

TILE SPECIFICATIONS STANDARDS & REGULATIONS

PORCELAIN/CERAMIC TEST RESULTS

This tile has been tested by the Tile Council of North America with DCOF AcuTestSM, a new industry standard used to measure dynamic coefficient of friction (DCOF). DCOF AcuTestSM assesses a product's suitability for the commercial environment and the specific usability needs of the application.

A Measure of Friction

Friction is the force that resists the sliding motion of one surface against another. Contaminants, such as liquids, can alter the measurement of friction. There are two types of friction: static (SCOF) and dynamic (DCOF). SCOF is the ratio of forces necessary to start two surfaces sliding. This is what the former American Society for Testing and Materials (ASTM) C1028 static test measured. DCOF is the ratio of forces necessary to keep two surfaces sliding.

Industry Testing

The DCOF AcuTestSM because it's the most accurate method for determining whether or not a product is suitable for a commercial environment.

- Similar to measuring the speed of a car in both mph and kph, friction can also be measured on two scales (DCOF and SCOF). The new 0.42 wet (DCOF) is replacing the old reference of 0.60 COF wet, which has long been the benchmark for friction in commercial applications.
- The new, more stringent DCOF AcuTestSM uses a portable robot that, unlike ASTM C1028, gives realistic values on very smooth surfaces.

Water Absorption, ASTM C373-88

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

Impervious	Tiles exhibiting 0.5% or less.
Vitreous	Tiles exhibiting more than 0.5%, but not more than 3.0%.
Semi-Vitreous	Tiles exhibiting more than 3.0%, but not more than 7.0%.
Non-Vitreous	Tiles exhibiting more than 7.0%.

Scratch Hardness – Mohs Scale Ratings

The relative hardness of glazed tile is an important issue that should be addressed when selecting a tile. The test is performed by scratching the surface of the tile with different minerals and subjectively assigning a "Mohs Scale of Mineral Hardness" number to the glaze. The softest mineral used is talc ("1" rating)—the hardest is a diamond ("10" rating). Other minerals of varying hardness providing Mohs Scale of Mineral Hardness values of 5 or more are suitable for most residential floor applications. A value of 7 or greater is normally recommended for commercial applications.

Breaking Strength Porcelain Tile, ASTM C648-04

Ceramic 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. A force is applied to an unsupported portion of the tile specimen until breakage occurs. The ultimate breaking strength is then recorded in pounds. Final selection of

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the tile should be based upon the breaking strength and the appropriate installation method. Tile integrity is critically dependent upon proper installation. The manufacturer recommends strict adherence to industry installation guidelines set forth in ANSI A108, A118 and A136.

Chemical Resistance, ASTM C650-04

Chemical resistance is measured using ASTM C650-04. A tile sample is placed in continuous contact with a variety of chemicals for 24 hours, rinsing the surface and then examining the surface for visible variation.

SHADE VARIATIONS

Tiles range from complete consistency to a more random appearance. Here's an overview of color and shading of individual tile selections.



MONOCHROMATIC (V0) | Very uniform, monochromatic color



LOW (V1) | Consistent color within each tile and from tile to tile



MEDIUM (V2) | Color variation within each tile



HIGH (V3) | Some variation from tile to tile, and within each tile



RANDOM (V4) | Considerable variation from tile to tile

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.

Neither ASTM nor ANSI establish an industry standard identifying a minimum COF value whereby ceramic tile may be labeled "slip resistant." All Standard Grade ceramic tile products manufactured meet or exceed the requirements of ANSI A137.1. See product pages for series-specific technical data.

Abrasion Resistance, ASTM C1027-99

The durability of glazed tile is measured subjectively by observing the visible surface abrasion of the tile when subjected to the ASTM C1027-99 testing procedure. The manufacturer evaluates glazed tile recommended for floor applications using this test method which includes the following classification system:

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CLASS ZERO | Not recommended for use on floors

CLASS ONE | Light Residential

Light traffic

Residential floor coverings in areas subject to soft-soled footwear or normal footwear traffic, without scratching dirt (i.e. domestic bathrooms and bedrooms without exterior access).

CLASS TWO | Residential

Medium to Light traffic

Residential floor coverings in 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 usage).

CLASS THREE | Heavy Residential or Light Commercial

Medium to Heavy Traffic

Residential or light commercial may withstand normal footwear and regular traffic, with some dirt and/or other abrasives present in limited quantities. Tile in this class may be used in light commercial installations with limited foot traffic and with no direct access to the outside. Examples may include residential kitchens and hallways with limited traffic from the outside.

CLASS FOUR | Commercial

Heavy Traffic

Residential and commercial floor coverings subjected to considerable traffic and scratching dirt (i.e. entrances, workrooms, inns, exhibition halls, and sales rooms, as well as other rooms in public and private buildings). Floors should be adequately protected against scratching dirt at the entrances to buildings by either floor mats or some other footwear cleaning device.

CLASS FIVE | Heavy Commercial

Heavy Traffic

Heavy commercial floor coverings subject to heavy traffic with very abrasive soil.