SECTION 03360

CONCRETE FINISHES

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PART 1 GENERAL

PART 1.1 SECTION INCLUDES

A. Decorative concrete floor finish system as specified or scheduled.
   1. Polymer stain for interior and exterior horizontal and vertical surfaces as specified or scheduled.
   2. Wax for interior concrete floor surfaces as specified or scheduled.
   3. Acrylic polymer wax for interior concrete floor surfaces as specified or scheduled.
   4. Concrete floor sealer as specified or scheduled.
   5. Clear topcoats for concrete finishes as specified or scheduled.
   6. Clear penetrant for concrete finishes as specified or scheduled.
   7. UV cured floor coating finish for interior concrete floors.
   8. Cleaners and strippers for surface preparation as required.

PART 1.2 RELATED SECTIONS

A. Section 03300 - Cast-in-Place Concrete.

B. Section 09960 - High Performance Coatings.

PART 1.3 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Surface preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

E. Installer's Project References: Submit list of successfully completed projects, including project name and location, name of architect, and type and quantity of decorative concrete floor finish systems applied.

F. Maintenance Instructions: Submit manufacturer's maintenance and cleaning instructions.

PART 1.4 QUALITY ASSURANCE

A. Installer Qualifications:
1. Successful experience in application of similar decorative concrete floor finish systems.
2. Employ persons trained for application of decorative concrete floor finish systems.

B. 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, color, and sheen are approved by Architect.
3. Refinish mock-up area as required to produce acceptable work.

C. Single Source Responsibility: Concrete floor finish materials shall be products of a single manufacturer.

D. -installation Meeting: Convene a meeting before the start of the application of concrete floor finish system. Require attendance of parties directly affecting work of this section, including Contractor, Architect, and applicator. Review surface preparation, application, protection, and coordination with other work.

PART 1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

C. Concrete Floor Wax and Concrete Floor Sealer: Keep away from ignition sources. Do not allow to freeze.

D. Handling: Protect materials during handling and application to prevent damage or contamination.

PART 1.6 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 absolute limits.

B. Exterior Surfaces: Do not apply materials in wet weather.

C. Concrete Floor Wax: Do not apply when air or surface temperature is below 55 degrees F (13 degrees C).

D. Concrete Floor Stain: Do not apply when air or surface temperature is below 40 degrees F (4 degrees C).

E. Concrete Floor Sealer: Do not apply when air or surface temperature is below 55 degrees F (13 degrees C).

PART 1.7 SEQUENCING

A. Prepare surface and apply concrete floor stain after other interior finish work is completed and before baseboards and trim are installed.

PART 2 PRODUCTS

PART 2.1 MANUFACTURERS, INSTALLERS

A. Acceptable Manufacturer: EPMAR Corporation, which is located at: 13240 Barton Circle ; Whittier, CA 90605-3254; Tel: 562-236-1175; Email: request info (villaw@quakerchem.com); Web: www.epmar.com

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

D. Northwest Floor Care, Inc. 2920 Malmo Drive, Arlington Heights, IL 60005, Phone (847) 640-0390, Fax: (847) 640-1050 Contact: Jim Muzzillo Jr., email: jmuzzillojr@northwestfloor.com

PART 2.2 CONCRETE FLOOR STAIN

A. Product: Kemiko Stone Tone Stain as manufactured by Epmar Corporation.
1. Type: Combination of acid solution, wetting agents, and metallic ions. When mixed with water, chemically combines with Portland cement to form permanent colors.
2. Color: Malay Tan.
3. Color: Green Lawn.
4. Color: Black.
5. Color: Cola.
6. Color: English Red.
7. Color: Aqua Blue.
8. Color: Golden Wheat.
9. Color: Vintage Umber.

PART 2.3 POLYMER STAIN

A. Polymer Stain: Rembrandt Polymer Stain as manufactured by Epmar Corporation.
1. : Water-extended, acrylic urethane polymer solution with added pigments.
2. Volume Solids: 20 percent.
3. VOC: Less than 30 g/L. Meets final SCAQMD Rule 13 (2008).
4. Base Color: Adobe.
5. Base Color: Black.

6. Base Color: Oyster.
7. Base Color: Sand.
8. Base Color: Tweed.
9. Base Color: White.
10. Color: Phthalo Blue.
11. Color: Medium Yellow.
12. Color: Yellow Oxide.
13. Color: Monoazo Red.
14. Color: Red Oxide.
15. Color: Orange.
16. Color: Phthalo Green.
17. Color: Raw Umber.
18. Color: Raw Sienna.
19. Color: Burnt Umber.
20. Color: Burnt Sienna.
21. Color: Violet.

PART 2.4 CONCRETE FLOOR FINISH

A. Floor Wax: Kemiko Stone Tone Buff On Wax II as manufactured by Epmar Corporation.
1. Type: Aliphatic petroleum wax.
2. Non-yellowing.
3. Fast drying.
4. Satin finish.

B. Acrylic Polymer Wax: Kemiko Easy Shine Mop On as manufactured by Epmar Corporation.
1. Type: A low-VOC single component waterborne acrylic polymer wax. Designed to repel water, reduce scuffing and marring, allows substrate to breath, is low odor, and produces a deep rich shine.
2. Clear gloss.

C. Floor Sealer: Kemiko Stone Tone Sealer II as manufactured by Epmar Corporation.
1. Type: Acrylic water-based urethane clear sealer.
2. Solids Content: 30 percent.
3. Non-yellowing.
4. Resistant to blush.
5. Clear gloss.
6. VOC compliant.
7. Quick drying.

D. Clear Topcoat: Clear Polyurethane.
1. Product: Kemiko SS2700.
2. : Two component, waterborne, high-solids, aliphatic polyurethane coating.
3. Color: Clear.
4. Color: White.
5. Color: Gloss.
6. Primer: Self-priming.
7. Primer: Kemiko SS1600.
8. Primer: Kemiko SS3700.
9. Primer: Kemiko SS3800.

E. Clear Topcoat: High Gloss Clear Epoxy.

1. Product: Kemiko SS3700 WB.
2. Type: High-gloss, quick-dry, amine-cured, water-extended, epoxy coating.
3. Color: Clear.
4. Color: White.
5. Color: Gray.
6. Color: Tan.
7. Color: Spanish Red.
8. Color: Light Gray.
9. Color: Beige.
10. Color: Diego Blue.
11. Color: Yellow.
12. Color: Navajo White.

F. Clear Penetrant: Kemiko Sta-Natural as manufactured by Epmar Corporation.
1. Type: A water viscosity, single component zero VOC waterborne silane/siloxane emulsion designed to repel water, reduces efflorescence and frost damage, allows substrate to breathe, with very little or no odor. Does not contain solvents, and preserves stained concrete color. Resistant to UV and high alkalinity exposure.

G. UV Cured Floor Finish: Field applied high-performance polyester UV-curable floor coating system for new or existing concrete floor. The one-component formulation shall be applied by roller or squeegee. A mobile UV Floor Curing Lamp shall be used to cure the system.
1. Product: RapidShield as manufactured by Quaker Chemical.
2. Color: Refer to drawing for schedule of floor and marking locations and colors.
3. Color: QV 0007 - Clear (Seal coat and primer).
4. Color: Clear (Seal coat) with glossy finish.
5. Color: Clear (Seal coat) with matt finish.
6. Color: QV 0604 - Safety Yellow.
7. Color: QV 0008 - High Build Sealer.
8. Color: QV 0202 - White.
9. Color: QV 0404 - Quaker Blue.
10. Color: QV 0304 - Light Grey.
11. Color: QV 0501 - Safety Green.
12. Color: QV 0305 - Pewter Grey.
13. Color: QV 0902 - Safety Red.
14. Technical Data:
    a. Gloss: 80+.
    b. Theoretical VOC: 0 lb/gallon.
    c. Pencil Hardness: 2H+.
    d. Chemical Resistance: 100 MEK double rubs; no failure.
    e. Application: 4-8 mils (0.1 mm to 0.2 mm) DFT.
    f. Viscosity (#3 Zahn Cup at 77 degrees F (25 degrees C).QRS0007 Clear: 18-22 second.QRS0008 Sealer: 60-80 second.Colors: 45-55 second.

PART 2.5 CLEANER/ STRIPPER

A. Heavy Duty Water Base Stripper: Kemiko Easy Strip as manufactured by Epmar Corporation.
1. Type: High performance Ammonia/Alkaline concentrate in water base wax stripper designed specifically for removing Kemiko Stone Tone and

Kemiko Easy Shine waxes.

2. Biodegradable with low ammonia odor.

B. Water Base Cleaner (alkaline concentrate in water): Kemiko Neutra Clean as manufactured by Epmar Corporation.

1. Type: Industrial strength, low VOC, high performance water base sodium metasilicate cleaner for the preparation of bare concrete and coated substrates.
2. Biodegradable with low odor.

PART 3 EXECUTION

PART 3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

PART 3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Protection:

1. Protect walls and surrounding surfaces not to receive decorative concrete floor finish.
2. Do not allow products to come in contact with wood or metal surfaces.

D. Concrete shall be as specified in Section 03300. Verify concrete is a minimum of 28 days old.

E. Confirm that concrete surface is clean, dry, structurally sound, and free from dirt, dust, oil, grease, solvents, paint, wax, asphalt, concrete curing compounds, sealing compounds, surface hardeners, bond breakers, adhesive residue, and other surface contaminants.

F. Do not acid wash or use heavy alkali cleaners.

PART 3.3 STRIPPING

A. Bare Concrete: Apply water base stripper to substrate and let stand for 2 to 3 minutes. Work into surface with brooms, brushes or floor scrubbing machines. Do not allow stripper to dry on floor. Rinse with clean water and repeat stripping operation until surface is free of wax contaminants. Substrate shall be allowed to dry thoroughly prior to re-coating application.

B. Existing Coatings/Sealers: Apply water base stripper to substrate and let stand for 2 to 3 minutes. Do not allow cleaner to dry on floor. Rinse with clean water and repeat cleaning operation until substrate is free of contaminants. Substrate shall be allowed to dry thoroughly prior to coating application. Stripping of acrylic sealers may result from stripping operation. Test compatibility with existing sealers if scheduled to remain.

C. Reduction:

1. Light Duty: 1 part Kemiko East Strip to 2 part water.
2. Medium Duty: 1 part Kemiko East Strip to 1 part water.
3. Heavy Duty: Applied without dilution.

PART 3.4 CLEANING

A. Bare Concrete: Apply water base cleaner to substrate and let stand for 2 to 3 minutes. Work into surface with brooms, brushes or floor scrubbing machines. Do not allow cleaner to dry on floor. Rinse with clean water and repeat cleaning operation until substrate is free of contaminants. Substrate shall be allowed to dry thoroughly prior to coating application.

B. Existing Coatings/Sealers: Apply water base cleaner to substrate and let stand for 5 to 10 minutes. Do not allow cleaner to dry on floor. Rinse with clean water and repeat cleaning operation until substrate is free of contaminants. Substrate shall be allowed to dry thoroughly prior to coating application. Stripping of acrylic sealers may result from cleaning operation. Test compatibility with existing sealers if scheduled to remain.

C. Reduction:
1. Light Duty: 1 part Kemiko Neutra Clean to 10 part water.
2. Medium Duty: 1 part Kemiko Neutra Clean to 5 part water.
3. Heavy Duty: 1 part Kemiko Neutra Clean to 2 part water.

PART 3.5 STAIN APPLICATION

A. Apply concrete floor stain in accordance with manufacturer's instructions at locations indicated on the drawings.

B. Control depth of color by adjusting volume of stain applied to floor.

C. Apply 2 applications of concrete floor stain. Allow floor to completely dry after each application. Do not scrub clean between applications.

D. After floor has completely dried, scrub off stain residue in accordance with manufacturer's instructions. Allow floor to completely dry.

E. Keep material containers closed when not in use to avoid contamination.

PART 3.6 POLYMER STAIN APPLICATION

A. Apply polymer stain in accordance with manufacturer's instructions at locations indicated on the drawings.

B. Concrete, Plaster, and Polymer Cement Substrate:
1. Remove dirt, dust, oil, grease, and other surface contaminants before abrasive surface preparation, acid etching, and water washing.
2. Confirm surfaces are cured, dry, and free from alkali stain and laitance.
3. Verify concrete is a minimum of 28 days old.

C. Wood Substrate: Ensure surfaces are clean, dry, and free from mildew, organic matter, and surface contaminants.

D. Apply polymer stain as a stain finish.

E. Apply polymer stain as a wash finish.

F. Apply polymer stain as a faux finish.

G. Do not add thinners or dilute polymer stain.

H. Keep material containers closed when not in use to avoid contamination.

I. Use application equipment, tools, pressure settings, and techniques in accordance with manufacturer's instructions.

J. Apply polymer stain to be free of film characteristics and defects that would adversely affect performance or appearance.

K. Apply clear topcoat over polymer stain in accordance with manufacturer's instructions.

PART 3.7 FLOOR SEALER APPLICATION

A. Apply sealer in accordance with manufacturer's instructions at locations indicated on the drawings.

B. Do not dilute sealer.

C. Apply sealer in a thin uniform film.

D. Apply second coat of sealer if required by manufacturer's instructions. Apply second coat after first coat is dry.

E. Keep sealer film build-up to a minimum.

F. Keep material containers closed when not in use to avoid contamination.

PART 3.8 CLEAR PENETRANT APPLICATION

A. Surface Preparation - Concrete: All visible oil, grease, sludge, stain residue and any other contaminants shall be removed prior to any Kemiko Sta-Natural application. Surface shall be cured, dry and free from alkali stain and laitance. Mask all glass and metal surfaces - these surfaces shall be protected from contact with this product.

B. Apply between 50 degree F and 100 degree F (10 degrees C and 38 degrees C) with temperature 5 degree above dew point. Do not store in direct sunlight. Protect from freezing. Do not apply if rain is forecast within 24-hours of application. Do not apply to asphalt, glazed brick or glazed tile. Do not apply to wet or frosted surfaces.

PART 3.9 FLOOR WAX APPLICATION

A. Apply and buff wax in accordance with manufacturer's instructions at locations indicated on the drawings.

B. Keep material containers closed when not in use to avoid contamination.

PART 3.10 UV CURED FLOOR FINISH

A. Preparation: Completely remove any existing coating.

B. Environment: The minimum floor application temperature color shall be 23

degrees F (-5 degrees C) and 3 degrees above dew point. Optimum application temperature is 68 degrees F (20 degrees C). Maximum relative humidity is 85%.

C. Concrete Substrates: Prepare according to ASTM F-710.
1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
3. Moisture Testing:
   a. Perform anhydrous calcium chloride test, ASTM F-1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sf (.015 kg/sm) in 24 hours.
   b. Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.

D. Application: With the floor ground and shot blasted apply the product to required thickness by either roller or squeegee. The product shall be cured using a driven UV Floor Curing Lamp that cures the coating instantly.

E. Color Coat: Colors shall only be applied directly to a clear coat of the product (applied as a primer/sealer) or to the high build sealer for purposes such as demarcation lines, designation of safety areas, truck traffic ways and walkways.
1. Application Rate: 2.5 mils to 3.5 mils (.06 mm to .09 mm) per coat.
2. Multiple coats shall be applied to obtain the required opacity.
3. A clear top coat shall be applied over the color coats to provide optimum cleaning and durability.

PART 3.11 PROTECTION

A. Protect decorative concrete floor finishes from damage during construction.

B. Protect concrete surfaces from foot traffic for a minimum of 24 hours.

C. Avoid washing concrete surfaces for a minimum of 48 hours.

D. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION