Code Update: Looking Ahead to the 2018 IRC

by Chuck Bajnai

Although lateral bracing and ledger attachment details were first introduced in the 2009 International Residential Code (IRC), it wasn't until the 2012 IRC that decks received a separate section. This was an important step in the evolution of deck safety because all the requirements for decks could finally be found in one place—Section R507—rather than scattered throughout the code.

In December 2013, however, several of us in the industry still felt that prescriptive specifications for decks were incomplete and difficult to find, creating an information vacuum filled by internet "YouTube experts" with incorrect—and even dangerous—deck videos. In response, we formed the Deck Code Coalition (DCC), a group made up of building officials, industry associations, manufacturers, design professionals, and academics whose goal was to create realistic solutions to fill gaps in the 2012 code and provide prescriptive deck specifications for homeowners—without stifling the creative genius of professional deck designers and builders.

We contemplated that Section R507 might be edited to look like the American Wood Council's DCA 6, *Prescriptive Residential Wood Deck Construction Guide*. But after considerable debate, the coalition decided to write the prescriptive deck code to mirror the flow of the IRC: by components, starting with the footings. Because of time constraints, the DCC made only a few, minor changes—such as adding sections for deck joists, deck beams, footings, and posts—in the 2015 IRC. The real work was saved for the 2018 code cycle.

Proposed Changes

To be considered for inclusion in the 2018 IRC, deck code changes had to be submitted by January 11, 2016, for cross examination at the committee hearings in Louisville, Ky., in April. The coalition submitted 18 code changes, and in this article, I'll bring you up to speed on the status of these proposals.

Section R507. Exterior Decks. The first issue we tackled was reorganizing Section R507. Over the two code cycles in which it has existed, new specifications have been simply tacked on to the end, resulting in lateral bracing preceding joists and beams and footings. So we rewrote the entire section without introducing any technical changes, but adding placeholders for the final format so that it would start with materials, progress from footings to posts to beams to joists to decking to guards, and finish with lateral bracing.

This was proposal RB198, which was accepted by the committee in Louisville *as submitted*.

Section R507.1. Decks. Because of the large number of freestanding decks built in this country, the DCC drafted RB201 as a general section that differentiated them from ledger-supported decks. The problem was how to brace them—most diagonal knee braces don't pass muster with an engineer. Given that we had a limited amount of time, we decided that freestanding-deck bracing would be a winless fight, albeit a worthy topic, and that we would continue to leave it to building officials to determine what worked and what didn't. But opponents saw our deficiency immediately, and the committee *disapproved* our proposal. They were right.

The committee action challenged us to submit a public comment and solve the bracing issue once and for all. We met in July and resubmitted two proposals with added language and new drawings to define the allowances for freestanding decks and the appropriate way to brace them. They will be controversial and may see some opposition, so I'll withhold further comment until after the final committee vote this fall.

Section R507.2. Materials. Continuing our reorganization, we submitted a code proposal, RB202, to create a section on deck materials. We incorporated specifications for wood, plastic composite, and manufactured materials and added a table for fasteners and connectors. The committee approved the proposal *as modified*.

Section R507.3. Footings. Five code changes about footings were submitted.

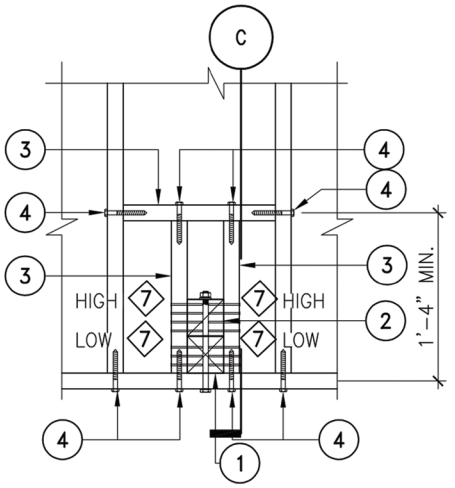
1. RB205 allows freestanding wood patio decks to be constructed without any footings directly on grade. It was approved by the committee *as modified*.

2. RB206 permits freestanding decks, within specific limits, to be constructed on deck blocks on grade. It was approved by the committee *as submitted*.

3. RB207 was the real work. It provided deck-footing size and depth requirements through a footing table. It was approved *as submitted*.

4. RB208 copied an exception from chapter 4 that said freestanding decks did not need to have the footings below grade. It was approved *as submitted*.

5. RB214 deleted the footing figures in the 2015 code and replaced them with more-informative options. It also allowed for other footing systems, such



RIM WITH POST BETWEEN JOISTS
(BEAM SIMILAR)
NOTE:
GUARD POST CAN BE MOUNTED ANYWHERE BETWEEN JOISTS.

FOOTNOTES:

a) DETAILS ARE BASED ON 36" TALL GUARD
b) MIN. 2x8 DECK FRAMING
c) JOISTS SPACED AT 16" O.C. MAX
d) DECKING MAX THICKNESS 1 1/2"
e) ALL WOOD HEM-FIR (SG=0.43) OR GREATER EXCEPT DECKING
f) ALL NAILS ARE COMMON NAILS. REF. TABLE 602.3.(1) 10d (3" X 0.148"). 16d (3 1/2" X 0.162")
g) SCREWS OF EQUAL OR GREATER CAPACITY MAY REPLACE NAILS SHOWN
h) LAG SCREWS ON FACE OF RIM BOARD, BEAM, BLOCKING OR RIM JOIST MAY BE COUNTERSUNK SUCH THAT THE HEADS OF THE SCREW MAY BE FLUSH WITH THE WOOD MEMBER
i) PRE-DRILL ALL LAG SCREWS TO PREVENT SPLITTING
j) GUARD ASSEMBLY MUST PROVIDE A CONTINUOUS LOAD PATH FOR ALL GUARD LOADS BETWEEN POSTS OR SUPPORTS

GUARD POST HARDWARE SCHEDULE	
MARK	HARDWARE
1	MIN. 4x4 WOOD GUARD POST WITH NO NOTCHES. ATTACHED TO JOIST OR RIM W/ (2) ½"ø THROUGH BOLTS AND 2"ø FENDER WASHERS OR EQUIVALENT MANUFACTURED POST AND ATTACHMENT HARDWARE.
2	4x4 BLOCKING, MINIMUM.
3	2x VERTICAL BLOCKING, FULL DEPTH
4	(1) ⅜"ø LAG SCREW AND (5) 16d NAILS (OR 20d NAILS THRU 2–PLY BEAM INTO JOIST) MIN. 2½" EMBED. FOR LAG SCREW
5	HOLD–DOWN WITH 1800 LBS ALLOWABLE CAPACITY (INSTALL PER MANUFACTURER'S SPECIFICATIONS, FASTENERS NOT SHOWN).
◇#	NUMBER OF 16d NAILS THROUGH 1–PLY RIM
□#	NUMBER OF 10d NAILS REQUIRED

Among the proposed changes to the 2018 IRC are five new prescriptive connection details for guard posts; shown here (in draft form) is an attachment method for guard posts that are located between joists and inside the rim.

as helical piers, to be used. The proposal was approved *as submitted*.

Section R507.4 Posts. Two proposals were submitted regarding posts.

1. RB212 added height limitations for 8x8 posts. The committee approved it *as submitted*.

2. RB213 took exception to an existing footing detail and put it in an exception: Where posts bear on footings without any method of connection, the posts can be laterally restrained by 12 inches of soil only where there are no expansive soils. It was approved *as submitted*.

Section R507.5 Beams. RB200 clarified the existing language regarding beam splices over posts and revised the drawings. The committee *disapproved* the proposal because there was discrepancy in the testimony on how cantilevered beams were to be measured. The DCC has reconciled the issue and has submitted a public comment for consideration.

Section R507.6 Joists. RB210 clarified the cantilever length of joists and replaced the existing figure with a new figure that includes freestanding decks. The committee approved it *as submitted*.

Section R507.7 Decking. RB209 revised the existing language to acknowledge that proprietary fasteners shall be permitted when installed in accordance with manufacturer's installation requirements. It was approved *as submitted*.

Section R507.8 Guards. Guards were the biggest challenge. The topic is fraught with complex issues: aesthetics, system effects, construction challenges, historical lack of understanding, discussion of where the "200-lb. load in any direction" reference comes from and how that relates to acceptance criteria that do not meet the intention of ASCE-7, and so on. Still, the DCC thought it was wiser to attempt to create easily understood prescriptive specifications and details that meet accepted industry standards rather than leave builders and homeowners to rely on untested practices shown in YouTube videos.

RB211 provides five options (verified by engineering calculations) for attaching guards to the deck: two details showing how to mount guards outside the rim joist; two details showing how to mount guards inside the rim joist; and one detail for top-mounted guards. The committee action was for *disapproval*, but with a request to redesign the details not to simply meet the acceptance criteria, but to satisfy the load requirements in ASCE-7. The DCC has since revised the details and resubmitted them as a public comment.

Final Voting

In late October 2016, the public comment hearings will take place in Kansas City, Mo. Proposals that the committee approved and for which no public comments have been filed will automatically be approved for the 2018 IRC. For the other proposals—for which public comments were submitted—the final vote will determine their fate.

Hopefully, in its effort to improve deck safety, the DCC has managed to achieve a good balance between too much regulation and too little regulation with regard to deck specifications. ❖

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