

An Easy Test for Glaze Fit

Michael McDowell in Washington State researched the following method thoroughly, and published an article about it in *Ceramics Monthly*. Proper calculation for thermal expansion and glaze fit gets into the complexities of ceramic science, and I try to make the technical side of ceramics more accessible. Everyone involved in studio ceramics should be thinking about thermal expansion and glaze fit, and fortunately Michael came up with this simple test to give a fairly accurate idea of the fit between claybody and glaze.

Roll out a slab of your clay $\frac{1}{4}$ "-thick (no thicker!), making sure to roll from both sides and in all directions to eliminate grain structure and clay memory. Refer to the section on slab-construction in the chapter on handbuilding in *Clay: A Studio Handbook* for a further explanation of grain structure and clay memory. Cut test tiles 4" long and 2" wide. Dry slowly to keep the tiles flat and bisque-fire them. Glaze one full side of each tile, and in order to get accurate results relating to your own situation, be sure to use your normal glazing methods. If you dip your glazes, then apply wax resist to the back of the tile, let the wax dry, and dip the glaze. Fire the test tiles to maturity.

After the firing, carefully observe the deflection of the tiles. If you are using a claybody that has been tested for vitrification at maturation temperature and has worked well for you in the past, then you can assume that the deflection is indicative of glaze shrinkage. If you are using a new claybody, especially one you have formulated yourself, make sure to include known, reliable glazes in the tests. In that situation, if all the tiles deflect excessively in the same direction after reaching the correct maturation temperature, then the claybody is at fault and needs to be changed or adjusted.

Otherwise, if the ends lift upwards, the glaze is shrinking more than the claybody. If the center rises up, the claybody is shrinking more than the glaze. A tile that remains completely flat or where the center deflects upwards very slightly is ideal. The latter is an indication of slight glaze-compression, which is the ideal state for the most durable functional wares.

A tile where the ends deflect upwards very slightly will still work but the glaze will craze. If a tile deflects badly in the middle or at the ends, the glaze should be reformulated or discarded. If the middle of the tile deflects upwards considerably, wares will likely experience the most dreaded of ceramic flaws, shivering, dunting, and shattering.