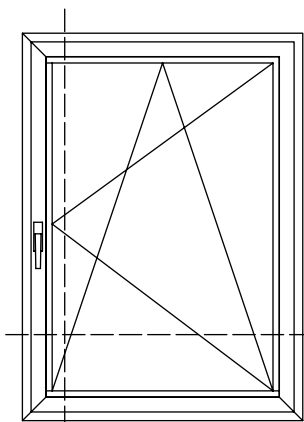
S77FR can be either used for internal or external use and provides all advantages of a high end casement system accompanied with the attributes of a fire resistant system.

### Product characteristics

- Basic system depth 77 mm.
- High thermal insulation thanks to 30 mm width polyamides.
- Use of S77 profiles.
- Visible frame/sash sightline 103 mm.
- Max dimensions 1 100 x 2 160 mm.

1. Fireproof glass
2. Fireproof setting block
3. Intumescent tape
4. Cooling material







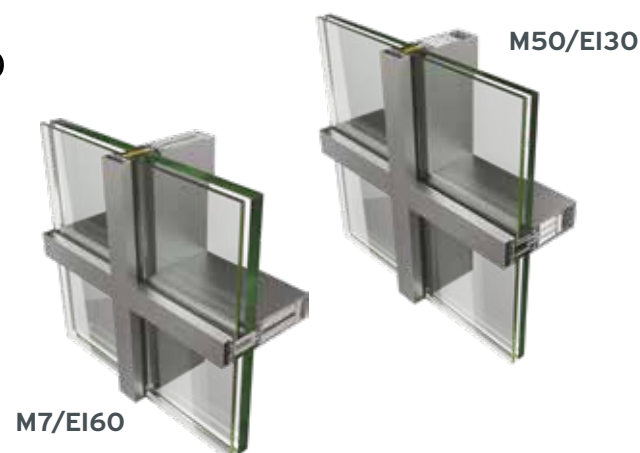
## Alumil FIRE RATED SYSTEMS



ALUMIL has enriched its product portfolio with **fireproof Curtain Wall systems**.

The range consists of two different Curtain Wall Systems depending on fire proof classification:

- M50 EI30 offering 30 minutes fire protection
- M7 EI60 offering 60 minutes fire protection

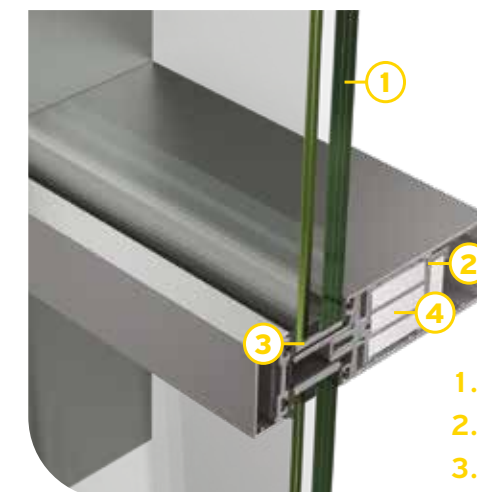


## SYSTEM

### Product characteristics M50 EI30

- Basic system width 50mm
- Flat interior appearance thanks to same mullion and transom profile.
- Available mullion and transom depth 105-175 mm.
- Available mullion and transom Moment of Inertia 124-433 cm<sup>4</sup>.
- max glass dimensions:  
width ≤ 1452mm  
height ≤ 3204mm
- Compatible with both fireproof glass and aluminium panels.

Fire resistance of M50FR is achieved by using a special reinforcement profile both in mullion and transom chamber, filled round with cooling material. Intumescent tape is placed in the sides of isolator and glazing holder. Under high temperature, tape is expanding and fills the space in the area of the façade.

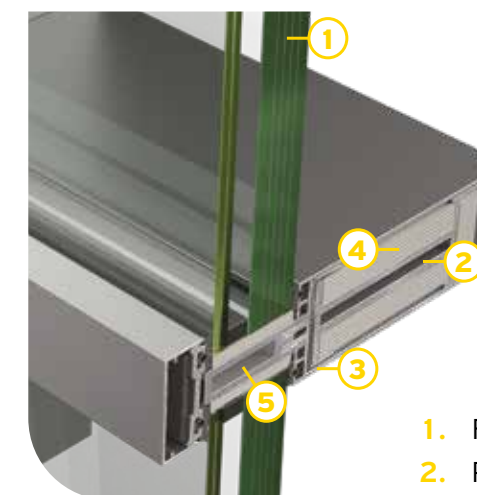


1. Fireproof glass
2. Reinforcement profile
3. Intumescent tape
4. Cooling material

### Product characteristics M7 EI60

- Basic system width 50mm
- Available mullion depth 142-267mm
- Available mullion Moment of Inertia 193-1475 cm<sup>4</sup>.
- Available transom depth 141-266 mm.
- Available transom Moment of Inertia 176-974 cm<sup>4</sup>.
- max glass dimensions:  
width ≤ 2000mm  
height ≤ 3000mm
- Compatible with both fireproof glass and aluminium panels.

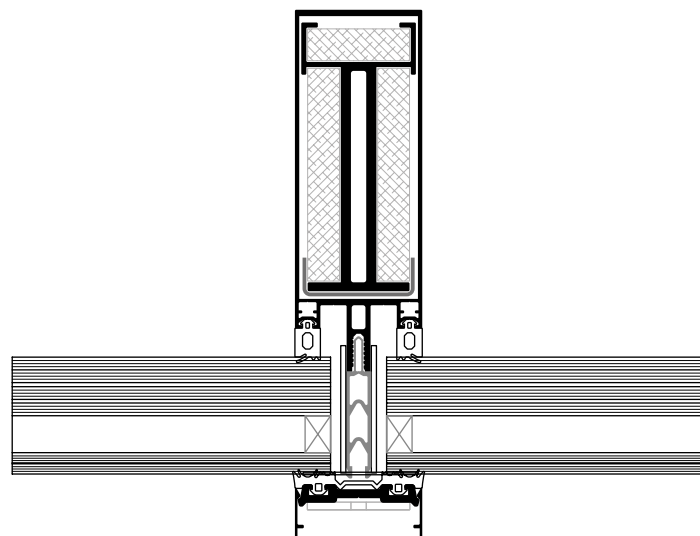
In addition to all fireproof accessories and profiles that are used in M50 EI30, a steel reinforcement is used, providing 60 minutes fire resistance.



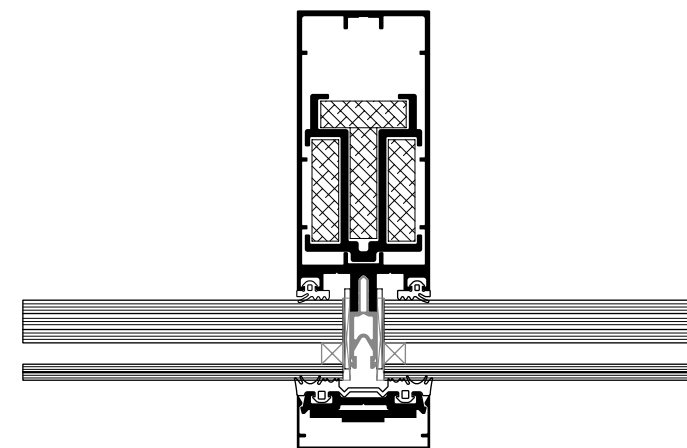
1. Fireproof Glass
2. Reinforcement profile
3. Steel Reinforcement
4. Cooling material
5. Intumescent tape



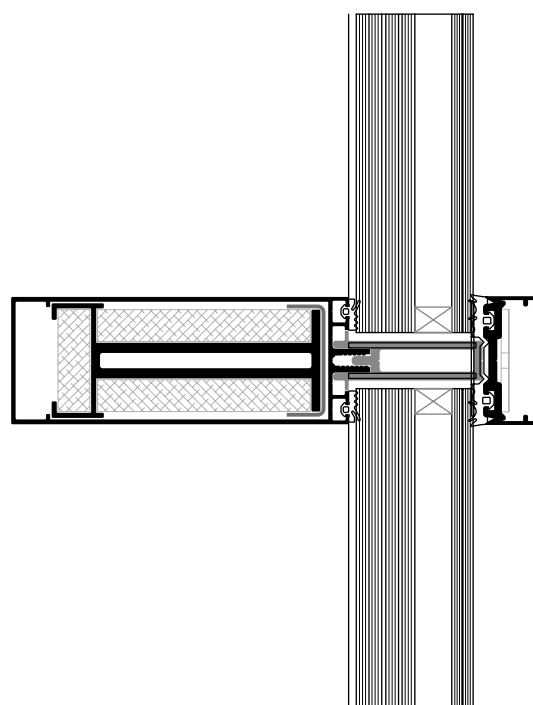
**MULLION CROSS SECTION M7 EI60**



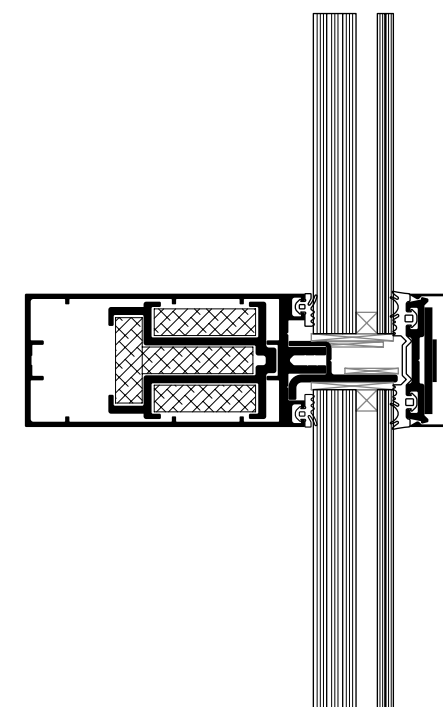
**MULLION CROSS SECTION M50 EI30**



**TRANSOM CROSS SECTION M7 EI60**



**TRANSOM CROSS SECTION M50 EI30**





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