

SECTION 03 01 31
CONCRETE REHABILITATION

PART 1 - GENERAL

1.1 DESCRIPTION:

This section specifies concrete patching and repair; polymer overlays and sealers, composite structural performance, and materials and mixes for patching mortar.

1.2 REFERENCES

- A. Except as shown or specified, the Work of this Section shall conform to the requirements of International Concrete Repair Institute (ICRI), 3166 S. River Rd., Suite 132, Des Plaines, IL 60018, (847) 827-0830, www.icri.org.
 - 1. ICRI Guideline No. 310.1R-2008 Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion (formerly Guideline No. 03730).

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, and SAMPLES.
- B. Product Data: Manufacturer's specifications and installation instructions for factory packaged products.

1.4 QUALITY ASSURANCE

- A. Field Examples: Prior to performing the Work of this Section, prepare a sample panel, or a portion of existing concrete which is to be repaired, to represent each type of rehabilitation work required. Approved samples will be used as quality standards for the Work. Maintain approved samples at the site until the Work is completed.
- B. Material Container Labels: Material containers shall bear the manufacturer's label indicating manufacturer's name, trade name of product, lot number, shelf life of product, and mix ratio (if applicable).

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the site in original, sealed containers. Do not deliver materials that have exceeded shelf life limitation set forth by the manufacturer.
- B. Comply with manufacturer's printed instructions for storing and handling materials.

1.6 PROJECT CONDITIONS

Ward 9D Renovations
VA WNY Health Care System
3495 Bailey Ave
Buffalo, New York

- A. Environmental Requirements: Comply with the product manufacturer's printed limitations and instructions.

PART 2 - PRODUCTS

2.1 COMPANIES

- A. The Euclid Chemical Company, 19218 Redwood Rd., Cleveland, OH 44110-2799, (800) 321-7628, www.euclidchemical.com.
- B. Sika Corporation, 201 Polito Ave., Lyndhurst, NJ 07071, (800) 933-7452, www.sikausa.com.
- C. Kaufman Products, Inc., 3811 Curtis Ave., Baltimore, MD 21226, (800) 637-6372, www.kaufmanproducts.net.
- D. L&M Construction Chemicals, Inc., 14851 Calhoun Rd., Omaha, NE 68152, (800) 362-3331, www.lmcc.com.
- E. Conproco Corp., 17 Production Dr., Dover, NH 03820, (800) 258-3500, www.conproco.com.
- F. BASF Building Systems, 889 Valley Park Dr., Shakopee, MN 55379, (800) 433-9517, www.buildingsystems.basf.com.

2.2 MATERIALS

- A. The following brand names are specified to establish product generic type and standard of quality. Other comparable products in the manufacturer's same product series may be required to closely fit the particular job conditions. Use appropriate product for depth of patch and temperature at time of application. More than one product may be required for a particular type of patching mortar. When a color choice is available, select the color to match adjoining concrete as closely as practicable. A bonding agent/primer and/or sealer shall be used as recommended by the patching mortar manufacturer.(SEAL-1)
- B. Cement/Acrylic/Latex Base Patching Mortars:
 - 1. Type C-1 Patching Mortar: "Verticoat", by The Euclid Chemical Company; "SikaTop 122 Plus" or "SikaTop 123 Plus" by Sika Corp; "Patchwell VO" or "HiCap Plus" by Kaufman Products, Inc.
 - 2. Type C-2 Patching Mortar: "SikaTop 121 Plus", "SikaTop 122 Plus" or "SikaTop 111 Plus" by Sika Corp.; "Patchwell Kit", "Patchwell Deep", "SureFlow 040", or "SureFlow 042" by Kaufman Products, Inc.; "Thincoat" or "Concrete Coat" by The Euclid Chemical Company;

3. Type C-3 Patching Mortar: "Patchwell VO", "HiCap", "HiCap Plus" or "DressUp" by Kaufman Products, Inc.; "SikaTop 123 Plus" or "SikaTop 144" by Sika Corp.; or "Verticoat Supreme" by The Euclid Chemical Company.
- C. Epoxy Resin Binders:
1. Type E-1 Patching Mortar: 100 percent solids, low modulus, low viscosity, moisture insensitive, epoxy resin and aggregate system; "Sikadur 21 Lo-Mod LV" by Sika Corporation; "Flexocrete Epoxy System" by The Euclid Chemical Company; "SurePoxxy LMLV" by Kaufman Products, Inc.
 2. Type E-2 Patching Mortar: 100 percent solids, low modulus, high viscosity, moisture insensitive, epoxy resin and aggregate system; "Sikadur 23 Lo-Mod Gel" by Sika Corporation; "Flexocrete Gel" by The Euclid Chemical Company; "SurePoxxy LM Gel" by Kaufman Products, Inc.;
 3. Type E-3 Patching Mortar: High modulus, medium/low viscosity, moisture insensitive, epoxy resin and aggregate system; "Sikadur 35" or "Sikadur 62" by Sika Corporation, "Duralcrete" by The Euclid Chemical Company or "SurePoxxy HM", "SurePoxxy HM, Class B", "SurePoxxy HMLV", "SurePoxxy HMLV, Class B", "SurePoxxy HMSLV", "SurePoxxy HiBild" by Kaufman Products, Inc.
 4. Type E-4 Patching Mortar: High modulus, high viscosity, moisture insensitive, epoxy resin and aggregate system; "Sikadur 31 Hi-Mod Gel" or "Sikadur 31 Hi-Mod Gel SBA Slow Set" by Sika Corporation; "Duralcrete Gel" by The Euclid Chemical Company; or "SurePoxxy HM Gel", or "SurePoxxy 117" by Kaufman Products, Inc.
 5. Aggregate: As recommended by the patching mortar manufacturer for the binder and application.
- D. Rapid-hardening Cementitious Patching Mortar:
1. Type R-1 Patching Mortar: "Durapatch" by L&M Construction Chemicals, Inc.; or "SikaSet Roadway Patch" by Sika Corp or "Duracrete II", "Duracrete II HW", "Duracrete II FR", "Duracrete II HWFR", by Kaufman Products, Inc.;
 2. Patching Motar-Full Depth: "Euco-Speed" or "Express Repair" by Euclid Chemical Co; or "Sikacrete 211" or "Sikacrete 211 SCCPlus" by Sika Corp.

- E. Rebar Coating: "SurePoxy HMEPL" or SurePoxy HM 12" by Kaufman Products, Inc.; "ECB" by Conproco Corp.; or "Emaco P22" or "Emaco P24" by BASF Building Systems.
- F. Cleaning Agent, Bonding Agent/Primer, Sealer/Topcoat: As recommended by the patching mortar manufacturer, including primer for the reinforcing steel and primer for the concrete substrate.
- G. Concrete and Bonding Agent (for concrete): Normal weight cast-in-place concrete and adhesive bonding agent as specified in Section 033000 or 033001.
- H. Accessories:

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protection: Cover or otherwise protect adjacent surfaces not being repaired.
- B. Surface Preparation:
 - 1. Prepare surfaces to be repaired in accordance with the product manufacturer's printed instructions and as specified.
 - 2. Cut out and remove cracked, spalled, and disintegrated concrete. Cut back to sound concrete. Cut edges of patch perpendicular to surface of patch, unless otherwise recommended by mortar manufacturer. If steel reinforcing bars are exposed, chip concrete out from behind exposed length of bars as required for a minimum clearance around circumference of bar of 3/4 inch. In addition, cut a minimum one inch length of sound concrete away from each end of exposed length of reinforcing bars.
 - 3. Clean exposed steel reinforcement; remove bits of concrete and loose rust. If reinforcement is bowed out toward surface of the concrete, bend reinforcement back from surface.
 - 4. Remove paint, oils, grease, dirt, salt deposits, laitance and other contaminants from surfaces to be patched. Use cleaning agent where required.
 - 5. Clean areas to be patched with oil-free air or water under pressure, except as otherwise recommended by the mortar manufacturer.

3.2 COATING REBAR

- A. Coat reinforcing as soon as possible after completion of surface preparation.
- B. Place reinforcement coating complying with manufacturers printed instructions.

3.3 PATCHING CONCRETE

- A. Patch concrete as soon as possible after completion of surface preparation.
- B. Mixing Patching Mortar: Comply with mortar manufacturer's printed instructions. Proportion components and sizes of aggregate as recommended by mortar manufacturer for the particular job conditions.
- C. Patch concrete in accordance with the product manufacturer's printed instructions.
 - 1. Coat contact surfaces of existing concrete and steel reinforcing with a bonding agent/primer as recommended in the product manufacturer's instructions.
- D. Bring patches out to the original surfaces in true planes. Finish patches to match texture of adjoining concrete as close as possible.
- E. Cure patches in accordance with the product manufacturer's printed instructions.

3.04 CLEANING

- A. Clean up spatters and droppings.

3.05 PROTECTION

- A. Protect mortar after placement in accordance with the product manufacturer's printed instructions.

---END OF SECTION---