

CANYON TONE CLEAR

MASTER GUIDE SPECIFICATION

SECTION 07175

Transparent, Water-Based Concrete/Masonry Sealer

PART 1 – GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Precast Concrete: Section 03400
- B. Membrane Waterproofing: Section 07110
- C. Sealants: Section 07900
- D. Special Coatings: Section 09800
- E. Painting: Section 09900

1.02 QUALITY ASSURANCE

- A. Qualifications of Applicator: Water-repellent sealer shall be applied by a Manufacturer-certified Applicator with basic knowledge of the material and application procedures.
- B. Requirements of Regulatory Agencies: Solvents used in the formulation of the water-repellent stain shall conform to all local, state and federal VOC and air quality control standards.
- C. Jobsite Mock-Up: After initial samples have been approved, apply one coat of water-repellent sealer to one side of the mock-up wall located at the jobsite. Sealer shall be of the type that will be used on the actual building. Application procedures and absorption rates shall be as hereinafter specified, unless otherwise recommended by the Manufacturer, in writing, to effectively repel moisture from the substrate.
 - 1. Approval by the Architect or Owner shall serve as a standard of comparison with respect to application rate and overall appearance.
 - 2. General application to actual surfaces on the structure shall not proceed until jobsite mock-up has been approved in writing by the Architect or Owner.

Delete paragraph C for projects not requiring a jobsite mock-up.

1.03 SUBMITTALS

- A. Submit Manufacturer's literature, certificates, and samples to the Architect or Owner in accordance with requirements specified in General Conditions and Division 1, General Requirements.
- B. Manufacturer's Literature: Manufacturer's literature shall be submitted for review before work is started. Literature shall show material specifications, physical properties (including ASTM test methods utilized), Manufacturer's estimated application rate for each surface to which the sealer is to be applied, current application instructions of the Manufacturer and Material Safety Data Sheets.

- C. Samples: Submit two (2) precast concrete units to match those being used on the actual installation, with water-repellent sealer spray-applied over the entire surface in one (1) heavy application, as per Manufacturer's printed instructions. The untreated precast units shall be furnished by the General Contractor. Water-repellent sealer shall be the same type that will be used on the actual structure. Samples shall be resubmitted until approved by the Architect or Owner. Approval by the Architect or Owner shall serve as a standard with respect to application rate and overall appearance.

Modify above paragraph to meet project substrate and submittal requirements.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original sealed containers, clearly marked with the Manufacturer's name, brand name, type of material, batch number and date of manufacture.
- B. Store materials in an area where temperatures will not be less than 50° F (10° C) or more than 100° F (38° C), and in accordance with OSHA & local code requirements.

1.05 JOB CONDITIONS

- A. Temperature and relative humidity conditions during the time of application shall be with in Manufacturer's application instructions. Do not apply material under rainy conditions or within two (2) days after surfaces become wet from rainfall or other moisture. Do not apply when weather is foggy or overcast.
- B. Take precautions to ensure that workmen and work areas are adequately protected from health hazards resulting from handling, mixing and application of the material.
- C. Furnish all scaffolding and the necessary equipment to complete the work. Scaffolding shall comply with all local, state and federal requirements as to safety.
- D. Provide drop cloths and other forms of protection necessary to protect all adjoining surfaces, rendering them completely free of overspray and splashes. Any surfaces that have been damaged or splattered shall be cleaned, restored or replaced to the satisfaction of the Architect or Owner.
- E. If sealant is applied prior to the sealer, a test must be conducted prior to installation to verify compatibility of the sealer and sealant.

Delete paragraph F for exterior applications only. Ventilation systems to meet OSHA requirements.

PART 2 – PRODUCTS

2.01 DESCRIPTION

A clear blend of reactive silane with a silicone emulsion, designed to provide invisible water-repellency and protection from the intrusion of chloride salts, airborne pollution and de-icing chemicals over vertical and horizontal concrete, masonry and brick surfaces. The product is supplied in either a pre-diluted 5% solids by volume concentration, or in concentrate form that is diluted at the jobsite to achieve the specified solids.

2.02 MATERIAL

Approved water-repellent sealer shall be UNITED COATINGS' "CANYON TONE CLEAR", or equal, meeting the following minimum requirements:

- A. Active Content: Minimum of 7% [ASTM D5095]
- B. Viscosity: 1,000 to 1,500 cps @ 75°F (24°C) [ASTM D2196]
- C. Dry time: 15 to 20 minutes @ 75° F (24°C), 50% R.H. [ASTM D1640]
- D. Cure time: 1 to 2 hours @ 75° F (24°C), 50% R.H. [ASTM D1640]
- E. Temperature Limits for Service Conditions: -70° F to 200° F (-56°C to 93°C)
- F. Materials shall meet the performance requirements as specified in Paragraph 2.02.
- G. Sealer shall have a minimum 5-year history of successful performance under weather conditions similar to those encountered at the project site.

2.03 PERFORMANCE REQUIREMENTS

- A. Resistance to Accelerated Weathering: Treated specimen shall show no deleterious effects, no surface checking, cracking or delamination after 3,000 hours of testing in accordance with ASTM G23 in a QUV cabinet.
- B. Water Repellency under Wind Driven Rain Conditions: Precast concrete test panel, treated with a 10% solids concentration of clear sealer, shall show an 83% reduction in leakage rate. Tested in accordance with ASTM E514-86.
- C. Resistance to Salt Spray: Treated sample shall show no deleterious effects, no surface checking, cracking or delamination following 500 hours of continuous exposure. Testing shall be in accordance with ASTM B117 in a Harshaw Salt Spray Cabinet. Test specimens shall be treated cement board or equal.
- D. Resistance to Sulfide Staining: No discoloration after 15 minutes immersion in saturated hydrogen sulfide gas solution when tested in accordance with ASTM D1712. Compare with control specimen not exposed to hydrogen sulfide gas solution.
- E. Resistance to Chemical Reagents: Specimen shall exhibit none or slight color change and no softening or deterioration after 7 days immersion in the following chemicals: Ammonium Hydroxide - 10%; Sodium Hydroxide - 10%; Mineral Spirits, KB value 38. Inspection is compared to specimen not exposed to chemical reagents.
- F. Reduction in Water and Chloride Absorption: Precast concrete test panels, treated with a 15% solids concentration of clear sealer, shall show a 77% reduction in water absorption and an 87% reduction in chloride ion intrusion after 21 days. Water vapor transmission shall be maintained at 100%. Tested in accordance with NCHRP 244 Series II.
- G. Resistance to UV Light/Reduction in Soluble Chloride: Precast concrete test panels, treated with a 15% solids concentration of clear sealer, shall show a minimum 90% reduction in soluble chloride, with no discoloration. Tested as per MCHRP 244 Series IV, Southern Exposure.
- H. Water Repellency: Treated precast concrete test panels shall show the following water absorption characteristics when tested as per Federal Specification SS-W-110C:

9% Solids	-----	0.2%
11% Solids	-----	0.2%
15% Solids	-----	0.3%

- I. Resistance to Chloride Ion Penetration: Precast concrete test panels, treated with a 15% solids concentration of clear sealer shall show a 75% reduction in chloride penetration at each depth. Tested in accordance with AASHTO T-259 & T-260.
- J. Water Vapor Transmission (Perms): Water vapor transmission of the treated precast concrete test panel shall remain at 100% of the untreated control panel (average of 3.0 Perms). Tested in accordance with ASTM E96-95.
- K. Verification of Minimum 5-Year Exposure to Appropriate Climate: Sealer shall have been in use in a similar climatic region 5 years or more and show no sign of fading, peeling or flaking. Supply project locations exceeding 5 years of service.

PART 3 – EXECUTION

3.01 PREPARATION OF SURFACES

Surfaces to receive the water-repellent sealer shall be structurally sound, clean, dry, fully cured, and free from dust, curing agents or form release agents, efflorescence, scale or other foreign materials. Methods and materials used for cleaning of the substrate shall be as recommended by the Manufacturer of the water-repellent sealer.

3.02 MIXING

The clear, water-repellent sealer shall be thoroughly mixed in accordance with the Manufacturer's directions using a power mixer capable of mixing the entire container. Do not thin the material.

OR

The clear, water-repellent sealer is supplied as a concentrate and shall be diluted at the jobsite to achieve a concentration of _____ % by volume. Mix clean, fresh water with the sealer concentrate in a separate container using a power mixer capable of thoroughly mixing the entire container. To achieve a 5% by volume concentration, dilute at the rate of 1 part concentrate to 9 parts water. To achieve a 10% solids by volume concentration, dilute at the rate of 1 part concentrate to 4 parts water.

Select the appropriate paragraph above, depending upon whether the sealer is supplied in pre-diluted or concentrate form. If concentrate is specified, select the appropriate solids and dilution rate.

3.03 APPLICATION

- A. The water-repellent sealer may be applied using conventional or airless spray equipment, as well as low pressure, pump-style spray. Apply in one (1) heavy application, in strict accordance with the Manufacturer's printed application instructions and precautions, copies of which shall be at the jobsite. The most effective method is by low pressure airless spray (20 psi).
- B. The spray gun should have a fan-type nozzle with a maximum orifice size of .027" (.7 mm), and shall be held perpendicular to and not more than 18" (46 cm) from the surface.
- C. Should jobsite or environmental conditions prohibit the use of spray application, the sealer may be applied by brush or roller, taking care so as to thoroughly saturate the substrate.
- D. The Applicator shall apply a field test on a small inconspicuous area of the actual building surface to determine the best absorption rate, as well as to determine suitability of the application technique chosen.
- E. The material shall be applied at the rate of approximately _____ sq. ft./gal. Absorption rates will vary depending on the surface texture and porosity of the substrate in order to achieve total water-repellency.

*Fill in the number of square feet per gallon for proper coverage rate in the above paragraph.
Actual coverage rates are determined by the jobsite sample.*

Approximate total coverage rates are as follows:

- 1. Smooth Concrete ----- 150 Sq. Ft./Gallon (3.7 m²/l)
- 2. Exposed Aggregate ----- 125 Sq. Ft./Gallon (3.2 m²/l)
- 3. Masonry ----- 100 to 125 Sq. Ft./Gallon (2.4 to 3.2 m²/l)
- 4. Horizontal Concrete ----- 75 to 100 Sq. Ft./Gallon (1.9 to 2.4 m²/l)

Allow for extra surface area when estimating coverage for fluted, split-face or other textured surfaces.

- F. Water-repellent sealer should be uniformly spray-applied on the wall to the point, where excess solution runs 6" to 8" (15 to 20 cm) below the spray pattern on each pass. Any excessive runs or drips should immediately be rolled into the substrate.
- G. Take care to maintain a wet edge to a natural termination point, such as a wall joint or corner. Water-repellent sealer is a single coat material and should be applied in one application only.
- H. On horizontal surfaces, apply water-repellent sealer uniformly to saturate or flood the surface. After approximately 20 minutes, any remaining puddles should be rolled out or mopped up.
- I. Brush or roller-apply sealer only at locations where overspray would affect adjacent materials and where not practical for spray application, taking care so as to apply the sealer at a rate that thoroughly saturates the substrate.

3.04 CLEANUP

- A. Maintain work and work areas in a clean, safe condition at all times during sealer installation. Remove excess materials, trash and debris from the jobsite daily.
- B. At the completion of the project, clean area of any spills and containers, and clean up all debris, leaving jobsite in a clean and orderly condition.

3.05 WARRANTY

- A. Upon completion of the sealer application, the Contractor shall submit to the Manufacturer a warranty request form, certifying substrate, square footage and application rate.
- B. As a condition of the project's completion and acceptance, deliver to the Owner a copy of the fully executed Warranty from the Coating Manufacturer, as per project specifications.