



## Deck Maintenance

Unsafe Decks Can be Deadly

[by Jack Carr, P.E., RS, LEED-AP]

*What keeps you awake at night? If you are the maintenance committee chairperson, it should not be big-ticket items such as roofs and roads. It should be decks.*

While other common elements can cost a lot of money if they are not maintained properly, bad decks could cost lives.

Wood decks built 30 years ago can have significant deficiencies by today's standards. Most deck collapses are the direct result of inadequate attachment to the building, that is, the connection

## Helpful Advice **Decking**



between the deck ledger and building band joist. The deck collapse tragedy of the Library Gardens Apartment in Berkeley, CA, where six died and seven were severely hurt resulted in an early release of approved deck inspection protocols in the 2018 International Building Code.

The U.S. Forest Products Laboratory completed a study of five years of newspaper articles from around the country reporting collapsed decks and showed “nearly every collapsed deck had been attached with nails, rather than bolts, and investigators had pinpointed nails as the cause of the collapse.”

Thirty years ago, many decks were attached to buildings using nails that rust away or simply do not have the lateral holding power of bolts. To make matters worse, developing problems are often not noticed in a casual visual inspection because the ledger board is hidden behind the siding. This problem is compounded by past deck building practices not protecting the ledger due to a lack of adequate flashing. New England’s salty air can create some very corrosive chemistry on deck components.

### INSPECTION PROGRAM GUIDELINES

So what is the maintenance committee to do? First, organize an inspection program for your older decks, porches, or balconies either with internal voluntary help, your property manager, or a competent outside company. The International Code Council (ICC) recommends condominiums inspect decks twice a year. Look for split or rotting wood, loose or missing nails, screws, or anchors where the structure is attached to the building, missing, damaged, or loose support beams and planking, and wobbly handrails or guardrails. This may require removing siding, but it is necessary.

This type of invasive inspection is especially important for stacked decks on mid-rise type buildings. Often,

these decks are enclosed on their perimeter and underside in order to provide a pleasing appearance and to keep rain from flowing from one deck to another. Even with waterproof membranes in place, moisture can enter enclosed deck spaces and without adequate air venting, even the strongest deck girder and joist components can deteriorate and fail leading to serious accidents.

### The deck inspection should confirm:

- 1** Only weather resistant fasteners including joist hangers and anchor straps are used, such as hot-dipped zinc-coated galvanized steel, stainless steel, silicone bronze, or copper.
- 2** Guard rails should be a minimum of 36 inches high with balusters spaced less than 4 inches apart. Note: guard rails and handrails are not necessarily the same thing. Handrails should be continuous with no interruptions such as newel posts and have 1 1/4 to 2 inch diameters.
- 3** Deck girders should never be bolted to the sides of deck posts. Rather, they should be supported on top of posts with a galvanized post-to-beam connector.
- 4** Diagonal structural deck components should never be toe-nailed, but rather bolted.

### REPAIR AND REPLACEMENT

The next step of course is to develop a plan to repair or replace the deficiencies found. There are a variety of resources available to do independent research, but often bringing a professional in at this time can save both time and money. Not only do the codes keep changing, but many local code enforcement officers have their

own preferred ways of deck building and it would be wise to find out what those ways are.

However, for those adventurous committee members who want to find their own answers, I recommend they download the PDF version of the *Prescriptive Residential Deck Construction Guide* found through Google. Though this is not a building code, it helps to explain the nature of safe deck building and can serve as an invaluable supplement. As deck inspection is so complicated, researchers at Virginia Tech produced the *Manual for the Inspection of Residential Wood Decks and Balconies*. This manual was published by the Forest Products Society in cooperation with the ICC.

Perhaps the most challenging aspect of deck repair or design is once you resolve the structural issues you are still faced with the ever-increasing selection of deck materials and products. Twenty-five years ago, selecting pressure-treated timber was the standard for both the framing and deck boards for many common decks. This became less desirable with the concern about the arsenic-laced treatment chemicals and the danger to young children and the environment in general. Today’s less toxic pressure treated lumber has its own challenges due to its corrosive effects on galvanized fasteners and copper flashing.

Though most wood decks use pressure treated frames, today’s trends use deck boards of other types of wood or wood substitutes. So, the simple deck is not so simple after all. However, maintaining a safe deck may be the simplest and best decision an association can make.



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