



Safety Rated Glazing

What is all the talk I'm hearing about Fire AND Safety Rated Glazing? What about Wire Glass? Isn't Wire Glass Outlawed?

IBC CODE - SECTION 2406 SAFETY GLAZING

IBC 2000 and Prior Codes	IBC 2003	IBC 2006 to Present
Wire Glass - was 100% exempt from applicable Safety Standards in Fire Doors.	Wire Glass - a portion of exemption was withdrawn for areas in schools, day care, etc. where children are present.	Wire Glass - 100% of exemption is withdrawn from code.

What does it mean?

For over 25 years CPSC granted Wire Glass an exemption from complying with higher standards (Category I and II) of impact / safety in hazardous locations. Wire Glass was the primary, low cost, and readily available product that would comply with fire rated door requirements. It will not however pass Category I or II Safety testing, and was given an exemption from safety compliance for use in fire doors only.	Lawsuits involving injured children caused IBC to withdraw a percentage of the exemption. IBC 2003 says basically, if children are predominantly present, (i.e. school, day care etc.) glazing in fire doors must be fire AND safety rated per section 2406. Exemption for Wire Glass in these areas only was withdrawn. Now, other more expensive fire rated glazing products are available that also comply with category I and/or II safety requirements.	Plenty of Fire and Safety rated glazing products are now available. Wire Glass exemption is completely withdrawn. Now, all glazing in fire doors must also be safety rated per section 2406 in hazardous locations, as originally intended per Category I and II. Wire Glass (NON-Safety Rated) can only be used in NON-Hazardous locations. See pages 8 & 9.
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What are the Differences Between Safety Glazing Standards? CPSC 16 CFR 1201 and ANSI Z97.1-2004

In 1977, the U.S. Consumer Products Safety Commission (**CPSC**) adopted as a mandatory federal safety regulation Safety Standard for Architectural Glazing Materials, codified at **16 CFR Part 1201**.

ANSI Z97.1 is only a voluntary safety performance specification and test method. It does not attempt to declare when and where safety glazing materials must be used, leaving those determinations up to the building codes and to glass and fenestration specifiers.

ANSI Z97.1 uses two Separate Impact Performance categories.

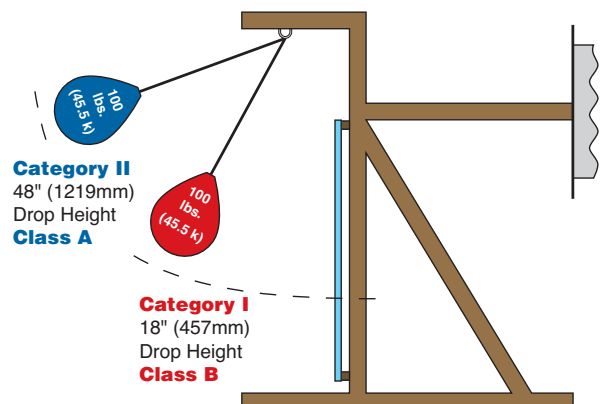
Impact Drop: 48-inch drop height test = **Class A** is comparable to the CPSC's Category II
18-inch drop height test = **Class B** is comparable to the CPSC's Category I

Size Criteria: "U" is for Unlimited size based on passing max test size
"L" is for Limited based on size area based on tested size

CPSC 16 CFR 1201

CATEGORY I: Impact safety level designated by "code of federal regulations" part 16. (16 CFR). "Category I" glazing materials are subjected to the impact of a 100 lb. bag swung from 18" drop height (approx. 150 ft/lb impact), with no single piece of glazing material greater than 9 square feet in surface area. Cat I resembles an 85 lb. child running into the glazing material.

CATEGORY II: Impact safety level designated by "code of federal regulations" part 16. (16 CFR). "Category II" glazing materials are subjected to the impact of a 100 lb. bag swung from 48" drop height (approx. 400 ft/lb impact), with any piece of glazing material greater than 9 square feet in surface area. Cat II resembles a full-grown adult running into the glazing material.





What Does the Code Say?

IBC 2009

SECTION 2406 SAFETY GLAZING

2406.1 Human impact loads. Individual glazed areas, including glass mirrors, in hazardous locations as defined in Section 2406.4 shall comply with Sections 2406.1.1 through 2406.1.4.

2406.2 Impact test. Where required by other sections of this code, glazing shall be tested in accordance with **CPSC 16 CFR 1201**. Glazing shall comply with the test criteria for **Category I or II** as indicated in Table 2406.2(1).

Exception: Glazing not in doors or enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers shall be permitted to be tested in accordance with **ANSI Z97.1**. Glazing shall comply with the test criteria for **Class A or B** as indicated in Table 2406.2(2).

**TABLE 2406.2(1) MINIMUM CATEGORY CLASSIFICATION OF GLAZING USING
CPSC 16 CFR 1201**

EXPOSED SURFACE AREA OF ONE SIDE OF ONE LITE	GLAZING IN DOORS (Category class)	GLAZED PANELS REGULATED BY ITEM 7 OF SECTION 2406.4 (Category class)	GLAZED PANELS REGULATED BY ITEM 6 OF SECTION 2406.4 (Category class)	SLIDING GLASS DOORS PATIO TYPE (Category class)
9 square feet or less (0.836 M ²)	I	No requirement	I	II
More than 9 square feet (0.836 M ²)	II	II	II	II

Metric System (SI): 1 square foot = 0.0929 m² (Square Meters)

**TABLE 2406.2(2) MINIMUM CATEGORY CLASSIFICATION OF GLAZING USING
ANSI Z97.1**

EXPOSED SURFACE AREA OF ONE SIDE OF ONE LITE	GLAZED PANELS REGULATED BY ITEM 7 OF SECTION 2406.4 (Category class)	GLAZED PANELS REGULATED BY ITEM 6 OF SECTION 2406.4 (Category class)
9 square feet or less (0.836 M ²)	No requirement	B
More than 9 square feet (0.836 M ²)	A	A

Metric System (SI): 1 square foot = 0.0929 m² (Square Meters)

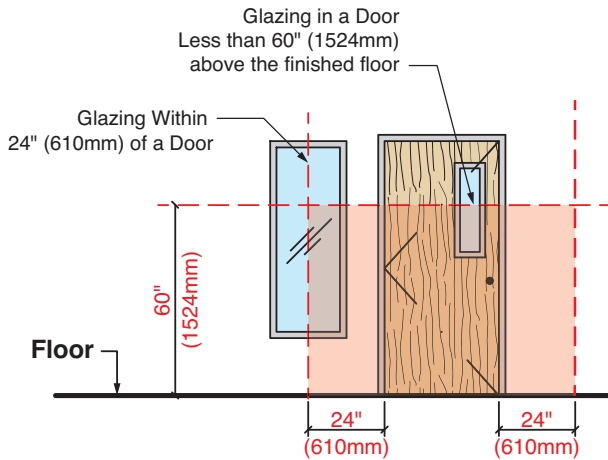


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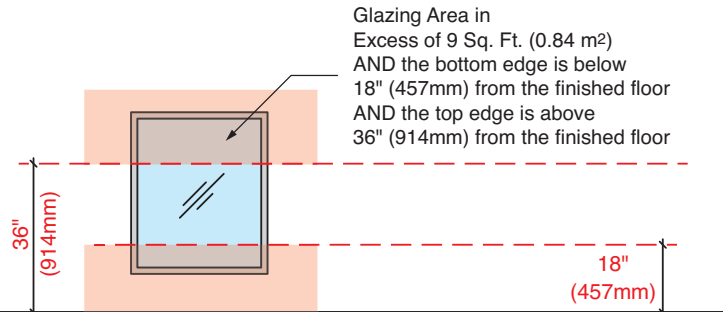
Defining HAZARDOUS LOCATIONS

Where Safety Glazing **IS** Required

Glazing In and Adjacent to Doors



Glazing NOT Adjacent to a Door

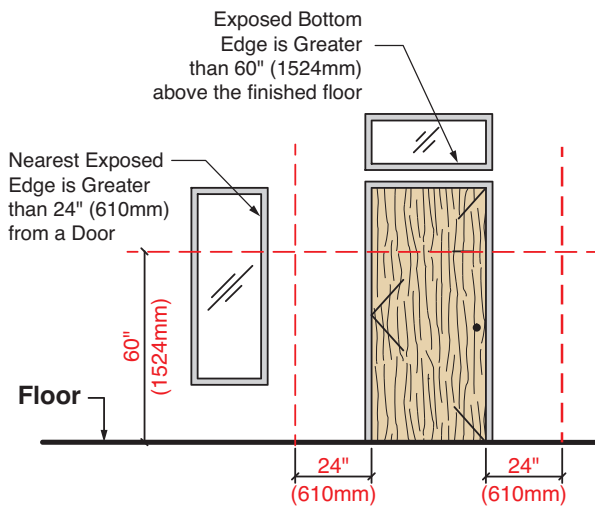


Safety Glazing is required in a fixed panel which meets ALL THE FOLLOWING:

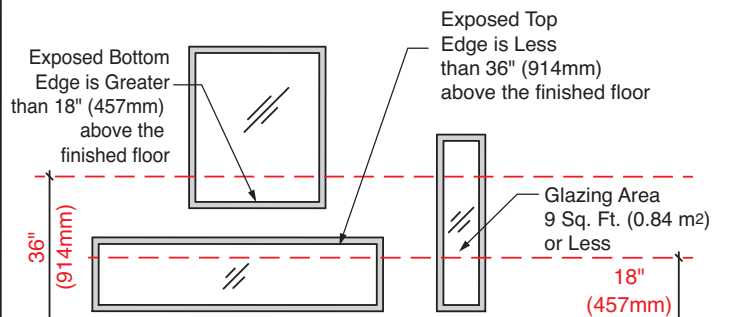
- Safety Glazing is required when any part of the Side Panels to door is within 24" (610mm) of either side of the door edge and under 60" (1524mm) off the finished floor.
- Exposed area of an individual pane greater than 9 sq. ft (0.84 m²).
- Exposed bottom edge less than 18" (457mm) above floor.
- Exposed top edge greater than 36" (914mm) above floor.

Where Safety Glazing is **NOT** Required

Glazing In and Adjacent to Doors



Glazing NOT Adjacent to a Door

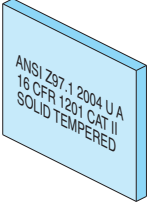
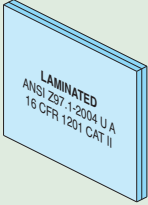
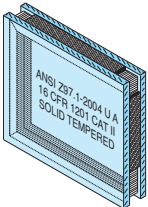
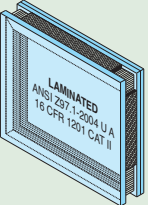


Safety Glazing is NOT required in a fixed panel which meets ONE of the following:

- Safety Glazing is NOT required when the exposed bottom edge of the glass is 60" (1524mm) or greater above the finished floor.
- Exposed area of an individual pane 9 sq. ft (0.84 m²) or less.
- Exposed bottom edge less than 18" (457mm) above the finished floor AND the top edge is below 36" (914mm) from the finished floor.
- Exposed top edge greater than 36" (914mm) above the finished floor AND the bottom edge is greater than 18" (457mm) above the finished floor.



TYPES of SAFETY RATED GLAZING

Product	Description	Fire Rating	Safety Rating	LoPro-STC Rating
	Tempered 1/4" (6mm) Clear Safety Rated	N/A	CPSC Cat. II ANSI Z97.1-2004 U A	N/A
	Laminated Clear Safety Rated 1/4" (6mm)	N/A	CPSC Cat. II ANSI Z97.1-2004 U A	N/A
	Tempered-IGU 1" (25mm) Clear, Insulated Safety Rated	N/A	CPSC Cat. II ANSI Z97.1-2004 U A	STC-42 with LoPro-BB1-STC
	Laminated-IGU 1" (25mm) Clear, Insulated Safety Rated	N/A	CPSC Cat. II ANSI Z97.1-2004 U A	STC-35 with LoPro-BB1-STC

2406.4 Hazardous locations. The following shall be considered specific hazardous locations requiring safety glazing materials:

1. Glazing in swinging doors except jalousies (see Section 2406.4.1).
4. Glazing in unframed swinging doors.
6. Glazing in an individual fixed or operable panel adjacent to a door where the nearest exposed edge of the glazing is within a 24-inch (610 mm) arc of either vertical edge of the door in a closed position and where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) above the walking surface.
7. Glazing in an individual fixed or operable panel, other than in those locations described in preceding Items 5 and 6, which meets all of the following conditions:
 - 7.1. Exposed area of an individual pane greater than 9 square feet (0.84 m²).
 - 7.2. Exposed bottom edge less than 18 inches (457 mm) above the floor.
 - 7.3. Exposed top edge greater than 36 inches (914 mm) above the floor.