

Q. Preventing Condensation Under Basement Flooring

My clients want to use as living space the new walkout basement of an addition I'm building for them, but they're concerned about potential moisture-related problems with the planned carpet flooring. I've proposed installing a layer of rigid EPS foam followed by a screwed-down plywood underlayment on top of the basement slab, but I'm also considering a product called Dricore, a subfloor system consisting of engineered wood panels that have a molded polyethylene membrane on the underside. Which approach would be better at controlling condensation on the cool slab floor?

A. *Paul Fiset, director of Building Materials and Wood Technology at the University of Massachusetts Amherst and a JLC contributing editor, responds:* In any

basement, your primary design objective should be to control surface water, so designing a good drainage envelope on the outside of the foundation that incorporates subslab drainage should be a priority.

According to code and good building practice, you will also need to insulate (either on the outside or inside) the basement walls. Then you can direct your attention to the floor.

While I have no personal experience with Dricore (see photos, left; 866/976-6374, www.dricore.com), it seems like an effective approach, provided that the basement has a good moisture-control system in place and the installed cost works for the project budget. Rigid foam with a ply-

wood underlayment might supply better insulation and be cheaper to install than the Dricore panels, but you'd lose a little bit of headroom.

However, if the house you're working on is still in the planning phase, the best approach is to insulate underneath the slab: First, install a 6-inch layer of crushed stone in the bottom of the excavation, then cover it with a sheet of 6-mil polyethylene and at least 1-inch-thick rigid-foam insulation. The concrete slab is then poured directly on top of the foam/poly layer.

This arrangement will keep your slab on the warm (conditioned) side of the envelope, making condensation less likely to develop on the slab. The carpet pad and carpeting can then be installed directly on the concrete slab, without the additional expense of an interior foam/sleeper/underlayment system.

Q. Do Brick-Veneer Weeps Need Screens?

When installing weep holes in brick veneer, should I worry about insects or mice getting in through the openings? I've seen advertisements for manufactured weep-hole covers, which seem like a good idea if this is actually a problem, but a waste of time and money if it's not.

A. *John Carroll, a mason and builder in Durham, N.C., responds:* I've never worried about pests getting in the weeps, because I've never heard of it being a problem.

In the Southeast where I build, termites would be the main concern. However, weeps are typically installed well above grade for good drainage, while termites tend to go for a protected route, usually from under the house. If for some reason they were attacking the house via



The plastic cleats on the bottom of Dricore panels are designed to lift the engineered subflooring off a cool basement slab floor and create an insulating airspace.

GOT A QUESTION?

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



the weeps, there would be visible termite tunnels leading up the side of the foundation, which could easily be addressed.

The weeps lead to an air space between the frame and the house, which doesn't seem to me to be an attractive environment for most common pests, especially if everything is built properly and it's dry. I'm told that mice can squeeze through 1/4-inch-diameter openings (weep holes by code must be at least 3/16 inch in diameter), but usually they're looking for a food source. Again, if the cavity is properly detailed, with a continuous water-resistant barrier on the exterior sheathing, there shouldn't be any routes into the interior of the house for mice to follow.

Q. Stained Plaster Repair

What's the best way to remove a water stain from a sand-finish plaster ceiling? The plaster was applied over electric radiant-heating cable stapled to Gypboard backing, with a sand finish that won't tolerate any rubbing. Could we use a tinted wash that can be blotted — or possibly sprayed — on?

A. *Robin Raymer of Plasterzone.com, an author, educator, and veteran plastering contractor, responds:* How you treat the water stain depends on the type of coating on the ceiling. Unlike smooth-coat plaster, which must be finished with primer and paint, sand-finish plaster can be either painted or left its natural color. Or it can be tinted before application, a trend that seems to be increasingly popular.

If your sand-finished ceiling has not been painted, you can try to bleach the stain out. Mix one part water to one part bleach in a mist bottle and lightly spray the stained area until it's wet but not dripping. (Be sure to protect everything

underneath, and wear skin and eye protection.) I usually spray in the morning and then let it sit till the evening, or even till the next day. Keep spraying the stain until it's no longer visible; I've had to repeat this process six or seven times before the stain finally disappeared. I've found that using an old toothbrush to rub the area lightly helps quite a bit, but be careful not to rub too hard.

If bleaching doesn't work, your next option is painting the entire ceiling. How successful this approach is depends on what caused the stain and how stubborn it is. Painting the whole ceiling is not popular with homeowners, because the primer and paint fill in a lot of the ceiling's texture; if there's a swirl pattern on the ceiling, much of it will be lost when the paint coats it.

Yet another option is to take a "flat" primer and thin it down, then put it in a mist bottle and spray the area very lightly so that there is not a noticeable buildup. This helps knock the stained area out so that it's not quite so visible. Some contractors use Kilz (Masterchem Industries, 866/774-6371, www.kilz.com), but this product leaves a slight sheen that tends to show up on flat sand-finish ceilings.

Q. Tile Over Tile

My clients want to update their bathroom by installing new tile over an existing tiled tub surround. The old tile is in good shape, but it stops about 18 inches from the ceiling; my clients want their new tile to completely cover the walls and ceiling. Is it possible to just pad out the upper wall sections with backerboard and then install the new tile over the old, rather than remove the old tile and start from scratch? If so, how should I prep the walls to ensure that the new tiles will adhere to the old?

A. *Contributing editor Michael*

Byrne, a tile-setter and consultant in Los Olivos, Calif., and moderator of JLC Online's tile forum, responds: If the old tub-surround tiles are uncracked and in good shape and you're confident they've been installed over a sound mortar bed or cement backerboard substrate, you can install new tiles directly over the old. But be sure to verify that the faucet valve stems are long enough to accommodate the old escutcheons, and that your client won't mind the slightly diminished ledge around the tub.

You'll need to abrade the surface of the old tile before installing new tile (for proper adhesion, 95 percent of the tiles' surface should be abraded). First, though, thoroughly clean the tile and grout with a tile cleaner containing phosphoric acid to remove soap and other films; rinse with clear water. Then mask off the tub ledge with heavy paper.

To abrade glazed wall tiles, I usually use a coarse hand-rubbing stone designed for rubbing down concrete. For unglazed porcelain tiles, which have a much harder surface, I prefer to use a diamond cup wheel mounted on an angle grinder; it works fast without digging too deeply into the tiles. For a small area, I've found that you can get excellent results using the side of a regular dry-cutting diamond blade.

To shim out the wall above the existing tile (thinset mortar should never be used as a filler), the best approach is to nail up galvanized diamond lath, float cement mortar over the mesh, and use the original tile surface as a screed guide for removing the excess mortar. You could also use backerboard, plywood, or another hard composite to achieve the desired thickness.

Industry specs require an isolation membrane where there is a change in backing materials, to prevent a crack from appearing between the old and new

fields of tile. In your case, I would specify a reinforced membrane that offers both crack isolation and waterproofing properties — like Nobleseal TS (www.noblecompany.com, 800/878-5788) — to cover the whole area to be tiled. When installing the membrane, pay particular attention to the movement joints between the tiles and tub and in the two vertical inside corners. Hard grout in those areas can cause a membrane system failure.

At the ceiling, my guess is that there is moisture-resistant drywall (greenboard) fastened to framing installed 16 inches on-center. This is inadequate for even one layer of tile, and should be replaced with a suitable substrate. In fact, if any of the old wall tiles are installed over greenboard, your best bet is to remove all the old tile *and* the greenboard, and replace the entire installation.

In 2006, because of its very poor performance in wet areas, moisture-resistant gypsum board was removed from the list of acceptable substrates for tile. It's possible that an older installation could still be

in good shape, but only because the tile-setter applied an organic mastic using the two-coat method (which resembles application of the surface-applied waterproofing membrane systems used today). Solvent-based organic adhesives have little adverse effect when applied to greenboard, but most of today's waterproofing membrane systems and thinsets are latex-based, which means they hold moisture long enough to destroy the bond between the paper and the greenboard's moisture-resistant core.

Q. Mixing I-Joists and Floor Trusses

If I-joists and bottom-chord-bearing floor trusses are the same depth and are both engineered to meet the same load requirements, is it okay to use both in the same floor system?

A. *Bryan Readling, an engineer with the APA/Engineered Wood Association, responds: There is nothing inherently*

wrong with mixing I-joists and open-web trusses within a floor system, as long as their differences are considered. Consistency of performance is an important consideration in floor construction, since eagle-eyed building owners may consider variations to be a sign of inadequacy or inferior construction — even if the framing is properly sized.

I-joists are normally designed for stiffer performance than open-web floor trusses are. Live-load deflection for I-joists is typically limited to $L/480$ vs. $L/360$ for open-web wood trusses. I-joists are also usually less massive than wood floor trusses of the same depth, and feel more resilient and less “dead” under impact loads such as foot traffic.

Of course, performance of the plywood or OSB floor sheathing will vary with changes in on-center joist spacing or even in the width of joist top chords. In fact, because deflection is proportionally related to the span squared, small differences in the floor-sheathing span will have a big impact on a floor's feel.