

Floor Diamonds: Understanding the Polishing Process

Prep ✦ Polish ✦ Maintain

"Before you Polish you may have to Grind, and before you Grind you may have to Prep the Floor which includes removing: Old Floor Coverings, Underlayments, Thinset, Glue, Paint, Stains, Adhesives or Epoxy Coatings."

Tools to Use for Each Process:

After the floor has been prepped, you proceed to Transforming the Floor by Diamond Grinding. Diamond Grinding is the most aggressive stage of preparing concrete for polishing or applying epoxy coatings, stains or dyes.

Metal Bond Diamond Tools (pictures, right) are used to cut or grind concrete down. After any prepping, you only want to grind enough concrete to be just beneath the damage that is on the floor. Grinding too far down or removing too much concrete is unnecessary and is costly for both material and labor.



< Metal Bond Diamonds >

Depending on the initial condition of the floor, **Transitional or Semi-Metal Diamond Pads** (right) are used. Transition pads actually start the polishing process as they begin to close the pores of the floor. Transitional pads are generally used before Resin Pads or after rough grinding with metal bond diamond tools.



< Semi-Metal Diamonds >

Transitional pads offer all the benefits of a Smooth Resin Pads but the advantages of longer life and the aggressiveness associated with metal bond tools. After rough grinding with the metal tools the scratch pattern cannot typically be removed by a resin pad, transitional pads resolve this.

Diamond Polishing is the term used when **Resin Bond Diamond Pads** (right) are used. After the surface has been totally cleaned and smooth, the resin bond diamonds are used. While resin bond diamonds are designed to abrade the scratches left from transitional or semi-metal pads, if the floor is clean and smooth they may be used to start the polishing project.



< Resin Bond Diamonds >

With the diamonds exposed on the surface of a resin bond diamonds, deep scratches are quickly sanded away by the diamonds that are suspended in the plastic matrix. The plastic matrix is what gives the resin pads their less aggressive nature or polishing capability. While it is true you can hone with a coarse resin pad, they are not really designed for this task as they will quickly wear under this circumstance.

Process:

As you progress through the series of resin pads, increasing to the finer grits, the pores of the concrete are progressively closed to ultimately result in a mirror-like finish. The multi-step process provides you with the flexibility to choose how many steps you want to achieve the desired finish. Typically, you start with a 50 coarse grit and proceed as you would with your regular floor cleaning routine. After a few passes, you progress to the next grit. By the time you reach the end of the process, the floor will transform into a beautiful, smooth and polished surface.

The multi-step process provides the flexibility for you to decide how many steps you want. Depending on the type of floor and its initial condition, as well as the machine's down pressure and speed, the progression to finer grits, and the number of passes you make with each grit depends on the level of gloss you wish to obtain.

Each Grit of the above **Diamond Types** has it purpose. From the more aggressive **Metal Bonds** to finer polishing **Resin Bonds**, each step is a continued progression of polishing the floor to the desired finish. There are three basic finishes for polished concrete surfaces:

Low-Stain Finish (400 - 600 grit) * Medium-Gloss (800 grit) * High-Gloss (1500 -3000 grit)

Maintenance — Diamond Stone Pads. As diamond technology advances, many are raving about diamond impregnated pads (DIP) for cleaning and actually increasing the shine on hard floor surfaces, including concrete, terrazzo, marble, VCT, etc. Basically, DIP's are hogs hair pads with a resin and diamond mixture sprayed onto them. Besides cleaning, DIP's help to remove the everyday scratches and keep a floor looking fresh.

For example, if your floor is considered Stage 2 (smooth, minimal or no scratches, just worn badly or dirty), DIPs may be the easiest, simplest, safest and fastest diamond for you to start, finish and maintain a Polishing Project (remember, you only want to grind just beneath the damage and DIPs help you from possibly grinding too much.)

From 400 to 3000 & Buff grit, **Diamond Stone Pads** provide exceptional performance and durability. As long as the surface has been prepped and is smooth (no broom finishes, coatings, deep scratches, etc.), **Diamond Stone Pads** will not only restore the floor's luster but you'll be able to use the same pads to maintain the floor's cleanliness and shine.

And if an existing polished surface has lost its luster, **Diamond Stone Pads** are the diamond product to try before using a more aggressive Resin or Semi-Metal diamond to restore the floor's finish. And once restored, **Diamond Stone Pads** are the maintenance pad to use to make use that losing the sheen doesn't happen again **AND IT SHOULDN'T!**



< [Diamond Stone Pads](#) >

GRINDING INFORMATION

Concrete polishing is the process of refining a concrete surface until the desired refinement is achieved. The term “concrete polishing” is used loosely and can include everything from a two step grind and seal to an eight step mirror finish.

It is all about refinement - polishing a surface means that one starts with a rough diamond tool (low grit number) and refines this with higher grit numbers until maximum refinement or finish is achieved. A very common mistake is to skip refinement levels and rush the process. This only causes excessive wear on the diamond tool and usually takes much longer overall.

It's easy to break up the process of concrete polishing into three main components: **Grinding, Honing, and Polishing.**

HOW TO GET THE BEST FLOOR SURFACE PREPARATION

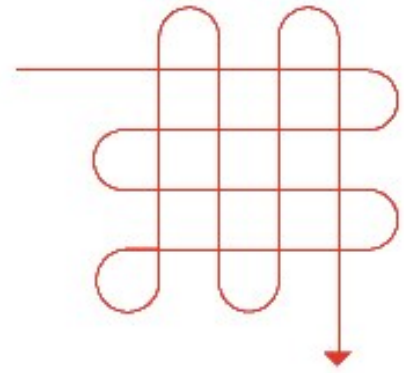
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| Material | Metal Turbo Diamond Inserts | Bauta Crush | Razor back | Tiger Gold | Tiger Gold MK | Twin Tiger | Tiger Silver | Piranha |
|--------------------|-----------------------------------|-------------|------------|------------|------------------|------------|--------------|----------|
| Glue/Mastic | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Floor Paint | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ |
| Epoxy | ✗ | ✓ < 3/64" | ✓ <1/8" | ✓ <1/8" | ✓ <1/4" | ✓ <1/4" | ✓ <3/16" | ✓ <3/64" |
| Rough Surfaces | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| Joints & Ridges | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ |

GRINDING TECHNIQUES

Cross-hatching (i.e. operating the grinder in a North to South then East to West grid pattern) is always recommended, both when changing grits and also when performing more than one pass per grit. Cross-hatching provides more consistent refinement across the surface and helps avoid visible lines in the floor, sometimes referred to as "corn rows". In addition to cross-hatching, using a diagonal pattern to create a third cutting angle can also improve the refinement process.



GRINDING

The diamond insert metals are an aggressive metal bonded diamond tool that cuts a floor down to the proper level and removes small blemishes in the surface of the concrete. Aggregate exposure can also be determined at this stage in the grinding process.

HONING

The ceramic transitional pads are designed to transition the scratch pattern from an aggressive metal tool profile into a highly refined surface that is ready to be polished. A decent amount of material is still being removed at this stage and the deep scratches from the metal tools are erased.

POLISHING

The resin pads are a high grit/low abrasive tool that is used to polish the surface to maximum refinement. Maximum refinement should be achieved at each grit level, and is evident when the previous scratch / profile is completely gone and replaced with the new profile.

EDGES

Start with the edging and then continue with the field and keep this pattern throughout the different grits. This sequence allows the large grinder to clean up the scratch pattern from the edge tool. Any edge curl can be corrected at this stage before processing the floor with the larger grinder.

MAINTENANCE

Maintenance is often overlooked in the world of polished concrete. Therefore, we want you to remember that your floor will only perform well if it is continually maintained. The first step of maintenance is to keep the floors cleaned. A good solution is to use an auto-scrubber to absorb dirt and grit from the surface. In addition, neutral cleaners and even densifier can be added to the auto-scrubber and used while cleaning the floor. This helps keep the surface clean and shiny and can be incorporated into a daily maintenance routine.

BEST SHINE MAINTENANCE PROGRAM

Maintaining a well harden and polished floor is easy to do but **it must be done**. A scheduled maintenance program is crucial to maintaining a floor's shine and longevity. While there are many aspects to maintaining a polished concrete floor, to those of you who are reading this manual - with the equipment and knowledge that you've obtained by installing such a floor - walking away from such easy work (and allowing store personnel or an outside cleaning company to benefit and profit from all of your hard work and effort) is senseless.

A hardened and polished floor is not the same as a poured concrete slab. The chemicals that were meant to clean your garage floor will literally destroy the appearance of a polished surface because of the chemical and physical changes that the polished surface went through during the polishing phase. And once you start down the path of a poorly put together maintenance program, the expense to get the floor back to where it should be goes up considerably.

Here are the facts:

- Polished concrete or stone floors will lose their sheen and clarity in a given amount of time due to abrasions from dust, dirt and traffic on the floor that will slowly but surely diminish the floor's reflectivity of light.
- When a floor is initially polished, a person can look down at the floor about five feet in front of them and see a near perfect reflection of the lighting in the ceiling.
- When the floor gets worn down from deferred maintenance the reflection of the light bulbs in the floor nearly disappears.
- Dry mopping or "dry vacuum sweeping" during the day, especially during winter when there is significant salt and sand being carried into the building, substantially reduces debris from abrading the surface.

The Simplest and Most Cost Efficient Way to Handle a Maintenance Program (or to make a proposal to the floor owner) is as follows:

- Use the same equipment that you may have used to create the floor, such as a 2-speed grinder burnisher (1000 / 1500 RPM) and a highspeed 600 RPM auto scrubber.
- Follow the directions for the BEST SHINE "DAILY & PERIODIC" MAINTENANCE SCHEDULE and the BEST SHINE MAINTENANCE TIP – See Next Page.
- Bonus: When a Polished Floor has been properly installed, only Aqua Blue Multi-Surface Cleaner (neutral cleaner, diluted with water) is used during Daily Maintenance and No chemicals (just water) is used during Periodic Maintenance.

Daily Maintenance may be done daily by store employees. Store employees would simply be involved in keeping abrasives off the floor by dry mopping (vacuum sweeping) and auto scrubbing the floor daily. It can't be express enough the importance of keeping track of the janitorial staff by making sure that proper chemicals are used on the floor – just use Aqua Blue – as well as keeping the proper pads on the bottom of the auto scrubber. Chemicals being used on polished concrete – that are meant to clean other floor types – will literally destroy the appearance of the polished concrete floor. Likewise, pads that were used way beyond there expected life – instead of gently removing dirt from the floor -- will act more like sand paper.

Periodic Maintenance needs to be performed by a knowledgeable "concrete maintenance" person -- on a scheduled basis. Various machines (other than an auto scrubber) are used to restore the sheen appearance. Again, the easiest and most cost efficient way to handle daily and periodic maintenance is with the 2-speed grinder burnisher (1000 and 1500 RPM) and a 600 RPM auto scrubber.

Spills on polished concrete are inevitable. Many manufacturers make spill clean-up kits. Getting enough spill clean-up kits that it is convenient to rapidly address the spill is highly recommended. With polished concrete you have a "window of time" to clean up the spill before it can soak into the pours of the concrete and cause some shadowing/staining of the floor. That window is of course completely dependent on keeping the floor properly maintained. If your floor is susceptible to a lot of spills a stain guard is highly recommended for further protection.

NOTE: The harder the surface is (accomplished by the LD Plus and Iron Shield *Densifier* applications), the greater the floor's resistance to staining.

Chemicals. The maintenance staff must be aware that this flooring needs special treatment. And like any other floor, there are particular chemicals specially made for polished concrete cleaning. All too often maintenance makes the mistake of saying "it's just concrete" and dumps ammonia or other unsuitable chemicals in the auto scrubber only to damage the floor.

Pads and Brushes. There are benefits to using various types of pads and brushes as well as disadvantages to using stiff brushes and stripping pads that will damage the floor and should never be used on polished concrete.

BEST ✨ SHINE “DAILY & PERIODIC” MAINTENANCE SCHEDULE

To maintain a Shine-On Polished Floor, daily dust mopping, vacuuming and cleaning the floor with **Shine-On Aqua Blue Multi-Surface Cleaner** is required. To apply:

1. Mix 11 gallons of water (for maintenance it does not have to be hot) with one gallon Aqua Blue
2. The solution may be worked into the floor using a mop, micro fiber pad or auto scrubber
3. When used daily, the dilution rate of Aqua Blue can be reduced to 24 parts water to one part Aqua Blue.

Periodically (depending on traffic), the floor is to be burnished with a high speed burnisher. The 2-Speed Propane Grinder Polisher (1000 & 1500 rpm) is recommended. Burnishing is recommended at least twice a year, depending on foot and vehicle traffic.

Depending on the floor's wear, the suggested grits of the Diamond Stone Pads are as follows: 1500, 3000, 8000. Note: When the proper Daily and Periodic Maintenance Schedule is followed, no chemicals are used in the Maintenance Schedule when Shine-On HS was applied during the polishing process.

IMPORTANT: To maintain the floor's shine, do not neglect the light duty and easy to follow maintenance program. The complete Shine-On System is flexible and versatile in allowing you to determine the right amount of treatment AND maintenance to achieve AND sustain the desired results with less labor and lower costs. For those of you whose Shine-On Floor has lost its sheen - even if greatly diminished - the flexibility of the Shine-On System then enables you to take a more aggressive approach* at getting your maintenance schedule back on track so that it doesn't happen again - AND IT SHOULDN'T!

BEST ✨ SHINE MAINTENANCE TIP

To maintain (and actually increase) the floor's shine and to eliminate frequent burnishing, a 600 RPM Auto Scrubber is recommended - to be used weekly if not daily, depending on foot and vehicle traffic.

Before using any auto scrubber, the rule of thumb is, “You should always sweep before you scrub.” For a portable vacuum/sweeper combination the 24" Smart Vac is recommended:

- Sweeps + Vacuums @ the same time: 32,000 sq. ft. per hr.
- Collect 10-15 times more than an upright sweep
- Ultra quiet @ 55 dBA
- Self-cleaning cartridge filter with micro dust filtration to assure clean indoor air
- Self-levels to walk/sweep across any surface
- On-board battery charger to re-charge anywhere (2.5 hrs. of run time)

Sweep/vacuum as fast as you can walk . . . The 24" Smart Vac is so effective it will extract debris from carpet fibers after an electric upright vacuum was used!