

WHAT ARE THE SIZE LIMITS FOR 60-AND 90-MINUTE DOOR VISION PANELS UNDER THE IBC?

Users are frequently confused about the door vision panel sizes permitted in 60-and 90-minute fire doors under the IBC. This confusion stems from a conflict between NFPA 80 size limits and the size limits prescribed by the IBC, and the fact that the listing agencies have tested and listed fire protective glazing in sizes not permitted by the IBC.

IBC LIMITS FIRE PROTECTIVE GLAZING IN 90-MINUTE DOORS TO 100 SQ. INCHES

In the 2006 IBC, size limits for 60-and 90-minute door vision panels are found in Section 715.4.6.1, and 715.4.4.1. Section 715.4.6.1 specifies that fire *protective* glazing shall comply with the size limits of NFPA 80, with two important exceptions that apply to 90-minute doors. NFPA 80 provides that fire protective glazing in 60-and 90-minute temperature rise doors are limited to 100 sq. inches, and fire protective glazing in non-temperature rise doors are limited to the maximum size tested. The IBC, however, limits fire protective glazing in ALL 90-minute doors to 100 sq. inches. (Section 715.4.6.1, Exceptions 1 and 2). THESE EXCEPTIONS OVERRIDE THE NFPA 80 SIZE LIMITS. It is clear under the IBC that fire protective glazing in all 90-minute fire doors is limited to 100 sq. inches.

IBC LIMITS FIRE PROTECTIVE GLAZING IN 60-MINUTE DOORS TO 100 SQ. INCHES

The only requirement under the IBC for a 60-minute door is when used in 1-hour exit enclosures, where temperature rise doors are required. Section 715.4.4.1 specifically addresses the size limits for fire protective glazing in 1-hour exit enclosure doors. Fire protective glazing is limited to 100 sq. inches, unless that glazing has been tested to meet 450F degree temperature rise limits at 30-minutes. In practice, the only products that limit temperature rise are fire resistive rated glazing products, which meet the more stringent 250F degree temperature rise limits of ASTM E119. Section 715.4.4.1 does permit an exception for the use of temperature rise doors in 1-hour exit enclosures when the building is equipped *throughout* with automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

This section is being interpreted by some to mean that anytime sprinklers are present, a temperature rise door is not required, and fire protective glazing can be used in the maximum size tested.¹ This interpretation is not supported by ICC staff, which was asked this question. Again, unlike NFPA 80, the IBC limits fire *protective* glazing in 60-minute doors to 100 sq.

inches. The IBC requirements are in line with the actual life safety hazards posed by fire protective products used in exit enclosures because of the dangerous amount of radiant heat transmitted through the glazing even after a very short period of fire exposure. Products such as ceramics can transmit enough radiant heat to cause unbearable human pain to occupants passing by the glazing surface after only 10 minutes into the fire.

PRODUCT LISTINGS OF SIZES EXCEEDING CODE LIMITS DO NOT MEAN LISTED SIZES ARE PERMITTED BY CODE

One of the reasons there is so much confusion about permitted door vision panel sizes allowed by the IBC is that testing agencies like UL do not limit its listings to code-approved applications, contrary to what most AHJs and architects believe. The fact that UL lists sizes in excess of 100-sq. inches for 60-and 90-minute doors does not mean UL has made a determination that they are accepted in those sizes under the IBC or local codes. Unfortunately, there is nothing in their listing information to advise the end-user or code official that the listings do not conform to code. Customers should be advised not to rely on UL listings for this reason.

FIRE RESISTIVE PRODUCTS ARE NOT LIMITED IN SIZE

Please note that under the IBC, section 715.2, fire *resistive* products such as **SuperLite II-XL** are not subject to the size and area limits of Section 715, meaning that fire resistive products may be used in 60-and 90-minute doors in excess of 100 sq. inches.

¹ Even under the interpretation by competitors who are selling ceramics in full sizes in 60-minute doors, the only exception allowing a non-temperature rise door is when the entire building is equipped with automatic sprinklers installed in accordance with specific requirements in Chapter 9. In other words, the fact that a sprinkler may be present in one part of the building, but not the entire building, will not trigger the exception requiring a temperature rise door. Architects considering use of large sizes of fire protective products in 1-hour doors used in 1-hour exit enclosures should be advised of the sprinkler requirement for the entire building in accordance with Chapter 9, and architects and AHJs both should be told that fire protective products are highly dangerous in these applications if sprinklers protecting the exit enclosure fail.