



DIVISION 9 - FINISHES
Section 09880 - Protective Coatings

Part 1 - General

1.01 Summary

- A. This specification describes the coating of substrates with a non-vapor barrier, protective waterproofing, polymer-modified, portland cement slurry.

1.02 Quality Assurance

- A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001 certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis.
- B. Contractor qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of 5 years or more. Contractor shall maintain qualified personnel who have received product training by manufacturer's representative
- C. Install materials in accordance with all safety and weather conditions required by manufacturer or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.

1.03 Delivery, Storage, and Handling

- A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the site immediately.
- B. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.
- C. Condition the specified product as recommended by the manufacturer.

1.04 Job Conditions

- A. Environmental Conditions: Do not apply material if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature 40°F (5°C) and rising.
- B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified material.

1.05 Submittals

- A. Submit two copies of manufacturer's literature, to include: Product Data Sheets, and appropriate Material Safety Data Sheets (MSDS).
- B. Submit copy of Certificate of Approved Contractor status by manufacturer.

1.06 Warranty

- A. Provide a written warranty from the manufacturer against defects of materials for a period of one (1) year, beginning with date of substantial completion of the project.

Part 2 - Products

2.01 Manufacturer

- A. **SikaTop Seal 107**, as manufactured by Sika Corporation, is considered to conform to the requirements of this specification.

2.02 Materials

- A. Polymer-modified portland cement coating:

Component "A" shall be a liquid polymer emulsion of an acrylic co-polymer base and additives.

Component "B" shall be a blend of selected portlandcements, specially graded aggregates, and admixtures to control setting time and workability.

The ratio of Component A: Component B shall be:

Slurry 1:4 by wieght

Mortar 1:4.5 by wieght

The material shall be non-combustible, either before or after cure.

2.03 Performance Criteria

- A. Properties of the mixed polymer-modified portland cement coating::

1. Pot Life: Approx. 60 minutes at 68F

Approx. 30 minutes at 86F

2. Color: gray or white

- B. Properties of the cured polymer-modified portland cement coating:

1. Tensile Strength (ASTM C-307) 28 days

Type White 870 psi (6.0 Mpa)

Type Gray 990 psi (6.8 Mpa)

2. Bond Strength (ACI 503R-30 Modified): Pull-off test

28 days 180 psi (1.25N/mm²)

3. Moisture Vapor permeability (ASTM E96)

28 days 18 perms

4. Compressive Strength (ASTM D-695) at 28 days

Type White 3000 psi (20.7 Mpa)

Type Gray 3400 psi (23.4 Mpa)

5. Flexibilty (ASTM D522 Modified)

Approximately 25%

6. Carbon Dioxide Diffusion

Coefficient (uCO₂) Approx. 35,000 equivalent to 6inches of concrete

7. Watertightness under Hydrostatic Pressure (DIN 1048 Mod.)

| Water Pressure | | Penetrated Water | | Water Absorption | |
|----------------|-------|------------------|---------|--------------------------|------------------------|
| Feet | (bar) | grains | (grams) | <u>grains</u> | <u>(grams)</u> |
| | | | | Ft. ² * hours | m ² * hours |
| 16 | (0.5) | 0 | (0) | 0 | (0) |
| 33 | (1) | 15 | (1) | 3 | (2) |
| 99 | (3) | 31 | (3) | 10 | (7) |

Rendering mortars absorbing less than 91 grains/ft.²* h (64 grams/m²*h) are considered watertight.

8. The material shall not produce a vapor barrier.
9. The material meets the chemical requirements in accordance with ANSI/NSF Standard 61- potable water approval.
10. The material shall be thermally compatible with portland cement mortar and concrete.

Note: Tests above were performed with the material and curing conditions @ 71°F – 75°F and 45-55%relative humidity.

Part 3 – Execution

3.01 Surface Preparation

- A. Substrate must be clean, sound, and free of surface contaminants. Remove dust, laitance, grease, oils, curing compounds, form release agents and all foreign particles by mechanical means. An open-textured, sandpaper-like substrate is ideal. Substrate shall be in accordance with ICRI Guideline No. 03732 for coatings and fall within CSP4. All surfaces must be saturated surface dry (SSD), with no standing water at time of application.

3.02 Mixing and Application

- A. **Mixing:** Under normal circumstances, full quantities of both components are mixed together, a slurry consistency will result. For a trowelable consistency use only 90% of component A. Mix in a clean container by slowly adding the powder component to the liquid component and mixing with a slow speed (400-600rpm) drill and mixing paddle.

- B. **Coating Application:** Apply trowel, notched trowel, stiff bristle brush, or spray equipment. Work material into the prepared substrates, filling all pores and voids.

For brush grade: Apply first coat, with horizontal brush strokes and leave to harden (4 to 8 hours). Apply second coat with vertical brush strokes.

For trowel consistency: Apply the first coat with a notched trowel and leave to harden (4 to 8 hours). Apply the second coat with a flat trowel.

For spray application: Use a hopper gun spray equipment, textured sprayer (e.g. Texspray E110c by Graco), or a rotor/stator pump equipment. Allow the first coat to harden (4 to 8 hours) prior to the application of the second coat. As soon as the mortar layer starts to set, a uniform surface with a fine sponge or a plastic trowel.

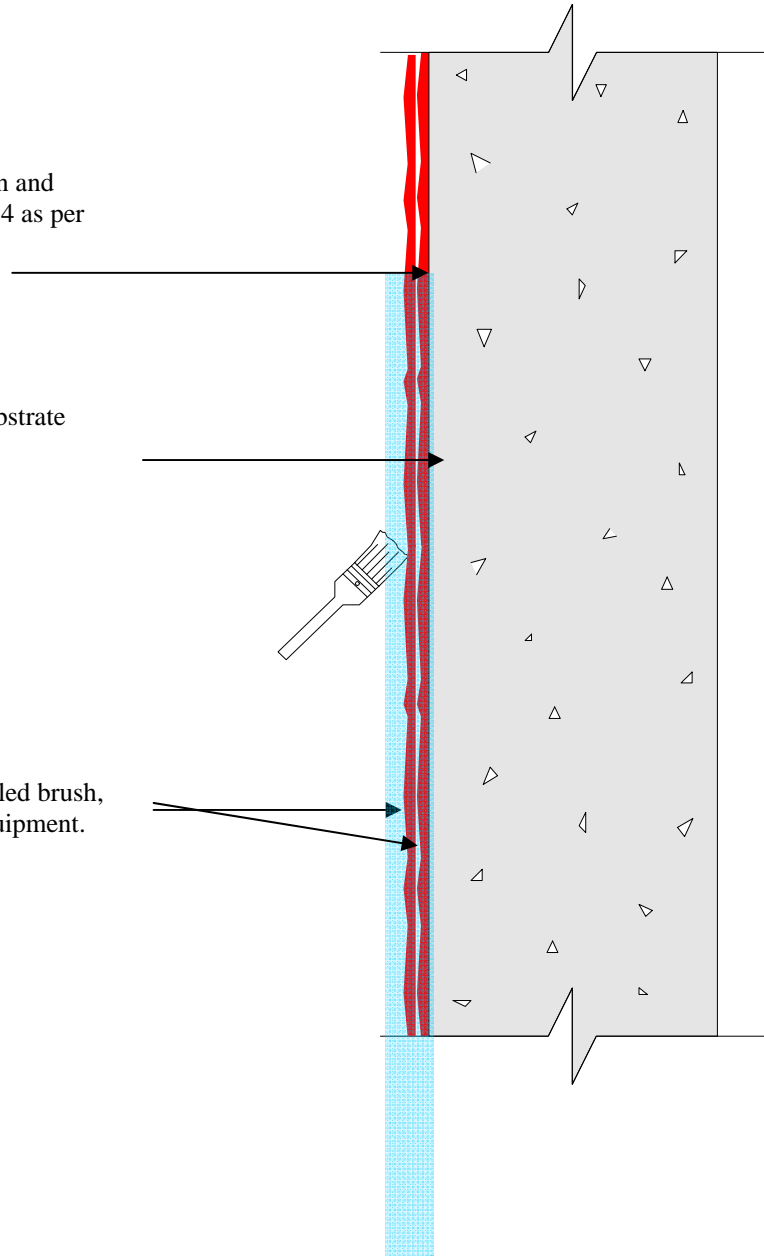
- C. When applying the coating, never stop the application until the entire surface has been coated. Always stop application at an edge, corner, or joint. Never let a previously coated film dry; always coat into a wet film. Always apply the coating at a 45° angle to an edge, corner, or joint.
- D. Adhere to all limitations and cautions for the polymer-modified cement coating in the manufacturer's printed literature.

3.03 Cleaning

- A. The uncured polymer-modified portland cement coating can be cleaned from tools with water. The cured polymer-modified portland cement coating can only be removed mechanically.
- B. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

SC-202 SikaTop Seal 107 Waterproof Coating System

1. Substrate surface preparation shall provide a clean and sound surface with a finish profile of a CSP-1 to 4 as per ICRI Technical Guidelines
2. Pre-soak to provide saturated surface dry (SSD) substrate condition prior to applying coating material.
3. Apply 2-coats of SikaTop Seal 107 with a stiff bristled brush, broom, notched trowel, or “hopper type” spray equipment. (milage thickness per technical data sheet)



Concrete Restoration Systems by Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071

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