

Stone Repair

**Section 04520 or 04 01 40.91
Stone and Terracotta Repair**

MATRIX

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 Matrix Certified 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 Matrix Certified 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

Matrix: A colored cement-based repair mortar formulated to match the appearance and physical characteristics of the masonry substrate. Designed for use on substrates like brownstone, sandstone, limestone, terracotta and cast stone.

2.03 PERFORMANCE CHARACTERISTICS

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

| | | | | |
|-----------------------------------|-----------|------------------------------|----------------|----------------|
| Physical state and appearance | | Dry, pigmented powder | | |
| Base | | Portland cement | | |
| pH | Wet Mix | >12 | | |
| Water/dry material ratio | Wet mix | 0.20 | | |
| Dry bulk density | ASTM C188 | 92 lbs./ft ³ | | |
| Setting time by vicat needle | ASTM C191 | 240 minutes | | |
| Percent air – pressure method | ASTM C231 | 4% | | |
| Water absorption | ASTM C140 | 11% | | |
| Water vapor transmission | ASTM E96 | 5.2 perms | | |
| Length change | ASTM C157 | <500 μ strains @ 28 days | | |
| Modulus of elasticity | ASTM C469 | 2.6×10^6 | | |
| Slant shear bond strength – epoxy | ASTM C882 | 1800 psi | | |
| | | 7 Days | 14 Days | 28 Days |
| Compressive strength – psi | ASTM C109 | 3000 | 3200 | 3400 |
| Tensile strength – psi | ASTM C307 | 400 | 480 | 560 |

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. Prior to application of the product, inspect the substrate for proper cleaning and treatment of structural cracks, texture differences, damage, etc. Work shall not proceed until unsatisfactory conditions are corrected.
- B. Remove loose and deteriorated material, laitance, dirt, dust, oil and any surface contaminants that will inhibit proper bond.
- C. Saw cut edges with a diamond blade at a 90° angle to eliminate feather edging. Avoid polishing the edges, as this will inhibit bond.
- D. Avoid bruising or micro cracking during surface preparation.
- E. Repair zone must be a minimum of 1/2 inch deep with no complex edge conditions.
- F. Saturate substrate with clean water (Saturated Surface Dry/SSD).

3.03 PRIMING

Prime prepared substrate including all edges with a putty coat of Matrix.

3.04 MIXING

- A. Thoroughly mix the primary pigments with the base powder prior to adding water and mixing.
- B. Place five parts Matrix to one part of potable water in a clean container.
- C. Mix continuously for 3 minutes to a uniform, lump-free consistency.
- D. Mix only as much material as can be placed in 15 – 20 minutes.
- E. Do not retemper Matrix.

3.05 APPLICATION

- A. At time of application surfaces must be saturated surface dry but hold no standing water.
- B. Force Matrix against the edges of the repair, working toward the center.
- C. Matrix may be applied in multiple lifts of not less than 3/8 inch and no greater than 2 inches.
- D. Consolidate each lift and allow to stiffen to thumbprint hard before continuing.
- E. Scratch (cross-hatch) each lift to prepare surface for subsequent lift.
- F. Over-build final lift by 1/4 inch.
- G. Shave to final form.

3.06 CURING

- A. Keep damp with a fine mist of water for 24 hours. If repair is inaccessible, tape polyethylene over the area to retain moisture. Do not allow polyethylene to contact Matrix as this will cause discoloration.
- B. Protect repair from direct sunlight, wind, precipitation and frost during curing period.

3.07 JOB SITE CLEANUP

- A. Material left over at the job site by the approved applicator shall be removed.
- B. All adjacent surfaces and materials shall be cleaned.
- C. Cured material must be removed mechanically.

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



17 PRODUCTION DRIVE, DOVER, NEW HAMPSHIRE 03820
TELEPHONE 800.258.3500 FAX 603.743.5744 WEB ADDRESS www.conproco.com