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Utilize this section to specify a polished concrete finish for exposed concrete floors. Concrete may be natural color or dyed to a specific color or colors or have stencils applied for decorative floor design.

Polished concrete involves a multi-step process where a concrete floor is mechanically ground flat to expose the desired aggregate “class”. A penetrant chemical known as a hardener or densifier that penetrates into the concrete and creates a chemical reaction to help harden and dust-proof the surface is applied in a multi-coat application for maximum performance. Dyes may be added during the finishing process to provide colored concrete or the concrete may be left in its natural gray color. Stencils or other surface applied patterns may also be applied as options.

Surfaces is polished with resins to produce the desired gloss “level”, leaving surfaces free if scratches and abrasions.

For assistance in selecting decorative concrete material samples, contact Floor Seal Technology, Inc. calling 800-572-2344 or visit [www.floorseal.com](http://www.floorseal.com)

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**SECTION 03 35 43 - POLISHED CONCRETE FINISH**

1. **GENERAL**
	1. SUBMITTALS
		1. Action Submittals:
			1. Product Data: Manufacturer’s descriptive data and product attributes for polishing products.
			2. Samples: 6-inch x 6-inch [Selection samples.] [Verification samples.]
	2. ADMINISTRATIVE REQUIREMENTS
		1. Mockup: [25] [\_\_] square feet. Approved mockup [may] [may not] remain as part of the Work.
	3. QUALITY ASSURANCE
		1. Installer Qualifications:
			1. Firm specializing in work of this Section, with minimum 10 years’ experience.
			2. Submit 10 projects of similar size and complexity as references.
			3. Manufacturer employed personal.
		2. Regulatory Requirements:
			1. Surface Coefficient of Friction: Minimum [0.43,] [0.60,] tested to ANSI 326.3 after polishing.

 C. Concrete Requirements:

* + - 1. Approved by manufacturer.
			2. Compressive Strength: 4,000psi
			3. Water to Cement Ratio: Max. 0.45
			4. Pozzolans conforming to ASTM C618, Class C or N.
			5. Portland cement conforming to ASTM C150, Type 1 or 2.
			6. Slump:
				1. Slab on grade: Max. of 5-inches, plus or minus one inch.
				2. Slab on deck: Max. of 8-inches, plus or minus one inch.
			7. Air Content: In accordance with ACI 301 requirements. Not to exceed 3-percent on lightweight

 concrete.

 D. Manufacturer Qualifications:

1. Provide on-site oversight during placement and finishing.

2. Written acceptance of mix design, and products to achieve specified requirements.

3. Five projects of similar sizes and complexity completed within the last 5 years.

E. Maintain a floor flatness of FF50 (minimum of FF35) and FL20 (minimum of FL18) within 72 hours of placement when tested to ASTM E1155, following ACI 117 using 3D laser imaging to meet requirements.

**1.4 WARRANTY**

 A. Manufacturer 5-year warranty for installation defects and material performance.

 B. Manufacturer to guarantee the installation, and on-site oversight to achieve a floor flatness of FF50 (minimum of FF35) and FL20 (minimum of FL18) within 72 hours of placement when tested to ASTM E1155.

1. **PRODUCTS**
	1. MANUFACTURERS
		1. Contract documents are based on Floor Seal Technology, Inc. [www.floorseal.com](http://www.floorseal.com)
			1. [\_\_\_\_\_\_\_\_]
		2. Substitutions: [Refer to Division 01.] [Not permitted.]
	2. MATERIALS
		1. Densifier: Odorless, non-film forming penetrating colloidal silica solution, reactive with free lime and calcium hydroxide; designed to chemically harden and densify concrete surface.

1. Product: MirrorCrete

* + 1. Sealer: Film forming, stain resistant, food resistant, water repellent, impregnating type.

1. Product: MirrorSeal

Retain the following when a stencil pattern is to be applied.

* + 1. Stencil: Self-adhering, solid vinyl pattern [as approved by Architect.] [to be selected from manufacturers catalog.]

Retain the following when concrete is to be colored with a dye to change the surface appearance.

* + 1. Concrete Dye:
			1. Description: Translucent, [solvent] [water] based.
			2. Product: MirrorCrete Dye
			3. Color: [\_\_\_\_.] [To be selected from manufacturer’s full color range.]
		2. Grout: Manufacturers resinous grouting designed to fill in surface defects to produce uniform, high-gloss, high clarity final surface.
			1. Product: MirrorGrout
		3. Surface Repair Products: Manufacturers polishable, three-component, ultra and moisture resistant, fast-curing resinous-cement color matching repair system for a seamless visual surface.

1. Product: ColorMatchPatch

1. **EXECUTION**
	1. PREPARATION
		1. Test floors in accordance with manufacturer’s instructions.

Retain the following when a color dye is to be applied.

* 1. DYEING

* + 1. Apply up to three coats of dye in accordance with manufacturer’s instructions.

Retain the following when a stencil pattern is to be applied.

* 1. STENCIL
		1. Apply stencil in accordance with manufacturer’s instructions.
	2. POLISHING
		1. Final Polished Concrete Floor Finish: CPC Class [A – Cement Fines; 85 to 95 percent cement fines, 5 to 15 percent fine aggregate.] [B - Fine Aggregate; 85 to 95 percent fine aggregate, 5 to 15 percent blend of cement fines and coarse aggregate.] [C - Coarse Aggregate; 80 to coarse aggregate; cement fines, 10 to 20 percent blend of cement fines and fine aggregate.]
		2. Apply one coat of undiluted densifier solution to point of rejection, remove excess liquid, and allow to cure according to manufacturer’s instructions.
		3. Re-apply one additional coat of undiluted densifier solution to point of rejection, remove excess liquid, and allow to cure according to manufacturer’s instructions.
		4. Fill surface imperfections using surface repair products such that imperfections are not noticeable when viewed from 5 feet away under lighting conditions that will be present after construction.
		5. Apply grout as required to form continuous monolithic surface.
		6. Final Concrete Floor Gloss:
			1. CPC Level [1 – Flat, image clarity value 0 to 9 percent, haze index less than 10] [2 – Satin; image clarity value 10 to 39 percent, haze index less than 10.] [3 – Polished; image clarity value 40 to 69 percent, haze index less than 10.] [4 – Highly Polished; image clarity value 70 to 100 percent, haze index less than 10.]
			2. Test image clarity value to ASTM D5767 and haze to ASTM D4039 prior to application of sealer, at rate of three tests per 1000 square feet of polished concrete.
		7. Final Surface: Abrasion and scratch free, uniform in appearance.
	3. SEALING
		1. Apply up to two coats of sealer to manufacturer’s recommend coverage.
		2. Burnish to uniform sheen matching approved mockup.
	4. FIELD QUALITY CONTROL
		1. Measure slip resistance using BOT-3000 slip-tester; ensure compliance with specified slip resistance rating.
		2. Protect surfaces from contamination and damage.

END OF SECTION