SECTION 03360

CONCRETE FINISHING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Finishes for poured-in-place Portland cement concrete.

1.02 REFERENCES

A. Concrete Placement: Section 03300.

B. Concrete Curing: Section 03390.

C. ACI 301 - Specifications for Structural Concrete for Buildings

1.03 SUBMITTALS

A. Mockups: Cast mockup of of size equal to a ___ [1] [3] cubic yard pour to demonstrate proposed surface finish, texture, and color. Use the same cement brand, aggregate type and construction methods that will be used on the job. Maintain sample panel exposed to view for duration of Project, after Architect's acceptance of visual qualities.

1. Pour mock-up under weather conditions that will approximate anticipated weather conditions, including shading, temperature, time of day, finishers, tools, curing practices, etc. Check and verify air content and slump after addition of color pigments. If adjustments are made to mix design, pour new mock-up.

1.04 QUALITY ASSURANCE

A. ACI Publications: Comply with ACI 301.

B. Finisher Qualifications: Company specializing in performing the work of this Section with a minimum of 5-years documented experience or not less than 10 projects with similar quantity of surface area for colored or imprinted concrete.

C. Acceptable Manufacturers: Products of manufacturers approved not less than 10 days prior to opening of bids. Submit requests for approval in accordance with procedures identified for substitutions specified in Division 1, including any Substitution Request forms and other documentation. Equivalent products of competing manufacturers are acceptable provided they match color and finish characteristics of job-site mock-up.

1. Construction Schedule Compliance: Provide evidence from ready-mix producer that indicates producer has or can procure sufficient quantities of specified materials so as not to delay the construction schedule.

PART 2 - PRODUCTS

2.01 FLOOR AND SLAB TREATMENTS

A. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery with emery aggregate containing not less than 50 percent aluminum oxide and not less than 25 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.

1. Product: **EMAG-20; Lambert Corp.**

B. Unpigmented Mineral Dry-Shake Floor Hardener: Factory-packaged dry combination of portland cement, graded quartz aggregate, and plasticizing admixture.

1. Product: **Colorhard; Lambert Corp.**

C. Pigmented Mineral Dry-Shake Floor Hardener: Factory-packaged dry combination of portland cement, graded quartz aggregate, coloring pigments, and plasticizing admixture. Use coloring pigments that are finely ground, nonfading mineral oxides interground with cement.

1. Product: **Colorbrite; Lambert Corp.**
2. Colors: Refer to drawings and match colors of Architect's approved samples.

Editorial Note: Penetrating liquid floor treatment below is commonly applied to harden and densify floors of warehouses and distribution facilities, imparting a satin sheen to finished floor.

D. Penetrating Liquid Floor Treatment: Chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components; odorless; colorless; that penetrates, hardens, and densifies concrete surfaces.

1. Product: **Solidus; Lambert Corporation.**

PART 3 - EXECUTION

3.01 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast texture.

B. Smooth-Formed Finish: As-cast texture where forms are arranged in an orderly and symmetrical manner with a minimum of seams.

1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly.

C. Rubbed Finish: Apply the following to smooth-formed finished concrete:

Select one rubbed finish from subparas below if required.

1. Smooth-Rubbed Finish: Moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.

2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Add white cement so color of dry grout will match adjacent surfaces.

D. Related Unformed Surfaces: Strike smooth and finish with a texture matching adjacent formed surfaces.

3.02 FINISHING FLOORS AND SLABS

A. Scratch Finish: Texture concrete surface with stiff brushes, brooms, or rakes. Apply to surfaces to receive concrete floor topping or mortar setting beds for ceramic or quarry tile, portland cement terrazzo, and other bonded cementitious floor finishes.

B. Trowel Finish: Apply a trowel finish to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a membrane, paint, or another coating system

1. Finish and measure surface so gap at any point between concrete surface and an unleveled freestanding 10-foot- (3 m-) long straightedge, resting on two high spots and placed anywhere on the surface, does not exceed 1/4 inch (6 mm).

C. Trowel and Fine-Broom Finish: Apply a slightlty scarified fine broom finish to surfaces where ceramic or quarry tile is to be installed.

D. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps.

Delete para and subparas below if not applicable. Generally used on interior and exterior concrete treads, platforms, and ramps subject to moderate foot traffic.

E. Slip-Resistive Aggregate Finish: Before final floating, apply slip-resistive aggregate finish where indicated and to concrete stair treads, platforms, and ramps.

1. Spread slip-resistive aggregate at ¼-lb/sq. ft. (1 kg/sq. m). Tamp flush with surface, but do not force below surface, then apply a float finish.

2. After curing, lightly work surface with a steel wire brush or an abrasive stone, and water to expose slip-resistive aggregate.

Retain para and subparas below if mineral dry-shake hardener finish, either pigmented, or unpigmented, is required.

F. Dry-Shake Floor Hardener Finish: After initial floating, apply mineral dry-shake materials to surfaces as follows:

1. Apply mineral dry-shake materials at a rate of 1-lb/sq. ft. (5 kg/sq. m).

2. Uniformly distribute approximately two-thirds of mineral dry-shake materials over surface by hand or with mechanical spreader, and embed by power floating. Follow power floating with a second mineral dry-shake application, uniformly distributing remainder of material, and embed by power floating.

Coordinate selection of curing compounds for compatibility with dry-shake materials and revise lists in part 2 accordingly, if required.

3. After final floating, apply a trowel finish. Cure concrete with curing compound recommended by dry-shake material manufacturer and apply immediately after final finishing.