

Counter Culture: Fall 2010

Vol. 10 No. 6 • August/September 2010 • \$6.95

Concrete

The Journal of Decorative Concrete

Decor



The Gorey Details

*Inside the mind of top
fabricator Brandon Gore*

UV-Cured Coatings
Colorful Churches



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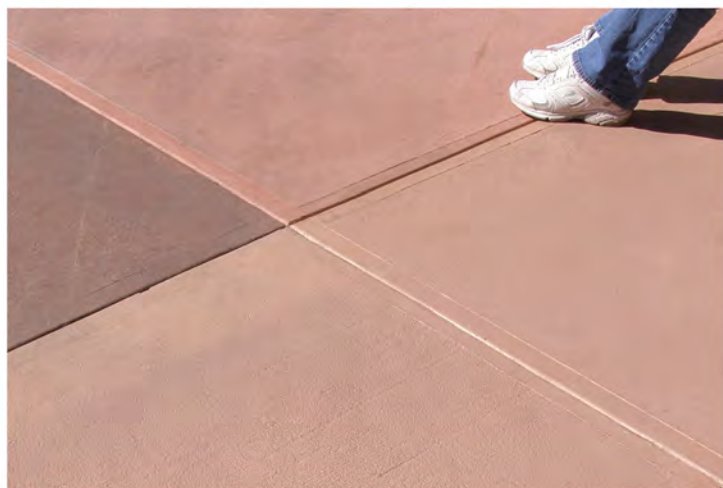
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Publisher's Letter



Dear Readers,

It has become somewhat of an annual ritual for our staff to review the many entrants in *Concrete Decor* magazine's annual concrete countertop competition — an enjoyable process, to say the least. But this contest continues to become increasingly difficult to judge. The projects keeps getting better, and both the diversity and complexity of project applications are indications that concrete countertops are becoming a competitive force in the larger countertop market. On behalf of everyone at *Concrete Decor*, congratulations to the winners and the many worthy runners-up, and thank you to the many sponsors of this year's competition.

Speaking of countertops, I want to tell you about my recent visit to Nashville, where the 2011 Concrete Decor Show & Spring Training will take place next March. While visiting one of our exhibitors in a business park, I also had the opportunity to visit a long-time countertop fabricator next door. In their showroom, beside the granite, marble, tile and other composite samples was a new space designated for the "green countertop" alternative. Prospective customers could not miss this beautiful display because it was right inside the main entrance. What's more, the store owners' enthusiasm was equally noticeable.

Asking how this new product was going for them, the response was somewhat unexpected. "It's the best thing that's happened to our business in 20 years. We now have a profitable, high-end product to offer that no other fabricator in town has. There's no limit to its possibilities. The concrete countertops give our shop a creative new perspective on the market."

This testimony, along with many others we hear from our readers, is simply an indication that the concrete countertop market is growing. And so it continues with every other facet of the decorative concrete industry. While this recession may be stifling some of that enthusiasm, it won't last.

Decorative concrete has a bright and prosperous future ahead of it and *Concrete Decor* is setting its sights on the road ahead with a complete redesign that debuts this January 2011. The date also marks *Concrete Decor* magazine's 10th anniversary, and it's this benchmark I would like everyone to congratulate yourself on. We are looking forward to the road ahead and we look forward to continuing our service to you.

Enjoy!

Bent Mikkelsen, Publisher

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Enter this access code to view current and older articles in *Concrete Decor*'s online archive. The archive can be found and searched at www.concretedecor.net. The password changes every issue.

To continue receiving both the print magazine and access to our archives, keep renewing your subscription to *Concrete Decor*, the industry's foremost magazine on decorative concrete.



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Tom Dombalis, Position
Atlantic Coast Concrete, Clemmons, NC

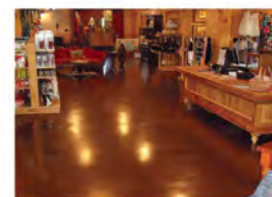
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Choosing the Right Countertop Grinder **High-Performance Mix Design:** **A Wet-Cast Mix** **2010 Concrete Countertop Design** **Competition Winners**

On the Cover: Brandon Gore's "Fern Table," located in the Arizona studio showroom of Gore Design Co. The table was cast with GFRC, given a tea-wash finish, and features inlay details that include steel and a meteorite slice. The plants shown are real, as the table was designed with a growing container that is suspended just below the concrete tabletop. To learn more about Brandon Gore, see page 26.

Photo courtesy of Gore Design Co.

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Braxton-Bragg Announces New Models & More Horsepower for Lavina Planetary Grinding & Polishing Machines



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Photo courtesy of Buddy Rhodes Concrete Products

A Stoneman Concrete/Buddy Rhodes training class, February 2010 in France.

Buddy Rhodes expands into France with new partnership

Stoneman Concrete, a new company based in the south of France, serves as an overseas home for Buddy Rhodes Concrete Products, training artisans from throughout Europe. Stoneman will provide concrete interior design for local homeowners and host workshops on Buddy Rhodes' methods and products.

The first Stoneman Concrete workshop in February 2010 was taught by popular GFRG artist Brandon Gore and covered spray techniques and sink forming. Stoneman owner Pierre Freau led a class in July, which included students from France, Germany and Cyprus. Stoneman Concrete is set up to ship anywhere in continental Europe and across the Mediterranean. Their first big order went out in July 2010 to Cyprus.

Freau named the company after the street in San Francisco where he and his wife and twin boys live when stateside. After apprenticing in France with a third-generation mason in the art of regional stonework while restoring his own 18th-century stone barn, Freau returned to San Francisco to immerse himself in concrete finishing, training for more than a year at Buddy Rhodes Studio.

Freau brought a full ship-container of Buddy Rhodes materials and molds with him when he moved his young family

back to the barn in France to open his distributorship, showroom and training center.

www.buddyrhodes.com

www.stonemanconcrete.com

Cheng Concrete begins offering training in Pacific Northwest

Cheng Concrete would like to introduce its newest authorized trainer, Mike Moncrieff of New Edge Design LLC, based in Bellingham, Wash.

Moncrieff, a passionate artisan, has logged more than 15 years of construction experience and nearly a decade experimenting, developing and creating with decorative concrete. One of the first ever trained at Cheng Concrete, Moncrieff launched New Edge Design LLC shortly after his 2003 training, partnered with his father, Sam Moncrieff, owner of Moncrieff Construction. Their focus at New Edge Design is designing and creating unique interior concrete environments. Their vast experience ranges from countertops, hearths and vertical walls to inlays, logos, conference tables, integral sinks and furniture.

Moncrieff will lead two-day training workshops for Cheng's new Decorative Fiber Reinforced Concrete (D-FRC).

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www.concreteexchange.com

www.newcountertops.com

Faux Expo in Florida

The 2010 Faux Expo, to be held Sept. 20-24, 2010, in Orlando, Fla., is a trade show designed around all aspects of decorative finishing for the professional artisan.

From decorative concrete to painting to sculpting and all points in between, the show provides a full experience. Classes focus on high-end finishes and methods taught by recognized masters from France, Italy, the Netherlands and around the world. Demonstrations in the exposition hall by teams of muralists assimilated specifically for their individual strengths will produce a mural in just three days. In the exhibit space, attendees can move from booth to booth seeing the newest each vendor has to offer and having a chance to play with many of the materials right at the show.

Each night of the trade show carries with it an event with open bar and food for all registered guests.

www.fauxexpo2010.com

Concrete Industry Management students at Alcatraz

This summer, the Concrete Industry Management program of the College of Engineering at California State University, Chico partnered with Golden Gate National Recreation Area to create the first CSU, Chico CIM Summer Field School on Alcatraz Island.

Five select students from the CIM program began work on the project June 7, living in restored officers' barracks in the Marin Headlands. They worked full time as National Park volunteers on Alcatraz Island throughout the 10-week internship, preserving and repairing deteriorated concrete structures, some of which date to the 1850s.

As part of the program, Engrave-A-Crete Inc. was invited to offer its expertise on mechanical texturing of concrete (also known as engraving). Students used the Barracuda, one of the tools from Engrave-A-Crete's KaleidoCrete system, to prepare a surface for patching. Then the Barracuda was used to alter the newly patched surface to match the texture of the historic concrete in the former prison.

This opportunity has been funded by a cultural resources stewardship

grant through the GGNRA and generous contributions by CIM patron supporters, including BASF Construction as a major sponsor.

www.concretedegree.com

W.R. Meadows and Gemite Products announce partnership

W.R. Meadows Inc. has partnered with Gemite Products Inc., a global provider of construction chemicals. W.R. Meadows is now the exclusive

United States distributor for Gemite's unique waterproofing products.

The initial product offerings in the U.S. are Adicon CW Plus, an integral waterproofing admixture; Cem-Kote CW Plus, a crystalline in-depth waterproofing product; Cem-Kote Flex CR, a flexible, chemically resistant waterproofing coating; and Cem-Kote Flex ST, a positive- and negative-side waterproofing product. These products are specially formulated for wastewater

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Hyde names new president, COO

Robert Scoble has been named president and chief operating officer of Hyde Tools Inc. Scoble succeeds Richard M. Clemence, who has stepped forward to lead the Hyde Group as chief executive officer.



After more than 20 years of leadership in other privately held companies, Scoble joined the Hyde Group family of companies in 2005 as vice president of sales and marketing for Hyde Tools. In 2009 he was named executive vice president and chief operating officer.

Over the last five years, Scoble has been credited with strengthening

the Hyde brand, recruiting significant new leadership and creating a new global sales and marketing team for the company. He and his staff also have substantially increased the company's share of revenue derived from new products. As president, he expects to continue his focus on Hyde brand growth and work closely with Hyde's Canadian counterpart, A. Richard Tools, to strengthen their shared North American presence in surface preparation and finishing hand tools, paint application tools and related retail categories.

🌐 www.hydetools.com

New hires at Stone

Stone Construction Equipment Inc. has named Michael Worrall district manager for western Canada. His responsibilities will focus on developing the territory and serving equipment dealers and rental



houses in British Columbia, Alberta, Saskatchewan and the Northwest Territories. He also will work closely with AE Sales, Stone's manufacturer's rep organization in Canada.

Derek Miller, of Mission Viejo, Calif., has been reappointed as district sales manager. Miller was previously part of the Stone sales team from 2003 to 2005. His responsibilities include serving the needs of equipment dealers and rental houses in Arizona, California, Nevada and Utah.



Brian DePaul, of Souderton, Pa., has been named regional manager. In his new position, DePaul will be responsible for the management of the Northeastern Region's direct and indirect sales representatives.



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Decorative Concrete Makes Its Television Debut

If you have ever dreamed of seeing your work displayed on a worldwide level, you will want to read this article. The decorative concrete industry is soon to get the exposure that it deserves.

We all have one guy to thank, because he never gave up on the dream of taking concrete to a “headliner” level. Wes Vollmer

is truly one of the good guys of our business. When he called me late on a Sunday evening not long ago, I could tell in his voice he was about to break something big. If you have had a chance to meet this guy than you know his excitement for our trade.

Wes is on the verge of taking concrete to another level with the introduction of a new television show called “Concrete Nation” that will begin airing on Fox television stations in October. The goal of “Concrete Nation” is to document the building of a house made mostly of concrete. The intent is to show the world the beauty of concrete when put into the hands of artists.

Wes will oversee the nuts and bolts of the project, but he was quick to point out that he is bringing in some heavy hitters to produce the show itself. Ernest Cartwright and Ashley Gracile are both executive producers



by Doug Carlton

of “Concrete Nation” and they will be busy working with Wes to create a show that will prove there are no limits to the decorative concrete industry.

The “Concrete Nation” home is being built in Fountain Hills, Ariz., with the help of local architect Terry Kilbane. The Sonoran desert will make the perfect backdrop for what is sure to be a fine creation of concrete and color. The show will air weekly, showing the progression of the new home and the interactions between the homeowners and contractors.

Wes didn't go into great detail about the planned final look of the home when built, but he pointed out that the end result will be something that will benefit everyone involved in our industry. Wes feels that decorative concrete is due for this type of exposure on a worldwide stage. He made it perfectly clear that this show is about every concrete artist who has ever dreamed of the potential of our industry. Having known this guy for years it's easy for me to believe him. Wes's goal is to promote our industry in a fashion that will create demand for every person related to the decorative concrete industry. I'm betting he is going to do just that.

If you're asking yourself how you can get involved and benefit from “Concrete Nation” then read on. Wes is looking to create a network of contractors that members of the viewing audience can find in their areas. It sounds like the show will channel

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some valuable contacts."

— Wayne Francis,
Financial Associates



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people to a website that will give them a chance to connect with decorative concrete artists. The potential for new leads is huge and nothing on television has come close to this type of exposure for our industry.

The "Concrete Nation" website is also looking for your best pictures. We want to see thousands of pictures showing all the possibilities of concrete. Stamped, stained, polished and any other form of decorative concrete you can take high-quality pictures of are welcome, with full credit given to the artists. The vision here is to bring all facets of our industry onto one stage and deliver a knockout punch to the viewers of "Concrete Nation."

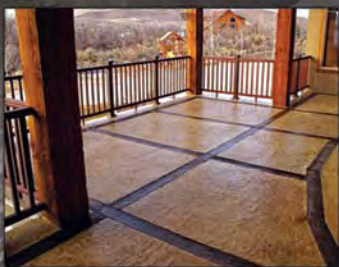
Finally, "Concrete Nation" could use your help. Tell as many customers as possible about the show. If the show gets enough exposure, Fox is more likely to continue to air "Concrete Nation," allowing more projects and episodes to be displayed. The upside is huge if we can get out and spread the good word about our concrete industry.

I would encourage anyone interested in more info or in finding out how to participate to go to Concretenation.com.

With so many exciting forms of exposure for our industry that have surfaced as of late, the strong foothold of decorative concrete is easy to see. They can all help you. Don't just think "Concrete Nation" — utilize *Concrete Decor* and other decorative concrete media sources to promote your work. Don't overlook the power of these sources to gain new customers and leads for your business. 📱

Doug Carlton operates Carlton Concrete Inc. in Visalia, Calif. He can be reached at carltondoug@comcast.net.

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Color Hardener vs. Integral Color on Smaller Stamp Jobs

As with most things in life, a decorative concrete installer faces many choices when it comes to the products and processes he or she uses on a job. Unfortunately, the choice is often made to take the path of least resistance or buy at low cost versus favoring long-term performance and the quality of the project.



by Chris Sullivan

However, when it comes to one type of decorative concrete product and one type of project, making an informed and educated choice results in a significant quality increase without a significant increase in time or money. That product is color hardener, and the market is small to medium-sized stamped concrete projects.

When it comes to stamping small to medium-sized concrete pours, the benefits of using color hardener compared to integral color can be summed up in two words — color and hardness.

By using color hardener the applicator controls the color. The issues of varying cement colors and slump

affecting color consistency pretty much go away. A great analogy I was taught years ago that I still use today compares color in concrete to a cup of coffee.

Integral color in concrete is like cream added to coffee — no matter how much you add, it will never turn the coffee white, just a lighter shade of brown. The base color will have a dramatic impact on the final color outcome. Color hardener is more like adding whipped cream to the top of the coffee, which completely takes base color out of play. Color hardener also offers a much broader color range, while integral color often requires white cement to achieve those same colors. Many of the leading stamped concrete installers I know prefer color hardener because it allows them to control the color application as well as blend multiple colors to achieve a more natural-looking end product.

Correction

There was an error in the July Trowel & Error column regarding dosing integral color by cement weight versus “sack mix.” I mistakenly stated the weight of cement in a five-sack mix could range from 2,500 pounds to 3,500 pounds. The range is actually 460 pounds to 650 pounds of cement.

More important, and often overlooked, is the second advantage — increased surface hardness and abrasion resistance. Color hardener is a blend of cement, sand, color and, in some cases, polymers that aid in wetting and finishing. When worked into the surface of the concrete, the cement and sand create a much stronger surface paste, typically increasing the surface strength by 1,000 psi to 2,000 psi when compared to standard concrete mixes. I have personal knowledge of many exterior stamped concrete slabs located in harsh freeze-thaw or high-traffic environments where color hardener is the primary reason they have outlasted their integral-color counterparts by years.

In fairness, I have to address the common negative comments associated with color hardener. The primary issue that is always near the top of the list is the cleanliness factor. Yes, color hardener can be messy. However, it does not have to be out-of-control messy. You, your crew and everything within 100 feet does not need to be covered in color. Using a brush or spreader or refining your throwing technique can make for a relatively clean job site. A little practice, and even novice applicators can take full advantage of the benefits color hardener can provide.

The other comment I often hear is that it's just as easy to order concrete with color already in it. To that I say, yes it is, but what value do you put on the long-term quality of your work and setting yourself apart from your competition?

When you compare color hardener to integral color, the cost is pretty much a wash, yet the durability gained from using color hardener is proven science. Keep in mind that stamped concrete jobs are usually not lost or won because of the cost of color. They are, however, won and lost based on your resume and the longevity of your work.

In the interest of full disclosure, let me be clear that I am not against integral color. In fact, I have been marketing and selling integral pigments for 15 years. I am, however, a firm believer in selecting the right product for

the job. There are many situations when using integral color is the best product choice. The key variables to consider when selecting your coloring method are job size, pouring logistics, color choice, environmental conditions, and texture selection. Understanding the products you use and the benefits associated with them is part of being a successful decorative concrete installer. 🛠️

Chris Sullivan is vice president of sales and marketing with ChemSystems Inc. He has presented seminars and demonstrations throughout North America, including at World of Concrete and the Concrete Decor Show & Spring Training. Contact him at trowelanderror@protrade.pub.com.

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the concretist



Photos courtesy of Mike Miller

Bernard Maybeck's "Sack House," Berkeley, Calif. Fireproof walls were constructed of Bubblecrete — burlap sacks were dipped in a washing machine filled with a frothy solution of cement paste, then were hung on steel strand and chicken wire strung between studs.

Berkeley's Street of Concrete Dreams

I received a call a little while back from an architect and general contractor named Graham Simmons. Graham had been referred to me by Jim Duvall, a concrete contractor who specializes in difficult lots, basements and foundations in the Berkeley Hills of California. Jim places and finishes the mud, and we



by Michael Miller

sometimes follow and provide applied finishes: patina stains, dye washes, etc.

Graham and Jim were on a design-build project together — a really unusual garage addition to a Berkeley home owned by a husband and wife, two doctors, at the top of Buena Vista Way in the hills.

This was a small 400-square-foot garage with a twist. It was to house a really hot Ferrari, a collector's item and an automotive jewel in anyone's crown.

Here's the twist: Driveway access to the garage was a bit sketchy, so Graham had designed, and Jim was placing, a structural slab that would support a stainless steel turntable. This turntable would act kind of like a railroad roundhouse, enabling the driver to pull in and out without having to use the mirrors and back up. It would be surrounded by a thin-topping slab to potentially be finished in some exotic fashion (my job).

Graham had been calling me repeatedly about finishing the slab for maybe a couple of weeks, and we just weren't able to link up. Scheduling conflicts, and I felt really bad. I knew he had a production schedule to keep. Late Sunday afternoon or early evening would finally accommodate all parties (designer, contractors, owners). So a meeting was set for Sunday at 5 p.m.

Graham asked if I might be able to meet him at the bottom of Buena Vista Way instead of at the clients' house at the top, as he had something else he thought I might also be interested in.



Above: Hume Castle, designed by John Hudson Thomas in the style of a 13th-century French Augustinian monastery.

Right: Another of Bernard Maybeck's Berkeley homes, at 2780 Buena Vista Way, with a substantial sculptural fireplace of battered and board-formed natural gray concrete. He and his wife, Annie, lived in this house until they passed away in the mid-1950s.



Maybeck and the Temple of Winds

5:10 p.m.: A lovely East Bay summer afternoon. Sun above, fog in the distance. At the corner of La Loma Avenue and Buena Vista Way, Graham and his dog are waiting patiently for me in the shadow of a eucalyptus. "Sorry, I'm late, what's up?" Graham answers my question with a question: "Do you know Bernard Maybeck?"

I did. Maybeck designed the iconic Palace of Fine Arts in the Marina District of San Francisco, and he was a developer and prolific designer of homes in Berkeley. Most of them are concentrated on Buena Vista Way, between La Loma and the top of the hill. Graham and I stood at the base of an all-cast-in-place concrete, Maybeck-designed Pompeiian villa, the Lawson House, talking shop. We talked design. We talked construction. We talked concrete. And we learned about each other.

Graham had been raised in this neighborhood, and as a teen, he had partied, drank and whatever in about every other Maybeck house. He joined the trades, became a carpenter and ski bum, and pounded nails, brews and the slopes in California's High Sierra. Then he returned to the University of California, Berkeley where he earned his degree in architecture.

I shared of myself and what I knew of Maybeck. (I used to speak on the concrete reconstruction of the Palace.) Maybeck, like me, was a stylistic chameleon. He was equally comfortable designing in the Mission and Mission Revival styles, or Gothic or Arts and Crafts styles, or incorporating Beaux-Arts classicism.

Graham and I strolled up the street and took a peek at two of Maybeck's own homes — 2780 Buena Vista, where he and his wife, Annie, both died in the mid-1950s, and 2711, the "Sack House," where they had lived previously. These are both examples of Maybeck as an innovative concretist. Check out the sculptural, battered, board-formed fireplace at 2780. And note the walls of burlap sacks, dipped in a washing machine filled with frothy cement paste (Bubblecrete, invented by Berkeley resident John A. Rice), and hung on steel strand and chicken wire strung between studs. This was an inexpensive and fireproof method of construction after the original structure had burned.

We visited the Temple of Wings, perhaps the most well-known and iconic of Maybeck-designed residences. This is also called the Boynton House, a home conceived as a Greco-Roman temple and built without walls. It's simply a roof supported by 34 Corinthian columns upon a radiant-heated slab, all in concrete. A house where Florence Treadwell Boynton taught generations of dance students, and where her friend Isadora Duncan used young Judd Boynton as a prop in their impromptu productions, this early 20th-century experiment in Mediterranean, neoclassical (and sometimes naturist) living offered curtains in lieu of walls. When the winds blew and rain fell, you drew the shades. Alas, this was ultimately to prove a failed experiment, as Northern California was only a *semi*-Mediterranean climate. It took a few winters,



but walls were added.

Judd Boynton was later to become a Berkeley builder and character worthy of notice. His self-built residence was of concrete, sited on a difficult lot at the top of the Buena Vista hill. It features a massive retaining wall topped by an exceptional cantilevered great-room slab. The site was precarious. The view from the great room was like that of the pilot of a dirigible cresting the ridge of the Berkeley Hills, heading out and over the Golden Gate Bridge.

The radiant-heated concrete came in handy as the site of Mr. Boynton's reputed sensual group get-togethers ... now that's what I call *sensory concrete*! And this floor I have some personal experience with — not from swinging parties, but from patina-staining the floor while with L.M. Scofield Co., during a remodel in the '80s.



Soil cement at the Hume Castle — site-cast precast blocks and columns, with cast-in-place infill, at the arched doors and windows.



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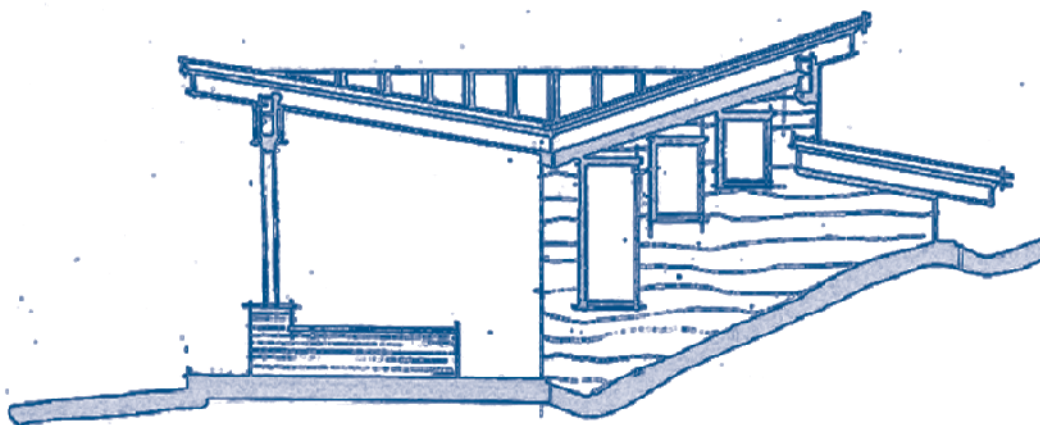
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Hume Castle and Po' Mike

Our final stop before the clients' house was at Hume Castle, designed after a 13th-century Augustinian monastery in France. Graham thought this one was by Maybeck, but I later discovered it was by another Berkeley-based architect, John Hudson Thomas. I was particularly interested in the Castle as it was apparently built of simple, unornamented, precast concrete blocks of soil cement. (Soil cement is concrete composed of portland cement mixed with site-excavated soil for coarse and fine aggregates and pigmentation.) Believing that the structure should be of the hill rather than merely on it, the builders cast these blocks on-site. This was in the 1920s, about the same time that Frank Lloyd Wright was in Los Angeles, designing and building with his Mayan-inspired textile block system featuring deep ornamental relief.

Hume Castle is a combination of both precast and cast-in-place soil cement. This is how I intend to build at The Po' Mike El Rancho/Retreat, my isolated ranch in northeastern Nevada. I'm called Po' Mike 'cause I'm poor, but The Po' Mike El Rancho/Retreat is sited in a valley along Indian Creek with an abundance of clay-free ancient alluvial deposits. In other words, I'm rich in soil, the kind that makes really good soil cement. 🛠️

Michael Miller is managing principal of The Concretist, an association of artists, craftsmen and others producing sensory-concrete art and architecture in cement, stone, glass and steel. The Concretist is headquartered in Benicia, Calif., with additional locations in northeastern Nevada and Southeast Asia. Visit Theconcretist.com and Thevisualconcretigroup.com. Mike Miller can be contacted at miller@theconcretist.com.



The soil along Indian Creek in northeastern Nevada is clay-free and rich in alluvial deposits. Just right for Po' Mike's new community house, which will be board-formed and cast in place out of soil cement.

Soil for soil cement should be excavated from a relatively deep source, such as the pit where the septic tank goes. The idea is to get beyond the cowpies and bits of ancient sage to dirt that's free of organic debris.



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
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There's More Than One Way to Make the First Cut

The “first cut” is the foundation for the polished concrete floor that you are going to create. But what is a “first cut”? In speaking with a wide range of concrete polishers, I've found that there seems to be three ways this question can be answered.

To some concrete polishers, “first cut” means starting with 100-grit resin diamonds, and that's it. They proceed to 200-grit resins without evaluation of what has occurred during the first pass.

To others, “first cut” means to randomly scratch some of the surface with a metal or a resin depending upon the bid and then polish the concrete.

To still others, “first cut” actually grinds the slab open and flat with a coarse metal bond. After it, they go step by step until the concrete is polished to their customer's satisfaction.

All of these methods of dealing with the initial grind will produce a polished concrete floor. But these floors are not created equal and will not perform equally. We need to start doing a better job of informing and educating our customers about the cost, performance, longevity, and maintenance differences they can expect from each of these approaches.



by Jennifer A. Faller

Influences and limitations

When considering how to approach polishing a particular floor, there are many influences that will determine what ultimately happens to that particular piece of concrete.

Pricing is the first and most common influence. This occurs during the bidding, negotiation or sales process. When we hear what the owner wants, we have a price in mind that we can accept for doing the floor. Then there is the number that the client is willing to pay. This is where the compromises begin. They may include removing a step, not doing the edges, or agreeing to accept coloration differences or a floor that is less flat. Eventually a deal will be struck. That price will determine how the first cut is performed.

A second major influence is time allotted. The owner or general contractor says that the job needs to be done in two days, while you on the other hand were thinking that you would need a week to do the job right. What impact does this have on how you approach the first cut?

Yet another influence is equipment available. If you have only a 21-inch lighter-weight grinder that cannot really cut a floor flat, how will that impact your first cut when you're looking at a hard-troweled or burned concrete floor? Or let's say the project is in a building without an elevator, and only a 21-inch grinder will fit up the stairway in pieces that can be put back together after it has been carried up. How will this affect the

first cut? In both of these examples, the compromises are likely to include a final floor that is less flat than desired, and the coloration and final polish may be uneven.

Access to water is an influence. If no water is available, an aggressive first cut may simply not be possible, as wet cutting is sometimes the only method that will cut through a burned floor. Or if you are working on the second level, the owner may not allow water to be used, as it could seep into the floor and potentially leak through.

Lack of training and experience may also limit the options on the first cut. Did the diamonds glaze? Did the diamonds barely scratch the surface, and should the crew have increased or decreased the head or disc speeds, or walked faster or slower? With limited knowledge, the floor is often "mowed" like a lawn, and this ultimately affects how the floor will turn out. Customer knowledge is a factor as well. Perhaps your owner saw the polished floor at the local library, and wants her floor to look just like that. Her level of experience affects her expectations, and the customer's desire for, say, no aggregate exposure at all will clearly have an impact on how you can approach the floor and perform the first cut.

The polishing contractor may not have seen other limitations before agreeing on a price for a job. For example, 3,000-psi concrete may have been specified for the mix design, but once poured and cured, the slab has become 5,000 psi, so you suddenly require additional coarse diamonds. Or it goes the other way and the concrete is sandy and abrasive. As soon as you put diamonds to the surface, you are pushing a pile of dust, and the diamonds themselves can wear within 1,000 square feet.

In the case of either air-entrained concrete or structurally cracked or crazed concrete, there will be lots of little holes or spaces that will need to be filled. The approach will be to grind with silicate-based Certi-Shine Fusion repair material (from Vexcon Chemicals Inc.) that fills the voids on the surface — this procedure needs to be performed during a metal step, not a resin step. If a

self-leveler needs to be poured over the entire floor, the first cut will have to be adjusted accordingly.

With the advent of laser screeding and other super-flat technology, floors are being poured and troweled flatter than ever before. The FF (flatness) and FL (levelness) numbers of a slab will also influence which grit diamonds you select for the initial approach to the floor. An older slab with birdbaths

and high spots will require coarser diamonds and harder initial cutting to flatten the floor. As a general rule, the flatter the slab, the higher the grit of diamond you can start with.

There are two areas where all concrete polishers can agree. First, each concrete slab is different. Second, the single most expensive and labor-intensive cut is a coarse-grit metal bond diamond that actually grinds and

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flattens the concrete surface. This cut will also consume the most diamonds and generate the most concrete powder or slurry for handling and disposal. The very next metal bond, the next level up, will be the second most costly.

This type of cut will ultimately produce the flattest, truest and most reflective floor. If properly densified and polished up, it will also be the most durable floor. Cutting the entire floor, removing the high spots and actually grinding the lows with the same grit diamond will refine (hone and polish) at the same rate. After transitioning from a coarser-grit to a finer-grit diamond, the concrete will all be cut and honed by the same diamond grits hitting the entire surface.

How to approach the customer

Given that there is more than one way to make the first cut (and polish concrete), it is the concrete polisher's obligation to educate the customer and then meet expectations. The solution may be to offer bids on more than one

option and price them accordingly. This can help you explain performance differences so that the floor that they pay for will meet their long-term expectations as well as please the eye on the day they pay you.

Here's an example:

Option one: Cut, flatten, hone, densify and polish the concrete at a cost per square foot of X dollars. This floor will have several features and benefits, including a cream, salt-and-pepper or aggregate finish, a flatter surface, truer reflections with less haze (better DOI, or distinctness of image), exceptional durability, excellent shine retention, and reduced maintenance.

Option two: Scratch the surface with a lower resin or combination diamond, then densify and polish, at a cost per square foot of X minus Y dollars. This option includes "riding the highs" so that no aggregate is revealed and polishing to a slight cream and/or salt-and-pepper finish. This floor may have an undulating or wavy surface with low dull areas and less durability, and

it will require surface conditioners with densifiers and diamond burnishing. Repolishing will likely be needed, depending upon the level of traffic and maintenance. The initial "surface polish" is temporary, and the concrete may be referred to as a "capped" floor.

Option two is often the floor delivered by default due to the limitations and influences we have discussed. This is the type of floor that is causing concrete polishing to be in danger of losing its reputation as the "greatest floor on earth," a durable, high-shine, low-maintenance floor. If this is all the customer can buy, then make sure the customer understands its performance limitations. 🚚

Jennifer A. Faller has been in the surface preparation industry for the past 15 years as a decorative concrete contractor, technical consultant and owner of a distribution company. Currently, she is business development manager for Vexcon Chemicals and lead trainer for the Certi-Shine brand of polished concrete materials. Contact her at jfaller@vexcon.com.





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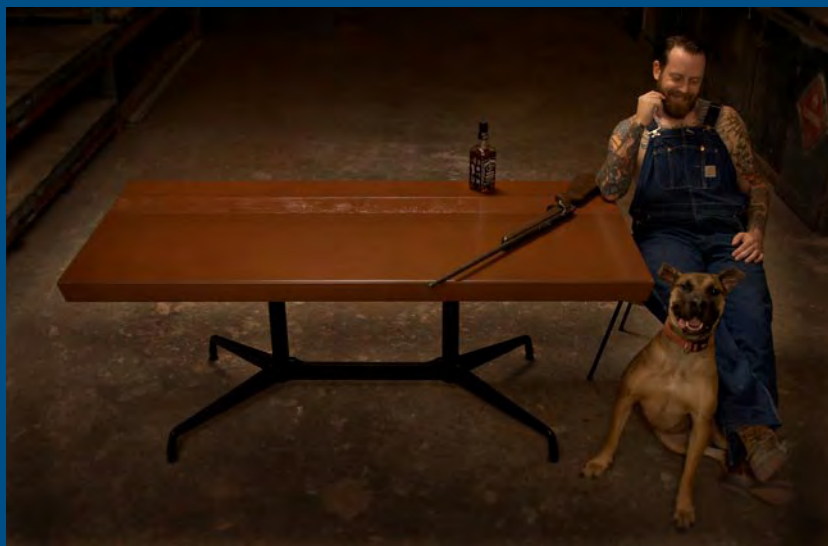
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Brandon Gore Gore Design Co. Tempe, Ariz.



Photos courtesy of Brandon Gore

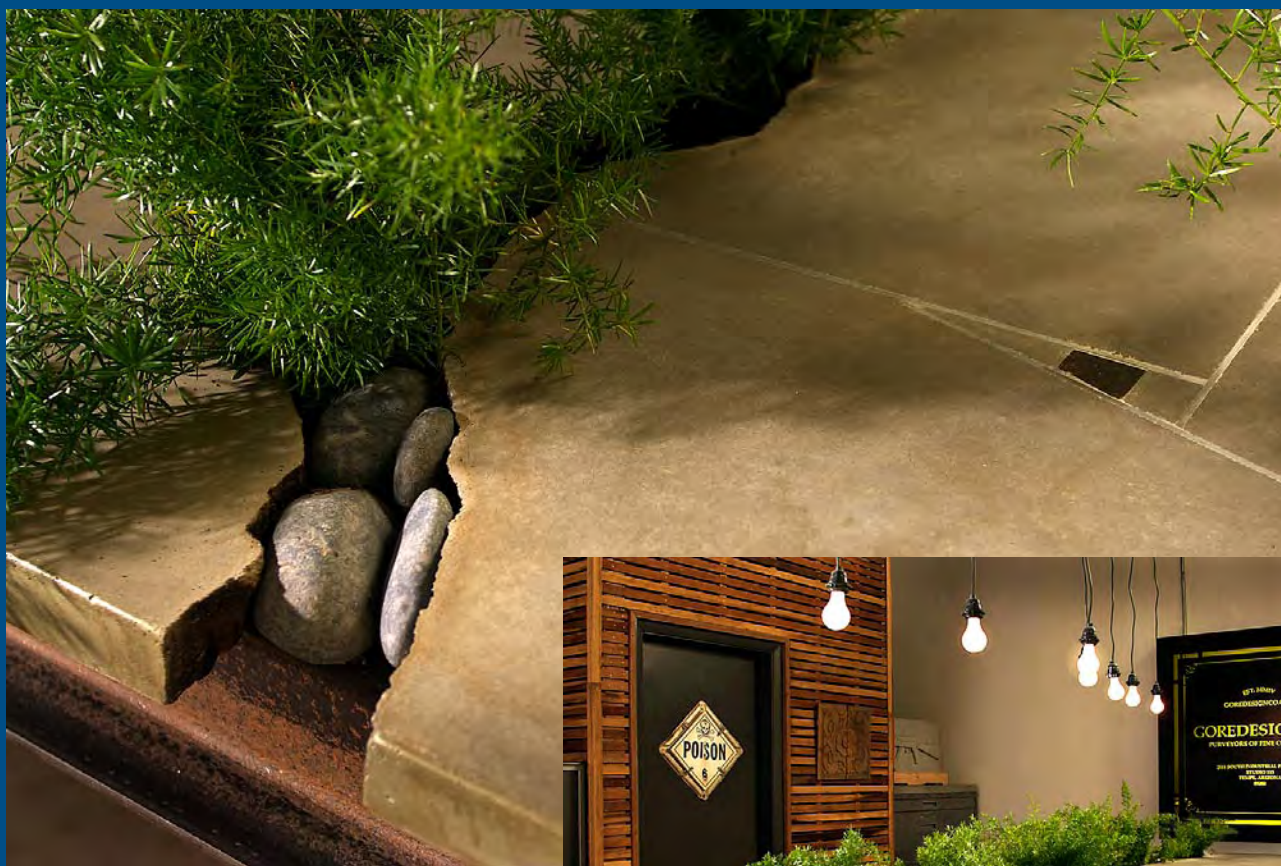
by Kelly O'Brien

All it takes is a single phone call to know that Gore Design Co. is not your average concrete artisan — whether they pick up or not. “Hello and thank you for calling Gore Design Co.,” says the studio’s answering machine in a tinny, modulated tone. “My name is Billy Bob, the friendly robot who answers the phone while the humans are busy creating with concrete.” The voice of Billy Bob may, in fact, be the electronically altered voice of Brandon Gore, founder of the design firm, but that doesn’t make his message any less true — the humans have indeed been busy

with concrete.

Gore is a 32-year-old survivor of the corporate grind. Ten years ago, as a sales manager for the Marriott hotel chain, he was making great money, traveling incessantly and, he says, “slowly dying inside.”

He took a leave of absence from Marriott — “I wanted to do something more honest with my life,” he says — with no set plan for what that more honest something would be. But he didn’t let that stress him out. At the time, the housing market in Tempe, Ariz., (where Gore



lives and works) was booming. Many of Gore's friends were making good money flipping houses, and that was a path that he, too, considered. "Architecture has always been a part of my life," says Gore, whose father and grandfather were both civil engineers. "I wanted to do something that would allow me to be more creative, something that would let me use my hands."

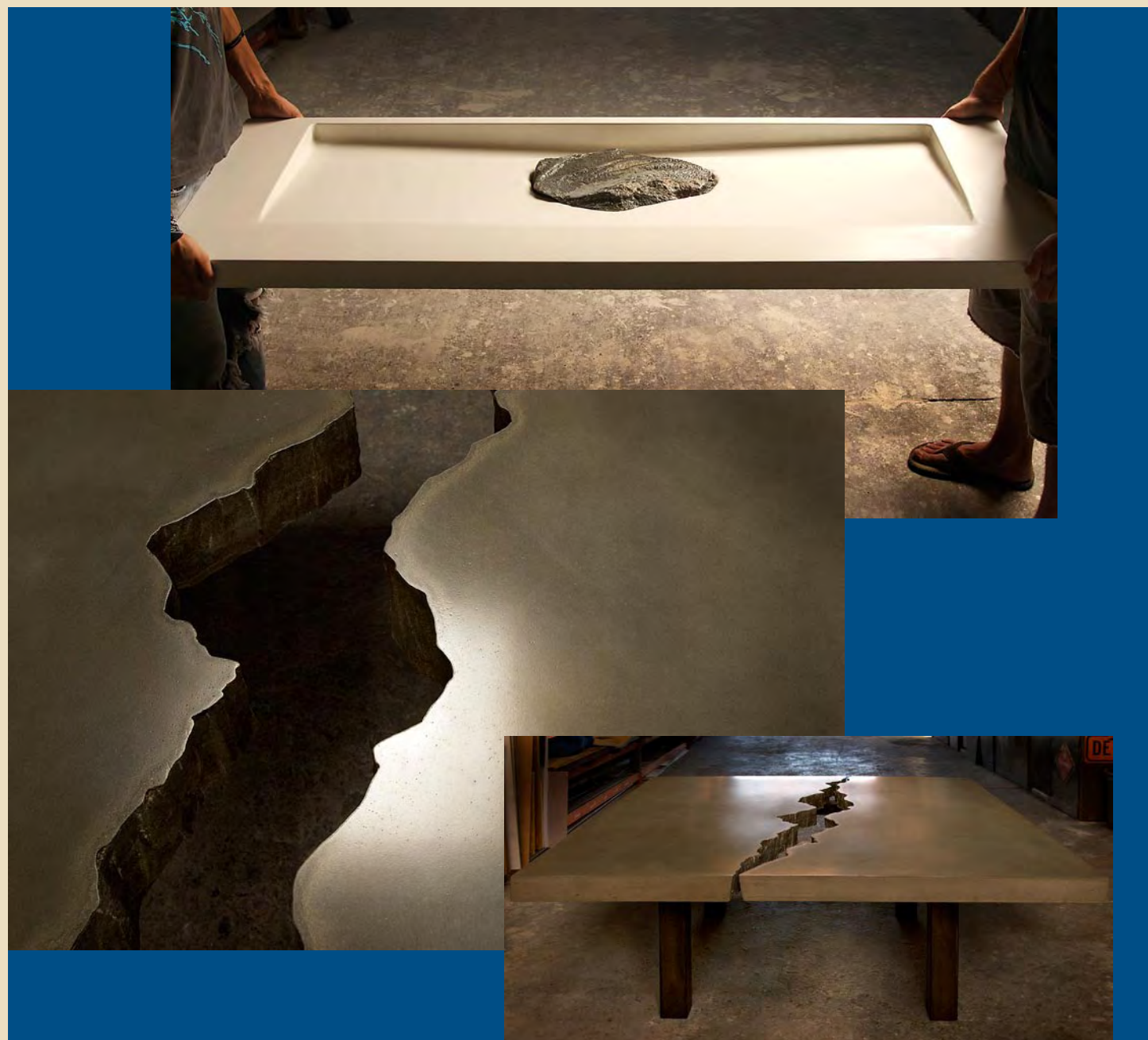
And flipping houses may well have been the path he chose, were it not for a fateful ride on his mountain bike through the Phoenix suburbs. Riding through an area of look-alike

housing developments (or, as Gore calls it, Whoville), he stopped to admire an expertly designed home at the base of South Mountain. Something about the house struck him, he says, but he didn't think much more about it until a few days later, when he stumbled across a magazine article about the house. It turns out his chance encounter had been with the critically acclaimed home of architect Eddie Jones, and one of the things the article highlighted was the cutting-edge concrete countertop Jones had chosen for his kitchen. For Gore, the picture of that countertop was a

glimpse into his future.

Gore's first step from random magazine article reader towards successful and edgy concrete studio owner was taking the very first countertop class offered at Buddy Rhodes' studio in San Francisco. "When I look back at it now," Gore says, "it was very simplistic. Build a box, mix concrete, dump it in — you're done." But however humble, that first class had hooked Gore completely.

Not long after that, around a year after he took his leave of absence, Gore rented a studio, despite the fact that he



didn't have a single project lined up. For a year, he spent most of his time rearranging his shop, making concrete pieces and photographing them to build up a portfolio. And then finally, he got a call. A 5-foot-by-1-foot counter for a project in Flagstaff. He was ecstatic — and the work kept coming.

"I was very lucky with timing," Gore says. The housing boom in Arizona was good for concrete fabricators, too, as it turned out. "Any fool could walk into that situation and grow a company," he says.

About a year after that first job in Flagstaff, Gore got a call from a local

metal sculptor who was looking for a really unique sink. Gore says that at that point, he felt like he was sort of pigeonholed, doing predominantly West Coast-style countertops, and this client gave him a chance to really reach, designwise. Gore went through 15, maybe 20 working prototypes on the wet-cast sink before finally settling on something that both he and the client were thrilled with. The Erosion Sink, as it's since been dubbed, cost Gore about three times (in materials alone) what he charged for it — but this was the sink that really saw Gore Design take off.

Evolution through Erosion

When Gore first started the company, he wasn't at all sure he would succeed. "It was more or less an experiment to see how far I could get with this," he says. "I sort of expected to fail at a certain point." After a few years, it became clear that failure was not imminent, so Gore decided that his benchmark for succeeding was to be published in *Dwell* magazine.

The Erosion Sink would get him there. It was covered in a local design magazine first, which caught the attention of a home design blog, which



wound up on a Dwell editor's screen. After three months of going back and forth with the editors for photos and follow-ups, Gore walked into a Barnes & Noble one afternoon, picked up the latest Dwell, and there was his sink. "Literally, that was the day everything change for me," he says. "My website went from around 20 hits a month to 7,000 to 8,000!"

The Erosion Sink marked the beginning of the firm's commitment to wild, creative custom fabrication. Gore works with a small staff of concrete artisans, and they do custom GFRC fabrication for clients all over the world.

The Erosion Sink has become one of their most popular designs (like the rest of their work, it's now done with GFRC), and clients frequently request its organic, rippled look for their own custom sinks. For other custom work, the Gore crew draws their inspiration from nature, anatomy and their own wacky imaginations.

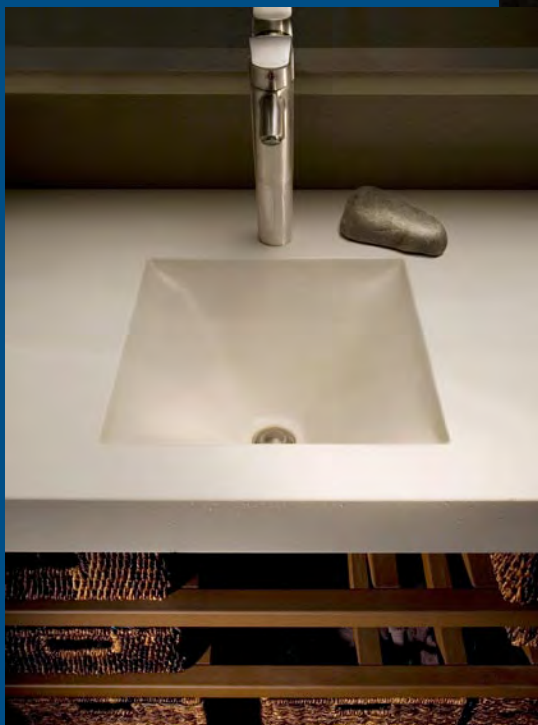
But not all of the work that Gore does is from-scratch custom commissions. The firm also has eight standard sink molds that they use regularly.

The contrast between standard sinks and custom work is an important

one. Gore Design's rate for a standard piece is much lower than that for a custom one, but Gore says the profit margin on a standard job is often much higher. He might spend 40 to 50 hours perfecting a custom design, whereas a standard sink of the same size take 3 to 4 hours total.

Still, the custom work is what gets the attention of the press and of future clients, and it's also how you "keep the joy in your work," Gore says. "The perfect job for me is when a client commissions one custom sink and three standard sinks. We get to have our cake and eat it too."





Another important aspect of Gore Design's business model is its marketing strategy, which takes advantage of the studio's trademark edginess. Billy Bob is one facet of this strategy, and another is the company's website. Gore went through three Web designers in the process of revamping the site before eventually settling on building it himself. It's primarily a portfolio site — "at the end of the day, all you have is your photos," says Gore, a firm believer in the importance of hiring professional photographers. But the site also tells the story of Gore as an artist moving past traditional concrete into the creative

landscape of GFRG fabrication.

Gore says the company used to have a more straightforward image, adopting strategies, like many small firms, that made them appear bigger than they were. "I got over that," he says. The company has had a staff of three for three years now. Gore is very comfortable there and, in fact, extols the virtues of a small organization. "Do not grow," he says. "Stay small — you can move, adapt, change. Big companies can't weather the storm."

But while Gore doesn't intend to grow, that doesn't mean he plans to stay the same. In the coming months,

Gore has plans to change the company's approach yet again. Currently, the firm enjoys steady work despite the recession, but much of it is starting to feel a little too familiar. Gore and his team are after a creative challenge. To that end, the company plans to limit the number of jobs they take on, focusing only on projects that really inspire them. "If it's going to be a challenge, if we're going to be racking our brains to figure out how we're going to do it — that's what we want," says Gore. 📱

🌐 www.goredesignco.com



Photo by John Strieder

UV-Cured Coatings

Harry Crum of Kemiko Decorative and Industrial Coatings demonstrates UV-curing equipment at the 2010 Concrete Decor Show & Decorative Concrete Spring Training. Crum clearly felt comfortable operating the equipment without gloves during the small-scale demo, but some experts advise against that.

Coatings that cure when exposed to UV light pose unique challenges, but their performance and cure speed may make them worth it.

by Amy Johnson

Like all serious concrete countertop artisans, Chris Klipfel has spent years searching for the ideal material to seal his work. With UV-cured coatings, clear coatings that cure with controlled exposure to ultraviolet (UV) light, he thinks he is pretty close. “Some of the UV-cured coatings are the most stain-resistant of any sealer on the market,” says Klipfel, owner of CK Concrete Design, St. Louis, Mo. “Even against crazy stuff, like muriatic acid.”

This makes UV-cured coatings great for the harsh environment of a family

kitchen. “Nothing you can buy at the grocery store will hurt it,” says Kevin Ormsby, vice president of sales and marketing for Kinloch USA.

Klipfel likes UV-cured coatings for exterior jobs too, because, he says, they’re “the best thing out there” to resist damage from sun or water. “The only sealer I know for sure will never break down with five days of water sitting on it is a UV coating.”

Another advantage of UV-cured coatings is appearance. Bill Kulish, owner and artisan at Quintechs LLC,



Photo courtesy of Quintechs LLC

Contractor Bill Kulish of Quintechs LLC, creator of this tabletop, likes UV-cured coatings because they leave a paper-thin film and can be honed to a matte finish that looks like no coating is there at all, while still protecting the concrete from stains and scratches.

a concrete countertop, art and design company in Wilmington, Del., likes them because they leave only a thin film — “thinner than a piece of paper,” he says — and can be honed to a matte finish that looks like no coating is there at all.

This protection is long-lasting too. “UV-cured coatings will outlast a traditional sealer and preserve your work for much, much longer,” according to Harry Crum, business development coordinator for Kemiko Decorative and Industrial Coatings.

With curing equipment designed for concrete countertops as well as concrete floors, UV-cured coatings are typically waterborne or 100 percent solids, so there are no volatile organic compounds (VOCs), no solvents to flash off or outgas. This makes them a good choice — sometimes the only choice — for applications affected by tight environmental or health department regulations.

Most UV-cured coatings are easy to apply, and contractors can reduce their learning curve by taking advantage of suppliers’ training. One hundred

percent solids coatings can be cured immediately. Waterborne coatings need to sit for anywhere from 30 minutes to two hours, depending on conditions and manufacturers’ instructions, for the water to flash off. Either type of coating can be left uncured for hours or even overnight, but both only reach full hardness and chemical resistance after curing.

The single most important advantage of UV-cured coatings is speed. “The sealer cures completely in seconds and can be returned to service immediately,” according to Bill York, senior technical advisor for V-Seal Concrete Sealers. An entire factory floor can be sealed over the weekend and be in full service Monday. A restaurant can close at midnight and be open for brunch the next morning. A contractor can seal and deliver a countertop in the same day. A homeowner can drive his car back into the garage as soon as the contractor leaves.

“UV-cured coatings in general are just more robust than conventional two-part coatings,” says Charlie Foster, chemist at Kinloch USA. Klipfel, for his

part, feels his work is protected by a coating that is as close to indestructible as it can be.

The process and the finish

However, along with its benefits, UV-cure technology poses unique challenges for contractors. They must deal with the curing process, and they need to wrestle with the possibility of a glossy finish.

When Klipfel is asked what he likes best about UV-cured coatings, he says, “peace of mind — but then I lose my mind when I have to finish it.”

UV-cure chemistry is straightforward: Photoinitiators are activated by UV exposure and the material cures immediately. The 100 percent solids coating Klipfel uses requires a “partial cure” to avoid shrinking. This requires multiple passes at different intensities, a process Klipfel says is tedious with his countertop-curing equipment. Even if partial cure is not required, most suppliers recommend curing the coating in two passes, the second at a 90-degree angle from the direction of the first, to assure full



This countertop, created with a countertop overlay mix on 3/4-inch particle board, was colored by misting acrylic water-based stains in various colors onto the surface with a spray bottle. The work is protected by a 100 percent solids high-gloss UV-cured sealer.

exposure.

Contractors who want a honed finish typically apply two coats to get a coating thick enough to sand, according to Foster. A second coat also fills in any pinholes or micropores left in the first coat. "A micropore is shaped like a volcano," Foster says. "It's smaller at the top than at the bottom, so if it is not filled, stain agents can get through the coating and damage the concrete below."

Which brings us to the second challenge — finishing. Many contractors find UV-cured coatings too glossy to impart a natural look. While there are matte-finish UV-cured coatings on the market, some applicators feel the materials added to the coating to knock down the gloss also impair clarity, so they prefer sanding themselves. Some contractors report sanding even the matte finishes.

Sanding requires more know-how than you might think. "You need skill in

Don't Get Burned: Safety and UV Cures

First and foremost, using ultraviolet curing equipment requires diligent safety practices. John Wilson, president of SPDI UV and CureUV.com, compares it to "a welder's flash on steroids." Sunglasses and long-sleeved shirts are not enough. UV emitted by curing equipment can be many times brighter than the sun, according to Richard Mandich, UV products account manager for Jelight Co. Inc.

Leading suppliers of UV curing equipment include protective gear and instructions with every sale or rental, including a face cover with eye protection similar to one used for arc welding, plus Tyvek overalls and leather or Kevlar gloves. The Jelight package also includes a stand-up warning sign to keep curious onlookers away while the equipment is operating.

Look for safety features incorporated into the curing equipment. For example, Adastra Technologies Inc. sells a floor system with safety shields between the operator and machine and a skirt around the bottom.

Proper technique is as important as proper safety clothing. Holding the lamp too far from the surface increases risk of overexposure. An improper angle can bounce light back at the user.

For the safest and most consistent UV cure, Wilson suggests contractors work with the hand-held light the way they would a spray-paint gun. Hold it at the right distance and angle to focus the beam of light, change



direction to cross the previous path and be patient. "Sloppy wrist movement gets sloppy results," he says.

The best safety measure is to get the proper training, which happens to be a requirement to even buy the coating and cure equipment. For example, Harry Crum, coatings business development coordinator for Kemiko Decorative and Industrial Coatings, says they train contractors buying RapidShield UV-cured coatings by walking them through a mock installation, from preparing the surface to curing the coating. After the training, they even go with the contractor on the first job to make sure the new user is competent and confident.

polishing if you're going to meticulously sand the coating to achieve a matte finish," Kulish says. What's more, it can be time-consuming. Specialty pads and equipment such as an orbital sander can make the job go faster, but even so, Klipfel says he spends three or four hours sanding the average kitchen installation.

A new UV-curable coating introduced in July is one example of a coating that addresses the gloss issue. RockTop UV from Surface 519 can be buffed to a matte finish before it is cured. According to the manufacturer, the waterborne coating should be left uncured until it feels dry to the touch, then rubbed with a gray scrubbing pad by hand or with a sander to the desired sheen. Bob Chatterton of Surface 519 says it takes about 10 minutes to buff about 50 square feet. Then the coating is cured and the process repeated for a second coat. This product allows the contractor to see exactly what the finished coating will look like before it is cured. In fact, Chatterton warns, "Make sure it's perfect before you cure it. Once it's cured it is very difficult to go back and sand it because it is so hard and scratch-resistant."

Cost is another hurdle for contractors considering UV-cured coatings.

The material cost is on the high end — between 70 cents and \$1 per square foot. The application can determine which price point is appropriate. "In a garage, you'll want to use a 100 percent solids materials for a quick in and out," explains Michael Kelly, CEO of Allied PhotoChemical Inc. "A large floor might be more price-sensitive, so you might choose a water-based coating."

But the biggest cost is the initial investment in the curing equipment. Good hand-held lamps, powerful enough to drive the light all the way through the coating, typically cost more than \$2,000, though one recent entry to the market is priced below \$1,000. Equipment for curing floor coatings is even more costly, ranging from \$10,000 to \$27,000.

So how does a contractor decide if the investment is worth it? Chatterton recommends you ask yourself the following questions: How many jobs do I do? What do I spend on callbacks?

How many jobs can I get because I have this equipment? Kelly emphasizes the value of a quick cure. "You have instant use of your product, which means more money in your pocket," he says.

Many suppliers lease or rent curing equipment. York recommends this option for first-time users. "It's reasonable to buy the lamp by their second or third job, when they've proven there is significant financial advantage," he says. "If you can get a premium price per square foot for finishing early, you've bought the lamp."

Whether you buy, rent or lease, one very important consideration to note when choosing curing equipment is compatibility with your coating. Some suppliers sell the coating and the cure equipment as a package. Others publish technical specifications for curing requirements that a UV light supplier specializing in concrete coatings must meet.

In the end, does the peace of mind of using UV-cured coatings outweigh the maddening details? A hard, long-lasting, nearly invisible coating that

resists scratching, staining and etching certainly delivers peace of mind for owners. And as coating and curing technologies advance, the challenges that can bother contractors are diminishing. 🛠️

Equipment suppliers

- 🌐 www.cureUV.com (SPDI UV)
- 🌐 www.jelight.com
- 🌐 www.uvcurenw.com
(Adastra Technologies Inc.)

Coating suppliers

- 🌐 www.alliedphotochemical.com
- 🌐 kinlochusa.com
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Radical Radials

Manufacturers are taking stamp designs to the next level with a fresh concept — multipiece stamps that create curved and circular patterns

by Stacey Enesey Klemenc

Well-rounded decorative concrete contractors are learning the benefits of having a radial stamp kit in their stamping tool collection. Made up of urethane pieces crafted to fit snugly together to form consistent circles, the stamps can be used to create interesting focal points for everything from large expanses of concrete on commercial lots to modest residential patios in backyards.

“Contractors looking to differentiate themselves from the rest of the market are using these stamping tools to help them do that,” says Keith Boudart, sales manager for Butterfield Color, a company that earlier this year introduced its first radial stamp.

The technology has been around for years, he allows, but people these days are realizing that innovative tools can help them pick up more work by offering customers new options at affordable prices. “These patterns are being used along with color hardener to accent broom-finished driveways and patios.”

Contractors just discovering the many applications of radial stamps are often impressed with the elegant results, says Kris Kaitanjan, senior vice president of Matcrete, a company that’s been manufacturing them since 1984. “They produce a rich appearance that looks as if each cobblestone was hand-cut and fit for that one job,” he says of his stamp.

As noted, the stamps themselves are not circular, but rather sets of curved pieces that when fit together form filled circles, half circles or round decorative borders. They can also be used to place tiered circles of larger sizes surrounding a basic circle pattern, which would typically be between 4 feet and 5 feet in diameter. For added flair, a couple of companies offer a compass point as a central design element in their radial design.

Finally, some radial stamp sets can be used to form serpentine designs and other curvy design elements as well as circles.



Proline Concrete Tools Inc. offers a radial stamp set that creates circles 5 feet in diameter and larger. The set is comprised of five different stamping tools.

At World of Concrete 2010, **Proline Concrete Tools Inc.** introduced a revolutionary new design in radial stamps. The company's **European Cobble Series** of five different stamping tools can be configured to create circles from 5 feet in diameter to as large as you want to go. You also can use the individual pieces to create a running bond cobble, a serpentine cobble, a mixed cobble or a band by rearranging like stamps or combining different stamps.

"Our radial stamps have been received extremely well," says Tyler Irwin, Proline's national sales manager. "Contractors like the fact they can make endless circles without having to buy a new set for each row of stamps." The stamps can be used on new concrete or overlays.

The European Cobble Series features a round tool, a curved tool, a

half tool, a full tool and a double tool. Proline sells the stamps in suggested sets of 12 or 16, but you can buy fewer.

Four round tools form the innermost circle. Curved tools shape a band that looks like four rows of cobblestone to surround this initial circle. The next tier utilizes curved tools along with half tools all the way around the circumference. Each subsequent tier added requires the additional use of a half tool between the curved tools.

"With this new technology, contractors just need to buy one set of tools to stamp a radius out to infinity because the same set of tools keeps repeating," Irwin says. "There's nothing else like it on the market."

The Proline sales manager says the



Photos courtesy of Proline Concrete Tools Inc.

pattern is very user-friendly and doesn't require any special training. Contractor Allen Ortiz of Allen Decorative Concrete, in Escondido, Calif., concurs. He says he used the radial stamps for a 19-foot circle in a parking lot. "I didn't have any specific training (with these tools) and I found it easy. Proline gives you a sheet to show you how to lay them out. They work very nice. You can keep building and building whatever size circle you want. It's a pretty cool concept."

www.prolinestamps.com



Photo courtesy of Split-Rok Construction

Ted Mechnick, owner of Split-Rok Construction in Lakewood, N.J., has nothing but good things to say about Matcrete's Slate Cobblestone series. He's been stamping with the tools ever since they first came out about 25 years ago. "What's important to know is that when you purchase one set of stamps to create a common circle, with a little imagination you can use them for many other applications," Mechnick stresses. "Contractors who are artistic and don't follow the crowd and want to go the extra mile with their work will find many other uses not shown here for these stamps."



Photo courtesy of Split-Rok Construction

Matcrete's radial stamps come in sections that can be assembled to create a 19-foot-wide circle. An optional soldier course row can be added around each tier.



Photo courtesy of Split-Rok Construction

The radial stamp set from **Matcrete**, part of the company's **Slate Cobblestone series**, features a tool that creates a 52-inch cobblestone center. Subsequent tiers can be added to extend the circle out to 9, 14 or 19 feet. The four tools in the series can create circles, half circles and rings on fresh concrete and stampable overlays.

Kaitanjan recommends a minimum of four stamps per tier, for a total of 16 stamps. "If you only have two of each, you're going to be playing leapfrog," he says.

A decorative border made from the company's new brick soldier course line can be used around the perimeter of a 52-inch, 9-foot or 14-foot cobblestone circle as a finishing touch. "This really works well when you want the circle one color and the soldier course another," Kaitanjan says, adding that the soldier course was designed with hand-cut slate pieces.

Matcrete's stamps are easy to use, Kaitanjan says. "The stamps interlock and are color-coded so all you need is general stamp knowledge to use them. No specific additional training is necessary. It's a tried-and-true pattern that's withstood the test of time."

In July, Matcrete introduced a new tool that creates a 52-inch-wide compass point. It can be used in place of the 52-inch cobblestone center.

www.matcrete.com



Photo courtesy of Matcrete

Butterfield Color introduced its three-tiered cobblestone circle pattern earlier this year. Crafted from the same hand-picked, variable-sized cobblestones used to produce its Mayan Cobblestone stamp, **Mayan Cobblestone Circle** features three different tools that can be used together or separately to form a variety of medallions and circular borders on overlays or fresh concrete. The straight Mayan Cobblestone stamp can complement the curved designs.

The first tool in the new series can be used to create a circle up to 5 feet wide. The second can extend that circle out to 10 feet. And the third tool can increase the diameter up to 15 feet. Boudart recommends contractors have four of each tool for a set of 12 to comfortably form circles up to 15 feet across.

“Our tools are made to fit tightly together to minimize spreading,” says Boudart. “Also, our stamp pattern is formulated to minimize surface cracking and blowouts along the grout joints.”

Butterfield’s radial tools are designed to be user-friendly for experienced decorative contractors, but training is offered at distributor locations throughout the year. Contractors can also view a demonstration on the company’s website.

www.butterfieldcolor.com



Three different tools make up Butterfield Color’s natural-looking cobblestone circle pattern. They can be used together or separately to form various medallions and borders.

Photos courtesy of Butterfield Color

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A design created using the Cobble Circle radial stamp set and a decorative center medallion from Specialty Concrete Products.

Specialty Concrete Products has been carrying StampMaster radial stamps since it bought StampMaster in 2002. Its collection is comprised of four patterns of radial stamp: Cobble Circle/Course, Slate Radius, Fresh Brick Soldier Course and Fresh Brick Radius. They can be used

to make circles on fresh concrete and overlays.

The Cobble Circle radial stamp series — five stamps in all, and the company's best example of the concept, says marketing manager Robert Cranford — starts with a 52-inch center that can be ringed with another tier to

create a 9-foot circle. Around that goes a single row of Cobble Course, followed by another tier of Cobble Circle to create a 14-foot circle. This larger circle also can be ringed in Cobble Course if desired.

A few customers who wanted different-sized circles have approached the company to make custom stamps. "While it's expensive and time-consuming on our end, it can be done," Cranford says. "We're one of the few manufacturers who offer custom stamps."

The Slate Soldier Course Close Radius and the Fresh Brick Soldier Course Close Radius both consist of a series of three stamps that can be used to create circular rings, half-circle borders and ovals with their respective textures.

Professional contractors will be able to use any of these radial stamps without any problems, Cranford says. "They're not any harder to use than normal stamps."

www.scpusa.com



Photos courtesy of Specialty Concrete Products/StampMaster



Solomon Brickform has introduced five new cobblestone radial tools designed to make circles from 5 to 24 feet in diameter. The tools also can be used to create half and quarter round shapes.

Although **Solomon Brickform** had been manufacturing radial tools as Brickform for years, the company reworked its offerings and debuted its new **cobblestone radial tools** at the 2010 WOC. Five new tools in all, the new stamps can produce half- and quarter-round shapes as well as full circles on fresh concrete.

“We took the original stamps and reformulated them so they fit absolutely perfectly with no gaps to create circles from 5 feet to 24 feet in diameter,” says David Blasdel, part of Solomon Brickform’s training and technical team. He adds that the new stamps’ pattern resembles the company’s London Cobble.

The next size up from the 5-foot diameter circle is a second perimeter of interlocking stamps that create a 9-foot-wide circle. A third row would carry it out to 14 feet, a fourth row to 18 feet and a fifth row to 24 feet. Blasdel recommends a minimum of four tools per row for a set of 20.

Although Solomon Brickform doesn’t make a border to

complement the new series, the company offers fractured-face and cantilevered step liners for raised slabs that can be used to create various looks, including a hard-troweled shiner to a textured-skin stone.

Although these tools are easy to use, Blasdel always recommends training. Solomon Brickform holds three-day training classes every spring and fall in Springfield, Ill., and Rancho Cucamonga, Calif. The company also schedules demonstrations at distributorships across the nation. 📱

🌐 www.brickform.com

*Want to learn more? Search online at
www.concretedecor.net*



Recipes: Reactive Stain Effects

by Kelly O'Brien

While reactive stains offer all kinds of design possibilities, they are a tricky subject for a collection of recipes. The central claim of a recipe is that if you use the specified products and follow the directions to the letter, the result will be something, if not identical, then at least very similar to the original. Well, reactive stains will have none of that. Gaye Goodman, owner of New Mexico-based Faux Real Floors LLC and one of our contributors for this section, points out that acid staining simply can't be done by following a formula.

Bart Sacco, of Concrete Texturing Tools and Supply, a Pennsylvania store, agrees. There is a huge list of factors — mix design, finishing method, dilution ratio,

application technique — that affect how the stains react and what colors you'll end up with, Sacco says.

This anecdote from Goodman is a perfect illustration: "If it turns out that the builder's slab has a plasticizer added to the mix, and he wants a medium-walnut floor," she says, "we might have to dilute the stain 12 times over with acid water to keep it from going black!"

Taking all of this into consideration, our goal with these recipes is not to encourage you to reproduce specific acid-stained floors — which would be impossible — but rather to illustrate effects that utilize acid stain as well as other materials. These techniques will be applicable from one slab to the next.

Trash Aesthetic

Simon Motamed, Triple-S Chemical Products Inc. — Los Angeles, Calif.
www.concrete-stains.com

Just one color of acid stain delivers bold, dynamic patterns thanks to the use of a secret ingredient: trash bags!

Ingredients:

Triple-S Chemical Products AL-70 lacquer, gloss

Jet Coatings Elastocrete Magnesite Cement microtopping (EMC-60): White

Triple-S Concrete Acid Stain: Tan

Ammonia solution, 1 cup ammonia to 1 gallon of water

Triple-S UT-70/30 One-Part Polyurethane sealer, diluted 9:1 with acetone

Triple-S UT-9500 Two-Part Polyurethane, diluted 3:1 with acetone

Special equipment required: Plastic garbage bags

Directions:

- Over a thoroughly clean and dry substrate, apply a single coat of the AL-70 sealer and let dry completely.

- Put down two layers of white microtopping and let set completely.

- Apply one coat of acid stain and let dry completely.

- Tear the garbage bags open at the seams, so you have flat sheets of plastic.

- Clean any residue off the surface and apply a second coat of acid stain. While this coat is still wet, lay the plastic bags over the wet floor haphazardly. Scrunch and wrinkle the bags as much as you like, as the creases will collect the stain and give the finished floor the random patterns we're after with this technique.

- About 2 hours later, when the stain is partially dried, removed the garbage bags, then let the stain dry completely.

- Neutralize the floor by scrubbing



Photo courtesy of Triple-S Chemical Products Inc.

it down with your ammonia solution, rinse thoroughly and let dry.

- Apply one coat of the one-part polyurethane sealer and let dry.

- Apply one coat of the two-part polyurethane and let dry.

- Apply a second coat of the one-part polyurethane and let dry.

- Finish the floor with a final coat of undiluted two-part polyurethane and let dry completely.

The Look of Cork

Gaye Goodman, Faux Real LLC — Albuquerque, N.M.
www.gayegoodman.com

Creating a look reminiscent of cork or aged hardwood floors, this technique requires plastic sheeting and some well-coordinated teamwork.

Ingredients:

Bix Trisodium Phosphate (TSP) Substitute Concentrate

Quikrete Concrete Bonding Adhesive

Lyons Manufacturing Super Flowcrete self-leveling cementitious filler

L.M. Scofield Lithochrome Chemstain Classic: Dark Walnut, Weathered Bronze (or possibly, Fern Green and Antique Amber) - Acid solution, 10:1 water to muriatic acid

Ammonia solution, 1 cup ammonia to 5 gallons water

Envirosafe Trojan Masonry Sealer

Harvard Chemical Sheen C-40 water-based acrylic sealer

Special equipment: paint filter (or nylon stocking) in a large plastic funnel, a roll of 0.31 mil (very thin) painter's dropcloth plastic sheeting

Directions:

- This application is designed for a brand new, smoothly troweled (not burnished) slab. If you're working with a preexisting slab or a slab with a different finish, your results will vary.

- Mask walls of room up to at least 24 inches from slab, and do the usual slab preparation. Remove paint and glue spots, scrub with TSP substitute and repair any holes or cracks using a coat of Bonding Adhesive followed by the Super Flowcrete. Before you start, make sure floors are clean and dry with no dusty concrete residue.

- Prepare plastic in advance: Unroll and unfold plastic to 6 feet longer than the room and 6 feet wider. Allow 3 feet for overlaps if multiple pieces need to be used to cover the floor wall-to-wall. With one person on each end of a large piece to maintain tension, roll it up loosely and lay roll on the floor parallel to the wall where you will begin staining. The loose edge of the plastic should be on the bottom of the roll, pointing towards the wall.

- Using the funnel with the filter, fill a sprayer with one part Dark Walnut diluted with two parts acid solution, or whatever dilution you have determined will create a light "paper-bag brown" color on the slab you're working on. Typically, one gallon of this mixture should cover around 200 square feet.

- Test the spray volume outdoors or in a bucket. You need a medium-mist round spray pattern that can be applied in circular motions to put down a very wet but even coat of stain.

- If you discovered, during testing, that your concrete reacts to the Weathered Bronze stain with green and brown tonalities, then fill a second sprayer with undiluted Weathered Bronze. If it does not, then mix equal parts Fern Green and Antique Amber in the sprayer. You'll need roughly a quarter gallon for every 200 square feet.

- Starting in the far corner of a room, Worker A applies the Walnut mix to approximately 80 percent of a 3-foot by 4-foot area. Worker B sprays the Weathered Bronze (or the



Photo courtesy of Faux Real LLC

Fern Green substitute) over 20 percent of the same area. The two sprays should overlap about 3 inches where they meet. Spraying is done quickly and heavily, so the floor is almost as wet as if the stain had been poured. Spray patterns should be in random puddle shapes with varying proportions to look natural: no straight lines.

- Worker C unrolls enough plastic to cover the wet stain and then kneels on it, making sure the plastic covers up to the edge of the floor. Then, Worker C stands facing the stainers, holding the plastic roll up and out of the way as they continue staining an adjoining area of about 20 square feet. As soon as the slab is soaked with stain, Worker C drops to his knees and pats plastic into place over the newly soaked section.

- Do not stretch or twist the plastic in any way. Let it fall loosely as it may. Worker C can walk on plastic-covered floor following behind the sprayers without fear of leaving footprints. Gas will lift large sections of plastic into bubbles. Do not try to eliminate them, as they will contribute to the design.

- Establish a rhythm, working quickly to stain and cover the entire floor. It helps to cut smaller sections of plastic in advance for indented areas like closets and around toilets. Carry a knife to split the plastic where necessary to go around protruding elements.

- Leave plastic down for the entire cure time of the stain (four hours). Note: This technique cannot be used on an absorbent slab, and it can't be done outdoors in windy conditions, as the plastic must stay in same position for the entire time in order to get the desired results.

- After four hours (or overnight, as convenient) lift away and discard plastic, even if large sections of floor are still gooey with stain, and then proceed with post-stain scrub using a white pad on the power buffer to remove all chemical residues. Vacuum with a wet-vac and rinse with a microfiber mop and the ammonia solution.

- If the patterns left by the plastic seem too stark, the floor can be lightly misted with the same colors or with one preferred color in a second staining. This step needs only 30 to 40 minutes of cure time before scrubbing. The plastic patterns will recede into the background under the second stain.

- Seal using one coat of Trojan Masonry Sealer as a primer and let dry. Then mop on three coats of Sheen C-40.

Three Acid Stain Application Tips

Make sure you **communicate clearly with your clients** about the variability inherent in acid staining. Simply duplicating a floor is not doable, but Gaye Goodman sees that as an asset, not something to apologize for. "Most professional stainers consider the wide variability of results to be an advantage because it means that no two clients' floors will be alike. Similar, perhaps, but never alike."

When applying acid stains, **always use all-plastic spray bottles**, so your stains don't start reacting to things before they've even hit the floor.

Test, test, test! Find an out-of-the-way corner on your slab and run dilution tests to see what concentration of stain is going to yield the colors you're after. Jeroen H.F. Kaijser Bots, owner of North Carolina-based EuroFloors, says he tries samples with 25, 50, 75 and 100 percent stain solutions. And don't forget to test the sealer you plan to use as well, he says, since the sealer will affect how the colors look in the finished floor.

Iron Giant

Jeroen H.F. Kaijser Bots, EuroFloors — Huntersville, N.C.
www.eurofloors.us

Using iron shavings to alter the reaction of the stains, this recipe is ideal if you're after dramatic patterns and bold swirls of color.

Ingredients:

Savogran TSP Substitute

Renaissance Concrete Chemical Stains: Ebony Stone and Vermont Slate

Iron shavings (you can buy standard metal shot for shotblasting at a local machine shop or go to your local garage and ask for metal shavings)

Ammonia solution, 5:1 water to ammonia

For residential installations:

- Kemiko Stone Tone Sealer II water-based acrylic sealer
- ZEP Z-Tread UHS Floor Finish topcoat

For commercial installations:

- Kemiko Sta-Crete 1600 water-extended epoxy coating
- SureCrete Dura-Kote Polyurethane Concrete Sealer

Special equipment required: Floor buffing machine with a range of buffing pads

Directions:

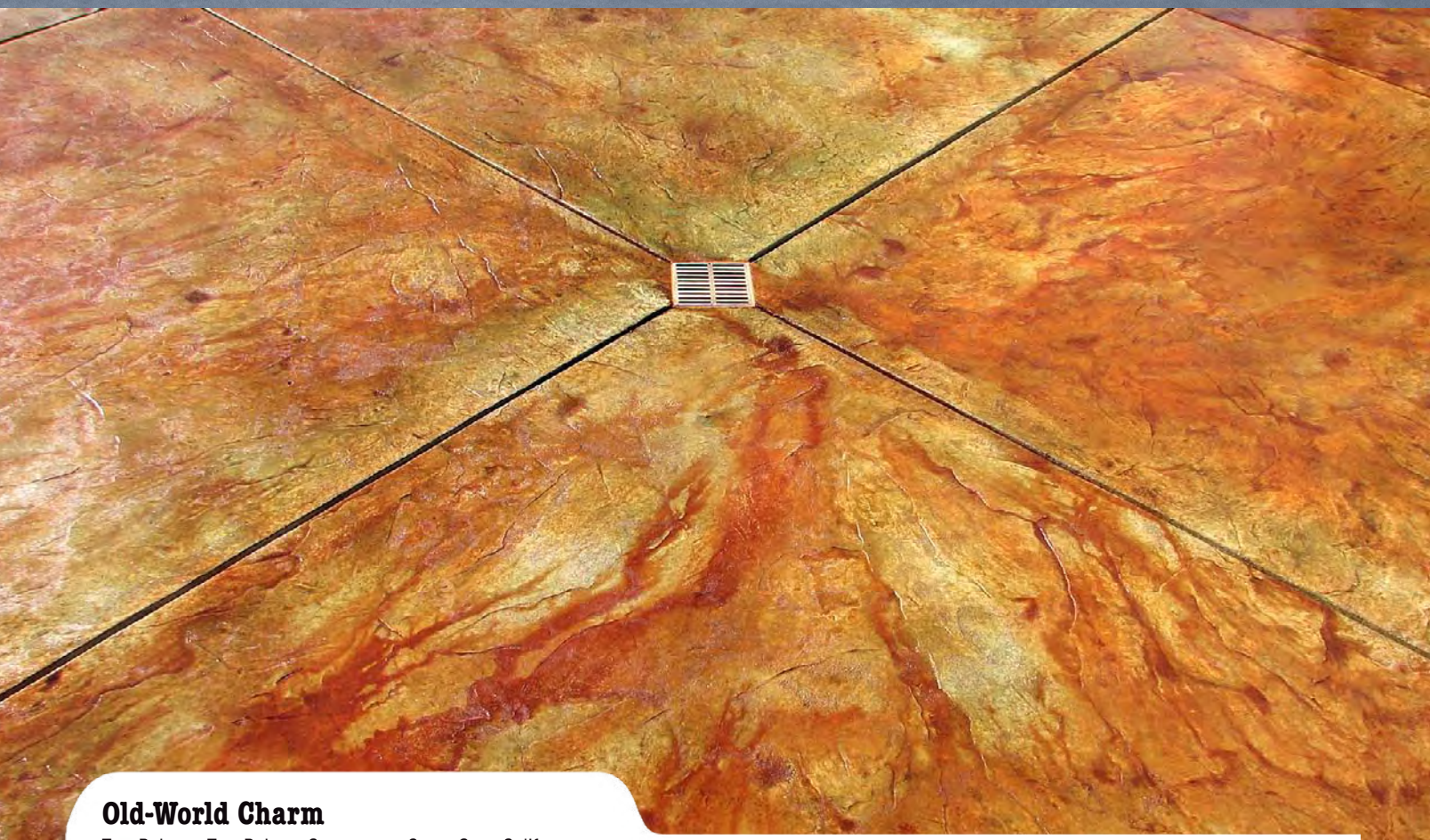
- Broom the entire area clean.
- Clean the slab with TSP solution and a blue or black pad on your floor buffer. (The type of pad you use will depend on the porosity of the concrete. Don't use an overly aggressive pad, as it can damage the concrete and expose the aggregate.) Do not use muriatic acid to clean the slab.
- Draft the design on the floor with white chalk. (Don't use colored chalk, as it will interact with the stains.)
- Spread the iron shavings in the outline of your design. The iron is going to react with your stains, rusting very quickly and lending great color variations to the final floor. As you spread the shavings onto your design, don't try to cover your shapes evenly. The more uneven you are, the wilder your final design will be.
- Mix the acid color for the design (for this application, the Vermont Slate), and your background color (Ebony Stone)



Photo courtesy of EuroFloors

in two separate pump sprayers at the ratios you've determined you want during preapplication testing.

- Spray the Vermont Slate onto your metal shavings.
- Immediately after, spray the background color around the design. You want the wet acids to flow into each other for additional effects.
- Once the acid has cured entirely, you're ready to clean and neutralize. First, sweep the metal shavings or shot off your surface. Then, using your floor buffer with a white buffing pad, scrub the floor with your ammonia solution. Wet-vac to remove the residue. Rinse the floor with clean water.
- If you're unhappy with your colors (the acids don't always take the first time), you can spray another application of acid to achieve the desired result. Repeat the cleaning and neutralizing process once your second application has had time to cure.
- Seal your floor. For residential installations, install two coats of the Stone Tone sealer, followed by three coats of Floor Finish topcoat. For a more durable finish, ideal for commercial jobs, use one coat of Sta-Crete with one coat of Dura-Kote to finish it off.



Old-World Charm

Tom Ralston, Tom Ralston Concrete — Santa Cruz, Calif.
www.tomralstonconcrete.com

Photo courtesy of Tom Ralston Concrete

A super-simple application technique that achieves a classic old-world finish, inspired by the multihued patina found in the palaces and cathedrals of Europe.

Ingredients:

L.M. Scofield Lithochrome Chemstain Classic acid stains:

Weathered Bronze, Padre Brown

Ammonia solution: 2 ounces ammonia in 4 gallons of water
SuperStone Concrete Sealer

Directions:

- Power-wash your surface thoroughly. The surface pictured above was hard-troweled, but this effect works just as well over a textured surface.

- Wet your surface down with a mist of water. This accomplishes two things: It will cool down your surface on a hot day (which will keep your stains from evaporating) and it will also help your stains run and bleed, getting the natural look we're after.

- Once you've misted lightly (you don't want a lot of standing water on the surface), put down coats of Weathered Bronze and Padre Brown stains simultaneously across the whole surface, even the vertical faces of steps. Keep in mind, as you work across the surface, not to let the edges of the stained area dry out before you've finished the coats — if they

do, and you try to continue to stain from that dry edge, the color won't blend evenly and will turn out blotchy.

- You want to saturate the surface pretty thoroughly. As the stain settles, gravity will pull it towards the drains in a patio or down the faces of a staircase, leaving natural swirls and rivulets of color.

- Once your base coats have sat for 12 hours, wash and neutralize with the ammonia solution and check for areas that have not been stained. After the wash has dried, spray another coat of stain as needed in areas that did not color, which may include the faces of the stairs. This second coat needs to be put on with a light hand so your colors don't end up oversaturated (unless, of course, oversaturated is what your client is going for).

- Let your second coat dry for another 12 hours.

- Wash the surface vigorously with a hose and jet nozzle.

- Using the ammonia solution, scrub the surface clean, neutralizing the second application of stains.

- Let dry for 12 to 24 hours. Make sure it's completely dry or your sealer will fail.

- Seal with the SuperStone sealer, which will give it a bit of a sheen and really make your colors pop. 🛠️

Design Ideas



Photo courtesy of Specialized Construction Inc.

Churches

by Emily Dixon

**Messiah Lutheran Church,
Madison, Wis.**

**Contractor: Specialized Construction
Inc., Waterloo, Wis.**

To complete a renovation at their local church, members of the Messiah Lutheran Church in Madison, Wis., hired Angus Young Associates to head the project. As it happens, this firm had worked with Shawn Wardall of Specialized Construction Inc. on a previous church, so members of the building committee took a field trip to see firsthand what Wardall's polished concrete was all about. "They pretty much instantly decided that's what they wanted to do," Wardall says.

The main focus of the project was the recently installed slab in the sanctuary. The team at Specialized Construction started with a 50-grit resin polish — but they had to do a little repair work before they could go further. A strategy for protecting the slab had been set during prepour meetings, but the general contractor had instead laid down plywood, and numerous drywall screws crushed under the plywood had wreaked havoc. Hundreds of tiny imperfections on the surface had to be patched using a polymer-modified grout, colored with Precision Pac-Color for Concrete from Alabama Pigments Co. to match the floor's final surface color.

Once the imperfections were patched, the floor was polished to a 400-grit resin finish, washed, and prepped for dye. Wardall used Consolideck's water-based GemTone Stain in Light Roast for the floor under the seating area, creating a two-tone effect with the slab, which was integrally colored a Stetson Buff tint at the ready-mix plant. After coloring, the floor was densified using Consolideck LS and brought up to an 800-grit resin polish. Finally, three coats of Consolideck LS Guard were applied, with burnishing done between each coat. "Polishing the cream of (ready-mix supplier) Lycon Inc.'s concrete finished to our spec can have the rich look of marble or leather," Wardall says. "It is one of my favorite finishes." The patched areas of the floor were not noticeable, he adds.

In addition to the sanctuary, Specialized Construction provided a polished floor for the downstairs social hall. There, they polished to a 200 grit and colored with Consolideck ColorHard in Serpentine. Because ColorHard is designed to be mixed with Consolideck LS or LS/CS, Wardall was able to densify and color the floor at the same time, resulting in less cost for the church.

"We were able to do it for less than half the price as the sanctuary," Wardall says, noting that the square footage is the same for each space. "The ColorHard is a nice alternative for the cost conscious. We really try to keep the pricing as reasonable as possible with churches."

Wardall recently visited the church to work out some kinks in the maintenance program, and people were quick to let him know how much everybody loves the floors. "To this day they're really happy with the work we did," he says. "It is extremely gratifying to have people so happy with the work we have completed in a space that has such great meaning."

www.specializedinc.net



Photo courtesy of J.R. Welch Waterproofing and Concrete Contractors

Cathedral of St. Mary of the Annunciation, Cape Girardeau, Mo. **Contractor: J.R. Welch Waterproofing and Concrete Contractors, Cape Girardeau, Mo.**

When Cathedral of St. Mary of the Annunciation in Cape Girardeau, Mo. decided to have a fountain installed in the church courtyard, they wanted it surrounded by something other than gray. Luckily, one member of the congregation had been pouring decorative concrete for over two decades.

John Welch, owner of J.R. Welch Waterproofing and Concrete Contractors, was able to provide the church with concrete that was far from the usual that they were trying to avoid.

To start, Welch poured concrete curbing and stenciled it with a bushrock header design. He colored it using L.M. Scofield Co.'s Lithochrome Color Hardener, starting with Steadman Buff as a base. He randomly dispersed additional colors of Lithochrome Color Hardener — Pecan Tan, Terra Cotta and Walnut — swirling them in with a hand trowel. He also picked out random "stones" to color with Lithochrome Chemstain Classic in Terra Cotta, Padre Brown and Antique Amber.

Next, Welch and his crew poured the area inside the curb. He textured it

using a faux brick stencil in a Keystone pattern from DCI, colored it with a Terra Cotta base, and swirled in colors of Steadman Buff and Pecan Tan using the same method as on the curb. He then applied a Pecan Tan release agent, and ran a slate texture roller to "give it a real rock look and feel," he says. When the concrete was dry, he power-washed off most of the release, although some remained in the depressed parts of the pattern as an accent.

Around the very center where the fountain was to be placed, he used a Cobble Circle Ring stamp, also from DCI. Steadman Buff served as the base color of the ring, with the Pecan Tan, Terra Cotta and Walnut swirled in, while the smooth center inside the ring remained only the buff color. Like the curb, Welch colored random stones in the cobble circle with acid stain.

Around the fountain, the church wanted the phrase "Hail Mary Full of Grace." Welch used a stencil to do the lettering and stained it in a walnut color using Chemstain.

Finally, after the concrete had cured for 30 days, Welch applied Dayton Superior Construction Chemicals' Day-Chem Tuf Seal (J-35), a clear gloss sealer. "It brought out the colors and protects the finish," he says.

www.jrwelchconcrete.com



Our Savior's Lutheran Church, Port Orange, Fla.

**Contractor: Clines Concrete, South
Daytona, Fla.**

After raising funds to expand and remodel their church, members of the congregation at Our Savior's Lutheran Church in Port Orange, Fla., stopped by Decorative Concrete Supply and Rental in South Daytona, Fla., to look into ideas for incorporating concrete into their sanctuary, restrooms and reception area.

They originally wanted Clines Concrete (which owns the store) to install stained concrete, but after seeing the store's sample floor, they preferred the look of stamped concrete. With that settled, Clines Concrete would be responsible for applying a quarter-inch overlay and stamping the surface with the Vegas Seamless Stone stamp from SuperStone Inc.

Shortly before construction began, a woman from the congregation decided she would like to see the Shield of the Trinity, a traditional Christian symbol, added to the floor of the sanctuary. Although it was not a part of the original design plan, the church's pastor and other members of the congregation agreed it would be a nice touch. The

woman even paid for that part of the project herself.

The pastor found a depiction of the Shield he preferred and sent it to Gary Cline Jr., who was in charge of construction for Clines Concrete. Because the shield has too many tight angles to cut with a diamond blade or router, Cline faxed the image to Proline Concrete Tools to be made into a stamp 7 feet in diameter.

When the stamp arrived one month later, it was time to get to work. The first step was to position the shield stamp on the floor and draw a pencil line around its perimeter. After setting the stamp aside, Cline sawed a 1/4-inch cut along the pencil lines. Next, the crew applied adhesive weatherstripping to the inner edge of the cut to act as a form.

With that in place, Cline began to focus on the rest of the floor. The crew applied a 1/4-inch overlay using SuperStone Inc.'s Super Surface Stampable Overlay in Adobe Buff and Ivory Sand, added texture, and colored the floor using SureCrete Design Products' Eco-Stain in Spanish Red, Kayak and Domino. Once the main floor was set, Cline removed the weatherstripping and primed the now-recessed surface where the shield would

go. Superstore's Super Surface was again used as the overlay material, this time in white. The shield stamp was applied, and the results colored with Eco-Stain in Domino, Espresso, Aztec Gold, Oak, Flamingo and Green Olive. The shield was sealed with an initial coat of SureCrete's Dura-Kote Polyurethane Sealer. A second coat of Dura-Kote was applied as part of the sealer coat for the entire floor. Finally, the floor was treated with three coats of Sure Finish.

"The pastor was in tears when we were putting the Shield of Trinity in the floor," Cline says. "It meant a lot to him, because it was his teaching tool."

 www.clinesconcrete.com



The Cathedral Church of St. John, Albuquerque, N.M.

Contractor: Faux Real LLC, Albuquerque, N.M.

The building committee at The Cathedral Church of St. John in Albuquerque, N.M. knew they wanted an outdoor labyrinth as part of a peaceful meditation area, so their architect, SMPC Architects, called on Gaye Goodman of Faux Real LLC to create it with decorative concrete.

The 361-square-foot, five-circuit labyrinth features a path that winds around in a serpentine pattern, circling the center five times, leading to an area in the center for meditation. John Ridder, a labyrinth expert from Indianapolis, Ind., created the design and flew out to Albuquerque to draw the design onto a pre-existing cement slab with charcoal.

Before the design could be drawn on, the concrete needed to be stained with the background color. Using a mixture of L.M. Scofield Co.'s Lithochrome Chemstain Classic in Padre Brown and Antique Amber, Goodman stained the surface and laid a piece of plastic over the area to give it a marbled look.

"You must stain the slab in fairly small sections of about 4 feet by 6 feet and get the plastic laid down as soon as possible while it is still soaking wet,

or you'll get no marbling marks at all," Goodman says, adding that the plastic needs to be left for the full cure time of the stain (usually a minimum of four hours).

The New Mexico winds put up a fight, and the plastic didn't stay down. "We had to restrain," Goodman says. "We laid the plastic down again, this time with lots of rocks to keep it in place."

Unfortunately their troubles weren't quite over. After a rainstorm during the night, a tree located above the labyrinth dropped blossoms onto the freshly colored slab, staining the surface. The

discoloration wouldn't come off, but thankfully the church committee liked the mottled look and considered it "the Lord's input."

After cleaning off the slab, it was time for Ridder to draw his design. Once that was complete, Goodman went through and painted liquid latex rubber outside of his lines.

"It acts as a good resist," she says. "Nothing bleeds under it."

Once the resist was done, Goodman stained within the lines with Dark Walnut Chemstain to color the walking path in the labyrinth. After the dark stain had cured and the residue was scrubbed off, the crew peeled up the latex rubber resist. A bit of a halo was left around the Dark Walnut edges, and her team touched up some of the lighter areas.

The final step was to apply five coats of Dayton Superior Construction Chemicals' Day-Chem Tuf Seal (J-35) as the sealer. Although Goodman says it is typically used for parking garages and gas stations, she likes to use it because it stands up to the strong UV rays present in Albuquerque. "For outdoors, when we want a shiny surface that's what we use now."

The labyrinth was installed two years ago, and she says it's still holding up nicely.

 www.gayegoodman.com



Photos courtesy of Faux Real LLC



MEMORY OF

PABLO ANTONIO MERINO

MARCH 19, 1973 SEPTEMBER



Holy Nativity Episcopal Church, Westchester, Calif. Contractor: Steve O'Loughlin, Los Angeles, Calif.

As a public artist in Los Angeles, Steve O'Loughlin is known for his vivid drawings, including those at his neighborhood church, the Holy Nativity Episcopal Church. So when the church was looking to install a Celtic cross on their sidewalk, they contacted him to see if he could do the work.

"I went about finding a way to make it happen, and that's how I found out about the acid stain process," O'Loughlin says.

Unfamiliar with decorative concrete and acid staining, O'Loughlin headed to Phoenix, Ariz., to attend a seminar from Tamryn Doolan on her Flattoo system. Flattoos are vinyl adhesive templates that help artisans create intricate designs with acid stains and other colorants. O'Loughlin began practicing at home with his new knowledge, but between scheduling conflicts and wanting to be comfortable with acid staining, it wasn't until a year later that he was ready to dive in.

Thanks to root damage from a nearby tree, O'Loughlin was starting with a fresh piece of concrete on which to create the 8-foot by 12-foot cross. He set up a canopy over the area to avoid the hot sun and pine needles falling from the tree above and got to work, laying out 12 Flattoo strips.

As he pulled up a section of Flattoo over concrete that was to be colored black, he etched the surface with Tek Gel for Flattooing. Next he applied the color, using black spray paint before applying a black acid stain. He then washed, neutralized and applied a clear coat before pulling up the next section.

He applied the same methods to the colored areas, although he did not put down a layer of paint first. For the colored sections, he used either L.M. Scofield Co.'s Lithochrome Chemstain Classic in Antique Amber or a hickory color created by combining Titan Concrete Products' Concentrated Crete Stains in Old Hickory and Midnight Black.

He added some additional touches before applying the sealer. "I did some shading and buffering of the edges to give it

depth and to make it pop more," he says.

Although the cross was his first concrete project, O'Loughlin says it won't be his last.

"The reason I was attracted to acid-stained concrete was that it holds up outside. Now I have a new medium that is durable," he says. "From an artistic point of view, it's an underdeveloped opportunity. Having people walking over the top of it is an experience itself."

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Product Profile



Photo courtesy of American Decorative Concrete

A creative use of ColorJuice colorant and exterior sealer.

ColorJuice System from American Decorative Concrete

by Stacey Enesey Klemenc

The ColorJuice family of concrete colors has matured this year into a system that stands on its own.

For starters, the liquid-color concentrate from American Decorative Concrete now comes prepackaged with densifier to ensure more consistent, successful installations for its users. “All you have to do is add water,” says ADC president Les Davis. ColorJuice’s new formula combines nanopigments with a lithium-silicate hardener and other proprietary hardening products to lock the color into the slab permanently, even when exposed to ultraviolet light.

The original formula was designed to be used with three recommended lithium-based densifiers made by other manufacturers. Problems arose when contractors ignored this advice and combined the colorant with incompatible densifiers. In some of those instances, the densifier didn’t penetrate the concrete deep enough and high-speed burnishers

would take off the color. Other times, when ColorJuice was applied outside, a white film would form if the surface got wet before it had cured.

The makers of ColorJuice also changed the size of the pigment particles to allow the colorant to penetrate concrete more deeply. Nanopigment particles have replaced the original conglomeration of various-sized particles. These particles are measured in nanometers, units equal to one billionth of a meter each. The ColorJuice particles measure about 100 nanometers and are about the size of the particles used by inkjet printers, Davis says.

ADC calls ColorJuice a water-based stain, but that categorization doesn’t tell the whole story. Most water-based stains have much larger pigment particles. They tend to produce more of a painted look because many of the particles stay on the surface instead of penetrating it. ColorJuice produces a translucent hue,

allowing the natural character of the concrete to show through.

Also, ColorJuice differs from typical dyes in that its pigment particles are suspended in a liquid and don't change form when the stain dries. Particles in dyes are dissolved, and they return to a solid crystal form when dry. Dyes are also not UV stable, Davis notes.

The system includes interior and exterior sealers made specifically for the line. The sprayable exterior sealer dries to a satin finish, has very low VOC emissions and is nonyellowing. The interior sealer is designed for smooth-finished concrete and also has very low VOC emissions.

"In the past, we tried to make our product fit inside other manufacturers' sealer systems, which created confusion," Davis says. "Some of those sealers would not bond to the silicate densifier in ColorJuice. That's why we developed our own complete system."

Water-based ColorJuice is available in 12 standard colors, including black. ADC also added a white to its offerings, which allows the company to produce virtually unlimited custom colors. There are also plans to introduce additional colors at the 2011 World of Concrete.

To improve customization capabilities, Davis says, his company purchased equipment that allows it to



ColorJuice Caramel, which was spray-applied to this garage floor, allows the natural character of the concrete to show through.

Photo courtesy of Color Surfaces

match existing substrate colors. This color-matching technology uses an "eye" to take pictures at a job site that are e-mailed to ADC's lab and run through a computer.

"This allows us to take into account the color of the substrate and how it will affect the final color," Davis says. "This is also an important benefit for national accounts where a specific color is standard, yet the substrates on individual job are different colors." And it comes in handy with remodels when trying to match up with integrally

colored slabs that vary in color.

ColorJuice is an excellent ecofriendly substitute for acid stain, Davis says. "Our system can turn a three-day acid stain job into a one-day job." It has few VOCs, requires minimal cleanup and dries shortly after application.

It also can be finished to look similar to polished concrete. After prepping the floor, contractors can use a high-speed burnisher equipped with a diamond-impregnated pad to make a ColorJuice-stained surface shine. "It's not a substitute for polished concrete," Davis says, "but you can do it faster than concrete polishing. It allows contractors to offer an option at a lower price point if someone doesn't want to go with full-blown polished concrete."

ColorJuice ships concentrated — it mixes 1-to-4 with tap water — saving on freight expense. It ships at rates for nonhazardous materials and takes up little shelf space. "The compact concentrate saves about 25 pounds of freight cost by allowing contractors to add the water when ready to use," Davis says.

"One of the problems with similar products is the shelf life," he continues. "Solid pigment tends to fall to the bottom of the container, but with the way we make our product (using nanopigmentation) there's very little fallout. You can just shake it up and you're good to go." 📱

www.adcsc.com



A front-entrance walkway done in ColorJuice Sand and trimmed with two applications of ColorJuice Chocolate. The walkway was finished with ColorJuice Exterior Sealer.

Photo courtesy of American Decorative Concrete

Product Profile



Universal Super Dyes and Super Colors from Clemons Concrete Coatings

by Sue Marquette Poremba

The Clemons Universal line, which includes Super Dyes and Super Colors, offers a pair of unique approaches to coloring concrete.

Super Dye is a liquid concentrate, not a powder dye. The Super product is packaged as an 8-ounce concentrated liquid that is mixed with a gallon of water or acetone. Give the mixture a quick stir, and it's ready to apply to the concrete floor without having to wait for the dye to sweat in.

"The nice thing for the contractor is there is no overnight waiting for anything," says Don Ware, general manager with Clemons Concrete Coatings, which manufactures the Super colorants. "With powders you have to wait overnight for dye to dissolve in acetone."

Super Dye also offers some advantages over traditional water-based dyes, Ware says. "With water-based, you

have to wait about four hours for the water to evaporate, but with Super Dye, the contractor could immediately seal over it with any kind of sealer." Also, water-based dyes do not penetrate as well as acetone-based dyes because the surface tension of water is much greater than that of acetone, Ware adds.

A mottling agent in the Clemons dye creates the effect of acid stain without the time and work associated with acid stain — another timesaving benefit.

Super Dye is for interior use only and can be used in the polishing process. Unfortunately, however, like most dyes, Super Dye is not UV-stable and cannot be used in outside applications. "Our answer for an outdoor product is Super Color," says Ware.

Super Color is an exterior stain. The concentrate is mixed with acetone or water and applied to concrete with



a sprayer. It is then immediately ready to be sealed over with any type of sealer.

"It works much in the same way as Super Dye," says Ware. "The biggest differences are Super Color is UV-stable and cannot be used with water."

What makes Super Color an attractive product is its look in outdoor applications. Also, it penetrates concrete like a dye but is UV-stable like a stain. In terms of performance, Ware says, the colorant would fall in between a dye and stain, but technically, it is extremely fine stain. Super Color uses glycol, a nonflammable solvent, as a carrying agent, and the micronized pigment is able to penetrate concrete pores.

Super Color can be used both indoors and outdoors. Ware says that if he used Super Color indoors, he would pre-etch the floor. "But I always recommend that, if you were dying or coloring the floor," he says. "That way you get better penetration."

Contractors will want to use a sealer afterward. Clear sealer helps the color in the dye or stain "pop" from the floor, Ware says.

Super Dye comes in 19 colors, while Super Color comes in 10 colors. In both cases, the colors can be mixed, creating a virtually unlimited palette to choose from.

Both products have their place in new construction, but Ware says he is seeing growing interest in use for remodeling projects. "The products give a whole new look to old concrete floors," says Ware. "If you have a plain concrete floor, you can make it look stained or give it color or give it an expensive look for relatively little money." 📱

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Concrete Mixers

by Chris Mayo

As you know, there are plenty of situations when you mix your own concrete rather than having it delivered from the ready-mix plant. For example, customers often expect to see small sample pours when they are considering decorative work. Whether you are proposing stain, exposed aggregate or stamped concrete, a mixer is a great option for creating samples.

What's more, in this struggling economy, contractors who used to concentrate on larger jobs are finding that repair and maintenance work can keep a crew busy between big projects — patchwork and resurfacing jobs are perfect situations in which to mix your own concrete.

And the concrete countertop industry is full of artisans who mix their own batches. In fact, mixing your own concrete simply makes sense on many smaller jobs. Most ready-mix companies have a three-yard or more minimum. And what about pours in tight spots (a backyard patio for instance) that require laborers to wheelbarrow the concrete to the site? Because they are easy to move around, mixers are ideal for those situations.

Some choose to mix-on-site for the control it gives them over batch consistency and quality — an increasingly important consideration for decorative concrete contractors. When

mixing their own concrete, contractors can control slump, workability, color, and the time of day they pour the concrete.

There are a number of mixers available, both hand-held and machine-type, to do the job. Countertop contractors and companies that specialize in patchwork and resurfacing may find that a hand-operated mixer is best, while contractors that specialize in flatwork may prefer a mixing machine.

Hand-Held Mixers generally consist of a metal shaft with paddles on one end that attaches to a heavy-duty drill. Some manufacturers make shafts specifically for their driver, while others offer shafts that can be attached to a drill of the operator's choosing. Shafts are usually made of high-strength steel and paddles are available in a plethora of shapes and sizes. There are also "high-shear" mixers designed for GFRC (glass-fiber reinforced concrete).

Mixing Machines are available in a number of sizes (with capacities from about 3 cubic feet to 12 cubic feet) and a couple of basic design shapes (drum or mortar/horizontal shaft). Smaller units are ideal for small jobs and creating sample pours. They are often available with wheels and handles, allowing the operator to wheel the mixer to the job site. Some larger machines include a tow bar.

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🌐 www.bnproducts.com



Benner-Nawman Inc. — BNR6402A Double-Shaft Hand-Held Paddle Mixer

This hand-held double-paddle mixer includes these features:

- Two-speed power.
- High-performance paddles work clockwise and counterclockwise respectively.
- 1/2-inch hex-shank quick-change chuck.
- A robust gearbox with a powerful high-torque motor.
- Ergonomically designed with soft-grip handles.
- Soft-start function and constant speed control.
- Can be used hand-held or mounted in a mixing stand.

☎ (800) 992-3833

🌐 www.bnproducts.com



CS Unitec/Eibenstock Tools — EHR 23/1.3 R Heavy Duty Mixer

The EHR 23/1.3 R Heavy Duty Mixer includes:

- Soft start and variable speed for less splashing and better control.
- High-torque motor with specially designed gears provides maximum power and can mix quantities from 1 gallon to 35 gallons.
- Special paddles mix from the bottom up, eliminating the inclusion of air.
- Can be used hand-held or with CS Unitec portable mixing stands.
- Ergonomically designed metal frame and handles ensure comfortable handling.
- Unique handle design protects motor against damage when the mixer is laid down.



Great American Marketing Inc. — PT03524 Eight-Inch Mud Mixer

This popular seller features:

- A 30-inch shaft.
- A universal agitator/mixer for use with an electric drill.
- Portable but heavy-duty build.
- Powder-coated tempered steel.
- An 8-inch paddle span.

☎ (661) 362-6200

🌐 www.gamusa.com



Jiffy Mixer Co. Inc. — The Jiffy Mixer

The Jiffy Mixer is an all-purpose, heavy-duty, extremely efficient industrial/commercial mixer:

- Eliminates waste and aeration of materials in addition to cutting mixing time up to 90 percent.
- Made of stainless steel.
- Patented construction and design is for mixing, not just stirring.
- Various sizes fit standard 1/4-inch, 3/8-inch, 1/2-inch and 3/4-inch chucked power tools.
- Has two sets of specially welded blades. The vertical blades keep the mixing action between them, while the horizontal blades employ a hydraulic-flow principle that prevents air sucking and pulls high-density material up from the bottom while forcing low-viscosity elements down.
- Quick, easy cleanup.

☎ (800) 560-2903

🌐 www.jiffymixer.com



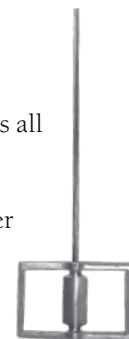
Kraft Tool Co. — Deluxe Mud Mixer

The Deluxe Mud Mixer from Kraft Tool Co. mixes all kinds of texture materials fast and thoroughly.

- Works in 5- to 55-gallon drums.
- Can attach to 1/2-inch chuck (minimum) or larger drill.
- Paddle head is 9 5/8 inches wide and 6 1/4 inches deep.

☎ (800) 422-2448

🌐 www.krafttool.com



Kraft Tool Co. — Oval Mixer

Kraft Tool's 26-inch Oval Mixer is a popular mixer for mixing self-leveling products used in concrete restoration and decorative concrete.

- Designed for high-viscosity applications.
- Oval shape effectively removes air from material while mixing.

☎ (800) 422-2448

🌐 www.krafttool.com



Mixing Machines



FRP Equipment Inc. — The RimCaster Continuous Mixer, marketed by Ball Consulting Ltd.

The RimCaster is used in situations where good mixes are required. It is especially useful in circumstances that require the use of fast-setting cements because the mixing/handling time is virtually zero. A ground hopper can be integrated with a RimCaster to reduce the labor associated with filling the metering hopper.

Features include:

- 3-horsepower direct gear drive.
- Chassis mounted with rear hinge for hopper cleanout.
- Three-phase electric power with a 20-foot power cord.
- Solid-state overload and variable speed controls.
- DC-motor-controlled triple-diaphragm pump for water, polymer and plasticizer injection in the mix chamber with a clean water purge.
- Air-operated: capable of 20 cubic feet per minute (cfm) at 90 pounds per square inch (psi).
- Can be attached to a standard garden hose.
- Battery-operated digital flow meter with liquid flow control mounted on swing arm, including switch for powder only or powder and liquid together.
- Pneumatic toggle switch controls mixer motor and liquid injector.
- Material hopper with removable metering screw for easy cleanout.
- 55-gallon drum for liquids with air operated agitator.

☎ (336) 474-6812 (FRP)

🌐 www.frpequipment.com

☎ (800) 225-2673 (Ball)

🌐 www.ball-consulting-ltd.com

Gilson Mixers by Marshalltown Tool Co. — 400 CM Series Steel Drum Utility Mixers

The 400 CM Series mixers are suitable for concrete, seed, feed and a variety of other materials.

- 4-cubic-foot load capacity.
- Convenient drum lock allows operator to secure the drum in any of five positions.

- Welded steel frame and heavy bushings for long life.
- Precision cast, one-piece ring gear.
- Quad-Mixing System utilizes a four-piece, replaceable paddle and blade combination that creates four different mixing patterns for a more consistent mix.
- Available with electric motor or gas engine.
- Tow kit options available.

☎ (800) 888-0127

🌐 www.marshalltown.com



Gilson Mixers by Marshalltown Tool Co. — 59000D Portable Wheelbarrow Mixer

The 59000D offers these features:

- Mixes up to 3 1/2 cubic feet of cement or mortar mix or two bags of pre-mix concrete.
- High-torque, 1/2-horsepower, single-phase, 115-volt electric motor.
- Strong polyurethane drums won't crack or rust.
- Ring gear enclosed for safe operation.
- Weighs only 125 pounds.
- Handles adjust for easy storage.
- Clears a 30-inch door opening.
- Fast mixing and easy cleanup.

☎ (800) 888-0127

🌐 www.marshalltown.com



MK Diamond Products Inc. — Canoga 193 Series

Features of the Canoga 193:

- 5 cubic feet of batch capacity.
- Towable with a welded steel frame, torsion bar suspension, spring steel axle, and a 2-inch ball hitch.
- Cast-steel pinion gear for superior wear and durability.
- Dump gear to provide better control when discharging material.
- 10-gauge steel drum is fabricated with 1/4-inch steel bottom and 3/8-inch thick reinforcing ring.
- Powered by either a gas or electric motor.

☎ (800) 421-5830

🌐 www.mkdiamond.com



MK Diamond Products Inc. — Canoga 70 Series

The lightweight Canoga 70 includes:

- 2 cubic feet of batch capacity.
- Lightweight and portable.
- Suitable for mixing grout and polymer-based materials in smaller quantities.
- Can mix all materials from sand and cement to self-leveling epoxies.
- Designed for easy transport by one person.
- Quiet enough to operate anywhere.
- Has an all-steel frame.
- Powered by a Baldor 1/3-horsepower electric gear motor.



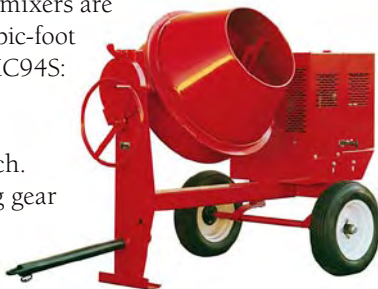
☎ (800) 421-5830

🌐 www.mkdiamond.com

Multiquip Inc. — MC94S Heavy Duty Mixers

Multiquip's heavy-duty mixers are available in 4-, 6-, and 9-cubic-foot capacities. Features of the MC94S:

- Available with steel or polyethylene drums.
- Multiposition dump latch.
- One-piece cast iron ring gear for longer life.
- Oversized dump wheel, which makes it easier to discharge material.
- Heavy-duty retractable tow tongue made of tough steel.
- Rugged 14-gauge steel engine covers with punched ventilation openings for increased cooling.
- Axle springs and large tires.



☎ (800) 421-1244

🌐 www.multiquip.com

Multiquip Inc. — Mix-N-Go Mixer

Multiquip's Mix-N-Go mixer can mix up to 3 cubic feet of material at once. Lightweight and portable, its features include:

- Replaceable blades bolted to the drum.
- A choice of steel or polyethylene drums.
- Gasoline or electric motor options the electric engine can use standard household power.
- Mixer stand allows the drum to rotate 360 degrees.
- Can be used as a wheelbarrow.
- On/off switch protection — water-resistant and dustproof.



☎ (800) 421-1244

🌐 www.multiquip.com

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Workers in safety gear applying a material to a concrete surface.
A large warehouse filled with various concrete products on shelves.

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A group of people in a workshop setting, possibly learning about concrete.
A close-up of various colored pigments in containers.

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Product News

Cheng debuts new type of fiber-reinforced concrete

Cheng Concrete has introduced a groundbreaking suite of NeoMix D-FRC Products that yield ultra-thin, high-strength decorative precast concrete with precision results.

D-FRC (decorative fiber-reinforced concrete) is user-friendly, reduces production time and is virtually error-proof. With D-FRC Advanced Technology, the only ingredients are bag, bottle, water and mix. There is much less time consumed in preparation, planning and execution than with GFRC.

D-FRC can be cast in environments with temperatures ranging from 40 F to 90 F without any need for ice water, heaters or expensive shop enhancements. It offers the same strength in large-format countertop projects as thin as 1/2 inch that a GFRC mix could achieve at a 3/4-inch thickness.

The fabricator can control shape, color and dimension with NeoMix and achieve finer, detailed texture transfer. Applications for ultrathin 3/8-inch-thick pieces include floor tiles, column surrounds, hearths, furniture and sculpture.

www.concreteexchange.com

New admixtures from Fishstone

Fishstone has introduced new admixtures to its consumable product line for decorative concrete.

Forton VF-774 is an acrylic

thermoplastic co-polymer emulsion that is a water-based, nonhazardous material with polymer solids content of 51 percent. Its UV stability ensures architectural finishes maintain their colors.

Crete Lease 20VOC is a water-based concrete release agent ideal for rubber and fiberglass molds. It uses green technology and exceeds rigid environmental regulations. It has no OSHA hazard rating and is applicable to potable water projects. Crete Lease is biodegradable and noncarcinogenic.

Qwix is a clinker additive used with portland-cement concrete to enhance physical and chemical properties related to early ultra-high strength and durability.

[\(877\) 434-7451](tel:8774347451)

www.concretecountertopsupply.com

New coating system from Rhino

Rhino Industrial, a division of Rhino Linings Corp., has introduced a new hybrid, aliphatic polyurea coating

Correction

In the Product News section of the July 2010 issue of *Concrete Decor*, two products from Pathfinder Concepts LLC were not correctly identified. The DustFinder is a dust collector, and the EdgeFinder is a dust shroud.



solution featuring rapid cure capability.

With the release of FastFloor, industrial contractors, engineers and applicators now have a flooring system with superior resistance to chemical, abrasion, impact and frequent foot traffic. FastFloor is color-stable, allowing it to take UV exposure without color shifts. It contains zero VOCs and has a 1-to-1 ratio mix system with sufficient pot life to be rolled, brushed on or sprayed. Its fast cure time allows rapid turnaround. Under normal conditions, it can withstand light foot traffic within two to four hours and return to service within 24 hours.

FastFloor is available in two formulations: FastFloor HB (High Build), for industrial floors such as warehouses, airplane hangars and laboratories, and FastFloor DF (Decorative Floors), utilizing paint chips, colored quartz or other decorative flakes to create a beautiful yet durable floor.

☎ (877) 509-4603

🌐 www.rhinolinings.com



Stone patents trowel blade adjuster in Canada

Stone Construction Equipment Inc. has received a patent from the Canadian Patent Authority for its innovative ProPitch blade adjustment mechanism for the 36-inch, 46-inch and 48-inch Smooth Operator Power Trowels.

The heavy-duty ProPitch option is designed to provide nearly infinite yet quick and easy blade settings. The operator can smoothly and quickly adjust the pitch by moving the mechanism along the guide arc. Once released the mechanism

locks in place anywhere along the arc for practically infinite pitch settings to finish any stage of concrete, wet or set.

🌐 www.stone-equip.com



Power Pole Finisher lets you start troweling earlier

Frank Wall Enterprises has introduced the Power Pole Finisher, a concrete trowel that eliminates the need to wipe out footprints and kneeboard marks in concrete.

This gas-powered tool is controlled from the side of the concrete using snap-together poles, allowing up to a 30-foot reach over the concrete. It is designed to help you start finishing on wet concrete earlier, reducing finishing costs and finishing time.

☎ (800) 488-9146

🌐 www.frankwall.com

Polishing pads now available in set

Applied Diamond Tools is now offering 3-inch triangle diamond polishing pads in a convenient seven-piece set.

The set includes 60-, 120-, 220- and 400-grit electroplated diamond polishing pads and 800-, 1,800- and 3,500-grit resin-bond diamond polishing pads. Each color-coded pad is Velcro-backed and can be used dry or wet on Fein MultiMaster, Dremel Multi-Max and Rockwell SoniCrafter tools for detail polishing of granite, marble and concrete.

☎ (800) 980-7808

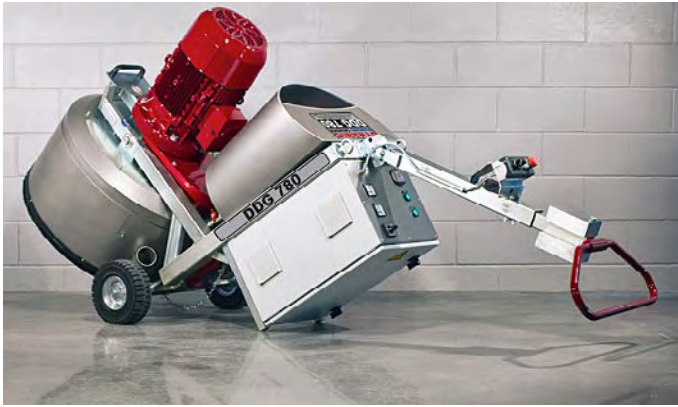
🌐 www.toolcity.com



Dynamic Diamond offers Belgian grinder

Dynamic Diamond Tooling is now distributing the Dynamic Diamond Grinder (DDG 780), manufactured by G-Powermax, of Belgium.

Features of the DDG 780 include a 30 1/2-inch grinding



surface, variable speed adjustments, easy-to-reach operator controls and a 20-horsepower motor. It is suitable for either wet or dry applications.

The Dynamic Diamond grinders use a three-headed planetary system with Flex Plate Technology to grind various concrete surfaces. Diamond tooling can be mounted on the grinders for surface preparation, coatings and mastic removal and concrete polishing.

☎ (877) 338-5338



An arrowhead control joint

Quaker Plastics now offers a patented control joint with a unique arrow shape that presses easily into concrete. There are no channels to obstruct installation and the unit locks into the concrete with minimal seepage. The control joint comes with thick peel-off tape to protect the top during installation. It is ideal for pool decks and other concrete pours.

Quaker also offers an attachment that snaps to the arrowhead control joint to create a full expansion and contraction joint. It is available in 12-foot lengths in white, tan or gray.

☎ (570) 385-4733

🌐 www.quakerplastic.com

Zero-C concrete repair materials don't crack

The Building Systems business of BASF's Construction Chemicals division has announced the launch of Zero-C Concrete Repair Technology, a line of cementitious repair mortars that exhibit no cracking when tested in accordance with ASTM C1581. The mortars also exceed ICRI requirements, showing no cracking at 60 days when tested according to the ring test.

Zero-C is the first concrete repair material formulated and proven to eliminate material cracking. Scientists at BASF have addressed four critical material properties by utilizing chemistry to create a new level of performance.

In addition to crack resistance, Zero-C's patent-pending mix-and-match material design brings simplicity to the

job site. As project demands change, a base mortar can be modified by using different liquids to change material consistency.

🌐 www.basf.com

Husqvarna debuts deep-cutting power cutter

The new K760 Cut-n-Break from Husqvarna Construction Products is the follow-up to the K650 Cut-n-Break, Husqvarna's first machine utilizing the Cut-n-Break method.

Husqvarna's low-emission X-Torq engine offers dual intakes for clean

air and a fuel-air mixture,

resulting in more power

and less emissions

compared to conventional two-stroke engines. As a

result, the K760 Cut-n-Break produces 75 percent fewer emissions and lowers fuel

consumption by 20 percent. The power cutter is equipped with an enhanced Active Air Filtration system, which extends the filter life. Improved ergonomic design along with an effective vibration and sound-dampening system allow the operator to use the saw easily.

The Cut-n-Break method is a series of stages through which cutting up to 16 inches is achieved. The method is perfect for creating window, door and ventilation openings where overcutting is not desired. Other excellent uses for this multifaceted saw include cutting grooves for cabling, expansion joints and crack repair.

🌐 www.husqvarna.com



A Hilti laser kit

The new Hilti PMC 46 Combilaser offers a full solution in one kit. For leveling, aligning, plumbing and squaring applications, the PMC 46 Combilaser features Hilti Pulse Power technology for reliable, accurate measurements at the

touch of a button. It features a 20-hour battery life. Hilti's innovative Impact Protection System and rubberized drop points add durability to the PMC 46.

The kit includes a universal adapter, wall mount, ceiling clamp, magnetic bracket and drywall stand all rolled into one unit. Also included is a PMC 20 compact tripod.

☎ (800) 879-8000

🌐 www.us.hilti.com



New hammers from Dewalt

Dewalt has announced the launch of six new SDS Max and Spline hammers, including two 1 3/4-inch combination rotary hammers (D25602K and D25651K), two chipping hammers (D25831K and D25851K), and two 1 9/16-inch combination rotary hammers (D25501K and D25553K).

Dewalt has developed SHOCKS Active Vibration Control to reduce vibration by up to 50 percent compared to most competitive products. It can now be found on the new 1 3/4-inch combination rotary hammers and chipping hammers.

Another concern of professional contractors is reactionary torque during bind-up situations, such as when hitting rebar while drilling holes in concrete. This has been addressed with a two-stage clutch system, Complete Torque Control (CTC), which is now offered on the new 1 3/4-inch combination rotary hammers. The first clutch setting activates at 30 foot-pounds of torque, and the second engages at 60 foot-pounds of torque.

The new hammers are equipped with 13.5-amp motors and, when combined with Dewalt's hammer mechanism, generates up to 9.5 foot-pounds of impact energy.

🌐 www.dewalt.com

New LED light tower

Larson Electronics LLC division Magnalight has added a 14,400-lumen LED light tower. Its dual 90-watt LED light heads are held up by an 8-foot telescoping tripod. Due to

proprietary optics, 10-watt LED packages and industrial-grade housing, the 180-watt WALTP-2x90Y has area illumination equivalent to a 1,000-watt metal halide light tower.

The dual LED light head is removable from the tripod, improving portability. The 9-pound light heads are easily stored as well. 📦

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🌐 www.magnalight.com



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American Shotcrete Association Buyers Guide functionality improved

The American Shotcrete Association has increased the functionality of its online Buyers Guide to allow for more advanced searches and better ease of use.

Previously, users of the Guide have been limited to searching for specific types of shotcrete products or services offered. The Guide has been improved to allow users to narrow their results by geographic region.

The Buyers Guide includes listings for hundreds of companies in the United States and Canada. Users are able to search for products and services related to shotcrete in seven categories: admixtures, cement and pozzolanic materials, consulting, contractors, equipment, fibers, and shotcrete materials and mixtures.

 www.shotcrete.org/BuyersGuide

Nominations being accepted for awards

The American Shotcrete Association opened its sixth annual ASA Outstanding Shotcrete Project Awards Program to recognize excellence and innovation in projects in which the application of shotcrete has played a significant role.

Entries can be submitted until 5 p.m., Oct. 1, in one of six awards categories. The categories are Architecture, Infrastructure, International Projects, Pool & Recreational, Rehabilitation & Repair, and Underground.

Additionally, the award criteria in each category have been expanded to include sustainability benefits realized.

Awards will be presented and winners will be given the opportunity to present their projects during the ASA's Annual Meeting & Awards Banquet at World of Concrete 2011.


 www.Shotcrete.org/ASAOutstandingProjects.htm

American Society of Concrete Contractors

Headliner announced for conference

Dr. Kenneth Hover will headline the 2010 Annual Conference of the American Society of Concrete Contractors, Sept. 16-19 at the Little America Hotel, Salt Lake City. Hover will speak twice, on managing concrete test data and on the contractor's role in the American Concrete Institute.


Concrete contractors, manufacturers, suppliers and other industry professionals will gather for three days of seminars, round-table discussions and demonstrations. National Ready Mixed Concrete Association pervious concrete certification and an ACI flatwork-finisher certification class and exam will be offered Thursday, Sept. 16.

 (866) 788-2722

 www.ascconline.org

Newsletter answers questions from hotline

Troubleshooting Newsletter No. 58, recently published by the American Society of Concrete Contractors, offers solutions to problems encountered by ASCC contractor members in actual specifications or on job sites.

The anecdotes come from calls to the ASCC Technical Hotline, an 800 number exclusively for ASCC members. Included in this issue are questions about measuring floor flatness and levelness after joints have been sawed, door-opening tolerances, responsibility for structural drawings, and minimum slope for parking lots. Answers often cite ACI documents and other sources for further reference. 

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Final Pour

Photos courtesy of Excalibur Designs in Concrete



Flattooning for the Kids

by Erik Pisor

Coping with midday desert heat, Glendale, Ariz., company Excalibur Designs in Concrete recently donated its time and labor to complete a decorative Flattoo project for Dos Rios Elementary School.

Located in Tolleson, Ariz., the project involved etching the school's logo — a rocket — into concrete outside the main entrance using various stains and a Flattoo, a stencil-like tool from Surface Gel Tek.

"It was a one-day project that took about 10 hours," says Excalibur owner Tim McPherson. "Because of the desert heat the concrete dries quicker, so you just have to work faster."

McPherson, together with Surface Gel Tek and Arizona-based materials supplier Cohill's Building Specialties, donated all the needed materials to the school, according to Surface Gel Tek president Tamryn Doolan.

The choice of decorative concrete was made by the students themselves. "We don't have much greenery (on campus), so painting the concrete was the idea," said Allea Fraker, seventh grade teacher and student council

advisor. "They (the student council) found that the staining would be longer-lasting."

The generosity of the contractor and material suppliers allowed the school to reinvest \$700 of the \$1,000 raised for the project.

The project began with McPherson and his son Dustin hard-troweling the concrete and using Cohill's Super Deck Prep — diluted at 5 to 1 — to clean the slab and open the surface of the concrete.

The concrete was then acid-stained with Cohill's Earthtone Chemical Stain in Ebony. Two coats were applied at full strength to make it very black, according to Brett Lafevers, outside salesman for Cohill's.

After several hours the stain was neutralized and cleaned off, with workers using a shop vacuum to remove the excess residue from the concrete.


Once the concrete had dried, the rocket Flattoo was applied to the slab, with Surface Gel Tek's Tek Gel for Flattooning, a gelled acid material, used to stain colors other than black. To produce the red and gray areas of the


rocket design, McPherson added Surface Gel Tek's Stain Mule and Cohill's water-based Envirostain to the Tek Gel.

The Flattoo adhered to the concrete. "That saved a day right there," McPherson says, noting that a typical stencil project involves taping the tool to a concrete surface, then taping off sections that will receive different stains and treatments.

Cohill's Pro Series New Canvas microtopping was applied over the areas that were to be white. To create the orange and the yellow areas of the rocket image, Bayferrox integral color was added to Cohill's New Canvas white.

After all materials and colors dried, the Flattoo was peeled off to reveal the finished product. The concrete was sealed with two coats of Cohill's Pro Series Clear Seal HS Sealer.

"The kids approved of the project and took photos," Fraker said, adding next year's project will either be another concrete-stained mural or technology upgrades to the auditorium. 

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A Guide to Concrete Countertops and Architectural Elements

Fall 2010

Countertop Grinders

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Wet-Cast Mix page 74

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Design Competition Winners page 84

Colin Sparkman of Patina Concrete, based in Modesto, Calif., uses a Leitch/Intertool DS301 planetary polisher.

Photo courtesy of Patina Concrete



High-Performance Mix Design

A Wet-Cast Mix

An introduction and tutorial
from a seasoned fabricator

Photos courtesy of Mark Celebuski

This countertop in Lancaster, Pa., was made with Mark Celebuski's standard wet-cast mix and given a hand-crafted finish.

Once you learn volumetric mix design principles you can make mixes that will do almost anything you want.

by Mark Celebuski

When I entered the concrete countertop industry after 25 years in the architectural precast industry, I had a hard time understanding some of the practices in use. There seemed to be a lot of misinformation surrounding the how and why of mix designs when it came to concrete countertops. Some of the practices, such as leaving the countertop in the mold for days on end, made no sense to me. Failures were common.

The industry was (and is) suffering from a lack of overall quality that starts with high-performance mix design.

I'm going to explain the process and ingredients that go into making

quality high-performance concrete. Nothing I state should be considered an absolute. Everything from ingredients to casting and curing practices works in concert with everything else to produce a quality end product. There are many different roads leading to an acceptable mix. I'm going to present a few simple principles that will start you down the road. Specifically, I will discuss the components, and then the role of each component, in a typical wet-cast mix.

I learned to design mixes prior to the advent of Microsoft Excel, so a pencil, paper and calculator is all you will need to follow along.

Wet-cast mix ingredients and their respective functions

Cementitious binder: The glue that holds things together. The majority of fabricators use portland type I, so this is what we'll use when designing our basic mixes. Portland cement is ubiquitous. Don't be confused by portland cement that is labeled "type I/II," as this simply means that it meets the ASTM requirements of type I and type II at the same time. Portland can be either white or gray. Portland cement is hydraulic cement, which means that it reacts with water to hydrate. I would recommend finding a good source, preferably local, and sticking with it. Color and chemistry vary considerably from mill to mill.

You could also use CSA cement (calcium sulfoaluminate cement), or exotic cements such as magnesium phosphate cement or geopolymers cements. I would start with portland — get good with it, and then experiment.

Pozzolan: A pozzolan is a material that exhibits cementitious properties when combined with calcium hydroxide, a byproduct of portland cement hydration. You do not need to use pozzolans to make concrete countertops, but you can make denser, stronger concrete when you use them. The use of pozzolans also mitigates ASR (alkali-silica reactivity), which can occur in mixes containing glass or reactive aggregates. Concrete made with a pozzolan may require an accelerator and heat to equal the early strength of concrete made without a pozzolan.

We are going to use VCAS (vitrified calcium aluminosilicate) as our pozzolan. I've tested and used just about every pozzolan over the years and have settled on VCAS as suitably meeting my needs. Some other pozzolans used by countertop makers include silica fume, granulated blast furnace slag, metakaolin, finely ground glass, and fly ash.

Large aggregate: I use a well-graded 3/8-inch minus pea gravel as my large aggregate in wet-cast mixes. You should be able to source this locally. Just about any sound inorganic aggregate can be used to get the look you want. You can use aggregate larger than 3/8-inch but your mix would be less homogenous in

thin-section countertops.

Fine aggregate: I use sand made for concrete (conforming to ASTM C-33) rather than gap-graded sand in my wet-cast. Concrete sand conforming to ASTM C-33 is readily available at ready-mix producers or sand quarries. It contains a range of sizes. Gap-graded means that the particles will fit through a certain size of screen (such as No. 30) but not the next

size of screen (such as No. 40).

Fibers: I use PVA (polyvinyl alcohol) fiber in wet-cast mixes. Why PVA? I've found PVA fiber works to control drying shrinkage and improve impact resistance.

Basic chemicals: We will be chemically altering our concrete to boost the performance and to impart properties (such as flowability) that make our countertops easier to cast and

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A sink crafted by Mark Celebuski. The cement-rich mix had no problems bonding to inlaid stones.

Volumetric Batching: Some Tips for Doing the Math

The concrete industry at large designs mixes using the volumetric method. Fresh concrete is sold by volume, generally by the cubic yard, which is how we will look at it. Divide cubic yard volumes by 27 to get cubic foot volumes.

How much does a cubic yard weigh? How much does a 4-foot by 8-foot slab 1.5 inches thick need in volume? How do you weigh the ingredients that make up that volume? You need to be able to convert volume to weight and back again. It's easy.

All materials have a specific gravity. The specific gravity of water is 1. All other materials' specific gravity is some multiple heavier or lighter than water. Cement has a specific gravity of 3.15, so a given volume of cement is 3.15 times as heavy as the same volume of water. Some materials, such as water (1) and portland cement (3.15), always have the same specific gravity. Sand and stone vary, and the quarry measures this. Sand generally has a specific gravity of 2.60 to 2.75, stone 2.65 (pea gravel) to 2.80 (hard limestone).

A cubic foot of water weighs 62.4 pounds. A cubic foot of cement is 3.15 times as heavy, 196.65 pounds.

You need to do this math for the sand, stone and water in your mix. The key is playing with the numbers until you get the ingredients to add up to 27 cubic feet to make one yard of concrete. From there, simple division gets you the volumes required. In the end you will be able to calculate the volume you need and batch it precisely.

have fewer bug-holes.

► **Superplasticizers, aka high-range water reducers:** Super P makes the concrete more fluid without your adding more water. We are going to use Optimum 380, available from FishStone.

► **Mid-range water reducers:** We might want to use a mid-range water reducer if we were pouring in place and trowel-fining our countertops. Mid-range water reducers tend to finish better than high-range water reducers, and what's more, we don't need as fluid a mix in poured-in-place applications. You would use either a mid-range or a high-range water reducer, but not both.

The goal is to get the concrete fluid enough to place without adding water, which weakens the mix.

Additional chemicals: As you get into more advanced mix designs you may want to use these chemicals to further boost your concrete's performance.

► **Viscosity-modifying admixtures:** VMAs are used in conjunction with high dosages of superplasticizer. The super makes the concrete more fluid, which can cause the mix to experience segregation. VMAs help prevent this by modifying the viscosity. You have to be careful when dosing, because VMAs can also make it harder for trapped air to migrate through the mix, which can lead to more bug-holes. Just enough to prevent segregation is enough.

High dosages of super plus a VMA are how you make self-consolidating concrete. VMAs were developed to cast concrete underwater with minimal segregation.

► **Shrinkage-reducing admixtures:** SRAs help prevent drying shrinkage of concrete. They are also powerful air detainers. The end result is one component in slab curl and bug-hole prevention. SRA are the most dangerous chemicals that we use, not to us but to the concrete. You can halve the strength of your mix if you overdose with them.

► **Nonchloride accelerators:** I use a combination of accelerators and heat to enable me to strip and process our countertops 14 hours after casting using type I portland.

► **Qwix:** Qwix is a cementitious calcium sulfoaluminate (CSA) additive used to increase the strength development and

ultimate strength of concrete mixes. It also helps reduce porosity and shrinkage. On top of that, Qwix is a very powerful accelerator.

What happens when you use all of the above chemicals in different combinations? I have no idea. I would start building your high-performance mix with the addition of a super P. Determine

a dosage that works for you, get a base line, then add other chemicals one at a time and decide if they make your mix better. For instance, an SRA may help keep your slabs from curling and reduce bug-holes, while Qwix may have a similar effect plus act as an accelerator. Using a SRA plus Qwix plus an accelerator? My guess is you'd be lucky to get it out of your mixer on a hot day. Walk before you run.



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Recipe for a wet-cast mix

We are going to design our wet-cast mix based on a yield of 1 cubic yard. One cubic yard equals 27 cubic feet. You will use simple volume calculations to arrive at batch weights for your yield.

You will move between weight and volume for each ingredient by dividing the batch weight of each ingredient by the weight per cubic foot of each ingredient to arrive at the batch volume for each ingredient.

Cement: I would stay under 800 pounds per cubic yard for wet-cast countertops. Somewhere around 750 to 800 pounds per cubic yard of cement, the strength curve begins to flat-line, eventually going downward somewhere around 1,200 pounds. Cement shrinks, a big problem the more you use. It's a case of diminishing returns and performance.

$$\begin{aligned} &750 \text{ pounds cement} \\ &\div 196.65 \text{ pounds per cubic foot} \\ &= 3.81 \text{ cubic feet} \end{aligned}$$

Batch Volume: 3.81 cubic feet

Pozzolan: I would stay at around 10 percent of the cement weight. You could go as high as 20 percent, but this would severely affect the setting times (longer)

without giving you much additional benefit (depending on the pozzolan). As I stated already, you don't need a pozzolan, but you can make denser, stronger concrete when you use one.

$$\begin{aligned} &75 \text{ pounds VCAS} \\ &\div 163.49 \text{ pounds per cubic foot} \\ &= 0.46 \text{ cubic feet} \end{aligned}$$

Batch Volume: 0.46 cubic feet

Water: I would want my water-to-cement ratio (pounds of water divided by pounds of cement) to be between 0.30 and 0.34. I know this will give me a mix design with an ultimate strength of 8,000 to 10,000 psi. We will use a superplasticizer to gain fluidity. Use the cement weight plus pozzolan to calculate your water-to-cement ratio.

$$\begin{aligned} &\text{Total Cementitious Material} = \\ &750 + 75 = 825 \text{ pounds} \\ &825 \times 0.32 \text{ W/C} = 264 \text{ pounds of water} \\ &264 \text{ pounds} \div 62.4 \text{ pounds per} \\ &\text{cubic foot of water} = 4.2 \text{ cubic feet} \end{aligned}$$

Batch Volume: 4.2 cubic feet

By the way, water weighs 8.33 pounds per gallon, so:

$$\begin{aligned} &264 \text{ pounds of water} \\ &\div 8.33 \text{ pounds per gallon} = 31.7 \text{ gallons} \end{aligned}$$

Air: Your mix will contain some air, which has to be factored into your total volume. I would estimate 3 percent based on experience.

$$\begin{aligned} &3 \text{ percent of } 27 \text{ cubic feet (1 cubic yard)} \\ &= 0.81 \text{ cubic feet} \end{aligned}$$

Batch Volume: 0.81 cubic feet

Sand and Stone: This becomes a balancing act between sand, which provides a fluid, easily consolidated mix with few bug-holes, and stone for strength, appearance and less shrinkage. The higher the sand content, the lower the strength and the higher the shrinkage as a general rule. A 50/50 mix seems to be a good compromise.

Cubic feet so far in our 27-cubic-foot (1 cubic yard) batch:

$$\begin{aligned} &\text{Cement: } 3.81 \text{ cubic feet} \\ &\text{Pozzolan: } 0.46 \text{ cubic feet} \\ &\text{Water: } 4.2 \text{ cubic feet} \\ &\text{Air: } 0.81 \text{ cubic feet} \\ &\text{Total: } 9.28 \text{ cubic feet} \end{aligned}$$

$$\begin{aligned} &\text{Stone and sand needed} \\ &= 27 \text{ cubic feet} - 9.28 \text{ cubic feet} \\ &= 17.72 \text{ cubic feet, or} \\ &8.86 \text{ cubic feet of stone and} \\ &8.86 \text{ cubic feet of sand} \end{aligned}$$

Fluid (Wet-Cast) Mixes vs. Stiff Mixes

by Jeff Girard, P.E.

Are you new to countertops? Are you confused about what the term "wet-cast" means? Here's a look at fluid concrete mixes for wet-casting as compared to stiff mixes for hand-packing, which is also known as "the Buddy Rhodes method."

Stiff Mix

A stiff concrete mix is characterized by its zero-slump, stiff plastic state. The fresh concrete is easy to mold. It typically uses an all-sand mix design.



Pros:

- ▶ Almost all styles of concrete are possible: uniform, terrazzo, veined, etc.
- ▶ Forms do not need to be watertight. Caulking is not necessary.
- ▶ Complex shapes using simple forms are possible.
- ▶ Reinforcing steel stays where it is put.
- ▶ Ghosting is significantly reduced or eliminated.
- ▶ Final product is very natural in appearance.
- ▶ Can control surface void shape and size.
- ▶ A wide range of stiffness and plasticity is possible.
- ▶ Screeding and troweling can be performed soon after casting.
- ▶ No bleed water.
- ▶ Casting tables do not need to be

perfectly level.

▶ Stiff mix can be placed in thin lifts, and form "buttering" is possible. Face buttering reduces expensive pigment and aggregate costs.

Cons:

- ▶ Casting takes longer.
- ▶ Achieving fine detail, crisp edges, etc., requires more care and skill.
- ▶ Requires a paddle-type mortar/plaster mixer for proper and adequate mixing.
- ▶ Cast surface always has some voids and pinholes.
- ▶ Improper compaction can result in more voids and weaker concrete.
- ▶ All-sand mix requires more cement to achieve good workability.
- ▶ Mix consistency is sensitive to superplasticizer and water contents.

We need to multiply the required cubic feet by the pounds-per-cubic-foot weight of sand and of stone.

Stone:

$$8.86 \times 169.7 \text{ pounds per cubic foot} \\ = \mathbf{1,504 \text{ pounds}}$$

Sand:

$$8.86 \times 163.4 \text{ pounds per cubic foot} \\ = \mathbf{1,448 \text{ pounds}}$$

Chemical dosages: You will have to play with dosages of chemicals to find out what works for you. Your mix ingredients will react differently to chemicals than mine will. I would start with the manufacturer's recommended dosages and work from there. Remember you are dosing the superplasticizer high enough to maintain your water-to-cement ratio.

Conclusion: Our weights for 1 cubic yard of our sample wet-cast mix design:

Portland cement = 750 pounds

VCAS = 75 pounds

Sand = 1,448 pounds

Stone = 1,505 pounds

Water = 264 pounds

PVA fiber = 4 pounds

Chemicals as needed

You may need to compensate for water in your aggregate. Sand can hold up to 10 percent moisture. Stone can only hold about 2 percent moisture before water freely runs out of it. If your sand is damp and you guessed at 5 percent moisture you would be within a couple of percentage points, which is close enough.

This mix calls for 1,448 pounds of sand. Sand is 5 percent moisture — in this case, 72.4 pounds of moisture. Add 5 percent more sand by weight (72.4 pounds worth), and subtract the water you are weighing in the sand from your water total.

$$\text{Adjusted sand} = 1,448 + 72.4 \\ = \mathbf{1,520.4 \text{ pounds}}$$

$$\text{Adjusted water} = 264 - 72.4 \\ = \mathbf{191.6 \text{ pounds}}$$

You now have a wet-cast mix utilizing local materials that should cost you about \$1.50 per square foot for 1.5-inch-thick countertops.

With a little experimentation, you can create all-sand wet-cast mixes, mixes with just about any aggregate to get any look you want, hand-press mixes, all-glass mixes, self-consolidating mixes, and so on. 🌀

🌐 www.concretecountertopplant.com

Note: Mark Celebuski will cover GFRC mix design in the next issue of Concrete Decor magazine.

Mark Celebuski is the general manager of Pinnacle Cast Concrete, a successful concrete countertop company. He is also an international distributor of concrete countertop manufacturing equipment, and he holds monthly training sessions for professionals at his plant. He has worked in the architectural/structural precast concrete field for the last 30 years, completing more than 15 million square feet of projects. Mark can be reached at (717) 823-7408 or mark@pinnaclecastconcrete.com.

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Fluid (Wet-Cast) Mix

A fluid concrete mix for wet-casting is characterized by high slump and high fluidity. It typically uses graded aggregates with sizes ranging from sand to gravel. High-slump concrete is very flowable concrete when vibrated. It uses powerful superplasticizers and viscosity stabilizers to achieve large spread with no particle separation.

Pros:

- ▶ Casting is quick.
- ▶ Little skill is required for casting.
- ▶ Mixer may be rotary drum or paddle type.
- ▶ Material is easy to level.
- ▶ Fine detail is easy to capture.
- ▶ Vibrating significantly reduces air voids at the surface.
- ▶ It's possible to achieve a very smooth and uniform as-cast finish.
- ▶ Reinforcing steel is easily coated and encapsulated.

- ▶ Can reduce cement content to maintain slump through careful aggregate grading.

Cons:

- ▶ Requires watertight forms. Caulking is necessary.
- ▶ Requires level casting tables.
- ▶ May require a vibrating table if a zero-pinhole surface is required.
- ▶ Potential for bleed water and separation with improper mix.
- ▶ Mixture is often sticky and difficult to trowel (once it starts to set up).
- ▶ Cannot achieve variegation.
- ▶ Higher risk of shadowing or ghosting.
- ▶ Reinforcing steel can sink.
- ▶ Front-edge returns or 3-D casting requires complex forms.
- ▶ The surface must be processed with great care if aggregate is not supposed to be visible.
- ▶ Material cannot easily be placed in thin lifts. The high slump prevents buttering. This increases the cost when



expensive pigments and aggregates are used.

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Choosing the Right Countertop Grinder

Photo courtesy of Patina Concrete

by *Natasha Chilingirian*

Every concrete countertop fabricator is after a smooth, clean finish on his or her work, be it a kitchen island, fireplace mantle or sink basin. Achieving a flat, shiny surface often comes down to the type of grinder that's used, and with so many machines on the market, many fabricators can feel overwhelmed by the choices.

Grinders vs. Polishers

First, there are machines that grind and machines that polish. The two are different — machines designed exclusively for polishing are smaller and lighter than grinders.

"Grinders are heavy, can take more abuse, and are for aggressive stock removal," says Jeff Girard, president of The Concrete Countertop Institute. "The 400- to 3,000-grit stage is what I call polishing, which will build a sheen. You're not removing any concrete."



Photo courtesy of Buddy Rhodes Studio

Buddy Rhodes, of Buddy Rhodes Studio, using a single-head hand grinder.

Experts also note that a machine's output is determined more by the grit of the pad used than by the machine itself, and the higher the grit, the closer one gets to polishing, regardless of what machine you use.

That said, you now know a grinder is what you're looking for, not a polisher. Now what?

Electric vs. Pneumatic

Countertop grinder shoppers must decide whether to choose a machine that's powered by a cord plugged into an electrical outlet or one that's motorized by air.

The consensus among experts is that pneumatic machines (into which air is blasted through a hose that's attached to an air compressor) are the way to go, as the tools are lighter and carry no risk of electrocution.

Another negative aspect of electric tools is their weight — they're generally more cumbersome than air-powered tools. While pneumatic grinders require an additional initial investment of roughly \$1,000 to \$3,000 for an air compressor, experts say the tools themselves don't cost more than electric tools do, and they weigh much less (as little as 2 pounds).

But there is a downside to air-powered machines as well: An air compressor can be a costly investment, and they limit fabricators to working solely out of their shops. Since electric grinders can be used anywhere an outlet is found, they provide fabricators with more mobility, allowing them to grind and polish in clients' buildings, for example.

How can fabricators decide what's best? Colin Sparkman, a partner at Patina Concrete in Modesto, Calif., says the way your shop is set up, as well as the amount of work you do and where you do it, can be good indicators.

"We have a lot of outlets in our shop and a small staff, so electric works for us," Sparkman says. "If you're a huge shop with a large amount of production, you might go with air-powered."

Girard concurs. "You have to ask yourself what you're trying to do. Are you going to the job site? Then you need to go electric. Are you doing all of your work from an existing shop? Then I recommend going pneumatic."

As electric grinders carry the risk of electric shock when used wet, experts recommend using an electric grinder that's double-insulated and has a built-in ground fault interrupter.



Photo courtesy of Patina Concrete

This concrete tabletop was completed by Patina Concrete workers using a DS301 planetary polisher, a Chicago four-inch electric angle grinder and a four-inch variable speed wet/dry polisher by Metabo, as well as diamond hand-polishing pads.

Wet vs. Dry

The next question fabricators must ask themselves when choosing a grinder is whether they want to go wet or dry. Experts say the majority of countertop grinding and polishing is done wet, but that most fabricators will end up doing some dry grinding as well.

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New Grinders Offer More Choices

One of the biggest innovations in the concrete countertop grinding and polishing industry has been planetary technology — machines that have multiple grinding heads, allowing fabricators to cover a large radius of material at a time and achieve an extra-flat result. Two big-name grinding tool brands recently released new models that incorporate planetary technology, giving fabricators more options: They are the Legend CT planetary countertop machine from Samich USA, and the DS3011 Planetary Polisher from Leitch/Intertool, which is a new and improved version of the company's DS301.

The Legend CT holds three 5.5-inch heads, and according to Samich USA president and CEO Josh Huseby, its balance is what makes it unique. "The motor and gear box, which is the heaviest part, is positioned in the middle, which provides even weight distribution," Huseby says. "It has a high level of stability, and it won't float to one side." It also covers a larger-than-average diameter of 13 inches, and at 50 pounds, workers won't have to apply a lot of pressure while using it, Huseby says.



The second machine, Leitch/Intertool's DS3011, possesses all the beneficial qualities of the original DS301 model (a three-head planetary tool designed to grind, polish or clean countertops, floors, walls and steps made of concrete, terrazzo, granite and marble), but takes on a few enhancements that make it



cleaner, more powerful and easier to maintain. The new model has triple-sealed bearings, which protect the tool and allow users to simply rinse the machine and allow it to dry as a maintenance routine. Higher torque is achieved via a small pinion gear that drives a larger spur gear, and a built-in vacuum picks up dust when the machine is used dry (it's typically operated wet with a slurry skirt). Plus, repositioned brushes and the presence of cool airflow minimize dust damage to the brushes, allowing them to last longer.

A third new tool, the Scarab 5 Head Hand Grinder, contains five three-inch tooling heads that spin in opposite directions, but don't call it a planetary machine. WerkMaster president Brian Wilson describes it instead as an extremely versatile hand grinder that can be used wet or dry and even vertically on walls. Unlike the typical planetary grinder, it fits the bill quite nicely on edges and narrow sections of concrete.

"I call it a hand grinder (instead of a planetary grinder) because it's used as a hand grinder," Wilson says. "In this industry, the big challenge is edging. That challenge had to be met with a machine that can do edging, stairs and hard-to-get-to places, which this one does." The machine also comes with a detachable handle, allowing workers to use it on the floor while standing, and it's shaped to reach awkward spots such as behind toilets, along bathtub ledges and around machinery. It's also designed to rest flat on surfaces and comes with a removable dust shroud to minimize dust and debris while used dry.



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When grinders are used wet, water is fed through the machine and exits the center of the grinding disk(s), which preserves the life of the diamond pads used with the machine and allows workers to grind dust-free. And since they operate at high rpm, wet grinders can remove material about three to 10 times faster than dry grinders can, Girard says.

Also, all experts agree high-quality surfaces are easier to achieve with water. "You'll get a cleaner polish," says Buddy Rhodes, of Buddy Rhodes Studio in San Francisco. "It depends on what kind of a finish you're going for."

However, grinding with water produces slurry, which can create a big mess in the shop, and the presence of water on the concrete surface can mean slightly poor visibility. "The downside of wet grinding is that you'll need enough space to handle the water, and you have to do something with the water — you can't just flush it down the drain," Girard says.

Dry grinding — while it produces dust — is a cleaner process and can be done on job sites. When selecting a dry

grinder, choose one with an effective vacuum system to minimize dust, experts say, and keep in mind that without water, the machine's diamond pads will wear more quickly.

Planetary vs. Single-Head

The third question fabricators may ask while building their grinding toolset is, do I need a planetary machine?

Planetary grinding/polishing machines contain multiple heads that cover a diameter of about 12 inches and spin clockwise and counterclockwise. They require minimal skill to operate and result in a super-flat finish. "With heads that spin in opposite directions, you'll get a better polish and it won't leave marks, and the operator of a planetary machine will experience less fatigue," says Tom Fischer, president of Fishstone in Elgin, Ill.

While planetary tools are very useful on large spaces, such as floors, wide countertops and kitchen islands, they can't be used on edges or narrow, oddly shaped areas like fireplace mantles, sinks and toilets. So fabricators should view a planetary tool as a supplementary investment, as they'll still need to buy a single-head hand grinder.

Experts say if you're working on large pieces of concrete on a regular basis, a planetary tool can be worth the cost.

"They're pretty good if you have a large space to cover, but they're costly and make a lot of noise," Rhodes says. "If you'll use it professionally on a day-to-day basis, it's good to have in your toolbox. They give you a smooth, flat surface."

Other Considerations

What else should fabricators think about on their quest for the most suitable grinding tools? For one, weight and comfort — if you'll be using a machine every day, one that's easy to maneuver and on the lighter side might be best. "When you're looking at them, think about the way the tool feels when you pick it up," Sparkman says.

While you can't know exactly how well a tool will perform until it's used, reputation can be a good indicator. "Go with the ones that are tried and true," says Steve Kisling of Patina Concrete.

And experts agree that buyers get what they pay for. Cheaper models exist, but they're more likely to break down and be less comfortable to use.

If grinding and polishing work on curved, hard-to-reach spaces such as sinks and toilet bowls is a regular part of a fabricator's routine, a grinder that holds a small pad (about 3 inches) and comes with a detachable extension device can come in handy. Diamond

hand-polishing pads are also useful on these types of surfaces and on any area that could use a quick touch-up. "(Hand-polishing pads) are essential," Girard says. "At about \$80 a pack, they're a no-brainer."

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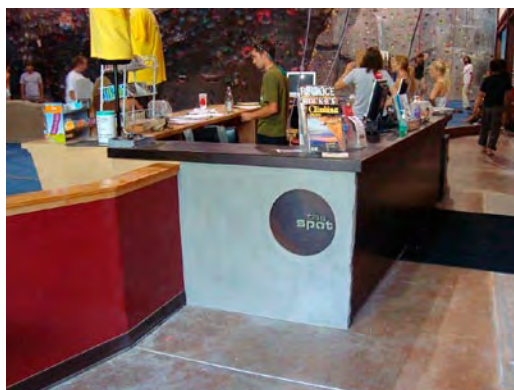
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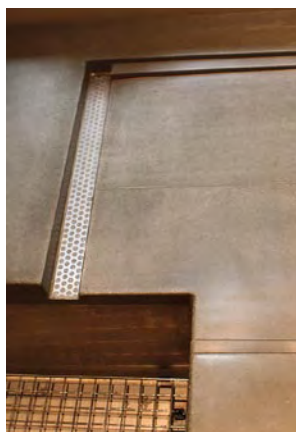
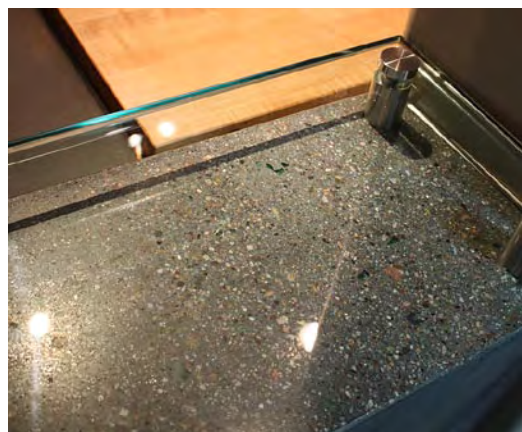
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