

03 50 00 – Concrete Polishing

DIVISION 3 - Concrete



STATEMENT OF PURPOSE & BACKGROUND

- Scope:
 - Define methods and results for concrete floor polishing
- Statement of goals:
 - Provide a consistent polished finish that:
 - Minimizes maintenance
 - Is durable and long lasting
 - Can be used for existing and new concrete
- Revision history of section:
 - 03/19/13
 - 10/05/15
 - 05/08/18
 - 04/08/21
 - 12/28/2023 (*Joint Sealants*)

SELECTION AND APPLICATION CRITERIA

Criteria	Performance
Aggregate Exposure (per CPAA standards)	Class B (salt & pepper) or Class C (medium aggregate)
Gloss (per CPAA standards)	Level 3 (Semi polished) or Level 4 (Highly Polished)
Color (when specified)	As selected by architect; approved by Owner

MAINTENANCE & CLEANING PROCEDURES

Always refer to manufacturer’s recommendations specific to each product.

- Daily
 - Dust mop the floor daily with a microfiber pad to keep dirt particles off the floor.
- Periodically
 - Wet mop the floor using clean water and clean mops. Use an automatic floor scrubber equipped with a nonabrasive pad to clean large areas. Mop and bucket cleaning can be used in smaller areas.
 - When wet mopping, use a neutral floor cleaner formulated to suspend dirt particles so they can be easily removed. Using only water leaves much of the dirt on the floor, where it will eventually abrade and discolor the surface.
 - Clean spills and stains from the floor as quickly as possible so they don’t absorb into the surface.
 - Give the cleaner enough time to start breaking down the grime, such as grease and other contaminants, and then suspend the particles. If you apply a cleaning agent and then immediately vacuum it or mop it from the surface, the cleaner will not have sufficient time to work.
 - Do not let the cleaning solution dry on the surface.

OUTLINE SPECIFICATION

- Part 1 General
 - Removals:
 - When removing existing VCT or other floor coverings from concrete slabs, remove all traces of old adhesives and other residues.
- Part 2 Products
 - Densifier
 - Densifier designed to chemically react with and harden concrete for polishing.
 - Dyes / Stains
 - Color solvents or dyes designed to penetrate and color concrete surfaces.
 - Variability of existing concrete porosity may create inconsistent absorbing of stain, which will be more apparent with bold stain colors. Avoid selecting bold colors of high contrast to concrete at existing slabs to mitigate potential splotchy or mottled results.
 - Avoid or minimize dyes and stains as much as possible. If dyes or stains are part of the floor design, provide samples or test areas for District approval before finalizing stain colors.
 - Polish Guard
 - High gloss sealing compound designed to impregnate densified concrete to resist staining.
 - Acceptable Manufacturers:
 - Prosocal
 - Brulin
 - Schofield
 - Patching Compound
 - Composed of 40% Portland cement, 45% limestone and 15% vinyl acetate copolymer, when mixed with dust salvaged from the grinding process forms a paste that hardens when surface imperfections are filled.
 - Grout Material
 - Clear modified silicate sealant, containing no pour clogging latex, when mixed with dust salvaged from the grinding process forms a paste that reacts with calcium hydroxide in concrete that hardens when surface imperfections are filled.
 - Control Joint Filler
 - Semi-Rigid, 2-component, self leveling, 100 percent solids, rapid curing, polyurea control joint and crack filler with Shore 80 or higher hardness.
 - Protective Cover
 - Non-woven, puncture and tear resistant, polypropylene fibers laminated with 4 multi-ply textured membrane, not less than 18 mils in thickness.
 - Equipment
 - Rotary or Planetary grinder/polisher/burnishers capable of grinding, honing, polishing, and burnishing concrete floors

including equipment capable of reaching edge conditions with consistent finish.

- Part 3 Execution
 - Aggregate Exposure: Grinding a concrete floor surface with bonded abrasives to achieve a specified level of exposed aggregate.
 - Class B: Fine aggregate (salt and pepper)
 - Approximately 1/16" cut depth
 - Fine aggregate exposure with little or no medium aggregate exposure at random locations.
 - Finished Gloss: Processing a concrete floor surface to achieve a specified level of finished gloss that is measured in reflective clarity (DOI), and reflective sheen and haze.
 - Level 2 – Satin (Honed)
 - Reflective Clarity – Matte appearance with or without slight diffused reflection.
 - Not less than 5 step process with full refinement of each diamond pad up to 400 grit resin bonded pad, with one application of densifier per CPAA definitions and standards.
 - Gloss Reading: Not less than 55 per ASTM E430 before polish guard application
 - Process
 - Initial Grinding:
 - Grind and polish in one direction using sufficient size grit pad.
 - Make sequential passes with each pass perpendicular to previous pass using finer grit pad with each pass, up to 150 grit.
 - Achieve maximum refinement with each pass before proceeding to finer grit pads.
 - Vacuum floor using squeegee vacuum attachment after each pass.
 - Continue grinding until aggregate exposure matches approved mock-ups.
 - Treat surface imperfections as necessary:
 - Mix patching compound and grout material with dust created by grinding operations, to match color of adjacent concrete surface.
 - Fill surface imperfections including, but not limited to, holes, surface damage, small and micro cracks, air holes, pop-outs and voids.
 - Work compound and treatment until color difference between concrete surface and filled surface imperfections are not reasonably noticeable when viewed from 10 feet away under lighting conditions that will be present after construction.

- Control Joint treatment
 - Fill control joints.
- Apply densifier at appropriate grit level.
- Grout Grinding
 - Use grinding equipment and appropriate grit on grinding pads.
 - While applying fresh grout material prior to, grind concrete in direction perpendicular to initial grinding to remove scratches.
 - Vacuum floor using squeegee vacuum attachment after each pass.
- Honing:
 - Use grinding equipment with resin bonded grinding pads.
 - Grind concrete in one direction starting with 50 grit pad and make as many sequential passes required to remove scratches, each pass perpendicular to previous pass, up to 400 grit pad, reaching maximum refinement with each pass before proceeding to finer grit pads.
 - Auto scrub or vacuum floor using squeegee vacuum attachment after each pass.
- Apply Dyes or Stains if approved by District personnel.
- Polishing
 - Use polishing equipment with resin bonded polishing and burnishing pads.
 - Begin polishing in one direction starting with 800 grit pad.
 - Make sequential passes with each pass perpendicular to previous pass using finer grit pad with each pass, up to 3000 grit.
 - Achieve maximum refinement with each pass before proceeding to finer grit pads.
 - Auto scrub or vacuum floor using squeegee vacuum attachment after each pass.
 - Continue polishing until gloss appearance, as measured according to ASTM E 430, matches approved field mock-ups.
- Apply Polish Guard.
- Burnish to uniform sheen.
- Testing
 - Finish floor to be in compliance with ADA requirements.
 - Test gloss per ASTM E430.

End of Section