Q&A

Q. Removing Kerdi Epoxy Grout With Heat

Using a heat gun is an approved method for removing cured epoxy grout from tiles and fixtures [see Q&A, *5/08]. But can the same technique be used when the tile has been installed over Schluter's Kerdi waterproofing membrane, or would the heat damage the membrane?*

A. *Sean Gerolimatos, technical services manager for Schluter Systems, responds:* To answer your question, the technical services department at Schluter recently did some simple testing. First, we installed porcelain tiles on a loose sheet of Kerdi with unmodified thinset mortar and filled the joints with two different epoxy grouts. Once the mortar and grout had cured, we placed the assembly on a sheet of cement backerboard. Then we applied heat per the grout manufacturer's recommendations and removed the grout with various tools, including a grout remover, a utility knife, and a screwdriver. Since the Kerdi wasn't bonded, we could inspect the back of the membrane for evidence of damage.

We found that gradual heat application softened the grout enough for removal without damage to the Kerdi. However, if we applied concentrated heat by holding the gun steady instead of waving it back and forth, the membrane "bubbled" off the back of the assembly after about 90 seconds of exposure. While this effect would likely vary with different heat guns, settings, and proximity to the tile surface, it's possible that in an actual installation concentrated heat application for extended periods could damage the membrane.

So while I think that it's okay to use a heat gun to repair epoxy grout applied over a Kerdi membrane, this method should be undertaken carefully. It's not just the heat you need to worry about — the sharp grout-removal tool poses a risk too. You might get away with a small puncture on a vertical surface that sheds water quickly, but on a horizontal surface like a shower base or bench, any kind of damage to the membrane could cause big problems later on.

Don't forget: You won't be able to inspect the membrane after the repair, the way we did in our testing.

Q. Can Dimmer Switches Save Energy?

We know that compact fluorescents deliver energy savings, but how about dimmer switches? The assumption is that homeowners will use them to turn down lights to save money — but do they actually save energy?

A. *Sean Kenney, a master electrician in Amesbury, Mass., responds:* Using a dimmer switch is an inefficient way to save energy. You've probably noticed that dimmer switches get warm when in use; while efficient electronic dimmers don't get as hot as the old resistor-based models, they still heat up, which means that they're consuming electricity.

To evaluate a lighting product's energy efficiency, you need to consider not just wattage but also lumens, a measure of light output. Dimmed bulbs use more watts per lumen than undimmed bulbs and are therefore less efficient. So a 100-watt incandescent bulb dimmed to half brightness consumes more electricity than a 50-watt bulb operating at full output.

The best way to save electricity is to use the lowest-wattage bulb possible that will get the job done. In many circumstances, this means a compact fluorescent lamp (CFL), which draws roughly 14 watts to provide the same number of lumens as a 60-watt incandescent lamp.

CFLs aren't without their drawbacks, however: They take a while to achieve full brightness, for instance, which can be a problem in areas where lights get turned on and off frequently, like stairways and hallways. Also, CFLs contain small amounts of mercury, which can complicate disposal. Some electricians argue that the energy used in the disposal process should be factored in when calculating a CFL's total energy consumption.

GOT A QUESTION?

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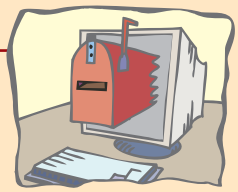

Q&A

Q. Are Windows Required in Basements?

We'd like to start building basements with precast concrete panels, but we've been running into resistance from local code officials. Are basement windows required when a house is built with a full foundation?

A. *Lynn Underwood, an engineer, licensed contractor, and building code official in Norfolk, Va., responds:* If a basement measures less than 200 square feet and is used only for mechanical equipment, no windows are required by the IRC, though foundation ventilation, crawlspace access, and flood vents may be needed. Otherwise, all basements with full-height foundation walls must have at least one emergency egress window. Local codes may require additional fenestration for natural lighting and ventilation.

But even if you intend for the basement to be nonhabitable, installing full-height precast foundation walls could allow for conversion to living space later on, in which case section R310 of the 2006 IRC requires that every sleeping area have an emergency egress opening, with a sill that isn't any higher than 44 inches above the floor. While the IRC does not deal with hypothetical situations, it does allow jurisdictions to consider safety concerns that are likely to arise after the final inspection is approved.

Your best bet is to be clear about your goals with your building official. If you want to offer your customers the option of adding living space in the future, either specify window openings in the precast panels or design the foundation wall with fenestration knock-outs that can be easily removed.

Q. Is It Safe to Retrofit Exterior Foam Insulation?

I built a lot of homes in upstate New York in the 1980s using 2x6 studs, fiberglass batts, and a poly vapor retarder for the shell. Given the rising cost of heating and cooling, the owners are asking about energy upgrades to their walls. I'd like to suggest adding 1 or 2 inches of rigid foam on top of the existing OSB or plywood sheathing, followed by new siding. Would the presence of polyethylene vapor retarders make this a risky retrofit strategy?

A. *Martin Holladay, editor of* Energy Design Update, *responds:* You may safely install exterior foam on most houses with a polyethylene vapor barrier, as long as the foam does not include aluminum-foil facing. In fact, exterior foam is a great idea, since it significantly improves the energy performance of walls.

As most builders now realize, polyethylene is a double-edged sword. Its ability to limit the outward migration of water vapor into a wall comes with a downside, since poly also prevents the useful inward drying of damp walls. In very cold climates — including your region, upstate New York — many builders still use interior poly. However, in warmer regions — Ohio and Connecticut, for instance — most walls perform better without any interior polyethylene.

Back in the '80s, when building scientists did not fully understand the disadvantages of interior polyethylene, its use was encouraged from North Carolina to Oregon. In most of the U.S., the routine use of interior poly was probably a mistake. Fortunately for builders, most older homes with interior polyethylene have not experienced moisture problems.

The installation of exterior foam is not advised on any home that has suffered wet-wall problems like leaking windows, condensation in stud cavities, or mold. If you plan to install exterior foam during a siding replacement job, keep an eye out for any signs of moisture problems when stripping the old siding from the walls. Investigate any water stains on housewrap or sheathing to determine whether the existing flashing was adequate.

Dry and unstained sheathing may safely be covered with 1 or 2 inches of extruded polystyrene foam (XPS) or expanded polystyrene foam (EPS). One inch of XPS has a permeance of 0.4 to 1.6, while 1 inch of EPS has a permeance of 2 to 6; that means that walls sheathed with EPS have more ability to dry to the exterior than walls sheathed with XPS. Since aluminum foil is completely impermeable, the use of foil-faced foam is not recommended on walls with interior polyethylene.

Walls sheathed with exterior foam perform better when they include a rain-screen drainage gap beneath the siding — for example, vertical 1x3 strapping or a product like Cedar Breather. Of course, a foam retrofit job will require adjustments to window trim, door trim, and wall flashing, so be sure to research these topics carefully before tackling such a project.