



# TILE SPECIFICATION GUIDE

## INDUSTRY STANDARDS

The American Society for Testing and Materials (**ASTM**) and the American National Standards Institute (**ANSI**) are nationally recognized organizations, which identify and develop industry test methods and technical standards.

### SCOF, DCOF

The tile industry uses ASTM C1028-06 to measure the Coefficient of Friction (**COF**), or the relative slip resistance of tile surfaces. This procedure measures the maximum force required to initiate motion, or slip, across the tile surface. The values are recorded and averaged to determine the Static COF (**SCOF**). A newer standard, called Dynamic Coefficient of Friction (**DCOF**) AcuTest, is an evaluation of the COF of a tile surface under known conditions using a standardized sensor prepared according to a specific protocol ANSI A326.3.

Measurements are made using a tribometer, under wet conditions using a 0.05% sodium lauryl sulfate solution to establish a thin film as would be present when a slip occurs. Because many variables affect the risk of a slip occurring, the SCOF and DCOF measurement shall not be the only factor in determining the appropriateness of a tile for a particular application.

### WATER ABSORPTION

**Water absorption** is measured using ASTM C373-88. Individual tiles are weighed, saturated with water, and weighed again. The percent difference between the two values is the water absorption value. Tiles are categorized according to water absorption percentages as follows:

<b>Impervious</b>	Tiles absorbing <b>0.5% or less</b> . (Frost-proof, can be used for outdoor applications)
<b>Vitreous</b>	Tiles absorbing <b>more than 0.5% but not more than 3.0%</b> . (Frost-proof, can be used for outdoor applications)
<b>Semi-Vitreous</b>	Tiles absorbing <b>more than 3.0% but not more than 7.0%</b> . (Not frost-proof, not recommended for outdoor applications)
<b>Non-Vitreous</b>	Tiles absorbing <b>more than 7.0%</b> . (Not frost-proof, not recommended for outdoor applications)

### CHEMICAL RESISTANCE

**Chemical resistance** is measured using ASTM C650-04. A tile sample is placed in continuous contact with a selection of chemical agents for 24 hours, then the surface is rinsed and examined for visible staining or variation.

All tile products distributed by Merola Tile are **Grade 1**, First-Quality products and meet or exceed the requirements of ANSI A137.1. Please refer to individual product pages for item-specific technical data.

### BREAK STRENGTH

Tiles used on floors and walls must be able to withstand the expected load-bearing capacity of various installations. The tile industry uses ASTM C648-04 to determine the strength and durability of the tile. The test method provides means for establishing whether or not a tile meets the strength requirements which may appear in tile specifications. Tile strength is the force in pounds-force (or newtons) necessary to cause an unsupported\* tile to break.

\*Breaking strength does not measure the weight limit of foot traffic or supported tile. The final strength of a tile installation is calculated by including (but not limited to) the tile, the installation materials and method, and subfloor.

We recommend adherence to industry installation guidelines set forth here:

- ANSI A108.1**—Installation of ceramic tile with Portland Cement.
- ANSI A108.4**—Installation of ceramic tile with water resistant organic adhesives.
- ANSI A108.5**—Installation of ceramic tile installed with dry-set Portland Cement Mortar or Latex-Portland Cement Mortar.
- ANSI A108.6**—Installation for ceramic tile installed with chemical-resistant epoxy.

### PEI RATING / ABRASION RESISTANCE

The durability of glazed tile is measured by observing the visible surface abrasion of the tile when subjected to the ASTM C1027-99 testing procedure. Tiles are classified into the following classes according to their durability:

- PEI 0** (Wall Use Only)—Not recommended for use on floors.
- PEI 1** (Light Residential)—Light-duty residential floors, bathrooms and bedrooms without direct access from outside; no scratching dirt can be present.
- PEI 2** (Residential)—All interior walls and light foot traffic such as powder rooms and areas subject to normal footwear traffic with small amounts of scratching dirt.
- PEI 3** (Heavy Residential or Light Commercial)—Medium-duty residential floors including kitchens, halls, corridors, balconies and areas used more often with normal footwear and moderate amount of dirt.
- PEI 4** (Commercial)—Heavy-duty residential and commercial applications, including kitchens, entrances and sales floors.
- PEI 5** (Heavy Commercial)—Areas subject to heavy pedestrian traffic over sustained periods, such as shopping centers, airport concourses, public walkways and industrial applications.