



PLANITOP 18
Very Rapid-Hardening 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:
 - 1. Rapid-setting horizontal concrete repair.
 - 2. Corrosion-inhibiting.

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 hour	> 2,500 psi (17.2 MPa)
2 hours	> 5,500 psi (37.9 MPa)
1 day	> 7,800 psi (53.8 MPa)
28 days	> 9,400 psi (64.8 MPa)

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

1 day	> 700 psi (4.83 MPa)
28 days	> 850 psi (5.86 MPa)

Mortar flow – ASTM C109

5 minutes	> 100%
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Bond strength – ASTM C882 (modified)

1 day	> 2,400 psi (16.6 MPa)
28 days	> 3,000 psi (20.7 MPa)

Length change – ASTM C157 (modified C928)

28 days, air-cured	- 0.06% (max. - 0.08%)
28 days, water-cured	+0.05% (max. + 0.06%)

Free/thaw resistance – ASTM C666-A (CAN/CSA A23.2-9B)

300 cycles	> 99% durability factor
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Permeability to chlorides – ASTM C1202 (AASHTO T277)



28 days Very low < 1,000 coulombs

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 CONCRETE REPAIR PRODUCTS

One-Component, Shrinkage-Compensated, Rapid-Strengthening, Horizontal Cementitious Repair Mortar: Packaged, dry mix for repair of concrete.

1. Product: Subject to compliance with requirements, provide MAPEI Corporation; Planitop 18.
2. Compressive Strength: Not less than 6,000 psi (42 MPa) within 28 days when tested according to ASTM C109.

2.3 MISCELLANEOUS MATERIALS

A. Portland Cement: ASTM C150, 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 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 free of loose particles, efflorescence, paints, tars, grease, asphaltic materials, bond breakers, curing compounds, wax, and dry foreign substances or any conditions that may affect product performance or proper bonding.
- B. Saw-cut the perimeter of the repair area into a square to a minimum depth of 1/2" (12 mm).
- C. Mechanically profile and prepare concrete surfaces by engineer-approved methods in accordance with the most current ICRI 310.2R guidelines, CSP #5 or greater..
- D. Ensure that the concrete surface is saturated surface-dry (SSD) before the installation of Planitop 18. Alternatively, the prepared concrete can be coated with Planibond 3C.
- E. 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.

3.3 MIXING

- A. Before product use, take appropriate safety precautions. Refer to the Safety Data Sheet for details. Planitop 18 requires 2.5 to 3 U.S. qts. (2.37 to 2.84 L) of water per 50-lb. (22.7-kg) bag.
- B. Into a clean mixing container, pour 3/4 of the required water.
- C. Slowly add the full bag of Planitop 18 into the mixing container while mixing with a drill and appropriate mixer.
- D. Mix for 2 to 3 minutes. Planitop 18 will initially appear to be dry during mixing. While mixing, add remaining water to achieve a smooth, homogenous consistency. Do not add more water than specified.
- E. For an extended mixture, add up to 40 lbs. (18.1 kg) of washed SSD 3/8" (10 mm) pea gravel while mixing.

3.4 INSTALLATION

Read all installation instructions thoroughly before installation.

- A. Ensure that the prepared concrete is SSD before application.
- B. Apply a scrub coat of mixed Planitop 18.
- C. Use a float to install Planitop 18 as a repaired mortar, by working it into the scrub coat before it dries out. Work from the center of the repair to the outer edge.
- D. Finish matching surrounding concrete.

3.5 CURING

- A. Keep Planitop 18 protected from high winds and direct sunlight while it cures.
- B. Moist-cure Planitop 18 with burlap and polyethylene, a fine mist of water or an appropriate ASTM C309 – referenced 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