## Q How do I prevent the mesh backing on transparent glass mosaic tile from showing through when the tile is installed?

A Tom Meehan, a second-generation tile installer and co-author of *Working with Tile* who lives and works in Harwich, Mass., responds: Glass tile can be very frustrating, even when you do things right. Most problems with glass tile arise from installation methods. My article, "Working With Glass Tile" (Mar/17), goes into more detail about the whole installation process.

Proper installation of any glass tile begins with prepping the walls. For installations in bathrooms and other high-moisture areas, I usually give the walls a coat of liquid stress-crack membrane. I follow that application with a skim coat of the thinset recommended by the manufacturer of the glass tile that I will be installing. When the skim coat has set, I give it a light sanding to make sure there are no ridges or bumps.

Because the thinset will be visible through the glass tile, it's important to use white thinset and to make sure you're using the thinset recommended by the glass-tile manufacturer. It is equally important that you have 100% coverage of the thinset—especially with mesh-backed glass tile **(1)**.

To achieve 100% coverage, spread the thinset on the wall with the flat side of the trowel, as close to perfectly smooth as possible. Then switch to the notched side of the trowel (use the appropriate-size teeth for the size of the tile) and comb the thinset evenly in one direction **(2)**. Last, go back to the flat side of the trowel and flatten all of the ridges of the thinset without scraping off any of the thinset, while continuing to maintain an even thickness.

When the thinset is ready, push the sheet of glass tile into it, shifting the tile back and forth until it is 100% embedded in the thinset **(3)**. The white mesh on the back of the sheet should disappear completely into the thinset. Occasionally, some threads of the mesh might be visible next to the grout joints, but only if you are looking at the tile at an angle. When in doubt, try out your installation methods on a small area first.




Mesh backing lets you install the tiny glass tiles as a single sheet **(1)**. Start by spreading a thin, even layer of thinset on the wall. Comb the thinset in one direction using a notched trowel with the recommended-size teeth. Next, flatten the ridges with the flat side of the trowel **(2)**. Then press the tile into the thinset and move it side to side slightly for 100% coverage **(3)**.

## Q The interior of a building with full masonry walls was gutted after a fire and is being rebuilt. What is the best way to air-seal the brick wall?

A Foster Lyons, an engineer and building-science consultant, responds: There are many variables that could affect the answer to your question. But if the plan is to leave the interior exposed with no framed wall over the masonry, then repoint the exterior and plaster the inside of the wall with a cement-based, vapor-open, three-coat plaster.

Of course, if you intend to add framing and insulation on the interior, that interior plaster recommendation would be financially wasteful. But, the basic idea is the same: Make sure the exterior side of the wall is well-pointed, then apply something on the interior side to stop air ingress while still allowing water-vapor transfer. This air-control material should be vapor semi-permeable (permeance between 1 and 10).

There are many commercially available products that can achieve this combination of interior requirements, and they generally fall into two categories: liquid-applied membranes and trowel- or brush-applied slurries. Some of these may require a primer. If the interior of the brick wall is lumpy and uneven, you first need to parge it with a Portland cement-based stucco to create a surface that is smooth and continuous enough to allow the air-control material to achieve continuous coverage.

If the building is in a northern climate (any place where the heating system runs regularly, such as climate zone 5 or above), then the insulation must not be air permeable, or you must add a smart vapor barrier on the interior side of your air-open insulation. (A smart vapor barrier changes permeance with changes in humidity to keep the wall cavity dry.) These precautions will prevent moisture-laden, warm air from getting to the cold interior surface of the brick wall and allowing condensation to form. If the building is air conditioned, then do not use vinyl wallpaper or epoxy paint as the interior finish, as these products will inhibit vapor movement.

If your building is in a southern climate (any place where the air-conditioning system runs twice as much as the heating system, such as climate zone 4 or below), then any type of insulation would be acceptable, but it's still not a good idea to apply vinyl wallpaper or epoxy paint on the interior. The right thing to do is to allow the water vapor to pass through the interior finish and eventually make its way to the cooling coils in the AC system, where it will condense and drain out of the building. For a more in-depth discussion of this topic, check *Building Science Insight #105*, "Avoiding Mass Failures" by Dr. Joseph Lstiburek, of Building Science Corporation, June 2018.