Bomanite Custom Polishing System

VitraFlor by Bomanite Guideline Specification

Deep Grind Application

SECTION 033000

CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

A. Work specified in this section includes all labor, materials, equipment and services necessary to complete the VitraFlor by Bomanite Custom Polishing System including curing compounds, appropriate suface preparation, concrete densifiers and stain-resistant treatments.

B. Related Sections include the following:

1. Division 1 Section “Product Requirements” for submittals and substitutions.

2. Division 3 Section “Curing Compounds” for concrete slabs.

3. Division 3 Section “Joint Sealers” Installation of caulking.

1.3 SUBMITTALS

A. Product Requirements:

1. Provide submittal information within 35 calendar days after the contractor has received the owner's notice to proceed.

B. Product Data:

1. Submit special concrete finishes manufacturer’s specifications, test data and other data required for each type of manufactured material and product indicated.

2. Submit special concrete finishes technical bulletins listing manufacturer’s name, product name and descriptive data, curing time and application requirements.

3. Submit special concrete finishes manufacturer’s Material Safety Data Sheet (MSDS) and other safety requirements.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: The contractor for this work shall be a licensed Bomanite Custom Polishing Franchise Partner and Certified Applicator trained and equipped by Carolina Bomanite Corporation 800-522-6514.

1. Provide letter of certification from The Bomanite Company stating that installer is a certified applicator of special concrete finishes and is familiar with proper procedures/installation requirements of the manufacturer.

2. Use an authorized Bomanite Franchise Partner and adequate number of skilled workmen who are thoroughly trained and experienced in the necessary craft.

3. Applicator shall be familiar with the specified requirements and the methods needed for proper performance of work of this section.

4. Applicator shall be familiar with the previously approved mock-ups that demonstrated standard of workmanship.

5. Authorized Bomanite Custom Polishing Systems installers limited to the following:

a. Carolina Bomanite Corp – 800-522-6514 for North & South Carolina

B. Manufacturer Qualifications: A firm experienced in the support and training of a national installer network and manufacturing products required/listed to complete the work.

1. Carolina Bomanite Corp – 800-522-6514

C. Source Limitations:

1. Concrete: Obtain each type or class of cementitious material of the same brand from the same manufacturer’s plant, obtain aggregate from one source and obtain admixtures from one source from a single manufacturer.

D. Mock-ups:

1. Apply each type finish to mock-ups to demonstrate typical joints, depth of grind, color variation (if any) and standard of workmanship.

a. Mock-up shall include entire system, including specified concrete mix, depth of grind, hardening chemicals and surface treatments.

b. Notify Architect or Owner Representative seven days in advance of dates and times when mock-ups will be constructed.

c. Obtain from the Architect or Owner Representative approval of mock-ups before starting construction.

d. If the Architect or Owner Representative determines that the mock-ups do not meet requirements, General Contractor will demolish and remove them from the site and cast others until mock-ups are approved.

e. Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed work.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer labels indicating brand name and directions for storage, mixing with other components and application.

B. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture or other detrimental effects.

C. Dispense special concrete finish material from factory numbered and sealed containers. Maintain record of container numbers.

1.6 PROJECT CONDITIONS

A. Environmental Limitations:

1. Comply with manufacturer's written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation and other conditions affecting installation performance.

2. Concrete must be cured a minimum of 28 days or as directed by the manufacturer before application of Bomanite Custom Polishing can begin.

B. Close areas to traffic during and after floor application for time period recommended in writing by licensed installer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce products, the following requirements apply to product selection:

1. All Manufacturers: Subject to compliance with requirements, manufacturers offering materials decorative in nature required to be incorporated into the work include, and are limited to, being provided by:

a. Carolina Bomanite Corp – 800-522-6514

2.2 MATERIALS

A. Bomanite Stabilizer Pro: Proprietary water based liquid hardener based on Lithium Silicate with Silane additives containing no VOC's applied at three points of the installation process formulated to chemically harden and improve the density of concrete surfaces.

B. Bomanite Stain Guard: Proprietary water based liquid hardener with additional stain resistant properties based on Lithium Silicate and Methacrylate additives containing <50 g/l VOC applied as the final step of the installation process formulated to chemically harden and improve the stain resistance of interior concrete surfaces.

C. Patching materials: Bomanite GFRC Facing Mix – no equals accepted. Trowel or spray applied mortar based on Type II Portland cement blended with Calcium Aluminate cement modified with Styrene Butadiene polymer designed to bond to prepared concrete and cure rapidly in order to aid grinding production.

D. No substitutions or alternates to the above will be accepted.

E. Related Materials.

1. QC Construction Products Clear Cure: A water based acrylic sealer containing <250 g/l VOC designed to bond to fresh concrete and meet ASTM C-309 membrane curing standards while being compatible with the Bomanite Custom Polishing processes. 1-800-522-6514

2. Hi-Tech Structural Systems Polyurea Joint Filler HT-PE85: A two component rapid curing polyurea joint filler containing <70 g/l VOC designed to fill and support the sawed joints in a concrete slab while being compatible with the Bomanite Custom Polishing processes. 1-800-522-6514.

3. No substitutions or alternates to the above will be accepted.

2.3 CONCRETE

A. Portland cement: shall conform to ASTM C 150, Type I, II or V.

B. Aggregates: shall conform to ASTM C 33.

C. Water: Mixing water shall be fresh, clean and potable.

D. Air Entrainment: No air entrainment is to be used in the concrete mix design.

E. Water-Reducing Admixtures: Water-reducing admixtures are permitted and shall conform to ASTM C 494.

F. Pozzolans: Fly Ash conforming to ASTM C618 type F or Blast Slag conforming to ASTM C989 is required for use in the concrete mix design.

2.4 CONCRETE MIX SPECIFIC TO BOMANITE VITRAFLOR REQUIREMENTS

A. Requirements:

1. Slump: 4 to 6 inch slump. Obtain approval from Owner's Authorized Representative if slump is outside these parameters.

2. Minimum PSI Rating: 28 days @ >3,000 psi with 60 days @ >4,000 psi.

3. Cement quantity per yard of mix:
   a. Minimum: 5 sacks.
   b. Maximum: 7 sacks.

4. Water/cement ratio: Maximum .6.

5. Aggregates: Use maximum topsize aggregate with lowest paste content possible.

6. Admixtures: Mid range water reducers recommended.

7. Fly ash or Blast Slag: Use in all applications possible up to 40% cement content.

8. Accelerators: Do not use accelerators.

2.5 CONTROL JOINTS

A. Form weakened-plane contraction joints, sectioning concrete into areas as indicated with power saws equipped with shatterproof abrasive or diamond-rimmed blades.

B. Cut 1/8 to 1/4-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

C. Construct control joints for a depth equal to at least one-third of concrete thickness.

PART 3 - EXECUTION

3.1 PRECONSTRUCTION PLANNING

A. Consult General Contractor, Structural Engineer, Architect and Concrete Contractor prior to installation of concrete slab to ensure complete understanding of substrate preparation, reinforcement, penetrations, mix design, placing and finishing requirements, etc.

B. Verify that the concrete slab will meet a minimum of 3,000 psi of compressive strength and has a minimum flatness rating of F35 as per ASTM E1155 – see supplemental Bomanite Custom Polishing Standard FF/FL Floor Tolerance Specification. Consult American Concrete Institute ACI302.IR-89, Guide for Concrete Floor and Slab Construction requirements in Division 3 Section "Cast-In-Place Concrete," and “Project Conditions.”

C. Confirm that the General Contractor through coordination with other trades will be responsible for the protection of the slab during construction to ensure that no contaminants such as (but not limited to) oil, grease, paint, adhesives, flux, etc will be present at the time of concrete polishing.

3.2 EXAMINATION OF SLAB PRIOR TO APPLICATION

A. Examine substrate, with installer present, for conditions affecting performance of finish. Rectify conditions detrimental to timely and proper work. Do not proceed until unsatisfactory conditions are corrected.

B. Verify that base slab meets finish and surface profile requirements in Division 3 Section "Cast-In-Place Concrete," and “Project Conditions” above.

C. Prior to application, verify that floor surfaces are free of construction damage and contaminants.

D. Repair of defective concrete due to improper installation is the Polishing Concrete Contractor’s responsibility. Removal and replacement of concrete that cannot be repaired and patched to Architect’s approval is the Concrete Contractor’s responsibility. The determination of whether the concrete can be repaired or must be removed and replaced is the General Contractor’s to make with the knowledge that adequate cure time of replaced sections must be allowed prior to commencing the grinding, staining and polishing process.

3.3 INSTALLATION OF POLISHING PROCESS

A. Construction Process:

1. Apply specialty hardening and polishing process in accordance with manufacturer's proprietary, internal application procedures.

    a. VitraFlor by Bomanite—Exposure of aggregate: Concrete to be ground to a full top size aggregate cross section (minimum starting grit of 25 metal bond or honed with an adjustable depth milling machine followed by a 40-grit metal bond) and polished to 3,000 grit.

    b. Concrete must be in place to reach an adequate strength to begin polishing without experiencing fine aggregate loss from the initial grinding process or as directed by Bomanite before application can begin.

    c. Control joints to be filled with Polyurea and shaved prior to the grinding and polishing process.

    d. Application is to take place and be completed prior to racking and other in-store furniture and cabinetry installation, thus providing a complete, un-inhibited concrete slab for application.

    e. Only a certified applicator shall install Bomanite VitraFlor. Applicable procedures must be followed as recommended by the product manufacturer and as required to match approved test sample and achieve required properties.

3.4 PROTECTION

A. General: Protect finished work from traffic until fully cured in accordance with manufacturer's recommendations.

END OF SECTION 033000