

Section 03395: CURING, SEALING, AND HARDENING CONCRETE FLOORS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Single application cure-seal-hardener for new concrete floors.
- B. Single application sealer-hardener for existing concrete floors.
- C. Precautions for avoiding staining concrete before and after application.

1.2 RELATED SECTIONS

- A. Section 03300 - Cast-In-Place Concrete: Concrete slabs.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Material requirements for concrete to which cure-seal-hardener is to be applied, including cement type, water-cement ratio, type of trowel finish, limitations on admixtures, pigments, bonding agents, and bond breakers, etc.
- C. Product Data: Manufacturer's data sheets, including product specifications, test data, preparation instructions and recommendations, storage and handling requirements and recommendations, and installation methods.
- D. Maintenance instructions, including precautions for avoiding staining after application.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Applicator experienced with installation of product and certified by manufacturer, or applicator experienced with similar products with manufacturer's technical support to advise on application procedures; and providing adequate number of skilled workers trained and familiar with application requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver product in factory numbered and sealed drums, with numbers recorded for Owner's records.
- B. Store products in manufacturer's unopened drums until ready for installation.

1.6 PROJECT CONDITIONS

- A. No satisfactory procedures are available to remove petroleum or rust stains from concrete. Prevention is therefore essential. Take precautions to prevent staining of concrete prior to application of cure-seal-hardener and for minimum of three months after application:
 - 1. Prohibit parking of vehicles on concrete slab.
 - 2. If vehicles must be temporarily parked on slab, place drop cloths under vehicles during entire time parked.
 - 3. If construction equipment must be used for application, diaper all components that might drip oil, hydraulic fluid, or other liquids.
 - 4. Prohibit pipe cutting using pipe cutting machinery on concrete slab.
 - 5. Prohibit temporary placement and storage of steel members on concrete slab.
- B. Do not install products under environmental conditions outside manufacturer's absolute limits.
- C. Do not use frozen material; thaw and agitate prior to use.

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1.7 WARRANTY

- A. Provide manufacturer's warranty that a structurally sound concrete surface prepared and treated according to the manufacturer's directions will remain permanently dustproof, hardened and water repellent. If after the specified sealing period the treated surface does not remain dustproof, hardened and water repellent, provide, at manufacturer's expense, sufficient material to reseal defective areas.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: ICS Penetron International Ltd, 45 Research Way, Suite 203 East Setauket, NY 11733. T.: 631-941-9700 F.: 631-941-9777. Email: info@penetron.com, www.penetron.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 MATERIALS

- A. Cure-Seal-Hardener: Peneseal FH; water-based chemically-reactive penetrating sealer and hardener, that seals by densifying concrete so that water molecules cannot pass through but air and water vapor can, while allowing concrete to achieve full compressive strength, minimizing surface crazing, and eliminating dusting.
 - 1. Colorless, transparent, odorless, non-toxic, non-flammable.
 - 2. Containing no solvents or volatile organic compounds.
 - 3. Allowing traffic on floors within 2 to 3 hours, with chemical process complete within 3 months.
 - 4. No change to surface appearance except a sheen developed due to traffic and cleaning.
- B. Water: Clean, potable.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared and are suitable for application of product.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. If this is the applicator's first project using this product, provide the manufacturer's technical support to familiarize installers with proper procedures.
- C. Prevent damage to and soiling of adjacent work.

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- D. New Concrete: Apply cure-seal-hardener to new concrete as soon as the concrete is firm enough to work on after troweling, except on colored concrete wait minimum of 30 days.
1. Spray on at rate of 200 square feet per gallon (4.8 sq m/L).
 2. Keep surfaces wet with cure-seal-hardener for minimum soak-in period of 30 minutes, without allowing drying out or becoming slippery. In hot weather slipperiness may appear before the 30 minute time period has elapsed. If that occurs, apply more cure-seal-hardener as required to keep entire surface in a non-slippery state for the first 15 minutes. For the remaining 15 minutes, mist the surface as needed with water to keep the material in a non-slippery state.
 3. After this period, when treated surface becomes slippery lightly mist with water until slipperiness disappears.
 4. Wait for surface to become slippery again and then flush entire surface with water removing all residue of cure-seal-hardener.
 5. Squeegee surface completely dry, flushing any remaining slippery areas until no residue remains.
 6. Wet vacuum or scrubbing machines may be used to remove residue, provided manufacturer's instructions are followed.
- E. Existing Concrete: Apply cure-seal-hardener only to clean bare concrete.
1. Thoroughly remove previous treatments, laitance, oil, and other contaminants.
 2. Saturate surface with cure-seal-hardener; respray or broom excess onto dry spots.
 3. Keep surface wet with cure-seal-hardener for minimum soak-in period of 30 to 40 minutes.
 4. If, after the 30 minute soak-in period, most of the material has been absorbed, remove all excess material using broom or squeegee, especially from low spots.
 5. If, after the 30 minute soak-in period, most of the material remains on the surface, wait until it becomes slippery and then flush entire surface with water removing all residue of cure-seal-hardener and squeegee completely dry, flushing any remaining slippery areas until no residue remains.
 6. If water is not available, remove residue using squeegee.

3.4 PROTECTION

- A. Protect installed floors until chemical reaction process is complete; at least three months.
1. Comply with precautions listed under PROJECT CONDITIONS.
 2. Clean floor regularly in accordance with manufacturer's recommendations because water will accelerate the sealing and scrubbing will impart a shine.
 3. Clean up spills immediately and spot-treat stains with good degreaser or oil emulsifier.
- B. Precautions and cleaning are the responsibility of the General Contractor until Substantial Completion.