**MAPECEM 202**
**Medium-Build, Two-Component, Fast-Setting 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. Polymer-modified horizontal repair.
   3. Silica-fume-enhanced concrete repair.

1.2 RELATED SECTIONS

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

1.3 REFERENCES

A. ACI 503.3 - Specification for Producing a Skid-Resistant Surface.

B. ASTM International:
   1. ASTM C1059 - Standard Specification for Latex Agents for Bonding Fresh To Hardened Concrete.
   2. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures.

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. 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

| | |
|---|---|
| 4 hours | > 2,200 psi (15.2 MPa) |
| 8 hours | > 2,900 psi (20.0 MPa) |
| 1 day | > 3,100 psi (21.4 MPa) |
| 7 days | > 4,950 psi (34.1 MPa) |
| 28 days | > 6,150 psi (44.2 MPa) |

Flexural Strength – ASTM C348

| | |
|---|---|
| 1 day | > 1,200 psi (8.28 MPa) |
| 7 days | > 1,400 psi (9.66 MPa) |
| 28 days | > 1,500 psi (10.3 MPa) |

Slant/shear bond strength – ASTM C882 (modified)

| | |
|---|---|
| 1 day | > 1,100 psi (7.59 MPa) |
| 7 days | > 1,300 psi (8.97 MPa) |
| 28 days | > 1,450 psi (10.0 MPa) |

Pull-out strength (rupture of concrete substrate) – ASTM C1583
Greater than concrete

Volume change – ASTM C157 (modified)

| | |
|---|---|
| 28 days, dry-cured | - 0.04% |
| 28 days, wet-cured | + 0.015% |

Abrasion resistance – ASTM D4060, after 7 days
Taber H22-500 g – 200 cycles < 1.5 g

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

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

Permeability to chlorides – ASTM C1202 (AASHTO T277)
Very low - in the range of 100 and 1,000 coulombs

B. Acceptable manufacturer:

MAPEI North America
1144 E. Newport Center Dr.; Deerfield Beach, FL 33442
Toll-Free for CRS Technical Service: 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 HORIZONTAL CONCRETE REPAIR PRODUCTS

A. Two-Component, Polymer-Modified, Fast-Setting, Cementitious Repair Material: 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; Mapecem 202.

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/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. 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 masonry and concrete at least 28 days old, stable 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 clean 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 and prepare concrete surfaces by engineer-approved methods in accordance with the most current ICRI 310.2R guidelines.

C. Ensure that the concrete substrate is saturated surface-dry (SSD) before installation of Mapecem 202. Alternatively, the prepared concrete can be coated with Planibond 3C.

D. 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

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

A. Into a clean mixing pail, pour 4/5 of the required amount of latex liquid (Part B).

B. Slowly add the Part A powder to the liquid while mixing, using a low-speed mixer (at 300 to 500 rpm). Next, add as much as the remaining 1/5 of liquid as needed to achieve the desired consistency. Mix for up to 4 minutes, removing any unmixed powder and remix to a smooth, homogenous consistency.

C. For an extended mix, add up to 20% by weight (11 lbs. or 4.0 kg) of washed, clean, SSD 3/8" (10 mm) pea gravel.

D. Only mix Mapecem 202 Part A powder with Mapecem 202 Part B latex. Do not mix water or other additives to the mix.

3.4 INSTALLATION

Read all installation instructions thoroughly before installation.

A. Apply with a trowel or a screed, with or without formwork (screed rail), on a horizontal surface. The maximum thickness neat is 2" (5 cm). Use extended mix for deeper repair patching up to 6" (15 cm) thick.

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