



**PLANITOP 18 TG**  
**Very Rapid-Hardening, Trowel-Grade, High-Early-Strength 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

1 hour	> 2,030 psi (14 MPa)
2 hours	> 5,080 psi (35 MPa)
1 day	> 7,800 psi (53.8 MPa)
28 days	> 9,400 psi (64.8 MPa)

Compressive strength – ASTM C39 with 80% extension (pea gravel)

1 hour	> 2,030 psi (14 MPa)
1 day	> 6,450 psi (44.5 MPa)
28 days	> 8,560 psi (59.0 MPa)

Flexural strength – ASTM C348

1 day	> 730 psi (5.03 MPa)
28 days	> 870 psi (6.0 MPa)

Consistency – ASTM C109

5 minutes	≥ 100%
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Slant/shear bond strength – ASTM C882 (modified)

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

Length change – ASTM C157 (modified per ASTM C928)

28 days, dry-cured	- 0.15%
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28 days, wet-cured      +0.05%

Freeze/thaw resistance – ASTM C666-A  
300 cycles      100% durability factor

Resistance to de-icing salts – ASTM C672  
50 cycles      0 rating, no scaling

Permeability to chlorides – ASTM C1202 (AASHTO T277)  
Very low      100 to 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](mailto:CRS@mapei.com)  
Web: [www.mapei.com](http://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 HORIZONTAL CONCRETE REPAIR PRODUCTS

- A. One-Component, Very Rapid-Hardening, Trowel-Grade, High-Early-Strengthening, Horizontal Cementitious Repair Mortar: Packaged, dry mix for repair of concrete.
1. Product: Subject to compliance with requirements, provide MAPEI Corporation; Planitop 18 TG.
  2. Product shall comply with ASTM C 928/C 928MR3.
  3. Compressive Strength: Not less than 3,000 psi (21.0 MPa) within 3 hours 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. 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 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. Mechanically profile and prepare concrete surfaces by engineer-approved methods in accordance with the most current ICRI 310.2R Guidelines concrete surface profile (CSP) #5 or greater..
- C. Ensure that the concrete surface is saturated surface-dry (SSD) before the installation of Planitop 18 TG. The concrete surface should be free of any standing water.
- D. Reference ICRI Technical Guideline #310.1R-2013 and ACI RAP Bulletin 7 for repair geometry, surface preparation and material application details.

### **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 quantity of 2.8 U.S. qts. (2.65 L) of cool, clean potable water per 50-lb. (22.7-kg) bag. Add the remaining water as needed to achieve the desired consistency.
- 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 a Jiffy mixer.
- C. For an extended mixture, add up to 80% by weight or 40 lbs. (18.1 kg) of clean, washed SSD 3/8" (10 mm) pea gravel per 50-lb. (22.7-kg) bag.

### **3.3 INSTALLATION**

Read all installation instructions thoroughly before installation.

- A. Apply a scrub coat of Planitop 18 TG directly over the SSD prepared surface.
- B. Place Planitop 18 TG immediately over the scrub coat and finish it to the surrounded concrete texture by float or screed. Application times will vary depending on climatic conditions.



#### 3.4 CURING

- A. Keep Planitop 18 TG protected from high winds and direct sunlight while it cures.
- B. Protect from freezing for 12 hours after application.

#### 3.5 PROTECTION

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

END OF SECTION