Basic Polymers
Industrial Flooring

Basic-Crete Urethanes – Epoxies – M.M.A.s

CONCRETE SURFACE PREPARATION

INTRODUCTION

The following concrete surface preparation guidelines, serves as an aid to owners, design professionals, specifiers and contractors. Proper surface preparation is an extremely important factor in the immediate and long-term successful performance of applied polymer floor or wall systems.

PROPER SURFACE PREPARATION

Proper surface preparation includes the following:

1. Inspection of the concrete substrate
2. Removal and replacement of non-durable concrete
3. Decontamination of the concrete surface
4. Creation of surface profile
5. Repair of surface irregularities

1. Inspection of the concrete substrate: A proper evaluation will lead to the selection of the proper tools and equipment to accomplish the objective.

2. Removal and replacement of non-durable concrete: Occasionally, plain fresh concrete is required and must be bonded to existing concrete. When bonding fresh concrete to existing, prepare the existing concrete surface by scabbling, scarifying, abrasive (sand) blasting, needle scaling, high pressure water jetting, or steel shot blasting. Rough concrete surfaces will require additional material depending on the surface profile. Fresh concrete should have a low water cement ratio.

3. Decontamination of the concrete surface: This requires the removal of oils, grease, wax, fatty acids and other contaminants, and may be accomplished by the use of detergent scrubbing with a heavy duty cleaner/degreaser, low pressure water cleaning (less than 5,000 psi) steam cleaning, or chemical cleaning. The success of these methods is dependent upon the depth of penetration of the contaminant; which is completely dependent upon the contaminant's viscosity, the concrete's permeability and the duration of the exposure.

4. Creation of surface profile: This can be accomplished by a number of methods each utilizing a selection of tools, equipment and materials to accomplish the intended purpose. Selection is dependent upon the type of surface to be prepared and the type of system to be installed. The type and thickness of the selected polymer system also plays an important roll in the selection process. The surface profile is the measure of the average distance from the peaks of the surface to the valleys as seen through a cross sectional view of the surface of the concrete.

PROPER SURFACE PREPARATION

5. Repair of surface irregularities: Repairs include bug holes, spalls, cracks, deteriorated joints, slopes, areas near transition zones, such as around drains and doorways, etc. These must be repaired prior to the placement of the polymer system.

SURFACE PREPARATION

Depending upon conditions of the concrete one or more methods of surface preparation may be required. It is common for decontamination to precede mechanical preparation, and if necessary a second decontamination to follow.

The preferred methods for creation of a surface profile, including the removal of dirt, dust, laitance and curing compounds, is steel shot blasting, abrasive (sand) blasting or scarifying. The steel shot blasting or vacuum blasting process is commonly referenced by equipment and brand names, such as, Blastrac, Vacu-Blast, Shot-Blast, etc. Vertical and overhead surfaces, such as cove base, wall and ceiling surfaces shall be prepared utilizing methods of grinding, scarifying, abrasive (sand) blasting, needle scaling, high pressure water jetting (5,000 to 45,000 psi) or vertical steel shot blasting.

Application: Sealers	**Profile: 0 – 3 mils**
Surface Preparation Method:	**Detergent scrub** **Low-pressure Water** **Acid Etching (not recommended)** **Grinding**
Application: Thin Film	**Profile: 4 – 10 mils**
Surface Preparation Method:	**Acid Etching (not recommended)** **Grinding** **Abrasive Blast** **Steel Shot Blast**
Application: High-Build	**Profile: 10 – 40 mils**
Surface Preparation Method:	**Abrasive Blast** **Steel Shot Blast** **Scarifying**
Application: Self-Leveling	**Profile: 50 mils – 1/8 inch**
Surface Preparation Method:	**Abrasive Blast** **Steel Shot Blast** **Scarifying** **Needle Scaling** **High/Ultra high Pressure Water Jetting**
Application: Polymer Overlay	**Profile: 1/8 – 1/4 inch**
Surface Preparation Method:	**Abrasive Blast** **Steel Shot Blast** **Scarifying** **Needle Scaling** **High/Ultra high Pressure Water Jetting** **Scabbling** **Flame Blasting** **Milling/rotomilling**

Surfaces to receive a bonded polymer system must be inspected after the surface is prepared to insure that the substrate is sound.