Fireproof Solutions

Safety Systems

Denser urbanisation means increased safety requirements

Vesper project Lucky, Moscow — General contractor: CONSTRUCTOR group — Fabricator: Petrofil Plus — Architect: MEGANO

Fire resistant windows, doors and façades play a key role in mitigating harm to people and damage to property in case a fire breaks out in a building.

Certified fireproof joinery prevents indoor fires from spreading for a given amount of time. These precious minutes allow people to evacuate buildings safely, while helping fire fighters arrive on the scene in time. Due to dense urbanisation, creating safe living spaces in cities has become an important topic. And when the number of high-rise towers keeps on growing, so does the risk of major fire disasters.

At Euro America Windows, we face rising urbanisation levels head-on, by developing high-quality systems for residential projects, office buildings and public buildings that accommodate sports, arts, culture, or infrastructure. At the same time, we contribute to efficient building processes and offer pre-fabricated modules on-site. All our solutions heavily focus on comfort, design and sustainability, as we build a healthier and safer future together.

Introduction into fire resistance

Agrokoncernas, Lithuania — Architect: Audrius Ambrasas Architects — Photographer: UAB 'Structum' - ConceptSystem 77-FP

Before a product can be labelled fire resistant it has to undergo rigorous testing. Real size elements are installed in an oven and heated up to temperatures simulating a fully developed fire, well beyond the melting point of aluminium.

During the test data is recorded on surface temperature, heat radiation and deflection of the construction. These parameters will determine the classification.

Thermocouples installed all over the test element monitor the surface temperature increase.

In the first minutes of the fire the protective layer in the glass reacts and turns opaque. This blocks the heat and helps to reduce panic by obscuring the flames from view.
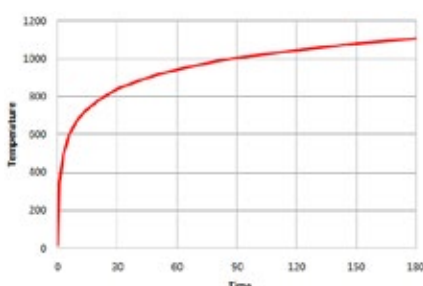
For the duration of the test nothing may ignite on the protected side. The testing officer makes sure of this by holding a cotton pad in critical areas.

The test is ended after integrity is lost and flames pass through. The fire exposed side can be seen to be charred and molten.

Classification breakdown

General hierarchy of classifications is EI > EW > E:

- "EI" classified products can be used when "EI", "EW" or "E" is required
- "EW" classified products can be used when "EW" or "E" is required.
- "E" is the most basic classification

Example: EW 30 classified products can be used where EW 30 or E 30 is required, but not when EI 30 is required.

E — Integrity

Criteria:
- No sustained flaming (≥10s)
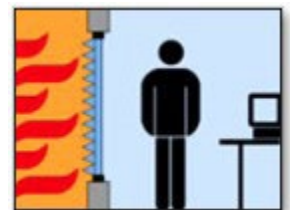- No openings
- No ignition of cotton pad

No flames through element

I — Thermal Insulation

Criteria:
- Average temperature increase <140K
- Maximum temperature increase <180K*
- No ignition of cotton pad

No propagation of fire through contact with hot surfaces

*For doors and openable windows there is a distinction between I_1 and I_2

1
- I_1 – ≥ max. temp. increase <180K anywhere on the element, extra measurement points on opening part (only obligated in Belgium and Luxembourg)

2
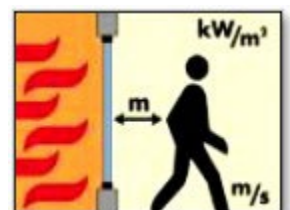- I_2 – ≥ max. temp. increase <360K on frame surrounding opening part, anywhere else <180K

W — Radiation

Criteria:
- Radiation <15 kW/m2

No propagation of fire through radiation from surfaces

tt — Duration

Criteria:
- Round down the successfully tested time to the nearest class.
- Short: 10-15-20 min
- Medium: 30-45-60-90 min (= most common)
- Long: 120-180-240-360 min

Overview of our Fireproof products

External Doors ⟨CE⟩ Internal Doors

ConceptSystem 77-FP

FIREPROOF CLASSES	EN 13501-2		
EW 30	EI_1 30	EI_2 30	EI_2 30-S200
	EI_1 60	EI_2 60	EI_2 60-S200

MasterLine 8-FP

FIREPROOF CLASSES	EN 13501-2
EW 30	EI_2 30

FlameLine

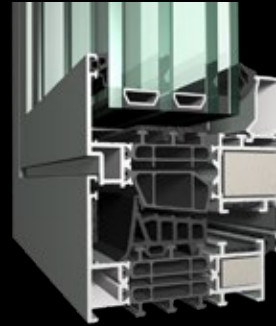| FIREPROOF CLASSES	EN 13501-2
EI_1 30	EI_2 30
EI_1 60	EI_2 60

Performances and properties of our safety products depend on size, profile combinations, hardware and infill choices. Additionally, local approvals and regulations may change the values listed in this document. Please contact your local Euro America Windows representative for guidance.

Opening Windows CE

ConceptSystem 77-FP

FIREPROOF CLASSES	EN 13501-2
EW 30	EI_2 30

MasterLine 8-FP

FIREPROOF CLASSES	EN 13501-2	
EW 30	EI_1 30	EI_2 30

External fixed glazing / Internal partition walls

ConceptSystem 77-FP

FIREPROOF CLASSES	EN 13501-2	
EW 30	EI 30	
EW 60	EI 60	

MasterLine 8-FP

FIREPROOF CLASSES	EN 13501-2	
	EI 30	
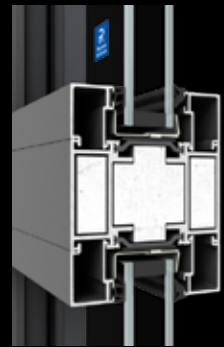
FlameLine

FIREPROOF CLASSES	EN 13501-2	
	EI 60	

Façades CE
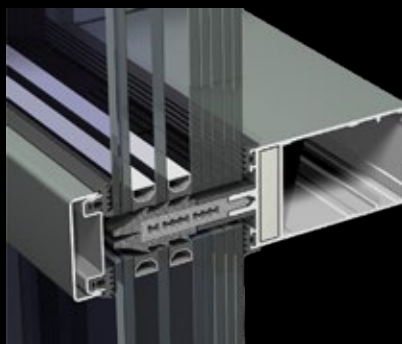
ConceptWall 50-FP

FIREPROOF CLASSES	EN 13501-2	
EW 30	EI 30	
	EI 60	

ConceptSystem 77 Fireproof (FP)

FIREPROOF CLASSES	EN 13501-2		
External Door	Internal Door	Partition Wall	Opening Window
		EW 30	EW 30
		EI 30	
EI_1 30	EI_1 30		
EI_2 30	EI_2 30		EI_2 30
		EW 60	
		EI 60	
EI_1 60	EI_1 60		
EI_2 60	EI_2 60		

Our most complete range of fireproof solutions

Extensively tested in various laboratories across Europe, CS 77-FP has been a reference in the market for many years. Full compliance with CE-marking according to EN 16034 as well as various national approvals mean that the product is widely accepted for application on the interior as well as on the exterior of the building.

CS 77-FP delivers up to 60 minutes of fire resistance along with all the benefits of our CS 77 system: thoroughly tested, a wide range of possibilites and a uniform way of working for all types of elements.

A wide range of tested glass and hardware types offers maximum flexibility and operational efficiency.

ConceptSystem 77-FP
Doors
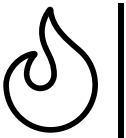
CS 77-FP doors are available with 30 or 60 minute fire resistance along with all the benefits of our CS 77 system: thoroughly tested, a wide range of possibilites and a uniform way of working for all types of doors.

Design options include various hinge types, design handles and a concealed door closer. The various bottom solutions offer a tailored solution for the specific end-use condition, whether accessibility, water tightness or elimination of draft is of primary importance.

Single and double doors as well as configurations with top- or sidelights are possible in internal or external applications.

$C\epsilon$ according to EN 16034 + EN 14351-1 (only for external doors)

PERFORMANCES / PROPERTIES		FIREPROOF CLASSES	EN 13501-2		
		$EI_2\ 30$	$EI_2\ 60$	$EI_1\ 30$	$EI_1\ 60$
Performances	Thermal insulation	Uf ≥ 3.2W/m²K	Uf ≥ 3.6W/m²K	Uf ≥ 3.6W/m²K	Uf ≥ 3.6W/m²K
	Burglarproof	RC2			
	Max vent weight	250 kg			
	Visible width vent-frame	150 mm			
	Frame depth	68 mm			
	Vent depth	68 mm			
Glass	Thickness	13 - 52 mm			
	Monolithic |	■			
	Double ||	■			
	Triple |||	■	-	■	-
Hinges	Rollenband	■	■	■	-
	Türband	■			
Threshold solutions	Drop seal	■			
	Gasket	■			
	Brush	■			

Available options:

Anti-Panic

Burglarproof RC2

Low Threshold

Zero Threshold

As per requirement in the European Union, the doors for external application can be CE-marked . Internal doors might need local approval, please contact your Euro America Windows representative for more information.

Our fireproof doors can also be smokeproof . Inhalation of toxic fumes can be lethal and is statistically the primary cause of fatality in a fire. Furthermore smoke development limits visibility and may complicate evacuation.
Doors with the classification Sa or S200 (EN 13501-2) have been proven to be sufficiently air tight to effectively limit the spread of smoke under ambient (room) temperature or 200°C respectively.
CS 77-FP doors can meet both classifications with only a few additional measures.

PERFORMANCES / PROPERTIES		FIRE- AND SMOKEPROOF CLASSES | EN 13501-2	
		EI_2 **30-S200**	EI_2 **60-S200**
Performances	Thermal insulation	Uf ≥ 3.2W/m²K	Uf ≥ 3.6W/m²K
	Burglarproof	RC2	
	Max vent weight	250 kg	
	Visible width vent-frame	150 mm	
	Frame depth	68 mm	
	Vent depth	68 mm	
Glass	Thickness	13 - 52 mm	
	Monolithic |	■	
	Double ||	■	
	Triple |||	■	-
Hinges	Rollenband	-	
	Türband	■	
Threshold solutions	Drop seal	■	
	Gasket	-	
	Brush	-	

ConceptSystem 77-FP
Openable Windows
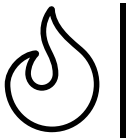
CS 77-FP openable windows offer a solution to create a fire resistant yet openable glazed enclosure.

Having achieved EW 30 and EI2 30 performance and being certified for CE-marking mean that it is widely applicable in Europe.

Various hardware options allow the creation of turn, tilt, turn-tilt and tilt before turn opening types, with the choice of visible or concealed hinges. Lockable handles are available in different designs.

CE according to EN 16034 + EN 14351-1

Musa — Architect: diederendirrix architecten — Photographer: Arthur Bagen — ConceptSystem 77-FP

PROPERTIES		FIREPROOF CLASSES | EN 13501-2	
		EW 30	EI$_2$ 30
Performances	Thermal insulation	Uf ≥ 2.4W/m²K	
	Burglarproof	RC 2 N	
Dimensions	Max element height	3000 mm	
	Max vent weight	170 kg	
	Visible width vent-frame	115 mm	
	Frame depth	68 mm	
	Vent depth	77 mm	
Glass	Thickness	13 - 52 mm	
	Monolithic |	■	-
	Double ||		■
	Triple |||		■

Available options:

Burglarproof RC2 N

Concealed Hinges

ConceptSystem 77-FP
Partition walls / Fixed Windows

ConceptSystem 77-FP allows creation of fire resistant glazed partition walls as well as external fixed windows in the classes EW 30, EI 30, EW 60 or EI 60 with a variety of glass types.

CS 77-FP doors and windows with the same or lower fire rating can be integrated, according to the requirements.

Optionally the glass panels can be joined vertically without members, with the use of Vetrotech Contraflam Structure glazing.

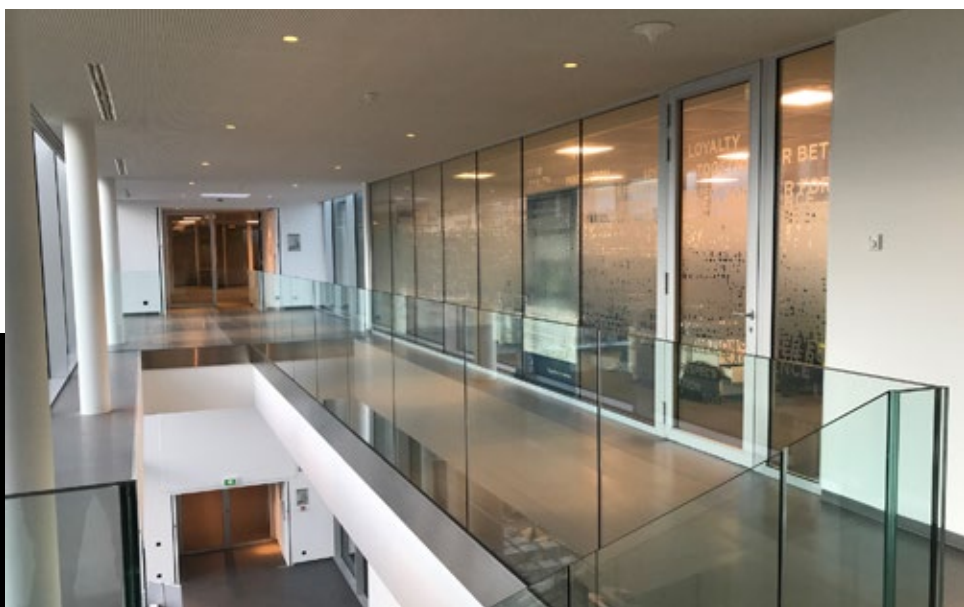| PROPERTIES		FIREPROOF CLASSES | EN 13501-2			
		EW 30	EI 30	EW 60	EI 60
Max height		4.25m	4.4m	3.65m	3.85m
Performances	Thermal insulation	Uf ≥ 3.6W/m²K			
	Min visible width T-profile	102 mm			
	Frame depth	68 mm			
	Thickness	13 - 52 mm			
	Monolithic |	■			
	Double ||	■			
Glass	Triple |||	■	■	-	-
	Tested with...	Vetrotech - Pyroguard	Vetrotech - Pyroguard - AGC - Pilkington	Pyroguard	Vetrotech - Pyroguard - AGC - Pilkington

Available options:

Burglarproof RC2

Glass Corner

MasterLine 8 Fireproof (FP)

FIREPROOF CLASSES | EN 13501-2

	External Door	Internal Door	Partition Wall	Opening Window
	EW 30			EW 30
			EI 30	
				EI$_1$ 30
	EI$_2$ 30	EI$_2$ 30		EI$_2$ 30

# Expanding our future proof platform even further

Based on the well-known MasterLine 8 windows and doors platform, this system variant enables the production of fire resistant elements within a familiar workflow.

The profile design allows for fast assembly and a wide range of glass and hardware options are included in the classification.

MasterLine 8-FP is suitable for both internal and external elements, with CE-marking possible for external doors.

MasterLine 8-FP
Doors
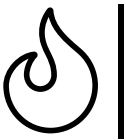
MasterLine 8-FP doors offer the same performance and functionality as standard MasterLine 8 doors, along with 30 minutes fire resistance. Visually you can tell the difference only by opening the door, by the intumescent gasket that is neatly attached to the insulation strip.

Also in assembly the differences are minimal, so fabricators familiar with MasterLine 8 will quickly be accustomed to the production of fire proof elements. As per requirement in the European Union, the doors for external application can be CE-marked. Internal doors might need local approval, please contact your Euro America Windows representative for more information.

CE

according to EN 16034 + EN 14351-1 (only for external doors)

PERFORMANCES / PROPERTIES		FIREPROOF CLASSES	EN 13501-2	
		EW 30	EI$_2$ 30
Performances	Thermal insulation	Uf ≥ 2.3W/m²K	
	Burglarproof	RC2 N	RC2
Dimensions	Max element height	4200 mm	
	Max vent weight	250 kg	
	Visible width vent-frame	153 mm	
	Frame depth	77 mm	
	Vent depth	77 mm	
Glass	Thickness	15 - 61 mm	
	Monolithic		-	■
	Double ||	■	
	Triple |||	■	
Hinges	Rollenband	■	
	Türband	■	
Threshold solutions	Drop seal	■	
	Gasket	■	
	Brush	■	

Available options:

Anti-Panic

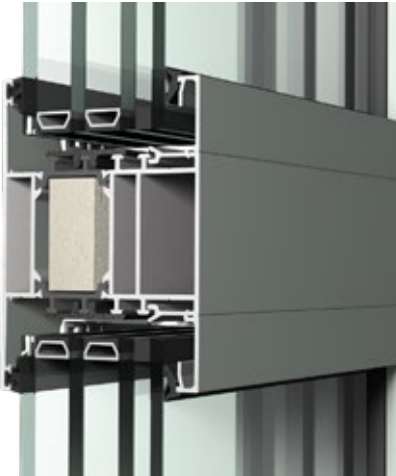Burglarproof RC2 (N)

Low Threshold

Zero Threshold

MasterLine 8-FP
Partition walls / Fixed Windows

MasterLine 8-FP allows creation of fire resistant glazed partition walls as well as external fixed windows in the class EI 30 with a variety of glass types. MasterLine 8-FP doors and windows with the same or lower fire rating can be integrated, according to the requirements.

PROPERTIES		FIREPROOF CLASSES | EN 13501-2
		EI 30
Max height		4.2m
Performances	Thermal insulation	Uf ≥ 2.2W/m²K
	Min visible width T-profile	104 mm
	Frame depth	77 mm
Glass	Thickness	15 - 61 mm
	Monolithic |	■
	Double ||	■
	Triple |||	■
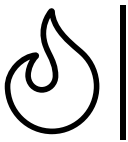
MasterLine 8-FP
Openable Windows

MasterLine 8-FP openable windows combines fireproof protection in openable elements. Its EW 30, EI 30 and EI₂ 30 fireproof classes, together with the CE certification, are a testimony to the system's thoroughly tested-and-verified performance.

With the help of the versatile hardware options, you can create turn, tilt, turn-tilt, tilt before turn, double casement turn-turn, double casement turn-tilt-turn, and double casement tilt-turn-turn opening types, all with concealed hinges. For additional safety, lockable handles are available in different designs.

CE according to EN 16034 + EN 14351-1

PROPERTIES		FIREPROOF CLASSES | EN 13501-2		
		EW 30	EI₁ 30	EI₂ 30
Performances	Thermal insulation	Uf ≥ 1.8 W/m²K		
	Burglarproof	RC 2 N		
Dimensions	Max element height	3500 mm		
	Max vent height	2540 mm		
	Max vent weight	200 kg		
	Visible width vent-frame	97 mm		
	Frame depth	77 mm		
	Vent depth	87 mm		
Glass	Thickness	31 - 61 mm		
	Double ||	■	■	■
	Triple |||	■	■	■

Available options: Burglarproof RC2 N | Concealed Hinges

FlameLine

| FIREPROOF CLASSES	EN 13501-2	
External Door	Internal Door	Partition Wall
		EI 60
EI_1 30	EI_1 30	
EI_2 30	EI_2 30	
EI_1 60	EI_1 60	
EI_2 60	EI_2 60	

Our dedicated fireproof platform

FlameLine is the latest addition to our fireproof offer. The versatile solution allows nearly all glass type combinations to meet the complex requirements linked to fail-safe escape doors, such as fire retarding properties, burglar resistance, emergency evacuation and superior thermal insulation with triple glazing.

FlameLine doors and partition walls have been tested to full CE-mark compliance according to EN 16034 with different glass suppliers in different European labs. What is more, FlameLine offers fire protection for 30 and 60 minutes, for doors both to class EI and class EI_2. Nothing is left to chance.

The system's modular and symmetrical design enables efficient assembly and stock management, reducing the total amount of articles. It is an ideal solution for industrial production, when components need to be bought in larger quantities.

FlameLine

Doors
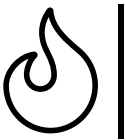
FlameLine internal and external doors are available for 30 and 60 minute fire resistance. The system's symmetrical build-up allows for centrally positioned single glass units in case of internal doors.

Rebated door profiles are available to allow for EI 60 compliance. Triple glazing up to 69mm can be installed for external applications. Single or double, inward or outward opening doors, with top and/or side lights: the choice is yours.

CE according to EN 16034 + EN 14351-1 (only for external doors)

PERFORMANCES / PROPERTIES		FIREPROOF CLASSES | EN 13501-2			
		$EI_2\ 30$	$EI_2\ 60$	$EI_1\ 30$	$EI_1\ 60$
Performances	Thermal insulation	Uf ≥ 2.2W/m²K	Uf ≥ 2.2W/m²K	Uf ≥ 2.2W/m²K	Uf ≥ 2.8W/m²K
	Water tightness	E900 (900Pa)			
	Wind load resistance	C4 (1600Pa)			
	Air tightness	3 (600Pa)			
	Burglarproof	RC2			
	Acoustic insulation	43 (-1;-3) dB			
Dimensions	Max vent weight	250 kg			
	Visible width vent-frame	154.5 mm			
	Frame depth	85 mm			
	Vent depth	85 mm			
Glass	Thickness	25 - 69 mm			
	Monolithic |	■			
	Double ||	■			
	Triple |||	■			
Hinges	Dr. Hahn TB IV AT	■			
	LOIRA +	■			
	WALA WX	■			
Threshold solutions	18mm threshold	■			
	Automatic draft excluder	■			
	Brush	■			

Available options:

(HI) High insulation
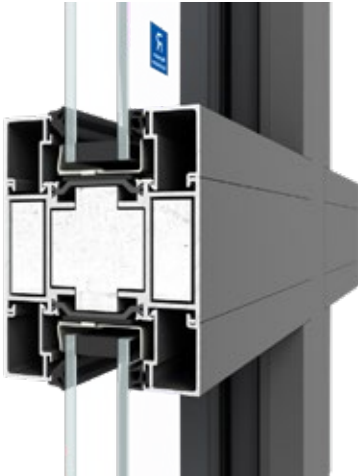
Zero threshold

Low Threshold

Burglarproof RC2

FlameLine
Partition walls / Fixed Windows

FlameLine can be used to create fire resistant glazed partition walls as well as external fixed windows in class EI 60.

The same symmetrical profiles of the door frames and vents can be used for centrally positioned single glass units in case of internal partitioning.

Rebated frames or T-profiles are available to allow for EI 60 compliance. Triple glazing up to 69mm can be installed for external applications.

PROPERTIES		FIREPROOF CLASSES | EN 13501-2
		EI 60
Performances	Thermal insulation	Uf ≥ 2.0W/m²K
	Water tightness	E1050 (1050Pa)
	Wind load resistance	C4 (1600Pa)
	Air tightness	4 (600Pa)
	Burglarproof	RC2
Dimensions	Max. height	3380 mm
	Max. weight	400 kg
	Min. visible width T-profile	106 mm
	Frame depth	85 mm
Glass	Thickness	25 - 69 mm
	Monolithic |	■
	Double ||	■
	Triple |||	■

Available options:

Burglarproof
RC2

ConceptWall 50 Fireproof (FP)
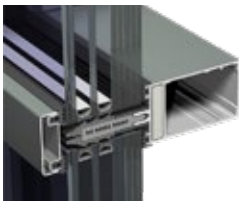
Mullion Transom
EW 30
EI 30
EI 60

MPL Passenger Terminal — Architect: JSK Architektoi Sp. Z o.o. — Photographer: Jarosław Ceborski — ConceptWall 50-FP

Safe and comfortable façade solutions

Transparency, insulation and fire protection come together in our recently updated ConceptWall 50-FP façade system.

The system design enables very large and heavy glass panels up to 550 kilograms.

Thermal comfort and energy savings are not compromised: triple glazing and insulation foams were tested and may be used to achieve very low U-values.

ConceptWall 50-FP is fire tested from inside to outside as well as from outside to inside and can be installed in front and in between floor slabs.
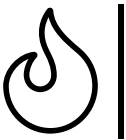
ConceptWall 50-FP
Façade

The fireproof variant of our most versatile façade solution, ConceptWall 50-FP is fire tested both from the inside to the outside and from the outside to the inside, according to the full (internal) fire curve. As a result, the system is suitable for the most stringent regulations and can be applied as a partition wall too. Available fireproof classes are EW 30, EI 30 and EI60 with minimal system differences.
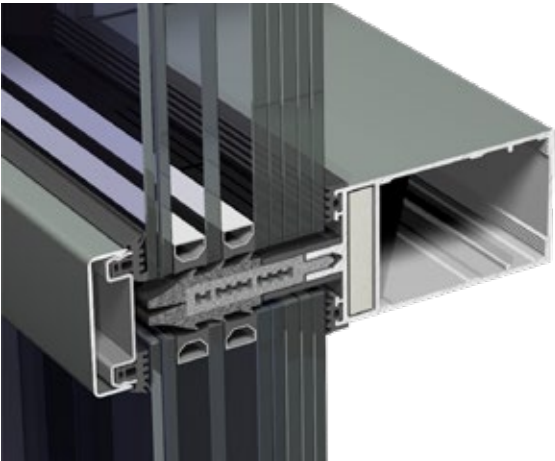
PERFORMANCES / PROPERTIES		FIREPROOF CLASSES | EN 13501-2		
		EW 30	EI 30	EI 60
Performances	Thermal insulation (HI variant)	Uf ≥ 0.8W/m²K		
Dimensions	Mullion Depth	83 - 167.5 mm		
	Visible Width	50 mm		
Inclination	Vertical façade	■		
	Maximum Inclination	+/- 10°		
Glass	Thickness	34 - 78 mm		
	Max Glass Weight	Up to 700 kg	Up to 700 kg	Up to 550 kg
	Glass Suppliers	Pyroguard	Vetrotech, AGC, Pyroguard, Polflam	Vetrotech, AGC, Pyroguard, Polflam
	Monolithic |	-		
	Double ||	■		
	Triple |||	■		

Available options:

(HI)

High Insulation

Crystal, Prague — Architect: Libor Hrdousek & Radek Lampa (Atelier 15) — Photographer: Vojta Zikmunda — ConceptWall 50-FP

Tested with a great variety of fire resistant glass

For fire resistance, the profiles and the glass can not be evaluated separately from each other. As the perfomance depends on the interaction between both, classifications are only valid for the tested combination.

Fire resistant glass for EI classification typically consists of two or more panes of glass with a clear interlayer, which reacts in case of a fire forming an insulating barrier against the heat.

There are float and tempered types out there. Float glass can be cut to size for shorter lead times while tempered glass is stronger, more stable and allows bigger dimensions. Both are possible also as double- or triple glass units for improved energy, comfort & safety levels.

We tested many variations of our profiles with the most internationally available glass suppliers in the industry, including different glass compositions. This enables flexibility in application without compromising the safety, quality and design freedom within your project.

This is a simplified overview → and does not give conclusive information. For full details and limitations, consult the relevant approval or contact your Reynaers Aluminium representative.

M	Monolithic (single) glass
D	Double glass
T	Triple glass
Te	Tempered glass
Cu	Cuttable glass

Manufacturer	Type		MasterLine 8-FP Door	MasterLine 8-FP Partition Wall	MasterLine 8-FP Opening Window	ConceptSystem 77-FP Door	ConceptSystem 77-FP Partition Wall	ConceptSystem 77-FP Opening Window	ConceptWall 50-FP Stick Façade
vetrotech	Contraflam Lite 30	Te	D T		D T		M D	M D	
	Contraflam 30	Te	M D T	M D T	D T	M D T	M D T	D T	D T
	Contraflam 60-3	Te				M D	M D		D T
PILKINGTON	Pyrostop 30	Cu	M D T	M D T		M D T	M D		
	Pyrostop 60	Cu				M D	M D		
AGC	Pyrobel 16 (EG)	Cu				M D T	M D		
	Pyrobel 25 (EG)	Cu				M D	M D		
	Pyrobel-T EI30	Te				M D T			D T
	Pyrobel-T EI60	Te				M D			D T
Pyroguard	Pyroguard T-EW30	Te					M D T	D T	D T
	Pyroguard T-EW60	Te					M D		
	Pyroguard T-EI30	Te	M D T	M D T		M D T	M D T		D T
	Pyroguard T-EI60	Te				M D	M D		D T
POLFLAM	Polflam EI 30	Te							D T
	Polflam EI 60	Te							D T

About us

"Together we are improving the living and working environment for people now and for future generations."

As part of Euro America Windows is a leading European specialist in the development and marketing of innovative, sustainable aluminium solutions for windows, doors, and façades. Together with our partners, we focus on creating energy-efficient, responsibly made products that make a difference for homes, buildings and the people they serve.

Euro America Windows is founded in 1965 and currently employs over 2,600 workers in more than 40 countries worldwide. The company exports to more than 70 countries on 5 different continents. In 2024, Reynaers Group achieved an annual turnover of 703 million euros.

The company's success is strengthened by our close partnership with 5,000 partner fabricators, architects, and project developers worldwide. This unique cooperation is reflected in our motto: Together for better.

At Euro America Windows, our headquarters in Belgium, we focus on sharing knowledge and experience with architects, fabricators, contractors and other building partners while inspiring them with new technologies. Next to the Technology, Training and Automation Centre, Euro America Windows also has its own Experience Centre where future buildings can be explored in our virtual reality room Avalon.

For more information, visit www.euroamericawindows.com

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