

Concrete Repair

Section 03360 or 03 37 13
DryProcess Shotcrete

GUNSHOT

PART I: GENERAL

1.01 DESCRIPTION

Provide labor, materials, equipment and supervision necessary to complete the application of product to existing substrate.

1.02 QUALITY ASSURANCE

Products shall be installed by a trained applicator with a minimum of five years experience and meet the requirements of the specifier.

1.03 SUBMITTALS

- A. Manufacturer's current product data bulletin.
- B. The trained applicator shall prepare a test panel of the repair installed on the actual structure as a submittal for approval of proper application and adhesion.
- C. The trained applicator shall submit to the specifier a list of five projects that he has completed within the last five years, exhibiting the applicator's skills. The list shall include project name, location, and description of work and completion date.

1.04 PRODUCT DELIVERY, STORAGE & HANDLING

- A. Deliver all products and all accessories in original labeled, sealed, and undamaged containers or bundles.
- B. Store all products in accordance with manufacturer's printed instructions.
- C. Handle products in accordance with manufacturer's printed instructions.

1.05 JOB CONDITIONS

All products shall be applied at substrate and ambient temperatures of 40°F or above. A minimum temperature of 40°F shall be maintained 24 hours after completion of work. Protect products from weather and other damage for a period of 24 hours after installation. Do not apply products to frozen surfaces.

1.06 COORDINATION & SCHEDULING

The work requires close coordination with related sections and trades.

PART II: PRODUCTS

2.01 MANUFACTURERS

The following manufacturers are approved for the project.

Conproco Corporation

2.02 MATERIALS

Gunshot: A dry process spray applied, fiber reinforced, silica fume enhanced, shotcrete with ECB-Tech corrosion protection.

2.03 PERFORMANCE CHARACTERISTICS

General Physical Properties: The products shall meet or exceed the following performance standards:

| | | |
|---|-------------|-------------------------------------|
| Physical state and appearance | | Fine, gray powder with glass fibers |
| Base | | Portland cement with silica fume |
| pH | Wet Mix | >12 |
| Density – cured in place | | 135 lbs./ft ³ |
| Setting time | ASTM C191 | Final 40 minutes |
| Percent air-pressure method | ASTM C231 | 4% |
| Resistance to deicing chemicals under freeze/thaw | ASTM C672 | 50 cycles –no effect |
| Slough | ACI 506 R90 | None |
| Rebound | Vertical | 5% Typical |
| | | 7 Days 14 Days 28 Days |
| Compressive strength-psi | ASTM C109* | 1800 4400 5200 |

*Modified 3 inch x 3 inch cubes.

PART III: EXECUTION

3.01 GENERAL

- A. Installation shall be performed strictly in accordance with manufacturer’s current product data bulletin.
- B. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- C. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas and landscaping from contact due to mixing, handling, and application of materials.

3.02 SURFACE PREPARATION

- A. Remove loose and deteriorated material, laitance, dirt, dust, oil and any surface contaminants that will inhibit proper bond.
- B. Saw cut edges with a diamond blade at a 90° angle to eliminate feather edging. Avoid polishing the edges, as this will inhibit bond.
- C. Avoid bruising or micro cracking during surface preparation. Refer to ICRI Surface Preparation Guide 03732.
- D. Repair zone must be a minimum of 1/2 inch deep, of simple geometry, with no complex edge conditions.
- E. Avoid long narrow repairs; these have a greater tendency to crack.
- F. Apply Conpro Start where a consolidant is of benefit (soft, powdery surfaces).
- G. Saturate substrate with clean water, (saturated surface dry/SSD), with no standing water during Priming or Application.
- H. Remove concrete from corroded steel and several inches beyond to expose non-corroded steel.
- I. Provide a 3/4-inch clearance between the concrete and steel.

- J. Damaged reinforcing steel should be inspected by a qualified engineer and appropriate action taken.

3.03 PRIMING

A. Concrete:

1. Apply Conpro Primer, or ECB as a bonding primer to all exposed surfaces. Refer to the individual product technical data bulletin for information.

B. Reinforcing Steel:

1. Remove all scaling rust from reinforcing steel.
2. Apply ECB anti-corrosion coating.

3.04 MIXING

There is no mixing. Water is introduced at the nozzle.

3.05 APPLICATION

- A. Apply with conventional dry spray shotcrete equipment.
- B. Follow ACI 506R, Guide to Shotcrete.
- C. Maintain nozzle distance to surface between 2-6 ft. and angle to surface at 90°.
- D. Nozzle man should be properly trained and certified for application.
- E. Material may be applied in multiple lifts of not less than 3/8 inch and no greater than 2 inches.
- F. Allow material to stiffen to thumbprint hard before continuing.
- G. Scratch (cross-hatch) each lift to prepare surface for subsequent lift.
- H. Strike off with straight edge to a uniform plane, close with a trowel or sponge float.

3.06 CURING

- A. Dampen the repair with a fine mist of water for 24 hours or moist cure with wet burlap and polyethylene. Alternatively, apply Conpro C309 Cure & Seal.
- B. Protect repair from direct sunlight, wind, rain and frost.

3.07 JOB SITE CLEANUP

- A. Material left over at the job site by the approved applicator shall be removed.
- B. Clean tools and equipment with water immediately after use.
- C. Cured material must be removed mechanically.

*****END OF SECTION*****

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