

Surface Preparation: Floor Surfaces to be Coated

Concrete Surfaces

a. General Properties

1. New concrete must be strong and cured for 30 days and it must have a compressive strength of at least 250 kg/cm². 2. The concrete must be clean, dry and free from impermeability, drying or curing chemicals, mold separator oil, etc. 3. If chemical additives are used in the concrete mixture or a chemical curing method is used, coating contractor must be informed regarding these matters. 4. Floor surfaces must be leveled by a steel trowel and its slope must be right. Surface must be level to within 3 mm in any 3 meters radius. 5. Absolute humidity and relative humidity of the pavement must not exceed 3% and 75% respectively. Concrete surfaces are often moist due to rain water and the water absorbed. Even if the surface looks dry, it may contain moisture high enough to prevent proper adhesion. In small scale applications (like joint sealing, concrete repair), drying by means of hot air and flame, and surface cleaning with water miscible solvents such as methyl ethyl ketone may be helpful. 6. Since contaminants like grease and oil prevent sufficient bonding, they must be completely removed by chemical methods, sandblasting or sanding. It is not quite effective to clean such contaminants with solvents. Solvents may cause the contamination to disperse or to penetrate deeper into the concrete. 7. There must not be peeled, bristled, swollen regions; if there is any, they must be removed with suitable methods and approved materials. Crack repairs must be carried out with approved materials. 8. Synthetic coatings, sealants, paints and other organic remains on old concrete surfaces must be completely removed; whole surface must be cleaned by means of sanding machine, sandblasting or other similar methods; weak parts must be removed and required repairs must be carried out with approved materials. 9. In certain applications where high adhesion is required and it is not possible to clean the surface by sandblasting, cleaning is carried out on concrete surfaces by surface acidification process using a solution prepared with 15% hydrochloric acid. One liter of solution acidifies an area of 1 square meter. Surface must be cleaned from acid before surface coating or sealant application. For this purpose the surface is washed with weak alkali solution followed by water. The surface must be left to dry after this process. 10. In indoor applications, below and above ground, underside and the sides of the floor deck must be sealed by a compatible impermeable membrane. Insulation must be carried out more carefully at underground decks subject to hydrostatic pressure and sections of the deck in contact with soil must be completely sealed by using several layers of high quality liquid or ready made membrane. 11. Large scale surface coating applications must be carried out after it is confirmed by a hygrometer that the surface is sufficiently dry. If the concrete deck was sealed with water a isolation membrane below or a coating above (or both), it must be considered that the extra moisture trapped in this deck may cause extreme hydrostatic pressure when the temperature changes. 12. Brick, plaster, ceramic, marble, terrazzo works must be finished; installation and painting teams must have completed their jobs and left the worksite. Contaminants and stains left from these processes, foreign materials on the floor (that is; paint, mortar and plaster remains) must be cleaned. 13. At gymnasiums, industrial facilities and similar indoor areas, the floor must be dry, all gaps must be filled and heating and air conditioning system must be operational. During the week before the work starts and throughout the work period condensation

must be prevented and the ambient temperature must be kept above 15°C.14. Contraction joints in the concrete decks applied on prefabricated T-beams must be cut in the same axis with the joints between the beams.15. Existing metal parts on the surface to be coated must be cleaned by wire brush or sandblasting.

b. Coating Preparation

1. Coating area borders in the same plane are marked by saw cutting 6 mm wide and 1-2 cm deep joints. Masking tape is properly placed outside the coating borders and this tape is maintained during the entire coating process.2. Saw cutting 20 mm deep and 8 – 10 mm wide joints in indoor floors, parallel and in 15 cm distance from the walls isolates separations, cracks and movements that may occur at the corners and prevents floor coating to be affected from the walls.3. Static cracks on the surface wider than 2 mm and dynamic cracks even smaller than 2 mm must be saw cut in 6 – 8 mm width and 12 – 15 mm depth. Such saw cut parts, expansion and contraction joints must be cleaned. After all surfaces and the joints are cleaned, closed cell backer rods must be placed in the joints to adjust filling depth to 8 – 10 mm and then the joint must be filled with self leveling joint sealant.4. Intersections of horizontal and vertical surfaces must be sealed with non sag joint sealants. Sealant tape placed at such intersections must be 25 mm wide and installed with a 45 degrees slope.

Metal Surfaces

1. If sealant or protective coating will be applied on steel, stainless steel, aluminum, bronze, brass or other metals; surface preparation must be carried out before the application.2. Stains, paints and lacquers on the surfaces must be cleaned by wire brush and with solvent.3. Oxide layers on the surface must be completely removed and the surface must be cleaned as good as possible before priming. If possible, sandblasting and mechanical abrading should be used.4. Solvents such as paint thinner, xylene, trichloroethylene removes greases and oils; however the dissolved contaminant must not be permitted to foul the surface again. The solvent must be clean (not used before) and the standing solvent on the floor must be wiped with a clean cloth.5. Surfaces cleaned and roughened by means of wire brush are excellent for adhesion. These surfaces must be wiped with a solvent but they must not be polished.6. In metal to metal wall joints, special attention must be paid to the alignment of clean metal surfaces. These surfaces are generally dirty and since they are not easily accessible, they cannot be cleaned simply by brushing. Powerful cleaning equipment should be used.7. Priming or coating of the metal surfaces must start right after the cleaning. When delayed, good surface properties may be lost due to oxidation.8. In order to enable better adhesion of the sealants applied in joints of the systems composed of painted metal plates, intersections must be wiped and cleaned with a solvent like xylene. It is helpful to check the adhesion on painted surfaces by a preliminary test.

Wood

1. Coating materials adhere perfectly on new and dry wood.2. If the surfaces are painted, paints must be removed.3. Oil containing woods such as teak dry very slowly. Primer must be used on these types of woods. If the wood oil bearing, adhesion develops slowly.4. Parts of the wood that

require repair must be repaired; cracks and snags must be filled with suitable sealants and sanded.5. Priming wooden surfaces by a compatible primer minimizes adhesion problems.

Glass, Porcelain and Glassy Surfaces

1. Surfaces must be cleaned with solvents like MEK or IPA and they must be dried well.2. It is important to protect the surfaces from oils and fingerprints.3. Solvents used must be clean and free from greasy impurities.4. Application must start right after cleaning.5. It will be beneficial to use a compatible primer for a good adhesion.