

## Safety Glazing

By BRUCE BARKER, ACI

**ONCE AGAIN**, The Word invites you to travel into the dark realm of terms that often are misused or misunderstood in home inspection reports. The Word hopes you will find this trip informative and maybe a little entertaining.

The Word's term today is safety glazing. The Word finds this term interesting because inspecting for safety glazing is required by ASHI standards when you believe that the lack of safety glazing is unsafe and because many inspectors are not familiar with the safety glazing rules.

Safety glazing is a complex topic. We'll start our discussion this month by describing some different types of glazing and with topics such as labeling, skylights and glazing near water. We'll conclude next month with topics such as glazing near doors, glazing near stairs and glazing in large windows.

### Is safety glazing in scope?

Before anyone gets too excited, let's be clear that no specific safety glazing inspection requirement exists in any ASHI standard. So when is safety glazing inspection required? To answer this question, we need to dig into the definition of the term unsafe.

ASHI Home Inspection Standards clause 2.2.C.1 states, among other things, that we should report systems and components that, in the inspector's professional judgment, are unsafe. Something may be unsafe if it satisfies *all three* of these conditions.

- The **risk** must be **significant**. In other words, the chance of something bad happening must be high.
- The bad thing must be **bodily injury**. Property damage doesn't qualify.
- The significant risk must occur during **normal day-to-day use**. Normal day-to-day use is when the occupant uses the component in the intended manner for its intended purpose.

The classic example of components that might be unsafe is handrails and guards around stairways. Handrails and guards help occupants use stairways safely. Failure of handrails and guards to perform their intended function could easily create the conditions for bodily injury during normal day-to-day use of the stairs. If, in your professional judgment during the inspection, you believe there is a significant risk that stairway handrails or guards may fail to perform their intended function, then these components are unsafe and you should report this condition to your client.

A similar condition involving safety glazing occurs around tubs and showers. Slipping and falling in tubs and showers is not unusual and if an occupant falls into glazing with enough force, the glazing could break, causing bodily injury. So, again, if in your professional judgment during the inspection you believe there is a significant risk that someone could slip

and fall in a tub or shower and that bodily injury could occur when crashing into glazing that is not safety glazing, then the glazing is unsafe and you should report this condition to your client.

An example of where safety glazing may be less important is manufactured skylights (as opposed to homemade skylights). The safety risk of manufactured skylights doesn't seem significant, in The Word's professional judgment. As with all safety calls, each situation must be evaluated separately.

A frequent rationale for not reporting something is that the system or component was built that way or that it satisfied code when it was built. No less of an authority than the International Residential Code (IRC) usually agrees with such statements. Clause R102.7 and other similar clauses say that lawfully existing

**Slipping and falling in tubs and showers is not unusual and if an occupant falls into glazing with enough force, the glazing could break, causing bodily injury.**

work (meaning work that was permitted and passed inspection or that was grandfathered in) need not comply with current code if the work is functioning properly and is safe. The clear implication is that the building official can require repair or upgrading of unsafe components and systems.

There is no grandfathering of unsafe conditions either in the IRC or in ASHI standards. If you believe something is unsafe, you should report this to your client regardless of when the home was built or whether the system or component passed inspection.

### What is safety glazing?

Glazing means glass in most residential windows and doors. Glass can be various types of flat glass that we usually see in windows and doors. Glass can also be glass blocks. Glazing can also mean plastic such as plexiglass and that's why the term glazing is used instead of the term glass.

Safety glazing either won't break, except under extreme conditions, or won't break into large pieces that can cut people. The most common safety glazing in residential applications is tempered glass. Tempered glass is made by heating glass, then rapidly cooling it. Tempered glass has much greater resistance to direct impact than ordinary glass.

There are lots of types of glazing other than the ordinary annealed glass we find in most windows. Many of the names for such glazing sound like they may be safety glazing, but they may or may not be considered safety glazing.

You might call heat-strengthened glass "tempered glass lite." The manufacturing process for heat-strengthened glass is similar to that for tempered glass. Heat-strengthened glass is not as strong as tempered glass, but it's better than ordinary glass. Heat-strengthened glass doesn't qualify as safety glazing.

Laminated glass has two or more sheets of glass with a plastic sheet in between. The most common place to find laminated glass is in car windshields. You might find it in the homes of drug kingpins and others with high security requirements because bullet-resistant glass is a type of laminated glass. Laminated glass may qualify as safety glazing, depending on its type.

Wired glass, as the name implies, is glass with a wire mesh inside. You might see wired

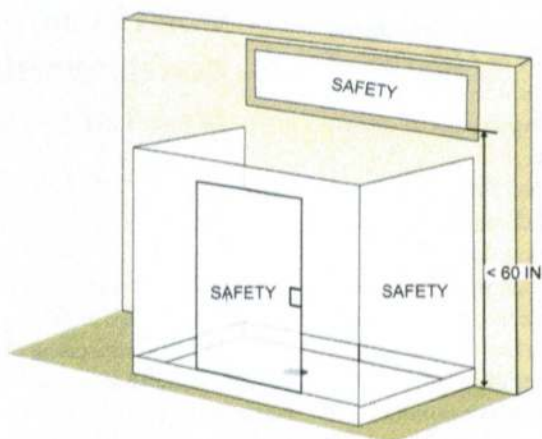
glass in older homes and in older skylights. Older wired glass doesn't qualify as safety glazing. Newer wired glass may qualify, depending on how the glass is made; however, it's unlikely that you'll find wired safety glazing in homes.

Are you confused yet? The Word is. Here's the bottom line regarding safety glazing from

our perspective as home inspectors. If the glazing isn't labeled as we discuss next, there's a good chance it doesn't qualify as safety glazing.

### Safety glazing labeling

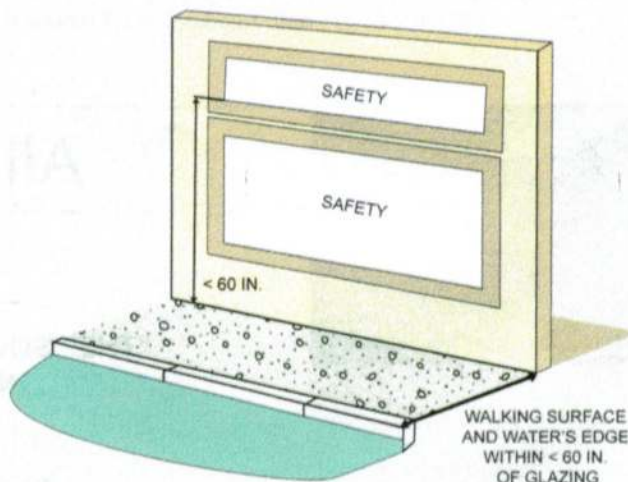
We're all familiar with the label in the corner of most safety glazing. The label doesn't have to be in the corner, but that's where it ►►



SAFETY GLAZING REQUIRED IN TUB AND SHOWER WALLS, DOORS, AND IN WINDOWS < 60 IN. ABOVE A WALKING SURFACE

### Safety Glazing Near Tubs and Showers

ILLUSTRATION © 2010 DREAM HOME CONSULTANTS, LLC



### Safety Glazing Near Swimming Pools and Spas

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usually appears. This label should state the type of safety glazing (such as tempered) and the glazing standard. The standard should either read 16 CFR 1201 or ANSI Z97.1. If the label doesn't contain one of these standards, there's a good chance that it doesn't qualify as safety glazing.

Things are never easy, though, and just because there's no label doesn't always mean that it's not safety glazing. Laminated glass doesn't require a label. So, if you're inspecting that drug kingpin's home where there's laminated glass, you probably have other things to worry about beyond safety glazing. In regular homes, laminated glass is not common, so the general rule applies; if it's not labeled, it's probably not safety glazing.

There should be a full permanent label on each pane of glazing in a multiple-pane assembly such as a dual-pane window. The full label is required only on one pane in French doors and similar assemblies when each pane is less than one square foot. The notation 16 CFR 1201 or ANSI Z97.1 is required on the remaining panes.

## Whether you like it or not (and The Word won't be surprised to hear from some who don't) reporting on certain unsafe conditions is part of current ASHI standards.

Now, here's something The Word didn't know. Not all labels on glazing designate safety glazing. The Word is going to be more careful about reading those sometimes hard-to-read labels in the future. Maybe you should, too.

### Safety glazing exceptions

Two broad exceptions exist to safety glazing rules. One is for block-type glazing, such as glass blocks, when installed according to IRC Section R610. Another is for glazing mounted on a solid backing that provides continuous rear support. A common type of mounted glazing is a mirror mounted on a wall. Another type of mounted mirror is in a

sliding closet door. This type of mounted mirror should have a label on the back, attesting to its safety glazing compliance. There are other safety glazing exceptions, some of which we'll get into next month.

### Sloped glazing

Sloped glazing usually means a skylight, but not always. Glazing installed more than 15 degrees from vertical should be tempered, heat-strengthened, wired or approved rigid plastic. Laminated glass may be used in some situations.

On rare occasions, The Word sees sloped glazing that appears to be homemade or



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unprofessionally installed. This glazing always deserves a closer look.

### Glazing near water

The risk of slipping, tripping and falling around water is higher than in any area of a home other than stairs. For this reason, the IRC requires safety glazing near bathtubs, showers, swimming pools, spas, hot tubs and saunas. This glazing includes windows, shower doors, shower surrounds and the walls and fences around pools, spas and hot tubs.

The IRC requires safety glazing in glazing near bathtubs and showers when the bottom glazing edge is less than 60 inches above a walking or standing surface. The 60-inches-above-a-walking-or-standing-surface requirement also applies to pools, spas and hot tubs when the inside edge of the water is less than 60 inches from the glazing.

### The bottom line

Whether you like it or not (and The Word won't be surprised to hear from some who don't), reporting on certain unsafe conditions is part

of current ASHI standards. This requirement isn't likely to change any time soon, so you might want to think about how the definition of unsafe applies to components such as safety glazing. As always, it's your call how you deal with such components.

We'll continue this discussion next month, assuming The Word stays safe.

Memo to the glazing gods: The Word does not reside on Mt. Olympus (just at its base) and welcomes other viewpoints. Send your lightning bolts or emails to [inspectorbruce@cox.net](mailto:inspectorbruce@cox.net). The thoughts contained herein are those of The Word. They are not ASHI standards or policies. ■



*Bruce Barker, Dream Home Consultants, Peoria, Ariz., has been building and inspecting homes since 1987. He is the author of "Everybody's Building Code" and currently serves as chair of the ASHI Standards Committee. To read more of Barker's articles or if you need a presenter at your next chapter event, go to [www.dreamhomeconsultants.com](http://www.dreamhomeconsultants.com).*



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## Safety Glazing, Part 2

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**ONCE AGAIN,** The Word invites you to travel into the dark realm of terms that often are misused or misunderstood in home inspection reports. The Word hopes you will find this trip informative and maybe a little entertaining.

The Word's term again this month is safety glazing. Last month, we started our discussion by describing different types of glazing and with topics such as labeling, skylights and glazing near water. We'll conclude this month with topics such as glazing in and near doors, glazing in large windows and glazing near stairs.

### A summary of last month's discussion

Safety glazing inspection is required by ASHI Home Inspection Standards clause 2.2.C.1 if, in your professional judgment, lack of safety glazing is unsafe. For something to be considered unsafe it must present a significant risk of bodily injury during normal day-to-day use. There is no grandfathering of safety conditions. You should report a condition you believe is unsafe even if the condition was considered safe in the past.

Most safety glazing you'll see should have a label that contains either 16 CFR 1201 or ANSI Z97.1. If there's no label or if the label doesn't contain one of these standards, the glazing probably doesn't qualify as safety glazing. Laminated glass doesn't require a label, but this glass isn't common in homes.

The IRC requires safety glazing in glazing near bathtubs and showers when the bottom glazing edge is less than 60 inches above a walking or standing surface. The 60 inches above a walking or standing surface requirement also applies to pools, spas and hot tubs when the inside edge of the water is less than 60 inches from the glazing.

### Glazing in doors

Glazing in doors should be safety glazing in most cases. This includes interior and exterior doors. It's easier to remember the exceptions to this general rule. One exception is for decorative glazing such as cut glass and stained glass in framed swinging doors. Doors made entirely from glazing and sliding doors are not framed swinging doors, so the decorative glazing exception does not apply. Another exception is for bars that protect the glazing and won't pass a 3-inch diameter sphere. This exception is most common with small windows in doors. Glazing in jalousie doors is the final exception. For those who don't do old homes in the Deep South, jalousie doors have glass panes that are usually about 4 inches wide and 2 feet or so long. The glass panes open together with a crank to allow air flow on those hot, sticky summer days and close to keep out wind and rain. They're not common anymore with the widespread use of air conditioning.

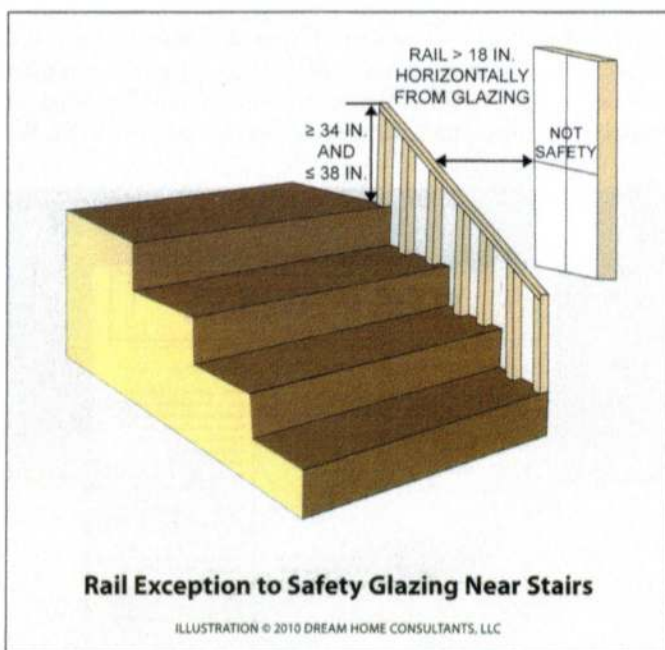
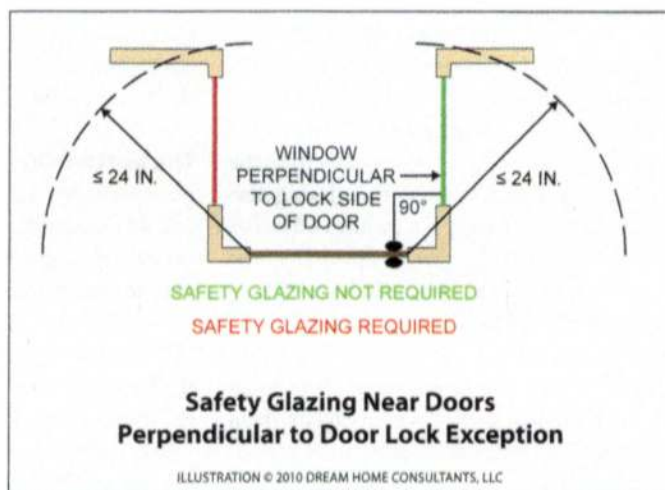
### Glazing near doors

Measure an arc 24 inches from both the hinge and latch side of an operable door (not from the fixed panel of a door). Then, measure up 60 inches from the walking surface. Remember to do this on both the inside and outside of the door. Glazing in this area, near both interior and exterior doors, should be safety glazing in most cases. This measurement is from the door in the closed position to the glazing.

Again, it's easier to remember the exceptions to the general rule. Decorative glazing near doors is an exception, just as it is for glazing in doors. Another exception is glazing in a wall that is perpendicular to the latch side of the door. Maybe they figure that you're not likely to hit this glazing with the door or to walk or be pushed into the glazing.

Another exception is the permanent barrier exception. If there's a wall or other permanent barrier between the door and the glazing, then the glazing doesn't need to be safety glazing. This is where it's important to check both sides of the door. There might be a barrier on the inside of the door, but no barrier on the outside.

If you have glazing next to a closet door where the closet is less than 3 feet deep, that glazing need not be safety glazing. Also, glazing near the fixed panel of a patio door need not be safety glazing. A patio door is usually a



sliding door. This exception might also apply to a swinging door that includes a permanently fixed door panel.

### Glazing in large windows

A large window that satisfies all four of these requirements should contain safety glazing in most cases: (1) one individual pane is larger than 9 square feet, and (2) the bottom edge of the glazing is less than 18 inches above the finished floor, and (3) the top edge of the glaz-

ing is more than 36 inches above the finished floor, and (4) there is a walking surface within 36 inches horizontally from the glazing.

As always, there are exceptions to the general rule. The decorative glazing industry scores again with an exception for cut and stained glass.

The permanent bar exception is a way to get one past the local inspector. A permanent bar at least 1-½ inches high, installed between 34 and 38 inches above the walking surface,

negates the need for safety glazing if the bar won't touch the glazing under a horizontal load of 50 pounds per linear foot. A common trick is to install the bar for final inspection and remove it afterwards.

There's also an exception for the exterior pane of insulated dual- and triple-pane windows if the bottom of the window is at least 25 feet above grade or a walking surface. This exception is obscure, but The Word has built homes where this exception applies. ▶▶



## Glazing near stairways and ramps

The general rule for safety glazing near stairways and ramps is relatively easy. The glazing should be safety glazing if it's within 36 inches horizontally and 60 inches vertically from the stairway, landing or ramp. The glazing also should be safety glazing if it's within 60 inches horizontally and 60 inches vertically from the bottom tread nosing. This includes glazing in guards along the stairway or ramp.

The exceptions, however, get really complicated and this column is getting a little long, so The Word isn't going to try to explain them in detail. The basic exceptions are the permanent bar exception that's the same as for the large window and an exception if a guardrail or handrail separates the stairs or ramp from the window by more than 18 inches.

Refer to the IRC and get totally confused or to a code reference if you want to understand the exceptions. In most cases, for most of us, the exceptions don't really matter because we're not doing code inspections. If, however, you're

going to call safety glazing near stairs and ramps, you may wish to know about the exceptions to avoid making an inaccurate call.

## The bottom line

How you report safety glazing issues is important. In some cases, you may want to report lack of safety glazing as a deficiency. In other cases, you may want to report the issue as information or as a safety upgrade. Of course, if you don't believe that the lack of safety glazing rises to the level of unsafe, then you may not report the situation at all.

The purpose of a home inspection is to provide our clients with information. Personal responsibility, something that The Word believes is sadly lacking in our society, means that what they do with the information is up to them. Many homes have existed for many years without safety glazing where it's now required, so some people will choose to ignore the information you provide about safety glazing. That's OK. You did your job by providing

information about the potential safety hazard. Your clients are responsible for how they act on that information.

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After the junk is removed, run very hot water down the drain for several minutes.

If you don't have time to go to the grocery store, you could also try this with a length of thin wire bent to form a hook on one end. This tool is not as effective, and it will take more effort to catch the hair and the junk—but it can work.

By Tom Feiza, Mr. Fix-It

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