Polished Concrete: Understanding Appearance & Expectations

TECHNICAL GUIDE 02 | THE IMPORTANCE OF THE SLAB AND FINISHING CHOICES

Understanding Polished Concrete

Polished concrete is created through a series of mechanical grinding and polishing steps that refine the existing concrete surface. Unlike a topical coating or manufactured floor covering, the final appearance is largely determined by the characteristics of the concrete itself.

Every concrete slab is unique. Differences in placement, finishing, curing, density, aggregate distribution, and previous use can influence the finished appearance. While polishing can produce an attractive, durable floor, it does not eliminate the natural variations or imperfections within the concrete.

In fact, the polishing process may reveal characteristics that were not apparent on the original surface but can also add character to the project.

01 | Understanding Aggregate Exposure and Sheen

Aggregate exposure and sheen are separate characteristics of polished concrete.

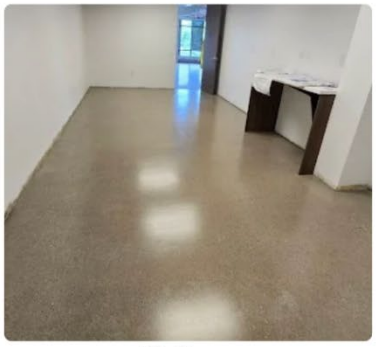
Aggregate Exposure

Aggregate exposure refers to the amount and size of sand or stone visible at the surface after grinding.

Light grinding generally preserves more of the original cement paste, while deeper grinding may expose larger aggregate. The actual exposure depends on slab flatness, finishing practices, aggregate distribution, and the depth of material removal.



Cream



Salt & Pepper



Large Aggregate

Sheen

Sheen refers to the degree of light reflection achieved through mechanical polishing.

A higher sheen does not necessarily mean greater aggregate exposure, and a floor with exposed aggregate can be finished to different sheen levels.

The ASCC Concrete Polishing Council provides reference charts to help establish common terminology and communicate expectations for both characteristics. See page 5 for references.

02 | Why Edgework May Look Different

Large polishing equipment is designed to efficiently refine open floor areas. Edges, corners, columns, and areas adjacent to walls often require smaller equipment and different tooling.

Because of these differences, edges may exhibit variations in aggregate exposure, scratch patterns, or sheen compared with the main floor.

Construction sequencing can influence the finished appearance. When appropriate grinding stages are completed before walls or other obstructions are installed, the opportunity for consistent mechanical refinement may improve.

03 | Why Concrete Protection Matters

Concrete is porous and can absorb substances that permanently affect its appearance.

During construction, hydraulic fluids, oils, rust-producing metals, acidic materials, adhesives, and other contaminants can stain or damage the surface before polishing begins.

Polishing should not be viewed as a corrective process capable of removing all construction-related damage.

Protecting the slab throughout construction helps preserve the intended appearance and reduces the likelihood of permanent discoloration or costly corrective work.

Protection remains important after polishing because the completed floor can still be stained, scratched, or damaged by subsequent construction activities.

04 | Establishing Realistic Expectations

Before selecting polished concrete, owners, architects, and contractors should understand several important characteristics:

- Natural variations in color, aggregate exposure, and sheen are expected.
- Placement and finishing marks, including trowel patterns and footprints, may become visible during grinding.
- Existing flooring patterns, adhesive marks, and stains may remain as ghosting.
- Repairs, cracks, and joints may remain visually distinguishable.
- Differences in slab flatness and density can affect the consistency of aggregate exposure.
- Edgework may differ from open floor areas.

- Polished concrete is durable but is not impervious to staining, chemicals, scratching, or damage.

A representative mockup can help establish appearance expectations, particularly where the project requires a specific level of aggregate exposure or sheen. However, a mockup represents the conditions in its immediate area and does not guarantee identical results across the entire slab.

The most successful polished concrete projects begin with an understanding that the finished floor reflects the characteristics and history of the concrete itself.

05 | How Concrete Placement and Finishing Affect Appearance

The appearance of polished concrete begins long before polishing takes place. Concrete placement and finishing techniques can create variations that become more noticeable as the surface is ground and refined.

Troweling Patterns and Burn Marks

Power troweling can create differences in surface density and coloration. Repeated passes, changes in blade angle, and variations in finishing pressure may leave circular or sweeping patterns in the concrete. These patterns can become visible during polishing as variations in color, aggregate exposure, or sheen.

Areas that have been heavily troweled or burnished may also respond differently to grinding than surrounding areas.

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Boot Prints and Foot Traffic

Footprints left by workers during placement and finishing may not be obvious once the concrete has cured. However, pressure from boots can affect the surface paste and aggregate distribution. As the upper layer of concrete is removed during grinding, outlines of footprints or other traffic patterns may become visible.

These markings are characteristics of the original slab and cannot always be removed without additional grinding, which may alter aggregate exposure.

Tamping and Placement Marks

Variations in concrete consolidation, screeding, and finishing can produce differences in the distribution of cement paste and aggregate. These may appear as lines, patches, or changes in texture once the slab is polished. This can even happen when heavy items are placed on the concrete during the curing process.

Curling, Cupping, and Slab Flatness

Concrete slabs are not always perfectly flat. Differences in elevation, particularly near joints and slab edges, can affect how much material is removed during grinding.

Higher areas may expose more aggregate, while lower areas retain more surface paste. This can create visible differences in aggregate exposure even when the same polishing process is performed throughout the floor.

Variations in Concrete Density and Porosity

Concrete density and porosity can vary across a slab due to placement, finishing, curing, and other factors. These variations may influence how the concrete responds to grinding, densification, and polishing, resulting in differences in color, clarity, or sheen.

Important Expectation

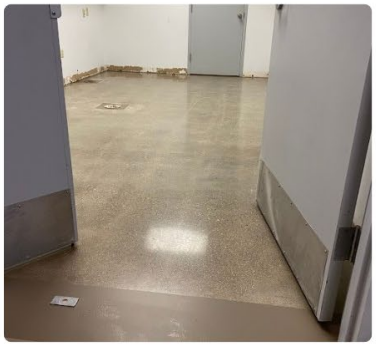
A consistent polishing process does not guarantee a perfectly uniform appearance. The polishing equipment works with the concrete that exists, and differences within that concrete may become part of the finished floor.

06 | What to Expect When Polishing Existing Concrete

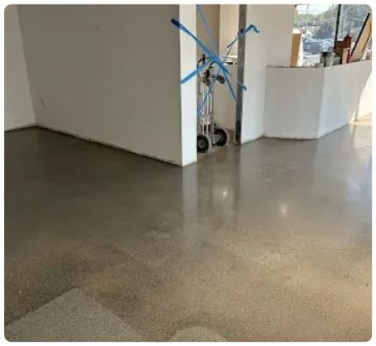
Existing concrete presents additional considerations because its history may not be fully known. Previous floor coverings, adhesives, coatings, repairs, and years of use can leave permanent evidence within the slab.

Removing an existing floor covering does not necessarily restore the concrete to its original condition.

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Ghosting



Patches and Trenches



Exposure Variation

Ghosting from Tile and Previous Floor Coverings

When ceramic tile, vinyl tile, or other flooring materials are removed, the previous installation pattern may remain visible in the concrete after polishing.

This effect, commonly called ghosting, can occur because the concrete beneath the former flooring has been exposed to different conditions over time. Adhesives, thinset mortar, moisture, contaminants, and surface preparation may affect the concrete unevenly.

As a result, the outlines of individual tiles, grout lines, or adhesive trowel patterns may remain visible even after the original materials have been removed and the floor has been mechanically ground.

Ghosting may become more noticeable as polishing progresses and is not always removable through additional grinding.

Adhesive and Thinset Residue

Previous flooring installations can leave adhesive or mortar that penetrates the concrete's pores or changes its surface characteristics.

Even when the visible material is removed, staining, discoloration, or texture differences may remain. Aggressive grinding may reduce some of these effects but can also expose more aggregate than originally intended.

Stains and Chemical Contamination

Oil, grease, petroleum products, rust, and other contaminants can penetrate concrete.

Surface grinding may reduce some discoloration, but deeply absorbed stains may remain visible. In some circumstances, polishing can make these areas more noticeable by increasing the clarity and reflectivity of the surrounding concrete.

There is no universally effective cleaning or polishing procedure that guarantees the removal of deeply absorbed contaminants.

Previous Repairs and Patching

Cracks, holes, trenches, and damaged areas may have been repaired using materials with different colors, textures, or aggregate compositions.

These repairs may polish differently from the original slab and remain visible in the finished floor. Even repairs made with cementitious materials may not match the surrounding concrete.

Differences Between Concrete Placements

An existing floor may contain concrete poured at different times, from different mixes, or under different finishing conditions.

These sections may have noticeably different aggregate, color, density, and polishing characteristics. A consistent polishing process cannot make different concrete placements identical.

References and Further Reading

ASCC Concrete Polishing Council (CPC)

- Polished Concrete Appearance Chart
- Aggregate Exposure Chart
- Position Statement #1 — Slab Protection by Others
- Position Statement #3 — Coordinating the Concrete and Polishing Contractors' Subcontracts
- Position Statement #5 — Effects of Slab-Surface Finish Density on Polished Concrete
- Position Statement #6 — Surface Repairs Prior to Polishing Concrete

Technical resources: https://ascconline.org/Polishing/Technical

This guide is intended to establish general expectations for polished concrete. Actual appearance and performance depend on project-specific concrete conditions, finishing practices, exposure, and maintenance.