Preparation of Concrete

Coating performance is directly affected by surface preparation. Integrity and service life will be reduced significantly if the surface is improperly prepared. Selection and implementation of the proper surface preparation ensures coating adhesion to the substrate and prolongs the life of the coating system. New concrete must be cured prior to coating. Cured is generally defined as concrete poured and aged at a suitable temperature for at least 28 days.

Examine the Surface
Prior to planning a job the contractor should survey of the concretes surface. If excessive laitance is present, this material must be removed down to solid concrete. The coating or overlay will not bond properly to the weak layer of concrete. The surface should be checked for barriers such as existing sealers, curing materials, grease, oil, efflorescence, and dirt that must be removed. In short, you want no surprises.

Test the Concrete
A "water drop" test can be used to determine if a surface is clean. Water beads on surfaces contaminated with sealers, curing compounds, oil, and grease. Water beads on surfaces that are too dense to accept a penetrating primer.

Clean Uncoated Concrete
Remove any chemicals, oil, and grease from the concrete first. Contact your Florock representative for details.

Repair Surface Defects
Grind or chip all projections from the concrete greater than 1/16 ". Remove any loose concrete, and clean and fill holes, cracks and other surface defects with an approved method. Determine if the patch should be roughened or smooth, and how long the patch needs to cure before being coated. Patch with Florock FloroGel Patch kit. In cases of severe profile where the surface needs to be restored, resurface with Florock FlorocBuild Epoxy Mortar. Contact your Florock representative for details.

Previously Painted Surfaces
If the paint is peeling or degrading in any way, it should be completely removed. If previous coating is completely intact, the surface may be cleaned with a strong detergent or solvent and scuff sanded to remove the gloss. A spot test should be made by applying a small amount of coating over old paint. The old finish may wrinkle or lift within 30 minutes. If it does not, wait five days and test for adhesion. Do this by cutting an "X" into the coating, place tape firmly over the cut, then strip with a hard, fast pull. If the old finish fails, it should be removed.

Hydrostatic Pressure
Hydrostatic Pressure (also referred to as capillarity or vapor pressure) is caused by moisture being present underneath the concrete slab. Hydrostatic pressure can cause blisters, bubbles and other effects in a resinous coating. As moisture rises, it dissolves salts in the concrete and becomes alkaline. This alkaline water attacks the resin. The results from hydrostatic pressure do not constitute product failure. We recommend that contractors include a written Hydrostatic Disclaimer in all of their contracts before beginning a job. We also recommend that contractors always test for

signs of hydrostatic problems. This will not ensure that the problem may never occur. If a problem is suspected, contact your Florock Representative to discuss preventative measures.

MVT
All slabs should be tested for MVT. In slabs that exceed the maximum test results contact your Florock Representative for options.

Acceptable Test Methods for MVT
Moisture testing using Calcium chloride test method: Perform a quantitative anhydrous calcium chloride test in accordance with ASTM-F1869 Standard. 3 pounds per 1,000 sf per 24 hours is the maximum acceptable result for this test method.

Moisture testing using Relative humidity test method: Perform a quantitative Relative Humidity test in accordance with ASTM F2170 Standard. 75% is the maximum acceptable result for this test method.

Etching
When it is determined that there is no curing membrane present, concrete may be prepared by mechanical means (see below) or by etching. Etching is done with muriatic or Phosphoric acid. Generally, one gallon of acid diluted 3:1 with water is sufficient to etch 300 square feet. This can vary depending on the quality and density of the surface. The “water drop” test must result in a penny sized damp spot in a few seconds. If not, the surface must be re-etched. When acid has ceased to fizz the result is a salt solution that must be removed and followed by a thorough rinse. Vacuum water from joints and cracks. Contact your Florock representative for details.

Several methods are available which can be used to prepare and “profile” clean, sound concrete or to remove existing coatings:

Shot Blasting
Steel shot blasting is when steel shot is centrifugally propelled at high velocity onto the surface. This process is confined in an enclosed blast chamber that recovers and separates dust and reusable shot. Shot blasting is principally used to roughen horizontal surfaces in preparation for the application of sealers, coatings, or polymer overlays. This method is also used to remove polyurethane coatings up to 10 mils thick, tile mastics, and brittle coatings such as epoxy or methyl methacrylate systems up to 1/8 inch thick. Removal of thicker materials may require multiple passes. Shot blast systems produce very little airborne dust or contamination. Most models can be fitted with a filter to further lower the level of airborne dust produced.

Diamond Grinding
Diamond grinding is the rotation of one or more abrading stones or discs applied under pressure at right angles to the surface. This method may be used on horizontal surfaces to remove deposits or coatings, and to reduce or smooth surface profile. The grinding stone or disc is applied under pressure and moved across the surface until the desired effect is achieved Diamond Grinders can utilize both metal or resin bond diamonds that can be used either wet or dry for concrete grinding. Solid carbide scarifying cutters are used for thicker coatings. Grinders can also be used effectively to level uneven joints or high spots of 1/16 to 1/8 inch. Grinding provides contractors with a smoother finish than shot blasting, scarifiers or scabblers.

Scarification
Scarifying is the rotary action of the cutters (toothed washers) impacting the surface at a right angle to fracture or pulverized the top surface of the concrete to expose a clean, fresh surface. The cutters are assembled on tempered steel rods mounted at the perimeter of a drum that rotates at high speeds. Scarification is used for the removal of concrete or coatings up to 1/4 inch thick. It may also be used to profile

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concrete surfaces. Scarification can also cut deep grooves into the concrete to provide a non-slip surface.

Scabbling
Scabblers use compressed air to hammer piston-mounted bits into the concrete surface roughening the concrete surface more than grinding or scarifying. Scabblers can remove up to 1/4 inch of concrete surface in a single pass. Scabblers are ideal for removing spalling concrete, removing epoxy, and removing loose or deteriorated concrete.

Priming
Once the surface is clean, prepared, passes the water drop test and surface defects have been repaired, the surface is ready for priming. Prime with Aqua Prime, System 3700 or Floropoxy 4700. Consult your Florock Representative for information. To choose the appropriate primer for your floor-coating job, please read the following details on our Florock Primer Systems:

Aqua Prime is recommended where a chemical preparation of concrete is specified (This product has a high tolerance to moisture.) Aqua Prime is not intended for use under single-component Moisture Cure Urethanes.

System 3700 is ideal for use in warehouses and facilities with moderate traffic and may be applied over existing coatings that are well bonded and properly prepared. This primer is used when the floor is mechanically prepared. A test patch should be applied on a previous coated floor.

Floropoxy 4700 is an economical 100% solids primer used on a mechanically prepared floor. It is very low in odor and has great chemical resistance.

Please read material safety data before using product.

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