

**SECTION 03351**  
**MASTERPLATE® F<sub>F</sub>**

*Metallic aggregate dry shake surface hardener  
and flatness enhancer for flat and superflat floors*

**NOTE TO SPECIFIERS**

The purpose of this suggested specification is to assist the specifier while developing a specification for the use of Master Builders MASTERPLATE® F<sub>F</sub>. This specification has been prepared to be part of a complete project specification. It has not been prepared to be a “stand alone” item. This document is not intended to be copied directly into project specifications.

**PART 1 - GENERAL**

**1.01 Related Documents**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.
- B. Provisions of Section 03300, Cast-In-Place Concrete, apply to this Section.

**1.02 Summary**

- A. This Section specifies a pre-mixed, ready-to-use metallic aggregate surface hardener and flatness enhancer for flat and superflat floors; proportioned, mixed, and packaged at the factory.
- B. This product is composed of processed metallic aggregates, cementitious binders, plasticizers, water-reducing admixtures and other proprietary ingredients specifically combined for flat and superflat floors (F<sub>F</sub> 25+).

**1.03 References**

ACI 211.1-91	Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete
ACI 301-89	Specification for Structural Concrete for Buildings
ACI 302.1R-89	Guide for Concrete Floor and Slab Construction
ACI 304 R-89	Guide for Measuring, Mixing, Transporting, and Placing Concrete
ACI 305 R-91	Hot Weather Concreting
ACI 306 R-89	Cold Weather Concreting
ASTM C 309-89	Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM E-1155	Standard Test Method for Determining Floor Flatness and Levelness Using the F-Number System

**1.04 Quality Assurance**

- A. Job Mock-Up: In a location designated by the Architect/Engineer, place a minimum 100 ft<sup>2</sup> (10 m<sup>2</sup>) floor mock-up using materials and procedures proposed for use in the project. Revise materials and procedures as directed by the Architect/Engineer to obtain acceptable finish surface.
  - 1. Maintain the same controls and procedures used in the acceptable mock-up throughout the project.

**1.04 Quality Assurance, continued . . .**

- B. Field Support: During job mock-up and initial period of installation, the manufacturer of the surface hardener will provide, at no cost, a trained, full-time employee to aid in securing proper use of the product.
  - 1. Notify surface hardener manufacturer at least three days prior to initial use of the product.
- C. Installer Qualifications: Engage an experienced installer who has specialized in the application of floor finishes similar to that required for this project.

**PART 2 - PRODUCTS**

**2.01 Materials**

- A. Concrete: Provide concrete materials complying with requirements of Section 03300.
- B. Surface Hardener: "MASTERPLATE F<sub>F</sub>", manufactured by Master Builders, Inc. at a rate of 1.0 to 3.0 lb/ft<sup>2</sup> (4.9 to 14.6 kg/m<sup>2</sup>).
- C. Monomolecular Film: "CONFILM®" can be used under severe drying conditions, due to high concrete and or ambient temperatures, low humidity, high winds, etc., including work in heated interiors during cold weather, to aid in the maintaining of concrete moisture, during the early placement stages of plastic concrete.
- D. Curing Compound: "MASTERKURE®" or "MASTERKURE® 200W" manufactured by Master Builders, Inc. as per manufacturer's recommendation.
- E. Joint Filler: MASTERFILL® 300 manufactured by Master Builders, Inc.

**PART 3 - EXECUTION**

**3.01 Concrete Placement**

- A. Section 03300, Cast-In-Place Concrete, specifies basic concrete materials and placement requirements.
- B. Where heavy-duty or extra heavy-duty, flat or superflat concrete floors are scheduled, provide concrete with the following additional requirements:
  - 1. Maximum slump of 5 in. (12.7 cm) for a slab on grade and 3.5 in. (8.9 cm) for a suspended slab.
  - 2. Do not apply over concrete containing more than 3% air content when tested by ASTM C173 or ASTM C 231 procedures.
  - 3. Do not use calcium chloride or set-accelerating admixtures containing calcium chloride.
  - 4. Do not use admixtures that increase bleeding.
  - 5. Consult ACI 211 Table 6.3.6. for base concrete mix designs and additives for dry shake slabs.
  - 6. Follow ACI-302 recommendations for placement of flat floors.

### 3.02 Application of Surface Hardener

- A. Apply material in two operations if more than 1.5 lb/ft<sup>2</sup> (7.9 kg/m<sup>2</sup>) total amount of shake is required. When possible place and integrate two-thirds of the total amount in the first application and the remaining one-third on the second application.
- B. Following the use of the highway straightedge, apply up to 1.5 lb/ft<sup>2</sup> (7.9 kg/m<sup>2</sup>) of dry shake per application. Distribute evenly by use of a mechanical spreader to be assured of maintaining indicated flatness values.
- C. Use finishing machines with detachable float shoes. Compact surface by a third mechanical floating if time and setting characteristics of the concrete will allow. **Do not add water to the surface.**
- D. As surface further stiffens, indicated by loss of sheen, hand or mechanically trowel with blades set relatively flat.

### 3.03 Curing and Protection

- A. Cure finished floors using film-forming curing compound recommended by surface hardener manufacturer. Uniformly apply curing compound over the entire surface at a coverage that will provide moisture retention in excess of the requirements of ASTM C 309. Maintain ambient temperature of 50 °F (10 °C) or above during the curing period.
- B. After drying, protect hardened surface by covering with scuff-proof, non-staining building paper or polyethylene.
- C. Keep floors covered and free of traffic and loads for a minimum of 10 days after completion.

### 3.04 Joint Filling

- A. After a minimum of 90 days, apply a semi-rigid epoxy joint filler in all control and saw cut construction joints. Place joint filler in a method complying with manufacturer's label instructions.

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