

Materials Testing and Characterization

New Ceramic Tile Standards to Satisfy Consumer Needs and Expectations

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Keywords: Ceramic tiles, tests, standards.

Ceramic tile standards first evolved from simple manufacturing internal quality control tests, where tiles were required to have various physical properties and other characteristics commensurate with their thickness, porosity and whether they were glazed or unglazed.

The advent of larger tiles, the dominant production of porcelain tiles, very thin tiles, thick slabs, and gigantic panels has led to the need for vastly revised standards, that should better reflect consumer needs and expectations.

Although the tiles have changed and technology has enabled greater consistency, the performance requirements have hardly increased. Since a lowest common denominator approach has enabled almost all tiles to be first quality, how does one identify those tiles that are of the highest quality? Some tests depend on visual observations where capabilities vary, and bias is possible. Furthermore, since very few batches of tiles are tested, it is extremely difficult to use published ex-factory test results to discern which tiles will provide superior life cycle performance.

Reverse staining and light reflectance value are among new aesthetic test methods being developed for the ISO standards. Other test methods are being significantly revised to cater for the characteristics of large thin ceramic panels, while new tests are required for mesh backing and determining the composite performance of tiling systems.

Since consumers expect installations to remain safe and attractive, the presentation will focus on slip resistance and other test methods where the ex-factory characteristics may misrepresent the long-term performance (or appearance). Sophisticated glossmeters can calculate haze and distinctness of image values, enabling measurements of optical hazing and the establishment of classifications. However, optical hazing standardization work has yet to commence.

Tile manufacturers seeking to increase their share of the high-quality market segment might seek to use advanced testing procedures to fulfil the most demanding consumer expectations.