

Locating Post-Tension Cables

I'm a forensic structural engineer in Colorado and would like to comment on the Q&A item "Demo Near Post-Tension Cables" (3/05). I have repaired numerous slabs with both post-tension systems and embedded hydronic heating systems and have found the most reliable method for locating "hidden" components in slabs to be the use of ground-penetrating radar (GPR). We typically mark the slab to outline the extent of our work, then use GPR with great success to locate any conflicts within the slab. Although this costs some money up-front, it's worth it to avoid serious problems later.

Bruce Barnes, P.E.
Englewood, Colo.

Repairing Fire Damage

I read the article "Repairing Fire Damage" (3/05) with interest. I would caution your readers that using the Uniform Building Code's notching standards for assessing the residual strength of charred wood frame members might not be a good practice. Besides the depth of notches, there are specific requirements for their length and position on the member. If a framing member is charred and its utility is questionable, replace it or get a design professional to okay it. This would make the repair code-compliant. You'll find that an extra stud, joist, or header is the most cost-effective way to go.

Robert Pinnavaia
Assistant Building Inspector
West Seneca, N.Y.

Author Fernando Ruiz responds:
Thanks for the letter. The point is to avoid tearing out framing needlessly when the tear-out can create more damage than the fire itself did. But if you're in

doubt, always ask for a qualified opinion. The design professional does the same thing I do — looks with the eyes of experience. The code notching guidelines I mentioned in the article are a good starting point for assessment; they include all requirements for size and location of acceptable holes and notches.

Note that the fire photographed in the article charred the joists from below. Fire rarely burns from the top down, which makes it easier to assess the damage. Besides sistering joists, you can sometimes use a plywood gusset. I've also used structural steel C-channel, bolted in place, to reinforce damaged headers.

Wrong Railing Test

From my perspective as a working carpenter, the key sentence in the article by the folks from Virginia Tech concerning deck post connections ("Strong Rail-Post Connections for Wooden Decks," 2/05) was "rather than look at the entire guardrail system, we decided to narrow our testing to post connections."

Testing posts in isolation in a lab is interesting and no doubt valuable, but the code implications strike me as highly exaggerated. I've never built a deck that featured stand-alone 4x4 posts as a guardrail. Call me crazy, but I've always thought that the odds of a tumbling customer being stopped by hitting a 4x4 post dead-on, rather than falling through a 5- or 6-foot-wide open space, were a little too risky. So, to be on the safe side, I connect my posts with railings and balusters.

My point is the test that would be meaningful to me would be one performed on a complete assembly, not one particular component. To say that conventional post connections

amount to a code "failure" seems highly questionable.

It's my sense that most builders settle on a preferred set of design details and techniques for building decks, and, unless instructed otherwise by a customer or designer, tend to repeat those details. In my case, I always run a continuous 2x6 top railing over my posts and fasten it securely to the tops of the posts. I'll add finials or cups that line up with the posts if the customer wants more of a sense of the railing fitting between the posts, but I avoid cutting the railing and piecing it. Also, I always try to span a complete run of posts, from corner to corner, with one piece of lumber.

I'm no engineer, but in the case of a drunken "party animal" acting crazy on a deck, I regard my 2x6 top railing as a kind of horizontal joist. A person flung against my railing is like a person jumping up and down on a 2x6 joist. Of course, the end connections (corners) are important in my scenario, but it seems clear to me that a series of posts tied securely together at their tops will do a far better job of resisting the kind of concentrated stresses described in the article than a lone post will.

The best experiments try to accurately replicate the "real world" in the lab, and I don't think the guys at Virginia Tech did that. However, as I said, the article contained a lot of interesting information, and if I'm ever required to deviate from my usual practice in a manner that seems risky, I'll definitely consider using the metal hardware that was suggested. I wasn't aware of that hardware, so thanks for the info.

Arne Waldstein
Housatonic, Mass.
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Radiant and Geothermal

I enjoyed the article on ground-source heating and cooling (2/05). Given the current popularity of radiant-floor heat, I would like to have seen a discussion of geothermally driven radiant-floor systems. To date, they haven't been widely discussed. If you could direct me to a source of information on this subject, I would be very grateful.

Gary Jones
Horseshoe Bend Development
Smith Mountain Lake, Va.

Author John Vastyan responds: The two systems are compatible because of the relatively low water temperatures that radiant systems typically require. Most geothermal systems can provide temperatures of 110°F to 115°F without backup heat, whereas radiant heating systems, depending on the climate, typically have design temperatures ranging from 85°F to 140°F. In colder climates, where the higher design temps are required, a geothermal system may not be able to keep up. But in more moderate climates, radiant systems can typically be designed to heat with water temperatures of up to 115°F.

Geo is probably not ideally matched to staple-up radiant installations, which often require water temperatures as high as 130°F or even 140°F.

For more information, visit the International Ground Source Heat Pump Association Web site at www.igshpa.okstate.edu or the Geothermal Heat Pump Consortium at www.geoexchange.org.

Skilled Workers for Hire

Regarding the "shortage" of skilled workers in the construction trades (Letters, 2/05 and 4/05), I find the entire discussion laughable. There is no shortage. Oh, there may well be a "shortage" at the wage you want to pay — but raise your wage, raise it again, and I guarantee you will find good people.

Witness the Chicago market, where

I am a carpenter. Here, a journeyman union carpenter makes around \$34 per hour, plus full benefits and pension, which puts us comfortably in the middle class. And guess what? Many would argue that there are too many skilled carpenters here in both commercial and residential work, since most of us face some periods of unemployment. Also, the carpenter's union apprenticeship program generally has a one- to two-year wait to get in, in spite of a strict screening process and virtually no publicity. The situation with all the other trades is similar.

And what about the "skill" part of the equation? Employers here seem to find that men and women who are accepted into and manage to complete a formal four-year apprenticeship in a trade (which includes extensive classroom and on-the-job training) are dedicated and talented, and make pretty good employees. Beyond apprenticeship, many of us continue to take classes at night at our carpenter training center on our own time and at our own expense.

As an employer, you get what you pay for. The organized labor system we have in place here in northeastern Illinois has worked well for both contractors and tradespeople for over 100 years and continues to do so. If you have any doubts, come and see for yourself.

Den Nehm
Chicago

Story Unfair

After reading your report "Florida Builders Group Issues Waterproofing Guidelines" (In the News, 3/05) and being concerned about references to the failure of brick masonry in the recent hurricanes, I downloaded the report, looked at the pictures and diagrams, and read the scope of the work, the summaries, the recommendations, and the remainder of the document, trying to find some reference to "brick." Clearly the authors

of the FHBA study believe that brick masonry was not any part of their study, since the first sentence of the second paragraph states that "the specific focus of the review was on the water management details associated with stucco claddings." While I could not find the word "brick," the authors of the FHBA study did talk about one masonry unit: concrete block. Bricks are not concrete blocks.

This story unfairly stains the reputation of brick masonry veneer wall systems, when the actual materials and circumstances addressed and condemned by the FHBA report involved the capabilities and detailing of applied faux stone systems and stucco systems.

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Editor Don Jackson responds: You're right. The article should not have referred to brick claddings. We regret the error.

CO Detectors Required In Rhode Island

The article "Carbon Monoxide Death Spurs New Look at Old Problem" (In the News, 4/05) states that carbon-monoxide detectors "aren't required by any of the major model building codes. Only the state of New York and a few dozen municipalities across the country have enacted legislation mandating their use in single-family residences." Please note that Rhode Island mandated CO detectors about four years ago.

Roger Warren
Rhode Island Builders Association

KEEP 'EM COMING!

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