Q&A

Q. Sealing Around a Chimney

Code requires that there be a 2-inch-minimum clearance between a chimney and any combustible building materials. In the past, I've tightened attic penetrations around masonry chimneys with metal flashing and used a fireproof caulk to seal the joints. But under the new codes (including the IRC), is it possible to get rid of the metal and simply fill the gap between the framing and the chimney with fireproof spray foam?

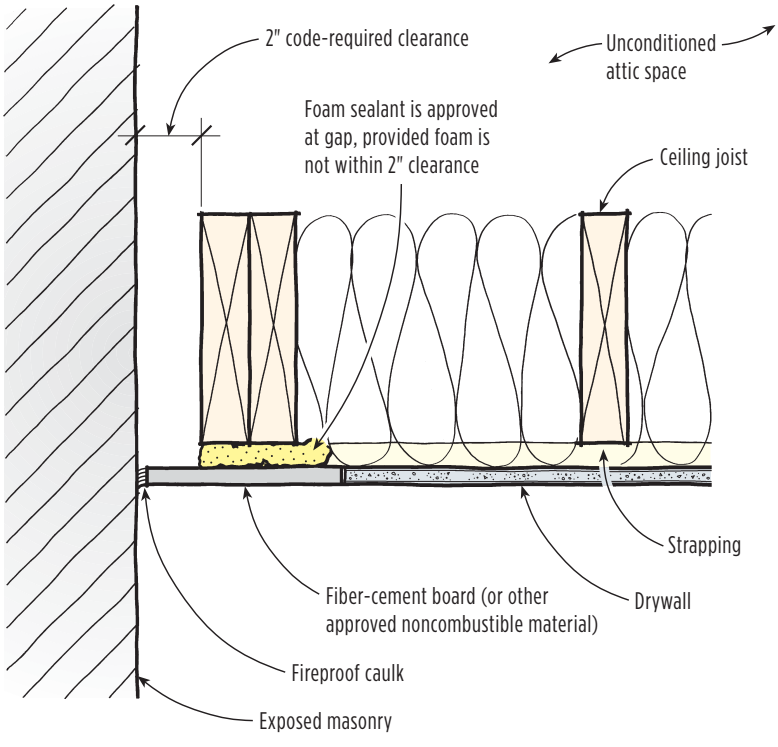
A. *Bruce Harley, technical director of Conservation Services Group in Westboro, Mass., responds:* Canned foam might seem like a quick, easy way to provide both fire blocking and air-sealing, but unfortunately there's no such thing as fireproof spray foam. All urethane foams (including several brands labeled as "fire block") are combustible; they can't be used next to chimneys, and they can't be used for sealing penetrations in fire-rated assemblies. These "fire block" foams differ from other canned foams only in that they've had a service evaluation to qualify for "fire blocking" in type V (combustible) construction, which is typically limited to sealing annular spaces of limited size around wiring and plumbing penetrations in top plates and — by extension — other holes of limited size between wall cavities and attics.

Interestingly, the list of code-approved fire-block materials (2006 IRC, R602.8.1) specifies mostly combustible materials, which can't be used in contact with a chimney. The only noncombustible materials on the list are fiberglass and mineral wool, which don't stop air flow and thus are ineffective both as fire blocks and as air barriers against heat loss. So the only way you can technically meet code is by combining sheet metal — acceptable next to a chimney, despite its absence from the list — with glass or mineral wool, which should be placed over the top of the metal without completely filling the gap between the masonry and framing.

When the chimney is exposed, an alternative is to cut back the ceiling drywall and patch in strips of noncombustible cement board, butting them to the masonry and sealing the gap with fireproof caulk (see illustration, left). Fire blocking is required at each level, at either the top or bottom of the joists, whereas draftstopping is important primarily at insulated ceilings and floors that are part of the home's thermal boundary.

In parts of New England, it's common to strap the underside of sawn floor joists before hanging drywall; although the gaps between the bottom of rough openings and the drywall should be sealed, they are often missed. Foam sealants are fine here, since these areas are outside the 2-inch clearance zone. Other potential trouble spots are the large openings where the top plates of the surrounding walls fall outside the rough openings in the joists; here you may need a larger plywood fire block.

Fire Blocking Detail



The metal-and-caulk method you describe is one that I typically use in attics, but an alternative approach is to frame tightly around the chimney with steel studs, then use solid steel channel at the top as a fire block. Of course, you'll still need to seal gaps with fireproof caulk.

The same rules apply to prefabricated metal chimneys. These are easier to seal because manufacturers offer sheet-metal fire-block kits that fit their chimneys and provide the necessary clearances.

Q. Refinishing an Inlaid Wood Floor

I'm refinishing a 70-year-old oak floor with inlaid mahogany accents. Some areas are damaged and need a few minor patches. How can I maintain the contrast between the oak and the mahogany while minimizing color variations between new and old material?

A. *Michael Purser, a second-generation wood-flooring contractor in Atlanta, responds:* Color variation is common when new material is used to patch a damaged inlay or section of flooring. (For example, recently milled mahogany will be lighter in color than the older, original material.) So I always make a special effort to match the patch with the original. Depending on how accurate the restoration has to be, I look for new wood that's the same species, the same milling — that is, quarter-sawn or flat-sawn — and the same age as the existing floor. Suppliers of recycled lumber are a good source for this.

Also, don't plan on staining the entire floor to "even out" the finish. Old floors typically weren't stained originally, and doing so now will only obscure the contrast between different species of wood. There will be a color change when the floor is refinished, of course, due to the loss of the very top layer of wood — darkened from UV exposure — and the old finish, which has usually ambered with age and dirt. But the wood will darken again naturally, and the two finishes I use — Basic Coatings Emulsion (www.basiccoatings.com) and BonaKemi Mega (www.bonax.com) have ambering qualities.

For the best color blending, I use a final-finish compatible gel stain; two of my favorites are BonaKemi's DriFast Stain and Dura Seal's Fast Dry Wood Stain (www.duraseal.com). First I apply a coat of finish or sealer to fix the color of the floor, then I stain either individual pieces of new wood or entire sections of new flooring to match the existing floor (I test my colors on sample pieces beforehand).

To get straight lines and to keep the stain from bleeding, I mask off the surrounding wood with a "quick release" masking tape (these tapes are blue or green and are sold at paint-supply stores). Applying the gel stain with a small foam applicator makes it easier to control the material; brushing away from the tape keeps the stain from accumulating underneath it.

Once I'm satisfied with the color match and the stain has thoroughly dried, I apply a thin layer of finish to the stained area, remove the tape, and then make multiple applications of finish to the entire floor.

This process can be time-consuming — and it will definitely add to the cost of the work.

Q. Subpanel Bonding

Is it possible to properly bond an electrical subpanel without running four-wire SER cable to it from the service-entrance panel? Some electricians have told me that under certain circumstances the subpanel can have its own ground wire and rod, while others have said it has to be bonded through the entrance panel. Who's right?

A. *George Flach, former chief electrical inspector for New Orleans, responds:* At one time, the National Electrical Code allowed the circuit-grounded conductor (which could be a neutral conductor) to be regrounded at a subpanel via a grounding electrode bonded to the subpanel. Then the code was revised to allow this kind of regrounding only when a feeder was run to a separate structure and there was no interconnected metal — metal pipes, reinforcing rods in interconnected concrete walkways, metal roof components, and so on — between the two buildings (NEC 2005, 250.32[B][2]).

In the 2008 edition of the NEC, however, this grounding method is not permitted, except in existing installations. In all other cases, subpanels must be bonded to the service-entrance panel, either with metal raceways or with metal jacketed cables and properly installed fittings. But there's nothing in the new code that prohibits a subpanel from having an additional ground wire and ground rod.