

SECTION 03900 - CONCRETE RESTORATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This Section specifies restoration of existing cast-in place and precast concrete, and self-leveling cementitious underlayment for existing floor surfaces; including placement procedures and finishes.

1.02 SUBMITTALS

- A. Product data for proprietary materials and items, including admixtures, and restoration products when requested by Architect.

1.03 QUALITY ASSURANCE

- A. Mockup: Produce mockup of one or more repairs of a size suitable to demonstrate typical proposed surface finish, texture, and color. Maintain samples exposed to view for duration of Project, after Architect's acceptance of visual qualities.
- B. Acceptable Manufacturers: Provide specified products or equivalent products of manufacturers approved not less than 10 days prior to opening of bids. Submit requests for approval in accordance with procedures identified for substitutions specified in Division 1 - General Requirements (including any Substitution Request forms and other documentation). Equivalent products of competing manufacturers are acceptable provided they match color and finish characteristics of job-site mock-up.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURER:

- A. Provide specified products as manufactured by **Lambert Corporation, Orlando, FL; (408) 841-2940 or (800) 432-4746.**

*Editorial Note for Acceptable Products: For publicly funded projects, where specified products/systems represent more than 3% of the construction budget, designers are required to list 3 or more products. Refer to the latest edition of Lambert Corporation's **Cross Reference Guide** to find additional equal products.*

2.02 MATERIALS

- A. Floor Leveling Compound/Underlayment: Ready-mixed, 1-part, quick-setting, flowable, self-leveling nonshrink portland cement underlayment designed to be used as a wearing surface. Product shall develop a minimum compressive strength of 4,000 psi, suitable for use over concrete and wood surfaces to repair uneven concrete floor slab surfaces from feather-edge to 1/4-inch thick, or 1-inch thickness over broom finished concrete.

1. Product: Provide **Lambco Self-Level.**

- B. Vertical (and Overhead) Patching Compound: One-component, self-bonding, non-shrinking cement-based repairing material. Provide product capable of repairing defects from feather-edge to 4-inches thick; designed for initial set time of 5-10 minutes, compressive strength in excess of 5,000-psi, tensile strength

of 700-psi, flexural strength of 900-psi, and bond strength of 175-psi.

1. Product: Provide **Lambco Fast Patch.**

- C. Fast-Setting Horizontal Surface Repair Material: One-component, acrylic polymer modified, fast-setting, noncorrosive, cementitious patching compound material. Provide product capable of repairing surface defects from feather-edge to 4-inches thick, composed of special aggregates, high-strength cements, accelerators, and powdered acrylic bonding agents, designed for initial set time of 10-15-minutes, minimum compressive strength of 4,750-psi, and high bond strength.

1. Product: Provide **Lambco Vinyl Patch.**

- D. Thin Horizontal Surface Repair Material: Two-component, polymer-modified, wearing-type cementitious repair and resurfacing compound for surfaces of 3/4-inch thickness or less. Provide product composed of marble and quartz aggregates, blended high-strength portland cements, plastizers, specially graded silica, liquid acrylic bonding agent and integral binder, designed for compressive strength in excess of 5,800-psi, when tested in accordance with ASTM C-109.

1. Product: Provide **Lambco Sement Patch.**

- E. Decorative Concrete Finishing System: Factory-prepared natural gray or pigmented concrete system consisting of blended cements, aggregate, and liquid polymer admixture and designed to cover concrete substrates with a portland cement based protective surface.

1. Product: Provide **Lambco Color Patch.**

- F. Waterproof Cement Plug Type Repair: Ready-mixed, quick-setting, nonshrink hydraulic cement compound designed to repair concrete with active leaks, in underwater conditions, or subject to hydrostatic pressure, and capable of reaching compressive strength in excess of 7,000-psi when tested in accordance with ASTM C-39.

1. Product: Provide **Lambco Plug.**

- G. Bonding Agent: ASTM C-1059, Type II, non-rewettable acrylic type.

1. Product: Provide **Acrylbond.**

- H. Epoxy Adhesive: ASTM C 881, two-component, 100% solids material suitable for use on dry or damp surfaces. Provide material type, grade, and class to suit Project requirements.

1. Product: Provide **Epiweld 580 or Epiweld 560 (Gel).**

PART 3 - EXECUTION

3.01 PROPORTIONING AND MIXES

- A. Prepare mixes for repair and restoration work in accordance with manufacturer's instructions, or field experience methods as specified by manufacturer.
- B. Acrylic Additive: Where acceptable to manufacturer, for single-component "restoration" or "repair" products, prepare a liquid solution consisting of equal parts water and acrylic bonding agent. Add the solution to cementitious materials as required to achieve a workable consistency for dry-pack use, or flowable consistency.

3.02 PREPARATION

- A. Prepare surfaces in accordance with manufacturers recommendations. Thoroughly clean out spalls and other repair areas including rock pockets, voids over 1-inch in any dimension, and holes left by tie rods and bolts down to solid concrete. Make edges of cuts perpendicular to the concrete surface. Wire brush exposed steel and reinforcing to remove loose rust and scale.
- B. Coat exposed steel and reinforcing bars with epoxy adhesive. Allow to dry.
- C. Predampen repair areas with water for not less than 2-hours prior to application of cementitious patching compounds.
- D. Form applications over 1/2-inch thickness, overhead, and dry-packed repair areas as required by project conditions.

3.03 CONCRETE SURFACE REPAIRS

- A. Leveling Floor Surfaces: Prior to placement of self-leveling underlayment, uniformly apply continuous film of acrylic bonding agent or epoxy adhesive as recommended by manufacturer. Apply cementitious underlayment material while bonding agent or epoxy adhesive is still tacky. Where bonding agent or epoxy adhesive has dried, apply new coat of bonding agent.
- B. Horizontal Repair Applications Less Than 1/2-Inch Thick: Brush-coat the area to be repaired with acrylic bonding agent. Place repair compound or mortar before bonding agent has dried.
- C. Horizontal Repair Applications Greater Than 1/2-Inch Thick: Combine one part portland cement to one and one-half parts fine sand by volume, and a 2:1 mixture of acrylic bonding admixture and water to form the consistency of thick paint. Brush-coat 1/8-inch thick slurry to area to be repaired, then apply repair product before slurry has dried.
- D. Vertical (and Overhead) Repair Applications: Combine one part portland cement to one and one-half parts fine sand by volume, and a 2:1 mixture of acrylic bonding admixture and water to form the consistency of thick paint. Brush-coat 1/8-inch thick slurry to area to be repaired.
 - 1. Place repair compound in dry-pack method

before slurry coat/bonding agent has dried. Compact dry-pack mixture in place and finish to match adjacent concrete.

- E. Curing: Keep repaired area continuously moist for at least 72 hours, using visqueen or burlap methods.
- F. Waterproof Cement Plug Type Repair: After mixing, force hydraulic plug material into crack or cavity, compressing firmly with gloved hand, trowel, wood block or other rigid form type material. Hold in place for not less than 1-minute. Do not brush or trowel over surface. Shave excess material from repair area.
- G. Decorative Concrete Finishing System: Prepare surfaces in accordance with manufacturer's recommendations, follow printed instructions for mixing and application of system components. Apply decorative concrete finishing system over fully cured and properly prepared substrates. Apply material in one direction and place as continuously as possible until area is complete, varying trowel pressure to provide surface texture desired. Apply additional 1/8-inch layers as necessary to achieve final thickness. Seal surface repair within 24-hours after final application.
- H. Structural Repairs: Perform structural repairs with prior approval of Architect for method and procedure, using specified epoxy adhesive and mortar.
- I. Alternative Repair Methods: Methods not specified above may be used, subject to acceptance of Architect.

END OF SECTION