Portland Cement Mortar Bed Troubleshooting Guide

TDS 204

Complaint	Cause(s)	Prevention	Potential Solutions
Mortar Bed Cracking	1. Lack of the required slurry bond coat in a bonded mortar bed. 2. Lack of wire reinforcing in a un-bonded mortar bed. 3. Insufficient thickness of the unbonded mortar bed. 4. Slurry bond coat dried before placement of mortar bed. 5. Contaminated concrete slab under a bonded mortar bed.	1. Use a slurry bond coat to bond the mortar bed to concrete slab 2. Wire reinforcing is required for un-bonded mortar beds. 3. Adhere to LATICRETE recommended minimum thickness for unbonded mortar bed installations – 2" (50 mm) 4. Ensure that slurry bond coat remains wet and tacky. 5. Mechanically scarify the concrete slab to remove any contaminants, or use an un-bonded, wire reinforced, mortar bed.	1. Use 254 Platinum, 257 TITANIUM™ or MULTIMAX™ LITE and mix to a "wet" consistency. 2. Use 2" x 2" (50mm x 50mm), 16 gauge, welded, galvanized wire mesh halfway through the total mortar bed thickness. 3. 2" (50mm) minimum thickness in unbonded mortar bed installations. 4. Use 254 Platinum, 257 TITANIUM™ or MULTIMAX™ LITE and mix to a "wet" consistency; do not allow it to dry out. Re-apply if the slurry coat dries. 5. Mechanically scarify the concrete slab to remove any contaminants or use an unbonded, wire reinforced, mortar bed.
Hollow Sounding Mortar Bed	1. Lack of the required slurry bond coat in a bonded mortar bed 2. Mortar bed installed over a "green" concrete slab 3. Improper placement of expansion joints 4. Concrete slab has been sealed 5. Excessive contamination of the concrete slab not allowing proper bond of the mortar bed to the substrate 6. Improper compaction of mortar at the time of installation	1. Use a slurry bond coat to bond he mortar bed to concrete slab 2. Allow concrete slab to reach a sufficient cure for tile/stone installations. 3. Ensure that expansion joints are present in the slab where required. 4. Ensure that concrete slab is structurally sound and free of all concrete sealers or curing compounds. 5. Ensure that concrete slab is structurally sound and free of any concrete sealers, curing compounds, grease, wax, oil, dirt, etc. 6. Ensure mortar is fully compacted at time of placement.	1. Use 254 Platinum, 257 TITANIUM™ or MULTIMAX™ LITE and mix to a "wet" consistency. 2. Allow concrete slab to cure for a minimum of 28 days at 70˚F (21˚C). 3. Follow recommendations found in the TCNA Handbook for Ceramic Tile Installation EJ171. 4. Mechanically scarify the concrete slab (e.g. bead-blasting, shot-blasting, coarse grit sanding, etc). 5. Mechanically scarify the concrete slab (e.g. bead-blasting, shot-blasting, coarse grit sanding, etc). 6. Mortar mix should be of such a consistency and workability that it allows for maximum compaction during placement. Firmly compact and screed mortar bed.

Weak or Friable Mortar Bed Surface (3701 Fortified Mortar)	1. Improper compaction of mortar at the time of placement. 2. Mortar bed surface dried out too fast (due to exposure to heat/sun/ wind, etc.) 3. Too lean a mix – using weak site mixed mortar beds.	1. Ensure mortar is sufficiently compacted during placement. 2. Work at cooler periods of the day. Shade the areas from direct sunlight. Shield the areas from the wind. Damp cure mortar bed during hot or arid periods. 3. Use 3701 Fortified Mortar Bed in lieu of site mixed portland cement and sand.	1. Mortar mix should be of such a consistency and workability that it allows for maximum compaction during placement. Firmly compact and screed mortar bed. 2. Mortar bed should be allowed to cure at an even rate. Use potable water as the gauging liquid. Cover/ damp cure mortar bed with non-staining Kraft paper or polyethylene sheeting during hot or windy conditions. 3. For best results, use potable water.
Weak or Friable Mortar Bed Surface	1. Improper compaction of mortar at the time of placement. 2. Mortar bed surface dried out too fast (due to exposure to heat/sun/ wind, etc.) 3. Too lean a mix – using weak site mixed mortar beds.	1. Ensure mortar is sufficiently compacted during placement. 2. Work at cooler periods of the day. Shade the areas from direct sunlight. Shield the areas from the wind. Damp cure mortar bed during hot or arid periods. 3. Use 3701 Fortified Mortar Bed, 3701 Lite Mortar or 3701 Lite Mortar R in lieu of site mixed portland cement and sand. 4. If a site mixed mortar bed is to be used, gauge with 3701 Mortar Admix.	1. Mortar mix should be of such a consistency and workability that it allows for maximum compaction during placement. Firmly compact and screed mortar bed. 2. Mortar bed should be allowed to cure at an even rate. Use 3701 Fortified Mortar Bed, 3701 Lite Mortar or 3701 Lite Mortar R. Cover/damp cure mortar bed with non-staining Kraft paper or polyethylene sheeting during hot or windy conditions. 3. Avoid improper mix ratios, variations in aggregate size and quality by using a proprietary mortar at mix. 4. For best results, use 3701 Mortar Admix mixed with 226 Thick Bed Mortar when field mix mortars are required.
Mortar Bed Curling on Edges	1. Mortar bed surface dried out too fast (due to exposure to heat/sun/ wind, uneven curing, etc.)	1a. Ambient air temperature is too hot for the installation of mortar bed to take place 1b. Excess of moving air during the installation of mortar bed. (e.g. fans, HVAC ducts blowing over surface of mortar bed, etc…) 1c. Exposure to direct sunlight	1a. Control environmental conditions during the installation period or damp cure and cover mortar bed with non-staining Kraft paper or polyethylene sheeting. 1b. Minimize moving air during installation period (e.g. lower or shut off fans and HVAC, close windows if excessive air is blowing in from outside, etc…) 1c. Shade mortar bed from direct sunlight during installation and initial cure period.

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