

# *Industry Standards, Warranties & Recommendations*

Natural stone is a product of nature. No two tiles are exactly alike. Customers must inspect the material prior to installation to check color, veining, thickness, sizing and finish required to meet approval. Installation is deemed acceptance of materials. Dry laying prior to installation to determine proper placement is highly recommended.

## *Variation in Color and Aesthetic Appearance*

Variation in veining, fissures, pits, texture, color and shade are inherent characteristics 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. There are various types of stones available on the market with the most popular being granite, marble, onyx, limestone, travertine and slate. Some species and colors are more consistent than others and will range from V1-V4 shade variation. Hand selecting colors is impractical and is generally not accepted industry wide. However, where a specific range or aesthetic value is required, range samples can be requested to represent the current lot prior to purchasing.

## *Efflorescence*

Efflorescence can be a common occurrence in natural stones when they are exposed to moisture and it is not considered a defect of the product. The source of the problem must be identified before cleaning or replacing the stone as these occurrences can be install related and a replacement installation may be subject to the same effect. Efflorescence is a concentration of soluble salt trapped in the stone that will appear cloudy and white as water passes through the stone. It is common in hot climates where the water escapes from the stone quickly, leaving a trace of salt closer to the surface. This effect may also expose itself as foam coming out of the surface of the rock and is a natural occurrence as a result of moisture transmission.

## *Rust*

It is not uncommon to see rust appear in certain stones and is especially visible on slate and light colored granite and marble. Rust appears when the metal minerals inside the stone react to water or humidity in the air. It is imperative that the stones be properly sealed before and after installation to prevent this occurrence from happening. Proper waterproofing membranes are required where product will be exposed to weathering or is in direct contact with water.

## *Grades of Marble*

Marbles and other natural stones are categorized by soundness classifications and are rated A-D. Some C and D stones are manufactured with resin reinforced mesh backing, holes are filled with cement or epoxy fillers, and rods are used for stability. Veining and coloring can be inconsistent between modules, and chipped edges are engineered from epoxy. Some species of stone have more inconsistencies than others, however, this is not a defect of the stone. The grading system accommodates a stone's natural characteristics and is an industry standard as long as they are graded correctly.

All travertine, regardless of manufacturer and many common colors of marble, are always considered a class C due to the natural presence of veins, pits and fissures. Some quarries will grade their stones into sub-categories within the soundness classification and will identify products as "Premium", "Plus", "Classic" or "Select" to distinguish aesthetic consistency between lots. Class C is considered for aesthetics and not quality of a product.

### *Sealing Granite*

As a general rule, it is important to seal any product that has any percentage of water absorption to protect the surface. This applies to all natural stones including granite, however, the only stones that typically go unsealed are black granites. When used as countertops or in wet applications, sealed black granites are known to show water marks and rings when exposed to moisture or acids for extended periods of time. These watermarks or etchings can be caused by a number of factors, the most common is a reaction of the sealer being exposed to water for prolonged periods. The other reason may be a reaction of the mineral on the surface of the stone to acids. When using dark stones in wet applications, proper sealing and waterproofing methods must be observed based on the scope of work.

### *Slate Exteriors*

Certain colors of slate are not rated for exteriors, wet applications or applications in freeze/thaw climates. Slates can swell when they absorb water and as a result may rust, become muddy, brittle or flake excessively. It is important to know where the slate is being installed prior to purchasing. Quartzite, although it looks like slate, is a completely different rock and is perfect for wet and exterior applications as well as freeze/thaw climates.

### *Epoxy Thinsets for Onyx, Marble and Sandstone*

It is important to use epoxy based, solid setting adhesives and grouts when installing mesh, resin, epoxy or fiberglass backed stone to ensure proper adhesion. Stones requiring epoxy, even if they are not mesh backed include; green marbles, serpentine stone, black marbles and some sandstones. These stones will typically warp or discolor from exposure to moisture during the installation process when using a standard mortar/thinset.

### *Use of Appropriate Thinset Colors*

Many light stones and limestones may react to the ingredients contained in gray thinset. It is highly recommended to use white thinset on light stones and gray thinset for darker stones.

### *Stone Lippage*

The presence of lippage can be exaggerated by a number of factors: uneven subfloors, laying tiles in a 50% brick joint offset, not back buttering large format tiles, grout joint width being too narrow and natural light sources making standard variances more noticeable. Industry standards allow for a certain amount of lippage to be present based on various factors. To eliminate lippage altogether, some stones may be altered by grinding and refinishing the surface. This procedure is to be conducted by skilled professionals and is only possible on select stones and finishes.

### *Sanded Grout on Natural Stone*

When installing polished stones or stones with a softer MOHS rating, it is highly recommended to use un-sanded grout or equivalent to avoid scratching the surface of the stone during installation. Follow the grout manufacturer's recommendations based on the specified grout joint width.

### *Travertine Fillers and New Hole Formation*

Travertine is a sedimentary rock usually quarried near hot or cold springs, as well as streams. Air pockets and voids are present in the stone during its formation and are a desired characteristic of the stone. Some of these holes and voids may be present under a razor thin layer of surface rock. It is not uncommon for a travertine floor to reveal new holes in the first year after installation from pedestrian loads, movement of furniture and regular wear that can punch through these thin surface layers. New hole formation does not affect the floor's durability or strength in any way and is not considered a defect of the stone. If desired, these new voids can be filled quickly and easily with grout, epoxy or equivalent fillers. Some travertine tiles can come prefilled by the factory with either cementitious or synthetic fillers. Filler colors in a prefilled travertine can vary from batch to batch as the coloring is changed to match every production line. Although it does not happen often, it is not uncommon for synthetic fillers to dislodge post installation or as a result of regular wear on the floor.

### *Allowable Industry Size Tolerance for Porcelain & Ceramic*

An inherent characteristic of all fired products is that they will bow, wedge and warp to a certain degree and may slightly vary in size from batch to batch. These variations in size and color are due to changes in moisture and thermal loads which can alter the tiles during production. Batches of tile are identified and separated into lots by specific shade and caliber. For specific allowable size tolerances by product type please refer to ANSI A137.1 Table 8 for ceramic and Table 10 for porcelain. The values indicated in the charts are noncumulative.

### *Green Friendly Products - VOC's*

Emser products are not FloorScore certified. However, certification is not needed to satisfy LEED® specifications. The test methodology specified in CA Department of Public Health Standard - Section 01350 is the same one used for the following certifications:

- SCS/RFI FloorScore
- SCS Indoor Advantage, Indoor Advantage Gold
- AQSI/GEI Greenguard, Greenguard -Children & Schools
- CRI Green Label, Green Label Plus

Due to the manufacturing process of all of our fired floor tiles, the temperatures that these tiles are produced at inherently eliminate the presence of any off-gassing and results in no detectable emissions of Volatile Organic Compounds (VOCs). As such, Emser's floor tiles exceed the requirements of the FloorScore certification. Hard surface flooring products can contribute to gaining 1 POINT for low-emitting materials in LEED® V3 and V4 rating systems. The credit definition is: "Mineral-based finish flooring products such as tile, masonry, terrazzo, and cut stone without integral organic-based coatings and sealants and unfinished/untreated solid wood flooring qualify for credit without any IAQ testing requirements". For this reason, it is assumed that ceramic and porcelain floor tiles are negligible sources of VOCs and are available for credit without any testing requirements.

### *Recommended Offset for Brick Joint Patterns*

ANSI A108.02 Section 4.3.8.2 is the industry standard recommendation for tiles being offset with an edge greater than a nominal 18". A 50% offset on large format square and rectangular tiles is not recommended. Where a running bond pattern is desired, a 33% maximum offset can be used along with a proper grout joint width to prevent the appearance of lippage. If an offset greater than 33% is desired, then the specifier and owner must approve a mock-up and approve potential inherent lippage.

### *Grout Joint Width*

Based on ANSI A108.02 Section 4.3.8, the grout joint needs to be at least three times the actual variation of facial dimensions of the tile supplied. If the variation between tiles is 1/6" then a 3/16" grout joint is recommended. Grout joints must accommodate dimensional variance in the tiles supplied and must never be closer than 1/16." Emser Tile™ recommends that pressed ceramics be specified with a 5mm joint width. Manufacturer's recommendations prevail.

### *Nano Coating and Sealing Porcelains*

Nano coatings are applied to certain tiles at time of production to protect the surface from scratching. The wax coating does not have to be removed. However, when necessary, there are various products specifically made to remove nano coatings. Each tile manufacturer has a differently formulated coating and the proper solutions must be used to strip it off when necessary. Sealing unglazed polished porcelains may be necessary if they do not have a nano coating or the coating was removed as the polishing process opens up the pores on a microscopic level on the surface of the tile.

### *Tile Lippage*

Please reference ANSI A108.02 Section 4.3.7 for a detailed explanation of lippage and allowable tolerances. Lippage refers to differences in elevation between edges of adjacent tile modules. The perception of height variances is influenced by a number of factors, including thickness variations between tiles, allowable warpage of the tile modules, grout joint width, the angle of light creating shadows and highly reflective surfaces accentuating otherwise acceptable variance in modules. Unlike stone, when lippage is present in a ceramic or porcelain installation there is no way to correct it. Lippage is acceptable as long as it is within industry stated tolerances. It is calculated by adding the actual manufacturing warpage to the allowable installation lippage.

### *Types of glass*

There are various styles of glass on the market today. "Back painted" is a general term that describes the color application process to what typically starts out as a clear slab of glass tile and has color applied to the back surface. If you hold the back painted tile sideways, you can see right through it. Not all back painted glass tiles are

the same; there are subtle differences in manufacturing that define where these tiles can or cannot be used. It is imperative that the glass tile is installed over the proper substrate. To avoid adversely affecting the color of glass tile, white thinset is required for all installations. As most glass has translucent properties, it is important to ensure adequate coverage of thinset by lightly back buttering the tiles. Not all back painted glass is manufactured the same way. Some types of back painted or back foiled glass are not suitable for exterior or wet applications as the coloring is not designed to hold up to these types of conditions.

### *Crackled and Crazed Ceramic Finishes*

Crackled and crazed finishes are considered a desired look, not a defect, in the glaze of certain tiles. The tiles may be used on walls and on shower floors if properly sealed. They are not recommended for general use on floors and counters. Typically products with these finishes will have potential size variation adding to the handmade and hand painted look. It is recommended that a grout release or pre-sealer be applied to the crackled glaze so the tile will not absorb and grout pigments or installation related dirt. After grouting, a penetrating sealer should be used to seal the surface of the tile. Abrasive cleaners should not be used with these types of products.

### *Cast Metal Tiles*

Cast metal tiles contain real metal particles that are combined with polymers and cast into molds. Due to the presence of real metal in these tiles, they are not recommended for exterior applications that are exposed to the elements. Cast metal tile is suitable for interior and covered exterior walls only and is not recommended for floors. The use of a non-sanded grout is recommended as sanded grout may scratch and dull the finish. These tiles are not recommended for pools or fountains but may be used in showers and backsplashes as long as they are not exposed to any harsh chemicals or abrasive cleaning.

### *Freeze / Thaw Climates*

All tile and natural stone have some level of porosity. When water penetrates the surface of a stone, a grout joint or a crack in a tile installation and freezes over, you risk the tile shattering. When water freezes, it expands by approximately 9%. As this expansion is resisted, the pressure exerted can be up to 150 tons per square foot. This type of pressure is sufficient to split even the strongest rocks. It is important to know if a tile is rated for exterior use and suitable in freeze-thaw cycles.

### *Fire Ratings*

As an industry, tiles are not typically tested for flame spread, creation of smoke or other types of fire ratings. The tile body and glaze are manufactured under much higher temperatures than they would ever be exposed to in a test chamber, therefore, the results would be negligible. One would need to exceed the tiles' firing temperature and melting points to change the tiles' composition. Tiles are manufactured in temperatures that exceed 2000 degrees fahrenheit with no flame spread or smoke effect. As such we do not do flame spread testing on any of our tiles.

# Warranties Information

## *General Installation Liability*

Emser Tile™ will not be responsible for any materials damaged due to improper installation, installation defects or errors, misuse including negligence, and physical or chemical abuse to the surface of the tile. It is imperative that industry standards and guidelines for installations are followed. Refer to the TCNA Handbook, ANSI, MIA + BSI, NTCA and any other reputable industry sources for guidelines on proper installation as needed.

## *One Year Limited Warranty and Limitations on Liability*

Emser Tile™ offers a limited warranty on its products to the original purchaser, for one year from the date of purchase, to be free of manufacturing defects. Emser Tile™ warrants only to its immediate customers and to no other person that its products will, on the date of ship, meet the foregoing terms of Emser's bid confirmation, order acknowledgement or sales order pursuant to which such products were sold. Tile and natural stone are subject to standard variances resulting from the manufacturing process or origin. Emser Tile™ does not provide warranty on products that are within the industry standard variance levels.

## *Defects & Claims*

In the event of a defect within any product distributed to the customer by Emser Tile™, the customer agrees to notify Emser Tile™ immediately upon becoming aware of such defect. If a defect in manufacturing or coloring is identified in advance of an installation, the customer agrees to not install any defective product without the written agreement of Emser Tile™.

Emser Tile™ reserves the right to inspect any and all defects prior to any repair, remediation or settlement of such defect. In the event that Emser Tile™ is required to participate in the repair, remediation or settlement of any defect, Emser must be included in all discussions and decisions related to such repair, remediation and/or settlement. In the event that the customer fails to notify Emser on a timely basis, or fails to allow Emser the right of inspection, discussion or decision making in advance of repair, remediation or settlement of any defect, the customer agrees to release Emser Tile™ from any liability for the defect or claim. Customer misuse including negligence, physical or chemical abuse is not covered by this warranty. Improper installation, installation defects or errors are not covered by this warranty. Warranty claims must be submitted in within 30 days upon discovery of the proposed defect.

## *Natural Stones*

Emser Tile™'s website and marketing literature may not represent the true geological nature of the stones commonly referred to in the industry as marble, granite, limestone, travertine, onyx, slate, sandstone, quartzite, etc. The true geological nature of any stone may be verified by conducting a test through an independent bona fide laboratory.