

There has been a lot of discussion about wiring receptacles with pigtails instead of making the connections at the receptacle itself. But what about switches, especially three-way switches? Is there any advantage (or requirement) to wiring those with pigtails?

David Herres, a licensed electrician in Clarksville, N.H., responds: It is correct that the National Electrical Code, which has jurisdiction in such matters, states that receptacles are to be wired using separate pigtails tapped from the branch circuit that feeds downstream devices. The purpose of this requirement is to ensure that ground continuity is maintained throughout the branch circuit when a device is removed even temporarily. Ground continuity is an issue for the neutral (white) conductor and for the equipment-grounding (green or bare) conductor.

With switches, however, maintaining neutral continuity is not a concern. When properly installed switches are placed in series with the load or loads in the ungrounded (usually black or red) conductor, the grounded conductor is not interrupted when the switch is removed. The line from the switch connects straight through to the next enclosure—for example, a ceiling fixture. With regard to the equipment-grounding conductor, it is necessary to take a good, hard look at the installation and make sure that a hazardous situation is not created if this line is interrupted.

As far as three-way and four-way switches are concerned, the situation is the same. Think of a pair of three-way switches in conjunction with any number of four-way switches as a “black box” that is equivalent to one single-pole switch. They are placed in the ungrounded (hot) line, and there is no need to hook them up with pigtails because, again, the neutral is not interrupted. But always make sure that the equipment-grounding conductor retains continuity.

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Q A client asked me to install hardwood strip flooring in his carpeted living room. When I removed the carpet, the subflooring underneath was solid, but it was stained with dog urine. Can I just treat the stained areas or put down a layer of 15-lb. felt before installing the new flooring, or do I need to replace the subflooring?

A Floor finisher Michael Purser, owner of the Rosebud Co., in Atlanta, responds: I once owned a 100-plus-year-old home with very nice pine floors. A previous owner had quartered his dog in a rear hall and, as you can imagine, there were urine stains. Since it was pine, the discoloration to the wood wasn't too bad, so I just sanded and finished it with three coats of finish. However, on warm, moist days in the summer, moisture would collect on the surface of the finish. The amount of moisture was noticeable (I thought I had a roof leak) and eventually the finish started to fail. I ended up going back in and removing and replacing the flooring. Lesson learned!

Think about it: You have the floor open, you can see the damaged wood, and if you don't replace it now, it will never be done. A carpet and pad can act like a sponge holding the animal urine and letting it saturate the subfloor. Even if the subfloor seems solid, a lot of animal urine has probably soaked into it. I am not a chemist, but I do know that animal urea contains ammonium compounds. Aside from the odor, the salts in the ammonium will attract moisture—in the same way your salt shaker will develop beads of moisture in the humid summer months. If the subfloor is above a crawlspace or damp basement, you can bet on having a persistent moisture problem with the newly installed wood—which falls into the nightmare category. So I'd just yank out the stained subfloor and replace it.

Q Instead of supporting decks with treated 6x6 posts, is it OK to assemble support columns using four treated 2x6s?

A Dick Hackbarth, P.E., a structural engineer in St. Paul, Minn., responds: There's nothing inherently wrong with building up a 6x6 column out of four 2x6s, as long as you can keep water out. In fact, there may be a few advantages. You can select the 2x6s for strength and straightness, then use the best-looking ones on the outside and cut the inner two short to provide a bearing and connection pocket for

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a double 2-by beam member (though don't hide inferior lumber in there; as compression members, the inner plies have to be as strong as the outer plies). You could also easily cut a bevel on the top of the two outer plies so they drain outward. An option for the two sides of the column that show the four plies could be to cover them with 1-by finish pieces, for appearance and to prevent water from penetrating between the plies (self-adhering flashing tape is good for protecting the tops of columns and built-up beams). As long as plies are properly connected together with construction adhesive and fasteners to act as a unit, and accurately cut so they're all end-bearing, they should make a fine deck post. In fact, there are suppliers that offer vertical laminated post members for use in post-framed buildings. Made with three or four 2x6s, the posts' bottom 6 or 8 feet are treated for ground contact and then finger-jointed to the upper parts.

Though IRC prescriptive requirements for PT 6x6 posts are much more than adequate for most deck locations, your columns will still probably need a structural engineer's stamp to satisfy your local inspector. The process is a little more complicated than just nailing four 2x6s together. Framing members that are likely to be used as bending members—2x4s, 2x6s, 2x8s, and the like—are graded slightly differently than framing members that are going to be used in compression, such as stud grade 2x4s and 2x6s. Each grade has slightly different allowable stresses and slightly different defects and material characteristics that control its grading. Since bending members are loaded and tend to fail differently than column members do, a local structural engineer will need to develop a procedure for making your own posts. This will include a few pages of calculations, guidance on which grades to use, a schedule for fasteners and glue to assemble the posts, and connection details.

This article first appeared in JLC's sister publication, Professional Deck Builder.

Have a question?

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