



# Common Causes of Grout Problems

In this session of Tile Q&A, I thought I would address two basic questions, whose answers may not be as basic as you may have thought. These questions and answers may bring about more comments on the subject. As always, feel free to send your questions to the e-mail address listed at the end of the article.

## What causes cracked or loose grout?

There are several things that can cause this. Typically the most common causes are as follows:

- 1) Excessive deflection in the substrate - this movement can cause the grout to crack, and if sufficiently severe, can cause tile to crack.
- 2) Grout that is insufficiently packed into the joint. This most often occurs with wall tile. If insufficient force is used while grouting wall tile, it is easy to bridge the joint where the grout does not penetrate to the back of the joint. This is especially true if sanded grout is used in joints narrower than 1/8-inch, which is not recommended by grout manufacturers. The sand grains can easily bridge a narrow joint - in this case the grout may be only on the surface and have little strength.
- 3) Grout made with an excessive amount of water or polymer additive - the liquid that goes into the grout ulti-

mately must evaporate, except for that consumed by cement hydration. This evaporation can cause pinholing in the grout and a weak grout structure.

4) Grout packed after cement hydration started. All cement based materials have a pot life - if water is added to the mix after the grout begins curing in the bucket, the grout will be sufficiently plastic to pack but will not cure into a hard homogeneous block - rather it will be crumbly and weak.

## What is causing my grout to have variations in color?

More and more frequently, we are seeing unevenly-colored cementitious grout installed on projects. While this can not always be avoided, there are many incorrect procedures that can be exacerbating

the extent of color variation:

- 1) Too much water added in mixing the grout.
  - 2) Improper cleaning of the grout and grout haze off the tile; this is usually caused by wiping too soon and with too much water.
  - 3) Leaving plastic spacers in the joints.
  - 4) Having the thinset adhesive fill part of the joint and show through.
  - 5) Improper mixing of the grout by using an improper amount of water or additive.
  - 6) Mixing partial bags; this is a problem if the colorant is not evenly distributed.
  - 7) Using grout from a bag that was previously opened and gained moisture during storage.
  - 8) Adding water after the first mixing; rehydrating.
  - 9) Failure to slake the grout.
  - 10) Improper joint packing.
  - 11) Inadequate cleaning of the sponges.
  - 12) Using unclean water.
  - 13) Dirty tools or shoes that stain the grout.
- Foot or other traffic too soon over the joints can quickly discolor grout that has not fully set. While the curing time for



**Right: Grout cracked at wall/floor transition due to substrate movement; use movement joints per TCA EJ-71.**

grout is on the bag, it can take longer to cure when the floor is cold.

The reason we are seeing more unevenly-colored grout these days is the increasing penetration of tiles with heavily textured surfaces. These tiles often closely resemble natural stone and can be very attractive – however, their textured surface sometimes necessitates removing grout haze before the color has sufficiently cured with the cement.

If the installer waits for the cement to further cure, sometimes he/she cannot get the grout off the more textured areas of the tile, without using acid or other extraordinary means. With smoother tiles, the installer can wait longer, allowing the color to more fully set before he removes the grout haze. When uniform grout is desired with a heavily textured tile, epoxy grouts are worth considering. In many epoxies, the color is not water-dispersed and is not affected by the cleanup process. **TILE**

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