

Tile & Stone Installation Systems

Installing tile in steam rooms

While steam rooms are found mostly in commercial health spas, fitness clubs, hotels and cruise ships, many homeowners are installing steam showers in their homes to create spa-like bathroom suite. While this new trend can add value to a home, poorly designed steam showers can turn into costly installation nightmares.

Steam rooms are not just modified showers; these systems require special design considerations and installers who understand the requirements of this demanding installation. Steam rooms use moist heat, typically at 110°F to 114°F (43°C to 46°C) with humidity at 100% to maintain moist heat.

Steam showers are not the same as traditional showers

Steam rooms/showers have their own micro-climates including moisture, heat and steam that can tax all of the system components every time the steam is turned on. In a matter of a few minutes, the environment inside a steam shower will go from being relatively dry and cool to air that is completely saturated with heated water vapor. When this heated moist air comes into contact with the walls and ceilings – which are lower in temperature than the heated air – it causes the moisture in the air to condense into water droplets, producing a “rain forest” effect inside the steam shower. These extreme conditions require that the entire tile assembly perform at elevated temperatures and high moisture content, as well as accommodating the effects of thermal expansion and contraction every time that the steam room/shower is turned on and cooled down after use.

When improperly designed, a steam room/shower can require unscheduled maintenance and even costly repair issues such as mold growth in addition to failure of the wall, floor and ceiling assemblies. Improperly pitched ceilings can cause water to drip on occupants. All horizontal applications like seats, shelves and curbs must also be sloped to drain. Waterproofing should be applied to the entire installation – floors, walls and ceilings. While steam showers can add value to a home or business, a poorly designed or installed steam room/shower can cause someone’s investment to quickly go “down the drain.”

Consider the “perm rating”

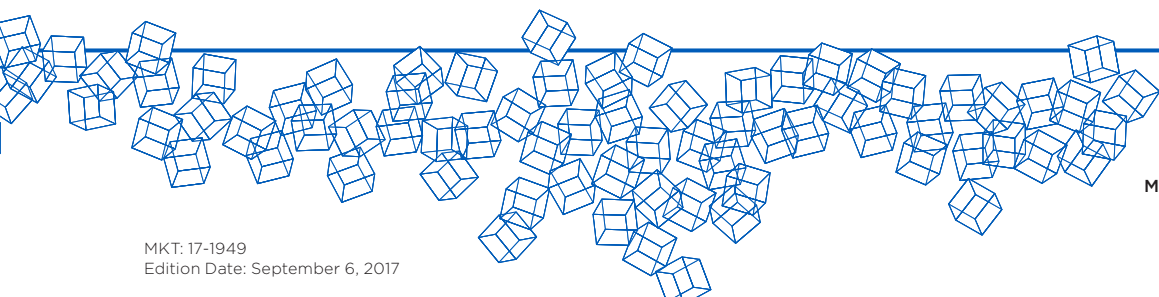
Why is “perm rating” important when selecting the waterproofing components and designing the steam room/shower? The perm rating is a standard measure of the water vapor permeability of a material. The higher the number, the more readily water vapor (in the gaseous state) can diffuse through the material.

For a steam room to perform successfully, it is critical that the materials adhere to tile industry standards such as the most current Tile Council of North America (TCNA) Handbook or the Terrazzo Tile and Marble Association of Canada (TTMAC) Specification Guide 09 30 00, Tile Installation Manual... in addition to all local, state/provincial and city codes pertaining to steam rooms/showers.

The TCNA detail methods SR613 and SR614 (as well TTMAC’s details 321SR A and B) for steam shower installations require the use of a bonded waterproofing membrane between tile and substrate, with a “perm rating” of 0.5 perm or less. Or, if the perm rating is higher, a secondary membrane is required behind the tile substrate. This permeance rating of 0.5 perm or less is tested using ASTM E96’s Procedure E (“Standard Test Methods for Water Vapor Transmission of Materials”) to try simulating the moisture (vapor) conditions that will affect components in a steam room/shower. Selecting waterproofing that meets ASTM E96’s Procedure E requirements per the Desiccant Method at 100°F (38°C) and 90% relative humidity provide the added protection needed in conjunction with the other system components for optimum design parameters. MAPEI’s *Mapelastic® AquaDefense* is the perfect installation product for steam showers because it meets the requirements of ASTM E96’s Procedure E.

While a steam room/shower can add value, an improperly designed steam room/shower can be a costly reminder of the damage that moisture, heat and steam can cause to a tile or stone installation. Using the right installation materials, understanding the level of detail involved and executing the installation properly (in short, doing it right the first time) will help the owner of a steam room/shower to enjoy years of service.

For the most current installation instructions, technical data sheets and safety data sheets, visit MAPEI’s Website at www.mapei.com.



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