



FAQs ON FIRE RATED GLASS & FRAMING

The following are Frequently Asked Questions (FAQs) from architects, contractors and others who have attended SAFTIFIRST's free, AIA-accredited webinar: "Designing with Fire Rated Glass." To schedule a webinar for your firm, please send an email to dianas@safti.com.

What are the code requirements in a 1-hour exit corridor?

The codes allow 20-minute fire doors with 20-minute vision panels without hose stream in 1-hour exit corridors. Sidelites and transoms around the door in a 1-hour exit corridor require a 45-minute fire rating with hose stream. Fire windows are required to be rated 45-minutes, and are limited to under 25% of the total wall area. If more window glazing is desired, fire-resistive glazing assemblies rated equal to the wall must be used.

What are the code requirements for 1- and 2-hour exit/stairwell enclosures?

The codes specify *extra* fire protection levels for fire doors and glazing products in exit enclosures and passageways, in order to protect occupants exiting a burning building from smoke, flames *and* exposure to dangerous radiant heat. Fire protective glazing in temperature-rise 60- or 90-minute doors in an exit enclosure or passageway is limited to 100 sq inches. Larger door vision panels, sidelites, transoms and wall glazing surrounding the door *must* be fire resistive. The framing used must also be fire resistive, and the whole assembly must meet the same rating requirement as the wall.

In a sprinklered building, can you increase the size of the door vision panel in an exit/stairwell enclosure?

No. In the 2000 IBC, an exception was provided that allowed the use of non-temperature rise doors if a building was fully sprinklered in accordance with Chapter 9. The 2012 IBC was amended to clarify that the maximum allowable vision panel in a 60- or 90-minute, temperature-rise door in an exit enclosure or passageway is 100 sq inches, regardless of whether the building is fully sprinklered or not. The only way to increase the size of a vision panel in a 60- or 90-minute door in an exit/stairwell enclosure is to use fire resistive glazing.

Why do codes sometimes require sidelites and transoms to have higher ratings than door openings?

When the code requires fire doors rated 1-hour or more, then the sidelites and transoms around that door must be fire resistive and rated to the same standard as the wall. Sidelites and transoms around a 20-minute fire door in a 1-hour exit require a 45-minute fire rating with hose stream. Doors are actively opened and closed and have limited surface areas. Fixed panels, however, can possibly have combustibles stored against them, which could ignite from high levels of radiant heat.

What are the code requirements for fire rated framing?

Because fire rated glazing is used in door- and wall-assemblies, code requirements for framing must also be considered. Simply put, the fire rated framing requirements must match the glazing requirements in order for the assembly to fully meet the code requirements. Hollow metal framing is fire protective, not fire resistive, so where codes require fire resistive glazing, the framing must also be fire resistive, and the entire assembly must meet the same rating requirement as the wall.

What is the difference between a “hazardous location” and an “area subject to human impact load”?

These terms are used in the building code to define requirements for safety glazing. “Hazardous locations” are specifically defined in the safety glazing chapter (section 2406.1), and include vision panels in doors, sidelites adjacent to doors, and large fixed panels near walking surfaces. “Area subject to human impact load” is broader than the code definition of a hazardous location, and becomes relevant when glazing is used in athletic facilities.

What is the hose stream test? Why is it required?

The hose stream test was developed in the late 1890s to measure the structural integrity of floor materials and cast or wrought iron in building walls during an intense fire. It was not intended or designed to test the thermal stress performance of glazing materials. Today, prescriptive building codes in the U.S. and Canada (but not in Europe or elsewhere) require application of fire rated glazing that passes this archaic test, unless a local code authority determines otherwise.

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