

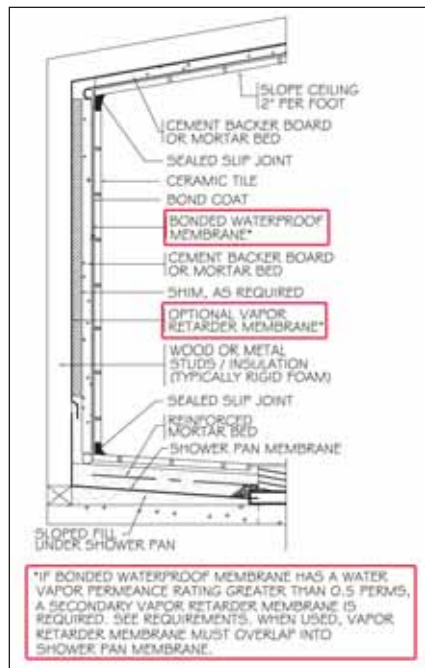
Membranes in steam showers: Better clarity on a foggy issue

After several years of consideration, the *TCNA Handbook* Committee determined new guidelines for waterproof membranes used on walls in continuous-use steam showers to limit the amount of unintended moisture vapor transmission

by Stephanie Samulski, Project Manager
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The *2013 TCNA Handbook* contains new guidelines for waterproof membranes used on walls in continuous-use steam showers. Now, steam shower installation methods SR613 and SR614 require the use of a bonded waterproof membrane, between tile and substrate, with a water vapor permeance, or “perm rating,” of 0.5 perms or less. Or, if the perm rating is higher, a secondary membrane is now required behind the tile substrate.

The perm rating is the amount of moisture vapor that a membrane allows to pass through in a given time under a given pressure, and the new requirements are aimed at limiting the amount of moisture vapor allowed to escape steam showers through the walls. This is particularly important where steam showers are run continuously, such as those found at fitness clubs and hotels. In addition to adding guidelines on perm ratings and secondary membranes, the Handbook Committee also voted to require a specific test method for measuring the perm rating: ASTM E96 Procedure E, tested at 90% relative humidity.



Due to new guidelines, TCNA Handbook steam shower installation methods now require either a bonded waterproof wall membrane with a water vapor permeance (perm rating) of 0.5 perms or less, or use of secondary vapor retarder membrane.

The TCNA Handbook Committee has been considering this issue for several years, seeking to limit the amount of unintended moisture vapor transmission from steam showers because of the damage it can do to surrounding building materials. For example, for steam showers with stud framed walls, excessive vapor transmission can damage the wood or metal framing members, the drywall attached to the opposite side of the wall cavity, and any wood subflooring or other nearby moisture-affected materials. For steam showers with masonry walls, finishes on the other side of the shared wall can be affected; for example, paint, rubber floor base, epoxy coatings and tile adhered with mastic.

Previously, the steam shower methods contained helpful guidance for the design professional, stating that the waterproof membrane on the walls “must adequately limit vapor transmission into adjacent spaces and building materials, according to intended duration of use as a steam room ... some waterproof membrane manufacturers require use of a vapor

retarder membrane in addition to the waterproof membrane.” Put more simply: the more steam, the more critical the wall system design. But a maximum perm rating was not provided, the test method for measuring perm rating was unspecified, and the need for a secondary membrane behind the tile substrate was left to membrane manufacturers to determine. Without more definitive guidance, hesitation and uncertainty on the part of design professionals was common, particularly in light of conflicting recommendations from membrane manufacturers.

Taken all together, the new requirements make it easier for design professionals to make apples-to-apples comparisons of membranes with regard to perm rating and to more confidently design steam showers, which are considered by many to be inherently challenging to design. This sentiment is partly due to the potential for high replacement costs if a steam shower fails — the high ticket tile and fixtures often found in and around steam showers and any damaged structural materials. And in the case of steam showers, design or installation problems generally don't occur until the facility is open for business. So, while the square footage of the tiled area affected by the new requirements is small, their objective — protecting the building — is of inestimable value.

The recent changes to the methods, then, are sure to be hailed as welcome improvements. Still, when designing steam showers, there is much left for the design professional to consider outside the *Handbook's* jurisdiction: dew point, insulation requirements and climatic conditions can affect the design, just to name a few. For these specialized design considerations, industry consensus has been clear for years; a design expert is a must. And once an appropriate specification has been crafted, care should be taken to select qualified, perhaps specialized, installation contractors; the execution and success of the design is in their hands, literally. **TILE**

ABOUT THE AUTHOR



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