

The IBC and Exterior Fire Rated Openings

FAQs ON FIRE RATED GLASS & FRAMING:

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Ever been confused as to how to select the correct fire rated glass for exterior applications? If your answer is “Yes,” it’s really no surprise. This article provides answers to FAQs on the IBC and exterior fire rated openings as it relates to fire protective vs. fire resistive glazing requirements.

The fire resistance rating for exterior walls is based on construction type, occupancy and fire separation distance as defined in Section 6 of the IBC. These fire resistance requirements range from no required rating to 3 hours. Exterior walls generally have a rating based solely on interior occupancy use and structural requirements. However, exterior walls that are 10 feet or less from the property line are required to have a fire resistance rating based on the proximity to adjacent buildings and interior occupancy conditions. The 2009 IBC increased this distance from five to 10 feet.

How much glass can be used in an exterior wall opening?

Openings in an exterior wall typically consist of windows and doors. An exterior wall may or may not be allowed to have openings depending on the fire separation distance. When allowed, the codes distinguish between openings that are “protected” (fire-rated doors, windows, shutters) and “unprotected” (no fire rating).

Tables 704.8 (2006 IBC) and [Table 705.8 2012 IBC](#) (2009 and 2012 IBC) lay out the percentage of protected and unprotected openings and size limits allowed in exterior walls. [Fire protective glass](#), such as ceramics, wired glass and specialty tempered glass, is either limited in size or prohibited altogether, depending on the fire separation distance. Generally speaking, as the fire separation distance increases, the allowable opening area and the percentage of allowable fire protective openings increases.

For example, under Table 705.8 of the 2009 and 2012 IBC, fire protective openings are not permitted at all where the fire separation distance is less than 3 feet. The 2009 and 2012 IBC also account for the presence of automatic sprinklers in determining the amount of allowed openings. When the building is not protected by automatic sprinklers, the allowed openings are more restricted. Where the fire protection distance is less than 5 feet, the code does not permit unprotected openings in a building that isn’t also protected by an automatic sprinkler system. In a building that’s fully protected by sprinklers, the percentage of unprotected wall area is limited to 15%.

Do the same limitations apply to fire resistive glazing?

Does Table 705.8 (2009 and 2012 IBC) mean that you cannot have glazing in an exterior wall when the fire separation distance is less than 3 feet? No. Fire resistive glazing materials tested as part of a wall assembly, such as SuperLite II-XL by SAFTIFIRST, are allowed. Products such as SuperLite II-XL have been tested to the more stringent performance requirements of ASTM E119, which requires any temperature rise to be less than 250° F above ambient temperature on the non-fire side. Advanced products like fire resistive SuperLite II-XL glazing and SAFTIfire GPX framing allow building designers to exceed the opening protection limits restricting the use of fire protective glazing in fire doors and windows. As a result, designers don’t have to sacrifice expansive clear views and abundant natural light in order to meet code requirements.

Where are the window or door opening rating requirements for exterior walls?

Once you’ve determined from Table 705.8 that protected openings are allowed, as well as the percentage permitted, you can go to Tables 715.4 and 715.5 (revised [2012 IBC Table 716.5](#) and [2012 IBC Table 716.6](#)) to find the rating required for fire doors and windows in the exterior wall.

For example, exterior walls with a 1-hour rating require fire doors and window assemblies with a 45-minute rating. For 2 and 3-hour rated exterior walls, door and window openings must have a 90-minute rating. Sidelites and transoms that are part of a 90-minute door assembly in a 2 or 3-hour rated exterior wall, must be 2 or 3 hour rated, not 90 minutes.

I have more questions. Where can I go for more information?

Whether you have questions regarding product selection, allowed applications or need help in understanding the code requirements, it pays to involve the manufacturer early in the design phase. A knowledgeable manufacturer can help you understand your options and choices to ensure that the glazing product chosen is the best suited and code-compliant solution for the project.

Click here to view installations of fire rated glass in exterior applications.

Got questions on fire rated glass and framing? Train with a recognized code expert while earning **1 AIA LU and 1 HSW credit** with our AIA-accredited webinar program **“Designing with Fire Rated Glass.”** To schedule a free webinar for your firm, visit www.safti.com/webinar. For more information on SAFTI *FIRST*'s products, please visit www.safti.com.