



## *SASE Signature Floor System Specification*

### **RELEVANT SPEC SECTIONS**

**03 35 43 – POLISHED CONCRETE FINISHING**

**03 35 43.13 – POLISHED AND DYED CONCRETE FINISHING**

### **PART 1- GENERAL**

#### **1.01 SUMMARY**

- A. This section includes:
  - 1. Preparation and Application of the SASE SIGNATURE FLOOR SYSTEM
- B. Application of clear reactive, penetrating liquid hardener and concrete dye.
- C. Progressively polishing and burnishing of the slab surface to achieve Finish Requirements.
- D. Application of stain resistant surface treatment.
- E. RELATED SECTIONS:
  - 1. Section 01 74 00 - Cleaning and Waste Management
  - 2. Section 03 31 00 - Structural Concrete
  - 3. Section 03 33 00 - Architectural Concrete
  - 4. Section 03 39 00 - Concrete Curing
  - 5. Section 07 90 00 - Joint Protection
- F. RELATED WORK:
  - 1. Section 03 30 00 - Cast-In-Place Concrete

#### **1.02 REFERENCES**

- A. American Society for Testing and Materials: ASTM C 1028 Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull Meter Method.
- B. ASTM D 3278 Standard Test Method for Flash Point of Liquids by Small Scale Closed Cup Apparatus.
- C. ASTM D 3363-05 Standard Test Method for Film Hardness by Pencil Test.
- D. ASTM E 430 Standard Test Method for Measurement of Gloss of High-Gloss Surfaces by Abridged Goniophotometry.
- E. Rilem Test Method -Test No. 11.4 Measurement of Water Absorption Under Low Pressure.
- F. ASTM-C779, Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces
- G. ASTM G23-81, Ultraviolet Light & Water Spray
- H. ASTM C805, Impact Strength
- I. American Concrete Institute
- J. ACI 302. 1-89, Guide for Concrete Floor and Slab Construction

#### **1.03 SUBMITTALS**

- A. Product Data: Submit manufacturer's product data sheets on all products to be used for the work.
- B. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- C. Submit description for protection of surrounding areas, surface preparation, application, and final cleaning.
- D. VOC Certification: Submit certification that products furnished comply with regulations controlling use of volatile organic compounds (VOC).
- I. Comply with pertinent provisions of Section 01 60 00- Product Requirements.
  - 1. Provide submittal information within 35 calendar days after the contractor has received the owner's notice to proceed.

#### 1.04 QUALITY ASSURANCE

- A. Installer:
  - 1. ***ONLY APPROVED APPLICATORS MAY APPLY THE SASE SIGNATURE FLOOR SYSTEM. Call Northwest Floor Care, Inc. 200 Joey Drive, Elk Grove Village, Illinois, contact Jim Muzzillo (847) 640-0390x 16***
- B. Performance Characteristics:
  - a. ANSI B101.1 WALKWAY STANDARD FOR HARD SURFACES.  
Finished concrete must meet or exceed the new high traction standard for wet hard surfaces of .60, as measured by the BOT-3000, using a neolite foot sensor. Measurement must be done in four directions in each zone tested and an average COF value must be referenced. The generally accepted COF value of .80 for ramps as referenced by the ADA Act..
  - b. Degree of Reflectiveness as per horizontal test area tested in accordance with ASTM E 430.
  - c. Degree of Hardness as per horizontal test area tested in accordance with ASTM D 3363-05.
  - d. Measure of Water Absorption as per horizontal test area tested in accordance with Rilem Test Method – Test No. 11.4
- C. Slab Protection:
  - 1. No satisfactory chemical or cleaning procedure is available to remove petroleum stains from the concrete surface. Prevention is therefore essential.
    - a. All hydraulic powered equipment must be diapered to avoid staining of the concrete.
    - b. No trade will park vehicles on the inside slab. If necessary to complete their scope of work, drop cloths will be placed under vehicles at all times.
    - c. No pipe cutting machine will be used on the inside floor slab.
    - d. Steel will not be placed on interior slab to avoid rust staining.
    - e. All equipment must be equipped with non-marking tires.
    - f. Do not drag or drop equipment or material across the slab which will scratch or chip it.
- D. Pre-Installation Conference: MANDATORY

1. Convene a pre-construction meeting before the start of work on new concrete slabs, patching of existing concrete slabs and start of application of concrete finish system.
2. Require attendance of parties directly affecting work of this section, including the contractor, architect, concrete installer, finish applicator, and manufacturer's representative.
3. Review the following:
  - a. Environmental regulations
  - b. Physical requirements of completed concrete slab and slab finish.
  - c. Locations and time of test areas.
  - d. Protection of surfaces not scheduled for finish application.
  - e. Coordination with other work.
  - f. Surface preparation, application, and repair.
  - g. Field quality control.
  - h. Final cleaning.
  - i. Protection of finish system.
  - j. Removal of concrete waste.
  - k. TEST PANEL INSPECTION for approved finish, gloss and overall specification regulations.

#### 1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original containers, with seals unbroken, bearing manufacturer labels indicating brand name and directions for storage.
- B. Dispense special concrete finish material from factory and sealed containers.
- C. Store containers upright in a cool, dry, well, ventilated place, out of the sun with temperature between 40 and 100 degrees F (4 and 38 degrees C).
- D. Protect from freezing.
- E. Store away from all other chemicals and potential sources contamination.
- F. Keep lights, fire, sparks and heat away from containers.
- G. Do not drop containers or slide across sharp objects.
- H. Do not stack pallets more than three high.
- I. Keep containers tightly closed when not in use.
- J. Store and handle materials in accordance with manufacturer's written instructions.

#### 1.06 PROJECT CONDITIONS

- A. Environmental limitations: Comply with manufacturer's written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation, and other conditions affecting performance.
- B. Concrete must have an average Floor Levelness rating of at least 50 and a Floor Flatness of 40.
- C. Early application of densifier prior to 28 days is **acceptable**.
- D. Close areas to traffic during floor application and after application, for time period recommended in writing by manufacturer.

- E. The completed slab will be covered to prevent damage by the other trades during store completion.
- F. Temperature Limitations:
  - 1. Do not apply when surface and air temperature are below 40 degrees F or above 95 degrees F unless otherwise indicated by manufacturer's written instructions. Do not apply when surface and air temperatures are not expected to remain above 40 degrees F for a minimum of 8 hours after application, unless otherwise indicated by manufacturer's written instructions.
  - 2. Do not apply to frozen substrate. Allow adequate time for substrate to thaw, if freezing conditions exist before application.
- G. Weather Restrictions:
  - 1. Do not apply under windy conditions such that the concrete surface treatment may be blown to surfaces not intended.
  - 2. Do not apply earlier than 24 hours after rain or if rain is predicted for a period of 8 hours after application, unless otherwise indicated by manufacturer's written instructions.
- H. Temporary Lighting: Minimum 200 W light source, placed 8 feet (2.5 m) above horizontal concrete surface, for each 425 square feet (40 sq m) of concrete being finished.
- I. Temporary Heat: Ambient temperature of 50 degrees F (10 degrees C) minimum.
- J. Ventilation: Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with manufacturer's instructions.

## **PART 2- MATERIALS AND EQUIPMENT**

### **2.01 MATERIALS**

- A. Liquid Hardening/Sealing Agent:
  - 1. **SASE SFS D2** high solids, multi hybrid silicate Densifer
- B. Protective Treatments:
  - 1. **SASE SFS PROTECT PLUS** Protective Guard
  - 2. **SASE SFS SPR3** Penetrating Sealer
  - 3. **SASE SFS SPR3WB** Penetrating Sealer, water based
- C. Penetrating Concrete Dye:
  - 1. **SASE SIGNATURE DYE**
- D. Maintenance Cleaning Products:
  - 1. **SASE Polished Concrete Cleaner**
  - 2. **SASE Sapphire Pads**
- E. **DIAMOND TOOLING:** All diamond tooling to be manufactured by SASE COMPANY INC.
- F. Burnishing Pads:
  - 1. **SASE Trifecta PADS**
- G. All Products to be submitted and approved in writing:

## 2.02 EQUIPMENT

### A. APPROVED GRINDING MACHINE:

1. Basis of design: **PDG 8000 SASE/Diamatic 780** Planetary Diamond Grinder (electric/propane units accepted)
  - a. Initial grinding to be completed using a machine equipped with planetary, counter rotating concrete grinding heads – this is necessary to yield an optimum preliminary scratch pattern for an optimum finished sheen.
  - b. Machines to be “true planetary.”
  - c. Machines to be minimum of 850 pounds in total weight.
  - d. Machines to be minimum of 650 pounds head pressure.

### B. APPROVED HEPA VACUUM:

1. Basis of Design **PULSE BAC 3690** HEPA Dust Collection System
  - a. Machine must contain HEPA filtration as approved by the manufacture
  - b. Machine to have a minimum of 60 sq/ft in total filter area

### C. APPROVED EDGEWORK EQUIPMENT

1. SASE Edgepro 180
2. Metabo handheld diamond grinder
3. Metabo variable speed handheld diamond grinder/polisher
4. RUWAC Little Red, Pulse Bac 1000 series, Pulse Bac Acend, Dewalt dust collection systems

### D. APPROVED HIGH SPEED BURNISHER

1. Machine to be a weighted burnisher, from factory.
2. Machine to contain on board dust control.

### E. APPROVED FLOOR SCRAPER:

1. Accepted units: **SASE LIGHTNING, HURRICANE, CYCLONE, TWISTER**
  - a. Machine to be ride-on and be a minimum of 1,750 pounds in total weight.
  - b. Machine to be equipped with both tilt and height adjustment features for scraping blade.

## 2.03 RELATED PRODUCTS

- A. Water: Potable

## PART 3 - EXECUTION

### 3.01 SURFACE CONDITIONS:

- A. Examine substrate, with installer present, for conditions affecting performance of finish. Correct conditions detrimental to timely and proper work. Do not proceed until unsatisfactory conditions are corrected.
- B. Verify that base slab meet 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 latent.
- D. Obtain and follow manufacturer's instructions for examination and testing of substrates.
- E. Verify by examination that masonry and concrete surfaces are acceptable to receive the specified products. Notify the Architect if surfaces are not acceptable to receive the specified products.

### 3.02 PREPARATION

- A. Clean dirt, dust, oil, grease and other contaminants from surfaces that interfere with penetration or performance of specified product. Use appropriate concrete cleaners approved by the concrete surface treatment manufacturer where necessary. Rinse thoroughly using pressure water spray to remove cleaner residues. Allow surfaces to dry completely before application of product.
- B. Repair, patch and fill cracks, voids, defects and damaged areas in surface as approved by the Architect. Allow repair materials to cure completely before application of product.
- C. Variations in substrate texture and color will affect final appearance and should be corrected prior to application of sealer/hardener system and the polishing steps.
- D. Protect surrounding areas prior to application. If accidentally misapplied to adjacent surfaces, flush with water immediately before material dries.
- E. Avoid contact in areas not to be treated. Avoid contact with metal, glass and painted surfaces.
- F. Seal open joints in accordance with Section 07 90 00 - Joint Protection.
- G. Apply specified sealants and caulking and allow complete curing before application of Liquid Hardener.
- H. Apply products to substrates in accordance with manufacturer's instructions, and application procedures. Confirm instructions on current Product Data Sheet that can be found on manufacturer's website.
- I. Apply to clean, dry, and properly prepared surfaces approved by the Architect.
- J. Clean surface with an auto-scrubber using recommended cleaner to remove all surface dust and debris before grinding or polishing.

### 3.03 APPLICATION OF LIQUID HARDENER

- A. Apply liquid hardener at a coverage rate established on the Test Panel, estimated coverage to be 600-800 square feet per gallon. Actual coverage rate is to be determined by slab surface. Apply by HVLP, High Volume Low Pressure spray. Best practices use of .5 gpm nozzle is highly recommended.
- B. Do not dilute or alter products. Apply as packaged.
- C. Allow applied material to remain on the surface for approximately 10-15 minutes for reaction. If material is spotted on surface move applied material around with a micro fiber pad to achieve uniform coverage. Do not apply additional material.
- D. Allow applied material on surface to dry, approximately 30 – 60 minutes before polishing next level. If white residue appears on surface after drying, material

will be removed in subsequent polishing level.

### 3.04 SCOPE OF WORK

A. The following SASE SIGNATURE FLOOR SYSTEM Decorative Floor process must be used. Floors should be started using a minimum 80 grit diamond tool depending on the condition of the slab. The remaining process follows:

1. **Tile Removal** For slabs with existing VCT, ceramic, or other floor coverings, use approved ride on scraper and methods ONLY that will not damage the concrete slab. Place all removed VCT in dumpster on site. NOTE: All tile lines/existing flooring lines will maintain a “pattern” in the concrete surface. There is no remedy or solution. For inquiries, please consult manufacturers listed in specification.
2. **Removal of Adhesive, Coatings, or Other** For slabs that contain floor covering adhesive, coatings, underlayments, overlays or other conditions, remove using a minimum 40 METAL or larger, PCD, or specialized removal tooling as needed. Remove all pre existing non-cementitious patch material. Continue with consecutive grit metal diamonds up to 40 METAL.
3. **Control Joint Filling** Clean, prepare, and fill all sawcut control joints using pre approved material (SASE Company can recommend products for this application).
4. **Floor Repairs** Clean, prepare, and fill floor defects, holes, cracks, or other using pre approved materials (SASE company can recommend products for this application).
5. **Edgework** Grind all exposed edges using approved equipment utilizing diamond tooling that corresponds with each consecutive step listed below. All exposed edges must blend with entire floor.
6. Grind floor using 80 METAL; this will be starting point on all exposed concrete slab areas. Perform water test to determine if the substrate receives water. **BEST PRACTICES**: Perform each pass perpendicular to the other pass North/South then East/West; multiple passes may be needed to achieve minimum “salt and pepper” exposure. Clean floor using an auto scrubber after each step
7. Grind floor using SASE QUICK CUT, 100 HYBRID, or 150 METAL; refer to BEST PRACTICES
8. Use SASE 100 TRITON RESIN or XENITH PAD; refer to BEST PRACTICES
9. Use SASE 200 TRITON RESIN, HYBRID or XENITH PAD; refer to BEST PRACTICES
10. **Floor Dye** If floor dye is desired, application of SASE SIGNATURE DYE; clean floor
11. Application of SASE D2 Multisilicate Densifer; clean floor
12. Use SASE 400 TRITON RESIN, HYBRID or XENITH PAD; refer to BEST PRACTICES
13. Use SASE 800 TRITON RESIN or XENITH PAD; refer to BEST

PRACTICES\*

\***NOTE:** Contractor Must Achieve an average gloss reading of 40 achieved by a Horbra Gloss Meter. READINGS ARE TO BE TAKEN AND RECORDED PRIOR TO ANY PROTECTIVE TREATMENT,

14. Use SASE 1500 TRITON RESIN or XENITH PAD as needed to achieve minimum gloss reading of 45; refer to BEST PRACTICES.

Note: Gloss and clarity can be further increased by continuing using 3000 TRITON RESIN or XENITH PAD.

15. Burnish floor using SASE 1500 or 3000 GRIT TRIFECTA PAD
16. Application of protective treatment (SASE SFS PROTECT PLUS, SPR3, or SPR3WB)
17. Burnish floor with a minimum of 1800 rpm using SASE 3000 GRIT TRIFECTA PAD

END OF SPECIFICATION