



PLANITOP X
One-Component, Fast-Setting, Fiber-Reinforced, Vertical and Overhead Repair Mortar

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:
 - A. Polymer-modified vertical and overhead concrete repair.
 - B. Rapid-setting vertical and overhead concrete repair.
 - C. Corrosion-inhibiting.

1.2 RELATED SECTIONS

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

1.3 REFERENCES

- A. ASTM International:
 - A. ASTM C109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens).
 - B. 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:
 - A. Preparation instructions and recommendations.
 - B. Storage and handling requirements and recommendations.
 - C. 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.
 - A. Finish areas designated by Architect.
 - B. Do not proceed with remaining work until workmanship is approved by Architect.



- C. 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

3 hours	> 2,900 psi (20 MPa)
1 day	> 5,075 psi (35 MPa)
7 days	> 5,800 psi (40 MPa)
28 days	> 6,600 psi (45.5 MPa)

Flexural strength – ASTM C348

1 day	> 580 psi (4 MPa)
7 days	> 725 psi (5 MPa)
28 days	> 870 psi (6 MPa)

Slant/shear bond strength – ASTM C882 (modified)

1 day	> 1,400 psi (9.66 MPa)
28 days	> 1,800 psi (12.4 MPa)

Volume change – ASTM C928

28 days, dry-cure	< -0.15%
28 days, wet-cure	< +0.15%

- B. Acceptable Manufacturer:



MAPEI North America
1144 E. Newport Center Dr.; Deerfield Beach, FL 33442
Toll-Free for CRS Technical Services: Tel. 1-888-365-0614
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 RAPID-SETTING VERTICAL AND OVERHEAD CONCRETE REPAIR PRODUCTS

- A. Fiber-Reinforced, Shrinkage-Compensated, Rapid-Strengthening, Cementitious Vertical and Overhead Repair Mortar: Packaged, dry mix for repair of concrete.
 - 1. Product: Subject to compliance with requirements, provide MAPEI Corporation; Planitop X.
 - 2. Product shall comply with ASTM C928/C928MR2.
 - 3. Compressive strength: Not less than 6,600 psi (45.5 MPa) within 28 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.
 - A. Do not add water, thinners or additives unless recommended by manufacturer.
 - B. 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.
 - C. 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. Dry-Pack Mortar: Mix required type(s) of patching-mortar dry ingredients with just enough liquid to form damp cohesive mixture that can be squeezed by hand into a ball but is not plastic.
- D. Concrete: Comply with Section 03 30 00 - Cast-in-Place Concrete.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Properly prepared 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. Concrete surface must be and free of loose particles, efflorescence, paints, tars, grease, asphaltic materials, bond breakers, curing compounds, wax, and any foreign substance or any conditions that may affect product performance or proper bonding.
- B. Mechanically profile clean, sound and stable concrete surfaces to obtain a concrete surface profile (CSP) equal to or greater than #5 per ICRI Guideline #310.2R-2013.
- C. Ensure that the concrete substrate is saturated surface-dry (SSD) before installation of Planitop X.
- D. Ensure that all reinforcing steel is prepared in accordance with the most current ICRI 310.1 guideline and coated with either Planibond 3C or Mapefer 1K.

3.3 MIXING

- A. Before product use, take appropriate safety precautions. Refer to the Safety Data Sheet for details. Into a clean mixing container, pour 3/4 of the required 0.8 U.S. qt. (0.76 L) of potable water per 10-lb. (4,54-kg) bag, or 3/4 of the required 1 U.S. gal. (3.79 L) of potable water per 50-lb. (22.7-kg) bag or pail.
- B. Slowly add the full bag of Planitop X into the mixing container while mixing with a drill and Jiffy mixer.
- C. Add as much of the remaining 1/4 of fluid as needed.
- D. Mix for 3 to 4 minutes to obtain a smooth, homogenous consistency.

3.4 INSTALLATION

Read all installation instructions thoroughly before installation.

- A. Application should take place as soon as the Planitop X is mixed. First, apply a scrub or bond coat of Planitop X onto the SSD concrete surface.
- B. Apply with a trowel to immediately begin the build process up to a maximum thickness of 4" (10 cm). Overhead repairs may require multiple lifts of no more than 2" (5 cm) per lift.
- C. If applying successive lifts of Planitop X, wait for the final set of the previous lift (after 4 hours at 73°F [23°C]). Leave the first lift rough and immediately score the surface (about 1/4" [6 mm]) with the edge of the trowel in a continual "X" or "H" pattern (crosshatching). Dampen the surface lightly and again install a scrub coat followed by a build coat. Apply the Planitop X to set again. Do not exceed 6" (15 cm) when applying multiple lifts.
- D. Sculpting and molding of the repair area should begin as soon as the Planitop X initially sets. Use the trowel margin edge to shave off excess material. Using a dampened sponge, gently rub the repair area in a circular motion to remove surface imperfections. Do not over wet the sponge or repair area during the finishing process.
- E. Always consult with the project engineer before placement of Planitop X regarding any need for additional pinning or reinforcement.

3.5 CURING



- A. During curing, protect Planitop X from excessive heat and draft conditions.
- B. Mist-spray the surface with water for the first 4 to 6 hours. Alternatively, use damp burlap, a white polyethylene sheet, or a suitable ASTM C309 curing compound. Do not use a solvent-based curing compound.

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