

High-Traffic Tile Floor

A forgiving underlayment and epoxy grout ensure that this tiled entry will stand up to heavy use

BY TOM MEEHAN

There aren't many rooms in a house that get more foot traffic than a foyer. On this particular job, the foyer has two interior doorways, a front door, and a stairway. Add in a family of four and a pair of very active dogs, and this floor will see some abuse. I always try to provide a tile job that will stand the test of time, but when I'm told by a customer that durability is the biggest priority, I pull out all the stops.

This is an old house, and even though the plank subfloor was topped with 1/2-in. plywood, I decided to top off the subfloor with an uncoupling membrane to provide additional crack resistance. The handmade, Arts and Crafts-style 8x8 tiles chosen by the customer have a naturally imperfect look, so I wasn't worried about them showing signs of wear and tear. Modern stain-resistant grouts do a pretty good job of living up to their name, but when it comes to resisting muddy shoes and dirty dog paws, nothing is as stain resistant and rock solid as epoxy grout.

Tom Meehan is owner of Cape Cod Tileworks in Harwich, Mass. Photos by Andy Engel.



WATCH THE VIDEOS To see more of this project, check out our video series at FineHomebuilding.com/projecthouse.



PREVENT CRACKS WITH A MEMBRANE

Too many tile floors are doomed from the start because of poorly prepped subfloors. Antifracture membranes, sometimes called crack-isolation membranes or uncoupling membranes, are sheet coverings that are applied on top of the subfloor or slab before the tile is installed. The main purpose

of these membranes is to prevent any expansion, contraction, or flexing in the structure from leading to failed grout joints or loose and cracked tiles. For this job, we used Schlüter's Ditra mat, which is a polypropylene membrane with a fleece backing that sells for about \$2 per sq. ft.

Start with a dry fit. The orientation and size of each piece of Ditra mat don't matter. Just cut them to fit with a knife or scissors, tracing the location of each piece onto the subfloor with a permanent marker.



1

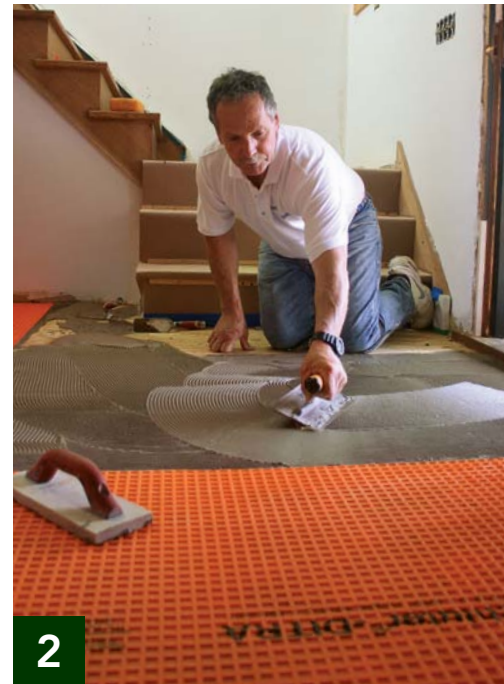
PRO TIP

Get rid of the bounce. Jump up and down in the middle of the floor to see if it will flex; then, if possible, look at the floor framing from the basement. Bottom line: If the floor isn't structurally sound, do not install tile on it, no matter what anyone says.

Position with care. Don't make contact with the thinset until the Ditra is properly positioned. Hold the piece above where it will be installed, then align one end and work your way toward the other end, making sure to stay on layout.



3



2

Burnish, then comb. Working in the sections marked out in the previous step, spread thinset and burnish it into the wood with the straight edge of a 1/4-in. square-notch trowel to ensure a good bond. Comb out the cement with the notched side of the trowel until it's an even thickness, with ridges eventually going in the same direction.



4

Bond it with pressure. To ensure a flat surface and a good bond with the thinset below, use a wooden mason's float to push out any bubbles. Start near the center of each piece, and work toward the edges. Use your body weight to lean into the float.



PLAN AROUND FOCAL POINTS

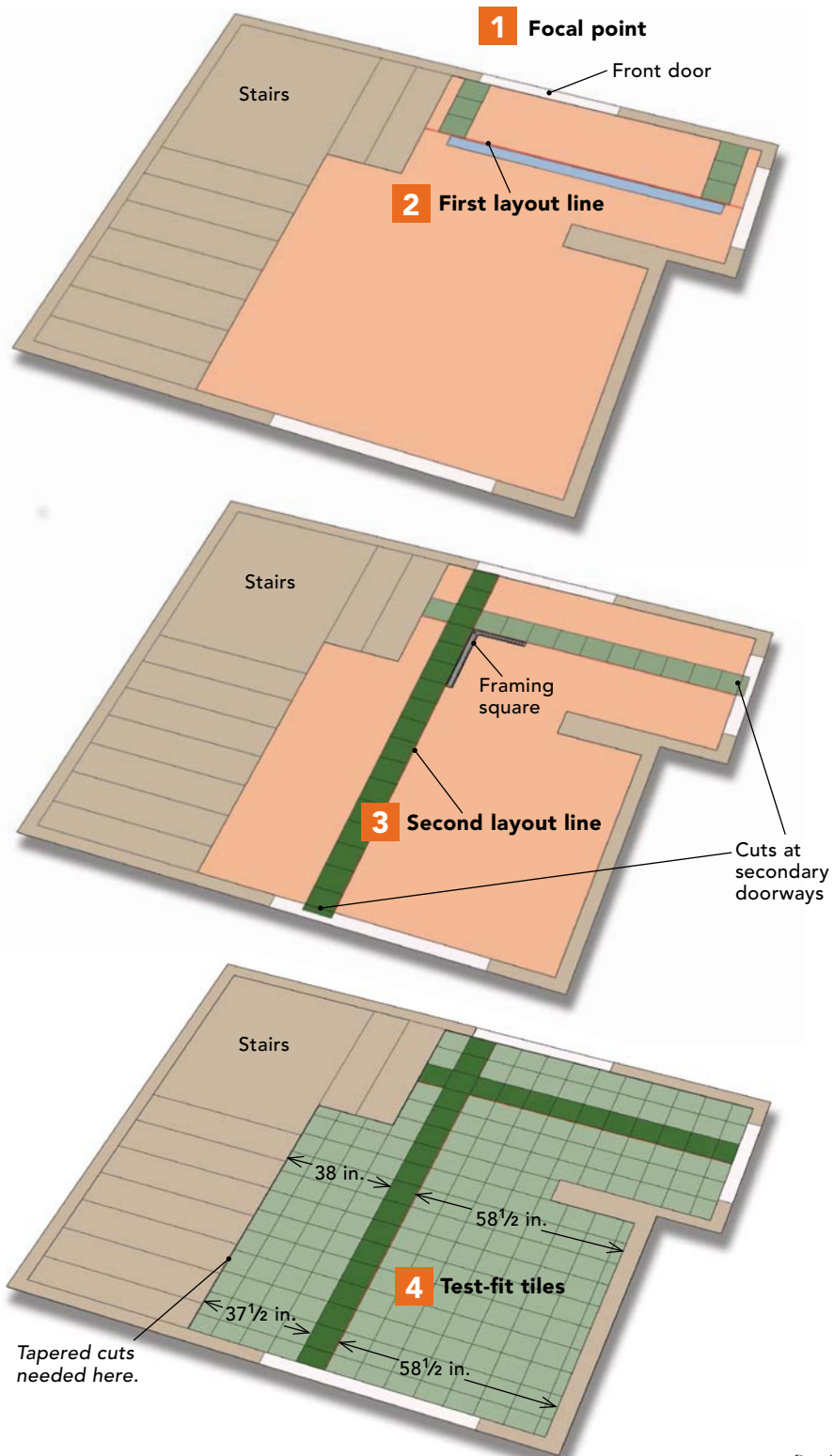
One of the easiest ways to spot an amateur tile job is to look at the layout. Beginners tend to start with a full tile on one side of the room and cut the last row to fit, no matter how awkward the resulting sliver of tile. If done well, you should never even notice the layout; it should just “go away.” To achieve that, plan the layout around focal points while also hiding cuts and out-of-square walls as much as possible. Each space is different, and some are trickier than others. Here’s how this room played out.

1 Start with a focal point. The focal point is where your eye goes first and most often. I like to start with full tiles where they will be most visible, but only if this leaves a decent remainder at the opposite wall. If the remainder is less than half of a tile, it often looks better to split the difference.

2 Set the first layout line. In this room, the focal point is the large front door, so I measured the length of three tiles out from the front wall of the foyer, then set a long straightedge to establish the first leg of my intended layout.

3 Establish a perpendicular line. With the first leg of the layout in place, I needed to project an accurate line perpendicular to this leg so that I could be sure my tiles wouldn’t wander and leave me with an out-of-square floor. To find this line, I used a long straightedge in combination with a framing square.

4 Test-fit tiles. With my two layout lines established, I worked out from those lines to see where I would need to cut around obstacles and how I would deal with any out-of-square walls. Everything looked like it would work out well, so I drew those two layout lines directly on the floor with a permanent marker. At that point, I was ready to start laying tile.





INSTALL TILE TO STAY STUCK

You've taken the time to fully prepare the subfloor, so don't get lazy with the thinset. There are different kinds of adhesives for different applications; for this project, unmodified thinset is ideal for bonding to the Ditra mat. It should be mixed so that it's firm enough to hold a paddle mixer upright for a few seconds (photo left). You also need to match the type of trowel to the tile being installed. The slightly irregular 8x8 tiles installed on this job called for a 1/4-in. by 1/4-in. notched trowel, which helped fill in any voids in the back of the tile for a better bond.

Set the first tile.

After burnishing and combing the thinset as you did under the Ditra mat, set the first tile, pushing it firmly into the cement with a 1/4-in. sliding motion to ensure that it bonds well.



1

Mind the layout.

Work in sections, spreading thinset in patches only as big as you can reach across while in a kneeling position. Stop the spread just shy of the marked lines so that you don't cover them and lose track of the layout.



2

Check the bond.

The best way to be sure that the tile has bonded well to the floor is to set one piece of tile and then pry it up to look at the backside. There should be even coverage of thinset across the back of the tile. Any missing spots mean that you're either not using enough thinset or spreading the thinset with the wrong trowel.



3

PRO TIP

Not just any thinset will do. The thinset you use has to be compatible with the substrate you're applying it to. The basic rules of thumb are to use latex-modified thinset with plywood or HardieBacker, and unmodified thinset with concrete or with cement backerboard.



4

Mark cuts directly on the tile. There's no need for a tape measure when determining tile cuts. Just hold the piece above where it will be set, and mark one edge with a permanent marker.



5

Use a tile saw for cuts. A score-and-snap cutter is great for straight cuts in ceramic tile; for anything more than that, you want a decent tile saw. If you do only a few tile jobs a year, it's better to spend \$40 to \$60 to rent a good saw than \$100 to buy a piece of junk.



6

Mind the gap. The author aims for tiles to leave no more than a 1/4-in. gap where they meet the wall. Any more than that, and you'll be wasting grout where it's not needed and taking a risk that the baseboard molding will not conceal the gap.

WORK YOUR WAY OUT OF THE ROOM

With the layout locked in, the rest of the job is just a matter of keeping an eye on the grout joints and filling in tiles as you work your way toward an interior exit from the room. Every room is different, but you always want the last tiles you set to be the ones closest to a doorway or other exit.

Keep materials close at hand. To avoid a lot of up and down, keep a stack of tiles, a bucket of thinset, and a sponge nearby.



Clean and seal as you go. You won't be able to walk across the tile until the thinset has set up, so now is your chance to keep the surface neat. After laying tile in each section, wipe the surface with a tile sponge and as little water as possible, then apply a coat of sealer. The sealer is especially important when grouting stone tile or tile with a flat finish.



Use your eye, not tile spacers. Some tile installers use temporary spacers to ensure a consistent layout, but with handmade tiles like these, the variations in size and squareness of each piece make the spacers useless. Lay a small section, then adjust the tiles until the joints look even. When you get to doorways, use a level or a piece of wood as a guide to ensure a straight edge.

FINISH STRONG WITH EPOXY GROUT

The grouting process for epoxy is basically the same as with conventional grout—pack the joints firmly, but leave as little excess as possible—only the stakes are a bit higher. You need to work quickly and clean off excess grout thoroughly before it sets up, being mindful that setup time can vary based on temperature. Once the grout sets up, it sets up for good.



Clear the way for grout. The next day, after the thinset has hardened, use a utility knife to loosen any chunks of cement from between tiles, and then vacuum the whole floor.



Know the ABCs of mixing. Combine part A and part B, the pouches of liquid epoxy, in a clean bucket. Mix the two liquids together with a margin trowel, and then add part C, the carton of colored filler.



Take the right angles of attack. Spread the grout, and push it into the tile joints using a premium quality rubber float held at a 30° angle to the floor. After switching the float angle to 60°, scrape off the excess, being careful not to dig into the side of the joints.



Clean and shine. The grout kit includes two packets of powder that are added to water to create a cleaning solution. About 15 to 20 minutes after the grout has been applied, use the first solution and a thoroughly wrung-out sponge to clean off the remaining residue. Follow up with the second cleaning solution, and finish by buffing away any haze with a lint-free cloth.

PRO TIP

Don't grout more than you can clean. I find Laticrete's portioned kits of Spectralock epoxy to be the most user-friendly. Don't try to mix several batches at once, though, or you'll risk the first parts setting up before you've had a chance to wipe them clean. Instead, mix, spread, and clean one batch at a time.