

SECTION 03 35 43.15 - CONCRETE POLISHING - BURNISHED CONVERSION OR
REPOLISHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Concrete polishing of existing burnished concrete floors or repolishing of existing polished concrete floors specifically performed by the Owner pre-approved concrete polishing installer working for the building Contractor.
 - a. Refer to concrete polishing plan for extents of type of polishing, hand grinding and polishing, and areas to receive applied surface treatments.
 - b. Work includes the following:
 - 1) Addressing floor imperfections as needed.
 - 2) Opening the surface.
 - 3) Joint preparation and joint filling application.
 - 4) Application of clear liquid concrete densifier.
 - 5) Application of concrete dye (as needed for blending patches and as noted on plans) at integral colored concrete patched areas.
 - 6) Dry/wet grinding and polishing of concrete floor.
 - 7) Hand grinding and polishing.
 - 8) Application of penetrating sealer.
 - 9) Application of slip resistant treatment (where indicated).
 - 10) Application of salt guard treatment. (where indicated).
 - 11) Application of stain protection treatment (only on sales floor if ongoing maintenance/operational polishing with diamond products on scrubbers is not being used by Owner/Operations for cleaning).
 - 12) Unless provided by the General Contractor or Owner, providing power via generator for polishing equipment if existing building power is not available.
2. General Contractor Responsibilities:
 - a. Provide an enclosed and climatized sales area to assure a consistent polished concrete finish.
 - b. Provide availability of contiguous floor area per day for polishing operations as follows unless otherwise indicated:
 - 1) Walk Behind Polishing Operations: 2,500 to 3,000 sq. ft. (233 to 279 sq. m).
 - c. Utilities: Provide water, heat, and light.
 - 1) If permanent lighting is not in place, simulate permanent lighting conditions during polishing operations.
 - 2) If power is not available, provide/coordinate temporary power via generator with polished concrete installer..

1.2 ABBREVIATIONS

- A. COF: Coefficient of Friction.
- B. DOI: Distinction of Image.
- C. SCOF: Static Coefficient of Friction.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-installation Conference: At least two weeks prior to the application of polished concrete floor finish system, conduct conference at Project site with concrete polishing installer (and via phone/web conference for other attendees) to comply with requirements in Division 00 Section "General Conditions." The Contractor will be in charge of the meeting. The Contractor shall take minutes of the meeting and distribute within 48 hours.

1. Attendees:

- a. Contractor.
- b. Polished concrete installer.
- c. Owner.
- d. Owner operations floor care representative.

2. Agenda

- a. Review of Owner provided Floor Finish Plan, Final Fixture Plan, Floor Finish Schedule and remodel Phasing Plan.
- b. Environmental requirements.
- c. Surface preparation.
- d. Repair procedures including review of any potentially unacceptable slab conditions.
- e. Field quality control.
- f. Cleaning.
- g. Protection of systems.
- h. Coordination with other work.
- i. Safety Procedures.
- j. Final turn over process to Owner's floor care representative.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's recommended installation procedures.
- B. Concrete Polishing Plan: Written proposal indicating the extents of type of polishing, hand grinding and polishing and areas to receive applied surface treatments.
- C. Procedure Submittals: Include surface preparation and installation procedures specific to Project.
- D. Installer Certification:

1. List of successfully completed polished concrete floor system projects, including project name and location, name of architect, and type and quantity of polished concrete floor system installed.
- E. Protection Plan: For surrounding areas and non-work surfaces.
- F. Minutes of pre-polishing meeting.
- G. Closeout Submittals
 1. Owner Job Completion Form (included at the end of this section) including:
 - a. Slip coefficient of friction, gloss, and DOI readings.
 2. Warranty: Installer's standard warranty.
 3. Operation and Maintenance Data: Installer's maintenance manual, including maintenance and cleaning instructions for polished concrete floor system.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced certified CPAA installer with adequate number of skilled personnel who are thoroughly trained and experienced in concrete slab polishing with 2-3 years of experience and a minimum of 10 projects performed within three years of similar type, size and complexity as this Work.
 1. Installer must be prequalified with the Owner. Potential installers must submit to the Owner for prequalification. The following installers are prequalified for enterprise-wide work:
 - a. HTI Polymer, Inc.
Contact: Damon Paulson
18702 142nd Avenue NE, Woodinville, WA 98072
Phone: 425-487-8911
Cell: 206-488-7734
Fax: 425-487-8915
Email: damonp@htipolymer.com
 - b. QuestMark, a division of CentiMark Corporation.
Contact: Jim Gasper.
12 Grandview Circle, Canonsburg, PA 15317.
Phone: 800-423-5667 ext. 8615 or 724-514-8615.
Cell: 724-263-4172.
Fax: 724-743-6000.
Email: James.Gasper@centimark.com.
 - c. Perfect Polish, Inc.
Contact: Kyle Trepanier.
184 Cedar Place, Norris, TN 37828.
Phone: (865) 297-4093.
Cell: (865) 494-1875.
Fax: (865) 494-0872.
Email: RFQ@perfectpolishonline.com.

- B. Joint Filler Installer Qualifications: An experienced installer who is certified by manufacturer of joint filler to install manufacturer's products.
- C. Testing procedures:
 - 1. ASTM C 1028 - Standard Test Method for Determining the Static Coefficient of Friction (SCOF) of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method.
 - 2. NFSI 101-A-2009 – National Floor Safety Institute using a tribometer for testing.
 - 3. ANSI B101.1-2009.
- D. Mockups: Provide two mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Provide mockups for polished concrete floor finish system including all steps to achieve required finish.
 - a. Size: Minimum 20 ft. x 20 ft. (6.09 m x 6.09 m) of typical poured-in-place flooring condition for each color and pattern in locations directed by Owner.
 - b. One mockup is to demonstrate the need for an additional grind prior to polish.
 - 1) Provide an additional mockup only when the concrete is extremely hard to demonstrate that an additional metal grind is needed or if another mock-up including a grout coat/topping is required.
 - c. Include concrete joint filling process, coordinate with Contractor.
 - 2. Do not proceed with concrete polishing until mockup is approved by Owner.
 - a. In remote locations or limited manpower situation, the Owner may allow the submission of video(s)/picture(s) of the existing and mock up conditions along with performance readings on DOI and Gloss for the Owner's approval.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents unless Owner specifically approves such deviations in writing.
 - 4. Maintain mock-up as a standard for judging the work.

1.6 SITE CONDITIONS

- A. Work area shall be controlled for safety and quality.
- B. Do not install polished concrete floor system until permanent lighting levels are present.
- C. Do not install burnished to polished concrete floor system until work area is broom swept and free of work from other trades.
- D. Maintain grinding and vacuum equipment to contain dust caused by grinding/polishing operations.

1.7 WARRANTY

- A. Warranty: Installer's dustproof warranty covering the polished concrete floor system.

1. Warranty Period: Ten years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SUBSTITUTION LIMITATIONS

- A. No other products shall be installed other than those that have been approved in writing by the Owner and incorporated into the Agreement. Requests for approved comparable substitute items must be submitted in writing to the Owner together with all necessary supporting data for both the specified and equal item. The Owner shall be the sole judge of the suitability, acceptability and equality of the substitute material and may accept or reject the same. No material, not accepted by the Owner in writing, may be substituted for a specified material. If the substitution of any material or equipment increases costs in any way, these costs shall be borne by the Installer.
- B. For a comparable product to be considered for approval by the Owner, the Installer must submit product information of the proposed product along with the product information of the specified product and shall furnish the product data sheets, MSDS sheets and certificates of performance of both for comparison.

2.2 SYSTEM DESCRIPTION

- A. Installation of polished gray or dyed concrete floor system for existing burnished interior concrete floors by grinding and polishing with various size grit metal-bonded and resin-bonded diamonds and application of concrete densifier.

2.3 PERFORMANCE CRITERIA, POLISHED

- A. Polished Concrete Floor: Meet or exceed the following criteria:
 1. Distinction of Image (DOI): ASTM 5767 (current version), minimum DOI reading of 50 without any guards or non-penetrating sealers.
 - a. An important aspect of the appearance of glossy coating surfaces is the distinctness (clarity) of images reflected by the surface. The values obtained in this measuring procedure correlate well with visual ratings for DOI (image clarity).
 2. Specular Gloss/Reflectance: ASTM D523 (current version), minimum gloss reading of 40 without any guards or non-penetrating sealers.
 - a. Sheen Level: CPAA level 3, honed finish.
 - 1) Final Sheen: Match accepted mock-up.
 3. Surface Appearance: Grind and polish only the cream topping to achieve a light uniform salt and pepper appearance.
 - a. A slight burn in some areas from the concrete finishing may still be visible and is acceptable.
 - b. Deeper grind and polish to correct floor flatness issues must be tested and approved by the Owner.
 4. Static Coefficient of Friction, NFSI 101-A-2009.

- a. Dry Surface: $\text{SCOF} \geq 0.50$.
- b. Wet Surface: $\text{SCOF} \geq 0.60$.

2.4 PERFORMANCE CRITERIA, SLIP RESISTANT FINISH

A. Slip Resistant Finish: Meet or exceed the following criteria:

- 1. Pre-COF Dry: 0.50 - 0.60.
- 2. Pre COF Wet: 0.40 - 0.55.
- 3. Post COF: 0.60 - 0.80.

2.5 PATCHING AND REPLACEMENT MATERIALS

A. Structural Surface Filler and Repair Material (Grout Coat): Two-part, 100 percent solids, rapid-set, high strength, low viscosity concrete repair material for repair of spalled concrete, cracked concrete, and for filling pin holes and small surface defect treatment on concrete floors before polishing.

1. Products:

- a. Concrete Polishing Solutions; CPS Armor Grout; (877) 472-8200.
- b. HI-TECH Systems, HT-Spall TX3; (800) 454-5530.
- c. SASE Company, Inc.; All-Spall 3; (800) 522-2606.

- 2. Shore Hardness (ASTM D2240): At least 67.
- 3. Elongation (ASTM D412): Minimum 4 to 8 percent.
- 4. Tensile Strength (ASTM D412): Minimum 4600 psi.
- 5. Compressive Strength (ASTM D695): Minimum 3900 psi (Neat) and 4800 psi (sand).
- 6. Bond Strength (ASTM D882): Minimum 3450 psi.

B. Slab Topping: Fast setting, high strength, hydraulic, cementitious polishable overlay complying with ASTM C1708 for thicker slab toppings.

- 1. Product: CTS Cement Manufacturing Corp.; Rapid Set Tru Self Leveling.
- 2. Compressive Strength: 6500 psi at 28 days per ASTM C109.
- 3. Tensile Strength: 365 psi, minimum at 28 days per ASTM C307.
- 4. Location: As indicated on Drawings only.

2.6 POLISHED CONCRETE FINISHING PRODUCTS

A. Clear Concrete Densifier: Odorless liquid form of a lithium silicate to permanently seal, densify, dustproof, and harden concrete surfaces and provide abrasion resistance by penetrating into concrete pores and chemically reacting. On projects scheduled to receive concrete dye, use compatible densifier product as recommended by concrete dye manufacturer.

1. Products:

- a. AmeriPolish, Inc.; 3D HSL; (479) 725-0033.
- b. Dayton Superior Corporation; Pentra Hard; (888) 977-9600.
- c. PROSOCO, Inc.; Consolideck LS; (800) 255-4255.
- d. SASE Company, Inc.; SFS D2 Densifier High Solids; (800) 522-2606.

B. Concrete Dye (as needed for blending only):

1. Products:
 - a. AmeriPolish, Inc.; SureLock; (479) 725-0033.
 - b. AmeriPolish, Inc.; Dye Classic; (479) 725-0033.
 - c. PROSOCO, Inc.; GemTone Stain; (800) 255-4255.
2. Water soluble dye to be used on floors in stores with Apparel departments.
3. Solvent based dye to be used on floors in stores without Apparel departments.
4. Color: As required to achieve proper blending.

C. Penetrating Sealer:

1. Products:
 - a. Ameripolish, Inc.; SR2; (479) 725-0033.
 - b. PROSOCO, Inc.; Concrete Protector; (800) 255-4255.
 - c. SASE Company, Inc.; SPR3-WB; (800) 522-2606.

D. Slip Resistant Treatment: Manufacturer's proprietary acidic compound to provide slip resistance to floor with embedded etch installation process.

1. Products:
 - a. InvisiTread; www.invisaproducts.com/shop; (800) 544-5974, info@invisaproducts.com. Specify store number and address when ordering.
 - b. No substitutions allowed.

E. Salt Guard Treatment:

1. Products:
 - a. PROSOCO, Inc.; Saltguard; (800) 255-4255 or approved substitution.

F. Stain Protection Treatment:

1. Products: PROtec Stain Guard; (800) 544-5974. Specify store number and address when ordering
 - a. No substitutions allowed.

G. Cleaning Solution: Mild, highly concentrated, ph neutral liquid concrete cleaner and conditioner; biodegradable, and environmentally safe.

H. Water: Potable.

2.7 JOINT FILLERS

A. Joint Filler Replacement at Contraction (Sawed) Joints, Construction (Cold) Joints, and Cracks (As Required): Two component, 1:1 ratio, polyurea elastomer joint filler of 100 percent solids, Shore 65-67 A hardness, rapid curing self leveling, semi-flexible sealant.

1. Products: Specify store number and address when ordering.

- a. Euclid Chemical Company, The; QWIKjoint UVR 65.
 - b. HI-TECH Systems; HT-PE65 Flexible Control Joint Filler.
 - c. Metzger/McGuire Co.; Spal-Pro RS-65.
 - d. No substitutions allowed.
 2. Color: As specified in Division 01 Section "Décor Interior Finishes and Colors."
- B. Joint Filler Replacement at Columns and Expansion Joints (As Required): Polyurethane, Type S, Class 25, Use T, gun grade or pourable as applicable.
 1. Products:
 - a. Gun Grade:
 - 1) BASF Building Systems; MasterSeal NP 1.
 - 2) Euclid Chemical Company; Eucolastic 1 NS.
 - 3) Sika Corporation, Inc.; Sikaflex - 1a.
 - 4) Tremco; Vulkem 116.
 - b. Pourable:
 - 1) BASF Building Systems; MasterSeal SL 1.
 - 2) Euclid Chemical Company; Eucolastic 1 SL
 - 3) Sika Corporation, Inc.; Sikaflex-1CSL.
 - 4) Tremco; Vulkem 45.
 2. Color: As specified in Division 01 Section "Décor Interior Finishes and Colors."
- C. Cylindrical Sealant Backings for Polyurethane Joint Filler (As Applicable): ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

PART 3 - EXECUTION

3.1 GRINDING AND POLISHING EQUIPMENT

- A. Floor Grinder:
 1. Manufacturers (No substitutions allowed):
 - a. HTC, Inc.
 - b. Diamatic, USA.
 - c. SASE Company, Inc.
 - d. Concrete Polishing Solutions (CPS).
 - e. Husqvarna Construction Products.
 2. Rotation: Multi-orbital planetary action, opposing rotation.
 3. Head: Metal bonded diamond/resin.
 4. Grinding Pressure: **675 lbs.** (306 kg).
- B. Removal Tool (Installer's Option): Iron or steel claw for removal of glues, thinsets, water proofing membranes, epoxies, floats, and patches.

1. Product:
 - a. SASE Company, LLC; One of the following:
 - 1) Hard to Medium Concrete: Wulf Iron Claw, HOL.200515.
 - 2) Medium to Soft Concrete: Wulf Steel Claw, HOL.200516.
 - b. Comparable substitution.
- C. Vacuum System: Directly connected to floor grinder to reduce amount of dust exposure and to provide a dust free environment.
 1. Filtration System: HEPA 3-stage.
 2. Air Movement: Minimum 350 cfm (165.2 L/s).
 3. Water Lift: 8.5 mercury.
 4. Hose Diameter: 3 inches (76 mm).
 5. Primary Filter Area: 60 sq. ft. (5.6 sq. m) plus.
- D. Equipment Safety: When liquid petroleum (LPG) powered equipment is employed, incorporate the following safety precautions:
 1. Documentation: Maintain documentation associated with LPG equipment including documentation that operators are trained in the safe operation of propane-powered machines. The Owner reserves the right to review all documentation upon request.
 2. Ventilation: Provide complete building ventilation when operating equipment.
 3. Noise Levels:
 - a. Operating noise levels must not exceed the OSHA standard of 85 db (action limit) or 90 db 8-hour TWA (time weighted average).
 - b. Perform noise level tests semi-annually, conducted by qualified vendor personnel, using appropriate and calibrated equipment. Maintain a written record of tests and submit to Owner upon request.
 - c. Calibrate testing equipment or instruments in accordance with the manufacturer's recommendations and submit acopy of records evidencing calibration to Owner upon request.
 4. Equipment Requirements: Maintain equipment in a safe condition at all times. To assure compliance, the installer shall comply with the following requirements for each piece of equipment. Failure to comply with these requirements shall result in removal from the project:
 - a. Testing: Complete emissions testing monthly.
 - b. YL Listing: All units must be UL-listed.
 - c. Carbon Monoxide (CO) Emissions: Shall not exceed the OSHA standard of 35 PPM (parts per million) TWA or ceiling limit of 200 PPM.
 - d. LP Container Capacity: No greater than 20 lb. and complying with all DOT regulations.
 - e. Engine:
 - 1) Supply with a carbon monoxide detector that will shut the equipment off when the levels exceed those specified.

- 2) Equip with a vacuum-actuated fuel cutoff valve preventing excess flow of propane in the event of a leak or rupture in the fuel line.
 - 3) Equip with an anti-backfire muffler.
 - 4) Turn off equipment when not in use. Do not idle.
- f. Fuel Cylinders: Stored in the exterior of the building in a ventilated, lockable cage. Only one cylinder will be allowed in the building for each machine being used at any one time, which is the one cylinder installed on the machine.
- g. Dust and Air Filters: Inspect and clean before each use of the machine.
- h. Equipment Service: Service each machine monthly.
- 1) Maintain service record and submit to Owner upon request.
 - 2) Maintenance record, at minimum, shall include date, machine serial number, service performed, and name of the service technician.

5. Ambient Air Monitoring Requirements

- a. Exhaust Port Monitoring: Conduct monthly. Record results as a percentage of CO at idle and full throttle, as well as instantaneous readings recorded in PPM, conducted in the operator's breathing zone during idle and full throttle tests.
- 1) If the breathing zone result equals or exceeds 25 PPM, cease use of the machine. Adjust, repair, or replace parts as required returning equipment to service.
 - 2) All personnel operating LPG powered equipment must wear a carbon monoxide badge detector.
 - 3) Do not use any propane-fueled equipment in building unless the installer has records documenting the equipment has met the above emission testing requirements.
- b. Carbon Monoxide (CO) Monitoring: Conduct utilizing a CO device that will give instantaneous reading levels in PPM. Conduct all tests after a 4 to 5 minute warm up of the machine. Conduct each test for a continuous 60-second period.
- 1) If any ambient air CO concentration exceeds 35 PPM 8-hour TWA (as referenced in the NIOSH Pocket Guide to Chemical Hazards), use of the propane powered equipment must be discontinued until it has been properly serviced and complies with these guidelines.
 - 2) The Owner reserves the right to conduct random, periodic testing, without notice, of the installer's equipment. Any units found to exceed emissions levels will be suspended from use until the installer proves compliance levels are achieved. Suspension of the installer's agreement may result at the sole discretion of the Owner.

6. Monitoring Equipment Guidelines

- a. Use only instruments designed to monitor CO resulting from combustion of propane gas in an internal combustion engine for testing exhaust emissions from propane-powered equipment.

- b. Do not use instruments designed to monitor ambient air to take readings in the muffler or tail pipe. They may become damaged. Selecting the proper instrument for each test.
- c. The installer shall be responsible for the choice of testing equipment and the Owner reserves the right of approval all testing equipment.
- d. Instruments used for testing shall be calibrated at intervals recommended by the instrument manufacturer. The monitor, model number, and date of calibration shall be recorded with all test results.

3.2 EXAMINATION

A. Pre-Polish Inspection:

- 1. Prior to concrete polishing, clean floor with an auto scrubber equipped with soft nylon brushes and neutral cleaner to provide a clean floor for inspection.
- 2. Inspect concrete floors that are to be polished and photo document the overall appearance of the floor. Include photo documentation of any substantial imperfection in the floor.
- 3. Include the Owner, concrete installer, and floor polishing installer in the inspection.
- 4. Submit written report and photos of any areas in question to the Contractor and Owner.

- B. Examine surfaces to receive treatment. Notify Contractor if surfaces are not acceptable. Do not begin application until unacceptable conditions have been corrected.

3.3 PREPARATION

- A. Mark-off active work areas with caution tape.

- B. Construction joints must be filled prior to commencement of polishing.

3.4 INSTALLATION, GENERAL

- A. Polished Concrete Floor Finish System: Apply polished concrete finish system to cured and prepared slabs to match sheen of accepted mockup.
- B. Coordinate polishing operations with other associated work and trades.
- C. No topical materials are allowed to achieve the required gloss and DOI readings.
- D. Maintain maximum dust control throughout entire polishing process and properly dispose of grinding waste offsite in accordance with all applicable laws and regulations and with authorities having jurisdiction.

3.5 POLISHING PROCESS

A. General:

- 1. Provide a dust free environment during the grinding process and prior to the application of other products listed. Comply with OSHA and all current federal and state regulations dealing with silica dust.
- 2. Wet polishing: Perform a wet grinding process in conformance with all current federal and state regulations dealing with concrete polishing slurry.
 - a. Immediately clean any slurry residue that may sling onto adjacent walls or fixtures.

- B. Perform grinding and polishing process as follows to achieve smoothly polished concrete finish with an appearance and sheen level as specified in Article "Performance Criteria, Polished."
1. Maintain maximum dust control throughout entire polishing process.
 2. Begin grinding process with #40 grit metal-bonded tooling for burnished concrete floors or areas as needed for repolish.
 - a. At Installer's option, iron or steel claw removal tool may be used.
 3. Repair damaged or unacceptable cracks, pin holes, voids, joints, etc. per Drawings and to Owner's satisfaction.
 4. Mechanically clean the side walls of the concrete joints missing filler and install new specified joint filler.
 5. Begin grinding process with #150/Hybrid grit metal bonded tooling.
 6. Thoroughly clean floor with auto scrubber.
 7. Perform hand grinding around columns, floor sinks, trench drains and along perimeter walls exposed to the customer's view and base rails of all existing refrigerated cases and fixtures which remain in place as indicated in agreed to drawing. Hand grinding quality to match the same texture and gloss level as the main sales floor area. Contractor is responsible for shifting of moveable fixtures and self-contained cases and removal/replacement of kick plates as needed for a uniform finish.
 8. Apply clear concrete densifier for gray concrete and colored for colored concrete patch areas to point of rejection. This will vary based upon porosity and denseness of slab. Use demonstration to determine if color will be needed to give slab a more uniformed colored appearance.
 9. Continue grinding process with #200 resin bonded tooling.
 10. Thoroughly clean floor with auto scrubber.
 11. Apply dye (as needed for blending) per manufacturer's recommendation if required at colored concrete patched areas.
 12. Begin polishing process utilizing #400 resin bonded tooling.
 13. Apply slip resistant treatment according to manufacturer's instructions. Apply before and after coefficient of friction testing.
 14. Continue polishing process with #800 and #1500 grit resin bonded tooling.
 15. Thoroughly clean floor with auto scrubber.
 16. Apply penetrating sealer throughout the sales area applying according to manufacturer's instructions.
 17. After confirmation with Owner's operations/floor care representative, apply stain protection treatment (only if Owner's floor care is not using diamond applications on scrubbers) and salt guard treatments according to manufacturer's instructions.
 18. Conduct final polishing process utilizing #1500 grit diamond impregnated polishing pad on high speed propane burnisher to enhance shine.
 19. Perform slip coefficient testing.
 20. Perform initial gloss and DOI readings per Owner Job Completion Form and where directed by Owner.
 21. Complete cleanup of all work and installation areas.

3.6 SLIP RESISTANT TREATMENT

- A. Install in the following locations:
1. Wet Rack Produce Cases: Apply in front of the wet rack produce cases a minimum of 4 feet (1.22 m) or further out as necessary to terminate at the first control joint.

2. Bascart Storage Areas: Apply on the entire floor.
3. Vestibules with Polished Concrete: Apply on the entire polished concrete floor area.

B. Application: Incorporate into the overall polished concrete finishing process as follows:

1. Begin application upon reaching 400 grit honing process.
2. Spray apply slip resistant treatment, allow to sit until it neutralizes (turns cloudy), agitate if needing more etch.
3. Once neutral, scrub off floor with several passes using floor scrubber to remove residual treatment.
4. Add dye (if required) and finish polishing process-

3.7 SALT PROTECTION TREATMENT

- A. Provide treatment for new concrete slab areas in geographic locations where ice or snow is anticipated. Existing concrete floors/slabs do not require salt protection.
- B. Apply product on approximately **1,500 S.F (139.35 sq. m)** of polished concrete floors inside store entry area at each set of entry doors. Treatment should extend **12 feet (3.66 m)** to **15 feet (4.572 m)** on each side of the entry door.
 1. Refer to reference drawing for exact locations and area.
- C. Thoroughly remove oil, dirt, laitance, and other contaminants, clean floor surface with an auto scrubber and clean water and allow to dry before applying salt protection.
- D. Test area prior to application
- E. Application: Apply evenly with microfiber mop or in accordance with the manufacturers written instructions and burnish in with a high-speed propane burnisher.

3.8 STAIN PROTECTION TREATMENT

- A. General: Install only in stores without ongoing maintenance/cleaning with diamond applications on scrubbers.
- B. Apply stain protector in designated areas such as wine and floral departments in addition to 3 to 4 shopping aisles containing pickles, salad dressings, and laundry products as stipulated in the individual project proposal.
 1. Refer to reference drawing for exact locations and area.
- C. Thoroughly clean floor surface with an auto scrubber and clean water and allow to dry before applying stain protector.
- D. Test area prior to application.
- E. Application: Per manufacturer's instructions, apply two thin coats of stain protector versus one thick coat and burnish in with a high-speed propane burnisher.

3.9 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Perform the following tests and inspections and submit Owner provided SCOF, DOI, and gloss readings with Owner Job Completion Form.
- B. Static Coefficient of Friction (SCOF):
 - 1. Perform tests prior to and after application of slip resistant treatment.
 - 2. Perform testing in center of all aisles identified by Owner.
- C. Gloss and DOI Testing:
 - 1. ASTM D523 (current version) utilizing a gloss meter based on level of gloss required.
 - a. Gloss is associated with the capacity of a surface to reflect more light in directions close to the specular than in others. Measurements by this test method correlate with visual observations of surface shininess made at roughly the corresponding angles.
 - 2. ASTM 5767 (current version) utilizing a DOI meter based on the DOI required.
 - a. An important aspect of the appearance of glossy coating surfaces is the distinctness (clarity) of images reflected by them. The values obtained in this measuring procedure correlate well with visual ratings for DOI (image clarity).
 - 3. Take reading in the center of all aisles in locations identified by Owner.
- D. Owner Job Completion Form: Contractor to walk the store with applicator/polishing Installer to complete and submit to the Owner.

3.10 PROTECTION

- A. Until Project is turned over to Owner or if areas are not currently in operation, clean polished concrete floor as required to prevent surface residue from forming on the concrete surface.
- B. Install protective covering where construction activities could soil or damage floor or where items are stored.

3.11 FINAL SCRUB AND BURNISH

- A. Within 48 hours prior to Store Grand Opening or Reopening, polishing installer to perform a final scrub and polish of the floor to a minimum gloss reading of 40 and DOI of 50. Perform final gloss readings at this time.

END OF SECTION 03 35 43.15

(Concrete Polishing Job Completion Form follows this page)

Concrete Polishing Job Completion Form

Store Number/Location: _____

Complete this form prior to turn over of floor cleaning responsibility from the Contractor to Owner. It should be emailed to Owner Project Manager and uploaded to Owner, web-based project system.

☐ Confirm new concrete cured for a min of 28 days and required lighting was in place. (Specify Owner approved exception. _____)

☐ Confirm slip resistance treatment, InvisaTread, was applied per the drawings (any vestibule areas, cart storage areas, and a minimum of 4' in front of produce cases with misting).

Static Coefficient of Friction Sample Area:

Two Feet from Produce Cases. Before _____ After _____

In Customer Walking Path of Vestibule area: Before _____ After _____

Center of Cart Storage Area: Before _____ After _____

☐ List manufacturer/product used for the following:

Densifier: _____

Penetrating Sealer: _____

Repair Material: _____

Salt Guard (new concrete entry areas): _____

☐ Final Sample Readings:

Area/Location	Coef of Friction (0.5-0.8)	Gloss (40 min)	DOI (50 Min)
Entry Doors – 20' in			
Produce – Center of floor			
Produce – 2" in front of misting case			
Bakery – 4' in front of cases			
Deli – 4' in front of cases			
Back Aisle – Center Location			
Dairy – Center/front of rear load			
Grocery – Center Aisle No:			
Grocery – Center Aisle No:			
Frozen Food – Center Aisle No:			
Pharmacy 4' from pickup			
Behind Self-Checkout center 4' back			
Exit door- center 8' back			
Breakroom (modified polish)			

Misc. Notes: _____

Polishing Contractor

Company Name/Address _____

Signature _____

Date _____

Name (Printed) _____

Building General Contractor (if applicable)

Company Name/Address _____

Signature _____

Date _____

Name (Printed) _____

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