



Hot Weather Tiling and Grouting

TDS 176

Conventional portland cement tile-setting beds, thin-set mortars, cement plasters and stuccos are often permanently damaged when subject to hot, dry temperatures or desert climates immediately after installation. High temperatures remove the water content of the mortar required for portland cement hydration, curing and strength development. In addition, rapid drying often causes mortar to crack, crumble or lose bond. Waterproofing membranes, anti-fracture membranes, epoxy adhesives, epoxy grouts, epoxy waterproofing membranes, and most other products will also be affected by hot working temperatures. Flash setting and reduced working time can result. It is important to note that surface temperature is more important than air temperature. Therefore, monitor the surface temperature of the installation.

There is a simple rule to follow when an installation is subjected to high temperatures: **The 18° Rule** – for every 18°F above 70°F (10°C above 21°C), portland cement and epoxy-based materials take half as long to cure.

The use of premium polymer-fortified adhesive mortars (e.g. 254 PLATINUM™, 254 PLATINUM Plus or MULTIMAX™ Lite, MULTIMAX 1) allows installations to be made at higher temperatures, because they have longer working properties. Adding 3701 Mortar Admix in non-polymer fortified thin-sets (e.g. 317 Mortar), plasters, stuccos and other portland cement mortars allow work to continue in hot weather without costly delays or damage. Installations can be made in temperatures as high as 90°F (32°C) under normal circumstances.

LATICRETE® premium polymer-fortified mortars are less affected by high temperatures and thermal shock after placement and eliminate the need for wet curing. Rapid setting materials will provide far greater challenges when working in high temperatures and should be used with caution.

LATICRETE membranes will have similar limitations when working at high temperatures; all require a maximum substrate temperature of 90°F (32°C) or less for installations.

General tips for working in hot temperatures:

1. For best results, always ship and store installation materials at the recommended temperatures as stated on each product's data sheet to extend the shelf life and working time. Storing products in air-conditioned spaces 12 to 24 hours prior to installation will extend working times. Do not store products in direct sunlight. If installation materials are too warm, they should be cooled to the specified temperature range for that specific product.
2. Dampen or wet down substrate surfaces to not only clean the area, but to lower the temperature and lower the absorption rate of the substrate. Sweep off excess water just before membrane or mortar is applied. This step will extend the working time of the installation materials.
3. Use cool or cold water to mix mortars. Never use hot or warm water when mixing any tile installation materials.
4. Due to the rapid rate of moisture loss and portland cement dehydration at temperatures >90°F (>32°C), cover installations with polyethylene sheeting for 1-2 days to allow curing at a more normal rate.
5. Low humidity also accelerates the curing process.
6. Tent off or provide shade when working in direct sunlight
7. Work during cooler periods of the day (e.g. early morning)

Tips for grouting in hot temperatures:

1. Store grouting materials at 40° - 90°F (5° - 32°C) to extend the shelf life, pot life and working time. Do not store products in direct sunlight. If installation materials are too warm, they should be cooled to the specified temperature range for that specific product 24 hours prior to the start of grouting.
2. Dampen or wet down substrate surfaces to not only clean the area, but to lower the temperature and lower the absorption rate of the substrate.
3. Always clean the mixing pail before mixing a fresh batch of grout. Left over grout in the pail (on bottom and sides) can accelerate the setting of freshly mixed grout.
4. Mix cement grouts with clean cool water. This step will extend the pot life and open time of cement grouts.
5. Remix cement grouts after ~15 to 20 minutes (after initial mixing, 5 minutes of slaking / remix and use) to an even consistency to prolong pot life.
6. Tent off areas of work to provide shade when working in direct sunlight.
7. Work during cooler periods of the day (e.g. early morning).

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LATICRETE International, Inc ■ One LATICRETE Park North, Bethany, CT 06524-3423 USA ■ Tel 1.203.393.0010 ■ Toll Free 1.800.243.4788 ■ Fax 1.203.393.1684 ■ laticrete.com