

Mapefloor™ CPU: Contractor Repair Instructions

Mapefloor CPU flooring systems are designed to be extremely durable, abrasion-resistant and attractive. Still, floor surfaces are exposed to the greatest degree of wear of any building surface. A degree of preventative maintenance is required to protect your investment in the new floor surface. A regimen of routine cleaning and conscientious personnel awareness will extend the service life of the new floor.

The service life of a *Mapefloor CPU* flooring system is very much dependent on loads and traffic intensity that the floor is subjected to, periodic visual inspections and scheduled maintenance, including a cleaning regimen, ice removal from blast freezers and refrigeration rooms, and repairs to both the flooring system and concrete substrate. For guidelines and conditions not listed, consult ACI 548.5R-16 ("Guide for Polymer Concrete Overlays"), ACI 503.3 ("Standard Specification for Producing a Skid-Resistant Surface on Concrete by the Use of a Multi-Component Epoxy System"), and the International Concrete Repair Institute guide "Design, Installation and Maintenance of Protective Polymer Flooring Systems for Concrete."

Inspections

On walk-through inspections, observe and document the general appearance and cleanliness of the installed coating, giving particular attention to heavy-wear areas such as loading bays, areas subject to hot liquid or chemical discharge, corners, ramps and turn lanes. These inspections will form the basis for any preventive maintenance required and should be performed monthly (or semi-annually at minimum) or with greater frequency should the environment require it.

Monthly inspections should include visual assessment of any physical damage to the *Mapefloor CPU* flooring system, which should be documented and repaired quickly to prevent further damage or as deemed necessary. A semi-annual inspection should be more comprehensive and include, but not be limited to, the following:

- Watch for proper flow of water to drains, culverts or scuppers. Identify any stained areas, indicative of standing water, particularly in freeze/thaw environments. Inspect from the underside, if possible, for evidence of cracks or leaks.
- Inspect all existing penetrations and expansion joints to ensure that they are properly sealed and that there is no loss of elastic properties or separation from adjacent substrates.

- Observe critical deck junctures, such as parapet and building walls, curbs, columns and plinths to determine whether any excessive structural movement may have caused cracking in the *Mapefloor CPU* flooring system.
- Look for any wear, tears, cracks or loss of adhesion in the topcoat. Determine whether the membrane or body coat is affected or compromised. Observe and document whether any low spots exist where ponding has or could occur.
- Inspect the deck coating for stains from oil, grease or other fluids. Spot-remove such stains with an appropriate cleansing method, such as a general-purpose, oil-removing compound, liquid detergents or bleaching solutions. Firmly scrub the affected areas to remove all contaminants. Limit the use of compounds containing high amounts of volatile organic compounds (VOCs).
- Clean the installed *Mapefloor CPU* flooring system with a 1,200-psi (or 80-bar) pressure washer and detergent solution to remove surface debris as well as any residual liquid contaminants. Start from the lowest pressure setting and gradually increase the pressure until the desired result is obtained. A stiff-bristle broom or scrubbing machine may be used for areas with excessive buildup or on areas that are difficult to clean. Rinse the floor thoroughly with clean, potable water and vacuum-dry to remove loose contaminants. Collect and dispose of effluent waste in accordance with local, state/provincial and federal regulations.

Recommendations

- Inspect the floor periodically regarding the coating's conditions and repair requirements. While the waiting time between each inspection depends on how the floor is used, annual inspections at minimum are suggested.
- Clean the surfaces – on a daily basis – that come into contact with grease, blood, food or any other material that could favor bacterial growth. Spot-remove such stains with an appropriate cleansing method, such as a general-purpose oil-removing compound, liquid detergent or bleaching solution. Make some preliminary test on a small area to confirm suitability.
- Do not clean the surface with strong abrasives, with solvents or with concentrated acid or alkali.

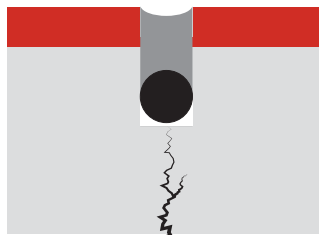
- Repair all scratches, cracks, local damages, holes, etc., as soon as possible.
- Rough surfaces, such as in sand broadcast systems, can be washed using floor-washing machines with synthetic bristles. Do not use metallic brush discs.
- Matte surfaces are in general harder to clean than glossy surfaces. The cleaning and washing of matt surfaces may require more attention and time.
- For specific contaminants that require specific detergents, conduct a preliminary test of the detergent in a small area.

Repair procedures

General items: Always try to identify the specific cause of a failure. Repeating the same system or buildup may only provide a temporary solution and the failure is likely to reoccur. Patches and partial repairs will always be visible, and the end user must be aware of the aesthetic limitations of partial interventions.

Adhesion testing: Always perform field-adhesion tests on a mockup sample before recoating an entire existing coating system. The ASTM D4541 test for pull-off strength is a good standard for measuring adhesion, particularly if there is a question of compatibility between two different coating systems.

Reflective cracking: The cause of reflective cracking is movement of the substrate. This becomes evident on the surface of the coating, generally appearing when expansion joints or contraction joints subject to movement are coated over.



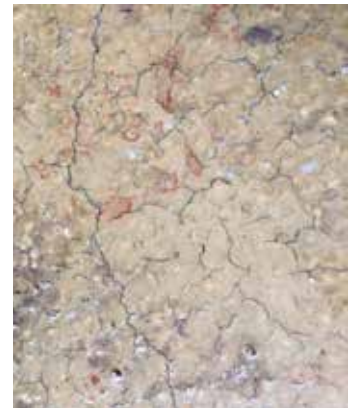
Surface cracks: The cause for cracks on the surface may be the lack of or undersize of anchorage grooves, which cause curling of the screed and its fracture as traffic moves over it. Routinely inspect the existing coating for reflective cracks, or cracks occurring directly over underlying cracks or joints. Remove any unbonded



coating along the length of the crack. Tape over the edges of the intervention area. Rout out the crack with a rotary disc, clean the crack walls with a solvent and bevel the edge of the bonded coating alongside the crack. Caulk the joint with a

polyurethane sealant that is flush with the concrete surface. Alternatively, for a rigid seal, *Mapefloor CPU TC* or *Mapefloor CPU MF* could be applied by using a spatula to push the product well into the opened crack. In the case of sand broadcast systems, the same procedure is applicable, but a sand broadcast onto a *Mapefloor CPU SB* or *Mapefloor CPU MF* screed can be done to approximate the original finish. Apply according to the recommendations in the corresponding product's Technical Data Sheet.

Surface crazing: The most probable cause of surface crazing is the modification of the mixing ratio of Part A, Part B, Part C and *Mapecolor™ Paste*, which results in inadequate product performance. This crazing allows possible penetration of liquids into the screed and eventually into the substrate. Repair by shotblasting, milling or scarifying the surface and reapplying a properly mixed *Mapefloor CPU* coating.



Coating delamination: The most probable cause for this problem is a lack of, or undersized, retaining grooves. Other possibilities are insufficient substrate texture (a concrete surface profile, or CSP, that is too low) and insufficient thickness of the screed for the prevailing thermal stress in that environment. Remove any loose, unbonded coating and inspect the concrete surface as well as the back of the delaminated coating. Check the concrete surface for soundness and the back of the delaminated coating to determine the cause of delamination. Typically, poor or inadequate surface preparation, surface cleanliness, or a missed open-time window on the primer or the basecoat could account for the failure. After determining the cause and appropriate corrective measures, proceed with re-application of the buildup with the correct CSP or product thickness.

Blistering: There are five possible causes for blistering on screeds:

- Aged Part C, which is unable to absorb the gases generated by the reaction of Part A and Part B. These gases form generalized blisters over a large area and are usually small in diameter.
- Outgassing from the substrate, which when heated by the exothermal reaction results in localized large blisters about 1" to 3" (2,5 to 7,5 cm) in diameter and occasionally three cracks at 120 degrees radiating from a single point.
- Presence of liquid water on the substrate when the *Mapefloor CPU* screed or scratchcoat was applied.
- Coating over the scratchcoat too soon after its application. Allow about 24 hours at 68°F (20°C) before applying the body coat.
- Application of the screed in warm or windy areas, which can cause a skin to form over the screed, thereby preventing the elimination of the gas from the reaction of Part A and Part B. The size and location of the blisters can vary. This may also lead to the appearance of pinholes where the screed or coating is unable to close on itself after the air release.

When a concrete deck has been shotblasted, pinhole blisters may occur. The surface preparation opens up the concrete surface, creating tiny holes and air pockets. As a result, outgassing can occur anywhere in the *Mapefloor CPU* flooring system – particularly in the more fluid products, *Mapefloor CPU MF* and especially in *Mapefloor CPU TC* (due to its small application thickness). When a coating is applied and bridges these holes, the trapped air expands and causes small blisters in the coating.

Reduce the occurrence of blisters by allowing the newly mechanically prepared deck to outgas for 16 to 48 hours after preparation. For specific temperatures, see the installation guide for *Mapefloor CPU* flooring systems.

Generalized blisters will require removal of the whole surface by scabbling or milling. Occasional blisters can be individually removed by chiseling or scabbling each one.

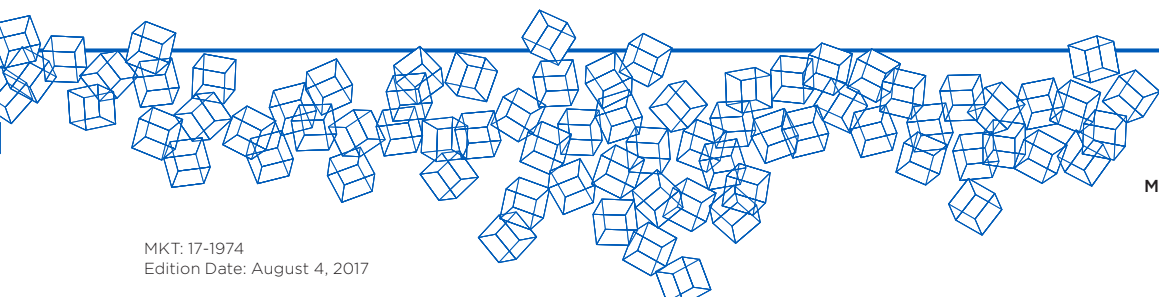
After mechanical treatment, remove dust and apply a scratchcoat or prime with *Primer SN™*. Then broadcast aggregate and, on the following day, reapply the *Mapefloor CPU* screed.

Aggregate loss and wear-through: Loss of aggregate in heavy-traffic areas – such as loading bays, discharge areas, corners, turn lanes and ramps – can be expected over time. In these heavy-traffic areas, the topcoat may begin to show wear-through and possibly delaminate from the basecoat over time.

When a *Mapefloor CPU* flooring system is worn through to an exposed concrete substrate, mechanically clean these areas with a scarifier or with shotblasting or grinding to achieve a roughened surface. Then prime the affected area, if necessary, and apply a basecoat and topcoat as required. Descend to the original concrete level to reapply in the nominal thickness. Make sure that the necessary anchoring grooves are created.

When aggregate has been lost, or when underlying coats of a *Mapefloor CPU* flooring system are exposed, reapply the body coat and re-broadcast the aggregate and seal with *Mapefloor CPU TC* as if for a normal application. Then apply the *Mapefloor* basecoat and proceed with *Mapefloor* topcoat and aggregate as outlined above.

For additional information, consult the technical documentation at www.mapei.com or your MAPEI technical representative.



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