

CRACK ISOLATION MORTARS

Can a polymer-modified thin-set mortar be used to isolate cracks in a concrete floor from telegraphing through the tile installation? Most of this confusion stems from the terminology used to describe the crack movement.

Answer:

Some mortars can isolate the crack from the installed tile.

STATIC CRACKS

A static crack does not move; it was formed in the concrete as it cured and shrinkage of the cement occurred. Once these crack form the opening will remain the same, static, for the life of the installation. **Most polymer-modified mortars can be used over these non-moving cracks without concern.**

IN-PLANE SLAB MOVEMENT

If there is further movement in the concrete slab, shrinkage or thermal expansion and contraction, it will normally occur at an existing crack or along a control joint. This movement will be in the plane of the concrete slab and can oscillate back and forth; particularly in the case of thermal expansion. Generally this movement is 1/32" to 1/8" (.8 to 3 mm), but can be as much as 1/4" (6 mm). **Highly polymer-modified mortars have been designed to prevent this movement from transferring to the tile installation and cause the propagation of a crack in the tile.**

VERTICAL SLAB MOVEMENT

There is also vertical movement at an existing crack or control joint. This usually occurs from movement of the earth below the concrete slab. Polymer-modified thin-set mortars will not isolate this type of movement from the tile.

SUMMARY

It is important to analyze the wording used by the thin-set mortar manufacturers to determine the ability of the mortar to isolate the crack from the installed tile. Mortars that specify they can be used over static cracks should not be used if you suspect movement from further shrinkage or thermal expansion and contraction.

TESTING METHODS

Since there is not a standard laboratory test to quantify the width of a crack that a mortar can isolate, most manufacturers have developed intuitive testing. Several tests have been developed to simulate a crack in the slab with extrapolation to 1/16" or 1/8" (1.6 or 3 mm). Many US manufacturers rely on the amount of movement of a dense tile to the substrate before shear bond failure to gauge the amount of movement the mortar can control. This method assumes that the tile will shear off before the tile cracks. This is true if the strength of the tile is greater than the force of the crack opening; if not the tile will crack. Generally speaking, more polymer-modification and higher bond strengths will isolate normally expected movement in a concrete slab from the installed tile.

Note: Expansion joints or control joints should never be bridged with setting material.

RELATED PRODUCTS

MegaLite® Crack Prevention Mortar
 MegaFlex® Crack Prevention Mortar
 FlexBond® Crack Prevention Mortar

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