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Mailing Address: Professional Trade Publications Inc. 27495 2nd Place Junction City, OR 97448

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

ISSN 1542-1597

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concrete Publisher's Letter

Dear Readers,



We're truly excited to announce *Concrete Decor* magazine's new online Marketplace. What makes this shopping platform so amazing is that it comprises companies nationwide you likely know and trust. The

Concrete Decor Marketplace at **store.concretedecor.net** helps you find exactly what you need — fast!

When I was a contractor "window-time" was never a term I liked to associate myself with, although it happened constantly. As much as I prepared for the job each day, I still found myself in traffic running around town sourcing needed materials. It changed a bit when stores would occasionally deliver materials to my job sites, but window-time still found a way of robbing hours from the job site each day of what I liked and got paid to do.

When mobile devices like tablets and smart phones emerged, we suddenly had the ability to stop work, sit ourselves down on a 5-gallon bucket and source needed information and materials. Some of you even use that technology to say, "Hey, *Concrete Decor* should see what we're doing with a job site photo and quick text message" (hint-hint)!

These days there are more than 100,000 contractors using concretedecor.net monthly to find information on all sorts of decorative concrete applications. What you'll now discover on this one-of-a-kind platform are links throughout our content to product categories on the Concrete Decor Marketplace. What you'll also find are product manufacturers and stores you know and trust. It's those folks that make the new Marketplace such a powerful resource. They, too, understand the value of time and money and realize without you there is no them.

The Marketplace is not about finding the cheapest alternative. It's about finding the best products and the widest selection — fast! In an increasingly technology-driven world, *Concrete Decor* gives your business the ability to navigate the online environment with efficiency and increased profitability.

While the Concrete Decor Marketplace is still new, know that new products are being added daily. And at Concrete Decor, we're simply aiming to ensure the companies we partner with provide you with the best products and service.

Enjoy this edition of *Concrete Decor* and save the date for the Concrete Decor Show Oct. 28-31 in Arlington, Texas, when you'll have the opportunity to meet many of the Marketplace product manufacturers face-to-face and build on relationships that "Power Up" your business.

Sincerely,

Bent Mikkelsen Publisher

On the cover: Valley Flooring Inc. in Jefferson, Oregon, received the 1st Runner-Up honors in Sika Scofield's 2018 Decorative Concrete Awards competition in the Polished Concrete category for its work on the Arts & Technology Academy in Eugene, Oregon. Photo courtesv of Sika Scofield P Find us on Pinterest /concretedecor1



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Nick de Ocampo, LEED AP, received a bachelor's degree in materials science and engineering from the University of California, Los Angeles, and is also accredited with the USGBC and GBCI. He began working for CTS Cement Manufacturing Corp. as a product development engineer and now is a materials engineer who has developed product evaluations for the CTS Rapid Set cement line. If you have a LEED or environmentalrelated question, contact him at ndeocampo@ctscement.com. See Nick's article on page 46.



Mike Dougherty is vice president of Hudson, Wisconsin-based Concrete Arts, a Bomanite franchise partner that installs a variety of architectural concrete applications. He sits on the board of directors for the Bomanite International Society. Dougherty studied journalism at the University of Minnesota and is a member of American Mensa. He can be contacted at mdougherty@concretearts.com. See Mike's article on page 40.



Jeffrey Girard, P.E., is founder and president of The Concrete Countertop Institute in Raleigh, North Carolina, and a pioneer of engineered concrete countertops. He can be reached at info@concretecountertopinstitute.com. See Jeffrey's article on page 30.



Chris Sullivan is vice president of sales and marketing with ChemSystems Inc. and a member of the Decorative Concrete Hall of Fame. He has led seminars and product demonstrations throughout North America. Reach him at questions@concretedecor.net. See Chris' column, "Concrete Questions," on page 48.

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HoverTrowel McKinnon Materials Midwest Rake

Sprayers

BC Decorative Concrete Supply Convergent Concrete Technologies McKinnon Materials

Spreaders

HoverTrowel McKinnon Materials Midwest Rake

Squeegees

McKinnon Materials Midwest Rake

Stain Block

Convergent Concrete Technologies Nox-Crete Products Group

Stains – Acid & Reactive

BC Decorative Concrete Supply Butterfield Color Inc. Concrete Coatings Inc. The Euclid Chemical Co. Kingdom Products Sika Scofield Sundek Products Inc. SureCrete Surface Koatings Inc. TK Products Walttools

Stains - Solid Color

BC Decorative Concrete Supply Concrete Coatings Inc. Convergent Concrete Technologies The Euclid Chemical Co. GranQuartz RetroPlate by Curecrete Sika Scofield

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NEW PRODUCTS



Photos by Stacey Enesey Klemend

World of Concrete 2019

Biggest show in the industry didn't disappoint with new reveals

by Stacey Enesey Klemenc

W ORLD of Concrete is once again on a roll. The 2019 show, which marked the 44th time World of Concrete has been held, topped the charts as the largest show in more than a decade. The annual extravaganza for the concrete and masonry industries worldwide attracted 60,511 registered professionals and more than 1,500 companies that exhibited across some 776,800 square feet in the vast reaches of the Las Vegas Convention Center this past January.

For the third consecutive year, Decorative Concrete LIVE! occupied exhibit space in the Silver Lot across from the main entrance to the South Hall. A steady stream of visitors came by to see the ongoing demonstrations put on by artisans from around the country to display how an increasingly energyminded society can benefit from the power of concrete. Decorative Concrete LIVE! is sponsored by Concrete Decor magazine, the Concrete Decor RoadShow and a host of sponsoring partners.

Here and on the following pages is but a small sample of the many tools, products and machinery that graced the grounds and caught the eyes of Concrete Decor staff at the 2019 World of Concrete:

MACHINERY

Weighing in at 1,100 pounds, the G-320XHD grinder from CPS offers the operator more torque and more power with 200 extra pounds of head pressure than the 320D Pro. The machine also offers the versatility of using it from initial removal to fine-grit polishing.

From CPS's new chemical line, the star of the show was CPS Armor DSQ,

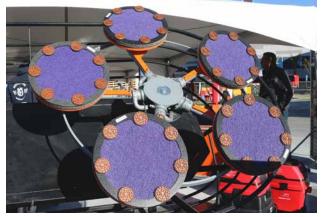
or D-Squared. A high-solids, porelining, penetrating densifier, it hardens and protects against dusting, has no VOCs and is code compliant in all 50 states. www.go2cps.com



Superabrasive, the maker of Lavina equipment for concrete grinding and polishing, launched its Elite series, a totally new generation of machines. The new series includes electric and propane-powered grinders from 20 up to 38 inches wide,



two remote-controlled models and an array of new features to make your grinding and polishing jobs easier and safer. Integrated weights, misting system, phone-charging station, cup holder and LED lights are just a few of the improvements. (§) www.superabrasive.us



Husqvarna promoted the advantages of its Hipertrowel system paired with a ride-on power trowel of your choosing. Designed for jobs 5,000 square feet and up with large open areas that are relatively level, they can polish up to 10,000 square feet a day of new or existing concrete. In six or so steps, you can produce a shiny salt-and-pepper or glossy satin finish perfect for industrial floors. (§) www.husqvarna.com/us



If you're in the market for something smaller, HTC unveiled its 450, 400 and 280 grinders with corresponding vacuums that are great little machines for garage floors. They easily break down into two pieces and can fit in something as compact as an SUV.



The big and bad Rhino RXL 1000 grinder from NewGrind is made to handle large commercial jobs yet is designed to fit through a standard 3-foot-wide door. With its six 11-inch counter-rotating tool plates, it's always cross-cutting for faster production and can grind floors within 5/16 inch of a wall. To reduce operator fatigue, it's self-propelled. Another plus is that it can run on as little as 30 amps@208. (§) www.newgrind.com



NEW PRODUCTS



Scheduled to launch this spring, the Graco T-Max 6912 is a texture sprayer that consists of a pump module and a plastic hopper that easily and quickly separates and reconnects without any tools. The convenient machine, which reportedly rolls around like a shopping cart, can be used to spray aggregate-based materials on building exteriors or smooth compounds on inside walls. Depending on the job, it can be operated airless or air-assisted.

💲 www.graco.com



Blastrac displayed a prototype under development of BMR-25P, a ride-on shot blaster with interchangeable heads that can be converted into a scarifier. The twoin-one machine, which is also equipped with a HEPA vacuum, is scheduled to hit the market this summer.

Maverick Surface Preparations' new Ravage Pro was developed to be an on-board generator for the company's line of surface prep machines. The patent-pending machine, which has a display screen and a front view camera, converts an electric Maverick grinder into a propane-powered one. When there are multiple tasks that require multiple equipment at the same site, the Ravage Pro can be disassembled, removed from the grinder and



placed on a mobile wheel cart for portable power.

ACCESSORIES

Designed to be used between metal and resin pads, Surface Pro Black Magic Transition Pads from GranQuartz help scratches disappear quicker while polishing. The transitional pads can be used to polish wet or dry.

ኝ www.granquartz.com



Among its wares, Butterfield Colors, a Sika brand, displayed its new Woodplank urethane mold, a 40-by-60inch mold used to cast a table. The mold also comes in a slate version.

💲 www.butterfieldcolor.com

Over at Solomon Colors/ Brickform, the new mold everyone was talking about was the single-piece Stone Faced 2-Inch Cantilevered Step Liner designed for cast concrete stairs. The yet-to-be-released polyurethane step liner, which measures 2-by-5½ inches, will soon join the company's line of



textured natural stone tools to make an installer's job easier. (§) www.solomoncolors.com



Trimaco rolled out a residential version of SuperTuff at the show, a reusable floor protector with a rubber no-slip back. It's absorbent and slip resistant, and a great choice for protecting floors and counters while you're working on something else.

💲 www.trimaco.com

Carrhartt, a company that's been making workwear since 1889, debuted it Carhartt Company Gear program that caters to making durable uniforms for companies that need everything from pants for a crew of 20 to head-to-toe uniforms for the entire business. In addition to its recognized styles that



have been around for decades, a Rugged Professional Series that includes nine styles for men and women was launched. (§) www.carhartt.com

Alongside artisans demonstrating various products and techniques at Decorative Concrete LIVE!, Elite Plastiform displayed one of its newest additions to its form offerings. Visitors got a glimpse of an adjustable wall and column form that uses a cam system to lock it in place. The forms can be stacked to build walls or columns of varying dimensions. There are also similar forms available for pillars.



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NEW PRODUCTS

TOOLS

At the Metabo exhibit, SDS combination hammers for drilling and chiseling continued to be in the limelight, with a 2 1/16-inch version leading the way as the largest hammer on the market. These brushless hammers, also available in 1 3/4 and 1 9/16-inch models, promise to be low on the maintenance side and fast in the drilling department.



💲 www.metabo.com



Developed for formwork, the Flexvolt 60 rotary hammer is touted by DeWalt to be the most powerful cordless 2-inch brushless SDS Max combination hammer in the industry. With seven speed selections, it's great for chipping or drilling and can drill into hard concrete as well as through 2-by-4s. When paired with a 20V Max universal dust extractor, this hammer can get the job done dust-free. 🕏 www.dewalt.com

Makita's XAG21 cordless grinder with vacuum attachment

uses Bluetooth connectivity to further today's wireless workplace experience with state-of-the-art power-on/ power-off communication. Thanks to the company's Auto-Start Wireless System, the vacuum/dust extractor



only runs when the grinder is grinding. 💲 www.makitatools.com

The Core 18V battery from Bosch boosts the power offered by its predecessor and is redesigned to keep more heat away from the tool it's powering for optimal performance. It offers more



runtime, can be recharged faster and is compatible with old and new 18V Bosch tools. This battery answers the need for stronger, longer-lasting batteries in applications where corded tools had to be used because cordless versions couldn't deliver. 💲 www.boschtools.com



Can Be Your Eyes

To show how ambient temperature and relative humidity can be monitored, Wagner Meters displayed its newest device, the Smart Logger, at World of Concrete 2019. The monitoring device, when paired with the free Smart Logger app, can serve as your around-the-clock eyes on a job site.

Small and lightweight, the logger can be easily mounted just about anywhere. It will collect and store up to 12,000 readings of ambient temperature and RH over a period of up to 300 days.

The collected data can be quickly and wirelessly downloaded to a mobile device via Bluetooth, and a report can be emailed to the general contractor or client.

According to Jason Spangler, Wagner Meters' flooring division manager, a few advantages of using the Smart Logger include:

- Saving time and money by reducing the need to visit a job site just to monitor ambient conditions.
- Reducing your liability and avoiding "the blame game" with documented monitoring of job site conditions.
- Providing a visible reminder to the GC and others to maintain service conditions.
- Using the latest technology to ensure successful outcomes.

To record ambient conditions in case a flooring issue arises in the future, Spangler advises, you can leave the device behind after the job is completed. Timestamped documentation will show if job site conditions have deviated from serviceable at any time during the monitoring process.

Spangler recommends to always test for moisture prior to applying coatings, sealants or other products to the surface of a concrete slab.

"The in situ RH test method is recommended for its accuracy and reliability," he says. "When testing, be sure the job site meets service conditions per ASTM F2170."

The free Smart Logger app is available at both the Apple Store and Google Play.

💲 www.wagnermeters.com (800) 207-2164

COATINGS, SEALERS AND RELATED PRODUCTS

Kryton launched an improved waterproofing product, Krystol T1. Now available in white as well as the original gray, it does the job with a single-coat that looks so good you don't have to paint over it. It can be brushed or sprayed on with a hopper gun and is a good choice for basements or underground parking garages.

💲 www.kryton.com



When natural is the look you're going for, Decra-Seal from W.R. Meadows could be the penetrating sealer for the job. Specifically formulated for the decorative concrete market, it will not only help with freeze/thaw issues but will ever so slightly enhance the color of the surface. (§) www.wrmeadows.com Now packaged in aerosol cans, Franmar's Blue Bear asphalt remover and graffiti remover for hard surfaces and porous surfaces just got more convenient. The cans are easy to access, pack and store. They also can withstand wide temperature fluctuations.

For patios and stamped areas where clients want a high-gloss finish, Clemons Concrete Coatings has developed Supreme Shield Gloss, a hybrid penetrating sealer. In addition to giving the surface a nonplastic "wet look," the proprietary silane blend enhances the color and protects against freeze/ thaw conditions. It's available



Solvent-Based Pure Acrylic



SUPREME SHIELD GLOSS Hybrid High Gloss

in three different formulas to comply with VOC restrictions throughout the U.S.

💲 www.ccc-usa.com



NEW PRODUCTS



Buddy Rhodes Vertical Mix is touted to be 30 percent lighter than other cement-based overlays and can be carved, sculpted or stamped. Its zero-slump qualities make it an ideal product for creating everything from zoo and aquarium displays to public sculptures and themed environments. Tested and certified E-84 Class-A flame resistant with no VOCs, the new carvable concrete can safely be used to build large, lightweight, thin structures at a more affordable price. **(§)** www.buddyrhodes.com

In response to the increased demand for wood-looking concrete for patios and entryways, Westcoat has added a new finish to its popular Texture Crete line. Created with a textural cement-based mix and grout tape rather than stamps, Texture Crete Wood Finish can be used to simulate traditional deck materials such as cedar, redwood or composites.

💲 www.westcoat.com

Quikrete has come up with a Re-Cap Concrete Resurfacer, a blend of portland cement, graded sand, polymer resins and other additives that adhere to the old concrete by forming a bond that's four times stronger than concrete itself. As a result, it's easier and faster to transform a deteriorated concrete surface into a durable, long-lasting sidewalk, driveway or patio at a fraction of the price to replace it. It's applied with a squeegee, trowel or brush. 🚯 www.quikrete.com



Tri-Shield, a timesaving decorative product from Noxcrete, combines a deep-penetrating silane with an acrylic polymer to form a sealer that cures, seals, repels water and protects against stains all in one fell swoop. It can be used on new or existing exterior horizontal surfaces where a wet look is desired.

💲 www.nox-crete.com

To remove grease and dirt before polishing, try Agua-Cut to help break the surface tension and get to the exposed aggregate in record time. This new environmentally friendly product from SynPro is acid-free, noncorrosive and biodegradable, and will help save wear on your diamonds.



💲 www.synproproducts.com

If you're looking for a product to integrate with a cove, Spartacote Vertical WB from Laticrete is a urethane coating system designed for commercial spaces, educational institutions and health care facilities. It can be brushed, rolled or sprayed on and comes in a glossy or matte finish. Also introduced at the show was Vapor Ban Primer ER, a two-part epoxy moisture mitigation system from Laticrete that cures in three hours. This all-in-one moisture vapor barrier and primer can save a step in the coating process while delivering extra protection against moisture. It can be colored or broadcasted with chips or quartz.

Enstocolor Textu

Contractors have found new uses for Mapei's Concrete Renew (top photo), a polymer-modified cementitious material that gives old concrete a facelift. Instead of brooming the product on floors, they're using it vertically with stencils and for knockdown finishes with great results. In other developments, Mapei extended its Elastocolor line to include an alkaline-resistant primer that protects against high pH levels and a high-build, textured coating that's a perfect choice for irregular substrates.

💲 www.mapei.com



Although the product was officially launched last year, WB Epoxy Primer from McKinnon Materials was once again spotlighted. The prized primer is graced with an indefinite pot life (even if left in an open bucket) and a fast dry time (two hours and it's good). These attributes, according to its maker, make it one of those things that you don't know how it works but you're glad it does.

🕏 www.mckinnonmaterials.com

CTS Cement Manufacturing has expanded its professional grade cement line with the addition of Rapid Set Tru SP, a self-leveling topping that can be ground and polished for a salt-and-pepper finish. Available in natural and gray, the architectural topping is workable for up to 20 minutes and is ready for foot traffic in two to three hours.

💲 www.ctscement.com



Eco-Fast from Dur-A-Flex is one system that does it all. It starts with an epoxy blend with a 20-minute working time. This self-priming, self-leveling and moisture-mitigating layer is then broadcast with a single application of chips or quartz and covered with a clear topcoat. That's it; high-performance seamless floor free of Red-List materials is complete.

A perfect product for a big job because it's so economical, Stone Edge Surface's Pro Wall AddPak is a high-strength, lightweight, polymer designed to mix with Type S mortar to produce a custom concrete veneer on vertical surfaces. It can be installed up to 5-inches thick but it's usually applied between ½ and 1-inch thick and stamped, textured, handcarved and colored to resemble natural stone. 🏈

🕏 www.stoneedgesurfaces.com







Scofield Recognizes Winners of 2018 Decorative Concrete Awards

IVE projects that featured products from the Scofield line, a brand of Sika Corp., were honored in the 11th annual Decorative Concrete Awards competition. First-place winners and runners-up were announced during the recent World of Concrete in Las Vegas.

This year's selectees were determined by an open voting invitation to the public via Sika Scofield's website, where more than 200 ballots were cast.

The Grand Prize winners in the five judged categories are:

Stained Concrete Orcutt | Winslow, Nashville, Tennessee

Harpeth Hall Athletic and Wellness Center

The 60,000-square-foot athletic and wellness building on Harpeth Hall's campus in Nashville is home to a thriving athletic program and facilities designed to help girls embody wellness. The highly trafficked space needed an attractive durable,

low-maintenance floor. The architectural firm of Orcutt | Winslow's solution involved incorporating Lithochrome Chemstain Classic in Padre Brown and Dark Walnut, alternating in an undulating pattern in the public circulation areas. An intermediate seal coat was 6- to 8-mil-thick clear epoxy, and the finish



coat was a 2- to 3-mil-thick clear urethane. 💲 www.owp.com



Artistic Concrete David McCaskill Design Group, Southlake, Texas

Westlake Academy

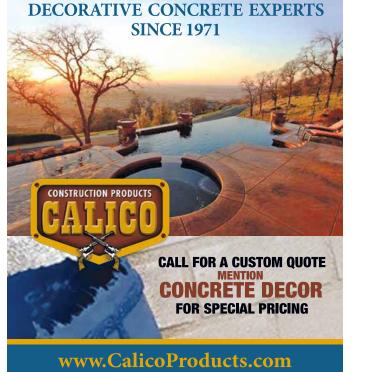
In 2016, Westlake Academy hired David McCaskill Design Group to prepare a master plan for outdoor learning activities scattered across the campus. The master plan identified 12 spaces to encourage students to learn in an outdoor environment.



DMDG worked closely with faculty members from the math and science departments for both secondary and primary students to come up with a program of activities for a math and science plaza. The result was a concrete plaza with outdoor classroom seating that included a giant-sized standard and metric ruler and protractor, a compass rosette, a human sundial, phases of the moon and racks with inclined planes and pulleys to use for physics experiments.

C. Green Scaping LLC constructed the plaza and used several Scofield products including an array of Lithochrome Tintura stains; Lithotex Pavecrafters: Rock Salt embossing skins; Selectseal Plus concrete sealer and Lithocast surface retarder.

- 💲 www.facebook.com/dmdginc
- Swww.greenscapingconstruction.com



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INDUSTRY NEWS

Integral Color Utility Concrete Products, Morris, Illinois

NU Ryan Fieldhouse/Walter Athletics Center Bench Wall

A prominent feature of Northwestern University's Ryan Fieldhouse and Walter Athletics Center is a unique retaining wall running along the facility's north side. Originally designed as castin-place, a tight timeline and the recent success of the "wave wall" drove Utility Concrete Products to decide that precast was the best way to construct this wall. While its main purpose is to serve as an earth retention system, the high side of the wall adjacent to the building was shaped like a bench where students and visitors could sit.

Some of the wall's distinct features are the curvature in multiple planes and the skatedeterrent void, which was created to prevent individuals from damaging the bench sections. The 366-footlong wall consisted of 38 segments, each almost 10-feet long.



The self-consolidating concrete mix design included Scofield Integral Color SG in Sand Buff, which was altered to match a sample of the existing building's limestone. UCP's skilled architectural finishing team sandblasted the segments to achieve the architect's desired appearance and to match the adjacent wave wall.



Stamped Concrete Deco-Crete, Richmond, Virginia

Hilton Driveway

The Hilton Richmond Downtown driveway project involved a driveway and porta cochere area installed over a structural slab/parking garage. The project entailed removing 500,000 pounds of pavers that were failing and installing stamped concrete with a seamless texture.

After the pavers were removed, Deco-Crete installed the stamped concrete in three placements while the hotel remained open. Pavers were recycled at a local recycling/ repurpose center. To do the job, 12,000 square feet of Scofield Integral Color



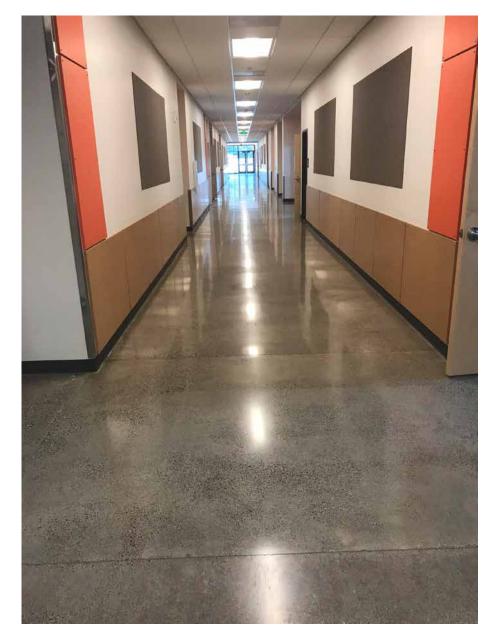
SG in Southern Clay was stamped with Lithotex Pavecrafters Fractured Earth embossing skins and accented with Lithochrome Antiquing Release in Classic Gray and Deep Charcoal. (5) www.decocreteva.com



Polished Concrete Envirocrete, Vancouver, Washington Ridgefield Middle School

Envirocrete Inc. in Vancouver, Washington, specializes in commercial work where it installs environmentally friendly architectural concrete flooring systems. For the Ridgefield Middle School project in Washington state, the company managed to salvage a job begun by a competitor, finish it in time for the school year and win a grand award from Sika Scofield for its efforts. Overall, Envirocrete polished 65,000 square feet of concrete and used Scofield Formula One liquid densifier, liquid dye concentrate and Guard-W.

To view more photos and the complete list of winners, visit www.scofield.com





ARTISAN In concrete



Shawn Halverson, Surfacing Solutions Inc.

Temecula, California

by Joe Maty

CONCRETE," says decorative concrete impresario Shawn Halverson, "seems to follow me around."

Halverson, CEO of Surfacing Solutions Inc.in Temecula, California, talks about the time some years ago when he took a break from construction after working in the structural concrete industry for about 21 years, beginning in the mid-1970s. Then, this phenomenon called decorative concrete emerged as a major player in the trade, and Halverson became intrigued.

The lure of the trade

"Back in the '80s, we would do large shopping centers, and you'd see exposed aggregate" — in those days the latest big thing and a primitive, early form of decorative concrete, you might say.

Halverson, who at that time was



installing residential and commercial foundations, also was hearing inquiries from customers about decorative driveways and patios, and thought, "Could I do something like that?"

And that's how decorative concrete entered the picture for Halverson — in the form of exposed aggregate, stamps, barbecues and masonry structures.

Halverson took a break from concrete construction soon after, but

it pulled him back in. By that time, the decorative concrete revolution was on, and Halverson signed on to be all-in.

"I envisioned taking decorative concrete to a new level, so I started Surfacing Solutions in 1999," he says. Originally, the business focused on consulting, staining and installing garage coatings, which numbered in the hundreds.

After starting out as a solo act, Halverson hired three men, each with unique technique expertise. This led him to expand and diversify into countertops, furniture, tables, residential and commercial flooring, microtoppings, epoxy coatings and stamped overlays. The business grew rapidly, fueled by the most basic marketing magic of all: referrals.







Polishing and expanding

Then along came polished concrete to "light a new fire" in the industry.

"I bought a machine and tools from a friend going out of business, and he taught me the basics. Soon I was blending the polishing with decorative applications, and realized the possibilities are endless."

Polished concrete, he says, has brought the company to a whole new level. And polishing has, by far, grown rapidly to dominate Surfacing Solutions' business portfolio.

With demand and workload on the rise, Halverson's father-in-law, Keith Cantillon — who has a background in the general contracting and concrete trades — joined the team. He provided expertise in scheduling and running the crews, and freed up time for Halverson to lead an expansion into the commercial market.

Sharpening the focus

Expansion all by itself doesn't guarantee success, Halverson learned. Looking to sharpen the focus and streamline the range of options for clients, Surfacing Solutions embraced a "mentoring" program called MAP management action planning.

"Our mentor, Lee Froshheiser, was a very successful CEO, and he and his team helped us to focus on what our vital operations are," Halverson says. In the first three years under the MAP blueprint, the company turned in 100-percent growth each year, "all during the dreaded recession years of 2007-2010. We were growing when others were going out of business."

Froshheiser and MAP "laid the groundwork for us to measure and score ourselves," Halverson explains, to keep the business on track for success.

"We were spread out too thin, so we focused on what we could manage the best."

This sharpening of focus led to a dominant role for polishing as far and away the company's major business growing to command some 85 percent of the work. A few other specialties occupy smaller roles — staining, epoxies, coatings and rehabbing stamped concrete.

Also figuring prominently in the company's track record of success is a young man named Mike Peterson, who

ARTISAN IN CONCRETE









came on board in the early 2000s and helped the company reach a new level of craftsmanship.

Halverson says Peterson only stuck around for a couple of years but his creativity was "mind blowing." It left clients in disbelief and awe about some of the unique decorative treatments and detailed work the company was turning out, thanks to "out-of-the-box" thinking.

Halverson's wife, Tiffany, joined her husband at Surfacing Solutions in 2012, after managing another company they had owned. With Surfacing Solutions, she focuses on marketing, customer service and employee enthusiasm.

"We are always looking at ways to

strengthen our client relationships. We know it is key to our success," she says. "Growth is one of our core values, and ways to expand our knowledge and improve personally and in our industry are always on the agenda. We work on being open-minded, keeping our team inspired and having as much fun as possible along the way."

Epic and intricate

If asked to talk about projects that stand out from Halverson's decades in the trade, "where to begin?" might well be the expected response.

Still, he singles out an epic polishing job at San Marcos High School — "the first job where we did multiple levels in multiple buildings and were on site for over a year. That job showed us how much we were capable of and that polish was absolutely our strength in the industry."

Memorable for contrasting reasons was the company's expertise at Shepherd Church in the Simi Valley area — an intricate design involving colors and shapes, where collaboration was paramount. A top foreman, Marco Loredo, demonstrated why his patient and focus-on-detail approach made the project really shine.

"This project was a great example of what we can do as a team," Halverson says.

Asked what sets his work apart,



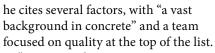
ARTISAN IN CONCRETE











"Not many decorative concrete applicators have the history we have in pouring, finishing and technical aspects of concrete," says Halverson, who currently serves as director of the American Society of Concrete Contractors Concrete Polishing Council.

Also top priorities are:

Safety. "I have to give credit to our operations leader and business partner, Keith Cantillon, and give him the recognition for all he has instilled in our crews in regard to safety. He talks safety to our teams each day. We not only teach our own guys better safety practices, but we set goals each month. The company also brings in outside trainers and consultants to provide the latest and greatest training."

Quality. "Our goal is always to exceed expectations. Just doing the job is not sufficient for anyone on our team. We want to surpass customer expectations."

Job-site flow. "Our team in the filed does its very best to accommodate and work well with others to make sure every company can continue to work in a flow and get the job done. We strive to be team players all around."

To contractors new to the industry, Halverson draws upon his years in the



trade to offer some advice starting with "Come work for us."

That aside, he cautions, "This is a tough and competitive business. Poor quality may get you paid today but not for long.

"We as an industry can establish ourselves as a premier flooring option to owners and architects," he continues. Unfortunately, "too many folks get in this business for the quick buck, and many times they cut corners or take shortcuts. This will not help sustain polishing for long. Quality should be on everyone's minds. Setting and exceeding expectations is the best way to build a business."

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Focus on the Future *Retirement benefits aid employee retention*

by K. Schipper

EVEN at its best, owning a business offers a host of challenges. One of the latest: how to get and keep good employees.

Particularly in the construction trades, a common attitude was that if someone quit, there'd be another body waiting to be hired. However, with an increasing emphasis on post-high school education and close to a full-employment economy, that isn't always the case.

Some companies are finding it's taking more than just a regular paycheck to keep their people on the payroll. A popular extra benefit: a retirement package with some sort of employer match.

An important message

At some point, just about everyone realizes that Social Security isn't enough to cover a comfortable retirement, especially as people live longer. Saving for that big life step seems reasonable, but for those living paycheck-to-paycheck it isn't easy.

One option: 401(k) tax-qualified deferred-contribution savings accounts.

The accounts, which take their name from the subsection of the Internal Revenue Code which authorizes them, allows employees to defer up to 3 percent of their paychecks into such a plan, which may or may not be matched by employers.

Obviously, having employers match the deferred amount provides one benefit, but even without the match, the



funds are excluded from the employee's taxable income until the money is withdrawn years or even decades down the road.

The 401(k) is certainly not a new money-management device. Federal legislation that allows the program initially passed in 1978 and was further refined in 1981. Some companies in the concrete industry have programs that date back almost that far.

Adam Solomon, president of Springfield, Illinois-based Solomon Colors, is the fourth generation of his family to head the eponymously named company. He says it began offering a 401(k) program in the mid-1980s.

His dad and his grandfather decided it was a good thing to do for the employees, he says. Back then, there were probably 15 to 20 employees, compared to today's 170 or so.

Sally Reid, administrative controller of Mattingly Concrete in Indianapolis, says her employer began its 401(k) program in early 2017, after Will Mattingly purchased the company from his father, Dan.

The reason behind the program at the approximately 50-employee company is much the same.

"First, it gave us a chance to show how much we appreciate our employees and to help them look to their futures," Reid says. "It's important for us to offer them a way to save for their futures, but it also makes us more competitive in our ability to hire."

For some companies, there may also be another reason to set up a 401(k) program. If they have unionized employees, those workers are already covered by pensions through their unions. That's the case with both Bay Area Concretes Inc. in Livermore, California, and Concrete Arts in Hudson, Wisconsin.

"BAC employees have two options for a retirement program," explains Mike Price, president and CEO. "Union employees earn a pension based on the hours they work. This is funded by BAC through monthly contributions to the union trust fund. Non-union employees can participate in the Bay Area Concretes 401(k) plan."

No single best answer

For Concrete Arts, and particularly its sister company, Surface Art and Prep, which focuses on grinding and polishing larger commercial jobs, the process is a bit challenging, says Mike Dougherty, vice president of sales.

Dougherty says the companies are obligated to pay into a pension fund for every hour their guys work union jobs. But for employees to reap the benefits of this time counting toward a union pension, they must work 1,000 hours a year on union jobs.

"We only have two guys that meet that criterion, so we ultimately lose the pension dollars on any union work done by our other employees who don't meet that threshold," he says.

They chalk this up as part of the cost of doing business and also contribute to the employees' 401(k)s. It helps that Concrete Arts switched over from the simple individual retirement accounts (IRAs) that company founder Tom Graf offered for years.

"It's also tied into profit-sharing," Dougherty says. "At the end of the year, we have a certain fund we pull from with our profits and put it directly into their 401(k)s as opposed to giving them a cash bonus."

While the profit-sharing is an additional option Concrete Arts offers, Solomon Colors takes a slightly different approach. Although the company is family owned, it also offers an employee stock ownership plan (ESOP). At Solomon Colors, employees own 51 percent of its stock.

"Again, it's something my grandfather went to a seminar for and we began the program in 1996," says Adam Solomon. "He thought it would be great to get the employees feeling they're part of the company and, if we do well, they benefit for their retirement."

As with a 401(k), an ESOP provides certain tax benefits to both the company and the shareholders, primarily related to taxes. Perhaps it's not surprising that the average Solomon Colors employee has been with the company 15 years. Recently, one of its chemists was honored with a 40-year plaque.

With any of these programs, selfeducation is certainly one place to begin. Probably the best news about 401(k)s is, "There are third-party vendors that specialize in handling this type of benefit," says BAC's Price.

He adds that the third-party administrator covers all the requirements of offering a plan.

"And, the cost is minimal compared to the fines and penalties that can be levied by various regulatory agencies," Price says.

In the case of Concrete Arts, Dougherty says the company's CPA recommended a 401(k) plan.

For Mattingly, "It was a cold call," Reid says. "They came to us. It was very good timing on their part."

As the controller at Mattingly, Reid oversees the program's in-house administration, which she says isn't onerous at all.

"Setting it up as each employee becomes eligible is a matter of entering their information into the system," she says. "It's very easy to administer. I just withhold from the employees' checks and make the payments weekly. It probably adds about five minutes to each payroll run, but the payments are all done online."

Education is a must

That's not to say the entire process is a breeze. Concrete Arts' Dougherty says one important service its third-party vendor offers is education on the 401(k) process. "Fortunately, we have an investment guy who is very down-to-earth and speaks the same blue-collar-ese that our guys do," Dougherty says, making them feel comfortable to ask questions so they can better understand the benefit.

Solomon agrees that education is an important part of the process.

"We have a book we give everybody," he says. "We also have a meeting every year on the state of the company where we explain the 401(k) and the ESOP and how they work. People who've been with the company a long time can probably recite a lot of it."

An important requirement with 401(k) programs is that all employees are treated equally, whether it's when they can enroll or how much of a match the company provides. Even so, not all employees opt to participate, although most do.

Dougherty says only one of Concrete Arts' 25 employees isn't enrolled in its 401(k) plan, and both Solomon and Mattingly's Reid say participation in their plans is at least 90 percent.

Solomon speculates that those who don't sign up for the program aren't really committed to the company for the long-term. Reid says others, particularly younger workers, may have already started their own IRAs.

These companies don't feel that their 401(k) plans, or even the profit-sharing or ESOP, are enough to get and keep

employees in today's job market. That's why, for instance, BAC offers employees a wellness program, and Mattingly is looking to add health insurance to its benefits.

Both Concrete Arts and Solomon Colors are saying it with money. Concrete Arts pays bonuses to existing employees who refer their friends to the company, and to new hires after 60 and 120 days. And, Adam Solomon acknowledges his company is looking at increasing wages.

"We might have to up people's salaries to entice them to stay with us or consider us as an employer," he says. "A lot of people say they can make the same amount in a much cleaner environment."

As for their 401(k) programs, the company reps interviewed say they're pleased with them and recommend them to other industry employers.

"It gives stability to employees when they have something to look forward to," says Mattingly's Reid. "They're not just working for today."

BAC's Price is even more to the point. Asked if he'd recommend 401(k)s to others, he says one word: "Absolutely."

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Author and artisan Jeffrey Girard of The Countertop Institute puts sealers under scrutiny with a battery of stain and acid tests. Photos courtesy of The Concrete Countertop Institute

Designed, SEALED, DELIVERED:

What's the most critical success factor for concrete countertops?

by Jeffrey Girard, P.E.

DO you know the single-most important ingredient in a concrete countertop that can make or break a business? If you thought concrete, think again — it's the sealer.

You can make the most beautiful concrete countertop in the world, but in the end it's the sealer that determines almost all of concrete's performance characteristics: stain resistance, heat resistance, scratch resistance, food safety, ease of cleaning and maintenance. Short of making sure your concrete doesn't crack, everything else depends on the sealer.



This concrete sink was sealed with a high-performance water-based urethane sealer.





Urethane coatings are easily applied with a roller.



Tim Sprules of Forma Studios in London, England, uses urethane to seal outdoor furnishings.

Meeting performance challenges

Professionals worldwide are creating amazing products including kitchen and bathroom countertops, sinks, tubs, furniture, fire pits, wall panels and planters. The possibilities are endless. While most of these creative concrete products generally require some kind of protective sealer, kitchen and bath countertops and sinks have by far the most challenging and demanding performance requirements.

Especially in a kitchen, homeowners expect their countertops to be stainresistant, heat-resistant, scratchresistant, food safe, easy to clean and easy to maintain. After all, the most popular countertop surfaces, granite and engineered quartz, meet all these

criteria. Why shouldn't concrete?

In the past, concrete countertops got a bad reputation as stain prone and high maintenance because of the wax and acrylic sealers once used. Unfortunately, this reputation persists even today, despite that most concrete countertop professionals are now using high-performance coatings to provide excellent protection to their creations. There is still a lot of confusion among consumers, designers and even concrete countertop pros about sealers, and there are still basic acrylic sealers and penetrating treatments marketed for concrete countertops.

I'm a strong and vocal advocate for using a high-performance coating to protect concrete from stains and acids, and I've invested an extraordinary amount of time and resources testing and reporting the stain performance of a wide variety of sealers. I've always used coatings, even back in the late 1990s when they required a full-suit respirator, HVLP sprayer and several days to apply properly.

Since then, technology has advanced dramatically. The popular coatings today are water-based urethanes applied with a foam roller. Many very successful concrete countertop professionals exclusively use urethanes on countertops. They've done so for years because their businesses and their reputations depend upon the performance, consistency and dependability urethane coatings provide.

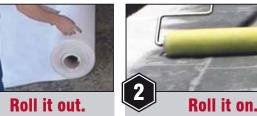
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Urethane coatings are tough

Coatings work by forming a physical barrier that prevents stains from everything that comes in contact with the concrete. Just as car paint makes a car beautiful, it also keeps it from rusting. In contrast to barrier-forming coatings, penetrating treatments such as reactive densifiers and repellants leave the concrete surface bare and vulnerable to acid etching. Etching is physical damage that can only be polished out, something few customers are capable of.

Urethanes are coatings that have properties which make them an excellent choice for sealing concrete. Urethanes (especially ones tailored for concrete countertops) are highly chemical-resistant and are inert once cured. They're very heat- and sunlightresistant, with the very best showing no yellowing effects of strong UV exposure in exterior applications. And finally, they're tough. Most wood and vinyl floors have urethane coatings that protect the floor. If those are tough enough for a floor, why can't urethanes be tough enough for a countertop?

In addition, a urethane coating doesn't depend upon the concrete to develop its properties. The types of urethanes the pros use are catalyzed, meaning there's a part A and a part B. These two components are what create the protection.

The underlying concrete has no real impact on the performance of the urethane coating, provided the concrete is not weak, overly porous or full of pinholes, characteristics that professional-grade concrete used in countertops rarely has. In stark contrast, some boutique and esoteric reactive finishes only work with proprietary concrete mixes. Their effectiveness and dependability can unexpectedly vary if they'e used on a different mix.

Still, nothing is perfect

However, coatings are by no means perfect. I've written about what the "ideal sealer" is before: It would be easy to apply with little skill or practice, work on any kind of concrete, resist stains and prevent etching damage from acids. It would be scratch-proof, heat-proof and sunlight-proof. It would



These concrete sinks by Brent Indenbosch of Diamond Finish Concrete Countertops in Chilliwack, British Columbia, are sealed with urethane.

work fast and be inexpensive.

Unfortunately, no such sealer exists. Today's water-based urethanes come close. However, they do have two drawbacks.

The first drawback is scratching. Some finishes scratch easily, while others are harder to mar. Generally, the scratch resistance of a finish is tied to its abrasion resistance, a characteristic quantified by the Taber abrasion test. Urethanes have some of the best abrasion resistance of any coating.

Granted, even the best urethane can still scratch. Unless a coating is made of diamonds, it will scratch. There is no way around this. I believe this is far preferable to staining and etching for the following reasons.

No countertop surface should be cut on — ever — except wooden butcher block. Soft surfaces like laminate will scratch, and hard surfaces like granite or quartz will ruin knives. I've found that customers would rather not have to worry about staining and etching (and watermarks — that should never be an issue) than have something they can cut on.

Cutting is a deliberate act, whereas spills of lemon juice, red wine and oil are accidental, or unintentionally overlooked and not wiped up. That deliberate act of cutting can be prevented by setting expectations with the clients, and putting in the contract and the care and maintenance guide that they can't cut on the countertops or it voids the warranty. If you're really worried about it, give them a wooden cutting board with your logo as a nice gift.

Ensuring the bond

The second drawback is the possibility of adhesion failure. Unlike simple penetrating treatments that get wiped on and soak into whatever they're applied to, coatings require some surface preparation, often acid etching or light honing. This is to promote adhesion which ensures a strong and permanent bond to the concrete. A coating's most common failure is peeling, and nearly all adhesion failures are caused by inadequate or incorrect surface preparation.

A very common cause of adhesion failure is the assumption that dry grinding is the same as wet grinding for surface preparation. It's generally well known that if you're going to apply a coating sealer, you need to stop at 200 grit. Going further will not only make the concrete too smooth to have any "tooth" for the sealer to bond to, but also it's unnecessary work because the sealer determines the sheen of the concrete.

However, grinding to 200 grit with dry pads is not the same as grinding to 200 grit with wet pads. The dry polishing process creates concrete cuttings which don't get flushed away like they do with wet polishing. Because the powdery cuttings tend to remain under the polishing head longer, they break down and act as finer polishing media.

A "200 grit" finish with dry pads is actually like a much finer finish, something like 800 grit. Additionally, the powdery cuttings get forced into the open concrete surface pores, contaminating the surface, and that can cause adhesion failure.

Worth the effort

Those who advocate treatments rather than coatings cite scratching and adhesion failure as reasons to stay away from coatings. As I've just explained, these issues are manageable, far more so than installing a kitchen countertop that ends up staining and etching from red wine, olive oil and lemon juice.

High-performance urethane coatings are worth the effort to provide peace of mind. Coating technology has advanced to the point that today's urethanes are water based, relatively easy to roll on, very scratch resistant and great looking.

So if many large and successful concrete countertop companies choose a urethane coating that keeps their customers happy and coming back, why shouldn't you?

Jeffrey Girard, P.E., is founder and president of The Concrete Countertop Institute and a pioneer of engineered concrete countertops. He can be reached at info@concretecountertopinstitute.com.



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CUTTING THE CORD

Improvements in Batteries, Chargers Up Advantages of Cordless Tools

by K. Schipper

New technology is putting more power in the hands of cordless tool users, even surpassing corded tools in many instances. However, the big benefit is not being tied to an extension cord. Photo courtesy of Bosch



Using the same technology that's driving today's electric vehicles, battery manufacturers are cutting the size and weight of their products, while increasing the amount of charge they carry. Photo courtesy of Milwaukee Tool

HANCES are good that by now you've been on a job site with other trades using cordless tools. You may even have a few of your own — and with good reason.

While the concrete industry has a reputation for being slow adopters, not only do cordless tools offer the convenience of not being tethered to a plug, but thanks to continued improvements to battery and charger technology they're holding their charges longer and putting more power into their motors.

The result: manufacturers are not only developing batteries capable of driving heavier equipment, but most see corded tools as a vanishing breed as they direct more and more of their research-anddevelopment efforts toward everything cordless.

No lightweight

Even a couple of years ago, the perception of cordless tools was they were mainly for lightweight uses. While sales were strengthening, corded tools were still outselling cordless.

That's no longer the case, and it's all being driven by the technology that makes more mobility possible — and the convenience of mobility itself.

"Increased mobility is a big advantage," says Babacar Diop, product manager for batteries and chargers for Brookfield, Wisconsin-based Milwaukee Tool. "It can't be taken for granted how much that impacts productivity. Mobility has completely transformed what users are able to do on the job site."

Mike Dougherty, vice president and head of sales for Concrete Arts Inc. in Hudson, Wisconsin, says not only does his company save on everything from the time it takes to unwind and rewind extension cords to not having to buy the cords themselves, but it contributes to increased productivity.

He compares it to a couple of decades ago when a hammer and nails were the most common way of assembling forms.

"I started bringing my drill and started using screws to attach the form work," he says. "People were reluctant to use it until they saw how much more efficient it was and how much power they had, especially when we were trying to pull forms apart in a timely fashion."

Dougherty believes the big reluctance to switching to cordless tools has come from concern about the problem of batteries dying at inopportune times and the time it takes to recharge them.

Obviously, part of that problem's solution is good battery management. Concrete Arts uses all Makita Corp. tools, so the batteries are interchangeable. However, it goes well beyond that.

"We bought 32 new batteries at the end of last year," Dougherty says. "Each kit we buy has its own two-post battery charger, and we bought five four-post battery chargers to have in our shop so when the guys get back, they can plug them in each night."

In addition, each of the company's 23 trucks has at least two battery chargers.

"The ones we keep at the shop are the regular-pace chargers because they can charge overnight," he adds. "The ones in the trucks are the quick-chargers. We pay a little extra for them, but they'll charge a battery in 15-20 minutes."

Leaps and bounds

Dougherty says it's still common for his crews to have to change out their battery packs at least once a day, but battery technology is improving by leaps and bounds.

Depending on the tool manufacturer and the job, changeouts get fewer and farther between.

Whether you need to chip, chisel, drill or cut, there's a cordless tool for just about every need and use. Photo courtesy of Bosch Ricky Cacchiotti, group product manager for concrete products at DeWalt in Towson, Maryland, says today's improved batteries are a direct result of the electric vehicle market.

"They require a lot of comb energy, so they're focused Photo o on delivering good power density out of the cells," he says. "They're using the same size package but getting more power out of it."

The same is true with cordless tools. The secret, say both Cacchiotti and Theron Sherrod, product manager for cordless tools with Mt. Prospect, Illinois-based Robert Bosch Tool Corp., is improved battery construction.

"The cell manufacturers are learning how to make the cells denser," Sherrod explains. "They're able to increase the amount of power out of a cell due to improved lithium-ion reaction within the cell."

For example, Sherrod says two years ago Bosch offered a four-amp-hour battery that used 10 cells. Today's version produces the same output using five cells, cutting the weight in half.

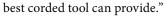
Because different tool manufacturers emphasize different features and sizes with their batteries, it's difficult to do an apples-to-apples comparison between companies. However, Milwaukee Tool has just introduced its new M18 line of RedLithium High Output batteries that Diop says allows users to replace a large segment of corded tools.

These batteries are also completely compatible backwards and forwards with the company's M18 Cordless System, which now numbers more than 175 tools.

"What we've been able to do with these high-output batteries is not only replace some segments of corded tools but provide the power to replace and surpass the power in 15-amp tools which are the most-powerful tools you can have on a breaker," he says.

"Table saws, reciprocating saws, a new circ saw we launched last year when you pair them with our batteries, you're able to get more power than the

Both power tools and dust-collection systems are going cordless – a winning combination. Photo courtesy of DeWalt



At DeWalt, the company's Flexvolt batteries can be used with power table saws, miter saws and other high-powered tools, including the new Flexvolt 60V Max combination hammer. The batteries are also compatible with DeWalt 20-volt tools.

"We have a 20V Max grinder that has 800 watts of power with a 20V Max battery, but if you put the Flexvolt pack on it, you get more power and runtime," says Cacchiotti. "With 60-volt tools, you get more power, so you can get the job done quicker."

Cacchiotti adds that Flexvolt is the world's first battery system that automatically changes voltage when you change tools.

"The tools and batteries are more intelligent and sophisticated than they've ever been," he says. "We're able to tune them and get them to do things we never would have been able to do with corded tools."

Power management

It's that sort of power management that's behind why batteries can hold a charge longer and recharge faster than ever.

Still, some of that run time depends on how the tool and battery are used. Bosch's Sherrod observes that using a grinder, for instance, requires significant and constant runtime, while using a drill driver or table saw is more sporadic.

"With a grinder, you're not only distributing a lot of power, but it's constant power, which gives the cells the opportunity to warm up," he says. "It's important to make sure your batteries are kept as cool as possible, which is why we have our Coolpack technology to dissipate heat away from the cells so the battery will run longer."

The other issue with batteries is charging times. While manufacturers design to different standards, Sherrod notes that what used to be the limitation was the battery cell's ability to accept the charge from a charger, but now the limitation is the charger itself.

That's the main reason Bosch introduced a new charger that will recharge a single-layer battery to 50 percent charge in about nine minutes, or 80 percent in roughly 26 minutes. And, Milwaukee Tool just launched its own Super Charger which charges batteries up to four times faster than its regular chargers.

The bottom line: "It's really up to individuals to pick their preference," says Milwaukee's Diop. "It's a matter of personal preference, the tools they're using and the applications. Then they have to prioritize weight versus run-time."

However, Diop is quick to note that

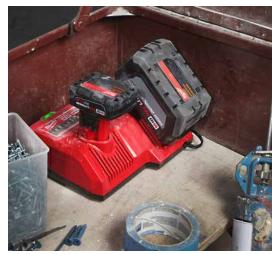
on many job sites he visits these days, a charger is the most-common thing plugged into an electric service.

Of course, retooling is costly, but DeWalt's Cacchiotti says in many cases the cost of new bare cordless tools is about the same as corded ones. And, once buyers have a couple of batteries and a charger, individual tools can be bought without those extras.

Perhaps even more worthy of consideration is that over time, at least some of these manufacturers expect to go totally cordless. For the industry overall, tool sales are already close to 90 percent cordless.

"There won't be a choice between the cost because there won't be corded tools," he says. "It's just like if you try to buy a car with an eight-track tape player in it. You'll buy the one with XM (satellite) radio because you can't find one with an eight-track."

That's not necessarily the case with all these companies. DeWalt, for one, is still seeing growth in its corded tool line, but Cacchiotti says a lot of that is coming from overseas and developing



Not just the batteries are improving with cordless tools. Chargers are getting better and faster all the time, and are becoming a common sight in service trucks and on job sites. Photo courtesy of Milwaukee Tool

regions of the world, where cordless tools are just now being introduced. DeWalt continues to support its corded line while expanding both its 20V and 60V Max systems, which now encompass some 200 tools.

Diop says he believes there'll always be a few corded tools sold, but the best



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opportunities and innovation now involve cordless. Mikwaukee is also applying its cordless technology toward other job-site solutions, such as LED lighting and sprayers.

"Concrete sprayers have always been either manual or something that's a big investment for users," says Diop. "Our new concrete sprayer gives users the convenience of treating their concrete with a cordless option, which is great depending on how much area you have to spray."

Concrete Arts' Dougherty isn't necessarily sold on the idea that the job site of the future will be totally cordless. He cites larger demolition hammers as tools that he doubts will be able to get the job done with battery power.

"If they did come out with one, I'd want to see a demonstration before I'd buy one," Dougherty says. "You never know." 🥓

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Cordless tools now offer enough power to do continuous work and can perform in a variety of weather conditions.

Charge it!

by Stacey Enesey Klemenc

n the category of wheelbarrows, this one packs a heck of a lot of power.

The PowerPac MCE400, sometimes referred to as a concrete or a "Georgia" buggy, can safely haul up to 12 cubic feet of concrete or 900 pounds of material. It's powered by a rechargeable electric battery that allows the machine to continually run for eight to 10 hours on one charge.

"People are amazed at how fast it is and how it selfdumps," says Bob Maguire, vice president of sales for Triple E Equipment Inc., a Pompano Beach, Florida-based company that recently exhibited its battery-powered construction equipment at the World of Concrete.

The electric wheelbarrow can go between 3 and 4 miles per hour, forward and backward. And if it runs out of juice while you're on a job, Maguire notes, the gig is not up. You can easily switch to manual mode to finish. It retails for \$7,995.

Among its other offerings, Triple E also showcased an electric mini skid-steer made by Hanenberg Materieel B.V. Just as powerful as a comparable model with a combustion engine, the environmentally friendly Shepra 100 Eco is powered by a front-mounted 2-HP electric motor that



emits no fumes. Weighing in under 1,600 pounds and measuring less than 31 inches wide, this compact machine is compatible with most standard elevators.

Surprisingly quiet and very strong, the mini-workhorse is well-suited for indoor demolition work that otherwise must be done manually. A 360-amp battery pack keeps the Shepra powered for up to seven hours. It retails for \$32,500.

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otos courtesy of Concrete Arts

Big-box retailers such as Target and Walmart are specifying the use of propane machinery because during an operational renovation the stores don't want the disruptions that corded machines can cause.



Propane Equipment Use Takes Off As Polishing Industry Grows

by Mike Dougherty

THESE days when one hears the term "cutting the cord" it conjures up images of severing ties with antiquated forms of communication and media like cable-TV providers and land-line telephones. Large mass communication companies like these which have made their fortunes plugging in the masses have had to modify their business models to satisfy the changing desires of today's public.

Likewise, the construction industry has also witnessed a "purging of the plug." In particular, polished concrete is undergoing a transformation from equipment formerly reliant on three-phase power (either 208 or 480) to propane power for both grinders and vacuums.

In the beginning

Many equipment companies that were at the forefront of polished concrete 20 years ago have watched the machinery adapt and improve since the turn of the century. Around Y2K the World of Concrete in Las Vegas was lucky to see a handful of vendors peddling polished concrete equipment.

"Our first year at the World of Concrete was 1999," says John Abrahamson, vice president of operations for Sase Co., one of the leading polished concrete equipment manufacturers in the country. "This year I believe there were more than 30 manufacturers of polishing equipment at the show, and there were probably double that selling different

types of tooling and chemicals."

Back in 2000, Abrahamson worked for Knoxville, Tennessee-based Vic Manufacturing, one of the first polished concrete equipment vendors in the country. Vic had cut its teeth in the marble and granite markets when Abrahamson and David Padgett, who was doing research and development for Vic, got involved with equipment and tooling that could be used to polish concrete.

The Vic grinders (which eventually became HTC) were coupled with Ermator vacuums from Sweden. The grinders and vacuums ran on 480 three-phase power, which in the United States isn't as common as 208 power. So to operate, some installers

who purchased this equipment had to transform 208 power from the panel to the required 480. These transformers often added thousands of dollars to the already pricey equipment.

Combustion engines preferred

Seeing a demand in the marketplace, forward-thinking people like Padgett and Abrahamson began to produce equipment running on combustion engines which burn propane. Abrahamson says this demand has been fueled mainly by specifications from big-box retailers like Target and Walmart as well as numerous grocery-store chains and home-improvement stores which have switched to polished concrete.

"The Target and Walmart specifications have been the driving force," Abrahamson says. "Any store which is doing an operational renovation requires the use of propane machines. They just can't have the disruption to the customer the cords create."

Walmart is open 24 hours a day and it couldn't have all the cords on the sales floor during operational hours. Target also requires propane machines for the same reason. Although Target is not open 24 hours a day, it likes to keep the floor polishing machines more mobile with less reliance on electricity. The process for these stores often requires a demolition crew working in part of the store and polishing crews working in others.



Wrong maker

The maker of the sinks and bathroom vanity (*above*) pictured on page 29 of the February/March issue of *Concrete Decor* was misidentified. It should have read photo courtesy of Stone-Crete Artistry. We apologize for the mix-up.

Power struggles

Abrahamson, who left Vic to work for HTC in 2004 before ending up at Sase a few years later, says another issue for contractors is procuring proper jobsite power. Crews were often running into issues where three-phase power wasn't available.

If that was the case, they either had to purchase or rent generators which would produce the right "juice." A generator with adequate power to run multiple grinders could cost over \$50,000, while renting them could run up to \$2,000 per week. Either way, installers were constantly fighting an uphill battle to procure proper power.

While Abrahamson had moved on from Vic, Padgett founded Perfect Polish, a polished concrete install company, along with a supply company, Concrete Polishing Solutions. Perfect Polish was working concurrently on multiple 100,000-square-foot projects and Padgett quickly saw a need to come up with a better power source for the equipment than electricity.

"We were working on a car facility

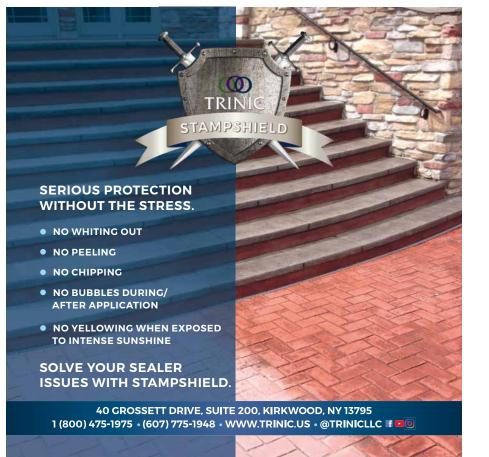
in Detroit that was more than 1 million square feet and we were constantly running into roadblocks when it came to getting three-phase power," he says. "It was a struggle to make sure the electrician was lined up, the right circuit breakers were there and we had enough cord to get to all the spaces."

Padgett had been working on a grinder with three separate heads and vacuums which were mounted on a forklift chassis and finally put it to use on the Detroit project. The contraption looked like it came straight out of the movie set for "Road Warrior."

"Everything was driven by propane the grinders, the vacuums and the forklift chassis," he says. "It allowed our crews to be way more efficient and mobile and we still use it today!"

A more mobile fleet

Padgett says he is seeing a monumental shift in his equipment sales, estimating almost 90 percent of his new machines that go out the door are gas-fueled. Like Padgett, Abrahamson has seen similar sales



numbers and touts the agility of the propane equipment as the main reason for the sharp rise in his clients' cordcutting purchasing patterns.

"Propane machinery is much more mobile," Abrahamson says. "It allows a contractor to get to a job site and be off-loaded and up and running in 15 minutes. Two years ago 80 to 85 percent of our equipment sales was electric machines. But the Target and Walmart specifications have reversed that ratio. The majority of those purchases are by guys that already have electric machines."

Although the cord-cutting propane machinery has many attributes, it does have its drawbacks Abrahamson says. These include the initial investment costs, increased maintenance and some environmental limitations.

"The cost is about \$4,000 to \$5,000 more for each piece," he says. "It also requires much more preventative maintenance. The oil needs to be changed consistently. The clutches and belts need to be maintained as well. And the longevity of propane equipment is half of what electric machinery is."

Abrahamson also says the propane machines are much noisier. And contractors have to be careful running them in small, contained areas because a lack of oxygen will cause the fuel system to shut down to avoid harmful



During a renovation on a big-box store that remains open for business, it's typical for a demolition crew to work in one part of the store while polishing crews work in others.

carbon monoxide exposure.

"These machines aren't meant to be ran in tight quarters which are not well ventilated," he says. "The fuel system is designed to cut out when oxygen levels are lowered to a certain level. The machines won't run."

Yet, despite the negative components he sees the cord cutting continuing.

"Propane machinery will never go

AND INSTRUCTOR Concrete Decor is If you'd like to share your looking for instructors who would like to teach knowledge about seminars, lead hands-on decorative concrete with workshops or serve as panel your peers, send your proposal participants during our biennial to ConcreteDecorShow.com. For show Oct. 28-31 in Arlington, Texas. more information, call (877) 935-8906. away," he says. "It might die down after some of the big-box retail work subsides, but it won't go away. And we are constantly looking at new ways to perfect the technology. They will continue to get quieter and require less maintenance."

As the concrete polishing industry continues to grow, each contractor must decide whether or not to "cut the cord." The initial costs can be substantial, but the increased mobility and subsequent productivity may prove worth enough to justify the investment.

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Mike Dougherty is vice president of Hudson, Wisconsin-based Concrete Arts, a Bomanite franchise partner that installs a variety of architectural concrete applications. He sits on the board of directors for the Bomanite International Society. Dougherty studied journalism at the University of Minnesota and is a member of American Mensa. He can be contacted at mdougherty@concretearts.com.



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Aliphatic Advantages

ALTERNATIVE JOINT FILLER DOES THE JOB RIGHT THE FIRST TIME

An aliphatic polyurea compound is better suited to fill joints for housekeeping purposes, joint edge protection and sanitary concerns.



An aliphatic joint filler (left) won't split, pull away or discolor like an aromatic joint sealer (right) will.

by Stacey Enesey Klemenc

POLISHED concrete continues to make headway as the flooring choice for grocery chains, big-box stores, museums, schools, restaurants and government buildings, but there's a recurring problem that keeps rearing its ugly head: joint separation.

Overshadowing the floors' glossy good looks, joints filled with today's most commonly used products aren't holding up as well as the floors themselves. The fillers are splitting, pulling away from the edges and discoloring.

"The reasons for this can be attributed to the fact they are aromatic polyureas, which are fast setting, have minimal elongation and lack color stability," says Brian Bowers, president of Huntington Beach, California-based Solid Solution Products, a company that develops, manufactures and distributes polymer materials for concrete maintenance and repair.

That's why he's on a mission to spread the good word about the advantages of aliphatic polyurea, a hydrocarbon compound better suited to do the job when it comes to filling joints for housekeeping purposes, joint edge protection and sanitary concerns.

Many pluses

By nature, aromatic polyureas are not UV stable in natural or artificial lighting. "These products will discolor," Bowers says, even with a UV-resistant additive. "Maybe not right away but they will eventually."

Conversely, aliphatic polyureas maintain their color both indoors and outdoors. "Any color — even white — will remain as it was installed," he says.

Many manufacturers and suppliers will boast how fast their aromatic joint fillers will set, with most having gel times of less than a minute and some setting up in less than 30 seconds. "But that's also problematic because the products are so fast-setting they have minimal wet out time to attain great adhesion to the sides of the joint," Bowers says. "This is a leading contributor to early joint failure."

Compared to aliphatic polyureas, aromatic joint fillers have limited elongation characteristics, which reduces their ability to compensate for a joint's fluctuations in width. "I'd say aliphatics have two to three times more elongation than most aromatics with equal hardness," Bowers estimates.

Aromatics can be made softer to increase elongation but softer fillers don't support the joint edge as well as harder fillers. "This can lead to premature edge failure," he says. That's why both the Portland Cement Association and American Concrete Institute recommend a minimum hardness of Shore A80.

Worth the cost

There are a few drawbacks to switching over to aliphatic joint fillers, Bowers concedes. You have to close certain areas while you're doing the floors because it takes longer for the aliphatic compound to become tack-free and cure.

Aliphatic joint fillers cost about 20 percent to 30 percent more than aromatic and labor is going to be somewhat more expensive. Plus, you need to invest in different application tools because the two-part compound requires equipment that can blend an off-ratio mix rather than the 1:1 ratio used for aromatic applications.

"But if the health department comes in because of joint failure and the customer has to fix the problems, it will cost them more to fix them than it would have cost to use aliphatic the first time," Bowers points out.

People are spending a lot of money on polished floors, he says. "Why not convince them to spend a little more? The advantage they get is that a year from now they won't be faced with having to deal with remedying joint separation."

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Jarbons

Photo courtesy of CTS Cement Manufacturing Corp.

by Nick de Ocampo, LEED AP N decorative concrete, a common question is, "Is it form before function, or function before form?" This question is more complex now — despite the answer, consumers ask if the construction materials used are sustainable. Is there such a thing as a low-carbon swimming pool, a low-carbon countertop or an environmentally friendly polished concrete floor?

People are becoming increasingly aware of how human activities impact the environment. For instance, some are already altering their eating habits or their travel patterns to minimize their carbon footprint and live a more sustainable lifestyle.

Construction materials and greenhouse gases

Construction materials are no exception to this trend that's here to stay. In particular, the impact of construction materials on the emissions of greenhouse gases such as carbon dioxide is becoming a sensitive issue for people.

NEW CEMENT CAN CONTRIBUTE TO A MORE SUSTAINABLE WORLD

Few realize that portland cement is a poorly sustainable material. Its manufacturing requires burning limestone and other raw materials in a kiln at elevated temperatures using fossil fuels. As a result, estimates are that burning one ton of portland cement causes the release of one ton of carbon dioxide into the atmosphere. The manufacture of portland cement is responsible for approximately 5 percent of human CO_2 emissions per year. This is a growing concern to the general public.

The science behind portland cement is based on Joseph Aspdin's original patent in 1824, which makes this technology almost 200 years old. Few transformational or alternative technologies have emerged since then. However, some countries have already imposed a carbon tax on the manufacture of portland cement, which is forcing cement manufacturers to look at low-carbon alternatives to this technology. For the most part, more sustainable concrete options have traditionally been limited to reducing the cement content in mortars and concrete, for example by adding noncarbon-emitting fillers such as limestone or fly ash. Yet this doesn't reduce the carbon emissions of the cement at the plant.

Benefits of a new cement

A new cement with a lower carbon footprint is now available on the market. This cement, called belitic calcium sulfoaluminate (BCSA), is based on a completely different chemistry and is a radical departure from the Aspdin chemistry. Calcium sulfoaluminate (CSA) is the active compound in this cement.

Unlike portland cement, which requires the formation of tricalcium silicate (alite) at temperatures in excess of 1,450 degrees C, the CSA forms at 1,280 degrees C and doesn't contain any alite. This drastically reduces the energy required to manufacture the CSA cement, as well the amount of limestone required as a raw material. As a result, CSA cement's carbon footprint at the plant is roughly 67 percent of portland cement's carbon footprint. BCSA cement doesn't contain any portland cement.

An additional benefit of BCSA cement is that it sets and hardens much more rapidly than portland cement. While portland cement sets in approximately three hours, BCSA cement develops structural strength in less than one hour. This is due to the chemical differences in the hydration of the cement, compared to portland.

Simply speaking, this hardening involves the reaction between BCSA and calcium sulfate in the cement to form ettringite crystals that very quickly develop while absorbing water and intertwining to add strength. This chemical reaction is fundamentally different from the chemical reactions causing the hardening process in portland cement concrete.

This rapid chemical reaction drastically increases a contractor's efficiency on a job and shortens construction time. This type of concrete has now been used worldwide in large construction projects where construction speed is a requirement, such as in 1,000 lane-miles of highway construction in California.

A third benefit of BCSA cement concrete is that it shrinks less. This lowers the material's propensity to crack, which increases its durability and sustainability. If a construction material doesn't crack, it lasts longer.

Make an educated choice

Architects and contractors are increasing aware of the availability of this more sustainable alternative to portland cement. Since many bagged cementitious products are available, they can make an educated choice of the construction materials they use.

Several cement manufacturers offer bagged products that contain CSA, which are generally labelled as an ingredient on the bag. These products range from rapid-setting mortars for general repair work to self-leveling flooring materials. A wide range of binders are now commercially available.

Because CSA can be mixed with portland cement, it's important for architects and contractors to find out how much CSA the product contains. Typically, the higher the CSA amount, the lower the carbon footprint. Typically, BCSA-containing products contain no portland cement and are a more sustainable option than materials containing portland cement.

Some retailers make it easier for construction professionals to understand the environmental impact of the products they're looking to specify or use. Home Depot, for example, offers several more sustainable construction materials as part of its Eco Option program. This program requires the material to go through a review process certifying that the material is a more sustainable alternative to other options. Some CSA-based products are part of this program.

CSA cements can typically yield additional LEED points if the cement is made with recycled aluminum, synthetic anhydrite. Because BCSA is lighter in color, the concrete also lowers the heat island effect, or urban heat effect associated with darker concrete like portland cement concrete.

This is the time for an innovative, more sustainable solution for decorative concrete in concrete construction materials. It is now up to the architects and contractors to assess these options for building a more sustainable world.

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Nick de Ocampo, LEED AP, received a bachelor's degree in materials science and engineering from the University of California, Los Angeles, and is also accredited with the USGBC and GBCI. He began working for CTS Cement Manufacturing Corp. as a product development engineer and now is a materials engineer who has developed product evaluations for the CTS Rapid Set cement line. If you have a LEED or environmental-related question, contact him at ndeocampo@ctscement.com.



How to Avoid Blisters and Pin Holes in Decorative Overlays

by Chris Sullivan

THE issue of blisters and pin holes occurring on the surface of cast-inplace concrete and resin-based coatings and sealers is well documented, but surprisingly very little is published regarding the same issues in decorative overlays.

While the root cause is the same across product markets, decorative overlays tend to be more susceptible to these types of problems. The nature of the overlay materials combined with common application methods tend to increase their frequency. If you experience these surface imperfections, a few minor adjustments in how the products are mixed and applied can go a long way in reducing them.

Problematic gas

For clarification, blisters and pin holes in a decorative overlay are all caused by some type of off-gassing. These defects shouldn't be confused with spalling, scaling and pop-outs, which are also surface defects but are caused by something else.

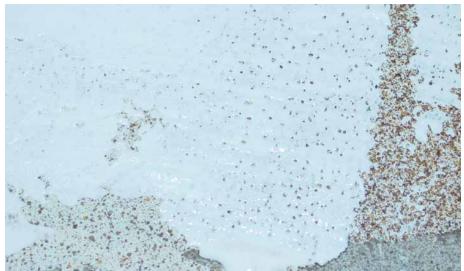
Off-gassing, also known as outgassing, is defined as the release of a gas that was dissolved, trapped, frozen or absorbed in some material. Gas can be air, water vapor or a byproduct of a chemical reaction in the overlay.

Some form of gas is always present when an overlay is mixed and applied. It comes from a combination of entrapment from mixing, reaction of the overlay ingredients and gas in the substrate. In all overlay applications, the gas must escape, primarily through the surface.

Depending on the overlay surface's plastic state:

- The gas either escapes and the material surface self-heals,
- The gas escapes but the material is too stiff to self-heal which results in pin holes, or





Blisters and pin holes in a decorative concrete overlay are caused by some type of off-gassing. Also known as outgassing, it's the release of a gas that was dissolved, trapped, frozen or absorbed in a material.

• The gas doesn't escape, accumulates near the surface because the material is really stiff and results in a subsurface blister.

The mechanism for why blisters and pin holes occurs is pretty straight forward, but how to avoid them might not be. Here are some common methods and techniques to reduce or eliminate blisters and pin holes in decorative overlays.

Use a primer

Priming does two things. It helps promote adhesion between the substrate and overlay and it helps displace and stop gas movement out of the substrate. Primers range from lowsolids latex glue to high-solids epoxy coatings. I've become a proponent of the higher-solids systems since they do a better job of sealing the substrate from gas movement.

As a side note, if you find yourself on a job without a primer and the show must go on, using a light mist of water as a primer — no puddles — is better than applying an overlay to a dry surface. A lack of a primer or poor primer application is the leading cause of pin holes in thin-section overlays. Always refer to the manufacturer's guidelines for the recommended primer.

Mix it right

Using the wrong mixer or a poor mixing technique is often missed as a source of trapped gas. The right mixer for the job is important, especially when dealing with time-sensitive fastsetting mixes.

A slow RPM or low-torque mixer means longer mix times, which allows more air to be pulled into the material. Equally important is the mixing blade. Double-helix blades that pull material from the bottom up are the best for any cement-based overlay.

Avoid moving the blade up and down during mixing as this pulls more air into the material. Bottom line: Whatever goes into the mix (water and air) needs to come out. A short rest period after mixing and before pouring the product can also help de-gas the material.

Temperature difference matters

A cold substrate compared to the ambient air temperature can lead to a false set. The surface sets before the bottom, trapping gas in the material which leads to blisters.

This is an issue in shoulder seasons where there are major temperature swings or when dealing with shadows on exterior projects any time of the year. Shadow management on a project is a real thing!

Keep surface open

If an overlay's surface tightens up quickly, blisters can form. Warm and windy conditions, as well as early finishing, are the common culprits.

The surface needs to remain open to allow for off-gassing. In certain cases this may require applying less square footage to offset the increased wait time. In my experience, this is the leading cause of blisters in trowelapplied overlay systems.

Material reaction

The least understood method for controlling blisters and pin holes may be in the material itself. Every product uses different raw materials that affects its chemistry.

The system's polymers may react

to the alkalinity and mineral content of your region's mix water resulting in possible side reactions and excess off-gassing. If you feel you have control over the process and are still getting excess blisters and pin holes, it may be time to look at the water source or evaluating a new material.

Control the outcome

Off-gassing is a natural process that occurs in all cement-based overlays. By understanding the cause it becomes easier to control the outcome.

Blisters and pin holes may not be structural issues, but in the world of decorative concrete where aesthetics is often as important, they can ruin what otherwise would be a great job.

Chris Sullivan is vice president of sales and marketing with ChemSystems Inc. and a member of the Decorative Concrete Hall of Fame. He has led seminars and product demonstrations throughout North America. Reach him at questions@concretedecor.net.

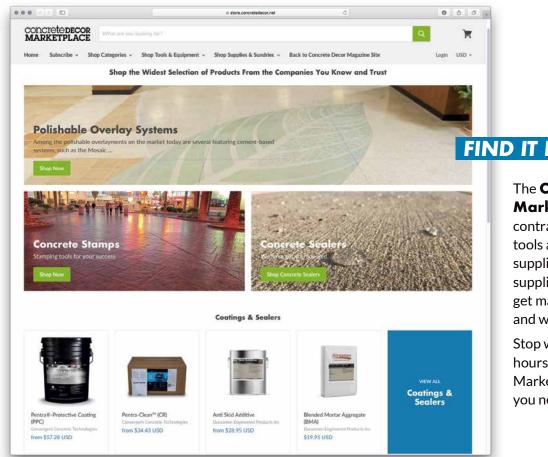




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FINAL POUR

It's a Wonderful, Sustainable Life

by Stacey Enesey Klemenc USING recycled and natural material, artisan Cindee Lundin worked her magic once again during Decorative Concrete LIVE! at the 2019 World of Concrete.

This year's 6-by-8-foot wall art titled "Sustaining Life" — intertwined the elements of sun, water, earth, fire, air, nature, light and dark. "All things needed to sustain life on earth," Lundin says.



With the untiring help and dedication of her trio of helpers — Johanne Leclaire of Winnipeg, Manitoba, Canada; Arlene Mazzocco Gallitto of Cleveland, Ohio; and Anthony Kurowski of Annandale, Minnesota — Lundin orchestrated a lively mix of everything from faux bois and stacked stone to mosaic stones and post-consumer recycled glass from far (Turkey) and near (Nevada). The small rocks the team painstakingly hand-colored were also made from recycled glass.

From sunup to sundown, the artisans stamped and engraved, stained and waxed, embedded and buffed, and





carved and caressed recycled materials along with cement, natural stone, epoxy, foam and mica. The centerpiece comprised overlapping super-thin woodtextured concrete "bowls" that Lundin made ahead of time and combined with a real geode to make a striking focal point.

"The soft palette represents natural earth colors that come together to create calm and peace in a busy world," Lundin says. Overall, she says, they hoped they portrayed that "The world is worth saving, one art piece at a time."

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