

Specification (Part 1)

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. 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.

Static Coefficient of Friction (SCOF), ASTM C1028-06 / Dynamic Coefficient of Friction (DCOF) AcuTest, ANSI A137.1-2012, Section 9.6

The tile industry uses ASTM C1028-06 to measure the coefficient of friction, 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. A newer standard, called DCOF, is an evaluation of the COF of a tile surface under known conditions using a standardized sensor prepared according to a specific protocol. 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, ASTM C373-88

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:

Impervious	Tiles absorbing 0.5% or less. (Frostproof, can be used for outdoor applications)
Vitreous	Tiles absorbing more than 0.5% but not more than 3.0%. (Not frostproof, not recommended for outdoor applications)
Semi-Vitreous	Tiles absorbing more than 3.0% but not more than 7.0%. (Not frostproof, not recommended for outdoor applications)
Non-Vitreous	Tiles absorbing more than 7.0%. (Not frostproof, not recommended for outdoor applications)

Break Strength, ASTM C648-04

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.

Somertile recommends 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.

Chemical Resistance, ASTM C650-04

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.

PEI Rating/Abrasion Resistance, ASTM C1027-99

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) Suitable for light-duty residential floors, bathrooms and bedrooms without direct access from outside; no scratching dirt can be present (no exterior access entrances)

PEI 2: (Residential) Suitable for all interior walls and light foot traffic such as powder rooms and areas subject to soft-soled footwear or normal footwear traffic with small amounts of scratching dirt (i.e. rooms in the living areas of homes except kitchens, entrances and other areas that may be subjected to high foot traffic).

PEI 3: (Heavy Residential or Light Commercial) Suitable for medium-duty residential floors including kitchens, halls, corridors, balconies, terraces and areas used more often with normal footwear and small amounts of dirt. Examples may include residential kitchens and hallways with limited traffic from the outside.

PEI 4: (Commercial) Suitable for heavy-duty residential and commercial kitchens, entrances, hotels, exhibition and sales rooms with some dirt conditions.

PEI 5: (Heavy Commercial) Suitable for both residential and high-traffic commercial use, including extra heavy-duty floors and areas subject to heavy pedestrian traffic over sustained periods with some dirt such as shopping centers, airport concourses, public walkways and industrial applications.