

Tiling a Shower With Marble

Take the time to get your tiles tight and flat, and your shower will look as if it had been carved out of solid marble

by Tom Meehan

Back a few hundred million years or so, Earth was working overtime. Incredible forces and pressures within the planet moved continents and created mountains. Limestone, formed from the skeletons and shells of countless sea creatures, underwent an intense and miraculous transformation during this period. The result of this metamorphosis is marble, which has become a prized building material.

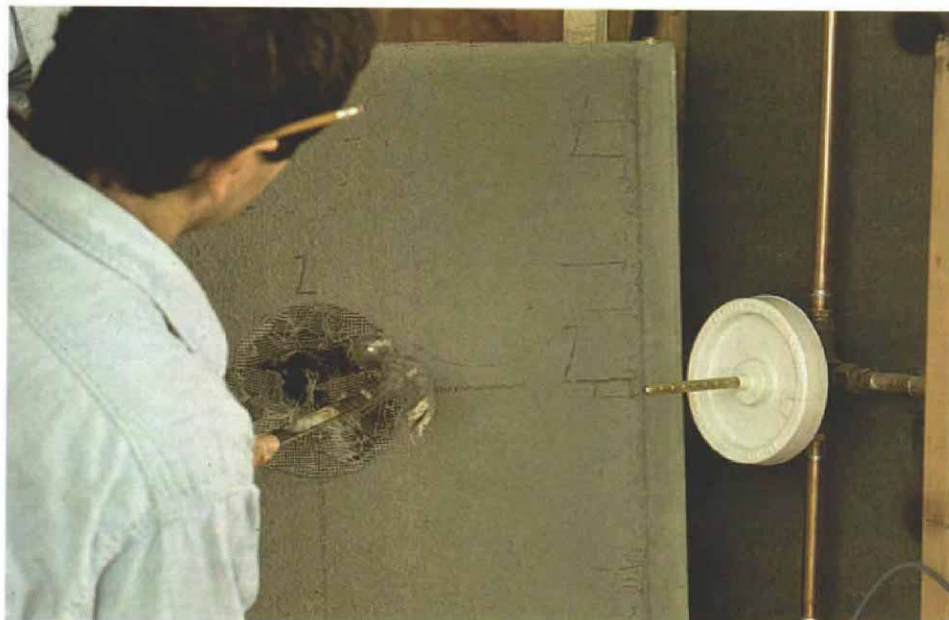
While marble was being formed, various minerals and contaminants were introduced, producing the veins and rich colors that make each batch of marble unique. However, all of these wonderful colors make installing marble an interesting challenge. In 25 years as a tile installer, I have learned the importance of opening every box of marble and shuffling the tiles to get the veins and colors to work together before a project begins. My goal is to blend the tiles in such a way that the finished shower wall resembles a solid slab of marble.

The project in this article is a 7-ft. by 3½-ft. shower stall with a built-in seat and a shampoo shelf. The shower-door enclosure runs the full 7 ft. along the front of the shower bay with 1-ft. returns on both ends (photo facing page). This arrangement shows off the entire expanse of marble. For this particular shower, my clients chose green marble, which needs special treatment because of its chemical makeup. Green-marble tile reacts negatively to water-based or acrylic thinset cement, causing the tile to warp and break down. I avoid these problems by sealing the back of each tile with epoxy before it is installed, which I will describe in detail later on.

Backerboard must be kept off the floor-

Marble tiles for any shower should be mounted on cement backerboard. For this project I used Durock (United States Gypsum Co., 125 S. Franklin St., Chicago, Ill. 60606-4385; 800-874-4968), which consists of a thin layer of cement sandwiched between two layers of fiberglass mesh. (For more information on backerboard, see *Fine Homebuilding* #96, p. 128.)

Even though backerboard is not supposed to deteriorate or fall apart, it is a porous material and must be kept off the bottom of the shower floor to prevent moisture from wicking up the wall (bottom photo). If the backerboard gets wet, it can stain the marble tile from behind. I usually keep it around 1 in. from the floor. I also keep



A hammer works like a hole saw. The quickest, easiest way to make a hole in backerboard is to pulverize the unwanted cement by tapping it with a hammer. A utility knife can be used to cut the mesh away from both sides of the board.



Keeping the backerboard off the floor will save headaches later. A 2x4 block is used as a spacer to hold the backerboard off the shower floor. If installed too low, backerboard can soak up moisture that will stain the marble from behind.

the nails in my backerboard above the top of the shower pan or at least 5 in. from the floor to prevent the shower pan from leaking. Installing the backerboard too low and nailing through the shower pan are probably the two most frequent causes of failure with a marble-tile installation in a shower.

Cutting and installing the backerboard is a lot like hanging drywall, except that all of my straight cuts are done with a special backerboard knife with a carbide blade. These knives are available for under \$10 at your local tile store or at any lumberyard that sells cement backer-

board. I treat backerboard the same as a piece of drywall, making three or four long strikes along a straightedge and then bending the sheet back and slicing the mesh on the back with a utility knife. For cutting right angles or corners, I use my grinder with a 4-in. diamond blade. Grinder cutting creates a lot of dust, so I wear a respirator and try to cut outside whenever possible.

Small holes in backerboard can be drilled with a carbide-tipped hole saw. But large holes for the mixing valve and pipes are made a little differently (top photo). First I map out where I want the board removed. Then I tap at the board with



A showy shower out of stone. Before installation, marble tiles are arranged so that the veins and colorations all work together. The tiles are put on as flat as possible and tight to one another to give the impression of a solid slab of marble.

a hammer until the area inside my lines has been reduced to cement dust with just the mesh on both sides holding it in place. At this point I cut away the mesh with a utility knife and remove the pulverized cement.

Before installing the board, I check the studs with a straightedge to make sure they are all in the same plane. If need be, I build out any studs that are out of line to keep the backerboard as flat as possible. The backerboard gets nailed to the wall every 8 in. with 1½-in. galvanized ring-shank nails. I also put in a few galvanized screws along the seams for extra reinforcement. With

the board nailed in place, I finish the seams with mesh tape and thinset mortar to seal the joints and prevent future cracking and settling.

Green marble needs to be sealed with epoxy before installation—Most marble can be put directly on the wall with regular thinset mortar, but as I mentioned before, green marble is apt to warp and break down. Adhesive manufacturers recommend that green marble be set directly on the wall with epoxy mortar, but this procedure requires large quantities of epoxy, which is very expensive. A different solution that

I've used successfully is sealing the backs of the green-marble tiles with epoxy and installing them with less expensive thinset mixed with the proper additive (bottom photo, p. 88).

I use Latipoxy 300, made by Laticrete International Inc. (91 Amity Road, Bethany, Conn. 06524; 800-243-4788). The three-part Laticrete mixture comes conveniently in a can with a pair of disposable gloves and a white scrub pad for warm-water cleanup. Working with epoxy is something akin to working with saltwater taffy—sticky, messy and tedious. So I make an extra effort to keep this part of the operation as neat and as orderly as possible. Using a flat trowel, I skim-coat the back of each tile with a thin layer of epoxy. Then I stand the tiles upright and on edge to dry, just barely touching each other.

After giving the epoxy 24 hours to dry, I scrape all of the tiles' edges with a sharp utility knife to remove any excess. Cleaning the edges will ensure that the tiles will fit together tightly when they are installed.

Once the backs of the marble tiles have been coated with epoxy, the proper thinset must be used to bond the tiles to the walls and floor. Plain thinset or thinset with a basic acrylic additive is fine for regular marble and might seem to work initially for the epoxy-coated tiles as well. But the longevity of a bond between regular thinset and epoxy is questionable. The thinset must be mixed with an additive specifically designed for bonding to a resilient surface such as vinyl or linoleum flooring. This mixture will also bond to the nonporous epoxy coating on the marble. For this project the additive I used was MAPEI Ultra Set 2 (MAPEI Inc., 1350 Lively Blvd., Elk Grove Village, Ill. 60007; 800-426-2734). Another thinset/additive combination that I have used successfully in this application is Laticrete thinset cement with Laticrete 333 liquid additive.

A ledger board starts the tiles out level

The two main objectives when installing marble tile are keeping the joints between tiles tight and making the walls a continuous flat, even plane.

I took great pains ahead of time to build this shower stall in even 12-in. increments. This careful planning kept my cut tiles close to full size. I laid out the shower with full-width tile for the top course against the ceiling and cut tile on the bottom course along the floor. Rather than begin my tile installation with the cut course, however,



The marble for the seat goes on top of cement. The backerboard around the shower seat was left 1½ in. high, and then the resulting cavity was filled with cement, making the seat top virtually waterproof. A marble slab was used for the seat to eliminate grout joints.



Tiling is tough on tools. A framing square is used to check the alignment of the floor tiles and to keep them running straight. But it's hard to do without plunking the tool down in fresh adhesive, which isn't great for the square.

I opted to start with the first course of full-width tiles. To keep this starter course perfectly level, I tacked a ledger board on the wall along the bottom edge of the course of tile (top photo, facing page). This ledger board also provided some support for the heavy marble tiles while the adhesive was curing.

I began by spreading my thinset mixture on the walls with a ¾-in. notched trowel, covering enough of the wall for two courses. Then I buttered the back of each tile before it went on the wall. With this amount of thinset, I can push a tile in or build it out as needed to keep the wall perfectly flat. Two tools that come in handy for this process are a rubber mallet and a large suction cup with a release switch, available at tile stores, glass shops or marble-supply stores. I use the mallet to tap tiles in and to keep them tight to one another, and the suction cup lets me pull a tile out and reset it if it's in too far. Keep in mind that, unlike ceramic tile, marble has a square outside edge that becomes visible with the slightest bit of unevenness in the installation. After setting the first three courses on the back wall, I moved to the side walls to give the thinset a chance to set a little before adding the weight of the additional courses.

Simple cuts and a complementary color create a decorative border—To minimize the cold, formal look a large marble shower stall can sometimes have, my client decided to add a decorative band just above the fifth course of tile (photo p. 87). To create this border, I used my wet saw to cut a bunch of the sealed green tiles and several beige marble tiles into 4-in. squares. Then I cut each of the 4-in. green tiles in half diagonally and created a two-tone diamond band that runs around the perimeter of the shower. At the corners of the shower stall, I used half of a beige diamond going in both directions to give the appearance of a folded tile.

Building these small tiles out to the same plane as the rest of the wall can present a problem. I had used a fairly thick layer of adhesive to keep the 12x12 tiles flat. This method can get pretty sloppy and difficult when building out small tiles. So I used some leftover unglazed mosaic tiles as shims to bring the smaller decorative pieces out flush with the field tiles (bottom photo, facing page). The thinset adhesive had no problem adhering to mosaic tile because both sides of the tile were unglazed.

Bullnosing the tiles can be done with a saw and a grinder—I bullnosed, or rounded the edges of, all of the tiles for the outside corners of the shower stall to soften the edge. I own a water-fed router, but it was in the repair shop when I was working on this project. Because the router is both wet and loud, I try to use it only if I have a lot of bullnosing to do. Instead of the router, I used another method that's a bit slower and requires a little more patience but that gave the same great results.

First I run a tile through my tile saw, holding it at a 45° angle, removing only about ⅛ in. from the edge of the tile. After making this cut on several tiles, I set up five or six in a row on the edge of a table or bench. I use a grinder or spin sander with 80-grit paper to round off the two edges of the chamfer and create the bullnose on all five tiles at once. Then I polish the rounded edge with sanding disks, working progressively up to 600 grit.

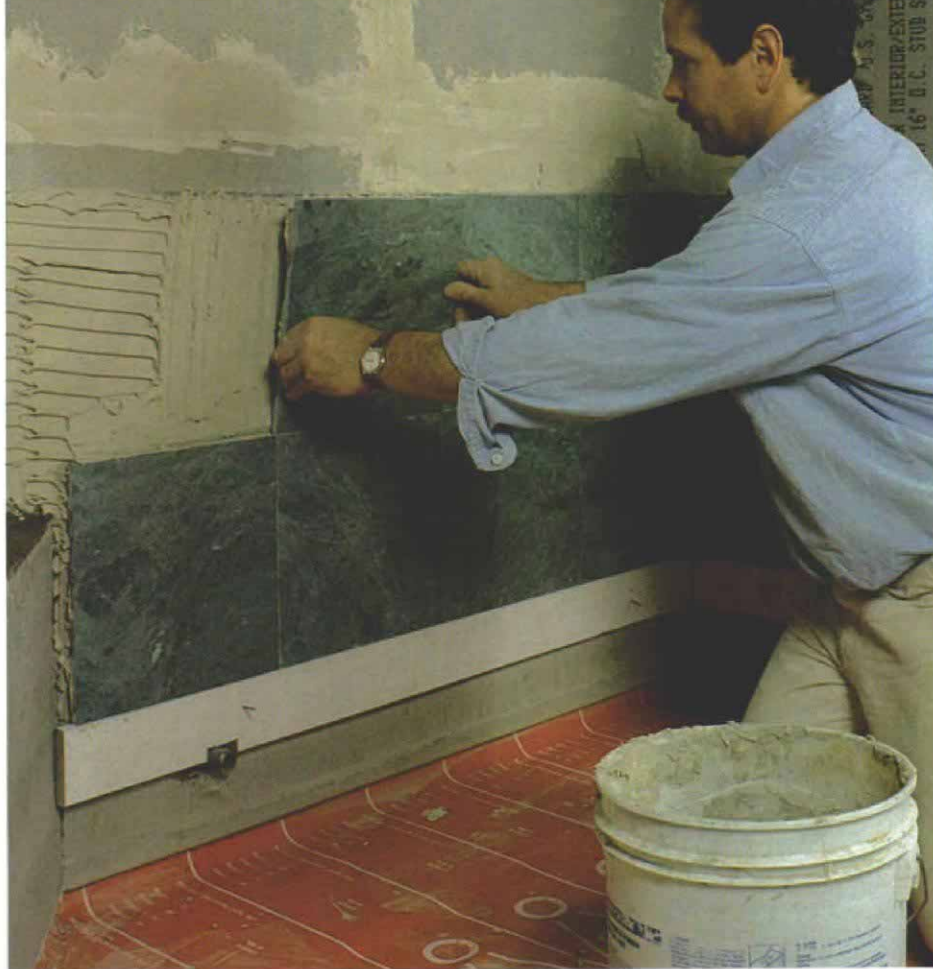
Diamond pads soaked in water can also be used to create the bullnose after chamfering. These pads make less dust and work better on marble than regular sanding disks. Diamond pads come as a six-part, color-keyed, graduated-grit system that can be purchased from most marble-supply houses. When I've worked through the finest grit, I rub a little marble polish on the bullnose as a final step.



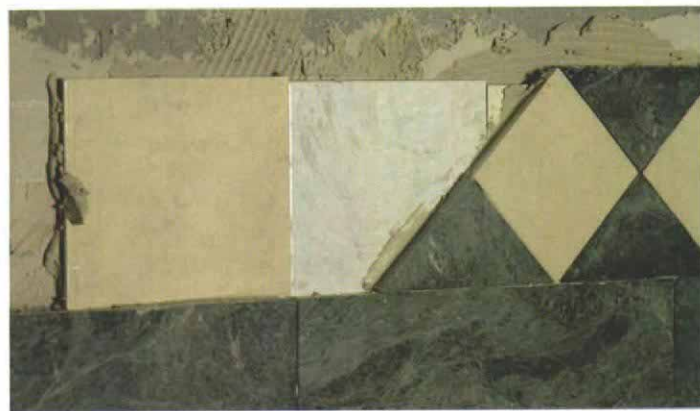
Epoxy seals the backs of the green-marble tiles. Green marble reacts badly to water-based adhesives, so the backs of the tiles are sealed with nonporous epoxy. A trowel spreads the thick and gooey epoxy.

Smaller tiles conform to the slope of the shower floor—It's possible but not practical to use 12-in. tile on the shower floor. So again I cut full-size tiles into 4-in. squares. Using smaller tiles not only makes it easier to match the gradual pitch of the shower pan, but it also increases the number of grout joints for better traction on the slippery marble surface.

I spread my thinset on the floor with a ¼-in. notched trowel for the smaller floor tiles. Because of the slope of the shower floor and the ample size of the grout joints, I didn't need to butter the backs of the tiles with thinset. To add a little character to the floor, I used triangular tiles around the perimeter, which put the field tile on the diagonal. Because the shower floor was so large, I checked my rows of tile often with a fram-



A ledger board keeps the starter course level. A length of 1x is leveled and tacked to the wall to provide support and alignment for the starting course of tile.



Thinner tiles are used to build out the decorative band. Full-size tiles are cut into smaller squares, then cut in half again. A complementary color was chosen for the diamond. Instead of giving these smaller tiles a thick bed of mortar, thin and unglazed tiles were used to shim them out to the plane of the rest of the wall.

ing square and a straightedge to keep everything straight and even (photo top right, facing page).

A corner seat and shampoo shelf are built into the shower walls—When I was installing the backerboard for the shower seat, I extended it 1½ in. higher than the top of the framing, which was covered with the waterproof membrane. Instead of putting backerboard on top of the seat, I filled the extra 1½ in. with a bed of cement so that there would be no nails directly under the horizontal surface of the seat (photo top left, facing page). This technique is a great way to avoid staining and leaks down the road. I also gave the cement a good ¼-in. pitch away from the walls so that water would run off the seat easily. Instead of tiles, I used a marble slab that I got from a marble

supplier for the top of the seat. The solid piece of marble not only looks better than a course of tiles, but it also provides seamless waterproofing for one of the most vulnerable areas of the shower stall. The top of the shower threshold also received a similar treatment.

I laid out the built-in shampoo shelf after I installed the first three courses of tile so that the shelf would land directly above a full-tile course. I cut the opening for the shelf in the backerboard with my grinder. The shelf cavity was framed with lengths of 2x4 that I stuck in with dabs of mastic. The mastic held the framing in place until I could screw through the board to attach the framing permanently. As I did with the seat, I pitched the bottom shelf to shed water, but not enough to let the shampoo bottles slide out.

Clean marble with a pH-neutral solution

After the marble was installed, I grouted the whole shower with a forest-green grout. It's a good idea to test the grout on a tile scrap to make sure that it won't stain the marble. I mixed my grout the way I usually do, using plain water, and I spread the grout with a float and a stiff, damp sponge. Even though the wall tiles are a tight fit, I go over them to fill any hairline gaps that might be left. The grout joints between the marble floor tiles are filled the same as with ceramic tile.

I give grout a couple of days to cure before I clean the tile. Marble is sensitive to acid, so it must be cleaned with a pH-neutral cleaning solution. There are several marble cleaners on the market, and they're available at most tile stores. Avoid acidic cleaners such as vinegar, which can etch the surface of the tile and strip it of its finish. I give the marble a final rinse with clean water even after using a cleaner made for marble.

Most marble in a heavily used shower will require maintenance. Lighter marble is particularly vulnerable to staining, but all marble needs to be kept properly sealed. Two weeks after the installation, I seal the marble with an impregnator/sealer called Limestone Marble Protector made by ProSoCo (755 Minnesota Ave., Kansas City, Kan. 66101-2703; 913-281-2700). This product seals the microscopic pores of the stone. It doesn't change the appearance of the marble, but it helps to repel water and to prevent deep staining. I always test the sealer on a scrap of whatever marble I've used in a project. It's best to leave it overnight to make sure there are no adverse chemical reactions on the surface of the marble. Finally, I go over the shower walls with marble polish, which offers additional protection from soap and shampoo and gives the marble a nice, even finish. □

Tom Meehan is a second-generation tile installer and owner of The Cape Cod Tileworks, a tile store in Harwich, Mass. Photos by Jefferson Kolle.