

Frequently the question is asked, "*How soon after concrete is placed can we install ceramic or stone tile using a cement based adhesive (thin-set mortar)?*"

ANSWER: Using a premium LATICRETE® Latex Mortar, tile installations can be made as soon as it is possible to walk on the concrete.

Basic requirements for applying tile on concrete must be observed:

1. Concrete should have a wood float finish or light steel trowel finish.
2. No curing compounds, sealers or coatings shall be applied to the concrete.

**QUESTION:** *WHAT IS THE MAXIMUM ALLOWABLE HUMIDITY OR MOISTURE CONTENT IN A CONCRETE SLAB FOR INSTALLATION BY PORTLAND CEMENT BASED ADHESIVES (THIN SET MORTARS)?*

**ANSWER:** There is no maximum or limit to the moisture content when the installation is made with LATICRETE 254 Platinum Multipurpose Thin-Set Mortar or LATICRETE 4237 Latex Thin-Set Mortar Additive and LATICRETE 211 Crete Filler Powder or LATICRETE 272 Premium Floor N' Wall Thin-Set Mortar fortified with LATICRETE 3701 Mortar Admix.

**BACKGROUND INFORMATION:**

Many manufacturers of cement adhesive mortars realize that these mortars are hard, inflexible and very rigid. Therefore, they state that ceramic tile should not be installed until concrete slabs are at least 28 days old. This is based on their reasoning that after 28 days, concrete is cured and has finished shrinking. *This is a common fallacy*, although concrete will develop 80-90% of its ultimate strength during the first 28 days at room temperatures (70°F/18°C). After 28 days, concrete may not have gone through the maximum shrinkage cycle. Shrinkage is due to the loss of excess moisture in the concrete. This water is introduced during the mixing and the placement of the concrete because concrete requires 15-20% more water to place and make fluid than is necessary to actually hydrate or harden the cement content. As a result, most concrete has excess water when placed. When the concrete dries, which may be within the first 28 days or maybe as long as 6 or 8 months later, shrinkage will occur from the loss of excess moisture.

Controlled experiments have confirmed that the maximum amount of shrinkage occurs during the drying out period (loss of excess moisture). When concrete is placed directly on the earth which contains moisture or if it is placed during cold weather, in a building without heat, the bulk of the moisture may remain in the concrete until the building is totally enclosed, with the heat or air-conditioning turned on. At that time excess moisture will evaporate from the concrete. It is during the loss of bulk of moisture that most of the shrinkage occurs.

*Therefore, major shrinkage does not necessarily occur in the first 28 days after concrete is placed.* The shrinkage of the concrete results in a strain on the hard cement adhesive that results in a stress at the adhesive to tile layer. When this force exceeds the bond strength of the mortar, the mortar breaks bond. When a premium LATICRETE Latex Additive is used in cement adhesives, the mortar is flexible, not rigid. Therefore, the mortar can move internally to relieve the strain or the shrinkage movement so there is no stress or force transmitted to the back of the tile trying to break the bond to the tile. The result is that LATICRETE installations can accommodate concrete shrinkage whether it occurs in the first 28 days or in the months after installation.

**CAUTION:**



All normal cautions for good installations of ceramic or marble tiles by the adhesive method (thin set method) must be observed when installing on fresh or old concrete.

1. Concrete should be clean and free of contamination, curing compounds or sealants.
2. The preferred finish should be a wood float finish or light steel trowel finish.
3. Concrete can be one day old, one month old or one year old and will provide a suitable surface for installation of tile using a premium grade LATICRETE Latex Thin-Set Mortar.

#### CURING COMPOUNDS:

The general rule is that there should be no curing compounds or sealers on the concrete because this will interfere with the direct adhesion of any adhesive mortar to the concrete.

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