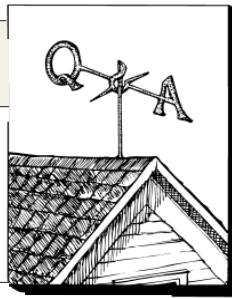


Slab-on-Slab



Q. *What type of preparation work is needed before placing a 4 1/2-inch-thick topping over an existing slab?*

A. *The American Society of Concrete Construction (ASCC) replies:* The required surface preparation depends on whether you're placing a fully bonded topping or an unbonded topping. For a fully bonded application, the topping becomes an integral part of the repaired floor slab. This requires placing the topping on a clean, rough surface for maximum bond development.

Sometimes dry preparation methods such as abrasive blasting are specified to remove grease, oil, paint, and weak concrete. These methods also produce a textured surface that provides mechanical bonding. Another method is to roughen the existing floor to produce 1/4-inch-high ridges. Abrasive blasting won't produce a profile this deep, so high-pressure waterblasting or impact-type mechanical devices are needed.

For an unbonded topping, the topping and base slab function as separate structural elements. Surface preparation for an unbonded topping consists of first sweeping the old base slab and filling badly worn areas, spalls, and holes with a cement-sand mortar to bring the surface to a reasonably flat plane. Next, a bond-breaker (separation layer) is applied. This may be layers of plastic sheeting, roofing felt, or waterproof building paper, or it can be a wax-based curing compound. The topping concrete is then placed directly on the bond-breaker.

A pamphlet titled "Resurfacing Concrete Floors" (IS144) is available from the Portland Cement Association (P.O. Box 726, Skokie, IL 60076-0726; 800/868-6733).

Reprinted with permission from the ASCC Trouble Shooting Newsletter #34.

Service Panel Surge Protection

Q. *Does a surge protector installed in the service panel eliminate the need for individual surge protectors throughout the house?*

A. *Rex Caldwell responds:* No. If you're serious about protecting electrical equipment, you should use both types of devices. I'd recommend installing a secondary lightning arrestor inside the main service panel and providing a transient voltage surge suppression device at the equipment's point of use.



Tyte-wadd in-panel surge arrester

The suppression system in the service panel will handle the surges that enter via the ungrounded conductors feeding the panel (a lightning hit, for example). The point-of-use suppression device will squash spikes that enter through the utility's neutral conductor and also take care of smaller spikes that make it past the service panel protection.

Don't make the mistake of thinking that the \$20 surge strips you see in the hardware store will provide adequate protection. Point-of-use surge suppressors should meet UL

standard 1449, and you should expect to pay more than \$100 for one that meets this specification.

For in-panel protection, I prefer the Tyte-wadd Power Filter (Tyte-wadd, 704 W. Battlefield Rd., Springfield, MO 65807; 417/887-3770). It costs around \$150 and installs under the lugs of a 240-volt breaker.

Rex Caldwell owns Little Mountain Electric Co. in Copper Hill, Va.

Separation Anxiety

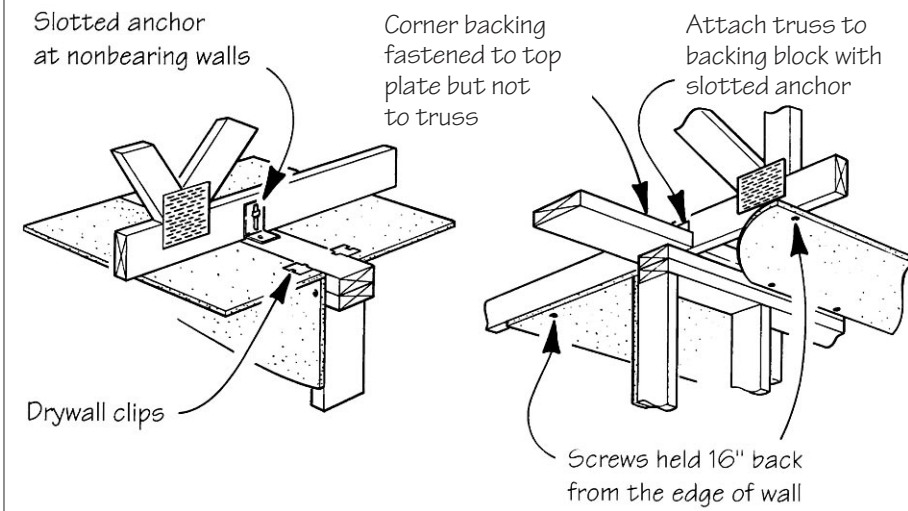
Q. *On a recent house we built, cracking has occurred where nonbearing interior partitions join the ceiling. We used a wood truss roof system, and I've read that truss movement often causes this type of cracking. How do I correct this problem?*

A. *Jim Vogt, P.E., responds:* According to the best available data, roof truss movement occurs in a very small number (approximately 20%) of reported cases of partition separation. This movement is typically caused by differences in the moisture content between the top and bottom chords of the truss. Other potential causes of partition separation include:

- **Building settlement** caused by undersized footings, shallow footings subjected to freeze/thaw cycles, and soil movement due to seasonally fluctuating moisture levels.
- **Inconsistent framing**, such as uneven stud lengths and irregular floor decks.
- **Moisture-related effects.** Framing members will shrink and swell with changes in humidity. This is particularly true for solid wood joists and studs manufactured from juvenile wood.
- **Beam and joist deflection.** When beams or floor joists aren't stiff enough to support the applied loads, the resulting excessive deflection can contribute to partition separation.

Preventive action during construction is the best way to avoid costly repair work. Properly balanced attic ventilation helps prevent partition separation by exhausting moisture from the air in the attic space. Continuous

Floating Drywall Corners



Floating corners absorb minor truss movement and can prevent drywall cracking. Nonbearing partition walls are attached to trusses using slotted anchors (left). Screws should be held 16 inches back from the edge of the wall. Ceiling board is held in place at the corners using drywall clips or screwed to lumber backing fastened to the top plate of the partition (right).

eaves and ridge ventilation is most effective.

When appropriate, "floating corners" should also be used to minimize the possibility of cracking at wall and ceiling intersections (see illustration, above).

Before jumping to conclusions, it's important to investigate and determine the cause of partition separation problems. Use a transit or laser level to determine whether the floors, walls, or ceilings have moved.

Specific solutions should be handled on a case-by-case basis. In the majority of the cases, retrofitting floating corners with appropriate back-blocking solves the problem. Care should be taken to remove the fasteners attaching the wallboard ceiling to the trusses within 16 inches of the wall-ceiling corner.

A second possible solution is to install cove molding at the corner. Make sure to attach the molding through the ceiling to the trusses but not to the partition. This allows the partition to move independently of the molding; any gaps that occur between the partition and ceiling will be covered by the molding.

Jim Vogt, P.E., is a technical services representative at the Wood Truss Council of America.

Got a question about a building or renovation project? Send it to On the House, JLC, RR 2, Box 146, Richmond, VT 05477.