

Guard Requirements for Fixed Seating

by Glenn Mathewson

With jurisdictions beginning to adopt the 2009 International Residential Code (IRC), you may learn of a new threat to human life: seats. Yes, that bench seat on your deck has been determined a hazard — but only if it's secured in place.

Sarcasm aside, I'm referring to the new code provision that requires guard height to be measured from the surface of adjacent fixed seating (Figure 1). Specifically, 2009 IRC sec-

tion R312.2 states: *Required guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36 inches high measured vertically above the adjacent walking surface, adjacent fixed seating or the line connecting the leading edges of the treads.*

This provision made it into the code through the ICC Code Technology Committee (CTC). The CTC was formed in 2007 to research troublesome code sections and generate code

change proposals based on its findings. One example of such a code section was in the 2000 IRC: *Required guards shall not be constructed with horizontal rails or other ornamental pattern that results in a ladder effect.* That introduced the topic of “climbable guards.” All IRC versions since 2000 have been without that statement, but not without tremendous efforts from the CTC and other groups to address the perceived hazard. The new 2009 code provision concerning built-in benches derives from discussions of climbable guards.

The controversy with both climbable guards and the height of built-in bench backs is that the hazard comes from misuse of the feature rather than from its intended use. A child might use a bench as a walking surface, but that's not what it's designed for.

Another part of the controversy regarding R312.2 is that the guard height is derived from the average center of gravity of adults. If the concern is for children walking on benches, then why isn't the guard height based on their average center of gravity? Compare this to IRC 612.2, which is also concerned with children falling over an obstacle, in this case a window sill. The minimum height for window sills is 24 inches, and only when more than 72 inches above grade.

Regardless of these arguments, R312.2 is in the code, and we'll need to learn to work with it. It doesn't banish fixed seating at areas where guards are required; it just makes the back of the seat taller (Figure 2).

There are many ways an attractive



Figure 1. Although code compliant when built under the 2003 IRC, the bench seat at the edge of the second-level deck shown here would not comply with the 2009 IRC because its back extends only 24 inches above the seating surface.



Figure 2. The combination guard and bench in this photo was constructed to function as a privacy wall; the back would be compliant with the new IRC requirement that guards behind adjacent fixed seating be at least 36 inches higher than the seat's surface.

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Figure 3. In this design, the deck surface surrounding the hot tub smoothly connects to the bench at the left. Only in designs similar to this one should the bench seat be considered a “walking surface.”

built-in bench can work with this code provision, but you will likely need to beef up the structural components of the guard/bench. The 200-pound concentrated load resistance required at the top of a guard now must be provided at a point about 54 inches above the deck, as opposed to 36 inches (see *Question & Answer*, May/June 2007; free at deckmagazine.com). With the increased height comes increased torque at the connection; this will require some additional considerations in construction.

As you begin to model your deck designs around the new code provision, keep the following information in mind to make sure your benches aren't being incorrectly regulated.

Regulated, Yes; Walking Surface, No

The first point to make is that a bench seat adjacent to a guard is NOT a “walking surface,” it is merely a point from which guards must be measured. Nowhere in the IRC is a bench called a walking surface – and this is a good thing because a “walking surface” is regulated by many other IRC provisions, such as safety glazing requirements for adjacent windows. Without code-compliant access to



Figure 4. The surface of this bench seat is more than 30 inches above grade, but the deck surface isn't. Therefore, no guards are required for this deck design.

the bench surface, such as steps or a smooth transition (**Figure 3**), walking on the bench is a misuse, and the new code provision simply intends to provide fall protection during misuse.

R312.2 is not intended to classify the bench seat as a walking surface. It lists “adjacent walking surfaces” and “adjacent fixed seating” in the same descriptive sentence. If these were one and the same, there would be no need to list them both. With that in mind, the provision for determining when a guard is required has nothing to do with seating. IRC section 312.1 defines when guards are

required, and you will notice there is no mention of seating: *Guards shall be located along open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30-inches measured vertically to the floor or grade below at any point within 36 inches horizontally to the edge of the open side.*

For example, a deck 29 inches above grade does not require a guard, and thus a fixed bench can be installed at the deck edge with no guard (**Figure 4**). It doesn't matter that the bench's seat will be about 47 inches above grade. The presence of seating doesn't affect when guards are required, only the overall height of

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the guard if one is required. Unfortunately, these two IRC sections have already begun to be misinterpreted, likely from the unfounded assumption that a bench is now a walking surface. It certainly is not.

Watch Your Tongue

This new code provision creates concern about referring to anything as a “seat.” As suggested in the article on custom guards in the January/February 2010 issue, a wide top cap may make a great place for placing snacks, but refrain from any reference to it being a “seat” for folks to hop up and sit on. Any reference to a use as a seat could create a liability to you should someone fall over the “seat,” as it would have been built in violation of the code. It would be unlikely for inspectors to assume a

feature like that is a seat, but if you call it such they may.

That said, it’s not all about what you call it. Chances are good that labeling an 18-inch-tall feature a “planter shelf” will land you a correction notice if it looks a lot like a seat.

Only if Fixed

The days of including custom furniture in your designs are not over. Understandably, this new provision may be the death of some fixed seats adjacent to required guards, as a 54-inch-tall guard can be tricky to design in a manner pleasing to the homeowner. However, there is nothing stopping us from building moveable seating. Inconsistent as it may seem, a custom bench simply placed against a guard is allowed. Though a homeowner’s “furnishings” may be

less stable than a fixed seat, the IRC doesn’t regulate them. A fixed seat becomes a part of the structure, however, and is therefore within the IRC’s regulatory reach.

I will end this article with a call to deck builders to take part in the development of the codes that govern us. News is available at iccsafe.com. Keep an eye on not only IRC modifications, but proposals for the International Building Code as well. Often, modifications proposed for both codes are documented only in the IBC and thus hidden from those reviewing IRC changes. This was the case with R312.2 and why I personally didn’t see it coming. ❖

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