



Common Stone Characteristics (Not Defects)

Variations in coloring is not a defect-

Variation in veining, fissures, pits, texture, color and shade are an inherent characteristic of all natural stones and will vary from tile to tile as well as from lot to lot depending on the type of stone you select. Some species and colors are more consistent than others and will range from V0-V5 shade variation. Hand selecting colors is not possible for natural stones. However range samples can be requested to represent the current lot prior to purchasing.

Preventative measures against shade variation-

It is important to inspect all tiles prior to installation. Subtle variations between darker and lighter shades can usually be hidden when the darker shade is put around the perimeter of the room and the lighter shades are used in the middle of the application to avoid creating an obvious checker pattern. During product inspection, tiles that may have questionable quality outside of industry standards should be set aside. It is also important to include proper overages when ordering taking cuts and color variation into consideration. Often installers will pull from multiple boxes to help blend the natural variation between tiles. Keeping only the tiles that are aesthetically pleasing is not an acceptable practice as random variation is a desired characteristic of stone.

What is considered a defective stone?

Tiles that can be considered defective would be ones displaying an inconsistency in the level of sheen or surface finish (some marbles contain pits and fissures on the surface which are a characteristic of the stone not a defect of the finish), excessive fillers popping out, tiles that are brittle or unstable, if there is a problem with resin backing delaminating, variations outside of industry standard dimensional tolerances, or the tiles are chipped or damaged upon receipt. It is important to understand the grade of a tile prior to filing a claim or ordering more merchandise. It is the characteristic of certain species of stone to come with resin backing and surface fillers due to their soft nature. Unattractive veins and fissures that look like cracks are not a defect. Stones changing color or reacting to water including visible efflorescence is not a defect of the stone.

How to fix defective stone?

- **Surface Finish-** An easy solution to fix natural stone with an inconsistent surface finish, or ones that may display unattractive buff or saw marks is to re-polish them. Because the color of a stone goes all the way through the tile, the surface can be treated uniformly by buffing to the desired sheen. Using a topical sealer will only temporarily change the level of gloss and appearance of the stone and is not a permanent solution.
- **Fillers-** If fillers pop out of a travertine, or new holes are appearing as the stone settles in, these holes can easily be filled with sanded grout. Fillers in marble may pop out occasionally as well, it typically looks better to replace these tiles than to fill them with epoxy grout.
- **Brittle or Unstable Tiles-** Tiles that are brittle or unstable need to be removed and replaced, it may not be necessary to replace the entire application, just the tiles in question. It is also important to understand what caused the stone to be this way. Slate has a tendency to flake and is often mistaken for the stone being defective when the root cause may be moisture or freeze cycling. Travertine also is often mistaken as defective when new holes are punched through the surface or fillers pop out from moisture or temperature changes. Marble fissures are often mistaken for cracks and are a characteristic of the stone that don't compromise stability.
- **Backing-** Aside from using an epoxy thinset on tiles with a resin or mesh back it may be necessary to score the back of the tiles to create better surface adhesion depending on the application. Mesh and resin are typically applied to the back of stone to add stability to the tile during transit and/or production. The backing plays no effect on the durability or appearance of the tile once it is installed.
- **Variations outside industry standard-** Dimensional variances need to be identified immediately prior to installation to prevent costly tear outs. It is not uncommon for tiles in a pattern especially those of a different color to be from different caliber lots. It is important to inspect these tiles prior to installation to make sure they all line up. Sometimes subtle variations such as lippage are not noticed until after installation. There is a tolerance for lippage based on industry standards. Variances in facial dimensions and lippage can only be adjusted by increasing grout joint width. "Butt-jointing" is typically not recommended.
- **Chipped Tiles-** Any tiles arriving with cracked or chipped edges must be noted on the delivery/pick up paperwork as such damages would be considered a freight claim. If damages are minimal it is recommended that these tiles be set aside and used for cuts. When re-ordering additional tiles there may be a possibility that they will be from a different shade lot so it is important to make the best use of all materials ordered.

Adhesives (EPOXY)

It is important to use epoxy based, solid setting adhesives and grouts when installing mesh, resin, epoxy, or fiberglass backed stones to ensure proper adhesion. Stones requiring epoxy, even if they are not mesh backed are: green marbles, black marbles, white or light moisture sensitive granite and some sandstone. It is not uncommon to see discoloration, the tiles warp or the edges curl if a standard thinset is used.

Efflorescence, Rust and Moisture Sensitive Stones-

All stones are porous in varying degrees. Efflorescence and rust can be a common occurrence in natural stones when they are exposed to moisture. It is important to identify the source of the problem before cleaning or replacing the stone as these occurrences can be install related. Efflorescence is a concentration of soluble salt trapped in the stone that will appear cloudy white and even foamy. It is common in hot climates where the water escapes from the stone quickly leaving a trace of salt closer to the surface. Rust will also appear when the metal minerals of certain types of stone react with moisture. Both rust and efflorescence can be cleaned using water and a medium bristle brush. It is imperative that the stone be properly sealed after cleaning. Proper water proofing membranes and sealers are recommended where products are exposed to weathering or are in direct contact with water.