{General Liability}

Balcony and Deck Safety

SAFETY

Introduction

According to the Centers for Disease Control and Prevention (CDC), falls are the leading cause of all unintentional injuries and deaths in the United States. While falls from elevated surfaces above the ground, such as balconies or decks, are not as common as falls from level surfaces, they usually result in more serious injuries or death. Naturally, the severity of the injury increases with the height of the fall.

Technically, the barriers that prevent people from falling from decks and balconies are called guards, but they are often referred to as railings (as they are on a staircase). By either name, guards and railings can provide a false sense of security when deficiencies exist with the design, installation, or maintenance, or if the fasteners are loose, missing or damaged. In fact, certain guard configurations can actually increase the risk of falling.

This article discusses common hazards associated with guards and railings, their installation requirements, inspection and maintenance guidelines, and ways to reduce the risk of falls from elevated surfaces.

What CAU Recommends

> Have a qualified professional inspect all decks and balconies, guards and railings at regular intervals

> Have a qualified professional complete regular maintenance on all decks, balconies, guards and, railings

> Eliminate horizontal guard and rail components that are climbable and increase the risk of falling

> Install additional vertical slats or substantial screening on guards and rails spaced more than 4 inches apart

Need More Information?

Consult with your local building code official to determine the specific codes and building permit requirements for guards and railings in your municipality.

Associations may request additional information on this topic from the North American Deck and Railing Association (www.nadra.org) or by contacting CAU's Loss Control Department.

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What Are the Hazards?

Guards and railings that incorporate lattice, horizontal slats, or attached seating can increase the risk of falls for children because they are easy to climb. Additionally, guards and railings with vertical slats spaced more than 4 inches apart can allow most small children to pass through the opening and fall or become entrapped in the opening.

Over time, guards and railings deteriorate because of weather conditions, usage, and lack of maintenance. As you would expect, deteriorated guards and railings are more likely to fail and allow a person to fall. And yet, it's easier than you might imagine to miss subtle signs of wear and tear.

As wood ages, it expands, contracts, splits, and cups. This is a sign that the wood is losing its structural capabilities and nearing the end of its useful life. The older the wood is, the more likely it is that the fasteners connecting these components to the structure are loose, missing or detached. Painting over rusted metal guards and railings may conceal hidden damage and delay necessary repairs.

Installation Requirements

Building codes regulating guards and railings change every three years. Consequently, the current requirements may differ now from the requirements that were in place at the time of the original installation. Building codes stipulate size limitations for openings and minimum design strength where guards and railings are required. Also, while current building codes do not prohibit the use of horizontal components in guards and rails, it is advisable to avoid these designs because of the unnecessary fall risk.

Building codes require guards and railings for decks, balconies, and other surfaces that are more than 30 inches above the ground. Guards for residential decks and balconies need a height between 36 inches and 42 inches, depending on the height of the surface above grade. The required height for railings is between 34 inches and 38 inches, measured above the finished stair tread nosings.

For new construction, building codes require that any openings within guards and railings cannot allow the passage of a 4⅜-inch diameter sphere. Existing guards and railings not meeting this requirement should have additional slats installed between the existing slats, or sufficient screening added, to meet the spacing requirement.

Building codes also stipulate that guards and railings be able to withstand certain minimum vertical and horizontal forces to prevent falls that include:

- A concentrated horizontal load of 200 pounds at any point
- A concentrated horizontal load of 200 pounds over a 1 square foot area
- A simultaneous vertical load of 100 pounds and a horizontal load of 50 pounds

The requirements discussed in this article are minimum installation requirements based on a review of national building codes. The actual codes adopted by your municipality may have requirements that are more stringent.

Inspection & Maintenance

Guards and railings require regular inspection and maintenance, just like all other exterior building components. Regular inspection of decks, balconies, guards, and railings by a qualified professional will help ensure that they are structurally sound and help to identify maintenance needs.

Balcony and deck inspections should include all components and, at a minimum, review the condition of:

- Foundations and footings
- The ledger, flashing and other attachment to the building
- Support beams and columns
- Surfacing material
- Stairs, guards and railings
- Fasteners

Repairs should be performed as quickly as possible once deficiencies are identified. Typical deck and balcony maintenance includes:

- Surface cleaning
- Replacing rotten wood
- Tightening fasteners
- Replacing corroded or damaged fasteners
- Reapplying paint or waterproofing materials