



# Tile Installation over Concrete with Elevated Moisture Vapor Emission Rates

## DATE

December 2025

## RECOMMENDATION

When installing ceramic tile or natural stone over concrete substrates with elevated moisture vapor emission rates, TEC® HydraFlex™ Waterproofing Crack Isolation Membrane, Roll-On Crack Isolation Membrane, 1Flex® and 1Flex® Fast Set are approved for installations over concrete slabs with rates up to a maximum of 12 lbs./1000 sq. ft./24 hours when measured in accordance with ASTM F1869 or 90% relative humidity per ASTM F2170. For installations with MVER between 12 and 25 or with a maximum relative humidity of 100%, use TEC® LiquiDam™ Penetrating Moisture Vapor Barrier. See the LiquiDam product data sheet for installation details.

## Discussion

Moisture vapor emission rate is the rate that moisture vapor escapes from the slab. Liquid water is typically not visible on the concrete's surface. The moisture source may be from mixing water used to make the concrete, ground water below the concrete or from water introduced into the slab.

The amount of moisture vapor emitted can have an impact on the success of a flooring installation. The two most accepted methods for measuring MVER are the following; Calcium Chloride Test (ASTM F1869 method for testing procedures) and Relative Humidity/RH (ASTM F2170 method for testing procedures), find information on methods at [www.astm.org](http://www.astm.org). Test kits or equipment are available from various companies like; Vaprecision, Inc., [vaportest.com](http://vaportest.com) (Calcium Chloride), Wagner Rapid RH, [wagnermeters.com](http://wagnermeters.com) (Relative Humidity) or others listed on the internet.

Hydrostatic pressure on a concrete slab is different from moisture vapor pressure. Hydrostatic pressure is a force that is exerted by liquid water. Negative side hydrostatic pressure is evident by the observation of liquid water (that has migrated from below the concrete) to the top of the slab. Sources of negative hydrostatic pressure include a high water table, a broken or leaking water pipe within the slab or standing water adjacent to the slab. Ceramic tile or stone should not be installed over concrete with a negative side hydrostatic pressure issue. A qualified design professional should be consulted to address methods to drain the water away from the installation.

Positive side hydrostatic pressure is described as pressure from water sitting on the slab's surface (e.g. the floor of a filled swimming pool). TEC HydraFlex Waterproofing Crack Isolation Membrane is recommended for positive side hydrostatic pressure protection.

## Questions?

Call the Technical Support Hotline at 1-800-832-9023.

This Technical Bulletin has been prepared in good faith on the basis of information available at the time of publication. It is intended to provide users with information about and guidelines for the proper use and application of the covered TEC brand product(s) under normal environmental and working conditions. Because each project is different, TEC Specialty Products LLC cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

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