Q&A

Q. Moving an Electrical Box

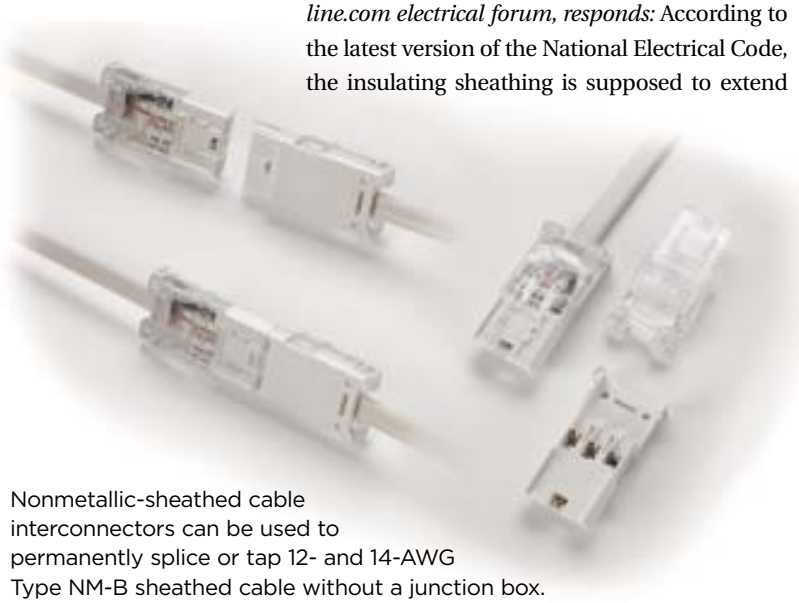
On a current kitchen remodel, my electrician placed one of the electrical boxes for the countertop outlets too low. I need to raise it about an inch to clear a stone backsplash. There's enough stripped Type NM-B cable left in the box to do this without splicing, but because the plastic sheathing has been stripped from the cable and there's no slack in the house wiring, doing so would leave an inch of unsheathed — but insulated — wiring exposed in the wall cavity behind the drywall. Is it okay to simply slip a section of plastic sheathing over the exposed wiring, perhaps using electrical tape or heat-shrink tubing to hold the sheath in place?

A. *Joe Tedesco, licensed electrician, certified electrical inspector, and moderator of the jlcon line.com electrical forum, responds:* According to the latest version of the National Electrical Code, the insulating sheathing is supposed to extend into an electrical junction box at least 1/4 inch beyond the cable clamp (2005 NEC, 314.17[C]). Extending the sheathing, as you suggest, may be effective, but it would certainly need the approval of your local code official. Because heat-shrink tubing isn't specifically designed or approved for this use, per NEC 110.3(B), I personally would not allow this solution.

If there is cabinetry under the counter, it might be possible to access the wire in the wall behind the cabinet and add a junction box that is accessible from inside the cabinet. Your electrician could then reroute the existing cable to this box and run a new length of cable to the new outlet location above the countertop.

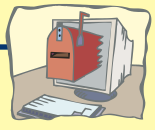
Another option that might be approved by your inspector would be to splice on a short length of additional cable using a nonmetallic-sheathed cable interconnector (see photos, left). Molex (800/786-6539, www.molex.com) and Amp Netconnect (800/553-0938, www.ampnetconnect.com) offer a number of taps and splices designed and approved for commercial use and for modular and manufactured housing. Some of these are listed as meeting the requirements of 2005 NEC 334.40(B), which deals with taps and three-wire interconnectors in residential applications.

After making the splice, the connection would need to be open for inspection, but once approved it could be concealed behind the drywall. Of course, you should first contact your code official to make sure this would be acceptable.



Nonmetallic-sheathed cable interconnectors can be used to permanently splice or tap 12- and 14-AWG Type NM-B sheathed cable without a junction box. Typically used to interconnect prefabricated, prewired modular structures, some of these devices are also approved for the repair or modification of existing house wiring.

GOT A QUESTION?



Send it to Q&A, *JLC,* 186 Allen Brook Lane, Williston, VT 05495; or e-mail to jlc-editorial@hanleywood.com.

Q. Tiling a Curved Wall

We've been asked to build a semicircular bathroom with tiled walls. What should we use as a substrate to cover the curved wall, which will have about a 12- to 18-foot radius, and what should we use to waterproof behind it?

Q&A

A. *Tom Meehan, a tile-setter who owns and manages Cape Cod Tile in Harwich, Mass., with his wife, Lane Meehan, responds:* There are two ways to approach tiling a room with radiused walls. I think the old-fashioned way — a mud job done with wire and cement — is best. With this approach you need a layer of felt paper, galvanized wire mesh, a scratch coat of cement, and then a full coat (around an inch) of cement; it requires the skill of a professional tile-setter experienced in mud-bed jobs.

The easier method is to apply two layers of 1/4-inch cement backerboard to the framing over a layer of felt paper, staggering the boards at the joints and bonding them together with a thin coat of nonlatex thinset mortar spread with a 3/16-inch V-notch trowel.

I recommend using USG's Durock 1/4-inch-thick cement board (800/874-4968, www.usg.com), which seems to bend more easily than any of the other brands of backerboard. Even so, you'll need all the help you can get to hold it in place, so I would use one of the special cement-board screws instead of nails to fasten it to the framing.

To get a smoothly curved surface, good framing is important, too, preferably with the studs placed no more than 6 inches on-center.

Q. Passive Solar Flooring

Instead of tile, my clients want to install a wood-finish floor over the insulated concrete slab of a planned passive solar addition. They've also asked us to install tubing in the slab to give them the option of radiantly heating the space. But won't wood flooring have a significant insulating effect that will diminish both solar heat gain and radiant heat transfer?

A. *John Siegenthaler, a consulting engineer who specializes in hydronic-heating–system design in Holland Patent, N.Y., responds:* For an in-floor radiant heating system, engineered-wood flooring can be a reasonable alternative to harder stone and tile, offering better dimensional stability and lower thermal resistance than solid-sawn lumber flooring. I usually specify prefinished 3/8-inch engineered-wood flooring that's surface-glued to the heated slab, with unglued (rather than edge-glued) tongue-and-groove joints on all four edges. This kind of floor provides good heat transfer while allowing for very minor shrinkage without laterally stressing the wood.

But if the space is designed to be used as a passive solar collector, keep in mind that even a relatively thin engineered-wood floor over the slab will significantly interfere with transfer of solar heat gains to the underlying concrete. A dark-colored tile, stone, or finished-concrete floor would be your best choice here.

In any case, radiant slab heating is not necessarily a good choice for a space that also experiences significant solar heat gain. If the heated floor keeps the space at a comfortable temperature at night, its thermal mass will be fully "charged" with heat when solar radiation comes through the window the following morning. The likely result will be overheating, because the floor slab simply can't accept additional heat input while also allowing the room to remain comfortable.

Better choices for heating passive solar spaces include low-mass radiant wall or ceiling panels and steel-panel radiators, which respond quickly and won't interfere with solar heat gain to the floor slab.