



DIVISION 3 - CONCRETE
Section 03730 - Concrete Rehabilitation

Part 1 – General

1.01 Summary

- A. This specification describes the patching of interior and/or exterior vertical and overhead surfaces with a hand-applied, set-accelerated portland cement, repair mortar.

1.02 Quality Assurance

- A. Manufacturing qualifications: The manufacturer of the specified product shall have in existence a recognized quality assurance program and be ISO 9001 Certified, a program of training, certifying and technically supporting a nationally organized Approved Contractor Program with a re-certification program of its participants for a minimum of 5 years.
- B. Contractor qualifications: Contractor shall be an Approved Contractor of the manufacturer of the specified product, who has completed a program of instruction in the use of the specified material, and provides a certification from the manufacturer attesting to its Approved Contractor status.
- 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 45°F (7°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 Sheet, System Data Sheet, Application Guide, 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. **SikaRepair SHA**, as manufactured by Sika Corporation, 201 Polito Avenue, Lyndhurst, New Jersey, 07071 is considered to conform to the requirements of this specification.

2.02 Materials

- A. Portland cement mortar:
 - 1. The repair mortar shall be a blend of selected portland cements, specially graded aggregates, admixtures for controlling setting time, water reducers for workability, and an organic accelerator.
 - 3. The materials shall be non-combustible, either before or after cure.
 - 4. The materials shall be supplied in a factory-proportioned unit.
 - 5. The portland cement mortar must be placeable from ¼-in. to 3-in. in depth per lift for vertical applications and ¼-in to 1 ½-in in depth per lift for overhead applications.

2.03 Performance Criteria

- A. Typical Properties of the mixed portland cement mortar:
 - 1. Working Time: Approximately 20 - 30 minutes
 - 2. Finishing Time: 30 - 40 minutes
 - 3. Color: concrete gray
- B. Typical Properties of the cured portland cement mortar:
 - 1. Compressive Strength (ASTM C-109 Modified)
 - a. 1 day: 2000 psi min. (13.8Mpa)
 - b. 7 day 3,000 psi min (20.7MPa)
 - c. 28 day: 4500 psi min. (31.0 Mpa)
 - 2. Flexural Strength (Modulus of Rupture)(ASTM C-293) at 28 days: 800 psi (5.5Mpa)
 - 3. Bond Strength (ASTM C-882 Modified) at 28 days: 1000 psi (6.8Mpa)
 - 4. The portland cement mortar shall not produce a vapor barrier.

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 all loose and deteriorated concrete. The surface must be mechanically prepared. Substrate must have a surface profile of +/- 1/16-in. (CSP 5 or greater as per ICRI guidelines) with a new aggregate surface. Area to be patched shall not be less than 1/4-in. in depth.

3.02 Mixing and Application

- A. Mixing the portland cement mortar: Mix manually or mechanically. Manually mix in a wheel barrow or mortar box. Mechanically mix in appropriate sized mortar mixer or with a mud/mortar paddle and low speed (400-600 rpm) drill. Wet down all tools and mixer to be used. Add approximately ¾ gallon of water to mixing container. Slowly add 1 bag of the repair mortar while continuing to mix. Water may be varied up to a maximum one gallon to achieve the desired consistency. DO NOT OVERWET. Total mixing time should not exceed 3 minutes. Mix temperature should be maintained at 65°-75° F by warming or cooling the water, as required.
- B. Placement Procedure: At the time of application, the substrate should be saturated surface dry with no standing water. Mortar must be scrubbed into substrate filling all pores and voids. While the scrub coat is still plastic, force material against edge of repair, working toward center. After filling, consolidate, then screed. Allow mortar to set to desired stiffness. Then finish with steel trowel, wood, plastic or sponge float for desired surface texture. Areas where the depth of the repair to sound concrete is greater than 3-in.in depth vertical or 1 ½--in. in depth overhead, repair shall be made in lifts. The top surface of each lift shall be scored so as to produce a roughened surface for the next lift. The preceding lift should be allowed to reach final set before applying fresh material. The fresh mortar must be scrubbed into the preceding lift.
- C. As per ACI recommendations for portland cement concrete, curing is required. Moist cure with wet burlap and polyethylene, a fine mist of water or a water based* compatible curing compound. Moist curing should commence immediately after finishing and continue until the compressive strength is 70% of the 28-day compressive strength. If necessary protect newly applied material from rain. To prevent from freezing cover with insulating material. Setting time is dependent on temperature and humidity.

*Pretesting of curing compound is recommended.

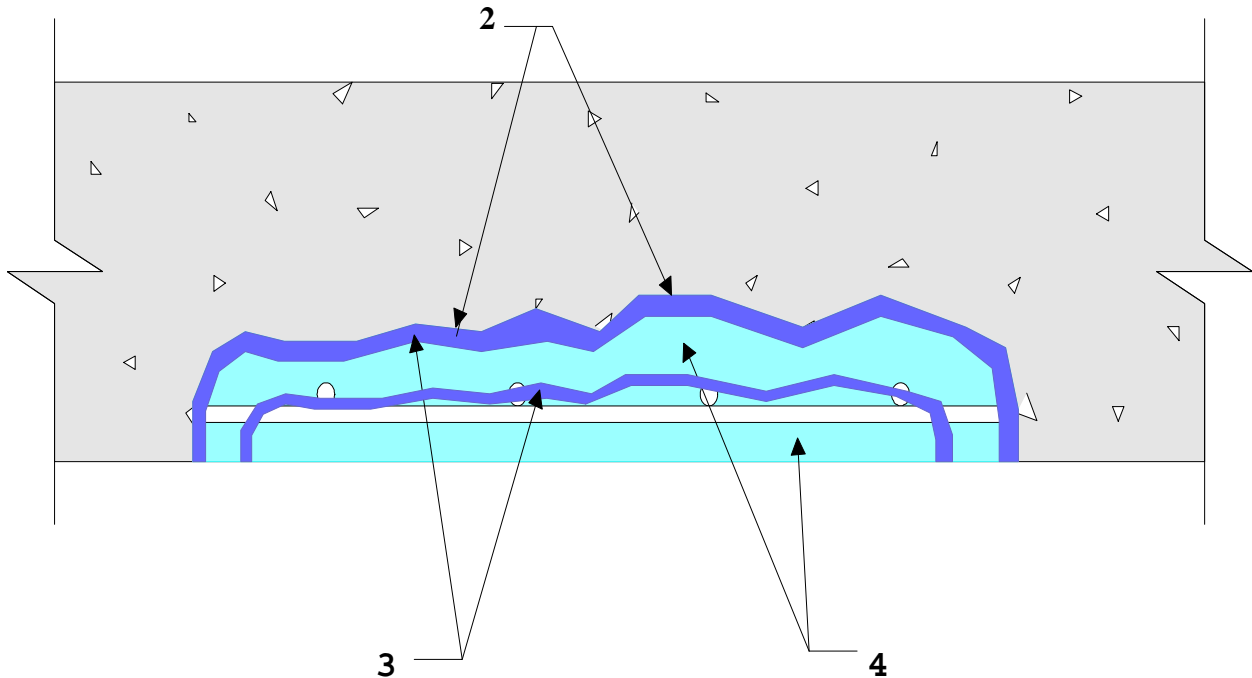
- E. Adhere to all limitations and cautions for the portland cement mortar in the manufacturers technical data sheet and literature.

3.03 Cleaning

- A. The uncured portland cement mortar can be cleaned from tools with water. The cured portland cement mortar 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-123

SikaRepair® SHA Hand-applied (Vertical / Overhead)



1. Repair area should not be less than ¼" in depth.
2. Substrate should be saturated surface dry (SSD) with no standing water during application.
3. Apply scrub coat to substrate, filling all pores and voids.
4. While scrub coat is still wet apply **SikaRepair SHA**.

Note: For applications greater than 3-in. (vertical) or 1 ½-in. (overhead) in depth, apply **SikaRepair SHA** in lifts. Score the top surface of each lift to produce a roughened surface for the next lift. Allow preceding lift to reach final set. Repeat from step 2.

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

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