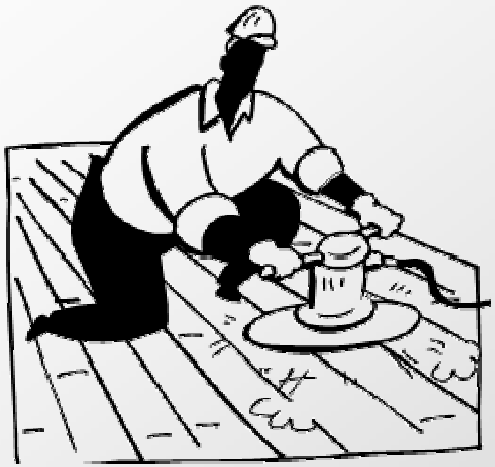

An Overview to Polishing Concrete Floors

By Bob Harris and Anne Balogh

Polishing concrete is very similar to sanding wood. Machines equipped with diamond-segmented abrasives (akin to sandpaper) are used to grind down concrete surfaces to the desired degree of shine and smoothness. As when sanding wood, you gradually progress from coarser-grit to finer-grit abrasives. (In this case, *grit* is the particle size of the diamond.) The result is a glossy, mirror-like finish. *Continue >*

Thanks to recent advances in polishing equipment and techniques, you can now grind concrete floor surfaces—whether new or old—to a high-gloss finish that never needs waxes or coatings. Factor in the superior durability and performance of concrete, and it's no wonder why more stores, warehouses, offices, and other commercial facilities are opting for polished concrete as an alternative to marble, granite, tile, or linoleum. Even homeowners are catching on to the benefits of these smooth, high-luster floors.

Be advised that each job will present different conditions and challenges that may require you to modify these basic procedures presented here. When in doubt, consult with your equipment and material supplier's technical representative for recommendations on how to proceed.

Choosing a Polishing Method: Wet vs. Dry

You can polish concrete using wet or dry methods. Although each has its advantages, many polishing contractors prefer the dry method because it's faster, more convenient, and environmentally friendly.

Wet polishing uses water to cool the diamond abrasives and eliminates grinding dust. Because the water reduces friction and acts as a lubricant, it increases the life of the polishing abrasives. Wet cutting is also more aggressive than cutting dry and may be more effective at exposing the aggregate, if a terrazzo look is desired. The chief disadvantage of this method is the cleanup. Wet polishing creates a tremendous amount of slurry (a soupy mixture of water and cement dust) that crews must collect and dispose of in an environmentally sound manner. This can dramatically slow productivity. Another downside of polishing wet: The water and slurry make it hard to see the slab surface as you're working.

Each job will present different conditions and challenges that may require you to modify these basic procedures presented here.

Dry polishing requires no water. Instead, the floor polisher is hooked up to a dust-containment system that vacuums up virtually all of the mess. Today's dust-collection equipment extracts about 99% of the dust from polishing, keeping the worksite clean and the air quality safe.

THE BASIC POLISHING STEPS Each of these steps here is presented only as an overview due to space limitations of this article
• Remove existing coatings (for thick coatings, use the lower grit diamond such as a 16- or 20-grit. For troublesome thick coatings a more aggressive diamond tool specifically for coating removal, such as a T-Rex™, may be needed).
• Seal cracks and joints with an epoxy or other semi-rigid filler.
• Depending on hardness of the concrete, grind with a 40-grit metal-bonded diamond.
• Grind with an 80-grit metal-bonded diamond.
• Grind with a 150-grit metal-bonded diamond
• Apply a chemical hardener to densify the concrete. (Allow the necessary dry time)
• Polish with a 100- or 200-grit resin-bond diamond, or a combination of the two.
• Polish with a 400-grit resin-bond diamond.
• Polish with an 800-grit resin-bond diamond.
• Finish with a 1500- or 3000-grit resin-bond diamond (depending on the desired sheen level).
• Optional: Apply a stain guard to help protect the polished surface and make it easier to maintain. (Especially if a coloring agent has been used)

Some of the most exciting new developments of concrete polishing are the decorative concrete options that are possible. You can add color, apply chemical stains or dyes to the concrete during the polishing process; you can produce a terrazzo look by grinding through the top few millimeters of the concrete surface to expose the aggregate; for new concrete floors, seed colored aggregate, glass pieces, or bits of metal into the freshly placed concrete before it sets. The polishing process will reveal these decorative embellishments; you can also saw cut decorative borders or designs into the polished concrete.

Some of the most exciting new developments of concrete polishing are the decorative concrete options that are possible.

Future articles will discuss the wonderful possibilities utilizing some of the mentioned techniques and processes.

Checklist of Equipment & Supply Needs

- **Floor polisher**. Look for a machine with a *planetary drive system*—a large primary polishing head (from 17 to 36 inches in diameter) fitted with three or four smaller satellite heads that hold the diamond abrasives. When the machine is operating, the satellite heads rotate in the opposite direction of the primary head to eliminate linear grinding marks in the floor. Choose a machine equipped with a built-in vacuum port to collect dust.
- **Handheld polisher or walk-behind edging tool** (7 inches in diameter or smaller) to work along edges or in tight spots where a large walk-behind floor polisher can't maneuver.
- **Set of diamond-segmented abrasives** in various grit levels, ranging from about 16 to 3000 (the higher the number, the finer the abrasive level). The diamond tooling should be sized to fit the satellite heads of your polisher. You'll need two basic types of abrasives: Coarse diamond segments bonded in a metallic matrix for surface preparation and initial grinding (from 16 to 300 grit) and finer diamond segments embedded in a resin matrix for honing and final polishing (from 100 to 3000 grit). Most suppliers color-code their diamond abrasives by grit level for easy identification. A basic starter's kit should include at least three abrasives at each grit level.
- **Dust-collection equipment** to capture the dust generated from grinding of the concrete surface.
- **Penetrating chemical hardener** to densify the concrete surface.
- **Epoxy filler or equivalent material** for patching joints and cracks in existing floors.
- **Topical stain-guard treatment** to protect the finished floor.

About the Authors…

Bob Harris is founder and president of the Decorative Concrete Institute in Douglasville, Georgia. He has conducted hands-on training seminars in architectural concrete in locations around the world in addition to being a part of technical support and research and development at a large decorative concrete manufacturer for almost a decade.
In addition to sharing his expertise with others through his involvement with numerous industry associations, Harris spoke at four seminars at the 2004 World of Concrete Trade Show on topics including Acid Etch Staining and Sandblast Stencil Techniques, How to Get Started in Decorative Flatwork and Advanced Decorative Overlays.
His dream for many years was to put down onto paper the knowledge he has received from his extensive field experience and training to teach others the many techniques he has learned.

Anne Balogh writes feature articles each month for The Concrete Network (www.concretenetwork.com). She is a freelance writer based in Glen Ellyn, Ill., and a former editor of *Concrete Construction* magazine.

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KEYBOARD SHORT CUTS	PC	MAC
Zoom in (Larger)	[Ctrl] [+]	[⌘] [+]
Zoom out	[Ctrl] [-]	[⌘] [-]
Full screen/normal screen view	[Ctrl] [L]	[⌘] [L]

ABOUT THE CONCRETE SHERPA

The Concrete Sherpa is a team of people that represent the experience, teaching and learning of our team members and other industry leaders *on a mission to make life better for the concrete contractor*. We are an idea center striving to deliver thought provoking ideas based on “Concrete Advice for Business and Life” to stimulate you to reach new heights. As a user, you should remember to consider all information you receive, here at the Concrete Sherpa or elsewhere, not as a *cast in concrete* recommendation, but rather as an idea for you to consider and ponder.

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THE JOURNEY LEADING TO THE CONCRETE SHERPA PROJECT

The Concrete Sherpa Project (A Sherpa is a “guide”) was born at The Concrete Network in mid 2004. Here is how it happened:

The biggest surprise, or gift, since starting The Concrete Network in 1999 has been the concrete contractor friends from around the country we’ve made and witnessing the passion they have for what they do. These people include Dave Pettigrew, up in the San Francisco Bay Area, or the Verlennich brothers in Minnesota, or Bob Harris in Georgia, the list goes on and on. It’s quite inspiring.

We were once asked, “How are you so excited every day about concrete?” Well the answer is simple, it is impossible to not be excited about concrete when you have the job we do- interacting with hundreds of concrete contractors from every state in the country.

The thing we’ve learned about concrete contractors is that most are passionate *craftsmen*- they are often less passionate and experienced in the “office stuff”. Human nature channels us to do what we are most comfortable with; learning how to use a new saw-cutting tool is comfortable; learning and implementing a new estimating strategy, or job management tool, is not so comfortable.

Sherpa info

THE JOURNEY CONTINUES…

So Sherpa was born to provide FREE and easy to use information on topics many contractors are not too comfortable with.

- Concrete Sherpa is here to provide help to contractors who are often ‘Lone Rangers’ and don’t have anyone to get solid business advice from.
- Concrete Sherpa is here to provide help for contractors who have to work too hard and too many hours in their business, and one day realize they need to work *on their business, not in their business.*
- Have fun with Concrete Sherpa and go faster towards reaching success than you might have on your own.
- To skeptics who think something free can’t be valuable, or there must be a trick- visit Concrete Sherpa and decide for yourself.

We hope you make great use of the Concrete Sherpa and it helps you to become an awesome success for yourself, your family, your church, and your community.

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