

# UNCOUPLING MEMBRANES AND POLYMER-MODIFIED MORTARS IN TILE INSTALLATIONS

---

There is a misunderstanding that a polymer-modified mortar will not cure under porcelain tile when installed over an uncoupling membrane. This is not true. The hydration of the Portland cement and increased mortar strength will occur whether it is exposed to air or in a sealed container.

As the Portland cement reaction consumes the mix water, the polymer will begin to coalesce and form an adhesive film that will improve the bond of the mortar to glassy and plastic surfaces. Free water in the mortar mix will migrate out at the edges of the tile and assembly and further increase the adhesive strength. Strength build up of the mortar will be slowed, but for many mortars it is more than adequate to secure the tile. The hydration of Portland cement continues forever and the bond strength will continue to improve over time.

## So why select a polymer-modified mortar?

The Tile Council of North America (TCNA) recommends the use of a polymer-modified mortar meeting the requirements of ANSI A118.4 or A118.15 to install porcelain tile. Most porcelain tile manufacturers agree that it is best to use a polymer-modified mortar meeting the requirements of ANSI A118.4 or A118.15 for the installation of true porcelain tile. TCNA also recommends using a polymer-modified mortar meeting ANSI A118.4 or A118.15 when installing ceramic tile over a waterproofing membrane, which includes many uncoupling membranes. The use of a polymer-modified mortar meeting ANSI A118.4 is also recommended for the installation of many types of natural stone tile.

## What bond strength is required?

The minimum bond strength to porcelain tile of a polymer-modified mortar meeting the requirements of ANSI A118.4 to porcelain tile is 200 psi and 400 psi for a mortar meeting ANSI A118.15 after 28 days curing. The minimum bond strength of a non-modified mortar meeting ANSI A118.1 to porcelain tile is only 150 psi after 28 days. An A118.4 mortar meets the ANSI A118.1 requirements of bond strength to porcelain tile in less than 7 days when installed in the lab to impervious porcelain tile. Cure rate should not be a factor in selecting a mortar when an uncoupling membrane is used in the tile installation.

## Polymer-modified mortar is most effective.

Ceramic tile has been successfully installed over impervious waterproofing membranes for decades with polymer-modified thin set mortars manufactured by Custom Building Products. We are confident that ceramic tile, including porcelain, can be installed over uncoupling membranes with our polymer-modified mortars and put into service in normal time frames.

CUSTOM RedGard® Uncoupling Mat was developed to work with our polymer-modified mortars meeting ANSI A118.4 or A118.15 with outstanding results. RedGard Uncoupling Mat meets the requirements of ANSI A118.10 for waterproofing and the requirements of ANSI A118.12 to isolate the tile from cracks in the substrate.

CUSTOM manufactures a full system of tile installation products that are formulated to work together. When RedGard Uncoupling Mat is installed as a system with an eligible mortar and grout, the tile assembly can qualify for up to a Lifetime System Installation Warranty. When selecting an uncoupling membrane for your tile project, consider using a polymer-modified mortar to ensure a tenacious bond that will last for years.

If you have questions, CUSTOM's highly qualified technical service staff can help with specific installation inquiries based on the jobsite conditions, the materials and the products being used.

The information in this bulletin is presented in good faith, but no warranty, express or implied, is given nor is freedom from any patent in as much as any assistance furnished by CUSTOM with reference to the safe use and disposal of its products provided without charge. Custom Building Products assumes no obligation or liability therefore, except to the extent that any such assistance shall be given in good faith.



Technical Bulletin

Technical Services 800-282-8786  
[custombuildingproducts.com](http://custombuildingproducts.com)