Master Builders Technologies
Floor Products
SPECIFICATION BULLETIN

Master Builders Technologies

MASTERPLATE® 200
METALLIC AGGREGATE, COLORED 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 MASTERPLATE® 200 surface hardener. 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 that is proportioned, mixed, and packaged at the manufacturer's owned and operated factory.

B. This product is composed of processed metallic aggregates, cement 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 301-96	Specification for Structural Concrete
ACI 302.1R-96	Guide for Concrete Floor and Slab Construction
ACI 304.1R-89	Guide for Measuring, Mixing, Transporting and Placing Concrete.
ACI 305 R-91	Hot Weather Concreting
ACI 306 R-89	Cold Weather Concreting
ACI 308	Standard Practice for Curing Concrete
ASTM A 185	Specification for Steel Welded Wire, Fabric, Plain, for Concrete Reinforcement
ASTM A 497	Standard Specification for Deformed Steel Welded Wire Fabric
ASTM C 39	Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C 94	Specification for Ready-Mixed Concrete
ASTM C 309	Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 494	Specification for Chemical Admixtures for Concrete
ASTM C 779	Standard Test Method for Abrasion Resistance 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^2 (10 m^2) floor mock-up using actual jobsite materials and installation procedures proposed for use in the project. Revise materials and procedures as directed by the Architect/Engineer to obtain acceptable finish surface. Do not destroy the approved mock-up panel until the floor has been accepted.

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 instructing the proper use of the product.

1. Notify surface hardener manufacturer at least one week 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.

D. Pre-Placement Conference: A pre-placement meeting shall beheld with the Owner (or Owner's Representative), Contractor, Admixture Manufacturer's Representative, Dry Shake Hardener Manufacturer's Representative, Concrete Supplier, Concrete Flatwork (Sub-) Contractor, Pumping (Sub-) Contractor, Field Testing Laboratory, Mix Design Laboratory, and Engineer, at least 7 days prior to the first installation of the dry shake hardener. The agenda will include, but not be limited to, a review of the proposed mix designs and procedures to achieve the required concrete finish. The following guidelines shall be followed:

1. Contractor will hold the pre-placement meeting at least 7 days prior to the first installation/application.
2. Agenda of the pre-placement meeting shall be sent out in advance of the meeting.
3. The Contractor will distribute the minutes of the pre-placement meeting to all attendees within 3 days after the meeting.

PART 2 - PRODUCTS

2.01 Materials

A. Concrete: Provide concrete materials complying with requirements of Section 03300. Do not install over concrete containing more than 3% air content per ASTM C 138, ASTM C 173, or ASTM C 231.

B. Surface Hardener: MASTERPLATE 200 surface hardener manufactured by Master Builders, at a rate _____ lb/ft^2 (1.0 to 2.8 lb/ft^2 {4.9 to 13.7 kg/m^2}).

C. Monomolecular Film: CONFILM® evaporation reducer 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. MISUSE OF THIS MATERIAL MAY COMPROMISE COLOR OF DRY SHAKE.

D. Curing Compound: MASTERKURE® or MASTERKURE 200W curing compounds, or other approved products manufactured by Master Builders, as per Manufacturer's recommendation.

E. Joint Filler: MASTERFILL® 300 joint filler, **iron armored joint**, or other approved materials manufactured by Master Builders, and installed according to Manufacturer's recommendation.

PART 3 - EXECUTION

3.01 Concrete Placement

A. Section 03300, Cast-In-Place Concrete, specifies basis concrete materials and placement requirements.

B. For wear resistant concrete floors, provide concrete with the following additional requirements:

1. Maximum slump of 5 in. (127 mm) for slabs on grade.

2. Do not install over concrete containing more than 3% air content per ASTM C 138, ASTM C 173, or ASTM C 231.

3. Do not use calcium chloride or set-accelerating admixtures containing calcium chloride, or concrete containing aggregate that has been saturated with salt water.

4. Do not use admixtures that substantially increase/decrease the rate of bleeding.

5. Consult the dry shake Material Supplier for approved mix designs and additives.

3.02 Application of Surface Hardener

A. Pump, place or otherwise convey the base concrete at a slump that is not in excess of 5 in. (127 mm) for a slab on grade. After the concrete has been placed, immediately “screed”, then “bullfloat/highway straightedge” the surface. Allow bleed water to rise to surface.

B. Early moisture loss and rapid setting around the perimeter of the slab are typical, and should be monitored closely for proper timing of the floating operation. (If excessive bleed water is present, remove standing water by dragging a hose across the surface, use a squeegee or other approved method, and/or wait until the surface has lost its sheen.)

C. After the water sheen has disappeared, just prior to initial set (a finisher with knee boards will leave approximately 1/8 to 1/4 in. impression), float the surface of the slab “open” with a mechanical float fitted with float shoes.

D. Completely read and follow dry shake manufacturer’s installation instructions. Place and integrate dry shake with a minimum two-pass process. Two-thirds to one-half of the total amount is applied and floated on the first application, and the remaining amount(s) on the succeeding applications. For more than a two-pass application, apply dry shake proportionately (i.e.: three-pass application would be 1/3, 1/3 and 1/3).

The standard application rate of MASTERPLATE 200 surface hardener is 1.0 to 2.8 lb/ft^2 (4.9 to 13.7 kg/m^2) of floor area. When application of dry shake is primarily for light reflective or color, standard application rate is 1.5 to 2.8 lb/ft^2 (7.3 to 13.7 kg/m^2) of floor area. If more than 1.0 lb/ft^2 (4.9 kg/m^2) total shake will be applied, apply in a minimum two-pass application. If more than 2.0 lb/ft^2 (9.8 kg/m^2) total shake will be applied, apply in a minimum three-pass application. For specific rates, refer to the project specification or consult your local Master Builders Representative. **Do not apply the dry shake into the bleed water.**

NOTE: All moisture used to incorporate dry shake material must come from within the slab. Under no circumstances should water be applied to aid in the incorporation of the dry shake. Under severe or rapid drying conditions, the use of an approved evaporation reducer may be mist-sprayed onto the dry shake according to current installation instructions to prevent rapid moisture loss. MISUSE OF THESE MATERIALS CAN COMPROMISE COLOR AND PERFORMANCE OF DRY SHAKE.

3.03 CURING AND PROTECTION

A. At the completion of final troweling and when the surface will not be marred, apply an approved membrane curing compound according to directions.

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.

D. Maintain ambient temperature of 50 °F (10 °C) or above during the curing period.

NOTE: Colored floors require extra care during construction. Furthermore, the newly constructed floor must be protected from staining and damage until the structure goes into surface. Many factors, including jobsite conditions and applicator experience, can affect the final shade, color and appearance of a colored concrete floor.

3.04 Joint Filling

A. **OPTION 1: Semi-Rigid Epoxy Joint Filler**
After a minimum of 30 days*, apply a semi-rigid epoxy joint filler (i.e., MASTERFILL 300 joint filler) or joint filler material approved by surface hardener Manufacturer, in all non-dynamic control and saw-cut construction joints. Place joint filler in a method complying with Manufacturer's instructions.

***NOTE:** Please refer to ACI 302R-96, Chapter 9.10. It is strongly recommended that the installation of the joint filler material be delayed as long as possible. Allowing the slab(s) to cure as long as possible prior to installing the joint filler will reduce the amount of "separation" between the slab and the joint filler.

B. **OPTION 2: Iron Armored Joints**
For **iron armored joints**, use the following recommended procedure.

The concrete at the joints to be armored should be removed to a depth of 1/2 in. (13 mm) at the joint line and tapered back to the surface level over 4 in. (10.2 cm) width. Mix the MASTERPLATE 200 surface hardener with enough water to produce a stiff mortar. Hand float the area where the concrete has been removed, working up sufficient paste to assure an integral bond. Immediately place the MASTERPLATE 200 mortar into the prepared joint, then rescreed the area to level. Use 4.50 lb (2.0 kg) per lineal foot, which is 2.25 lb (1.0 kg) per foot for each side of the joint.

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