



PLANITOP 11
Pre-Extended, Pumpable and Pourable Concrete Mix

SECTION 03 01 30
MAINTENANCE OF CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products for maintenance of concrete, including the following:
 - 1. Vertical and overhead concrete repair.
 - 2. Form-and-pour/pump concrete repair.
 - 3. Horizontal concrete repair.

1.2 RELATED SECTIONS

- A. Section 03 30 00 - Cast-in-Place Concrete.

1.3 REFERENCES

- A. ASTM International:
 - 1. ASTM C109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens).
 - 2. ASTM C928 - Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Verification Samples: For each finish product specified, two samples, minimum size 6" (150 mm) square representing actual product, color and patterns.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5 years' experience manufacturing similar products.
- B. Installer Qualifications: Minimum 2 years' experience installing similar products.
- C. Source Limitations: For repair products, obtain each color, grade, finish, type and variety of product from single source and from single manufacturer with resources to provide products of consistent quality in appearance and physical properties.
- D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship is approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.



1.6 PRE-INSTALLATION MEETINGS

- A. Convene at least two weeks prior to starting work of this section.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
- B. Handling: Handle materials to avoid damage.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.9 SEQUENCING

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Product Performance:

Compressive strength – ASTM C109 (CAN/CSA-A5)

1 day > 2,500 psi (17.2 MPa)

7 days > 5,000 psi (34.5 MPa)

28 days > 6,000 psi (41.4 MPa)

Compressive strength – ASTM C39

28 days > 5,000 psi (34.5 MPa)

Flexural strength – ASTM C348 (CAN/CSA-A23.2-8C)

28 days > 750 psi (5.17 MPa)

Slant/shear bond strength – ASTM C882 (modified)

28 days > 3,000 psi (20.7 MPa)

Length change – ASTM C157 (modified)

28 days < 0.06%

Splitting tensile strength – ASTM C496

28 days > 500 psi (3.45 MPa)

- B. Acceptable Manufacturer:

MAPEI North America

1144 E. Newport Center Dr.; Deerfield Beach, FL 33442

Toll-Free for CRS Technical Services: Tel. 888-365-0614



Email: CRS@mapei.com

Web: www.mapei.com

- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
- D. Substitutions: Not permitted.

2.2 FORM-AND-POUR/PUMP CONCRETE REPAIR PRODUCTS

- A. One-Component, Pre-Extended, Pumpable and Pourable, Cementitious Repair Material: Packaged, dry mix for repair of concrete.
 - 1. Product: Subject to compliance with requirements, provide MAPEI Corporation; Planitop 11.
 - 2. Product shall be non-redispersible.
 - 3. Compressive Strength: Not less than 6,000 psi (42 MPa) within twenty-eight days when tested according to ASTM C109.

2.3 MISCELLANEOUS MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I, II or III unless otherwise indicated.
- B. Water: Potable.

2.4 MIXES

- A. General: Mix products in clean containers according to manufacturer's written instructions.
 - 1. Do not add water, thinners or additives unless recommended by manufacturer.
 - 2. When practical, use manufacturer's premeasured packages to ensure that materials are mixed in proper proportions. When premeasured packages are not used, measure ingredients using graduated measuring containers; do not estimate quantities or use shovels or trowels as units of measure.
 - 3. Do not mix more materials than can be used within time limits recommended by manufacturer. Discard materials that have begun to set.
- B. Mortar Scrub Coat: Mix dry ingredients with enough water to provide consistency of thick cream.
- C. Concrete: Comply with Section 03 30 00 - Cast-in-Place Concrete.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Properly prepared masonry and concrete at least 28 days old, stable, sound and dry.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. All substrates must be structurally sound, stable and fully cured.
- B. Thoroughly clean the surface with any substance that could interfere with the bond of the



installation material, including dirt, paint, tar, asphalt, wax, oil, grease, latex compounds, form-release agents, laitance, loose toppings, foreign substances and any other residues.

- C. Concrete surfaces must be mechanically profiled and prepared. Refer to the International Concrete Repair Institute (ICRI) for concrete surface profile (CSP) standards.
- D. Concrete substrate and ambient room temperatures must be between 45°F and 95°F (7°C and 35°C) before application. Temperatures must be maintained within this range for at least 24 hours after the installation of repair mortars and toppings.
- E. The surface must be saturated surface-dry (SSD) with no standing water during application. Forms should be flooded 24 hours before application. Alternatively, the prepared concrete can be coated with Planibond 3C.
- F. Ensure that all exposed reinforcing steel is prepared in accordance with the most current ICRI 310.1 guideline and coated with either Planibond 3C or Mapefer 1K [NA].
- G. Pretreat formwork with a form-release agent.

3.3 MIXING

Before product use, take appropriate safety precautions. Refer to the Safety Data Sheet for details.

- A. The mixing ratio is 1 U.S. gal. (3.79 L) of clean, potable water per 80 lbs. (36.3 kg) of Planitop 11.
- B. Use a rotary drum mixer to mechanically mix the material. Pre-dampen the mixer and remove excess water before proceeding. Alternatively, use a heavy-duty, low-speed drill (at 400 to 600 rpm) and Jiffy paddle.
- C. Place 0.8 U.S. gal. (3.03 L) of clean, potable water into a mixing container. Slowly add Planitop 11 powder while mixing; always add the powder to the water. Add additional water up to another 0.2 U.S. gal. (0.76 L) to achieve the desired consistency. Do not add more water than specified and never mix partial bags.
- D. Mix for 3 minutes to obtain a smooth, homogenous consistency.

3.4 INSTALLATION

Placing via form-and-pour

Read all installation instructions thoroughly before installation.

- A. Planitop 11 can be applied via form-and-pour or form-and-pump into formwork on horizontal, vertical and overhead applications.
- B. The formwork should be rigid, sealed and tight to prevent material lost and water absorption into the formwork. Formwork should be pre-treated with an appropriate, environmentally friendly form-release agent to provide easy of form removal. Ensure that formwork has drainage outlets to remove pre-flooded water (24 hours before placement of Planitop 11), maintaining an SSD surface.
- C. After draining forms and immediately after mixing, pump or pour Planitop 11 into the formed area. Since Planitop 11 is not self-consolidating, some external and internal vibration may be required to adequately fill the formed area. Reference ACI 304R, "Guide for Measuring,



Mixing, Transporting and Placing Concrete.”

3.5 CURING

- A. Keep Planitop 11 protected from high winds and direct sunlight while it cures.
- B. Moist-cure Planitop 11 with burlap and polyethylene, a fine mist of water or an appropriate ASTM C309-referenced curing compound.
- C. For form-and-pour applications: Forms must remain in place for at least 72 hours. If the forms are removed after only 24 hours, wet-cure or use an appropriate curing compound such as Mapecure DR on the exposed repair area.
- D. For improved curing, leave formwork in place for 3 days after application of Planitop 11.

3.6 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch up, repair or replace damaged products before substantial completion.

END OF SECTION