



PLANILEVEL 500
Quick-Setting, High-Compressive-Strength Underlayment and Topping

SECTION 03 53 00
CONCRETE TOPPING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products for maintenance of concrete, including the following:
 - 1. Self-leveling concrete toppings.

1.2 RELATED SECTIONS

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

1.3 REFERENCES

- A. ASTM International:
 - 1. ASTM C348 – Standard Test Method for Flexural Strength of Hydraulic Cement Mortars.
 - 2. ASTM C349 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using portions of Prisms Broken in Flexure).

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.

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 C349	1 day > 2,800 psi (19.3 MPa)
at 73°F (23°C) and 50% relative humidity	7 days > 4,000 psi (27.6 MPa)
	28 days > 5,000 psi (34.5 MPa)

Flexural Strength – ASTM C348	28 days > 1,280 psi (8.83 MPa)
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- 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 SELF-LEVELING CONCRETE TOPPINGS

- A. Self-Leveling, Self-Drying, Concrete Topping: Packaged, dry mix for repair of concrete, and containing a latex additive as either a dry powder or a separate liquid added during mixing.
 - 1. Product: Subject to compliance with requirements, provide MAPEI Corporation; Planilevel 500
 - 2. Product shall be non-redispersible.
 - 3. Compressive Strength: Not less than 5,000 psi (34.5 MPa) within twenty-eight days when tested according to ASTM C349/C349M.



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. 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, dry and free from hydrostatic pressure.
- 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.
- C. Always use caulking or foam tape to round off any sharp corners that protrude into the room receiving the topping, as well as column bases, supports and equipment pedestals, etc., include the use of foam tape around the perimeter of the pour.
- D. Before the application of PlaniLevel 500, always prime the prepared surface with MAPEI's Primer SN or Primer SN Fast. . Follow immediately with a full sand broadcast (to rejection) with #16 mesh sand or #10/#20 mesh sand. After Primer SN or Primer SN Fast has cured for at least 16 hours, vacuum up the excess sand. Refer to the technical data sheet (TDS) of Primer SN or Primer SN Fast for details.

3.3 MIXING

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



- A. The mixing ratio is 5.5 to 5.8 U.S. qts. (5.20 to 5.49 L) of clean, potable water per 50 lbs. (22.7 kg) bag of PlaniLevel 500. Do not overwater.
- B. Begin mixing while adding 50 lbs. (22.7 kg) of PlaniLevel 500 powder into the premeasured water. Use a high-speed drill and an oval paddle mixer to mix for 1 to 2 minutes, until achieving a smooth, homogenous and lump-free consistency.
- C. Do not overmix. Overmixing or moving the mixer up and down during the mixing process could trap air, shorten the pot life or create pinholing during the application and curing.

Use of integral colors:

Integral colors may be used at the discretion of the owner/installer. However, extreme caution must be exercised to ensure that the type and amount of color does not alter and/or decrease the performance of PlaniLevel 500. A test pour should be conducted that performance characteristics – such as set time, flow, water ratio, ease of finishing and curing – are not significantly altered.

3.4 INSTALLATION

Read all installation instructions thoroughly before installation.

- A. Before installation, close all doors and windows and turn off HVAC systems to prevent drafts. Protect areas from direct sunlight.
- B. Make sure that the substrate and ambient room temperatures are between 40°F and 90°F (4°C and 32°C) before application. Refer to ACI cold-weather application guidelines in cool conditions, and refer to ACI hot-weather application guidelines for temperatures above 85°F (29°C).
- C. PlaniLevel 500 has an approximate flow time of 15 minutes at 73°F (23°C), is self-leveling and can be applied from 3/8" to 2" (6 mm to 5 cm) neat. Note that temperature and humidity will affect the working time, flowability and setting time.
- D. Maintain a continuous flow of wet material to maximize the working/finishing time and achieve a uniform finish throughout. Consider mixing two bags at a time when and work as a team for best results.
- E. Application of PlaniLevel 500 over large areas can be made easier and more efficient by using conventional piston, rotor-stator or underlayment-type pumps. Contact MAPEI's Technical Services Department for recommendations.
- F. Set the width of the pour at a distance that is ideal for maintaining a wet edge throughout placement. Quickly pour or pump PlaniLevel 500 onto the properly prepared and primed surface in a ribbon pattern. If a wet edge cannot be maintained, reduce the width of the pour.
- G. Immediately after placing PlaniLevel 500, spread the material with a gauge rake. After achieving the desired depth, use a smoother to obtain an even surface. To avoid air entrapment, do not overwork the material.
- H. For installations from 2" to 5" (5 to 12.5 cm), extend PlaniLevel 500 up to 30% by weight, or up to 15 lbs. (11.3 kg) per 50-lb. (22.7-kg) bag with washed, well-graded pea gravel measuring 1/8" to 3/8" (3 to 10 mm). Immediately pour an additional 1/4" (6 mm) of PlaniLevel 500 over the raked aggregate to provide a smooth, level surface. Contact MAPEI's Technical Services Department for complete instructions when installing a greater thickness.



- I. Typically, Planilevel 500 can be stained, sealed or coated 24 hours after application. Follow the recommendations of the stain, sealer or coating manufacturer. Test all surface treatments on a small sample area before applications, to ensure desired results. Verify that the moisture content meets the specification of the stain, sealer or coating manufacturer.

3.5 CURING AND PROTECTION

- A. Planilevel 500 is self-curing; do not use a damp-curing method, or curing and sealing compound.
- B. Protect Planilevel 500 from excessive heat and drafts during curing. Turn off all forced ventilation and radiant-heating systems, and protect the installation for up to 24 hours after completion.
- C. Avoid walking on the installed surface for at least 3 hours after installation, depending upon temperature and humidity conditions.
- D. Protect the installation from traffic, dirt and dust from other trades until Planilevel 500 is completely cured.
- E. Do not expose Planilevel 500 to rolling loads, such as forklifts or scissor lifts, for at least 48 hours of installation.
- F. Do not polish the surface of Planilevel 500, but protect it with an appropriate sealer.

END OF SECTION