KTU

Kaiser Tile
BRICK • STONE • WOOD

Kaiser Tile University

Tile and Stone 101

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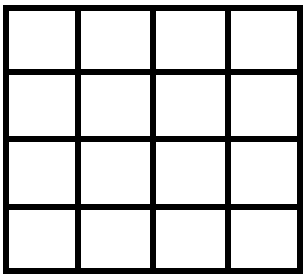
Tile Variation Manual



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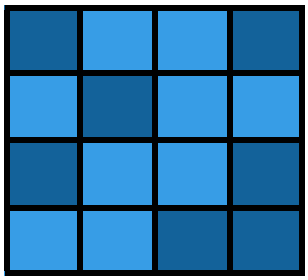

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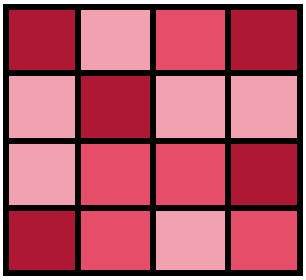
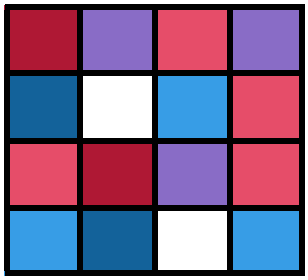


V = 3



V = 4

As new shipments of tile come from overseas, each container carries a new dye lot with it, which may be slightly different from that of the prior one. The primary factors that contribute to variation in color and texture in ceramic tile are as follows:

1. Ceramic tile is a clay-based compound, it is that of the earth, which is composed of a multitude of sedimentary fragments. Clay varies, as does the environment from which it is taken.
2. Firing temperature fluctuates from kiln to kiln.
3. The temperature and dew point outside varies each day, which in turn, has a significant effect on the final appearance of the tile as it is cooling after being fired.

Particular series of tile are meant to have zero variation, while others have dramatic highs and lows in color. Some series range from little or no texture to drastic changes in feel. A series can have any number of these factors to give it its own distinct and unique appearance. This chart was created to help buyers get an idea of how tile can change in a given series.

V = 1 Each tile is given the same glaze application and texture. There will be very few differences in appearance per piece. Selection can be made by viewing a single piece of tile from the current dye lot.

V = 2 There may be differences in texture and/or pattern within similar colors. Selection can be made from a single piece of multiple pieces of tile from the current dye lot.

V = 3 The amount of color on each piece may vary. While the same colors are used on each piece, the amount of each color, per piece, may vary. It is recommended that selections be made from viewing several pieces of tile from the current dye lot.

V = 4 The tile has the appearance of natural stone and may have extreme variation in color and texture. There is a multitude of color not evenly dispersed on each piece. It is suggested that several pieces be viewed before making a selection.

PEI Wear Rating

Group I	Tiles suitable for residential bathrooms where softer footwear is worn.
Group II	Tiles suited to general residential traffic, except kitchens, entrance halls and other areas subjected to continuous heavy traffic.
Group III	Tiles suited for all residential and light commercial areas such as offices, reception areas and boutiques.
Group IV	Tiles suited for medium commercial and light institutional applications such as restaurants, hotels and hospital lobbies and corridors.
Group V	Tiles suitable for heavy traffic and wet areas where safety and maximum performance are a major concern such as exterior walkways, food service, salad bars, building entrances, around pools or shopping centers.

Facts About Selling Ceramic Tile

Fact One	Selling ceramics is basically no different than selling carpet, vinyl or wood. No matter which product the customer is shopping for, he/she is looking for the same three benefits—beauty, performance and value.
Fact Two	Most customers have already decided to buy ceramic tile before entering your showroom. They just haven't decided on which tile and who to buy it from.
Fact Three	The customers have mixed feelings, on one hand, they are excited about enhancing their home, but on the other, they are nervous about selecting the right tile. After all, ceramic tile is a large investment as well as a permanent product. Once it installed it is there for years.
Fact Four	The biggest decision the customers have to make is not which tile to use, but which company to purchase it through. Most customers know little about ceramic tile and they are searching for information, ideas and expert advice.
Fact Five	Most customers select a company based on the following strengths—reputation, image, a wide selection of tile to choose from and knowledgeable sales people.
Fact Six	While price is an important consideration when buying brand name appliances, cars and other products that come ready to use, it is seldom the main consideration when buying tile because workmanship is so important. In the case of tile, most customers buy from the people and companies they feel most comfortable with.
IMPORTANT	If you draw on your own experiences as a consumer, you will quickly realize what your customers are seeking from both you and your company.

Red Bodied vs. White Bodied vs. Porcelain Bodied—
Glaze Side Up or Glaze Side Down

Questions regarding the use of red bodied ceramic tile versus white bodied ceramic tile versus porcelain bodied tile seem to come up often.

Below is some history and information about the different types of tile that we hope will answer some of these questions and also enable you to educate your customers at the same time.

Let's start with some history...

- Italian ceramic tile first gained popularity in the US because of its design and color. Most of this product was white bodied, as the clay in that area is white.
- Spanish manufacturers entered the market by offering less costly products; unfortunately, this was accomplished by reducing product quality. The manufacturers used less expensive glazes, which made their product susceptible to chipping.
- The clay used by Spanish manufacturers was red, as the clay in this area is red. Hence, the myth that developed..."white bodied tile is better". Actually, the truth was it was not the color of the body; it was the quality of the glaze.
- Today, manufacturers use better glazes and manufacturing techniques. White bodied and red bodied products are produced depending on the proximity of the quarry (clay) to the kiln. The color of the clay does not effect the product's quality, in fact, most "stone look" tiles look better when produced with red clay.
- The quality of the glaze and the firing techniques determine the quality of the ceramic.

Some general information...

The production of quality ceramic tile involves a number of different things—the firing system on the red, what temperature the tile was fired at, what body components are used and the selection process.

For residential floor ceramic applications, it is important that:

- The glaze withstand medium—heavy wear so that pivot points in the residential application do not show wear.
- The dimensional stability of the tile be such that it is square and flat, so that the installation is clean, without "lippage", and the customer gets the grout effect that he/she is looking for (1/4 inch to...)
- The body is dense enough to withstand substantial impact such as regular household items being dropped. Remember that when a tile chips, red bodied, white bodied or porcelain, the chip turns black from dirt and the tile needs to be replaced. With porcelain the reality is that the color may go all the way "through" but if it is chipped it still will turn dark and need to be replaced.

In the case of Kaiser Tile's product lines, they meet and exceed these expectations, as well as industry Standards...in many cases by over three times!

So the question of "Red vs. White vs. Porcelain" is only a question of whether the customer wants the installation to be glaze side up or glaze side down!

Did You Know…

Has Anyone Ever Explained to You the Difference Between
RED and WHITE Body Tiles and Porcelain Body Tiles?

To be considered a porcelain tile, the body absorption must be less than 1/2 of 1% or <.05. What that means is, if a porcelain tile weighed 100 pounds and it was immersed in water and it absorbed all of the water it could absorb…this tile could not weigh more than 100 1/2 pounds or 100.05 pounds. Red body tile has an absorption rate of approximately 3%.

What does this mean? We all know that when water freezes it expands approximately 8%…now, let's say you have an exterior tile job in Flagstaff and it rains one day and the rainwater is absorbed through the grout line into the body of the tile. If the temperature dropped to freezing that same night, because of the low absorption rate, a porcelain tile would not crack due to the change in temperature.

Also, the breaking strength is slightly higher for porcelain. Breaking strength is tested using a three-prong pressure tester and the tile is rated according to the pressure per square inch (PSI) that it takes to break the tile. Porcelain tiles have an approximate breaking strength rating of 410 PSI and typical red/white body tiles have a breaking strength rating of 380 PSI. However, once both are installed on the floor, the PSI rating becomes irrelevant.

So, what are the advantages of using a porcelain body tile over a red or white body tile?

- Frost proof, important in cold weather climates
- Slightly higher breaking strength (410 PSI vs. 380 PSI), however once tile is installed there is no difference

Lastly, if the glaze from a porcelain tile was removed and applied to a red body tile and the glaze from the red body tile was applied to the porcelain tile, the tiles would not wear any differently from each other. ***We walk on the surface of the tile, not the body.***

Stone Definitions

Granite	Proportions of the chemical components of the continental crust are such that, if they were melted down, mixed thoroughly, and slowly cooled, the result would be granite. Although a favorite for commercial use, it has shown a resurgence recently for use in residential applications due to it's superior hardness and durability.
Limestone	Composed wholly or in part of calcium carbonate. Certain limestones, when examined closely, are seen to consist almost entirely of fragments of fossil shells. The size of the fragments and the method of cementation can determine the prosity and abrasion resistance and whether the stone is suitable for commercial and/or residential applications. In some markets, honed (matte finish) limestone paving has surpassed marble in popularity.
Marble	A compact, granular, partially or wholly-crystallized (metamorphosed) limestone. Commonly produced with a polished finish, its decorative and occasional vivid nature has made it the stone of choice for centuries. Note: the boundary between crystalline marble and limestone is ill-defined. A few characteristics make it possible to distinguish marble from limestone, which frequently appears similar to it.
Sandstone	A rock consisting primarily of quartz and sand cemented together by silica rich waters seeping through its mass. Iron oxides give the stone its yellow and rosy colors in some instances. Although more commonly used as an exterior paving stone in cut shapes and random (flagging), it is gaining acceptance for use as interior paving.
Quartzite	A compact, granular, partially or wholly crystallized (metamorphosed) sandstone. Contains at least 95% silica (quartz sand) in its matrix and often appears more textural with higher concentrations of mica, which gives it a shiny or platy appearance.
Slate	A primarily clay-based (argillaceous), fine grained rock that readily splits into thin and even lamina. Many are formed in deep oceans, or they may form in river beds, estuaries and deltas.
Travertine	A porous, crystalline calcium carbonate mud deposited in layers from ground surface waters. Trapped organics, later dissolved, give the stone its characteristic pockets or holes.
Volcanic Ash Stone	Known as cantera, adoquin, Kirkstone, these stones are formed from sedimentation and eventual consolidation of volcanic ash. In some instances, metamorphic events recrystallize ash into harder, more dense building stones (Kirkstone).