More Deck Inspections Needed

Lately, it seems that there has been an epidemic of deck collapses and injuries at oceanfront rental properties. I believe that this is the direct result of inadequate inspection by the owners to identify structural deficiencies that would cause their decks to be unsafe. This is despite the fact that after a tragic Chicago porch collapse in 2003 that killed 13 and injured 55 people, yearly inspections were recommended by the International Code Council (ICC) for residential decks and balconies. This is particularly important with older beach-front decks and balconies, which were likely designed and built using galvanized fasteners and joist hangers that eventually rust when exposed to salt spray and water. As early as 2007, DCA 6 (published by the American Wood Council in cooperation with the ICC and Fairfax County, Va.) recommended the use of stainless-steel bolts, lag screws, joist hangers, and nails for decks or balconies that are exposed to salt water or located within 300 feet of the ocean, to prevent salt corrosion.

Another potential structural problem is the deck ledger connection to the house. While current model building codes require the deck ledger to be fastened to the structure with either ½-inch bolts or lag screws, in the past nails were often used, resulting in a countless number of decks that are potentially unsafe. Inspection by a qualified professional should uncover structural deficiencies in the ledger that would require immediate repairs or even a deck replacement.

Guardrails should also be regularly inspected. The current residential code does not prescribe how guard posts should be attached to the deck structure, and many residential contractors—and DIYers—who build decks aren't familiar with the DCA 6 (awc.org/publications/DCA/DCA6/DCA6-12.pdf), which does contain a recommended detail for connecting guardrail posts to a deck. As a result, many deck guards that get built have not been load-tested (based on code-prescribed loads), and some may be structurally unsafe.

Ideally, inspections would be conducted by a registered design professional (RDP), typically a registered engineer who has knowledge and experience in inspecting wooden decks and balconies. The property owner's or the property manager's main objective for a deck or balcony safety inspection should be to determine whether the structure is safe based on the most current code for the location, coupled with industry recommendations for a safe deck and guardrail system. They should be very clear in their request for an inspection: Is the deck or balcony unequivocally safe in its current condition for future use? If not, the deck should be tagged as unsafe, not occupied, and immediately removed or replaced.

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Cable Railing Caution

Horizontal cable railing systems on decks and balconies have a potential to be hazardous, especially for young children who have a natural curiosity and tendency to climb. Though there has been no stance made by the IRC regarding this issue, the inspection industry would like to see some tougher mandates put into place. A cable railing system can be constructed vertically to eliminate the climbing hazard. Applications also exist where solid plexiglass panels have been installed at the interior of the deck railings to prevent climbing, without disturbing the aesthetics or view.

John Reim
(from online comments)

Andrew Penny, Feeney Inc.'s VP of Marketing and Advertising, responds: *The discussion of horizontal or decorative infill—cable or otherwise—and whether or not these styles are more likely to be climbable than vertical infill was reviewed in extreme detail by the ICC 15 years ago. Back in 2000, when the International Codes were first introduced, the IRC included wording restricting horizontal infill elements in guardrails (the IBC has never included such wording). As you can imagine, this wording created a stir in the railing and design/construction industries, and enough compelling information was brought to the attention of the ICC that it assigned the issue to a special technical committee. This technical committee then thoroughly reviewed all of the reports and information and subsequently removed all wording relating to the so-called "ladder effect" from the IRC in the 2001 IRC Supplement. The wording has not reappeared in the IRC since. Intuitively, the idea of a climbing danger associated with horizontal railing elements seems to make perfect sense, but just isn't supported by the data that was presented to the ICC Tech Committee back in 2000. Of course, every code jurisdiction is different, and some may still be relying on the earlier 2000 code interpretation. So it is important for architects, fabricators, contractors, and homeowners to confirm local codes as related to the railing products they choose to install.*