

**SECTION 03354**  
**LUMIPLATE®**

*Non-oxidizing, metallic aggregate, energy saving dry shake surface hardener*

**NOTE TO SPECIFIERS**

The purpose of this suggested specification is to assist the specifier while developing a specification for the use of Master Builders *LUMIPLATE®*. 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, non-oxidizing aggregate surface hardener with high light reflectivity for impact-resistant floors; proportioned, mixed, and packaged at the factory.
- B. This product is composed of processed non-oxidizing aggregates, cementitious binders, plasticizers, water-reducing admixtures and other proprietary ingredients.

**1.03 References**

- ACI 211.1-91 Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete
- ACI 301 Specification for Structural Concrete for Buildings.
- ACI 302.1 Guide for Concrete Floor and Slab Construction.
- ACI 304 Guide for Measuring, Mixing, Transporting, and Placing Concrete.
- ACI 305 Hot Weather Concreting.
- ACI 306 Cold Weather Concreting.
- ACI 308 Standard Practice for Curing Concrete.
- ASTM C 309 Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
- ASTM C 779 Procedure “A” Standard Test Method for Abrasion of Horizontal Concrete Surfaces.

#### **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.
- 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: "LUMIPLATE®", manufactured by Master Builders, Inc.
1. Apply surface hardener at the following rate(s):
    - a. Where indicated "Heavy-Duty Use", 1.8 lb/ft<sup>2</sup> (8.8 kg/m<sup>2</sup>).
    - b. Where indicated "Extra Heavy-Duty Use", 2.5 lb/ft<sup>2</sup> (12.2 kg/m<sup>2</sup>).
- C. Curing Compound: MASTERKURE® or MASTERKURE® 200W manufactured by Master Builders, Inc. as per manufacturer's recommendations.
1. Shall meet the moisture retention requirements of ASTM C 309.
- D. Monomolecular Film: "CONFILM®" by Master Builders, used under drying conditions due to high ambient or concrete temperatures, low humidity, and high winds. Also, including work in heated interiors during cold weather, to aid in the maintaining of concrete moisture during the early placement stages of plastic concrete.
- E. Joint Filler: MASTERFILL® 300 by Master Builders, Inc. as per manufacturer's recommendation.

### **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 floors are scheduled, provide concrete with the following additional requirements:
1. Maximum slump of 4 in. (102 mm) when peak ambient temperatures are expected to be more than 65 °F (18 °C), and no more than 3 in. (75 mm) when ambient temperatures are below 65 °F (18 °C).
  2. Do not apply over concrete containing more than 3% air content when tested by ASTM C173 or ASTM C231 procedures.
  3. Do not use calcium chloride or set-accelerating admixtures containing calcium chloride.

### 3.01 Concrete Placement, continued

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.

### 3.02 Application Of Surface Hardener

- A. Apply material in two operations.
- B. After the concrete has been leveled and as soon as the concrete will support an operator and machine without disturbing the level or working-up excessive fines, float the surface of the slab with a mechanical float fitted with float shoes. Following floating, for a 2.0 lb/ft<sup>2</sup> (9.8 kg/m<sup>2</sup>) application rate, apply 1/2 to 2/3 of the total amount so that a uniform distribution of surface hardener is obtained. The use of a mechanical spreader is recommended. Once the shake has absorbed sufficient moisture (indicated by the darkening of the shake) float the surface. Immediately apply the remaining 1/3 to 1/2 of the shake and allow to absorb moisture. Do not place dry shake on concrete surface when bleed water is present. For the 3.0 lb/ft<sup>2</sup> (14.6 kg/m<sup>2</sup>) application rate, apply the surface hardener in three spreader passes.
- 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. Remove all marks and pinholes in the final raised trowel operation.

### 3.03 Curing and Protection

- A. Cure finished floors using manufacturer approved 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. 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 the joint filler in a method complying with the manufacturer's instructions.

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