TECHNICAL GUIDE

Fire-Resistant Glazing E W I

Explained and simplified

Fire-rated glazing does not stop a fire. It buys **time** — time for people to get out, and time for the fire service to get in.

Everything about it comes down to two things: **how many minutes**, and **how much protection** during those minutes. The number is the minutes. The letters are the protection.

1 · The answer is usually on your drawings

Clients often ask us what rating they need. That decision belongs to the project's fire engineer and the authority having jurisdiction — but in most cases the answer is already on the drawings you hold.

- **Fire strategy drawings** mark compartment walls and fire barriers, usually colour-coded, with a period against them — 30, 60, 90 or 120 minutes.
- **Door and window schedules** should carry a period against every rated opening.

THE RULE THAT SAVES THE MOST CONFUSION

A glazed screen or door takes its requirement from the wall it sits in. Find the wall on the fire strategy drawing, read its period, and the opening follows from it.

Across the GCC it is common to see European, American and local civil defence conventions on the same project. A period on its own — “60 minutes” — does not say which system it belongs to. Both systems are set out below.

2 · The letters — European (EN)

E — INTEGRITY

Stops flame and smoke

The element stays sealed. Flames and hot gases cannot pass through it. Assessed by cotton pad ignition, sustained flaming and gap gauges.

W — RADIATION

Keeps the heat at a distance

Radiated heat measured one metre from the unexposed face must stay below 15 kW/m^2. Always declared with E, as EW.

I — INSULATION

Stays cool to the touch

Average temperature rise on the safe side limited to 140 °C, with no single point above 180 °C, so people and materials can be right beside it.

Class	What it does	What can be next to it
E	Stops flame and smoke only — the glass gets very hot	Nothing and nobody should be close to it
EW	Stops flame and smoke, and limits radiated heat	People can pass at a safe distance
EI	Stops flame, smoke and heat	People can stand beside it; combustibles can be adjacent

IN SIX WORDS

E stops the fire. EW keeps its distance. EI stays cool.

3 · The number

The period follows the letters, in minutes — **30, 60, 90, 120** and beyond. So **EI 60** means flame, smoke and heat all held back for 60 minutes. **E 30** means flame and smoke only, for 30 minutes.

The period is a common yardstick measured under the standard furnace time–temperature curve of EN 1363-1. It is not a prediction of how a particular real fire will behave.

4 · The American equivalent — UL, NFPA and ASTM

US codes divide fire-rated glazing into two families. The difference controls how much glass you are allowed to have.

	Fire-protective	Fire-resistive
Roughly equals	E	EI
Stops	Flame and smoke	Flame, smoke **and** heat
Tested to	NFPA 252 / UL 10C (doors) NFPA 257 / UL 9 (windows)	ASTM E119 / UL 263 / NFPA 251 — the same tests as a wall
Area limit	Generally capped at **25% of the wall area**	**No 25% limit** — performs as wall construction
Typical use	Doors and small openings, 20–45 minutes	Large screens, stairs, corridors, atria, 60 minutes and above

Anything rated over 20 minutes must also pass the **hose stream test** — the hot assembly is sprayed with a fire hose immediately after the furnace, applying thermal shock, impact and erosion at once. It removes products that survive the heat but shatter on contact with water.

WORTH KNOWING

“E ≈ fire-protective” and “EI ≈ fire-resistive” is useful shorthand, **not an equivalence**. The tests and criteria differ. Where a project cites both systems, each has to be evidenced separately.

5 · The glass alone is never the rating

A fire rating belongs to a **complete assembly**, not to a pane of glass. It covers the glass, the frame, the beads, the intumescent seals, the gaskets, the hardware, the fixings, and how the whole thing is fixed into the surrounding wall.

- **You cannot mix and match.** Fire-resistive glass in a fire-protective frame gives you a fire-protective assembly. The weaker half sets the rating.
- **The detail matters as much as the product.** Change the glass, the bead, the seal, the size or the fixing centres, and the certification no longer describes what is on site.

This is also why the surrounding construction matters. A correctly built screen fixed into the wrong wall build-up, without proper perimeter firestopping, is not a rated installation.

6 · The four things that go wrong most often

	The mistake	Why it matters
1	A period with no letters — “60-minute glazing”	Does not say whether heat has to be blocked. E 60 and EI 60 are very different products at very different prices
2	A period with no system — EN or US not stated	The two have different criteria and different area limits
3	Glass and frame rated differently	The assembly takes the lower of the two, so the better half is money spent for nothing
4	Sizes outside the tested range	Every certification carries maximum dimensions. Exceeding them voids it, however good the product

7 · Quick reference

If you need to…	European	American
Stop flame and smoke only, nothing nearby	E	Fire-protective
Protect people passing at a distance	EW	—
Protect an escape route, stair or corridor	EI	Fire-resistive
Glaze more than 25% of a wall	EI	Fire-resistive
Put glass into a compartment wall	Match the wall	Match the wall

8 · The range at British Aluminium

We supply the complete range across both certification systems — EN and UL — as certified assemblies, not assembled from separately rated parts.

Range	Products	Standards
Fire-rated doors	Hinged, pivoted, sliding and automatic sliding; solid and glazed	EN 13501-2 / EN 1634-1 · UL 10C / NFPA 252
Fire-rated windows and screens	Fixed and operable windows, glazed screens and partitions	EN 13501-2 / EN 1364-1 · UL 9 / NFPA 257 / ASTM E119
Fire-rated curtain wall	Stick-built and unitised, internal and external	EN 1364-3 · ASTM E119 / UL 263
Blast-resistant systems	Curtain wall, windows, aluminium and steel blast doors, bunker and hangar doors	EN 13123 / 13124 / 13541 · GSA-TS01 / ASTM F1642 / UFC
Ballistic-resistant systems	Aluminium and steel framed glazing, doors and public counters	EN 1522 / EN 1063 · UL 752 / NIJ 0108.01
Acoustic systems	80 mm and 100 mm double-glazed partitions, acoustic doors and screens	EN ISO 10140 / EN ISO 717-1 · ASTM E90 / E413 / E1332
Combined performance	Fire with blast, ballistic with acoustic, and other multi-requirement assemblies	Certified per configuration

The easiest way to start: send us your fire strategy drawing and door and window schedule. We will read them, confirm what we understand the requirement to be, and identify which of our certified systems meets it.

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Issued for information. Selection of fire ratings and of the building's compartmentation strategy is the responsibility of the project's fire engineer and the authority having jurisdiction. This document does not constitute fire engineering advice. Standards are cited as at the date shown and this guide is revised without notice; always work from the current issue.