

## Tile Your World

### Laying the Tiles

At last we have arrived at that most pleasurable of events in the completion of a tiled floor, the actual installation of the tiles. I am so happy for you now... well, words fail me, and I'm a wordy guy.

#### *Thin Set*

There are dozens of thin set mortar products on the market. Some of these are called bonding mortars or tile and marble mortars, and some are called dry set mortars. When I wrote *Ceramic Tile Setting*, "thin set" was a method of installing tiles with "dry set mortar" as opposed to "thick set," which incorporates the use of portland cement screeds. But in the ensuing years, "thin set" has come to mean the setting material itself, and that is how the term will be used here.

We will be using a "modified" thin set mortar. Modified mortars are those that have been fortified with dry latex or acrylic polymers to make them stronger and more flexible than traditional dry set mortars. An alternative would be to use unmodified dry set mortar but mix it with liquid latex admix. I prefer using modified mortar.

Each modified mortar is formulated for a different task. There is no "one size fits all" product that can be used for everything. I do not have the time and the space to go into all the mortars that are available. They are all the same in two respects, though: they are made with portland cement and they are mixed by adding water to them.

There are approximately a dozen major companies that produce thin set mortars in the U.S., and there are any number of smaller regional companies that do the same. I ask you to check with the manufacturer of the line of thin set mortars that are available in your area. All manufacturers publish detailed instructions for the use of their products; all have full-time technical support people at your disposal and most have web sites.

**Mixing:** Place a couple inches of water in a large plastic bucket and then add part of a sack of thin set. Mix with a long, wide stick or with a long margin trowel, depending on the amount you intend to make. You should never attempt to mix a full 50 pound sack of thin set at once. The most you will be able to use at one time will be about half a sack, and you should probably mix even less than that until you get a feel for things.

Professionals often use heavy-duty electric drills and special mixing paddles to mix their thin set, but usually the novice will not have a drill that large available. Smaller, home-duty drills should not be used. The strain of mixing will ruin light-duty tools. If you are contemplating a large floor, though, having to mix quantities of thin set and grout may offer a needed excuse to add to your collection of power tools. The cost of a drill capable of mixing at that level, however, will often approach \$300 (U.S.). (Figure 40)

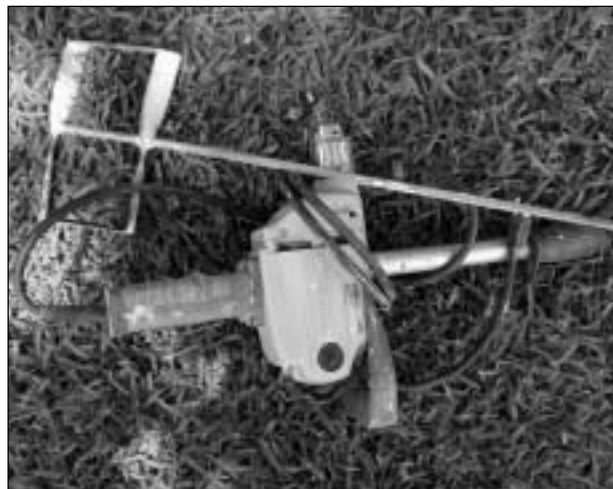


Figure 40: Heavy-duty drill and mixing paddle.

## John Bridge's New Tile Setting Book

Mix the thin set to a smooth, semi-fluid paste. To test the mix, spread some on the floor and comb it with a notched trowel. The ridges created by the trowel should remain erect with only the slightest amount of sag. If the ridges collapse, the mix is too thin and additional dry material should be added. Conversely, if the mix is too stiff, it will be very difficult to spread with the notched trowel. More fluid should then be added. The finished product should be “creamy” and not runny. It will have substance, but it will be easy to apply.

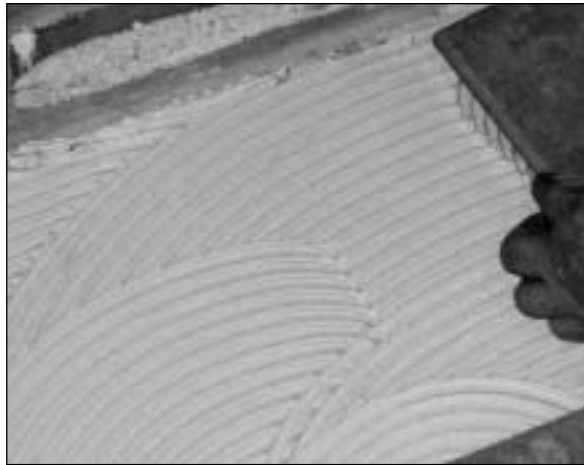


Figure 41: Thin set is semi-fluid, yet the ridges stand up.

“Buttery” is the best descriptive term I have ever heard used, and it was used by a lady who wrote a how-to book years ago. I can’t remember the book, and I can’t remember the author’s name, but if she ever reads my book, I want her to know I tried my best to give her credit. She was actually describing how to mix brick mortar, but that’s close enough for our needs.

When you are satisfied with the consistency of the mix, allow it to rest or “slake” for about ten minutes and then re-stir it. Slaking allows time for all of the dry ingredients to soak up the liquid, rendering the mix consistent throughout. (Figure 41)

### ***Notched Trowels***

The size of the notched trowel you use will be determined by only two factors: the condition of the backs of the tiles you are setting and the condition of the substrate. Now I must tell you, the sizing of notched trowels is one of those areas in the tile industry that seems to generate a considerable amount of controversy. Thin set manufacturers often specify trowel sizes on the back panels of sacks, and certain trade organizations have published guidelines on the matter, specifying trowels with up to 3/4 by 3/4 inch notches for large format tiles. I’ve even seen monster trowels with notches measuring an inch by an inch peering out of display cases at tile stores.

But tile size has very little to do with the matter, and I have never used trowels larger than 1/4 by 3/8 inches (1/4 by 1/2 at the absolute most). What is pertinent is flatness. If your tiles are nearly flat on their backs, and your substrate is smooth and level, you should probably use a trowel with notches that measure 1/4 by 1/4 inches. The larger 1/4 by 3/8 size should be used if the ridges on the backs of the tiles are pronounced. Using a larger size trowel when it is not needed will most likely only cause thin set to accumulate in the joints between the tiles. Since this excess material must be scraped away and washed out of the joints, it makes a lot of sense to me to avoid the excess to begin with.

Smear the thin set down in one of the layout grids and “burn” it in with the straight side of the trowel – make sure the material is forced into the pores of the substrate. Then reverse the trowel in your hand and comb the thin set as you form ridges. Keep the trowel angle as close to 90 degrees as you can, making the ridges as high as possible. Cover the entire grid square, paying particular attention to the corners. Smear right up to the lines, but do not cover them. This takes a little practice, but it will come to you. (Figures 42, 43)

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### *Placing the Tiles*

It is important to get the tiles onto the thin set as soon as possible after the material has been spread, otherwise, air causes the thin set to partially dry on its surface. Surface drying is often referred to as “skinning over” or “over-glazing.” Tiles set in thin set that has skinned over will not completely bond.

Move each tile around slightly to help bed it in the thin set. When all the tiles have been set in the grid, pry one of them up and check the back for complete coverage. You can readily tell whether the tile has made complete contact by examining the ridge pattern on the back of the piece. There should be thin set ridges on all parts of the tile. If you find voids, spread additional thin set on the back of the piece with your margin trowel or buttering trowel. Then lift the remaining tiles up and check each of them. Doing this at the beginning of the installation ensures you are using the right tool and the right technique. You should check random tiles throughout the installation to ensure that complete coverage is being attained, certainly not in every grid square but every now and then. (Figure 44)

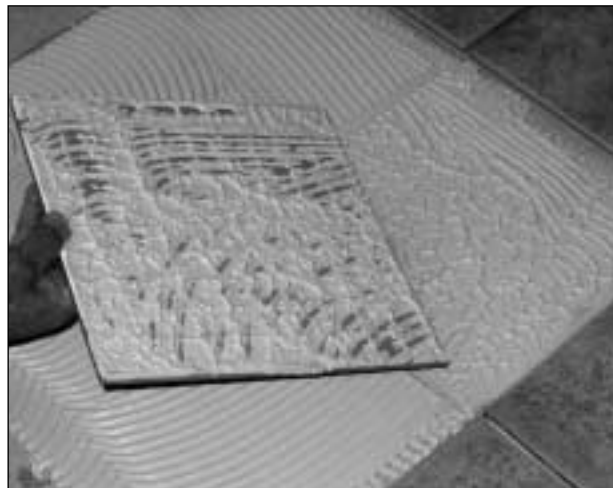
The process of applying adhesive to the back of a tile with a buttering trowel is called “back buttering.” Back buttering is usually a secondary procedure, the main method of applying adhesive being the spreading of it on the floor with the notched trowel. Back buttering can be frequent, however, if the substrate is not completely smooth and flat. The tool I use for this and other incidental functions is called a gauging trowel. This tool is never far



*Figure 42: Thin set is “burned in” with the flat side of the trowel.*



*Figure 43: Thin set is combed with the notched side of the trowel.*



*Figure 44: Fairly good coverage here.*