



Glass Informational Bulletin

GANA FRGC 01-1211

Fire-Rated Glazing Changes in 2012 International Building Code[®] (IBC)

Introduction

In 2010, the International Code Council (ICC) adopted several changes regarding fire-rated glazing in the International Building Code (IBC). ICC incorporated these changes into the 2012 IBC¹, which they made available for use starting in spring 2011. Jurisdictions are anticipated to adopt the 2012 IBC as part of their code updates in the months and years to come.

Key changes in the 2012 IBC regarding fire-rated glazing include:

1. Restrictions on use of automatic sprinklers and fire suppression systems during testing of fire-resistance materials
2. Simplified marking scheme for fire-rated glazing assemblies
3. Clarifications on allowed and prohibited uses for fire-protection-rated glazing and fire-resistance rated glazing

The purpose of this bulletin is to summarize these changes for design and building professionals. The 2012 IBC also includes a number of housekeeping edits and other clarifications that are not discussed in this bulletin. Refer to the 2012 IBC for complete details.

¹ See 2012 International Building Code, Chapter 7: “Fire and Smoke Protection Features”

1. Restrictions on Use of Automatic Sprinklers and Fire Suppression Systems during Testing of Fire-Resistance Materials

The 2012 IBC prohibits the use of automatic sprinklers and other fire suppression systems during fire-resistance rating tests of building components, including fire-rated glass:

703.4 Automatic sprinklers. Under the prescriptive fire-resistance requirements of the International Building Code, the fire-resistance rating of a building element, component or assembly shall be established without the use of automatic sprinklers or any other fire suppression system being incorporated as part of the assembly tested in accordance with the fire exposure, procedures, and acceptance criteria specified in ASTM E119 or ANSI/UL 263. However, this section shall not prohibit or limit the duties and powers of the building official allowed by Sections 104.10 and 104.11.

IBC Fire Safety Committee hearing documents note that the change was made in response to some material manufacturers submitting “test reports to Authorities Having Jurisdiction [AHJs] with fire-resistance ratings obtained using a flow of cooling water during the fire test.” The stated rationale for the change was: “the need for a fire-resistive assembly is usually required by the code to provide an inherent passive level of fire protection,” and to prevent product manufacturers from claiming “an inflated fire-resistance rating.”

2. Simplified Marking Scheme for Fire-Rated Glazing Assemblies

The 2012 IBC simplifies the fire-rated glazing assembly marking scheme by reducing the number of marks that indicate tests standards with which the glass complies. Glass that has earned a fire rating must be labeled under the 2012 IBC with the following marks, as appropriate:

**TABLE 716.3
MARKING FIRE-RATED GLAZING ASSEMBLIES**

FIRE TEST STANDARD	MARKING	DEFINITION OF MARKING
ASTM E 119 or UL 263	W	Meets wall assembly criteria.
NFPA 257 or UL 9	OH	Meets fire window assembly criteria including the hose stream test.
NFPA 252 or UL 10B or UL 10C	D	Meets fire door assembly criteria.
	H	Meets fire door assembly “Hose Stream” test.
	T	Meets 450°F temperature rise criteria for 30 minutes
	XXX	The time in minutes of the fire resistance or fire protection rating of the glazing assembly

For 81: °C = [(°F) - 32]/1.8.

For example, a product marked “D-H-45” indicates the glazing can be used within door assemblies, has passed the hose stream test, and is fire-rated for 45 minutes. The absence of a “T” mark for such a product indicates it does not meet temperature rise criteria for doors. Products that are suited for multiple applications will carry each of the appropriate marks.



3. Clarifications on Allowed and Prohibited Uses for Fire-Protection-Rated Glazing and Fire-Resistance Rated Glazing

The 2012 IBC modifies two tables (716.5 and 716.6) to help clarify the applications for which fire-rated glazing is permitted or not permitted, and those instances that require fire-resistance-rated glazing versus fire-protection-rated glazing.² The tables now show the required fire rating (in hours) and glass size limits (in square inches) for door vision panels, sidelites and transoms, and fire windows. The tables also present required fire ratings for wall assemblies. Rather than new requirements, the changes are primarily clarifications to the 2006 and 2009 IBC.

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE	FIRE RATED GLAZING MARKING DOOR VISION PANEL*	MINIMUM SIDELIGHT/TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELITE/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	Not Permitted	Not Permitted	Not Permitted	4	Not Permitted	W-240
	3	3 ^a	Not Permitted	Not Permitted	Not Permitted	3	Not Permitted	W-180
	2	1½	100 sq. in. ^c	≤100 sq.in. = D-H-90 >100 sq.in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	1½	1½	100 sq. in. ^c	≤100 sq.in. = D-H-90 >100 sq.in.= D-H-W-90	Not Permitted	1½	Not Permitted	W-90
Shaft, exit enclosures and exit passageway walls	2	1½	100 sq. in. ^{c,4}	≤100 sq.in. = D-H-90 > 100 sq.in.= D-H-T-or D-H-T-W-90	Not Permitted	2	Not Permitted	W-120
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures for shafts, exit access stairways, exit access ramps, interior exit stairways, interior exit ramps and exit passageway walls	1	1	100 sq. in. ^{c,4}	≤100 sq.in. = D-H-60 >100 sq.in.= D-H-T-60 or D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			
Other fire barriers	1	¾	Maximum size tested	D-H-NT-45	¾		D-H-NT-45	
Fire partitions: Corridor walls	1	½ ^b	Maximum size tested	D-20	¾ ^b		D-H-OH-45	
	0.5	½ ^b	Maximum size tested	D-20	½		D-H-OH-20	
Other fire partitions	1	¾	Maximum size tested	D-H-45	¾		D-H-45	
	0.5	½	Maximum size tested	D-H-20	½		D-H-20	

(continued)

² Fire-protection-rated glazing blocks flames and smoke, while fire-resistance-rated glazing blocks flames, smoke and heat transfer



**TABLE 716.5—continued
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS**

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE	FIRE RATED GLAZING MARKING DOOR VISION PANEL ^a	MINIMUM SIDELIGHT/TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELITE/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Exterior walls	3	1½	100 sq. in. ^c	≤100 sq.in. = D-H-90 >100 sq.in. = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	1½	100 sq. in. ^c	≤100 sq.in. = D-H-90 >100 sq.in. = D-H-W-90	Not Permitted	2	Not Permitted	W-120
	1	¾	Maximum size tested	D-H-45	Fire Protection		D-H-45	
Smoke barriers	1	½ ^b	Maximum size tested	D-20	Fire protection		D-H-OH-45	

For SE: 1 square inch = 645.2 mm.

- Two doors, each with a fire protection rating of 1½ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.
- For testing requirements, see Section 716.6.3.
- Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.
- Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.
- Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

**TABLE 716.6
FIRE WINDOW ASSEMBLY FIRE PROTECTION RATINGS**

TYPE OF WALL ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE WINDOW ASSEMBLY RATING (hours)	FIRE-RATED GLAZING MARKING
Interior walls			
Fire walls	All	NP ^a	W-XXX ^b
Fire barriers	>1	NP ^a	W-XXX ^b
Incidental use areas (707.3.6), Mixed occupancy separations (707.3.8)	1	¾	OH-45 or W-60
Fire partitions	1	¾	OH-45 or W-60
Smoke barriers	0.5	½	OH-20 or W-30
	1	¾	OH-45 or W-60
Exterior walls	>1	1½	OH-90 or W-XXX ^b
	1	¾	OH-45 or W-60
	0.5	½	OH-20 or W-30
Party wall	All	NP	Not Applicable

NP = Not Permitted.

- Not permitted except fire-resistance-rated glazing assemblies tested to ASTM E 119 or UL 263, as specified in Section 716.2.
- XXX = The fire rating duration period in minutes, which shall be equal to the fire-resistance rating required for the wall assembly.

Implications of 2012 IBC Changes for Glaziers, Design Professionals and Manufacturers

Although timing will vary in which jurisdictions adopt the 2012 IBC, it is important to be aware of the modifications as they do adopt the new code and since it provides useful clarifications to previous IBC editions.

Architects and glaziers should particularly be aware of where fire-protection-rated and fire-resistance-rated glazing is permitted or not permitted, and the limits on glass sizes in permitted applications. Tables 716.5 and 716.6 provide this information.



Glazing manufacturers and suppliers will need to follow the updated fire-rated glass marking scheme identified in Table 716.3, and in some cases may need to modify product literature to be consistent with the latest code information and requirements.

The Glass Association of North America (GANA) has produced this Glass Informational Bulletin solely to provide information regarding key changes in the 2012 International Building Code (IBC) related to fire-rated glazing. This bulletin makes no attempt to provide all information or requirements under the IBC or other codes or standards for product testing, labeling, specification or other considerations. The user of this Bulletin has the responsibility to ensure their awareness of all applicable code and testing requirements. GANA disclaims any responsibility for any specific results related to the use of this Bulletin, for any errors or omissions contained in the Bulletin, and for any liability for loss or damage of any kind arising out of the use of this Bulletin.

This bulletin was developed by the GANA Fire-Rated Glazing Council (FRGC) and approved by the GANA Board of Directors. This is the original version of the document as approved and published in December 2011.

