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THE JOURNAL OF DECORATIVE CONCRETE

concretedecor.net

Vol. 13 No. 5 July 2013

COLOR WITH INTEGRITY

PAGE 34

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Est. 1998

FROM THE editor's DESK

Dear Readers,

What can be used to create decorative concrete? Just about anything.

The article in the Walls & Hardscapes section of this issue focuses on an artisan who crafts astonishingly lifelike roots and trees using sculptable epoxy. Yes, sculptable epoxy. He appreciates how it takes texture and that it can be flaked as it cures.

Then he colors his creations with ordinary house paint and sprays them with an antigraffiti coating that happens to give him the matte effect he wants.

He's achieving extraordinary results with a combination of specially engineered niche products and mundane materials appropriated from others industries for new uses. This is business as usual in the decorative concrete trades.

Giving fair coverage to both these types of materials is a challenge for this magazine and others like it.

Guessing what tools and materials will find exciting new uses in your hands is a challenge for manufacturers too. Many are looking at decorative concrete and trying to figure out ways in which their products can benefit the new breed of artisanal contractors.

One example fell into my lap today as I was writing this letter. A marketing representative called to introduce me to a machine that does "sodablasting" — like shotblasting or sandblasting, but with baking soda.

Sodablasting is standard practice for fire and smoke damage cleanup, graffiti removal, cleaning cars and boats and a range of other uses. But this rep told me he had just sold three machines to people who will use them to remove old solvent-based sealer on concrete restoration jobs. The machine scours off the sealer but leaves the concrete untouched, he told me.

He is new to our industry. But look out — he's a quick study. Maybe one day soon you'll be sodablasting sealer off a restoration job yourself.

And yes, tools or materials from another industry we think will be new to you often turn up in our Product News department, either in print or online at ConcreteDecor.net.

Sincerely,

John Strieder
Editor

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THE JOURNAL OF DECORATIVE CONCRETE

July 2013
Volume 13 · Issue No. 5

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troy@protradepub.com
(702) 869-4342
Subscriptions: USA (one year): $22.95
Canada (one year): $32.95
Other countries: $64
All prices in U.S. dollars
Subscriber Services: (877) 935-8906
circulation@protradepub.com
Fax: (541) 341-6443
U.S. Postal Service Mailing Address: Professional Trade Publications Inc.
P.O. Box 25210
Eugene, OR 97402
Other Shipping: Professional Trade Publications Inc.
228 Grimes St.
Eugene, OR 97402

Concrete Decor™ The Journal of Decorative Concrete is published eight times a year by Professional Trade Publications Inc. Bulk rate postage paid at Lebanon Junction, Ky., and additional mailing offices.

ISSN 1542-1597

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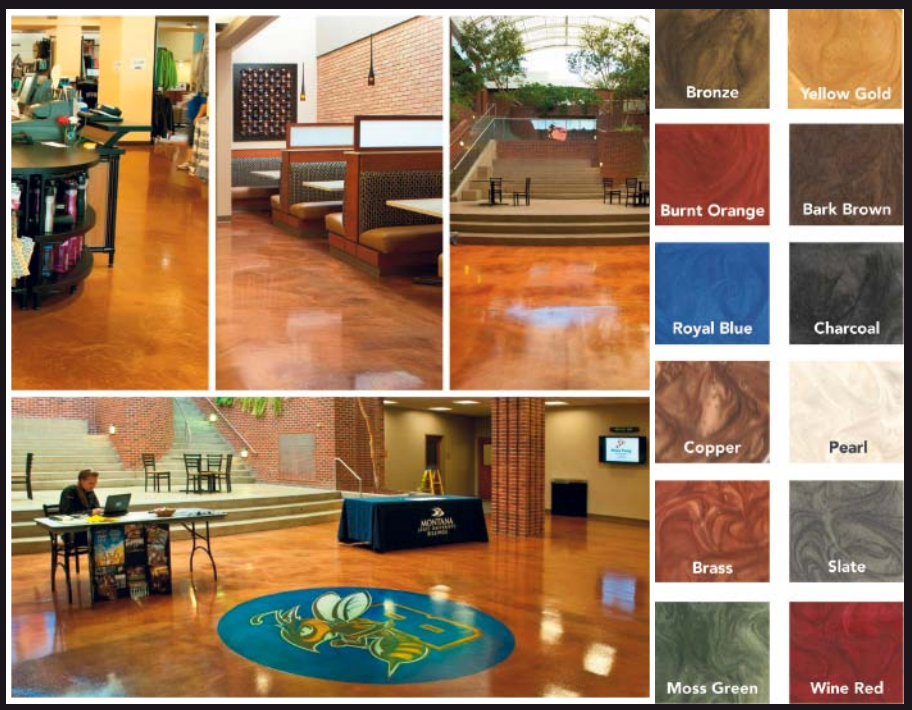

The **Aurora Epoxy Dust System** creates a seamless 3- dimensional floor that is durable enough to withstand the traffic of this busy college campus.

The McKrete™ Concrete Overlay System is a patented acrylic and epoxy cementitious material applied over existing concrete. This versatile material can be installed using a variety of stencil patterns and colors.

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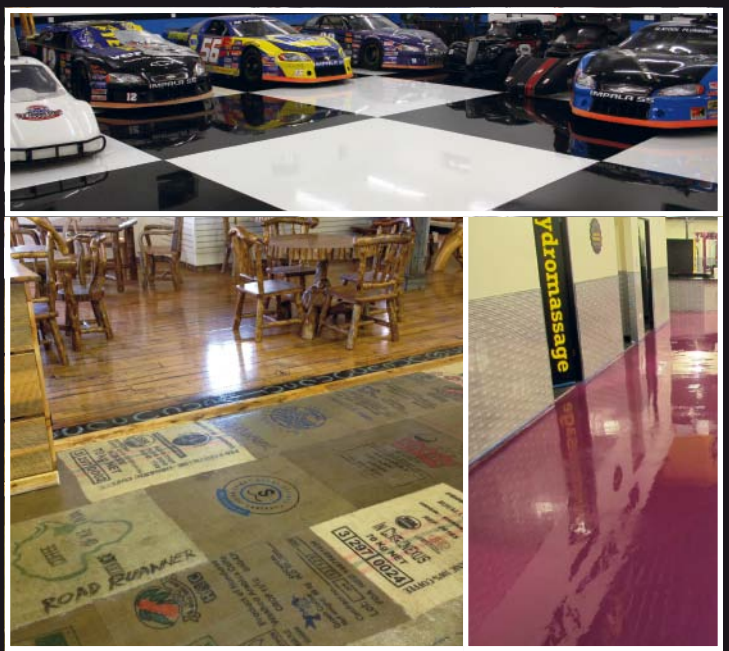
Use our **Epoxy Stone System** to beautify and protect even very uneven concrete surfaces. Used in residential applications around pool decks, patios, lanais, and porches. However, it can also be used in driveways, garages, walkways, entries, and cellars. Epoxy Stone is particularly useful in pool areas because it helps eliminate puddles and standing water.



Our **Industrial Epoxy System** contains an additive in the Resin to make it harder, and an additive in the cure to make it chemical resistant. Our industrial epoxy can be tinted to a color of your choice for that ideal concrete coating color match.

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Vol. 13, No. 5
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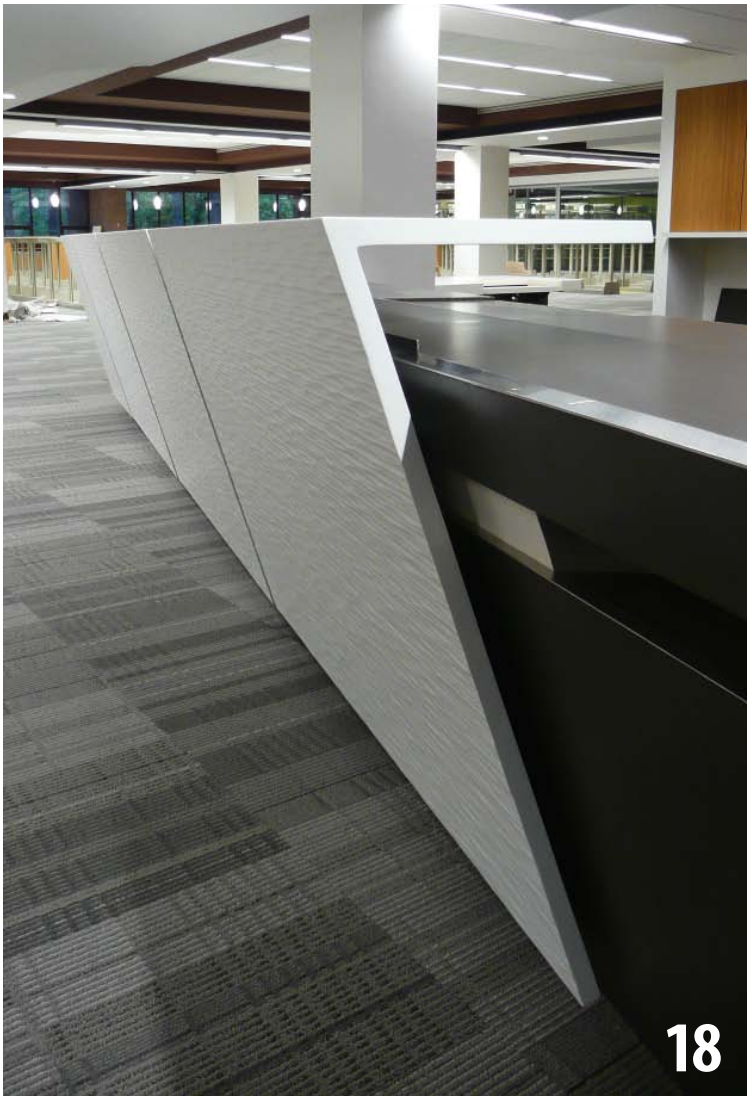

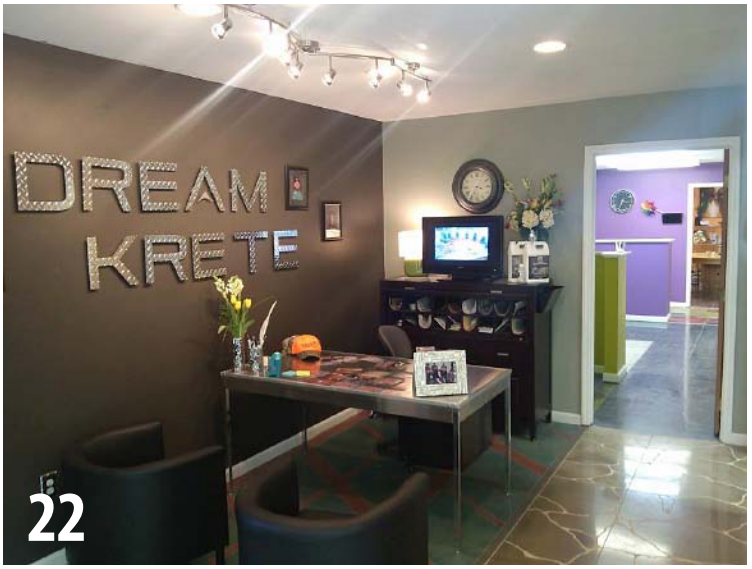

FEATURES

BUSINESS & INDUSTRY

On the cover: L R M Inc., Newtown, Conn., recently poured 170 yards of concrete for 400 linear feet of sidewalks and a large patio area in nearby Sandy Hook. The custom brick red integral color was blended by Davis Colors.

Right: One of the finished sidewalks. Stamping was aided by granite-colored powder release mixed into Liquid Bubble Gum Release, both from Kingdom Products.

Photos by Madelyn Weingart, Haynes Materials

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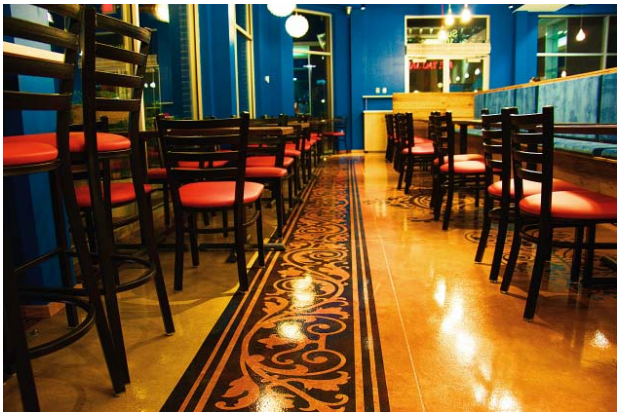

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Doug Carlton *operates Carlton Concrete Inc. in Visalia, Calif. He can be reached at carltondoug@comcast.net. See Doug's column, "Carlton's Corner," on page 52.*

Peter Collins *is sales director of Arizona Polymer Flooring. Reach him at peter.collins@apfepoxy.com. See Peter's article on page 30.*

Jim Cuviello *has been in the concrete polishing industry since 2002. He is the owner of Cuviello Concrete, based in Stevensville, Md., and is a founding member of the Concrete Polishing Association of America. He can be reached at jim@cuvielloconcrete.com. See Jim's article on page 46.*

Nick Dancer *has been active in the concrete construction business since 2005 and started his own company, CounterCrete, in 2007. That company grew into Dancer Concrete, which is based in Fort Wayne, Ind. Contact him at nick.dancer2@gmail.com. See Nick's article on page 28.*

Jennifer A. Faller *is vice president of operations for The Professionals, a polished concrete contracting company in Greensboro, N.C., and co-chairman of the CPAA board of directors. Contact her at jfaller@pcpa.biz. See Jennifer's article on page 40.*

Jeffrey Girard *is founder and president of The Concrete Countertop Institute and a pioneer of engineered concrete countertops. Reach him at info@concretecountertopinstitute.com. See Jeff's column, "Success with Concrete Countertops," on page 32.*

Clif Rawlings *is United States product manager and training director for HTC Inc., a manufacturer of polishing equipment and diamond tooling. Reach him at clif.rawlings@htc-america.com. See Clif's article on page 42.*

Chris Sullivan *is vice president of sales and marketing with ChemSystems Inc. He has led seminars and product demonstrations throughout North America. Contact him at questions@concretedecormagazine.com. See Chris' column, "Concrete Questions," on page 38.*

Karen Van Heukelem *wears many hats at Denver-based Colorado Hardscapes Inc., including business development, marketing, sales, estimating and project management, with an emphasis on specialty rock construction. She can be reached at karen@coloradohardscapes.com. See Karen's article on page 16.*

Mike Vernelson *has earned a reputation as one of the top theme sculptors in the world. Contact him at mvernelson@yahoo.com. See Mike's article on page 55.*

Talk back! Weigh in online at ConcreteDecor.net

INDUSTRY NEWS

PCA predicts more growth in 2013

Following the strongest cement consumption gains in seven years in 2012, cement consumption growth will continue in 2013 with a 6.2 percent increase, according to the latest forecast from the Portland Cement Association. The majority of market recovery is expected to occur in the second half of 2013.

"Recessions correct imbalances generated during boom periods," said PCA chief economist Ed Sullivan in a news release. "Few economists doubt the generation of a large pent-up demand during the past several years."

The PCA expects housing starts to reach nearly 1 million in 2013. Multifamily construction also continues to grow at a strong pace — PCA expects 318,000 starts in 2013, an increase of 29 percent over last year.

Public construction is a drag on cement consumption this year, Sullivan said. "However, as the economy gains momentum in 2014, job gains will strengthen states' fiscal conditions and support stronger construction spending."

The accelerated consumption predicted during the second half of 2013 is expected to carry into next year.

(847) 966-6200

www.cement.org

NEW faces

Paul Harris, vice president of U.S. sales, MCR Safety

Tim Smith, vice president of sales, Smith Paint Products

Rich Staley, territory sales representative for Western U.S., Allen Engineering Corp.

Scott Ward, territory sales representative for Southern Missouri, Arkansas and Louisiana, Allen Engineering Corp.

Volunteers from ASCC transform Kentucky Veterans Center

Volunteer members of the Decorative Concrete Council, a specialty council of the American Society of Concrete Contractors, traveled to Hanson, Ky., in May to work on the hardscape of what is to become a therapeutic garden at the Ballard Western Kentucky Veterans Center. Three students from the Concrete Industry Management program at Middle Tennessee State University assisted on the project.

The idea to convert an underutilized outdoor space at the Center into a therapeutic garden came from Sandy Henderson, Greenville, S.C., whose father was a resident at the home. "My father really enjoyed spending time in the outdoor space," Henderson said in an ASCC news release. "However, many of the residents did not use the space because of the strong glare off of the concrete paving."

Henderson's search for a solution led her to the DCC. The answer was to stain the existing concrete a darker color. The final project included cleaning and staining about 5,000 square feet of existing concrete, saw-cutting and staining a compass rose emblem depicting military and patriotic icons, and saw-cutting and staining a large checkerboard.

Additional landscaping and activity areas will finish converting the space into a therapeutic garden.

The project was managed by Todd Scharich, decorative concrete specialist for the ASCC. Planning and project coordination was spearheaded by DCC council director Chris Klemaske (T.B. Penick & Sons, San Diego, Calif.) and DCC directors Jim Mullins (Butterfield Color, Indianapolis) and Paul Schneider (Patterned Concrete of Cincinnati).

A complete list of volunteers and companies supplying labor, tools and materials can be found on the Online Exclusives blog at ConcreteDecor.net.

(866) 788-2722

www.ascconline.org

ACI names new officers for 2013

American Concrete Institute introduced its 2013-2014 president, vice president and four board members during the ACI Spring 2013 Convention in Minneapolis.

Anne M. Ellis was elected to serve as president of the Institute for 2013-2014. Sharon L. Wood has been elected ACI vice president for a two-year term, and William E. Rushing Jr. is now the Institute's senior vice president for a two-year term.

Additionally, four members have been elected to serve on the ACI board of direction, each for three-year terms. They are Dean A. Browning, Cary S. Kopczynski, Kevin A. MacDonald and David M. Suchorski.

www.concrete.org

Pros unite for final project at Charlotte Rescue Mission

Decorative concrete companies assembled at the Charlotte Rescue Mission in May to install concrete wall caps on the masonry CMUs (concrete masonry units) at the patio, completing a project that was started during the Concrete Decor Show in March.

Staff and their residents can now plan outdoor music events, family barbecues and other social gatherings in the space. In the coming weeks the masonry CMUs will be stained and sealed, as will the concrete that was placed during the show.

The Concrete Decor Show wants to thank the following companies for their donation of labor, materials and expertise.

- Ace/Avant Concrete Construction Co., Archdale, N.C.
- Concrete Supply Co., Charlotte, N.C. (ready-mix supplier)
- Kingdom Products
- New South Construction Supply, West Columbia, S.C.
- Old North State Masonry, Matthews, N.C.
- Rodgers Builders Inc., Greenville, S.C.
- Stegmeier LLC

Submissions sought for 2014 DCC Decorative Concrete Awards

The Decorative Concrete Council, a specialty council of the American Society of Concrete Contractors, in partnership with Concrete Construction and Architect magazines, has announced its sixth annual Decorative Concrete Awards. The competition is open to DCC members and nonmembers. The deadline for submittal is Sept. 30, 2013.

Entries are invited in the following categories: overlays, cast-in-place — stamped and special finishes, stained, polished, countertops, vertical applications, concrete artistry, multiple applications, graphics, epoxy/polyaspartic flooring and architectural concrete. With the exception of countertops, two awards may be given in each category, for projects 5,000 square feet and under, and projects greater than 5,000 square feet.

(866) 788-2722

www.ascconline.org

event calendar

American Society of Concrete Contractors Concrete Executive Leadership Forum
July 25-28, Palm Beach, Fla.
www.ascconline.org

Concrete Sawing & Drilling Association Fall Meetings
Sept. 5-6, Annapolis, Md.
www.csda.org

American Society of Concrete Contractors Annual Conference
Sept. 12-15, Columbus, Ohio
www.ascconline.org

International Concrete Polishing & Staining Conference
Sept. 12-15, Duluth, Ga.
www.icpsc365.com

Euclid exec to review Canada standards

Claude Bédard, president of Euclid Admixture Canada Inc., has been appointed to the Standards Council of Canada by the Canadian government. Bédard will serve on a 13-member governing council that reviews, approves and advises on the SCC's strategic direction.

www.euclidchemical.com

CPAA, ICPSC team up to train

The Concrete Polishing Association of America has formed a collaboration with the International Concrete Polishing & Staining Conference to provide Tradesman and Craftsman certification classes at the 2013 ICPSC, Sept. 12-15 in Duluth, Ga.

The programs are carefully designed to meet the full range of skill sets and will expose students to various types of equipment, tooling, and chemical products on the market today. Each course is designed to build on the craftsperson's knowledge base toward a Master Craftsman Certification.

The certifications offered by CPAA at ICPSC in September include a Tradesman Certificate and Craftsman, Level 1 certification.

www.concretepolishingassociation.com

www.icpsc365.com

PRODUCT NEWS

ANTIQUING AGENTS

NewLook releases TiqueWash

NewLook International Inc. has introduced TiqueWash, an advanced antiquing colorant used to create a natural, multitoned finish on textured concrete.

TiqueWash is a concentrated powder that can be mixed with clean water to achieve a translucent color wash that, once applied, runs off high spots and settles in the low areas of a relief or textured concrete. The water-based formula in TiqueWash includes ultrafine polymers for improved surface penetration and a stronger bond to the surface. It is weather-resistant and may be used indoors and outdoors. It's easy to apply with a NewLook Applicator Brush or soft push broom, and it is available in 16 popular earth tones.

The formula contains no VOCs and is a safe, user-friendly alternative to solvent- or acid-based antiquing products. TiqueWash also provides strong adhesion when sealed with NewLook SmartSeal or other compatible sealers, and its finish is reportedly less hazy than other similar products.

(801) 866-9495

www.getnewlook.com

COATINGS

Ultra Durable adds five coatings

Ultra Durable Technologies recently introduced five new coatings to compliment its existing Epic product line.

Three of the new products are Impact High Gloss, a concrete, stone and terrazzo coating, and two four-hour dry coatings, Impact Fast Dry and Impact Satin. The Impact series is a line of sustainable protective coatings specially formulated for concrete, terrazzo and natural stone. Developed as a single-coat process, Impact is touted as an alternative to grinding and polishing. It can also be used over acid-stained and dyed concrete slabs, and it will provide protection to new and existing epoxy or resinous flooring systems.

The two other new products are I-Tech and I-Tech Satin. They have been designed as high-performance protective coatings for use on concrete and natural stone surfaces. I-Tech is an ideal protective finish for bare, stained, dyed or colored concrete and natural stone. It can be used indoors and outdoors to protect concrete and stone against staining, abrasion and chemicals.

All of the products manufactured by Ultra Durable Technologies are designed to be safe for the customer, the applicator and the environment. With zero to very low VOCs, the products have almost no odor and can be used in occupied spaces.

(800) 722-2998

www.udfloors.com

DUST SOLUTIONS

New Lavina commercial vacuums

Superabrasive is adding to its Lavina line with a new fleet of commercial vacuums designed specifically for use with Lavina grinding and polishing machines. This is the first vacuum fleet designed and introduced to the market by Superabrasive.

The most notable feature of the Lavina vacuum line is its unique pneumatic jet filter cleaning system — a fully automatic, hands-free system that utilizes a compressor for continuous filter cleaning during use. This system will be available on the larger V-25L and V-32 models. All other models, designed for smaller jobs, feature an upgraded manual-cleaning brush system that allows operators to efficiently clean filters, also during use, with one quick turn of a handle. With efficiency at top priority, there is never a need to slow or halt work for filter cleaning.

Additional features include large filters with surface areas of up to 87 square feet, optional HEPA filters, and Longopac bagging systems that provide continuous bagging for easy dust disposal. Two pre-separator models are also available. What's more, a system of easy-match part numbers simplifies the process of pairing Lavina vacuums with Lavina machines.

Lavina vacuums offer a full range of options, from models designed for use with the smallest 7-inch edge grinder to the 32-inch Lavinda 32R-S. A wide range of options in horsepower and cubic feet per minute allows operators to select a vacuum that is most appropriate for their machines and workloads.

(800) 987-8403

www.superabrasive.us

JOINT CUTTERS

Same-day cuts with the Robo Joiner

Benner-Nawman Inc. has introduced the Robo Joiner, which has the ability to make both rolled-edge and narrow saw-cut-like joints.

With the Robo Joiner, joints can be completed the day the concrete is poured. The tool is ready to be used once the concrete has bled off the excess water, so concrete contractors don't have to worry about waiting around for concrete to set. They can make their control joints as they go, reducing time and labor costs.

The Robo Joiner operates with variable speed and is powered by two 20-volt batteries.

(800) 992-3833

www.bnproducts.com

SCANNERS

Hilti metal detection systems

The Hilti PS 250 Ferroscan System determines the position and diameter of rebar present in concrete. With the PS 250, users can quickly scan large areas of concrete to locate and assess the steel reinforcement concealed beneath the surface of a concrete structure at depths from 4 to 6 inches depending on rebar size.

Areas can now be analyzed with a clear 2-D image on the monitor or from the printer for on-the-spot structural analysis and depth-of-cover assessment.

The system consists of a hand-guided scanner with a color display, a portable monitor unit for on-site use and all accessories necessary for creating image scans. It has a rubber-coated housing and it is resistant to water and dust in typical job-site conditions.

Hilti also recently updated the PS 1000 X-Scan Radar Detection System, which is designed to produce large-area images of what's inside concrete structures. The PS 1000 X-Scan has been updated to include the EM Sensor, which detects live electrical cables (50/60 hertz) buried up to 3 inches in the concrete.

(800) 879-8000

www.us.hilti.com

MOLD RUBBERS

New mold rubber from Smooth-On

Smooth-On Inc. is now offering Smooth-Sil 945, a versatile mold rubber for GFRC elements and other applications. The rubber achieves a Shore 45A hardness.

Smooth-Sil 945 is part of the Smooth-Sil Platinum Silicone series. These silicones cure at room temperature with negligible shrinkage. They exhibit good resistance to chemicals, abrasion and heat.

Smooth-Sil 945 offers the convenience of a 1A:1B by-volume mix ratio and a cure time of six hours.

(800) 762-0744

www.smooth-on.com

POLISHING

New KRazor EDGE from KutRite

KutRite's KRazor EDGE helps get contractors off their hands and knees during the floor edging process. Improving on the design of the EDGEKutter, the KRazor EDGE is a 3-horsepower, 220-volt single- or variable-speed grinding and polishing edger featuring interchangeable heads. It gives operators the ability to put a hand-held finish on any floor edge from a standing position.

The KRazor EDGE offers a locking bowl design that enables the machine to run in both planetary and rotary modes. A six-position handle includes a 5-degree adjustable tilt, and the T-handle is ergonomically designed to allow for use from either side.

(877) 783-5067

www.kutritemfg.com

Omni Cubed offers wall protection and dust removal for polishers

The No-Spin Dry Polishing System from Omni Cubed Inc. keeps your work area dust-free while protecting surrounding vertical surfaces from being damaged by the edges of spinning polishing pads.

For dust control, use an Omni Cubed Dust Shroud Polisher Adapter to attach a DustBuddie from Dustless Technologies to your Bosch, Makita, DeWalt or Milwaukee

polisher and turn it into a hand-held dustless system.

Next, add the Omni Cubed 7-inch No-Spin Backer Pad, which has a free-floating disc to act as a built-in roller guide for quickly achieving clean and consistent edges without wall damage.

(877) 311-1976

www.omnicubed.com

REPAIR AND RESTORATION

Demo hammer with new features

Bosch Power Tools is releasing the new DH507 12-pound SDS-max Demo Hammer, which offers improved ergonomics and new design features to help users maximize productivity during a variety of applications, including removing wall and floor tiles, repairing joints, cutting slots in concrete or masonry and creating recesses or breaking through concrete.

Weighing a total of 12.4 pounds and delivering 5.6 foot-pounds of impact energy, the DH507 packs powerful chipping capabilities into an ergonomic tool to deliver maximum comfort for chiseling in tight spaces or in an array of different positions. The Vario-Lock positioning rotates and locks the chisel mechanism into 12 different positions to optimize working angles. The tool also features a lock-on button for extended use and a variable-speed trigger/dial for controlled chiseling.

(877) 267-2499

www.boschtools.com

UV CURING EQUIPMENT

Light bar and cart for curing jobs

Larson Electronics announced the release of its latest ultraviolet LED light for curing applications. This compact 120-watt UV light bar is designed to provide operators a cost-effective alternative to 400-watt UV bulbs used for curing coatings and primers.

The LEDLB-24E-UV-365NM ultraviolet LED light bar is IP68-rated and produces a powerful ultraviolet light beam while only drawing 120 watts. These ultraviolet lights have 50,000 hours of operational life and require no warm-up time.

Larson Electronics is also introducing the WALCD-4X24LED-UV365 ultraviolet LED light cart. Featuring a wide range of positions, this portable UV light stand was designed to enable operators to position high-intensity UV light on surfaces.

Featuring four 72-watt, 365nm light heads, the light cart is equipped with wheels and a dolly-style frame. The aluminum light stand features a series of flexible arms that operators can use to position each light head. The UV LED light heads can reach heights of 7 feet, and the entire assembly can be collapsed to slightly more than 4 1/2 feet for easy storage.

(800) 369-6671

www.magnalight.com

Six Ways to Make Sure More People Find Your Website

by Karen Van Heukelem

Remember the days when you could simply name your company "AAA Concrete" to ensure your business would appear first in the local directory? Those days are behind us. We now live in an era when "Google" is a verb.

So when a potential client begins a search for a reputable decorative concrete company online, what steps can you take to control how close to first your company appears in online search results?

Three little words will make a big difference: *search engine optimization*. When you are ready to intentionally boost your website rankings, here are six key techniques that will make a big difference.

1 Keywords

Keywords are, well, key. Keywords are those words which potential clients type into the search box hoping to find the concrete contractor of their dreams (you). For example, in Colorado someone might type in "Colorado decorative concrete." Without those words in your website, you will never be at the top when the search results come up.

Search engines have these fancy little diggers of information called "robots." These robots scan the text in your website and hand the results to the search engine. If your website does not contain the words people use to try to find you, it will not get matched up with their queries. My rule of thumb is to have keywords about three times on an important page. But be careful about trying to force a keyword too many times. The robots are onto that trick and they will blacklist your company from the results page.

2 Photos and their "alternate text"

How do you cram your website with keywords without having it look text-heavy? You should include your keywords in the main text (what shows to people who visit your page), but if you need to find an additional home for those keywords, there are clever places they can hide.

For example, when you add a photo to your website, you can add "alternate text" to go with it. Alternate text is what shows if for whatever reason the photo does not load properly. This rarely happens, so this "error" text is a perfect place to plant keywords, especially when they are relevant to the photo.

Let's say one of your keywords or phrases is "residential stamped patio." Load a photo of an example of a residential stamped patio, describe it as such in your caption, and put "residential stamped patio" in the alternate text too.

3 Online directories

There are hundreds of free online listing directories. Go to the most popular ones and make sure your company is listed. Many allow you to list your website — be sure to fill out that blank. If you're limited on time and resources, focus on the top ones like Bing, Yahoo and Yelp. Do a search of the "top free online business directories" and you'll discover a multitude of places to list and link your business for free.

4 Social media

Social media acts as a great aid to any marketing plan. It gives your business an additional way to reach to your market. Plus, it allows for additional links back to your website — come on, No. 1 ranking! Ideally, use your keywords in as many social media outlets as possible, and always list your website. Social media outlets I recommend are LinkedIn, Facebook (great for internal marketing and posting photos of recently completed work), blogs (great brag boards that can be filled with lots of keywords) and Twitter.

Also, remember people love images more than words, but always label each photo and describe it so it comes back in search engine results.

5 Valuable content

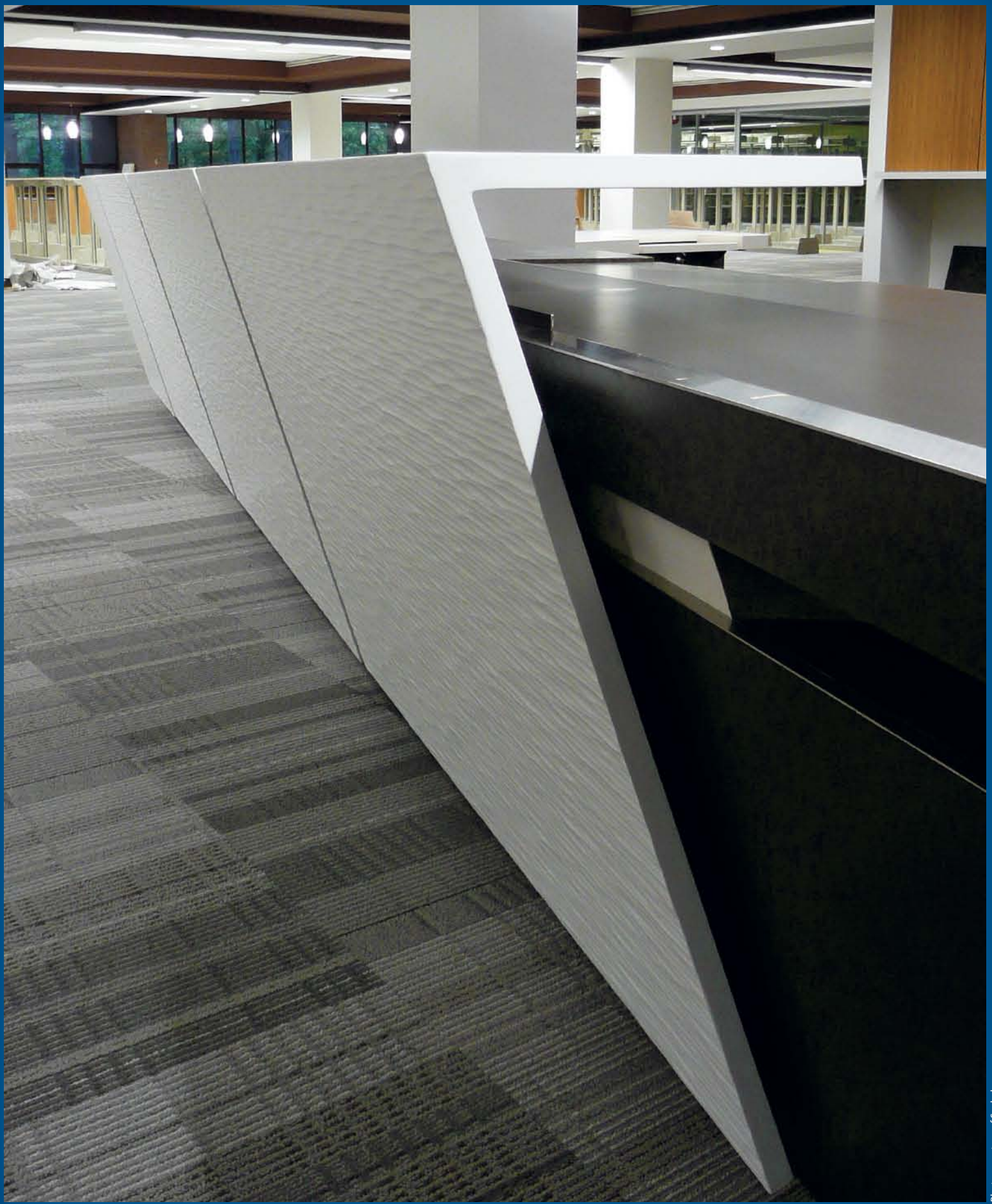
To maintain a high ranking, you need people actually clicking on the link to your page, so be sure to have valuable content that encourages them to click and come back.

6 Tracking

Tracking the results of your efforts should not be costly or too time-consuming. Your website hosting company most likely offers tracking tools. Google also offers some free tools for your use. Both Google Analytics and Google Webmaster Tools help you strategize and measure the progress of your search engine optimization efforts. They give advice, show errors and provide recommendations. Plus, boosting your online relationship with Google by using the tools it has to offer certainly can't hurt your rankings any.

Remember, any online campaign or plan is similar to a good diet or exercise plan — it may take two or three months before you see results. Some of the listing services I mentioned above take several weeks before making your listing available to the general public. It also takes the little robots months to scan sites to determine their validity and ranking. Patience will help as you rise to the top.

Karen Van Heukelem wears many hats at Denver-based Colorado Hardscapes Inc., including business development, marketing, sales, estimating and project management, with an emphasis on specialty rock construction. She can be reached at karen@coloradohardscapes.com.



Photos courtesy of Szolyd.com

ARTISAN
IN CONCRETE

Nolan Mayrhofer, Szolyd Development Corp.

Victoria, British Columbia, Canada

by Stacey Enesey Klemenc

Armed with MacGyver-like skills and the intuitive know-how to solve problems while on their feet, Nolan Mayrhofer and his team thrive on projects that require creative intervention.

"I've always been curious, always been a risk-taker," says the founder and president of Szolyd Development Corp., in Victoria, British Columbia. "When it comes to new technology, I'm what you'd call an early adapter."

For instance, he says, Szolyd (pronounced "solid") was one of the first companies in North America to be licensed to work with Ductal. "It's such a sophisticated product, so different from anything else out there," he says about Lafarge's very flexible high-performance concrete, which his company markets as D-Roc.

Likewise, his was among the first companies in his area to offer concrete countertops. He had already been pouring them for three to four years when he took Fu-Tung Cheng's countertop course the first year it was offered. "I didn't go in there green," Mayrhofer says. "I was intrigued by his design and wanted to pick up some tips."

Breaking into the business

Mayrhofer says he was first inspired by concrete about 16 years ago. At the time, his company Stone Design was making mosaics, creating made-to-order art pieces and building furniture out of recycled pallets. Meanwhile, friends of his at Sunwise Systems, in Kamloops, British Columbia, were pouring concrete floors, tinting them with stucco pigments and etching insects on the surface with muriatic acid. "It was pretty progressive and I thought, 'Wow. This is the direction I want to move my company,'" he remembers.

He began attending trade shows to learn all he could about concrete and soon was promoting Stone Design as a concrete flooring company, offering a variety of services that included acid stains and rudimentary polishing. Slowly, the company evolved into the polishing company it is today.

In 2003, Mayrhofer founded a second company, Szolyd, to branch out into different areas, such as precast landscape pieces and countertops. "Szolyd was always set up so we could design our own products and manufacture our own lines," he says.

Almost all of the newer company's work involves designing and precasting concrete landscape elements, countertops and tables. The designing is a team effort — he and his crew work with designers or design pieces on their own. Besides D-Roc, the company markets two in-house casting blends.

Currently, the company employs seven people. They are continually testing new ingredients, refining formulas and building on existing technology to improve their products' strength, durability and finish.

"We like to play around with mixes," Mayrhofer says. "We've had to work through some challenges with our recycled-glass line, G-Roc. Glass and concrete can be a deadly mix due to ASR (alkali-silica reaction)."

Szolyd's G-Roc is aimed at hard-surface








architectural and furnishing artisans. It's made from 85 percent recycled materials, with glass accounting for about 60 percent of the total weight, and can net contractors LEED points.

In addition to G-Roc and D-Roc, Szolyd offers T-Roc, the casting mix it calls its workhorse. The mix can be polished or hand-troweled, precast or hand-packed to form countertops, architectural details and other concrete items. "T-Roc is our traditional mix," Mayrhofer says.

Szolyd also has used glass-fiber reinforced concrete (GFRC) on a basic level with a hopper gun, he says, but it's ready to step up to full-scale GFRC batching equipment.

Form and simplicity

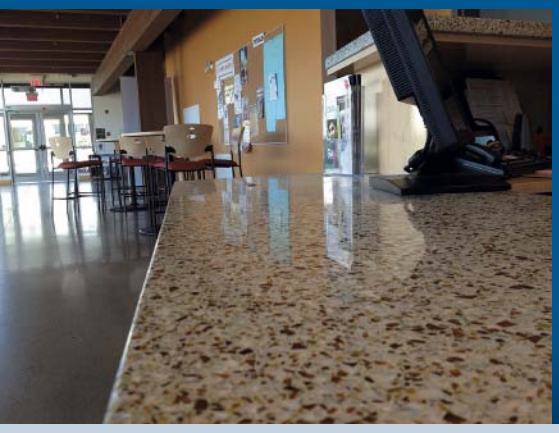
Although initially Szolyd serviced mostly residential clients with its precast work, in the past two years the client base has shifted to about 80 percent commercial. "We love working with architects and engineers," Mayrhofer says. "That's where we fit in these days. We speak the same language. "

Besides countertops, Szolyd's work largely consists of benches, planters, signage and cladding for buildings. In particular, most of the current work involves large public or commercial spaces.

Mayrhofer says Szolyd focuses on ultramodern minimalistic design and cutting-edge techniques. He constantly scans periodicals and the Internet for the latest ideas. "We take a lot of risks being an early adapter," he says. "We're always trying to be in on the latest and the greatest, which a lot of time means failure. But we learn from our mistakes."

Szolyd is not into a lot of bright colors. "We mainly do white, black and gray. We like to keep it simple and use basic raw materials, such as glass, metal and concrete. We focus on finishes and specialty molds that we build. It all comes down to form. That's the beautiful thing about concrete: It can be cast into any shape."

One of Mayrhofer's pet projects involves a process he calls "cradle to grave to cradle." Szolyd is removing 80 tons of office cubicle



glass from a 10-story building in Vancouver owned by KPMG, one of the largest audit, tax and advisory firms in North America, and recycling it to make concrete countertops for the building.

"On the same trucks we use to deliver the countertops, we load bins full of glass to take back to our shop to make more G-Roc," he says. "We're the poster children for sustainability."

Other projects include a variety of landscape pieces for the Little Spirits Garden in Victoria, a site where families can grieve pregnancy and infant loss. A staircase designed by architects at Perkins+Will for the firm's Vancouver office features precast tread-riser combinations. A conference table for the Edmonton, Alberta, headquarters of Durabuilt Windows & Doors required 16 men to lift it in. An urban space outside the 2% Jazz coffeehouse in downtown Victoria features a solar-charging phone station set into concrete.

It takes years to get a good grasp on the workings of concrete, Mayrhofer says. "You'll never master it. Just when you think you have it under control, it'll bite you."

On the flip side, "There are those happy accidents, where something wonderful happens, that are often talked about." And seldom recreated, he says.

Because of this unpredictability, and the risk involved, concrete contractors come and go, with not too many in it for the long haul, he says. "Evaluate what kind of person you are and how averse you are to risk," he advises those new to the business. "If you don't like roller coasters, you probably won't like concrete."

If you do decide to stick around for the ride, don't be scared of the competition, Mayrhofer says — embrace it. "Share the information you've learned and help develop our industry," he says, an attitude he calls "coopetition." "There's a lot you can learn from people in our industry. More good will come from working together and collaborating than battling it out."

www.szolyd.com

Photos courtesy of Table Mountain Creative Concrete

Table Mountain Creative Concrete, of Golden Colo., has installed decorative concrete throughout its office and warehouse. The company's in-house showroom features sample boards and a replica of an outdoor kitchen.

Contractors' Show-Stopping SHOWROOMS

by Emily Dixon

In today's digital age, many contractors are increasingly using the Internet, social media and iPads to highlight their portfolios and suggest options to potential clients. However, at the same time, some decorative concrete professionals are turning back to the traditional showroom.

"When I do sales, I carry around samples, color charts and an iPad with pictures on it. But there are so many different parts of decorative concrete that I'd have to have a trailer to haul around all the samples," says Wayne Payne, president of Custom Concrete Coatings and Designs Corp., in Tallahassee, Fla. "So I decided to open up a gallery as a showroom."

Payne's gallery totals 1,350 square feet. The floors have been given various treatments in a variety of colors, and nearly 80 sample boards line the walls. In addition, two flat-screen TVs display photographs of the company's work to people outside the building.

At its headquarters, Table Mountain Creative Concrete displays a bathroom sink, end tables and flower vases to provide examples of decorative concrete.

Photos courtesy of Table Mountain Creative Concrete

Ryan Wilmer, owner of Wilmer Concrete, Fort Wayne, Ind., opened his showroom nearly a decade ago for reasons similar to Payne's. The 1,500 square-foot Wilmer Concrete showroom features samples of stamped concrete patterns and textures, acid-staining examples, color options, and an outdoor space with a fire pit, seating and more. In addition to decorative concrete, Wilmer Concrete offers natural stone and paver options.

"We tried to set it up in a way that people can come to the showroom and pick out stamped concrete, natural stone for a fireplace, and the tumbled block for a wall. Here they are able to see everything in the same place. They can compare colors on-site versus taking samples around town," Wilmer says.

While Payne and Wilmer have their showrooms at locations separate from their work space, other contractors are simply choosing to renovate their existing offices as showcases for their work.

Throughout the 1,100-square-foot office of Richmond, Va.-based DreamKrete, the company has polished the floors to varying grit levels and added details like an Oriental rug floor design, stone and tile patterns, saw cuts and a range of colors. The office of one employee was even colored to look like a forest floor, complete with a creek and deer tracks.

"People really don't know what they want until they see it and can put their hands on it," says Jeremy Wilkerson, owner of DreamKrete. "We wanted a place where they could come and do that. It's easier for us to sell them a product when they can see what it's going to look like."

Photo courtesy of Custom Concrete Coatings and Designs

The Custom Concrete Coatings and Designs gallery in Florida includes examples of various flooring techniques, including polished, as seen here. Different colors and grit levels were used to highlight the versatility of polished applications.

Like DreamKrete, Table Mountain Creative Concrete, Golden, Colo., transformed its 3,600-square-foot office and warehouse into a selling tool. Of that space, 600 square feet is a dedicated showroom with stamped, troweled and stained floors, a vertical application and a concrete countertop. The space also includes sample boards highlighting different textures, colors and sealers, as well as product literature and color charts. Like Custom Concrete Coatings and Designs, Table Mountain Creative Concrete utilizes televisions to show off past projects.

The rest of the facility is decked out with additional concrete floor treatments and countertops, a concrete bathroom sink, and polished concrete in the warehouse.

"The whole idea is to give people lots of ideas," says Table Mountain co-owner Sheila Squires.

Photos courtesy of Tom Ralston Concrete

The Gallery Wall at Tom Ralston Concrete, Santa Cruz, Calif. Larger samples from previous projects are framed to make them look like concrete paintings. Their size capitalizes on the cars driving past.

Increased business

Table Mountain has had its showroom for approximately a year and a half now, and typically at least one customer per day visits. While most are customers coming to pick out colors and finishes, many are walk-ins who are looking for inspiration. The showroom has an easy-to-read sign out front, and it's advertised in local media.

Payne of Custom Concrete gets some of his potential clients into the facility by working with a partner who rents out the gallery for private events. "There have been several baby showers held there," he says. "You get women looking at the floors and they start thinking about what they could do at their home."

Payne estimates the facility has been rented about a dozen times since it opened at the first of the year, and he's received five jobs as a direct result.

"Not only is it helping with the decorative concrete business by renting it out for events, it also supplements income for my partner," he says. In fact, the gallery has done so well for Custom Concrete that the company has been booked out six to eight weeks in advance since the showroom opened. "It's been a good year for us so far."

Three of the contracting outfits have also held "open house" events, bringing additional recognition to their showrooms. These types of events tend to bring in eager clients that might normally end up hiring a competitor.

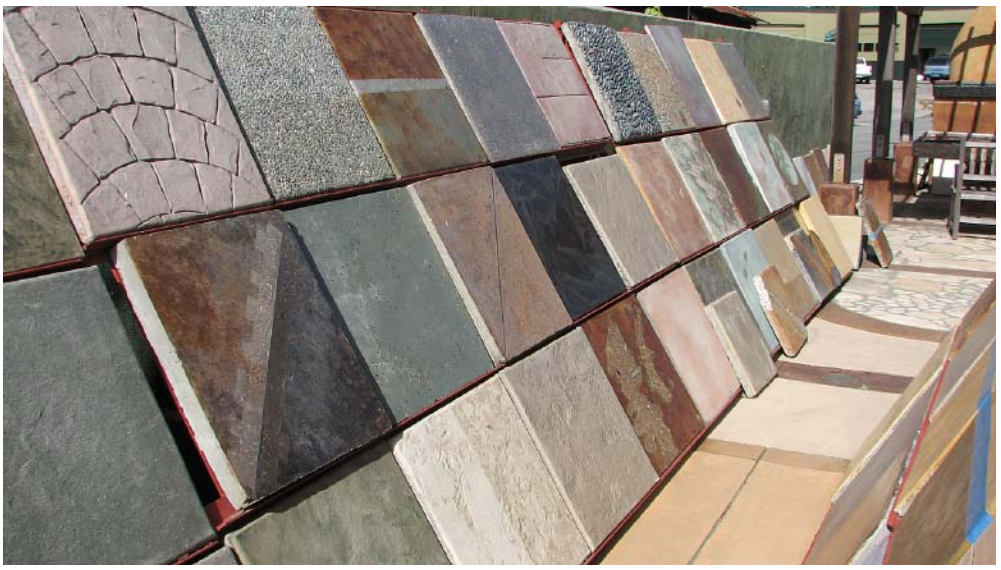
At a recent open house at Table Mountain, builders, architects and the Better Business Bureau attended alongside homeowners. "(The showroom) has certainly lent itself to more commercial work," Squires says.

While Wilmer has not held an open house, his showroom still draws in area architects and general contractors. "It's been easier to build really solid relationships with not just homeowners, but architects and other contractors as well," he says.

Wilmer notes the cost of opening a showroom is sizeable, but the potential for increased business is worth it. "It's hard to gauge financially what it does for you," he says. "I think it's a long-term investment."

Tom Ralston, of Tom Ralston Concrete, Santa Cruz, Calif., opened his showroom in 1999, and between purchasing the property his showroom, office and workshop is on, and the cost of the actual displays, he has spent hundreds of thousands of dollars. While he's not able to put a figure on the ROI, he feels the expense has been worth it.

"We don't know what generates the most business for us, but when something looks good and is representative of what we do, it helps. It's absolutely been worthwhile," Ralston says. "If I can get a client to my office, I think it increases my chances for a sale by 80 or 90 percent."



Almost every colored concrete job by Tom Ralston Concrete involves a mock-up as a sample. Ralston repurposes the samples and turns them into part of his show yard. There are more than 250 samples on display.

Photos courtesy of DreamKrete

The main lobby of DreamKrete in Virginia showcases a cut, colored tile pattern under the desk, a cut and grouted stone pattern, and an Oriental rug pattern at the door.

The office floor of DreamKrete's lead technician, Nathan Baggett, is acid-stained and features stenciled leaves and Baggett's custom deer-track patterns.

Happier customers

While an increase in customers is certainly a positive, it's just as important to keep those customers happy and properly manage their expectations. Showrooms can help with that as well.

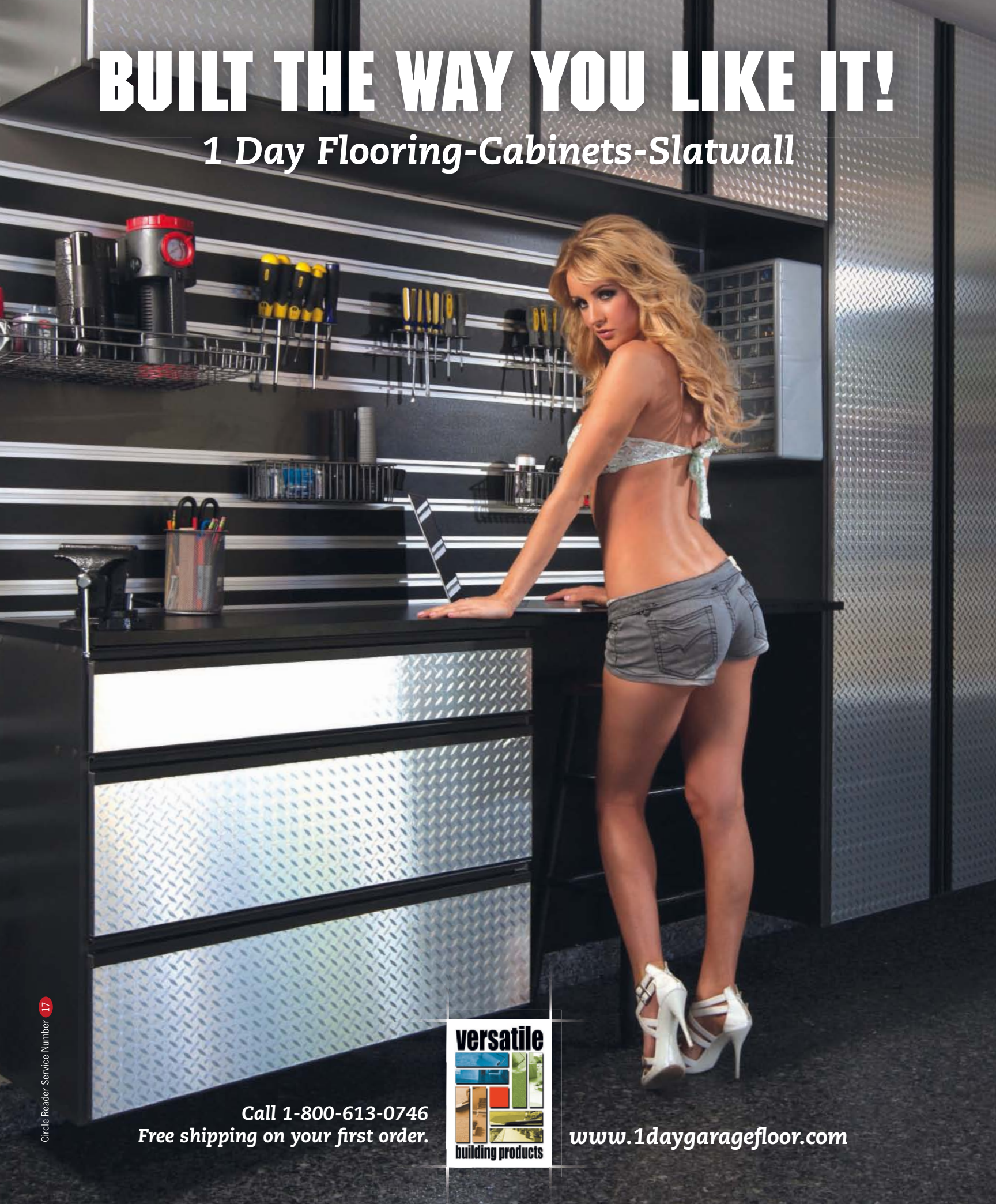
"It has absolutely helped with expectations and callbacks," Wilkerson says. "Our floor is a real environment. You can see real flaws and spaces we had to repair. There's a control joint right down the middle of the office that helps give a more realistic expectation of what they'll get in the end."

Payne notes that clients who visit his showroom will often choose a higher-end finish than the one they originally envisioned.

"It's like if you decide you want a certain kind of car, and then you go to the dealership and see different cars that are really nice. You end up getting something a little nicer than you initially thought about," he says.

While there are many ways to incorporate a showroom into your sales plan, the most important part is to put thought into your displays. When you do, your client can see the full magnitude of options available in decorative concrete.

"It helps us because it helps them," Squires says. "It helps them figure out what they want. It sets up a different kind of relationship with homeowners. We can sit down, have a cup of coffee and share ideas. It's a very different feel from our old warehouse a year ago."



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Nox-Crete Products Corp	31	21
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COUNTERTOPS & CAST CONCRETE

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Trinic LLC	33	25
Versatile Building Products/Garage Experts	32	26

NEW CONCRETE

In 2 Crete	37	27
Lehigh White Cement Company	35	28
Ralston Concrete	36	29
Triple Hard Tools LLC	36	30

OVERLAYS & TOPPINGS

Concrete Product Resource	38	31
Concrete Texturing Tool & Supply	39	32
Kemiko Decorative & Industrial Coatings	39	09
Performance Polymers LLC	39	33
Walttools/The Contractor Source	38	34

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Diamatic USA	46	37
GelMaxx	41	38
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Innovatech Inc.	44	40
Niagara Machine	41	41
Niagara Machine	47	42
Polished Concrete Solutions	45	43
Surface Depot	45	44

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Intertape Polymer Group	51	46
Kingdom Products	49	45
NewLook International Inc.	48	47
NewLook International Inc.	50	48
Preval Spray Guns	50	49

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Pacific Concrete Images	54	52
Perfect Trac	54	53
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Walttools/The Contractor Source	54	57

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Thick-Build and Thin-Build Sealers Go Head-to-Head

by Nick Dancer

When a client calls me with a concrete flooring project, they are usually looking for a long-term solution. I usually hear, "Hey, its concrete. It will last forever!" While they are right that concrete will last a long time, the surface finish, color, and maintenance requirements all depend on the sealer of the finished concrete surface.

As an installer of finished flooring, you must become an expert on the floor sealing systems you offer. The client trusts you to offer the solution that works best for their unique application.

The market for concrete sealers is vast and it seems that there is almost every imaginable way to protect and enhance concrete floors. For the purpose of this article we are going to discuss two options that involve a clear sealer.

A clear sealer is used to enhance and protect integrally colored or stained concrete floors. You may use a thin-build (less than 10 mils total thickness) or thick-build system (greater than 10 mils total thickness). For the record, 1 mil is a thickness of one thousandth of an inch. For easy reference, 1 gallon of a product applied at 10 mils thick would cover 160 square feet.

Thin and thick-build coatings each have their respective parts in creating long-lasting and good-looking projects.

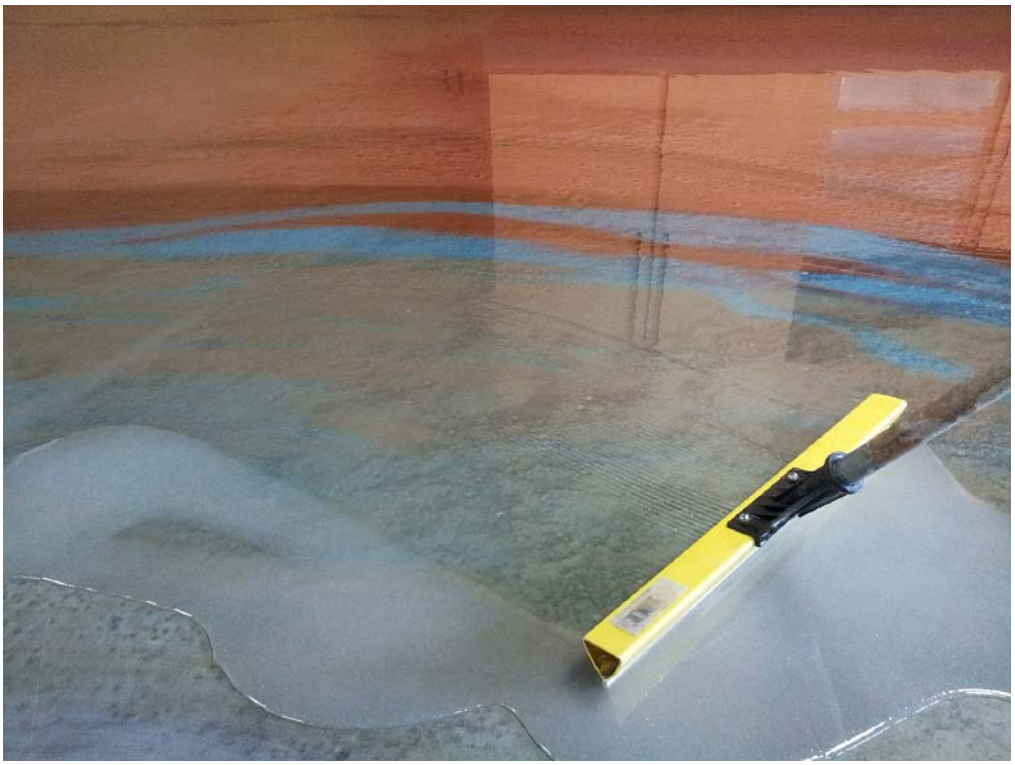

Photo courtesy of Bodenkraft

This thick-build 100-percent solids epoxy is being placed with a specialty squeegee to maintain its thickness.

Thinking thin

Thin-build coatings usually provide a more natural concrete look to the surface. For residential projects where floor traffic is going to be light or for commercial projects with a proper maintenance program, thin-mil systems are a great fit. The most popular thin-build systems include acrylics and wax-type finishes.

Cory Hanneman, owner of Element 7 Concrete Design, Marble Falls, Texas, has developed a thin-mil sealing process that imparts a natural look to the concrete floor. His process is a good fit for people who embrace concrete as something that will take on a great patina, he says. This sealing system's final finish is an Italian beeswax that is worked into the concrete with a slow-speed floor machine. This type of finish ages well and can be maintained by an additional beeswax application five to 10 years later.

A thin-build system my company, Dancer Concrete Design, regularly uses is an application of a water-based epoxy followed by a water-based urethane. This system enhances the color of the underlying concrete while providing a soft satin finish.

Thin-build coatings are typically more affordable and easier to install than thick-build systems.

The majority of thin-build systems

Thick-Build and Thin-Build Sealers, Compared by Nick Dancer

	THIN-BUILD Clear Concrete Sealers	THICK-BUILD Clear Concrete Sealers
THICKNESS OF SEALER:	Less than 10 mils	Greater than 10 mils
TYPICAL SEALER TYPES:	Acrylics, wax finishes, water-based products	100-percent solids epoxies, polyaspartics, polyureas
BEST USES:	Residential floors, light-traffic floors	Restaurants, high-traffic floors, garages
HOW IT CURES:	The sealer carrier, such as water or a solvent, evaporates	You get a catalyzed reaction by mixing separate parts together
MAINTENANCE:	Reapplication of sealer	Mopping and rinsing, reapplication if necessary
COST:	Lower initial cost, higher cost to maintain	Higher initial cost, lower cost to maintain

are also considered breathable sealers. This means they will allow substrate moisture to pass through the surface without peeling or delaminating the sealer.

Many applicators will put down an epoxy as a primer, then lay a urethane topcoat. A water-based urethane offers excellent abrasion resistance and UV stability but does not adhere well to concrete and will not offer color enhancement of the surface. A water-based epoxy will offer color enhancement when applied to a concrete surface but has low UV stability and can scratch very easily. By using a water-based epoxy as a clear primer with a water-based urethane topcoat you get the best of both worlds: A durable thin-mil system. This may be one of the fastest-growing indoor sealer applications, as it is a no-wax, easy-to-maintain floor.

Photo courtesy of Dancer Concrete Design

The use of a water-based epoxy and water-based urethane increases depth of color and delivers a satin finish.

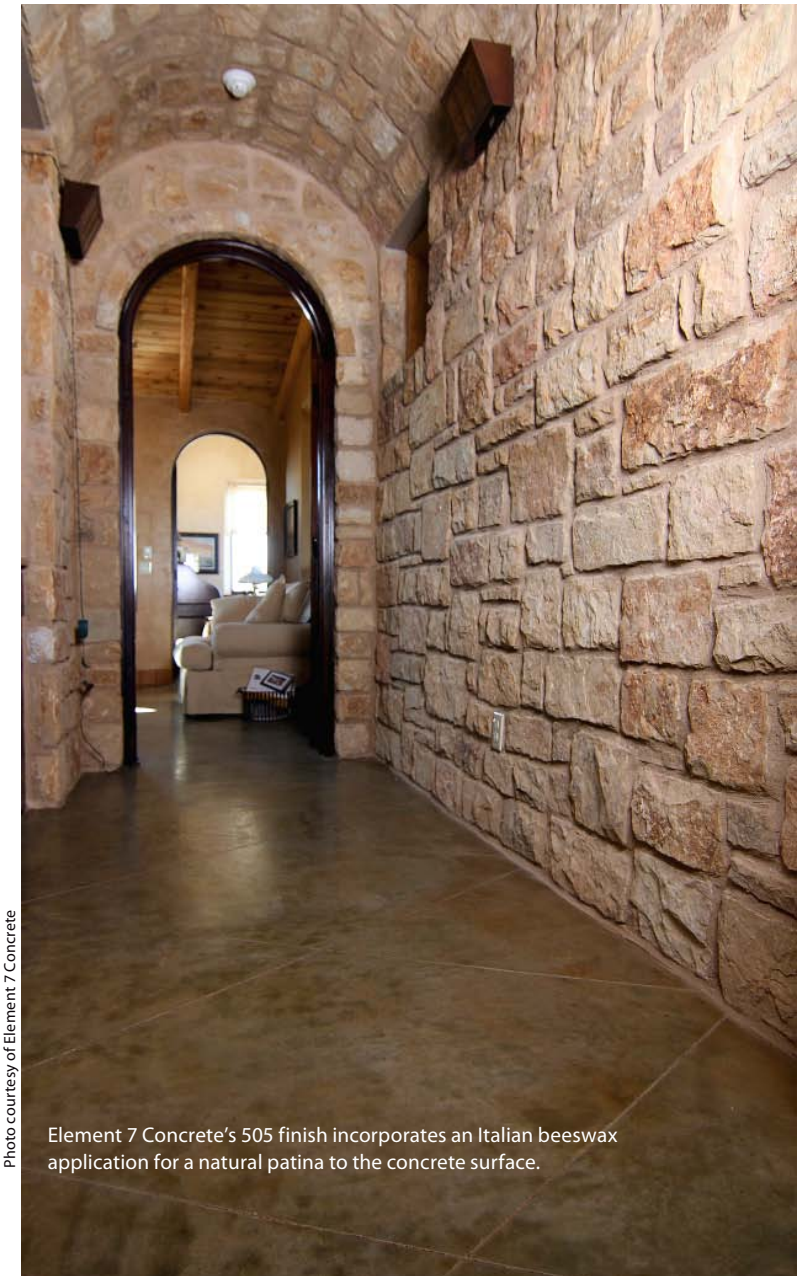

Photo courtesy of Element 7 Concrete

Element 7 Concrete's 505 finish incorporates an Italian beeswax application for a natural patina to the concrete surface.

Thinking thick

In commercial or industrial applications where there will be heavy traffic on the floor, thick-build floor systems offer the best protection and durability. An example of this would be a restaurant floor with a finished concrete surface in its dining area. This type of floor will be heavily trafficked, and what's more, spills of food and drink will be a common occurrence. The best solution for this type of environment would be to apply a thicker-build sealer to protect the underlying concrete from stains and from wear patterns being developed in the finished concrete surface.

A recommended thick-mil system could incorporate a 100-percent solids epoxy base coat and be topcoated with a polyaspartic or urethane. Thick-build coatings are also chosen for their ability to impart a durable and deep gloss to a concrete surface.

Fernando Franco, owner of New Jersey-based Bodenkraft (formerly asssociated with Garage and Beyond) uses a thick-build system on his garage floor projects for maximum durability. He suggests using a thicker epoxy coating rather than an acrylic sealer or a water-based epoxy-and-urethane system, as thin-build sealers tend to wear down much faster than a 100-percent epoxy, especially in areas of the country where vehicles track in road salt.

The best thing to do when determining the proper sealer for the job is to understand the client's needs and expectations for the finished concrete surface. It is our job as professionals to make sure we install the right type of sealer, set the expectations as to how the sealer will perform, and explain how to care for the surface long-term.

Nick Dancer has been active in concrete construction since 2005 and started his own company, CounterCrete, in 2007. That company grew into Dancer Concrete, which is based in Fort Wayne, Ind. Contact him at nick.dancer2@gmail.com.

Choosing a Nonslip Additive for Your Floor Coating

by Peter Collins

Of the many responsibilities that a contracting company takes on when it accepts a floor coating job, none is more important than designing for safe footing once the area has returned to service.

There are two basic long-term objectives the contractor must meet when considering nonskid options:

Traction: Proper traction will keep pedestrians safely on their feet and out of both a doctor's and a lawyer's office.

Aesthetics: Keeping an eye on aesthetics will help you maintain harmony in the visual aspects of the project. Aesthetics also includes being able to keep the floor clean.

The "static coefficient of friction" (SCOF) is used to measure the amount of force it takes to overcome resistance to movement between the contact areas of two objects (a floor and the sole of a shoe, for example, or a floor and a forklift's tire). Regardless of a floor coating's natural slip resistance, there are three variables that will impact a floor coating's SCOF once the floor coating is installed: the floor coating's texture, wetness of the surface (with water, oil, grease or something else), and how level a floor is (or conversely, the degree of slope the floor surface has).

Prior to coating a floor, the professional floor coatings installer must consult with the end user to determine if the floor will normally, sometimes or never be wet or dry and if the surface is flat or sloped. With these two questions answered, it's the installer's responsibility to determine the best texture that will offer both safe traction and acceptable aesthetics.

It's also the installation company's responsibility to get written approval from the end-user customer, in addition to any involved third parties such as GCs, as to the type and amount of texture a finished coating will have.

The texture of a floor coating is usually adjusted by using some type of particle or grit to improve slip resistance. When covered by a high-performance coating, concrete floors lose their natural texture and their ability to absorb liquid. The result is that any liquid substance, which comes to rest on the coated surface, has nowhere to go until it's either cleaned or it evaporates. Incorporating particles into the coating builds the surface contact points up and away from the otherwise flat, smooth surface.

The particle that's used to create texture can vary, too, in four important ways:

Particle size: In this case, size matters in relation to the thickness of the coating. On average, 40 to 60 percent of the particle should protrude above the floor coating. This also means that 40 to 60 percent of the particle should be embedded in the coating film to keep it from being dislodged under the stress of traffic.

Particle shape: Particles that have a more angular, less rounded shape will offer greater traction. Think of trying to walk across a floor strewn with small ball bearings as opposed to one covered in broken glass.

Particle hardness: Soft particle materials made of polypropylene (such as H&C Shark Grip) or acrylic (Res-N-Sand, from my company, Arizona Polymer Flooring) can be mixed into the coating material because they're lightweight and they tend to stay evenly suspended in the coating liquid during application. Because they're soft, they should be used in light residential applications only.

Hard, highly abrasion-resistant particles like quartz sand, glass beads, walnut shells, aluminum oxide and others are heavy and must be broadcast into the coating surface. However, these harder materials will not be easily eroded by frequent and intense commercial and industrial traffic.

Particles per square inch: If all other aspects of a textured surface are perfectly

designed but too few particles are used, slip resistance may be compromised. If too many particles are used in a given area, the ability to keep the floor clean may be difficult. Getting the balance right from the beginning can mean the difference between a satisfied customer and a service nightmare.

Typically, the above-mentioned lighter materials will be used at a rate of 3 to 5 ounces per gallon while a heavier particle like aluminum oxide will be broadcast at a rate of 5 to 7 pounds per 1,000 square feet.

Once the elements that can make a floor surface slippery are understood, it's relatively easy to achieve a safe, nonslip surface, which will benefit all who access it. The consequences of not doing so can be equally harmful to all concerned parties. When in doubt, consult your floor coatings manufacturer for their guidelines.

Peter Collins is sales director of Arizona Polymer Flooring. Reach him at peter.collins@apfepoxy.com.

This article is reprinted from the Arizona Polymer Flooring website. If you want more information, APF has published a technical bulletin titled "Measuring Surface Traction and Engineering for Slip Resistance."

SUCCESS WITH CONCRETE COUNTERTOPS

The Three Stages of Grinding and Polishing Countertops

by Jeffrey Girard

Achieving a fine polished look in concrete countertops requires using progressively finer grits of diamond pads. I define three stages: grinding, honing and polishing. Depending on the look you are trying to achieve, you may start or stop at any point along this progression.

Regardless of the look you want and whether you do one stage or more, the most important guideline is: Do not skip grits. Each grit in the progression is designed to smooth out scratches from the previous grit. A 3,000-grit pad is incapable of smoothing out scratches from a 200-grit pad, no matter how long you grind.

Grinding: exposing aggregate

Exposing aggregate cast into the concrete requires very aggressive diamond tooling. Metal-bond cup wheels are the fastest for exposing aggregates but leave the roughest surface. Cup wheels are rigid all-metal discs that have thick, diamond-impregnated metal segments mounted along the outer edge of the disc's face. Only heavy-duty polishers can handle cup wheels on a regular basis.

"Turbo cups" come in a variety of styles and sizes. The most useful are coarse discs that are 5 inches or 6 inches in diameter. Larger-diameter discs spin faster (and therefore cut faster) and are more stable and less likely to dig into the concrete. Smaller diameters are useful for smaller sections of concrete and for edges. A special edge wheel is available that has a smoother face and wider diamond segments. Certain turbo cups are designed to be run dry or wet.

Photo courtesy of The Concrete Countertop Institute

A metal-bond turbo cup wheel.

There are also 30-grit brazed metal and resin-based discs that grind less aggressively.

Grinding produces vast amounts of cuttings. It is best done wet to eliminate the clouds of hazardous silica dust that are generated when concrete is ground dry.

Honing: the salt-and-pepper look

Honing begins with a 50-grit resin pad, which is fairly aggressive and can be used to lightly expose small aggregate. The scratches and gouges left by a cup wheel are removed using a 50-grit resin pad.

Honing refers to smoothing and scratch removal, and it generally involves using the 50-, 100- and 200-grit discs.

A surface honed with a 200-grit pad is smooth, scratch-free and totally without gloss or sheen. There may be swirls in the surface, but there are no deep scratches. Grouting generally occurs after the 200-grit step. A 200-grit is not aggressive enough to cut into the concrete and open up more pinholes, but a 200-grit is just aggressive enough to cut away hardened grout.

A salt-and-pepper look refers to only exposed sand grains being visible. Often this look can be achieved by removing the cement cream with a 200-grit pad in one step, exposing the cement paste matrix.

Polishing: high-sheen development

Polishing uses grits ranging from 400 down to 3,000. Often densifiers are used around the 200-grit to 400-grit steps to help improve the cement paste's hardness.

Wet polishing leaves a very good finish, but the highest sheens seem to come from dry polishing at the end. My preferred sequence is to wet-hone and polish up to 1,500 grit, then switch to dry pads for the 1,500-grit and 3,000-grit steps.

Sealer: Yes or no?

Most topical sealers will not stick to a surface honed finer than a 200 grit. What's more, even if a sealer will stick to a polished surface, it is often impossible to tell the difference between a sealed concrete surface honed to 3,000 grit and a sealed concrete surface honed to only 200 grit. Essentially, polishing concrete is a waste of time if you plan to apply a topical sealer after.

If you do want to create a polished surface and apply a densifier (which also serves as a penetrating sealer), you will continue the grit progression all the way to 3,000. Again, a densifier would often be applied after honing, at grit 200. The densifier makes the cement paste hard so that it can be polished. Once the densifier takes, polishing proceeds from 400 grit onward.

Wet and dry

Grinding, honing and polishing can all be performed either wet or dry. However, diamond tooling designed to be used wet almost never can be used dry, whereas some dry tooling can be used wet.

Wet processing doesn't require a variable-speed polisher, but using one gives you greater control. Dry processing always needs a variable-speed polisher, since the cutting rate, pad temperature and finish quality all depend upon tooling speed. In addition, dry polishing should always have effective dust extraction, using equipment designed to handle fine concrete dust. This crystalline silica dust is a serious health hazard.

The advantage of wet processing is that it's generally faster, produces better results at most grit levels and doesn't produce any dust. The advantage of dry processing is that it doesn't generate huge amounts of wet mess, so it can be used inside a home when a powerful dust collector is used. Dry polishing also tends to produce a higher gloss level.

Aggressive grinding with metal cup wheels can be done either wet or dry, and neither way is particularly faster. Dry grinding creates huge amounts of dust, while wet grinding produces huge amounts of water and slurry.

Honing (50-grit to 200-grit) is much faster when done with water, which flushes the cuttings, improving surface finish as well as the tool's life span. Dry honing is slower and can leave scratches in the concrete if the polisher's speed isn't carefully adjusted to be fast enough to fling out cuttings but not fast enough to cause pad glazing or melting. Here ceramic binders are superior to resin binders that are resistant to high temperatures.

Polishing wet isn't necessarily much faster, but because of the water stream flushing the cuttings, you tend to get better results when you use coarser polishing grits (400 to 800). Dry polishing yields better shine when you use very fine grits (1,500 to 3,000), probably due to a combination of binder properties, speed, pressure and the polisher's ability to see what's happening and adjust the process to achieve the best results.

In summation

Remember that the pad you want to use is determined by the surface and material you'll be grinding, honing and polishing, so keep in mind the benefits and limits of the various diamond pads:

- Metal-bond cup wheels and lower grit pads are the fastest for exposing aggregates, but leave the roughest surface.
- 50-grit to 200-grit resin pads will do the best job of honing.
- Using densifiers around the 200-grit to 400-grit steps will help improve the cement paste's hardness.
- 400-grit to 3,000-grit pads will create the polished sheen.

Also remember that knowing the differences between pads alone isn't enough to produce high-quality finishes. Ask yourself the following sealer questions to make sure you don't cost yourself money, time or quality:

- How finely do I intend to hone the surface? Does it need a topical sealer? If so, stop at 200 grit.
- When should I use a densifier? Should I use dry or wet pads to polish?

Make sure you know the key differences between wet and dry processing, and always make sure to use the appropriate tooling for each.

Keeping these tips in mind will allow you to produce the highest-quality surfaces, while potentially saving time and money by helping you avoid mistakes. The right pad and the right process at the right time can bring your craft and product to a new level of excellence.

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Seven Tips for Installing Consistent Integral Color

MAINTAINING consistent color in integrally colored concrete is crucial during a project using multiple truckloads. Based upon insights from technical experts and my own experience during the decade I worked in the concrete coloring business, these guidelines will help contractors avoid the most common problems seen with integral color on a relatively big job. A few tips are included on what to tell a new employee or a customer to avoid potential misunderstandings.

Photo by Madelyn Weingart, Haynes Materials

Concrete integrally colored with a custom-blended brick red from Davis Colors is poured in June 2013 for a new sidewalk in the village of Sandy Hook, Conn. Work by L R M Inc., Newtown, Conn., for the town of Newtown.

1 A pre-placement conference with your ready-mix concrete supplier is the best way to avoid costly, permanent errors. The general contractor and concrete contractor should meet with the concrete producer to discuss the selected color and review applicable standards and the color manufacturer's recommendations for best practices. It's helpful to discuss site access, the crew size, tools and the importance of batch-to-batch color consistency. Discuss any ingredients or logistics that could impact the job. Don't relax and skip this step.

During the pre-placement job conference, be sure it is understood that no water can be added while the ready-mix truck is in transit. Also, even a small amount of clean-out water left in a truck can cause the color to turn out lighter than desired. Inexperienced drivers or batch plant workers need to know these facts too.

2 Consistent materials content and consistent water-to-cement ratio are absolutely necessary to avoid color variations from one batch to the next.

"First, use consistent materials for each batch," insists L. M. Scofield Co.'s vice president of sales and marketing, Mike DeCandia. "Staying with the same type and brand of cement, sand and aggregates is critical for success. Taking delivery from different suppliers or different batch plants should be avoided."

Maintaining the water-to-cement ratio is a more delicate matter than you might think, he adds. "Even a wet broom will alter the water-to-cement ratio in the surface, and don't even think about sprinkling water on the surface."

The color manufacturer should provide data sheets that list the details necessary for achieving consistency in every step, with all content used from one batch to the next.

3 All color pigments are not created equal. Be aware that cost-cutting substitutions can lead to a costly tear-out. Inferior pigments may not be permanent. Only good-quality oxides should be chosen if the goal is to achieve evenly dispersed, nonfading, permanent colors. Pay special attention to the manufacturer's recommendations and list of things to avoid.

In particular, avoid any admixtures that contain calcium chloride, which often causes uneven color dispersion and discoloration. If an accelerator is required, a nonchloride admixture must be used with integrally colored concrete.

4 Clever project planning distracts the eye from minor variations and might add billable value. Most qualified contractors who have used a broom-and-band finish on gray concrete have learned that inconsistent finishing can alter the appearance. Finishing becomes more crucial with color.

Conversely, planned changes in the finishing method can disguise the start and stop points of pours. Accent bands can disguise control joints, emphasize traffic patterns or interrupt areas of solid coloring.

"Minor variations aren't noticeable when concrete is finished to a rough and rustic texture, which also provides better traction and safety when wet," says Randall White. His company, RTW Concrete Construction Inc., in Monticello, Ga., regularly works with integrally colored concrete, and he encourages using exposed aggregate finishes. He also warned about the risks of using terms like "consistency" and "uniformity" — uniformity is better associated with coatings or dry-shake color hardeners, not integral color.

Natural materials like leather, wood, stone and marble tend to have subtle color variations. Since the principal ingredients in concrete are natural sand and aggregates,

Photo courtesy of L. M. Scofield Co.

At this large plaza in Warren City, Mich., visual consistency in concrete integrally colored with an L. M. Scofield Chromix Admixture in Sunbaked Clay was achieved with Scofield's Colorcure curing compound and sealer. Work by Simone Contracting Corp., Sterling Heights, Mich. The ready-mix supplier was McCoig Materials, Detroit, Mich.

their inherent color gradations will show up in any concrete slab. This tendency toward somewhat inconsistent shading appeals to some aesthetic tastes. Some designers want to see more of the aggregates, may even select sizes and colors of aggregates as a feature in the concrete surface, and are willing to pay for it.

5 Curing is the secret of full color development. "Curing really means to retain a portion of the excess water in the slab to fully hydrate the cement so that the intended properties can be developed," says DeCandia. "The average mix design contains twice as much water needed to hydrate the available cement. Without the extra water, the concrete in its plastic state would be similar to modeling clay — stiff, with no flow.

"If the excess water leaves the slab too soon after the concrete has been placed, several things will happen and none of them are any good," DeCandia says. "Surface cracking is one of them. These are small fine cracks that are very similar to a turtle-shell design. The cracks are small and shallow but very unsightly."

Efflorescence and carbonation can also affect color consistency. If water moves out of the slab rapidly because the slab is left uncovered to air-cure naturally, the water carries an impurity to the surface — calcium hydroxide. When it comes in contact with carbon dioxide, it forms calcium carbonate, also known as efflorescence. Carbonation is when, because the surface of a fresh slab is starved from oxygen, the cement hydration process slows


Photo courtesy of L. M. Scofield Co.

An L. M. Scofield Chromix Admixture in C-34 Dark Gray was used to achieve long-term color durability for a high-traffic area on a dock at the Intrepid Sea, Air and Space Museum, New York City.

down or even stops. This leaves a powdery surface that is weak and not very durable.

"Curing is best performed with a color-matched curing membrane," recommends DeCandia. "A color-matched curing membrane can minimize the potential for efflorescence formation and carbonation and promote full strength gain. The permeability allows the excess moisture to release at a very slow rate while still protecting the surface from unwanted contaminates. In the long term, a good, even cure will result in even wearing of the surface, which will minimize textural differences as the concrete wears."

The curing process doesn't just impact the final appearance. Proper curing is essential to increase the slab's abrasion resistance, improve freeze-thaw durability, and reduce surface cracking due to wind or direct sunlight, according to the American Concrete Institute.

6 In case of unexpected weather, know your choices for refinishing. Changes in weather, humidity and temperature can play havoc with your best-laid plans. There is no perfect solution when dramatic changes in weather conditions over the course of a job alter the curing rate and cause undesirable color variations.

Products developed for renovation can add color and cover up the integral color, but many don't have the natural look of concrete. Some might delaminate.

The better choice may be to apply a color-matched wax-modified finish recommended by the manufacturer of the integral color you have selected. Using the colored wax treatment as a finish coat on fully cured concrete enhances and intensifies the color and minimizes the appearance of variations. When applied to a clean, dry concrete surface, it creates a low-sheen, matte-type finish that allows the underlying matrix of aggregates to show through. This type of product can sometimes be diluted to selectively touch up light areas.

Some types of color-matched wax treatments are adapted for use as curing membranes on freshly finished concrete to improve color development while providing more complete hydration and promoting higher strengths, lower shrinkage and better overall durability long-term.

Use compatible curing materials and methods recommended by the integral color manufacturer. Not all are intended for use with colored concrete.

7 Avoid potential problems during the color selection process. Seeing hard samples and actual finished projects helps a customer understand concrete. Pictures can be useful sales aids to show a wide range of appearances and narrow down the options, but no picture or color chart gives a clear idea of the final product.

Specifications for commercial jobs often require creation of a job-site mock-up at a minimum size of 3 by 3 feet at least 30 days in advance, using the same mix and finishing methods planned for the final project. The approved mock-up remains on-site to provide a performance standard. This practice can eliminate a host of misunderstandings for any size project. Managing customer expectations can make or break the success of a business.

Here is a preemptive procedure that

may help to avoid problems. Randall White of RTW Concrete Construction requires his customers sign a disclaimer before any work begins. It includes this statement: "I understand that the process of stamping and/or coloring concrete is an artistic form and therefore may have some variations in color and texture. Variations can be expected due to difference in cement, aggregates, weather, sand, temperature, humidity and light sources."

Last but not least, we don't all see color the same. Approximately 8.5 percent of United States residents have color blindness and cannot distinguish red from green. Now we are learning there is an opposite condition too. Researchers at Newcastle University in England have identified a small number of people with tetrachromatic "super vision" who may see millions of shades of color that are invisible to the rest of us. Both beauty and color are in the eye of the beholder.

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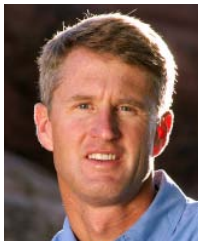
The Harley-Davidson Museum, in Milwaukee, Wis., required 500 yards of concrete for this project. The contractor, Titan Building Co., New Berlin, Wis., requested a 6 1/2-pound loading of a custom Increte Systems color to achieve intensity.

Photo courtesy of Increte Systems

CONCRETE QUESTIONS

Can You Make Cracked Concrete Overlay-Friendly?



By Chris Sullivan

Question: We are considering applying an overlay on our gray concrete patio, but the concrete has a large crack running through it. The crack is about 1/16 inch wide, runs the length of the patio, and occurred a month after the slab was put in. It has not changed in size or moved much in the last year.

What caused the crack? And what are the options for dealing with it, since we are going to apply a decorative overlay on the concrete? We talked to multiple contractors about our options, and there are a lot of opinions out there. Some contractors are telling us cracks can't be fixed, that we should avoid overlaying and rip out and replace the concrete. Others are telling us the cracks can be repaired and an overlay will be a good option. Can you please give us some suggestions?

First, it is important to understand that all concrete cracks! Control joints and expansion joints are typically used to help control where and how concrete cracks, but the reality is that concrete cracks.

In regard to what caused the crack, there are many factors, or combinations of factors, that can cause concrete to crack. At its excellent Concrete Technology website, the Portland Cement Association identifies some common causes of cracking as drying shrinkage, heat- or cold-induced contraction, shortening restraint, subgrade settling and applied loads.

In your particular case, the culprit sounds like it may have been subgrade settling. Movement or settling of the subbase can result in the concrete not being properly supported in certain areas. Since concrete is a rigid material, it cracks in response to the stress of not being supported evenly. The good news in your case is that the crack has not grown or changed in the last year, which indicates it was a one-time crack, for which there are multiple repair options.

Dealing with the crack prior to applying the decorative overlay, you have the widest possible range of opinions to consider. Based on my personal experience and discussions with decorative concrete installers around the country, cracks can be dealt with and controlled so they do not increase in size or shadow through the overlay. However, there are many professional contractors who do not believe in any type of crack repair or control systems. They prefer to replace the concrete completely instead of dealing with cracks and overlays.

I suggest that anyone seriously considering having crack-repair work done obtain multiple opinions, do some research on their own, and if the project warrants, possibly even consult with a structural engineer to weigh the options and costs. In your case it sounds like crack repair is a good option, and if the work is completed properly, it should result in no shadowing or growth of the existing crack. What no one can guarantee is that additional cracks will not form in the existing slab and cause a problem down the road.

The options for crack repair when working with a decorative overlay fall into three main categories: polymer filling, crack-suppression membrane systems and concrete stitching.

Polymer filling is probably the most common method of general crack repair. The method involves preparing and cleaning the crack to remove any loose material, then filling the crack with a liquid polymer "glue" that achieves very

high strength, often far stronger then the concrete itself. The most common polymers used are epoxy, polyurea and polyurethane. These liquid polymers are poured or injected into the crack in a liquid state, bond to the concrete on both sides of the crack, and cure to a rigid, hard state, filling the void and tying the concrete together.

In some scenarios, where the cracks are wide, a piece of mesh can be embedded into the polymer to provide additional stability and prevent shadowing. Sand is often broadcast on the surface of the polymer material while it is still tacky to provide a good surface for the overlay to bond. There are many proven products on the market that are typically sold in kit or cartridge systems and require very little in the way of handling. These systems are cost-effective and in many cases fast-curing, allowing for the overlay work to proceed within hours of the crack repair material being applied.

Crack-suppression coatings or membrane systems are less common but work well when cracking is more widespread. These systems employ either a polymer or cement-based coating and a thin fabric that covers the entire area being treated. In most cases a primer is applied, followed by the polymer or cement-based coating, into which the fabric is stretched. A second and sometimes a third coating is applied to completely encapsulate the fabric. This process creates an impermeable membrane that keeps the cracks from shadowing through.

In cases where cracks are wide, it is recommended that they be filled as described above before the suppression membrane system is applied. These systems can also be engineered to provide excellent water or chemical resistance when used on concrete covering wooden decks or in industrial environments.

Stitching concrete has been around for some time, but in most cases it has been relegated to structural concrete. This method involves using metal staples to tie the concrete together on each side of the crack. This is done by making saw cuts into the concrete surface perpendicular to the crack at designated points along its length. Holes are drilled at each end of the saw cut to allow for the staples' tapered ends. After the metal stitch is placed, the saw cut and hole is filled with either a cement-based nonshrink grout or polymer crack repair material. This method of crack repair is often used when the crack is dynamic and moving or affecting the structural integrity of the concrete.

All of these methods are viable options when dealing with cracks prior to applying an overlay, but the polymer filling is by far the most common and cost-effective. Also, there are situations where a combination of two or three of these may be used in conjunction successfully.

In your particular situation, using a rigid polymer system in conjunction with stitching would be my recommendation. It is important to remember that the process of crack repair is not performed with aesthetics in mind, and even the most conscientious crack repair work may not guarantee 100 percent crack-free results once the overlay work is completed.

The Portland Cement Association has a website with detailed information on types and causes of cracking: **www.cement.org/tech/faq_cracking.asp**

Chris Sullivan is vice president of sales and marketing with ChemSystems Inc. He has led seminars and product demonstrations throughout North America. Submit your own questions to Concrete Questions at questions@concretedecor.net.

The Case of the Disappearing Color

Troubleshooting Topically Colored Polished Concrete

by Jennifer A. Faller

I was recently asked to troubleshoot issues on a polished concrete floor that failed to show vivid color, even after all the usual right steps were taken. It was "The Case of the Disappearing Color."

Initial investigation revealed that this slab was new concrete and that it was porous. The polishers had found that applied densifier looked dry instantly, which they thought was a good sign that they could quickly move on to grinding and polishing.

However, what looks like "instant drying" of densifier is actually a red flag. When densifier penetrates that easily, it is actually penetrating too deeply and cannot properly harden the concrete at the surface. This is a real-life illustration of why densification "to rejection" — until the densifier stops being absorbed into the concrete and starts accumulating on top — is so important. When densifier penetrates immediately, we must densify to rejection. Or, we can reapply densifier after each diamond grit. Both of these approaches require thoughtful planning and adjustments to the overall installation.

Color will act the same way that densifier did on too-porous concrete. It will penetrate much too deeply instead of lying near the surface. Excessive porosity and penetration will kill the vivid and bright characteristics of the colorant.

Why the color vanished

Think of concrete as a big sponge. Some sponges are denser and have smaller pores, while some are softer and more absorbent. In this case, the concrete was excessively absorbent and also abrasive. Key indicators of high slab porosity include excessive dust or slurry, excessive wear on the diamonds, and chalky-looking concrete. Overly porous slabs will often suffer from more moisture vapor drive (movement) as well, which is a great concern when using either dyes or stains to color a concrete slab.

Above: The color-troubled polished concrete floor in a residential basement, before a four-step process fixed the problem.

Right: The same floor — problem solved.

Photos courtesy of Concrete Decor Studio & Store

This concrete was in a residential basement. These slabs often have higher moisture vapor emission rates (MVERs) than a typical slab on grade.

What's more, they are usually not finished by power trowel, so they tend to be less dense. Essentially, troweling mechanically densifies the surface by applying blade pressure, expelling water and air from within the surface paste. When the blade angle or pitch of a power trowel is progressively increased, the contact area between the blades and the floor surface decreases, resulting in more blade pressure and more compaction of the concrete surface.

In this case, the high MVER affected reactive stain. The acid stain did in fact react, but not before penetrating deeply into the concrete. This resulted in color locked within the slab instead of up at the surface. The intensity and vibrancy of the surface color was diminished and actually looked like it had simply disappeared. To complicate matters further, by the time I was contacted the job was already completed and the guard had already been applied, so any remediation would require working backwards.

There are many color options for polished concrete, some reactive and some nonreactive. Dyes are nonreactive and do not chemically lock the color into the slab, so they can be mobile in the presence of moisture vapor drive greater than 5 pounds per 1,000 square feet per 24 hours, or they can disappear in a slab with high alkalinity (a pH of 9 or greater). Dye mobility means that the color can travel to the surface where it can be mopped away, or it can sink more deeply into the concrete as moisture vapor emissions rise and fall.

Be aware of this and read your product data sheets. Then test or hope for the best!

Often, a dye or stain data sheet will recommend you perform a moisture content test on both newly poured and existing slabs. Slabs with moisture vapor drive of 5 pounds or les per 1,000/24 show best performance. High moisture levels or high alkalinity may affect performance of color.

How I solved the problem

I devised a plan to remedy the disappearing color in the basement. First, the guard would be removed. Second, color would be reapplied using a dye based in denatured alcohol, which is a better choice than acetone when there is a lack of

sufficient ventilation and air exchange.

Once the desired color was achieved, the third step was to check the floor for water absorbency. If water on the floor absorbs and darkens the concrete, then additional densification is needed, and that means to rejection. In this case, water beaded so no additional densification was performed.

The fourth and final step — the guard application — is an area where many contractors cut corners. Applying a single coat and then lightly burnishing to complete projects on time and on budget will not give the floor proper protection. It may appear sealed, but with such a small amount of material applied, the performance will be short-term at best.

When a color intensity issue is evident, it is essential to apply multiple thin coats of guard and thoroughly burnish after each coat. Repeat until the surface looks and feels thoroughly sealed — this is not dependent upon a certain number of coats!

As with integrally colored concrete, a dyed or stained floor will show much more vivid color when completely sealed. After properly completing the remediation process, the "floor with the disappearing topical color" became much more vivid, intensely colored and glossy. The satisfied clients got the floor they expected.

Sort through the evidence

Beading water on concrete is normally due to the presence of silane or siloxane water repellents, an ingredient found in most guard products. Water repellents react with the silica in concrete, forming a strong bond beneath the surface.

The important point is that even when a guard is stripped from concrete, the water repellent often remains behind. If the final appearance of a floor is "iffy" and may or may not be in saleable condition, do not just apply guard in the hope that it will resolve the issues! Once guard is applied, a later fix is significantly more difficult, since water-based materials, including densifier, can no longer be applied effectively. If this caution is not taken, the best option may be to cut wet and start over again.

In The Case of the Disappearing Color, the initial topical colorant was acid stain and the fix was completed with a dye. Concrete polishing technologies, products and brands do not have to be mutually exclusive. When resolving an issue, think about all the different products that your company has used over the years. The fix may be in your inventory.

Contact your most supportive manufacturers. A technical expert at a manufacturer should know the ins and outs of the product well enough to advise you, even if they have never polished concrete.

Search the Web for similar situations. Ask yourself questions: What is different about this slab or job site or concrete mix design? Have you properly performed all your testing, including for moisture? Has something changed in your procedures?

Each situation will have unique features, but most slab problems stem from just a few common causes: high alkalinity, an increased percentage of fly ash or slag, an overtroweled or burned finish, and lack of curing. Some of the symptoms are lack of porosity, softness, chalkiness, efflorescence, moisture retention and high moisture drive.

The key is to figure out the problem scientifically. Be a detective, ask questions and sort through the evidence.

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Dos and Don'ts of Polishing Self-Leveling Overlays

by Clif Rawlings

Self-leveling overlays that are polishable have been around for about seven or eight years now, but only in the last two or three years have they really gained traction in the retail and residential markets. Over the last seven years I have been fortunate enough to work with eight different self-leveling manufacturers, successfully using almost the same grinding-polishing system on all of them.

Let's cover what I know is a proven system for polishing self-leveling overlays. Then I'll talk about issues that I have seen over the years on these floors when things go wrong.

Photo courtesy of HTC Inc.

To avoid a scratch pattern like this one, always relieve head pressure when you start and stop the grinder.

First: the cream

The basic idea of the first step with most overlays is to make sure you get the skin/cream off the top surface. The reason for this is that the highest concentrate of polymers will be in this top layer. When you are using resin-bonded diamond tools, toward the end of the process you will get a burning or discoloration as a result of basically plastic-to-plastic contact creating excessive heat. So by going aggressive on the first step you will remove this polymer layer and get down to the body of the material that will give you a more uniform and monolithic look.

This aggressive first step is also necessary if you need to expose aggregates that are either in the mix or seeded while it's still wet.

It may be necessary to start with a 40-grit metal bond if there are aggregates in the mix, while in most cases starting with an 80-grit metal bond will be enough if you are seeding aggregates or simply removing the skin for floors without aggregates.

Normally it's necessary to make a double pass (north to south, then east to west) with your first grit. It's imperative that you do not leave the metal-bond stage until the skin and all low spots have been removed.

Also, the sooner you start grinding after the overlay was installed, the harder the bond of metal tools you need to use. So for example, if you are grinding 24 hours after the floor was installed, use a C or CA series tool that is normally for softer concrete. The longer you wait the harder these overlays get. If you wait a week or two before you do the initial grind, you might need to use an SF or CX metal-bond tool for harder concrete. You can also perform a surface hardness test based on the Mohs hardness scale to help you select the proper tooling.

In order to make a profit when grinding

When an installer waits too long after pouring and gauge-raking to run the spike roller, you end up with this "dot matrix" look.

Photo courtesy of CTS Cement/RapidSet

Polishing Problems Start with Placement

An overlay installation starts with the product in powder form being mixed with a specific amount of cold water. Right after it's poured or pumped onto the floor you use a gauge rake to set the thickness you want the self-leveling overlay to be.

When you wait too long after pouring and gauge-raking to run the spike roller, you end up with a "dot matrix" look, as the product cannot heal itself where the spikes went through the material. An installer has to be fast and spike-roll immediately after it's poured out and gauge-raked to prevent this issue.

Also, everyone should be wearing proper narrow-spike shoes rather than football or soccer cleats, as those have too-wide posts that push all the fine sands away, and only the cream material will heal back in those spots.

Some manufacturers recommend using a smoother trowel rather than a spike roller. You will treat it with the same urgency and use the smoother trowel right after the gauge rake. It's a good idea to use the smoother trowel in a random or more organic pattern on your last pass so if you do end up with smoother lines, they will not be organized lines that the eye will pick up on easier.

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overlays you have to choose the correct metal-bond tool that will cut efficiently yet give you good tooling life also. Overlays are full of silica sand that is very abrasive on your tools, causing them to wear very fast. So keep a watchful eye on tooling life and be prepared to move to a harder bond or combo if necessary.

Next: the hybrids

After your 80-grit metal bond step is complete, it's best to use a transitional or hybrid type tool of 100 grit to make the jump from metal to resin-bond tools. This tool can be copper, ceramic, or even diamonds coated in a metal bond and placed into a resin bond. Either way these work best to remove the metal-bond scratches and prep the floor for the resin-bond stages.

This step can normally be done with a single pass in a direction opposite the one you took with the previous metal-bond step. However, be prepared to do a double pass if you do not remove all the deep metal-bond scratches with a single pass.

I want to give a heads-up to all the concrete polishers who are considering trying their hand at polishing self-leveling overlays: Trying to read the scratch patterns on the first few steps is much more difficult on overlays than concrete. Don't get frustrated. Just continue on with the system and you will start to see the pattern as you go to the resin stages in the third step.

Also, make sure you always relieve head pressure when you start and stop the grinder. Overlays are more susceptible than concrete to difficult "start" and "stop" scratches.

The honing stage

Now it's time to start the honing stage. Here at HTC Inc., we use our 200-grit Fenix pads to make the jump from hybrid to resin steps to remove the scratches from the hybrid-type tools. The HTC Fenix pads were specifically made for polishing overlays. Other manufacturers have made similar products, so ask your tooling supplier for more details. Fenix pads are available from 40 grit to 3,000 grit. If you try to use standard resin tooling designed for concrete polishing you will experience a burning or discoloration from the polymers, even if you properly remove the skin with metal bonds. This step will show all the sins you committed with the metal or hybrid tools.

If you still have these deep metal-bond scratches after the 200 grit, you need to go back to your 100-grit hybrid-type tool and make another pass.

Densifying and polishing

If not, it's time to densify and move on to the 800-grit pads. (Check with the manufacturer of your overlay to make sure it's even beneficial to use a densifier and at what stage it's recommended to apply it.) One hour is normally the absolute minimum that is required to let the densifier cure before you move to the next step. At this point we are exiting the honing stage and entering the polishing stages.

After the 800 grit we move to the 3,000-grit pads for the final polish.

This standard five-step system will normally yield gloss readings in the high 50s to low 60s (roughly, the minimum for a reflective floor) before the stain-protection guard product is applied at the end.

Most specifications for retail chains only ask for an overall minimum in the low 40s and overall sustained average in the low 50s.

(All gloss readings are based off a 60-degree gloss meter.) If you are trying to get higher gloss readings, like at a high-end residential job, then simply do not skip any of the pad grits. Your standard five-step system turns into a seven- or eight-step system.

Fixing problems

Let's discuss some of the problem floors, when things went wrong. Most if not all problems caused by the polishing contractor can be removed or fixed by grinding deeper on the first step, backing up to the previous grit that caused the problem, or spending more time with each grit to achieve maximum refinement.

Those problems are normally random scratches left from the metal bonds, low spots from not spending enough time with the first-step metal bonds, start and stop marks from not relieving head pressure, or lines in the floor from moving either too slow or too fast on the first cut. A recommended forward walking pace would be around 8-10 linear feet per minute.

Problems caused by the overlay installer are as follows: leaving spike roller marks, using football- or soccer-style cleats rather than proper spike shoes, and line marks from a smoother trowel.

If you are the polisher and are the recipient of roller marks, cleat marks or smoother lines, you have a very limited number of things to try. Simply grinding deeper might get rid of these issues in some cases, but not in others. I have also seen contractors use dyes to try and mask the spike roller marks or smoother lines. This can work, but it really depends on how bad the marks and lines are and how skilled the sprayer is.

There is a very fine line when trying to grind deeper to remedy one of these problems. At 3/8-inch thickness you obviously are at risk of grinding through to expose the substrate below. When this happens, cutting out a section and repouring will be necessary. If the bad area is near a control joint, you could just remove the entire section and repour, or saw-cut out the bad area and repour.

Make sure to call the manufacturer of the overlay that you will be polishing and have them recommend a qualified installer of their products. The installer of the overlay sets the stage or creates the canvas for you as a polisher to work from. They can make your job very easy or extremely stressful.

Clif Rawlings is United States product manager and training director for HTC Inc., a manufacturer of polishing equipment and diamond tooling. Reach him at clif.rawlings@htc-america.com.

Innovative New Tools That Will Help the Polishing Contractor

by Jim Cuviello

The concrete polishing industry has seen technical developments in abrasives, chemicals and equipment over the years. Most of these developments have led to polishing contractors increasing production and reducing job costs for increased profit.

As the industry continues to grow, what other new technical advances can contractors expect to see that will enhance profit? Maybe the better question is, what can a contractor bring into his or her business from outside the traditional tools of the trade that will increase profitability?

The answer is to use technology that will provide better information to allow you to make better business decisions, technology that will make your business smarter.

Advances in management software

Now that most own a smartphone and the cost of tablets has gone down, job-site information can be available readily.

Do you use handwritten timecards? How do you know those timecards are not manipulated 15 or 30 minutes here and there? How much time does it take to add up those timecards every week? Is that the best use of your time or an office administrator's time?

Several companies make programs and apps that allow the employee to clock in and out from the job site. These programs and apps will not only track time but also track through GPS the location of where they punch in and out. Manipulation is eliminated and time is saved.

Do you track real job costs and production times on a daily or weekly basis, or do you wait until the end of the job, or even worse, the end of the year to add things up? Are you capturing all of the change orders you deserve, or is the general contractor getting you to perform work outside your scope? There are computer programs that will allow you to capture the information you need to turn your company into a lean, well-oiled machine. Your business will become a smart business with all data entered one time and contained in one place. This will allow you to create extra time for yourself or an office person to perform other tasks in the business that will increase income.

Say you can better capture change orders for work general contractors try to have you perform outside your scope. If you can capture $800 a month, that's an easy $9,600 a year.

Do you know how many hours a day your equipment is being run and what the preventive maintenance schedule is, or do you run it until it breaks? Downtime on equipment puts extra demand on equipment that's still working and often drives employees into overtime. Everyone reading this article knows what the cost is for overnight shipping for parts. The good news is that there are computer programs and devices that can monitor running time on equipment. This will do two things for you. It will allow you to minimize downtime by maintaining the equipment and replacing worn parts before they break, and it will tell you how many hours a day the equipment is in the process of finishing a floor. One has to ask — if in an eight-hour day the machine is only run four hours, why?

The mighty profile meter

Up to this point we have talked about technology that help you better run the business side of your business, tools that will allow you to make better business decisions. Let's look at a tool that will help you better run the physical work side of your business.

An up-and-coming technological tool that will help a polishing contractor increase production is a profile meter.

How does someone know when the grit they are working with has been fully refined? Traditionally, if the process is being performed wet, you evaluate the scratch pattern, look at the consistency of the slurry, feel the machine and listen to the diamonds interacting with the surface. When the process is being performed dry you evaluate the scratch pattern, feel the machine and listen to the diamonds interacting with the surface. What if you could eliminate the guesswork in deciding whether to take another pass or not?

A profile meter will read the surface profile at a millionth of an inch. If you know how to properly use this instrument, measurements of the surface profile can be taken that will tell you if additional refinement and passes are needed.

Obviously there is a cost to acquire these tools, but the return far outweighs the cost. Knowing your numbers is knowing your business. If you desire to grow your business and want to maximize profitability, the tools talked about in this article are a must for controlled growth.

Jim Cuviello has been in the concrete polishing industry since 2002. He is the owner of Cuviello Concrete, based in Stevensville, Md., and is a founding member of the Concrete Polishing Association of America. He can be reached at jim@cuvielloconcrete.com.

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PROJECT PROFILE

Artistry and Color Give Restaurant Its Visual Zest

Spice 6, Hyattsville, Md.

by Joe Maty

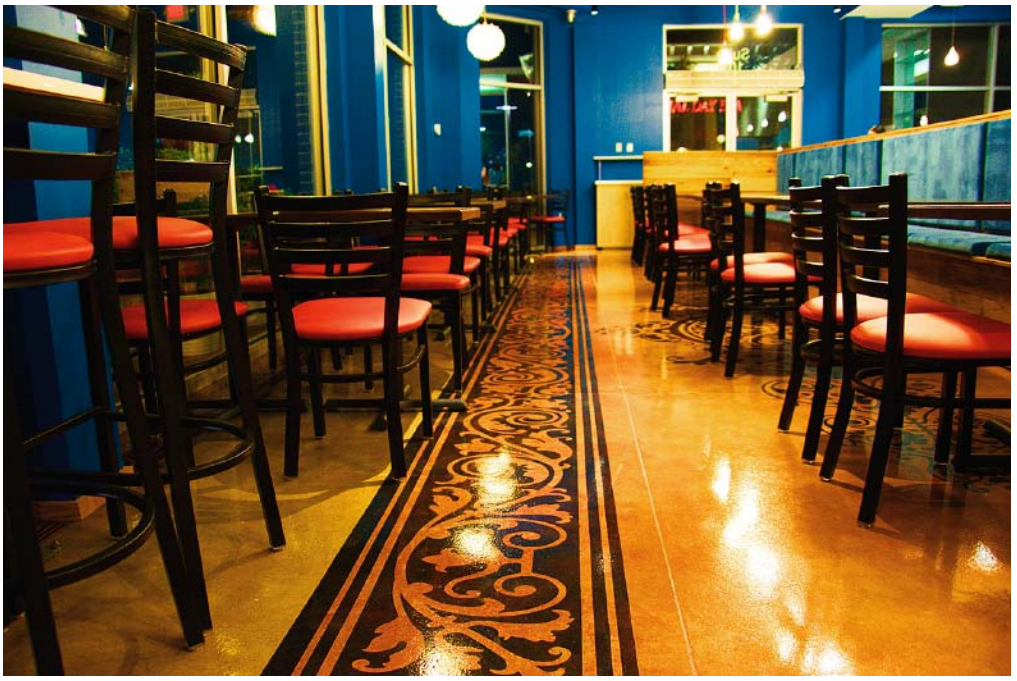
Spice 6, a fast-casual restaurant in Hyattsville, Md., serves up a zesty visual feast that complements its Chipotle-like "modern Indian" bill of fare.

A good deal of the credit goes to Hyde Concrete, an Annapolis, Md., concrete contractor specializing in decorative concrete and epoxy flooring.

Collaborating with Spice 6 owner Vic Singh and designer Claudia Humphrey, Hyde Concrete formulated and installed a stained and stenciled floor that won first place at the American Society of Concrete Contractors (ASCC) Decorative Concrete Council's 2013 awards in the category of Graphics, Under 5,000 Square Feet.

Hyde owner Gregory Hyde Hryniewicz says Singh wanted something special — a design that combined a gold shimmer, an aged appearance, and a decorative pattern that reflected Asian influences.

In discussions with Singh and Humphrey, Hryniewicz presented ideas from existing samples and several mock-ups that he concedes were "pretty ugly" as a result of colors that didn't work as hoped. "After a couple of tries, we asked to take a shot at something on our own," Hryniewicz says. "And that's how we came up with the final idea."



Photos courtesy of Hyde Concrete

Hyde Concrete collaborated with Modello Designs, a maker of decorative masking patterns, on stenciling for the floor of the central dining area. They used one of Modello's Alhambra patterns, a design that suggests a bordered Oriental rug. The collaborators also devised a similar border pattern for three edges of the floor space.

The installation work began with filling a number of trenches in the existing concrete floor. Then, Hyde Concrete diamond-ground the concrete to produce a uniform surface, with two passes of 80-grit metal-bond diamonds.

Hyde Concrete outlined and traced the centerpiece pattern in preparation for application of the design's background color. Three colors of H&C Concrete's Semi-Transparent Decorative Stains were used to produce the hued effect. The colors — Cardinal Red, Pumpkin Spice and Dahlia Red — were applied to achieve a graduated effect, with an umber tone in the middle that increased in intensity toward a more crimson shade near the outer edges. Hryniewicz says the colors were bled over each other, with additional layers applied near the edges to amp up the color intensity.

After an overnight dry of the stained area, the stencil of the centerpiece was put in place, a challenging process in that placing the pattern's 14 panels required absolute precision, Hryniewicz says. He likened the procedure to affixing 2-by-4-foot stickers onto the surface, making certain of precise alignment without bubbles or wrinkles.

Pieces of the stencil were removed for selected areas to receive black acrylic paint. The black paint was spray-applied, with a gold paint used for highlighting to render a patina, or aged effect.

An identical process was followed to produce the stenciled border on the floor along three perimeter walls of the dining space. Flooring between the centerpiece pattern and the perimeter pattern was left uncolored.

Following removal of the stencil, inspection and minor touch-up, the entire dining-area floor was protected with application of a high-performance epoxy sealer — National Polymers Inc.'s NP015 water-based epoxy — followed by a protective topcoat of National Polymers' NP344 high-solids polyaspartic aliphatic urethane clear coating. Hyde Concrete mixed an antiskid additive into the topcoat to enhance foot-traffic safety.

"The idea was to make the entire dining room area look as if an oversized rug was stenciled onto the concrete," says designer Humphrey. A long booth-banquette that acts as the barrier for the queue line "appears as though a piece of furniture were set over the rug. The use of the border came around as an idea to treat the perimeter of the space that gets a lot of sun exposure through the storefront."

Hyde Concrete also precast two 6-foot-long concrete panels that hang from the wall below the service-line counter. The panels were formed in the shape of an upside-down J, from foam-core, lightweight GFRC.

Humphrey, now a project designer with GTM Architects (Bethesda, Md.), but with Streetsense (also of Bethesda) at the time of the Spice 6 project, says the vertical concrete wrap at the service counter was part of a design concept to provide "tactile experiences" for customers in line.

"They first get to experience the wood finishing of the wall of the banquette, along with the glass that leaves the beautiful tile work on the tandoor oven in full view," Humphrey says. "We thought it would be great to use a concrete countertop instead of a solid surface for the installation, and the idea of a wrap evolved as the shape of the counter started to take place. It was a great way to adjust the scale of the experience and highlight transitions between the tandoor oven and the final service area by using a really traditional material in a more unique way.

"We've done concrete countertops before, but nothing of this scale with a vertical component beyond the thickness of the countertop itself," she says. "It was fantastic as soon as it was in, and it was the perfect complement to the ornate tile that's on the back wall of the service line. "

Creative collaboration

Hryniewicz says the job demanded a collaborative design approach, creative thinking, technical proficiency and artistic expertise. And the sheer size of the decorative pattern added another dimension to the challenges.

"This is not what you would call typical,"

Project at a Glance

Restaurant owner: Vic Singh

Decorative concrete contractor: Hyde Concrete, Gregory Hyde Hryniewicz, owner

General contractor: Encore Construction Inc., Annapolis, Md.

Architect/designer: Claudia Humphrey, Streetsense, Bethesda, Md.

Project description: Decorative staining, pattern stenciling, and precasting for a "modern Indian" fast-casual restaurant.

Materials used: Modello stencils; H&C Concrete Semi-Transparent Decorative Stains in Pumpkin Spice, Cardinal Red and Dahlia Red; National Polymers Inc. NP015 water-based epoxy sealer and NP344 polyaspartic topcoat

Challenges: Extensive discussion and evaluation of various color and design elements, precision alignment of stencil patterns, creative and artistic use of stain colors

PRODUCT SHOWCASE

he says. "Placing the stencils, all 14 of them, we had to be perfect in lining them up." And the perimeter pattern had to line up on the three sides.

There's also artistry in producing the antiquing look and with the layering and metallic effects, he says. "There's not a formula you can just follow. Application technique plays into how it's all done. That's where the applicator's interpretation skill comes in."

Owner Vic Singh says he was looking for a "unique" design, something different from projects he had surveyed in an online search. He thinks Hyde Concrete delivered.

"I have not seen anything like the stencil work done with this," he says.

"We looked at a few samples, and we had some different ideas about colors. The first try was not the color the way I wanted, so we changed colors and I think we found something with an Indian or South Asian-infused feel to it," he says.

The floor colors contrast with, but complement, the vibrant blue of the restaurant's walls, Singh says. He initially was leaning toward white for the walls but bought into Humphrey's vision of a more striking color palette.

Humphrey calls Spice 6 "a great project, with a great client. He was really looking to take some traditional styles and ideas from India and make them a little more modern and accessible to the American palette."

From the very beginning of the project, she and the owners discussed using stained concrete in the space because its new slab was in great shape, she says. "The warmth of the floor and the pattern provides a nice balance of tradition to the sleek, modern light fixtures."

Besides its ASCC award, the modern look of Spice 6 received a vivid mention in a July 2012 restaurant review in the Washington Post. "The decor is poppy and fresh, but not overtly subcontinental," observed writer Nevin Martell. "Though there are indigo walls, funky fixtures that mimic blossoming lotus flowers and henna-inspired scrollwork painted on the concrete floor, it could easily pass for a tapas joint or a frozen yogurt shop."

hydeconcrete.com

CARLTON'S CORNER

Meeting the Demand for Crack Control in Stamped Concrete

by Doug Carlton

MANY years ago, one of my stamping customers said, "I know concrete cracks — I just don't want to see any." I agree. Most random cracking sends signals of negativity and those signals will not help when it comes to managing expectations.

So many experts and trainers address concrete crack control in articles and elsewhere, but few truly get to the heart of the matter from a buyer's perspective.

Honestly, our decorative industry cannot use the old-age adage "all concrete cracks" and expect to compete with the ever-threatening paver industry.

Stamped concrete is the very foundation of today's decorative concrete industry. Your ability to take a concrete canvas and add pattern and color separates you from most concrete competition. This ability also increases a customer's expectations whether you, or they, realize it or not. Simply put, most customers will not accept a random crack running through patterned concrete, nor should they.

When we color and imprint concrete, our goal is usually to replicate stone, wood planks, tile, slate — the list is long and growing. Customers realize we're using a hunk of concrete, but at day's end they expect the canvas of concrete to resemble a replicated surface full of colorful texture.

Most companies installing stamped concrete use a combination of past performance, depicted in pictures, and small stamped samples when selling new work. The problem is, most pictures or samples fail to accurately represent the necessary steps to control cracking.

Cutting and grooving

As with any concrete surface, your most obvious way to control cracks is to cut control joints. They reduce the risk of random cracking by forcing the concrete to crack in vulnerable areas.

You must consider two things related to crack control prior to placing concrete at your next stamped project — your plan must include where you'll place breaks in the concrete and by what means. The stamping pattern and slab design must play a vital part in this prearranged configuration.

Nothing will make an interlocking stamp pattern look less natural than a straight control joint running through it. However, in some cases this will be the lesser of two evils. If so, this disclosure and an explanation must be made to your customer prior to placement. Remember, this is their project and money we're working with.

In general, early-entry cutting is hands down the least noticeable and most efficient way to control cracks in concrete. This method allows a finisher to place and saw-cut concrete on the same day. Early-entry cutting will work with stamped concrete too, but with one big complication. With most stamped concrete, same-day cutting leaves marks or prints on the freshly stamped surface. Because of this risk, some professionals who use an early-entry method to control cracks in stamped concrete wait a day before cutting. The risk of cracks appearing in the meantime is real and must be considered.

Noninterlocking stamp patterns, like texture patterns, look perfectly fine when you use a wet-tooling method to control cracks. A finisher "wet-scores," or "deep-grooves," the concrete by tooling a joint with a groover while it's wet, just prior to the stamping process.

In my opinion, tooling before texture stamping actually enhances the work by adding an appealing visual element while functioning as a source of controlling random cracks. However, the opposite is true with interlocking patterns — tooling does not look good with them.

Random cracks in concrete you just placed often start small and almost unrecognizable. A good way to minimize such a crack is to relieve it by deepening the nearest expansion or saw-cut joint. This may require deepening the joint beyond the typical 25 percent of slab thickness used as our industry standard. You will be surprised how often this will freeze a random nearby crack from growing larger and, more importantly, more noticeable.

Again, this decision is one you and your customer should make well before concrete placement. My sales team usually incorporates the saw cut or scoring decision during the color and pattern presentation.

Talk it out

A stamped concrete professional can do nearly everything else flawlessly and still lose a customer's faith because of random cracking. "Random cracks" by this author's definition are any cracks unplanned. Some folks will have few problems with random cracking, but some will ask for monetary compensation of some kind. My advice is to do everything possible to make this a nonissue.

Random cracks cast doubt on your ability to effectively place quality stamped concrete. They make you and your concrete supplier look bad. And the fact is, you can do everything within your power and still occasionally experience random cracking. There is no need to ignore this possibility, so why not disclose this risk to each customer? Explain to each customer why you're taking

proactive steps to control cracks, and then make them part of the plan for crack control. Show customers the options you offer to control cracks and carefully explain the benefits and risks of each method. Customers, architects and builders are less likely to doubt your credibility if you show such diligence and effort.

Knowledge is a wonderful thing. Today's decorative concrete end user understands our trade far more than customers did when I started installing decorative concrete more than two decades ago. Please don't underestimate your next customer's ability to play a part in the decisions aforementioned. At day's end, the group effort to control cracks makes you a better decorative professional and benefits the decorative industry as well.

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

PRODUCT SHOWCASE

Tree and Root Construction with Sculptable Epoxies

by Mike Vernelson

THE WORLD of decorative concrete has taken leaps and bounds in the last few decades. Men and women who began in the trenches have placed themselves into a realm of artistry with decorative concrete that's as functional as it is breathtaking.

Every year new products emerge to better enhance the aesthetics as well as the integrity of these creations. For example, epoxies are no stranger to the industry — but lets talk about a sculpting epoxy for the theming industry.

In the world of theming, epoxy is still an underutilized tool for creating levels of detail and realism second to none. For example, Polygem Inc. has spent years developing its 307 series of epoxy among others that are custom-formulated for this exact type of work.

What's unique about a sculptable epoxy? Primarily, it takes texture well and it can be flaked.

I have developed a system using epoxy that works well for me and defines my style. Other great artists in the field have done the same, which is what makes us all unique.

Being able to work with epoxy can ultimately give your clients a range of options they never knew they had.

Here's a step-by-step look at how I create roots, using sculptable epoxy to form the textured "bark."

Photos courtesy of John Strieder and Vertical Artisans

how TO

1 The armatures on which I ultimately place the epoxy usually consist of rebar and concrete, PVC, urethane foam or a foam-fiberglass combination. Unless I need something lightweight for shipping, I generally use a rebar or pencil-rod armature with diamond-mesh lath. This can be welded or tied to create your shapes.

2 Hard-coating gives me a solid surface on which to apply my epoxy. When hard-coating with concrete I like a smooth, sticky mix that I can apply with my gloves. Kirt Bag carving mix is one I can use to hard-coat and pre-shape the roots.

For a fallen tree (not shown here), I hard-coated with Froth-Pak spray foam with a 3.5 R-value per inch, then fiberglassed, to keep the weight down for shipping.

3 Polygem 307 FR Lite is mixed using the thickening filler and applied in workable batches. Under normal temperatures you will have a couple of hours to work it.

The amount of thickener used depends on the types of textures you're trying to create. I do much of the work with my hands, including "rotten wood" textures.

4 Wood sticks and tools work best when manipulating the epoxy, because the wood holds water better and water is used as the release. My latex bark stamps are also dipped in water and shaken off before being pressed into the epoxy. My molds range in size from 3 inches to 3 feet. Various brushes are used to create grains and textures in the wood.

All of the inner or exposed wood such as broken ends I create by hand. Again, bark textures are created with the molds.

5 Finer hair roots are made using Polygem's EZ-Flex rubber and hemp rope. The rope is unraveled, tied with knots and coated with the rubber. After being coated, the roots are dipped in a mixture of dry sand with a bit of peat moss added.

6 When all the epoxy work is done, it is colored using exterior flat house paint. (I like Valspar.) For bark, I like to base the tree out in a very dark brown and black using an airless sprayer, then bring my lighter colors out through dry-brushing, washing, and lastly spraying with a touch-up gun and an airbrush.

7 I like using a "graffiti guard" coating lightly misted to create a flat finish on outdoor work. An antigraffiti sealer is the flattest finish there is.

Mike Vernelson has earned a reputation as one of the top theme sculptors in the world. To see more of his work visit Conceptualdesignbymikevernelson.com. Contact him at mvernelson@yahoo.com.

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