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Vol. 17 No. 2 February/March 2017 REGISTERE

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From the Publisher's Desk

Dear Readers,

Sometimes, I feel like a broken record, an idiom a growing number of our *Concrete Decor* readers can't relate to. Ironically, records only come to mind when I think of a colleague, Troy Oliver. He used vinyl record scraps as part of a successful mix design for his senior project before graduating from the Concrete Industry Management program at Middle Tennessee State University.

This *Concrete Decor* edition was fun to review prior to approving it for print. Looking at the pictures from Decorative Concrete LIVE! at World of Concrete brought back good

memories and endorses the fact that *Concrete Decor* represents an absolutely stellar industry that's constantly pressing to improve products, business, relationships and workmanship. People who choose to participate and support events like this understand the importance of industry and what keeps it strong. That's what made Decorative Concrete LIVE! a success this year and I can't wait to unveil plans for 2018.

Reading the column by Innotech's Greg Iannone left me a bit jaded. Is our industry simply looking for easier ways to turn a buck or are there obvious technical challenges that contractors face when it comes to sealing concrete? VOC laws have undoubtedly changed product chemistry along with methods for application, but that shouldn't change the quality of our work and what we deliver. I encourage you to read Greg's column and consider what your company can do to remedy these kinds of challenges.

There are many ways to prepare concrete for new coatings and finishes but when I look at technologies that add productivity to this important task I get excited. The surface preparation article should pique your curiosity on new water-blasting methods that are touted as faster, cleaner and safer than traditional mechanical methods. I think our willingness to use this emerging technique keeps businesses fiercely competitive.

Getting back to vinyl records — *Concrete Decor* is preparing to hire that CIM graduate and we won't just be fortifying our staff with a great personality. We're adding a concrete technologist who will help our customers and magazine evolve.

BTW, have you noticed a change on the magazine's cover? We've removed "The Journal of Decorative Concrete." Why? I believe our industry has reached a point where decorative and architectural concrete are no longer separate markets. They're integral parts of an evolving concrete industry.

Decorative concrete has created an environment in the industry that understands the value of choosing products that improve applications even before a ready-mix truck arrives at the job site. We must never get too comfortable in our craft. Instead, we must take advantage of learning opportunities that continue to abound.

Enjoy this issue,



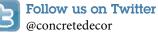
Bent Mikkelsen Publisher

P.S. Subscribe to *Concrete Decor*'s new blog. We like to think of it as empowering growth.

On the cover: This colorful acid-stained floor adds to the lively feel of a skateboard shop in Bucharest, Romania. It is coated with a microtopping, stained with Amber and Turquoise, and sealed with Ideal PU 78 Super-Matt. Photo courtesy of Ideal Work







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concrete **DECOR**

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EXPERTS

concrete DECOR EXPERTS



Lindsay Chelf is the marketing coordinator at Constructive Communication Inc. With almost a decade of experience in writing and editing for publication, her specialty is the use of graphic design, video and social media in marketing for the architecture, engineering and construction industry. Chelf can be reached at (614) 541-9868 or at Ichelf@ constructivecommunication.com. See Linday's article on page 12.



Greg lannone is sales manager for Innotech Decorative Concrete Products headquartered in Twinsburg, Ohio. He has worked in the concrete construction industry for more than 30 years and has provided training seminars throughout the U.S. and Puerto Rico, as well as Mexico and Japan. He can be reached at (877) 829-7880 or Gregl@Innotechdcp.com. See Greg's article on page 44.



Rick Lobdell, a classically trained artist with a master's in fine arts in painting from the Savannah College of Art and Design, has also studied math and drafting. In this series, the owner of Concrete Mystique Engraving in Tennessee will explain how he lays out his well-known designs. He can be reached at rick@ concretemystique.com. See his column, "Design Theory," on page 52.



David Stephenson owns Polished Concrete Consultants, based in Dallas, Texas. As a consultant, he offers decorative concrete programs for retailers and troubleshooting for a wide range of clients. Contact him at david@polishedconsultants.com. See his column, "The Polishing Consultant," on page 48.



Chris Sullivan is vice president of sales and marketing with ChemSystems Inc. and a member of the Concrete Decor Hall of Fame. He has led seminars and product demonstrations throughout North America. Reach him at questions@concretedecor.net. See his column, "Concrete Questions," on page 46.

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ICRI forms new Toronto chapter

The International Concrete Repair Institute recently formed its third chapter in Canada, with the new Toronto chapter open for membership. It will join members of the British Columbia and Quebec Province chapters in serving the concrete repair industry in Canada. With more than 6 million residents, Greater Toronto is the largest population center in Canada.

With the announcement of the new

EVENT CALENDAR

CSDA Annual Convention & Tech Fair

Gran Melia Golf Resort March 14–18 Rio Grande, Puerto Rico 🕄 www.csda.org

ICRI 2017 Spring Convention

Le Westin Montreal March 15-17 Montreal, Quebec, Canada 🗊 www.icri.org

The Concrete Convention and Exposition

Detroit Marriot at the Renissance Center March 26-30, Detroit, Mich.

Northeast Hardscape Expo

Rhode Island Convention Center Apr. 6-7, Providence, Rhode Island (§) www.nehexpo.com

AIA Conference on Architecture 2017

Orange County Convention Center Apr. 27-29, Orlando, Fla. 🖇 www.aia.org

Concrete Decor Show Innisbrook Nov. 6-10, Palm Harbor, Fla. chapter, ICRI officials also named officers for Toronto, with Stephen Franks of Blok-Lok Ltd. in Woodbridge, Ontario, serving as president; Stephan Trepanier of Edison Engineers Inc. in Markham, Ontario, serving as secretary; and David Huggins of Kelso Coatings in Milton, Ontario, serving as treasurer.

Currently, ICRI has 38 chapters, including two student chapters, in metropolitan areas around the world. The chapters hold technical presentations, educational meetings, symposiums and local conventions on repair-related topics. Chapters also provide members with opportunities to meet and network with repair specialists in their regions.

Owens Corning, CPI join forces to restore Pearl Harbor Monument

Owens Corning and the Concrete Preservation Institute recently reached an agreement through which Owens Corning and its foundation will support CPI's Career Skills Program at Pearl Harbor. This program will restore the historic Battleship Row mooring quays, while helping U.S. Army personnel transition to civilian jobs.

Details of the agreement include Owens Corning Foundation donating \$100,000 to support CPI's Career Skills Program at Pearl Harbor. The foundation will also donate fiberglass composites to CPI for use in restoration work, where appropriate, in the Pearl Harbor Battleship Row mooring quays — used to secure the ships along Battleship Row and the last structures remaining from the attack on Dec. 7, 1941. Owens Corning volunteers will also provide materials expertise to the project.

CPI's Career Skills Program is the first overseas program to be approved by the U.S. Army and the only one focused on concrete. Service members from any military branch can participate in the Pearl Harbor program at no cost due to program partnerships, donations and grants.

Active-duty service members will participate in CPI's three yearly, 12-week sessions for the Battleship Row mooring quay restoration project. They will learn hands-on about concrete, construction and historic preservation while helping preserve one of the country's most important historical sites.

ኝ www.owenscorning.com

BIBM Congress slated for May 17-19

From May 17-19, the international precast concrete industry will meet in Madrid, Spain, during the 22nd BIBM Congress.

BIBM Congresses are a unique opportunity to meet with industry professionals, politicians, academics and suppliers from all over the world. Organized every three years, the congress focuses on current challenges, new concepts and future visions. The accompanying trade exhibition will provide solutions to plan, design, produce and install modern precast structures.

The congress venue, the Madrid Marriott Auditorium Hotel & Conference Center, is located between the airport and the city. The hotel offers huge conference facilities and more than 850 rooms. The event will kick off with a Welcome Reception May 17 with traditional Spanish cuisine and music.

ACI convention set for March 26-30

Nearly 2,000 engineers, architects, contractors, educators, manufacturers and material representatives from around the world will convene March 26-30 for the Concrete Convention and Exposition.

To be held at the Detroit Marriott at the Renaissance Center in Michigan, the convention encourages collaboration on concrete codes, specifications and standards. Technical and educational sessions will provide attendees with the latest research, case studies, best practices and the opportunity to earn Professional Development Hours.

The Greater Michigan Chapter of the American Concrete Institute is hosting this convention to showcase the companies, projects, current events and landmarks that inspired the convention theme of Driving Concrete Technology.

Convention highlights include a lunch with special guest Dr. Oussama Baalbaki, a student fiber-reinforced polymer composites competition, a Contractors' Day lunch with speaker Sandy Baruah, a concrete mixer held at the Henry Ford Museum and an industry exhibition showcasing more than 40 exhibitors.

Throughout the convention, ACI will hold more than 300 committee meetings, 30+ technical sessions and several networking events.

💲 www.concrete.org

Resin Flooring Network launches

The Resin Flooring Network recently launched an industry-driven body set up for purpose, not for profit, and a big part of that is to help develop best practices for resin flooring internationally.

A draft framework has been posted on its website and is open to review for three months. This framework will form the basis for any future training program. Network founder, Real World Epoxies Managing Director Jack Josephsen, believes strong input is critical.

"The network is about trying to build a better coatings industry and I'm very excited to send an open invitation to all stakeholders to contribute," says Josephsen. www.resinflooring.network

Bosch names Acme Tools Online Partner of the Year

Robert Bosch Tool Corp. has named Acme Tools Online its Partner of the Year for 2016. Acme Tools is the first company to earn the newly created award.

Bosch cited e-commerce innovation, sales growth and overall partnership contributions in presenting the award at its North American power tools headquarters in Mt. Prospect, Illinois.

Acme Tools carries a complete line of the latest Bosch tools and accessories and has participated in the Bosch Online Partner Program since its inception in 2014.

Bosch-certified online partners are committed to bringing customers a quality online shopping experience by building and maintaining a strong relationship with the Bosch brand.

💲 www.boschtools.com

PCA elects 2017 board of directors

The Portland Cement Association recently welcomed it 2017 leadership team. Allen Hamblen, president and CEO of CalPortland Co., has been elected chairman of the PCA board of directors, and Tom Beck, president of Continental Cement Co., was elected vice chairman. Hamblen takes over PCA board chairmanship from John Stull, CEO of U.S. Cement for LafargeHolcim US.

Prior to 2006, Hamblen was president and CEO of Glacier Northwest and has worked with CalPortland and its predecessor for 31 years. He is past chairman of the National Ready Mixed Concrete Association, a trustee of the Ready Mixed Concrete Research & Education Foundation and is a past president of the Washington Aggregates and Concrete Association.

A past chairman of the American Concrete Paving Association, Beck served as senior vice president at Continental Cement from 2005 to 2013, and as vice president of sales and marketing from 1996 to 2005. (§) www.cement.org

ONLINE EXCLUSIVE



Safety First at Decorative Concrete Live! http://bit.ly/2jDncqr

Check out Concrete Decor's new blog!



Jon-Don opens new center in Union City

Jon-Don — a leading national distributor of supplies, equipment and training to professional contractors and in-house service providers in the disaster restoration, flooring maintenance, janitorial and concrete surface prep and polishing segments — has opened a new warehouse distribution and shipping center in Union City, California.

The 12th and newest location will serve as a strategic shipping point for the distributor, allowing Jon-Don to offer faster product delivery, reduced freight costs and improved service to customers in the West and Southwest. In particular, the entire state of California is now within a oneday delivery area, allowing those in the Golden State to enjoy expedited shipping at significantly reduced costs.

Local customers in need of products even faster can visit the facility to pick up their orders right away.

The new facility is located at Alvarado Business Park, Building N, 30461 Whipple Road in Union City.

📢 www.jondon.com

ASCC officers elected for 2017

Chris Plue of Webcor Builders in San Francisco, California, has been elected 2017-18 president of the American Society of Concrete Contractors. Anthony DeCarlo, Cincinnati, Ohio; Chris Forster, Tustin, California; and Mario Garza, Southville, Michigan, were re-elected vice presidents. Rocky Geans, Mishawaka, Indiana, was elected as a vice president. Keith Wayne, Kannapolis, North Carolina, was re-elected treasurer. Tim Manherz, Houston, Texas, was elected as a director and Bill Bramscreiber, Glendora, California, and Steve Lloyd, Rustburg, Virginia, were re-elected directors.

The Decorative Concrete Council, a specialty council of the ASCC, re-elected directors Clark Branum, Marysville, Washington; Jeff Eiswerth, Cleveland, Ohio; Dan Engel, El Dorado Hills, California; Ryan Lakebrink, Washington, Missouri; and Stevie Ray Lloyd; Rustburg, Virginia. Curt Thompson, Livermore, California, and Scott Truax, Sugar Hill, Georgia, are newly elected directors.

💲 www.ascconline.org

WOC kicks off promising 2017 season

World of Concrete 2017 provided exhibitors with a hugely successful platform to start off the year strong, packing the show floor with qualified industry-related attendees, ready to make purchasing decisions on the latest equipment, products and technologies. Many exhibitors commented WOC 2017 was one of the best shows in recent memory, resulting in a 73 percent rebook on booth space for WOC 2018.

This international event for the concrete and masonry industries drew 50,770 registered professionals and featured more than 1,455 companies exhibiting across more than 681,196 net square feet of space.

The Weatherton Scholarship, which provides \$2,500 to help the next generation of concrete professionals in the Concrete Industry Management program, was presented to Dan Regad of the New Jersey Science & Technology University. CIM also held its annual unreserved silent and live auctions at WOC and raised about \$875.000.

💲 www.worldofconcrete.com

After a comprehensive internal search for a successor, Avi Kahn was promoted to president and CEO of Hilti North America in January. He began his career with the



Hilti organization in 2004 as a territory sales representative for construction in San Francisco. From there he was promoted to regional manager in San Diego and Hawaii, and in 2008 was appointed the Chicago-based West Great Lakes division manager. He has served as general manager of Hilti Canada since 2011.

Martina McIsaac has succeeded Kahn as general manager of Hilti Canada and is now a member of Hilti North America's executive management team. She came to Hilti in 2013 as a senior manager before joining the Hilti Canada management team in 2014 as division manager for the greater Toronto area.

TRANSITIONS

Stephen S. Szoke joined the American Concrete Institute staff in January. Filling a new position, he will concentrate on global efforts to disseminate and position ACI's

codes, standards and certification programs to those in the industry as well as to the public at large. His efforts will focus on expanding relationships with technical and regulatory authorities, while working with industry groups to develop, implement and support code development programs. A LEED-accredited and registered professional engineer, Szoke has a bachelor's degree in civil engineering from Lehigh University in Bethlehem, Pennsylvania. He also is a graduate of the U.S. Chamber of Commerce Institute for Organization Management.

With 13 years of service to the company, Kim Running recently joined Todd



Scharich as coowner of Decorative Concrete Resources. Cited as an integral link between vendors and customers, she will continue to serve the company as its

business manager. Decorative Concrete Resources has two locations in Michigan, Saginaw and Grand Rapids.

Cary Evert, president and chief executive officer of Hilti North America since 2005. will retire March 31. Over his nearly fourdecade career, he has held nine different



roles, including three international assignments, after first starting with the company in 1980 in New York City.



THANK YOU to our 2017 Decorative Concrete LIVE! partners:



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A TIP of the HARD HAT HE debut of Decorative Concrete LIVE! **SAFETY**

at the 2017 World of Concrete

in Las Vegas was met with resounding approval as job site safety took center stage in the annual event's Silver Lot. Hosted by Concrete Decor and the Concrete Decor RoadShow and their partners, the exhibit featured concrete professionals with hard hats, glasses and gloves installing a variety of finishes on a simulated concrete residence, alongside static displays prepared prior to the show.













Whiteboard Videos Draw **Attention to Your Message**

by Lindsay Chelf

F a picture is worth a thousand words, what is a video worth?

A not-entirely scientific answer suggests that if a picture equals a thousand words, and a video is shot at 30 frames a second, then a minute-long video would be worth a whopping 1.8 million words. It's a fun "statistic," but probably not true. (Does a one-minute commercial *really* convey more than twice as much information as the 884,647 words in the complete works of Shakespeare? I think not.)

However, video does impart on its viewer much more than an image or text might. Our brains are hardwired to seek easy-toprocess information and avoid any that requires extra effort to absorb. Regardless of your own personal work ethic, your brain is the poster child for "work smarter, not harder." This is why most people are better able to glean — and remember information from a video than they are from other forms of media.

WHITEBOARDBES COMMUNICATION, INC.

ELL A S

People watch whiteboard videos with the expectation of being entertained in addition to being informed, so avoid a dry presentation style such as bullet-point lists and walls of text. Three popular purposes of whiteboard videos are to explain, to announce and to promote.

> "What's the Difference between Concrete and Cement?" "How to Integrate Decorative Concrete in Green Spaces"

PROMOTE "Introducing Our Latest Line of Equipment"

ANNOUNCE "Celebrating 30 Years in the Construction Industry" "Meet our New Vice President"

"Our Top Five Most-Requested Services are..."



Pick a style that represents your company or organization. Keep your target audience in mind, and also remember that whiteboard videos are fairly casual (and may not be your best bet for presenting a serious topic to the board of directors!). Are you...



SHORT & SWEET

Attention spans are limited, so try to keep your video to anywhere from 45 seconds to a minute and a half. Reserve longer videos for particularly complex topics. If you start getting into the 5- or 10-minute range, a whiteboard may not be the best platform for your message.

Try it, you may like it

There are plenty of reasons that video marketing is gaining popularity at an exponential rate. Research has found that 90 percent of online customers find video helpful during their decision-making process, 65 percent of consumers will visit a company's website after watching one of its videos and using the word "video" in an email subject line boosts open rates by 19 percent as well as reducing unsubscribers by 26 percent.

Despite these impressive figures, small businesses, especially those in the concrete industry, tend to write off video as being too expensive or too time-consuming to even bother with. The thought of picking an interesting topic, writing a script, buying a quality camera and equipment or hiring a film crew, recording multiple takes and then spending hours in the editing room is overwhelming (not to mention the added dread for those among us who are camera-shy).

Fortunately, there's a solution that solves almost all of those issues: whiteboard videos. Instead of spending an inordinate amount of money and time on a live video, these animated videos are a quick and cost-effective solution for those interested in sharing information in a visually-appealing manner.

This style of video originated as recordings of people writing and drawing out a storyboard on an actual whiteboard. As companies strove to be more creative and informative, whiteboard videos evolved into depicting a hand drawing out a story using time-lapse or stop-motion techniques.

The result was a fast-paced animation with a voiceover rather than the artists narrating. Today, there are many software options out there to create your own whiteboard videos, eliminating the need for good handwriting and artistic abilities!

Four good reasons why to try

In addition to boosting web traffic, increasing brand awareness and promoting yourself as a thought leader in your industry, whiteboard videos also:

Help viewers remember a topic. When watching two videos on the same topic — a whiteboard video and a regular video of a person addressing the camera — an audience retained on average 15 percent more information from the whiteboard video.

Are fun. Though "fun" may not be a priority in a company's marketing plan, studies have shown that people learn better when something entertains them or puts them in a good mood.

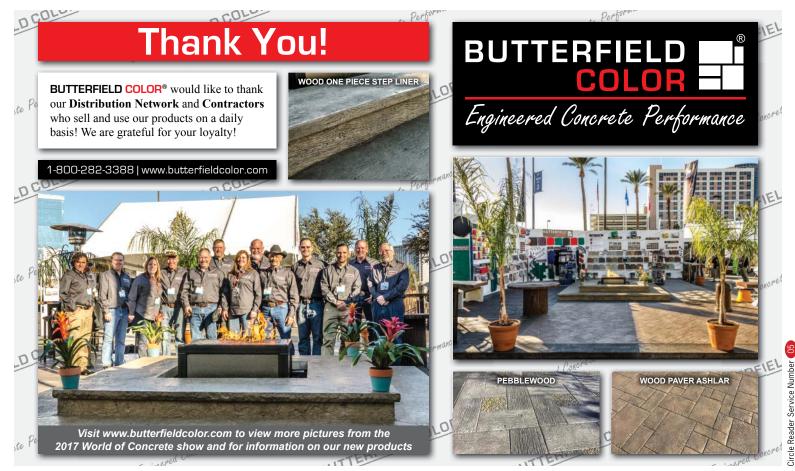
Are shareable. People are drawn to the imagery of a whiteboard video. In a study done with 2,000 participants, a whiteboard video was shared by 55 percent of viewers, compared to 17 percent of viewers sharing a video of someone speaking to the camera.

Are engaging. As mentioned earlier, our brains are overtaxed and hardwired to favor cognitively easy tasks. Visual information is much easier to absorb than text only, making video the ideal way to convey a message to your audience.

Before you jump into producing your own whiteboard video, check out some handy tips in the accompanying infographic and you'll soon be creating valuable content to reach new audiences!

Lindsay Chelf is the marketing coordinator at Constructive Communication Inc. With almost a decade of experience in writing and editing for publication, her specialty is the use of graphic design, video and social media in marketing for the architecture, engineering and construction industry. Chelf can be reached at (614) 541-9868 or at Ichelf@constructivecommunication.com.





PRODUCT NEWS



Check out the new blonde

Previously offering 10 colors in a green to brown range, Westcoat Specialty Coating Systems has added Blonde to its acid stain palette. The lighter, neutral tone is similar to a wheat or sand hue.

Westcoat Acid Stains penetrate the concrete and react with the cement to produce rich, attractive finishes. When applied on concrete, the stain's metallic ions combine with its particles. The resulting oxides produce a variety of mottled colors ideal for both interior and exterior projects.

Acid stains are the company's most durable and UV-resistant offerings of its concrete stain systems and are ideal for exposed projects such as restaurants, tasting rooms, patios, driveways and showrooms.

🚯 www.westcoat.com

(800) 250-4519

Trench drains streamline installation

Watts Dead Level Trench Drains are designed to

make installation a whole lot easier. A patented frame-anchored design erases the

worries of channel floating, pinching and misalignment during the concrete



pour. The drains' unique design ties rebar directly to the structural frame, not the channels, making installations straight and level. Its flanged channel connections consistently create aligned, solid joints.

The drains come in standard 4-foot sections, with 1-foot straight and combination corner/tee sections for flexibility on uneven runs, which eliminate the need for cutting in the field.

All systems are shipped with plastic construction covers to protect grates and keep the drains free of debris during construction. To simplify specifications and ordering, the drains are priced and shipped by the foot, with all required installation hardware and accessories.

(\$) www.watts.com (978) 689-6066

Product enhances clarity quicker in fewer steps

KickStart Clarity Enhancer from Curecrete achieves accelerated and enhanced concrete clarity in fewer grinding and polishing steps. While similar products accelerate only the initial grind process, KickStart goes further, accelerating the entire grinding and polishing process, while enhancing the floor's overall clarity.

In a typical comparison test between the traditional grinding and polishing method versus the KickStart process, KickStart



HTACHI

eliminated six overall steps, four of which were time-consuming and expensive grinding and polishing steps. It also delivered higher clarity with a lower-grit diamond.

Additionally, KickStart can improve the performance, efficiency and longevity of expensive diamond tools. It's designed to work in combination with and is only intended for use on floors using the RetroPlate System or Ashford Formula. It is ideal for use on hard steel-troweled concrete.

💲 www.curecrete.com

(801) 489-5663

Reserve air tank can power multiple nailers over a distance

Hitachi Power Tools recently released its first American Society of Mechanical Engineers-certified reserve air tank (model UA3810AB) that includes a complete set of fittings and accessories allowing it to be used straight out of the box.

This 10-gallon reserve air tank, which weighs 40 pounds fully outfitted, eliminates the concern for air

pressure being insufficient to power multiple nailers over an extended distance from the compressor. With Hitachi's reserve air tank added between the compressor and nailer, the psi will remain constant even if five or more nailers are operating at the same time on a job site.

Hitachi's ready-to-use reserve air tank comes with five quickconnect couplers (four unregulated and one regulated) for easy onehanded connections of hoses and/or splitters. It is certified by the ASME, confirming compliance with U.S. laws and regulations.

Durability is essential and this horizontal barrel reserve tank features a roll-cage design that protects the regulators and gauges from job site abuse, a steel tubular handle for easy job site transport, and angled steel legs for additional support and stability despite potential uneven turf and often-harsh conditions.

www.hitachipowertools.com

(800) 829-4752

Versatile sealer prevents corrosion

W.R. Meadows debuted Pentreat 244-100, a new hydrophobic impregnating sealer used on all types of concrete, at the World of Concrete.

The Pentreat series can be used on horizontal and vertical, new and existing concrete, and masonry abovegrade surfaces. It helps prevent chlorideinduced corrosion of rebar, scaling, spalling, freeze-thaw damage and other causes of debilitating concrete.

The products were developed for use on nearly every type of concrete, including

structures such as parking garages, bridge decks and piers, marine buildings, loading docks, vehicle repair and wash-down facilities. It's also ideal for driveways, walkways, plazas and patios, in addition to median barriers and traffic-barring concrete.

When applied, this 100 percent active silane sealer penetrates deeply for maximum protection. Pentreat seals the pores and capillaries of substrates, preventing liquid absorption while allowing for excellent vapor transmission. It won't leave residue, so once applied it doesn't require cleaning.

www.wrmeadows.com

🖉 (800) 342-5976



Compact vertical lift loader unveiled

ASV LLC, an industry-leading manufacturer of all-purpose and all-season compact track loaders and skid steers, introduces the company's first mid-frame, vertical lift compact track loader, the Posi-Track VT-70.

The machine features a vertical lift loader linkage for applications requiring extended reach and level loads, such as loading pallets. The VT-70 features best-in-class-rated operating capacity, cooling systems and hydraulic efficiency. The compact track loader excels at lift, carry and load tasks as well as heavy digging in industries such as construction, excavation and agriculture.

From March 7-11 during CONEXPO-CON/AGG 2017 in Las Vegas, ASV will feature the VT-70 in the Manitex International booth G4464.

💲 www.asvllc.com 🖉 (800) 205-9913





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Remote-controlled demo machine heightens power and efficiency

Brokk, one of the world's leading manufacturers of remotecontrolled demolition machines, presents the Brokk 110.

This electric-powered machine features increased demolition power over its predecessor, the Brokk 100, and includes the allnew Brokk SmartPower electrical system. The machine's improvements increase the reliability and versatility for Brokk customers working on harsh job sites in industries such as construction, metal processing, mining and nuclear.

The new machine features a 10-foot (3-meter) reach and weighs 2,183 pounds (990 kilograms). It delivers 15 percent more power than the older Brokk 100 and 50 percent more than its predecessor, the popular Brokk 90 (discontinued in 2011) while retaining its compact design. It is ideal in restricted spaces and on weak floors.

Along with improvements to its overall power and electrical systems, the Brokk

110 also features upgraded durability. This includes hardened parts, LED headlight protection, reinforced corners and a new steel gray color coating in strategic areas for additional resistance to dirt and scratches.

It is also compatible with the same wide range of attachments available for the Brokk 100 that it replaces, including breakers, crushers, grapples, rock drills and shears.

😵 www.brokk.com

🖉 +46 (0) 910-711 800



Stereo made for heavy-duty industry

The all-new JHD36A has made its debut into the heavy-duty market. Featuring the latest technology with Bluetooth hands-free calling and app control, this stereo is perfect for all construction and agriculture applications.

This stereo boasts a 12-volt, DC-power connection and a full 180 watts maximum. Its conformal coating protects its components from the elements that are commonly encountered in heavy-duty applications.

ASA Electronics has been designing and manufacturing mobile electronic products for the construction, marine, RV, PowerSports, agricultural, commercial vehicle and bus industries since 1977.

ኝ www.asaelectronics.com

🖉 (877) 305-0445

Company expands heated coating tank's size

Marco has increased the size of its heated coating tanks by adding the Spraymaster 60-gallon tank that can be used to hold, heat and blend coating materials. Its round tank design allows for even mixing and heating of a coating while accommodating up to 60 gallons of material used with high production plural coating systems.

It features an electric immersion heater that maintains a consistent temperature of a liquid solution, which transfers heat to the coating material in the tank. This transfer of heat reduces the viscosity of the material allowing for improved blending by a pneumatically driven agitator.

For decades, Marco has been providing the surface preparation and protective coatings industries with innovative and reliable products and service.

www.marco.us
(800) 252-7848

Palm-sized nailer designed for tight spaces

Hitachi Power Tools recently added its first a 3 ½-inch Palm Nailer (model NH90AB) to its extensive Pro Preferred Pneumatic Nailer lineup.

This Palm Nailer is designed specifically for driving bulk nails in confined spaces where a nailer might not fit, and there is no room

HITACH

to swing a hammer. It accepts commonly used bulk nails up to 3 1/2 inches long, ranging from .113 inch to .162 inch in diameter. The magnetic nose secures a fastener in place so that the user can easily, safely and accurately guide the nail tip into a material or various types of prepunched metal connectors.

The nailer's performance is only enhanced by its maneuverability.

This tool is lightweight at just 1.3 pounds for minimum fatigue during extended use or overhead applications. The 360-degree swivel 1/4-inch industrial fitting allows the air hose to hang at any angle instead of straight out to easily fit into awkward angles.

An over-molded, nonslip rubber grip adds comfort, absorbs vibration and helps maintain superior control during use. The front exhaust conveniently directs air away from the user.

💲 www.hitachipowertools.com

🖉 (800) 829-4752



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NOV. 6-10, 2017 PALM HARBOR, FLORIDA



Photos courtesy of American Society of Concrete Contractors

ASCC Council Honors Winners of 2017 Decorative Concrete Awards

HE Decorative Concrete Council, a specialty council of the American Society of Concrete Contractors, recognized the winners of its ninth annual Decorative Concrete Awards competition Jan. 17 at the World of Concrete in Las Vegas.

Member contractors can enter 13 primary categories, which are mostly divided by size: projects less than 5,000 square feet and those 5,000 square feet and more. Judges may award a first and second place in each category. In some cases, there is a first place awarded, but no second based on the judges' decision.

This year's best overall project — the WOW! Award — was given to Sundeck of San Antonio in Texas for Mission Concepcion Park, also in San Antonio.

The park, also known as River Return, was designed by environmental artist Stacy Levy. Her design features a walkway that mimics the river's eddy and swirls that morph into a stylistic version of the frescos within Mission Concepcion. The concrete was first acid stained before the contractor spent months using a needle scaler to partially remove the surface of the concrete to expose the aggregate.

"As you walk into the park you're being brought in by these swirling vortices of walls," says Levy. "It's an architecture that relates more to the way nature moves, with curving lines." Not to mention, it's great fun for kids to run around in, she adds.

River Return is at the northernmost end of Mission Reach and likely the first place to be encountered by visitors. The project took about a year to complete.

The other 2017 winners are:

Project Video, First Place

T.B. Penick & Sons Inc., San Diego, California

Reconstruction of 1805 Direct Access Ramp

The DAR project at East Palomar Street in Chula Vista involves 133,000 square feet of pervious concrete and 21,000 square feet of Lithocrete. T.B. Penick crews worked with CalTrans's pervious mix design in lieu of their own. They had to use a telescopic belt conveyor and occasionally had stuck trucks due to the subgrade bed.

Project Video, Second Place

Dancer Concrete Design, Fort Wayne Indiana *The Golden*



Cast-In-Place Stamped, Over 5,000 Square Feet, First Place

Alchemy Concrete, Nelsonville, Wisconsin

Berard Residence Driveway

This home's slopes called for more complex forming than your typical driveway. The 13,000-square-foot heated driveway and walkway, along with 25,000 square feet of unheated paving, required about 600 cubic yards of integrally colored concrete. Note the consistency of color and texture in this project and how well the coloring complements the natural surroundings.

Cast-In-Place Stamped, Over 5,000 Square Feet, Second Place

Greystone Masonry, Stafford, Virginia Inn at Beach Club



Polished, Under 5,000 Square Feet, First Place

Colorado Hardscapes, Denver, Colorado

Denver International Airport, South Terminal Expansion Abundant challenges had to be overcome with this nontraditional polishing project on an elevated airport deck that involved straight and curved bench seating, some with electrical boxes and integrated wiring. Custom-made Styrofoam forms and blockouts were made and special equipment used to polish the bull nose edges and tops of each bench.

Polished, Under 5,000 Square Feet, Second Place Dancer Concrete Design, Fort Wayne, Indiana *The Golden*



Cast-In-Place Stamped, Under 5,000 Square Feet, First Place

Greystone Masonry, Stafford, Virginia

Owens Residence

The homeowners wanted a family-friendly environment where they could entertain and relax. The contractor delivered a sophisticated and stylish backyard transformation, despite an 18-foot elevation difference from one side of the yard to the other. The makeover envelops a stamped concrete pool deck with a fireplace, fire pit, outdoor kitchen, pavilion, and sitting and retaining walls.

Cast-In-Place Stamped, Under 5,000 Square Feet, Second Place

Salzano Custom Concrete, Centreville, Virginia Bristow Village Fireplace Retreat



Polished, Over 5,000 Square Feet, First Place

Dancer Concrete Design, Fort Wayne, Indiana

Auburn Cord Duesenberg Automobile Museum Remaining open while the floor was installed and finished to an 800-grit was part of this project's challenge. The crisp, detailed line work required more than 2 miles of tape and plastic. The new section's colors and pattern were achieved with a four-dye combination to match the existing floors.

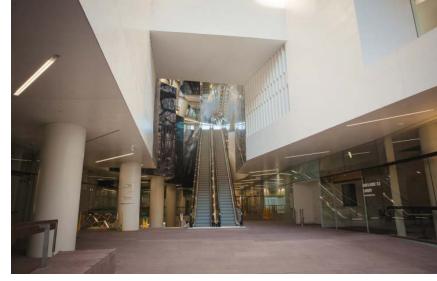
Polished, Over 5,000 Square Feet, Second Place Bay Area Concretes, Livermore, California *University of California, Berkeley – Eshleman Hall*



Overlays Under 1/4 Inch, Under 5,000 Square Feet, First Place Sundeck of Washington, Chantilly, Virginia

Westside Parcel C

A colorful design was central to this upscale apartment community in Northern Virginia. Although the judges disliked the chosen colors, they applauded the significant details in the project's layout and design. They cited the overlayment texturing as "textbook" and were impressed how the running patterns continued across the pool to maintain consistency.



Overlays Under 1/4 Inch, Over 5,000 Square Feet, First Place Surface Archetypes, Flinders View, Queensland, Australia 480 Queen

More than 37,000 square feet of wall and ceiling in a 32-story office tower in Brisbane, Australia, was resurfaced with panDomo, an overlay made by Ardex. The decorative plaster-like material was skillfully applied by a crew of eight, who managed to maintain a consistent texturing style throughout the interior expanse. The judges noted this was no easy feat.

Overlays Under 1/4 Inch, Over 5,000 Square Feet, Second Place

Sundek National Accounts/Sundeck of Washington, Arlington, Texas *Skyhouse in Charlotte, North Carolina*

Overlays 1/4 Inch – 2 Inches, Under 5,000 Square Feet, First Place

Honestone, Tuggerah, North South Wales, Australia

Honestone, Tuggerah, Nor Pyrmont Fire Station This four-level urban fire station doubled in size as the project carefully blended new with old. As a historic-listed Heritage building, existing finishes had to be protected and left intact and a new overlayment installed that would all work

together. Material delays were plenty and the polishing

tedious to create the

aggregate exposure.

correct amount of



Overlays 1/4 Inch – 2 Inches, Under 5,000 Square Feet, Second Place

Dancer Concrete Design, Fort Wayne Indiana Lincoln Financial Group



Countertops, First Place

Dylan Myers Design, Columbia, Maryland Heavy Lifting Table

This 17-by-11-foot table serves as the centerpiece of a new corporate headquarters, with ample seating room for a dozen or more. The Millau Viaduct bridge in southern France inspired the owners to commission the over-the-top executive table.



Cast-in-Place Special Finishes, Over 5,000 Square Feet, First Place

Shaw & Sons, Costa Mesa, California

The Water Garden

With a goal to decrease water usage by half and modernize an outdoor entertainment area, the contractor placed 3,800 yards and built three water features. Materials used include LED lights, white cement, seeded mica and glass, Presto Wall finish, integral colors and light washes. The overall design merged basic colors and finishes with a few elegant applications for a fantastic outcome.

Cast-in-Place Special Finishes, Over 5,000 Square Feet, Second Place

T.B. Penick & Sons Inc., San Diego, California San Diego International Airport Rental Car Center



Vertical Application, over 5,000 Square Feet, First Place

T.B. Penick & Sons, San Diego, California

Fashion Show Mall, Las Vegas

An iconic fixture on the Las Vegas strip, the Fashion Show Mall required special attention to logistics and details with the area's constant temperature fluctuations. Some 18,000 square feet of poured-in-place and precast concrete walls and benches lined the walkways and featured a proprietary troweled-on finish that complemented the quarried stone flatwork.



Cast-in-Place Special Finishes, Under 5,000 Square Feet, First Place Bomanite Toronto, Vaughn Ontario, Canada

Patterson Residence

Citing how well the design and material choices complement the house, judges also loved how this project used grass borders on the courtyard patio to create a softness around so many hardscape features. About 3,000 square feet of concrete was placed for the driveway, with the bands poured separately and finished with a limestone texture.



Vertical Application, Under 5,000 Square Feet, First Place Hyde Concrete, Pasadena, Maryland 625 H St.

Located in Washington, D.C., where the modern concrete look is very popular, a downtown facility's makeover started with a cementitious wall finish and detailed, sealed columns. The application included multiple layers of cementitious plaster with integral color and hard troweling. The cost-effective finish celebrated the look and feel of concrete throughout the project's common areas.

Vertical Application, Under 5,000 Square Feet, Second Place

Trademark Concrete Systems, Anaheim, California *Ford Theatres*



Concrete Artistry, Over 5,000 Square Feet, First Place

Sundek of San Antonio, San Antonio, Texas *Mission Concepcion Park*

A combination of sandblasting and acid stain in a 7,000-square-foot area creates a swirled design that mimics the motion of the eddies of the San Antonio River. The acid stain was applied first, followed by months of needle scaling to remove the concrete's surface. The surface had to be durable enough to withstand constant bike and foot traffic.



Multiple Applications, Under 5,000 Square Feet, First Place

Tom Ralston Concrete, Santa Cruz, California *DeWhitt Residence*

The treatments in this home were the result of a year-long effort that conjure up images of an Indiana Jones thriller. Countertops have blue veins and more than 300 individual fiber optics that twinkle like stars. Large bronze snakes with blue LED eyes slither across green backsplashes. A fire pit outside includes smaller bronze snakes, also with LED-glowing eyes.

Multiple Applications, Under 5,000 Square Feet, Second Place

Nobel Concrete Inc., Jenison, Michigan Langeler Residence



Concrete Artistry, Under 5,000 Square Feet, First Place

Fisher Cos., Midland, Michigan

Midland Community Aviation Discovery Area – Compass Rose

The intricate details in the 8,500-pound compass rose at the Barstow Airport has received citations from Congress and Michigan's attorney general, and was largely responsible for Michigan naming the facility Airport of the Year. As the key piece for the airport's new education attraction, the compass rose exceeded everyone's expectations in all areas of craftsmanship.

Concrete Artistry, Under 5,000 Square Feet, Second Place Progressive Hardscapes, Phoenix, Arizona *Friendship Park Splash Pad*



Multiple Applications, Over 5,000 Square Feet, First Place Trademark Concrete Systems, Anaheim, California TV Academy

A new landmark building on the Television Academy campus in Anaheim features a state-of-the-art theater commemorating the academy's 70th anniversary. The theater and media center feature radius stairs, planter walls, curbs and nearly 15,000 square feet of sandfinished paving with alternating bands of hand-seeded white aggregate. This is the second consecutive year that Trademark has won this category.



Stained, Over 5,000 Square Feet, First Place

Trademark Concrete Systems, Anaheim, California

Highway 299 Curve Improvement

Along a curve next to a well-traveled two-lane highway, an 11,500-square-foot concrete retaining wall features stones of many colors. The wall, that ranges in height from 5 feet to 48 feet, features "rocks" that were colored by hand with a primary color and at least one secondary color. Five different colors of stain were used for this project.



Decorative Environmental, First Place

T.B. Penick & Sons, San Diego, California Battery Park

New for 2017, the Decorative Environmental Award recognizes projects that combine function and aesthetics that are environmentally friendly. This category's first winning project spotlights Battery East, where the National Parks Conservancy added pedestrian and bike paths, stadium-style seating and accessible viewing areas so visitors could enjoy the park's stunning vistas. The work was done in anticipation of the 75th anniversary of the Golden Gate Bridge.

To comply with California's new sustainability regulations, T.B. Penick chose a permeable paving material that would reduce storm water runoff but still be durable enough to deal with 7,000 daily visitors.

To enter ASCC's 2018 Decorative Concrete Awards competition, go to www.ascconline.org. For more information, call (866) 788-2722.



Stained, Under 5.000 Square Feet, First Place

Concrete by Hallack, Turlock, California *Museum of Art of Sonora (MUSAS)*

A combination installation/training program in Sonora, Mexico, the museum project kicked off at a World of Concrete and was led by Julio Hallack. School of Architecture students at the University of Sonora created the floor by mimicking the Seri Indian design seen in the ceiling lights. The building remained open during installation, which made it difficult to keep the floor clean.

Stained, Under 5,000 Square Feet, Second Place Nobel Concrete, Jenison, Michigan Bravo Cucino Italiana



Architectural Concrete/Under 5,000 Square Feet, First Place

Concrete Strategies, St. Louis, Missouri *Railroad Depot Staircase*

The contractor duplicated the Grand Railroad depot staircase, a gateway between the depot and Main Street in downtown Poplar Bluff, Missouri, with only the measurements of a deteriorated staircase. Great lengths were taken to create molds of the Grand staircase listed on the National Historic Register and deliver a product to match the original design and artwork.

ARTISAN In concrete

Luca Seminati, Ideal Work

by Jacqueline Valle

NTRODUCING decorative concrete in Europe was a big challenge to a market that's more traditionally known for materials such as natural stone, marble, wood and ceramic. As one of the first companies to use decorative concrete in Italy, Ideal Work — headed by owners Luca Seminati and Maurizio Pontello — recognized its potential and decided to invest in something that it thought had a lot of soul.

"What we loved from the beginning was the passion of the contractors," says Seminati. "This is the reason we like to deal directly with the contractors and why all our distributors are contractor oriented and not simple traders."

A former concrete finisher, Pontello has been in the concrete flooring business since he was 17 years old. At the same time, Seminati was working for a company who used to

import Marshalltown tools in Europe. In 1997, Pontello and Seminati founded Ideal Work and invested a lot of time and money in training not only themselves but their customers as well.

"We invited a lot of experts from the U.S., like Bob Harris who has been to Italy many times," says Seminati.

A global presence

Seminati notes the market in Europe is different compared to that of the U.S. so they couldn't use successful American practices as "models" to help run their business. Unlike the U.S., which is one unified country, he says, Europe comprises several countries with each having has its own culture, regulations and market. "This means a company like Ideal Work needs to be very flexible to adapt its business to each market," says Seminati. "We export about 60 percent of our business, so every time we approach a new market, we need to adapt our business model to the location."

Ideal Work now has about 25 employees and has used an array of concrete solutions for residential, retail and

> commercial projects in more than 80 countries around the world. Most of its work is in Europe and the Middle East.

"We like to describe ourselves as a company that specializes in innovative surfaces, so our goal is to help customers create their own special surface," says Seminati.

Much of the company's business in both production and product sales involves stamped concrete, exposed

aggregates, microtoppings, acid stains, artificial rock and polished concrete. Seminati notes that their customers have inspired most of their techniques and products.

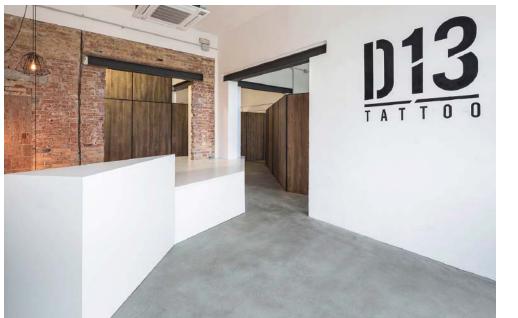
"Our role is to collect those ideas, fix them and broadcast them to other Ideal Work partners," says Seminati.

Steady business

Currently, Ideal Works is supplying its products to Disneyland Paris and installing SassoItalia, a thinly applied exposed aggregate paving, in a large tourist destination port in southern Italy.

Other projects include two incredible villas in Dubai and Qatar, where the smallest bathroom is said to be as big as a standard apartment. And in the next few weeks,











Photos courtesy of Ideal Work

says Seminati, "Our stamped concrete and artificial rock products are going to be used on the first water park in Palestine."

What has set the company apart over the years is having that "contractororiented" mentality, as it believes the industry needs to respect contractors more than it does. Like so many other companies, Ideal Work faces challenges such as recruiting and training enough people to do all the work. As customers' expectations increase and the quality and number of contractors decrease, it's hard to keep up. "This is the reason why we offer to continue training and have technical assistance on-site," says Seminati. "Our business can grow only if the quality of our customers grow.

On the plus side, one of Ideal Work's advantages is that it offers a full-package deal. This includes producing its own products, selling its own tools and machines, and offering training and on-site technical assistance. It also offers sale support with dedicated "marketing training."

"We can do all these things because our company is very focused on cementbased products for decorative concrete," says Seminati.

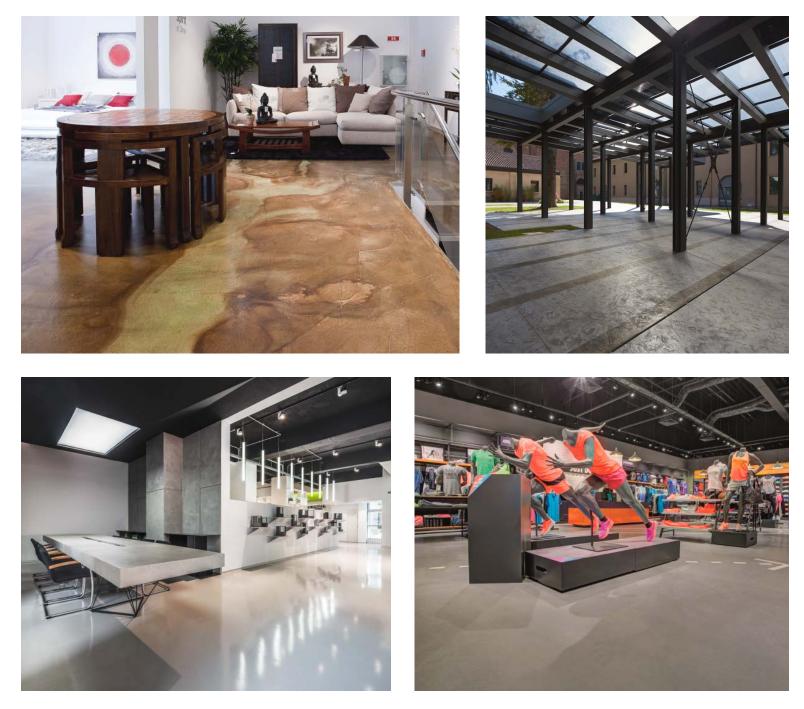
In good company

Over the last 20 years, the company has been lucky enough to collaborate with a lot of big name companies in the U.S. such as Brickform, Marshalltown, L&M Construction Chemicals and Laticrete.

"We have to say thank you to a lot of the people in this industry," says Seminati. "A special thanks goes out to Bob Harris and his wife, Lee Ann."

Some of Ideal Work's favorite past

ARTISAN IN CONCRETE



projects include the flooring at the Prada Foundation's contemporary art museum in Milan, Moet & Chandon's stamped wall cellars in the Champagne region of France, and microtopping at the Basilica of Tongeren museum in Belgium.

With many projects lined up, 2017 looks promising. "In 2016, our business grew more than 35 percent," says Seminati. "Some new markets in China and the Middle East should double in size in 2017."

Growth spurt

While Seminati is very enthusiastic about

how quickly the company's growing, he also wants to make sure it grows in the right way. He understands that selling products won't be the only way for business to expand, as there are many other areas that need focus.

"You need to increase the quality and quantity of your customers at the same time," says Seminati.

To those trying to break into the business, his advice is "training, training, training" as it's the best investment to your business. He also notes that pricing and quality are key since the market is very competitive now and there is always a cheaper alternative.

"If you want to be successful, you should be the best in your area and you should get enough profit to buy the best products and invest money in your business," says Seminati.

Looking forward to the future, Ideal Work will be throwing a big celebration in Italy this year in honor of its 20th anniversary and to say thank you to all its customers and people in the industry who have supported the company along the way.

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Tim Smith Cornerstone Concrete Technology Member since 2006

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Mechanical, Chemical or Water: Which prep is right for the job?

by K. Schipper

WITH today's ever-changing technology, it's critical to stay on top of your options to achieve the concrete surface profile (CSP) recommended by coating manufacturers and to choose the right equipment for surface preparation.

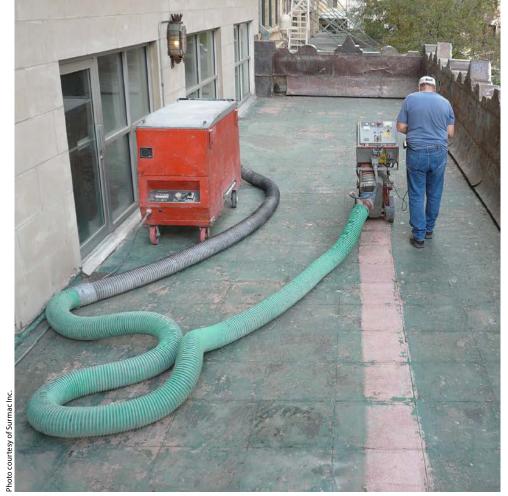
CSPs and common sense

Knowing the CSP you need to achieve is a very critical first step in choosing the right equipment for surface preparation.

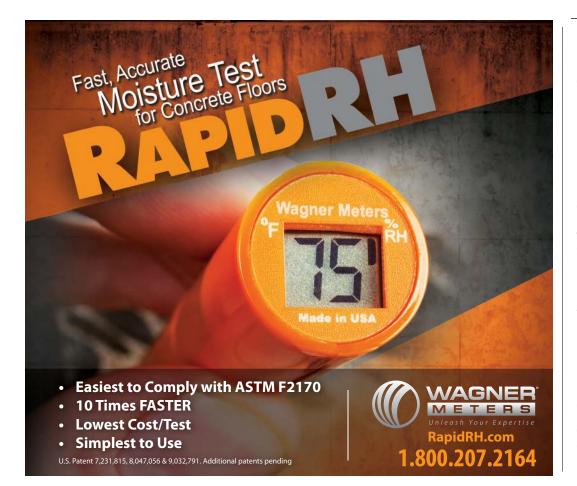
Developed by the International Concrete Repair Institute, the CSP measures the average distance from the peaks of a surface to the valleys. It ranges from 1, which is nearly flat, to 9, which is very rough. Typically, the thicker the coating, the higher the CSP needs to be.

Bill Young, owner of Professional Construction Products in Sandy, Utah, notes that most products have a recommendation anywhere from a 2 to a 5 CSP. However, he says common sense also needs to be applied.

"I've seen an epoxy manufacturer say in order to put its 100 percent solids epoxy down you'll want a CSP of 3," he says. "In the same breath, they'll say if you're going to recoat an



Here, a worker runs a shot blaster in preparation for installing a new deck coating at a theater in San Antonio.



Moisture Measurement in Concrete Slabs Webinar

Wagner Meters is proud to offer "Moisture Testing of Concrete Floor Slabs," a webinar presented by Howard Kanare, a leading expert on concrete moisture issues. Kanare speaks about breakthrough scientific data that seriously challenge what we have believed regarding traditional methods for moisture testing of concrete slabs. This free presentation was created to bring you the most current information on accurate moisture testing of concrete slabs.

When: For times and dates, please visit online at: <u>www.moisturewebinar.com</u> or email <u>rapidrh@wagnermeters.com</u> or call (800) 207-2164.

Registration: This webinar is available by invitation only and online seating is limited. Please contact Wagner Meters today to reserve your seat for this groundbreaking presentation. existing epoxy to sand it first, but sanding may give you a CSP of 1.

"What you need to do is know your products," Young adds. "You need to know the state of the concrete and how strong it is. You want to do a Mohs hardness test and in some cases you'll need to do a pH test."

The bottom line, he says, is you need to open your concrete because the better it's opened, the better the coating is going to stick.

When a job requires a high CSP, one of the best options for obtaining that is to use a scarifier or milling machine. The bottom is armed with multitipped cutting wheels that rotate at high speeds to chip away a concrete surface.

Because the cutting wheels are interchangeable — and on most machines come with adjustable depths — there's something that will produce just about any type of profile needed in widths from 2 or 3 inches all the way up to 16 inches.

Young says, for instance, if he was doing an industrial room where heavy equipment was serviced, he'd use a scarifier that would give him a CSP of 10, "because that's an insurance policy."

And, Julio Hallack, owner of Concrete



A high-pressure water-jet will quickly clean and prep a concrete surface with surprisingly little water, with the surface returning to its original dry state in a matter of minutes.

by Hallack in Turlock, California, says he would use a scarifier on any resurfacing job where the material will be more than a quarter-inch thick.



Shoot 'em up, grind 'em down

Where a more modest CSP is needed to do the job, a shot blaster or grinder will probably be the ticket. They each have their supporters, and some of the choices may come down to individual preference and what equipment is available.

A shot blaster is a self-contained wheeled device designed to throw steel shot at the bare concrete or coated surface at a high speed. By containing the shot in a blast chamber, the shot is recirculated while any dust, dirt or coatings are separated out.

Units range in width from 4 to 32 inches, and the size of the shot used and the speed at which the machine covers an area determine the rate of production. They're not particularly effective on thicker coatings, such as urethanes, because the shot will simply bounce.

One big drawback with shot blasting, according to Rick Watson, owner of Surmac Inc. in Schertz, Texas, is that it requires a fair amount of skill.

"You can do more damage than good because if you don't know what you're doing you can leave overlap lines," Watson says. "If you're going to go back with a thin film coating, you'll be able to see those lines and it can be a real nightmare."

While he agrees that a shot blaster can be great to use with some jobs, he advises hiring a company that specializes in shot blasting rather than buying the equipment. An alternate solution is to use a grinder. Grinders use horizontal disks, often embedded with diamonds, that rotate over concrete to be prepared. Machines range in size from single-disk walk-behind units to triple- and quadruple-disk ride-on machines for high production.

Both Watson and Young say they're a pretty common solution to many prep problems. However, Young says, as with anything else, the job has to be done right.

"You have to use the right diamonds, but you also have to clean the concrete very well when you're done and make sure there's no dust," Young says, as dust can be a real bond-breaker.

He cautions against putting grinders with scabbler heads in the hands of untrained crew members as the heads can pulverize and damage concrete.

Of course, the secret to success with a grinder is using the right diamond tooling, Watson says. And, even if you're using another method to prep most of your surface, Hallack notes, a grinder is a good tool to have on hand.

"Almost any surface prep job will require grinding next to walls, equipment, toilets or any type of furniture that cannot be removed," Hallack says. "It's very commonly used along with a shot blaster to do the areas that the blaster cannot reach."

Water and chemicals

Mechanical methods for surface prepping aren't your only choices. Both Hallack and Watson are sold on what Watson calls "ultra-high water-jetting," which uses water under pressures up to 55,000 psi (pounds per square inch) to prep not just concrete, but other surfaces, as well.

"It's one of the best technologies, if not the best," says Hallack. "It can be used in any type of surface prep. It's very clean, there's no dust and hardly any water is left on the surface."

"It can be used for removing virtually any of the coatings on concrete, and also to scarify the concrete at the same time," says Watson. "Or, they can be adjusted pressurewise to only remove the coating and not damage the concrete, or lightly etch the concrete in preparation for a new surface."

However, both men acknowledge that like shot blasting — the equipment requires more than a little skill to use. And, it's also expensive, which is why both recommend subcontracting the work out to a company



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WATER-BLASTING: A clean way to prep

by K. Schipper

Chris Finegan, owner of Green-Tec Services in Orange, California, says the biggest drawback he often faces selling his high-pressure water-blasting services is that contractors are concerned the process will inject water into the slab when they prep the concrete.

However, nothing could be further from the truth. By quickly hitting the surface with a small amount of water — typically less than 6 gallons per minute at 40,000 pounds per square inch of pressure — the water never penetrates the slab.

Finegan says tests done by multiple companies have shown the moisture content of the concrete is back to where it was originally within 15 minutes. Companies such as Koster American Corp. and Advanced Moisture Control Inc. have specified the process.

"Plus, we're going to be cleaner and better for the surface than chemicals or a shot blaster," he says.

Cleanliness is a definite selling point with water-blasting, Finegan says. Unlike shot blasting or grinding, it can be done in occupied spaces because a highvolume vacuum almost instantly removes the water and debris.

Because of this efficient vacuum, "We've worked in a supermarket while it was still open," he says. "We'll cordon off an aisle, and cordon off our hoses, and there will be shoppers one aisle over."

Although his equipment can easily prep up to 12,000 square feet in a day, Finegan says the contractors he works with are often willing to pay a premium for smaller spaces because they won't have to pay extra help to clear an area or cover and uncover items left where the work is being done.

Besides being clean, Finegan says the process can easily achieve a concrete surface profile of 3, which is the most-common profile requested by manufacturers. Green-Tec can also do less by dialing back the water pressure.

"We had a 90,000-square-foot warehouse job where they had a simple sealer on the concrete," he says. "They wanted to reseal it, but they wanted to do it over fresh, clean concrete. We just dialed our system down to where we took off that coating and left it prepped and ready for the new seal."

With almost a decade in the business before starting his own company four years ago, Finegan says he's comfortable doing jobs removing everything from carpet mastic to tennis court acrylics. However, for epoxies, it's important to test each job before starting.

"If it's an epoxy, it could be as hard or harder than the concrete underneath," he says. "We do a mock-up to make sure we're going to provide a profile the customer likes, and to find out how fast we're going to be able to take off the epoxy."

Average cost-per square foot on a water-blasting job can run anywhere from 35 cents to \$2, with a good mid-range being 50-75 cents. The cost goes up as the speed of removing a surface goes down.

"When we get into the epoxies and the heavier stuff, that's going to slow us down," Finegan says. "But, we've yet to come across anything on a concrete surface we can't take off." that specializes in high-pressure waterjets.

Chris Finegan, owner of Green-Tec Services in Orange, California, a company that does such work, says besides being able to adjust the water pressure to exactly what's needed, the process leaves zero dust and the water is contained and reclaimed, as well.

"It's often specified due to the benefits it offers in interior environments during occupied remodels, as well as for the health considerations of the operator and those around the work site," Finegan says. "And, it's also one of the fastest methods in the industry. It's possible to do upwards of 20,000 square feet in eight hours with one machine."

Still another option is to use a chemical prep, Hallack says, particularly if an acid or color stain is going to be applied over concrete that's previously had tile, vinyl or carpet on it. A chemical stripper can be a good choice, he notes, recommending those made by Jasco.

"The glue or grout has to be removed very carefully," he says. "That can be done using something that will soften it up and then removed using a scraper. It's meticulous and challenging, but it can also be done fairly quickly."

It's also an approach that works on new sites where other subs may have used pencil or markers on the concrete, or to clean up overspray from the painters. The key is making sure the surface is then washed clean using a scrubbing machine.

"In jobs like this, you want to protect the surface of the concrete as much as possible," says Hallack. "And, you don't want to expose any of the aggregate; you don't need to open it up. And, remember to protect the walls, doors and cabinets. It will save you a lot of money."

In short, there is no one best method for doing surface prep, and the easiest way to ensure a successful job is to reach out to others who have already gone through the hard steps to learn what works best.

"You can call somebody like me to help, but the equipment manufacturers will also field calls, and the diamond manufacturers, and the coatings manufacturers," says Young, who often serves as a consultant. "There's no reason for a bad prep job, but be proactive and not reactive. Call before you start, and not after the floor starts to delaminate."

Ride-on auto-scrubbers are a staple in the maintenance department as they wet clean and then vacuum up the residue. The key is to use a product that's formulated specifically for the type of concrete surface you have. Photo courtesy of Prosoco

by Keith and Debby Davis

THE old adage about using the right tool for a job is just as true when it comes to concrete cleaning products. With all the options on the market, manufacturers warn that not all are appropriate for every surface and finish. In fact, many can cause damage.

CLEAN CHOICE

"It's important to use a product from a manufacturer that's formulated specifically for the type of concrete surface you have," says Kevin Sigourney, product manager for Prosoco/Consolideck, headquartered in Lawrence, Kansas.

"Using the wrong cleaner for a job can literally attack and dull the desired appearance of a polished and densified concrete floor," says Peter Wagner, director of supporting product development for Curecrete Distribution based in Springville, Utah.

Manufacturers agree that finding a cleaner that works well can cut surface preparation and maintenance time in half. But with all the technical chemistry terminology, numbers and percentages used in manufacturing, how can you determine which product is right for you?

Just ask! Today's chemical cleaner manufacturers are focused on making effective products that are safe and easy to use. To reach those goals, many companies are honing the art of customer interaction and availability. For example, Curecrete mans a 24-hour technical help phone line and email for concrete cleaning problems, questions and advice. "A lot of maintenance



is done at night or during nontraditional working hours," Wagner says.

Cleaners 101

There are four general types of cleaners on the market today:

- pH neutral cleaners, which are primarily used for cleaning interior sealed concrete surfaces without embedded dirt. They can be used on exterior or interior unsealed concrete that requires a mild cleaning.
- Acidic cleaners, which are effective for removing efflorescence, insoluble metallic salt that appears as white powder or crystalline residue that doesn't wash away with water.
- Alkaline cleaners, which eliminate oil, grease and other hydrocarbon-based stains in concrete. They are also used to neutralize concrete surfaces after acid staining or acid cleaning.
- Enzymatic/bacterial cleaners, which break down specific soils, such as starch-, hydrocarbon- and protein-based stains.

Safe and effective

An off-shoot of acidic cleaners are Synpro Products' recently patented SynPro synthetic acid products, which dissolve more calcium carbonate and efflorescence than most other masonry cleaners.

"While others are trying to develop products that have low pH value needed for cleaning concrete effectively and safely in response to the need for less harsh, acid-based products, our Synpro line's active ingredient has a pH level of zero," says Anthony Jones, vice president of business development for Synpro Products and Riviera Brush Co, headquartered in Richmond, California.

The line is designed to be used on decorative concrete, masonry and ready-mix segments of the construction industry. The products come with a triple-zero Hazardous Materials Identification System score and more than 24 approvals and certifications from the Federal Drug Administration and Environmental Protection Agency.

"What makes our cleaners unique is their nonmineral acid base and ability to



The Synpro line has more than 24 approvals and certifications from the FDA and EPA.

outperform the harshest acidic and caustic solutions, while remaining noncorrosive, nonirritating to skin and nonregulated by the U.S. Department of Transportation," Jones says. "Plus, they're color-safe on even the lightest colors."

For grinding procedures, Synpro reps recommend the company's Pre-Grind to reduce initial surface tension, which allows users to make a first cut at a higher grit. While it doesn't replace grinding, the product helps reduce grinding time with no fume or clean-up concerns. It can be used indoors and outdoors.

Out, Damned Spot!

by K. Schipper

While a mechanical — or other — method of preparing concrete for an overlay will generally remove whatever is on the existing surface and open it up for the new application, it's not always enough.

As Rick Watson of Surmac Inc. puts it, sometimes there's a secret hidden below the surface. For example, take a concrete deck around a swimming pool his company had shot-blasted a few years back in preparation for a new coating.

After shot blasting, Watson checked the pH of the concrete, as he always does. In this case, the existing concrete — which should have been alkaline — tested quite acidic, thanks to it absorbing chemicals that had been used in and around the pool over the years.

"Had the concrete been in its naturally alkaline state, the coating would have adhered fine and proper," he says. "Had we just coated the prepared surface, we would have had osmotic blistering from the contaminants trying to get out through evaporation, and we would have had a massive failure."

Thanks to that one little test, however, the company eradicated the contaminants, sealed the surface and changed the pH.

Sometimes it doesn't even take a pH test to spot potential problems. Bill Young of Professional Construction Products says petroleum products, as well as salts and chlorides, are big enemies when it comes to coating existing concrete. While it isn't necessarily an issue with every coating job think quarter-inch urethane — Young says there are several options once a problem is recognized. One is a poultice that goes over the area and draws the contaminants into itself, leaving a powder than can be thrown away.

A typical poultice is created by saturating an absorptive material like kitty litter or sawdust with a strong solvent such as acetone, xylene or methyl ethyl ketone. Then you cover the stain, first with the poultice and then with plastic. However, the osmosis involved can take time, and the process works best on smaller stains.

"There are also crystalline hardener products (densifiers) that can be sprayed on the concrete," says Young. "They penetrate and purge out some of the oils, but they also lock up the first quarter-inch of concrete below the surface so tight it minimizes the contaminants from working their way back up."

A still newer option involves the use of single-celled microorganisms that digest the oil and turn it into carbon dioxide, along with creating more microorganisms. This is the same technology used to clean up beaches after oil spills. Companies that make products that feature this technology include Environmental Solutions International and KT Microbial Products.

Young concedes there's no one perfect way to deal with contaminants in old concrete, but you can minimize their intrusion to a certain extent.

"Effective and safe products will be tomorrow's reality," says Synpro's president and partner Michael Goyne. "We're at the finishing line waiting for the others to catch up."

Just right

Finding a balance between acidic and alkalinity in a chemical cleaner is vital for Curecrete products. Wagner says products in his industry have changed throughout the years to now being neither too acidic nor too alkaline based on the pH of concrete, which ranges from 9.5 to 11.5 when fully cured. The challenge is to ensure the pH is neutral to the concrete.

According to Wagner, his company's CreteClean Plus with Scar Guard removes even the finest of soils from concrete surfaces by releasing them from the floor, and then holding them in suspension and taking them "out with the bath water."

The product is a water-based detergent that contains no volatile organic compounds. It's specifically designed to clean densified and densified-polished concrete, but can also be used to clean nondensified surfaces.

"Your concrete surface continues to be protected at the same time it's being cleaned," Wagner says. "Unique, proprietary ingredients, combined with cutting-edge Scar Guard technology, not only helps protect and renew your surface, it also attaches to raw, exposed concrete that has been scratched or chipped, minimizing the appearance of the blemishes."

According to company literature, CreteClean Plus with Scar Guard is formulated for automatic scrubbing machines, with mop and



CreteClean is a water-based detergent that contains no volatile organic compounds.

buckets, and as a poultice to clean tough oil stains. It doesn't require rinsing, which saves both time and wear on cleaning equipment.

The product is highly concentrated and typically requires 75 percent less product to do the job than most of its counterparts. This means less shipping costs and less bulk in storage.

"Maintenance is important for aesthetics but, more critically, for performance," Wagner says. "A properly maintained floor will never halt or disrupt business productivity."

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Not one for all

Prosoco/Consolideck takes the approach that one cleaner doesn't fit all situations. "We manufacture cleaners for specific substrates to clean specific types of staining," Sigourney says. "Since there are different types and textures in the concrete surface industry, we have products for nearly every type of concrete from steel troweled to high polished to decorative."

Prosoco/Consolideck's goal is to make sure substrates are never damaged. Company reps offer product test samples to ensure customers get the desired results.

A top seller for Prosoco/Consolideck is Sure Klean Heavy Duty Concrete Cleaner, which removes concrete splashes, heavy efflorescence, embedded stains, rust and surface soiling from textured concrete surfaces. This concentrated acidic cleaner improves the color and uniformity of most standard concrete, colored concrete, precast panel and concrete block surfaces.

The cleaner/degreaser scours widespread oil and grease film, adhesive tape residues, and rubber tire marks and scuffs from concrete surfaces. It contains biodegradable ingredients that are low hazard, low toxicity,



Surface cleaners come in a variety of formulas targeting such things as graffiti removal.

nonflammable and water soluble.

Another top seller is SafEtch, a safe alternative to traditional acidic compounds for cleaning and preparing horizontal or vertical concrete before applying a coating. It removes embedded oil, grease, excess mortar, efflorescence and dirt while also dissolving a small amount of surface



cement, mildly etching the surface to allow better penetration for protective treatments. Company literature states this product is water-rinsable and ideal for projects where traditional acidic cleaners aren't allowed.

"We have a technical bulletin that explains how to properly dispose of our cleaners," Sigourney says. "But because each city or municipality has different rules, we always recommend customers call their local officials to find out their rules for disposal."

Customer Service 501

Helping customers solve their problems efficiently is sometimes an overlooked aspect of customer service in manufacturing. That's not the case at Curecrete. To address its customers' inventory and storage issues, the company now offers its Crete Clean Plus with Scar Guard in single-dose packaging, Wagner says.

The 12-ounce recyclable bottle works in an auto-scrubber that has a solution tank capacity of 20-30 gallons, and there is also a 1.2 ounce packet available. Soon to hit the market is a 6-ounce stand-up pouch with a capped spout for 15-25 gallon solution tanks. The pouch is safer and easier to hold, close and carry, and reduces the chance of spills or splatters.

"Our packaging gives our customers the right solution in a more cost-effective and safe manner," says Wagner.

Wagner says all Curecrete product labels include QR codes that link users directly to that product's information sheet online. Sheets are available in both English and Spanish. The company also produces an online show called "RetroPlate" that demonstrates how its cleaners work as part of the company's whole system of products.

And remember that 24-hour help line customers can call? It's manned by a chemical specialist who has been in the industry for many years. The specialist is also available to work with a customer to create standard operating procedures for specific needs and jobs.

In addition to distributing product test samples, Prosoco offers phone and field support and a "Concrete Maintenance" online how-to video. The company also produces guides that outline step-by-step procedures and recommendations for maintaining concrete. Plus, reps will go on location to teach contractors how to use its products and the company holds training and troubleshooting seminars at its Kansas campus.

At Synpro, product labels are kept concise and easy to understand, and product training is conducted by distributors, schooled directly by company reps. "Our focus is to create that win-win environment where our distributors understand the needs of their customers and apply their



knowledge to recommend the right products," Jones says.

"To us, people are as important as our

products," adds Goyne. "Whether they're the buyer, user or seller of our products, they are valuable resources."



Public Work Exemplifies Mingling of Science, Engineering and Art

Ecological Social Modules, Burnaby Mountain, West Vancouver, British Columbia

by Vanessa Salvia

A VISUALLY striking public art project near the University of Simon Fraser in Vancouver, British Columbia, was the result of science and engineering intersecting, orchestrated by a concrete artisan who was skilled enough to make it happen.

Nolan Mayrhofer's Vancouver-based concrete artistry firm, Szolyd (pronounced 'solid') Development, works primarily with precast concrete. In particular, he is licensed to work with Ductal, an ultra-high performance concrete (UHPC) made by international concrete company LafargeHolcim.

Mayrhofer, 43, has a reputation of accepting concrete work that few, if any, other companies can or want to take on. "If an artist or designer has a concept they call us and say, 'We have this idea but five other people turned it down because they don't think it's possible," he says.

Mayrhofer has used UHPC for 15 years, so he and his crew are generally beyond the research and development phase with their projects. This art project, however, called Ecological Social Modules — or EcoSoMo for short — was more of a challenge.

Project at a Glance

Project: A public art project in Vancouver, British Columbia, consisting of 50 precast molded shapes using Ductal UHPC combined in various ways to create modules along 800 feet of a public walkway.

Scope of work: An artist, Matthew Soules, msaprojects.com, designed the work. Szolyd Development, szolyd.com, led by Nolan Mayrhofer, fabricated the positive models, developed the mold technology, cast the components and installed the project. Canadian graphic artist Ross Chandler designed the glyphs and writing; rosschandler.ca.

Challenges: The six molds were used repeatedly to get a variety of shapes. The texture had to be fine enough to allow for writing and glyphs on the surface and be strong enough to be molded multiple times.

Products used: Ductal ultra-high performance concrete by LafargeHolcim; lafargeholcim.com



Along the beaten path

EcoSoMo, installed along a path in the community of Burnaby Mountain adjacent to SFU's campus, is a series of six modules designed to fit together in multiple ways. It was commissioned by the SFU Community Trust and designed by Vancouver artist Matthew Soules. Szolyd fabricated the positive models, developed the molds, cast the components and installed the project.

Mayrhofer says Soules had heard about Ductal and wanted to use it. "We don't use UHPC products for everything we do, but there are times when a material like UHPC fits in and it does for this project."

Fifty modular pieces of concrete were combined in various ways to construct 13 sculptural clusters placed along 800 feet of a public walkway. Each concrete



piece is inscribed with information about Burnaby Mountain in the modern-day alphabet, Braille and pictographic lettering created by Canadian graphic designer Ross Chandler.

Two of the clusters — which are topped by a birdbath and a plant holder dubbed a "plant volcano" illustrate the 'ecological' part of the project's name. Two others, which combine to form a seating area, exemplify EcoSoMo's 'social' aspect. Still another cluster has notches, inviting the public to place small things in the recesses.

"I'm a big believer in the strength of dense urban neighborhoods and what they offer socially and ecologically," artist Matthew Soules told "Georgia Straight," a Canadian weekly newspaper. "This project, in its subtle way, is trying to be a generator of that."

Challenges and strengths

The challenges involved making molds that could be used multiple times without degrading. The crew made six molds and cast up to 15 of each, allowing Soules to explore the concept of reproduction. In a video taken June 2015 during the art project's unveiling, Soules said, "It's a study in seriality, multiplicities and an investigation into how modular systems can produce diversity."

More people now live in urban centers like apartments and condos, so public spaces are gaining importance. "A project like this is functional furniture where people can gather," says Mayrhofer, adding that it's attractive to animals and people and incorporates nature.

From start to finish, the EcoSoMo project took nearly five months. Soules gave Mayrhofer a 3-D model of each shape, and a computer numeric control machine made each face out of medium-density fiberboard. A positive of each shape was then made.

Glyphs (pictographs) were laser cut out of rubber, applied to the MDF and enclosed with fiberglass. The mold had to break apart in multiple ways, both on the outside and inside, and remain strong enough











PROJECT PROFILE

to fit together again and hold in place. "It was a pretty complex project ... super challenging," Mayrhofer says.

Ductal handles tensile pressure extremely well, while regular concrete handles compression pressure very well. (Tensile strength resists being pulled apart, whereas compressive strength resists being pushed together.) Regular concrete needs to be reinforced with rebar to withstand a high level of tensile pressure, but UHPC doesn't.

Ductal, which is reinforced by stainlesssteel or metallic fibers, needs no steel rebar, so it can be cast incredibly thin. The thin parts of the sculpture that look like "wings" with an inscription and the plant volcano's cantilevered base could only have been done with UHPC.

Mayrhofer discovered that regular concrete has a compressive strength of 2,000 to 5,000 psi, flexural strength of 570 psi and direct tension strength of 450 psi. It offers weak abrasion resistance and is permeable to chloride penetration, which can discolor and degrade concrete over time.

By contrast, according to company literature, Ductal is more than six times stronger than conventional concrete, offering compressive strengths up to 30,000 psi. It has a flexural strength of up to 6,000 psi and direct tension strength of up to 1,450 psi. Its abrasion resistance is similar to natural rock and it's almost impenetrable to chlorides with no carbonation.

Repeat after me

Ductal allows Mayrhofer to texturize forms that will maintain their detail over time without degrading. Because Ductal requires no aggregate, it can be cast into fine textures almost like porcelain. And even though the shells are only about an inch thick, the inscriptions on this art will last for decades.

Mayrhofer says the issues he experienced were minor considering the project's scope and challenges. The biggest challenge was maintaining the texture on up to 15 castings. "The texture started to degrade to the point where we were losing some fine detail when we were getting into the multiple castings," he recalls. "The rubber molds were wearing out," and toward the end they had to improvise some of the texture.

With his skill, experience and determination, Mayrhofer has become the go-to guy for challenging projects, but it's taken a toll. "At the end of the day, we proved this material has the structural and aesthetic qualities for this type of application," he says. "I have a lot of pride in the work but it hasn't been very profitable."

Although he's not classically trained in art or engineering, Mayrhofer has been drawn to those aspects in his concrete work and has learned through trial and error. Early experience with making mosaics with his company Stone Design led him to offer concrete flooring instead of mosaics which,





in turn, led to precast. In 2003, Mayrhofer founded Szolyd to offer precast landscape pieces and countertops.

He doesn't like to take on projects that are just one-offs, he says. "I want to do things that can be repeated. Once you invest time and money into a mold, you want to use that mold until it disintegrates. That's my focus now and I'd say this job was a stepping stone because it had all the elements of good design and repeatability."

The tricky projects, though rewarding, are "next to impossible" where making money is concerned. He says he's now a little more "risk averse" given the chances he's taken over the years with little in return. "We get some fascinating calls and a lot of them are possible, but sometimes you have to do the calculations and decide if it's worth it."

Mayrhofer is not the type of guy to sit around and wait for the phone to ring. He started another company, Landscape Furnishings, to focus on precast outdoor items for public and private spaces. At press time, Mayrhofer said he was deep into planning a unique concrete product.

"I can't say anything about it yet, but it's a home furniture item that's going to blow up," he says. "The world's never seen a product like this." Stay tuned. "

- 💲 www.szolyd.com
- 💲 www.landscapefurnishings.com
- ኝ www.sdconcrete.com
- 😯 www.mendrestoration.com

Watch a video unveiling the project on YouTube:

ኝ https://www.youtube.com/watch?v=H3_ITN1Jj-w

PROJECT PROFILE

Sprawling Aged Concrete Meets its Endurable Match Timpte Manufacturing Plant, David City, Nebraska

by Joe Maty

T wasn't long after Shawn MacDonald heard about a promising new concrete floor restoration system that he encountered a project that figured to be a good candidate for putting the system to the test.

MacDonald, of R.N.D. Concrete Coatings Inc. in Valley, Nebraska, was faced with a major concrete restoration project at a Timpte truck-trailer manufacturing facility in the Omaha area. To put it bluntly, the facility's concrete floor was a mess.

"There was some bare concrete — areas where coatings were coming up," he says, and others filled with gouges, holes and cracks. Ground-in dirt and oils added to the toxic mix.

In addition to the challenge of cleaning and preparing the surfaces, there was the matter of planning the work flow around the plant's ongoing production process. But the most daunting challenge, MacDonald says, was deciding on a restoration approach that would work on this aged and abused industrial floor in such a heavy-use environment.

After a grind and clean-up on a sampling area on the floor, he applied a densifier and sealer. This, however, resulted in a highly irregular appearance, due to the condition

Project at a Glance

Scope of Project: Restore and resurface concrete floors in truck-trailer manufacturing plant Concrete Contractor: R.N.D. Concrete Coatings Inc., Valley, Nebraska

🔇 www.concrete-remedy.com

Owner: Timpte Inc., David City, Nebraska

Key Challenges: Restoring extensively deteriorated concrete, including grinding, cleaning and repair; planning and sequencing resurfacing installation without interrupting plant production; sampling and reviewing potential resurfacing/recoating materials. Materials: Endurable Concrete Products' Concrete Hardener, Polymer Pavement, Inceptive Coating and F1 Sealer (matte finish), as well as silica sand.

ኝ www.endurableproducts.com



of the existing concrete surface. Owners decided they didn't want to see the actual concrete anymore.

Also given a try was a polyaspartic coating system. But the coating surface, though quite solid, couldn't hold up to this industrial environment's toughest abuse like the gouging effects of bolts and rivets falling onto the floor and being caught under the wheels of heavy industrial casters. These kinds of effects were duplicated on the sample area during testing, MacDonald says.

Then he recalled attending a demonstration at Logan Contractor Supply in Omaha, where Endurable Concrete Products' Polymer Pavement System was used. The resurfacing system — a proprietary, two-component waterborne material — incorporates sand, decorative flakes, colored quartz or other materials to produce a wide range of decorative effects. Additionally, Endurable Concrete Stain, offered in 21 different colors, may be used to



PROJECT PROFILE

color the Polymer Pavement system.

After checking with Endurable's Global Operations Director Brian Hudgens, MacDonald says the Bend, Oregon-based company's Polymer Pavement System looked to be a good match for the Timpte plant's floor. The Endurable System was installed in a test portion of the floor and used for a week or two. A verdict to go with it followed.

"They tried to make it fail," MacDonald says of the initial trial of the test area. They even placed metal screws on the floor and dragged industrial carts' casters across the screws to catch and scrape across the surface.

Plotting and executing the logistics

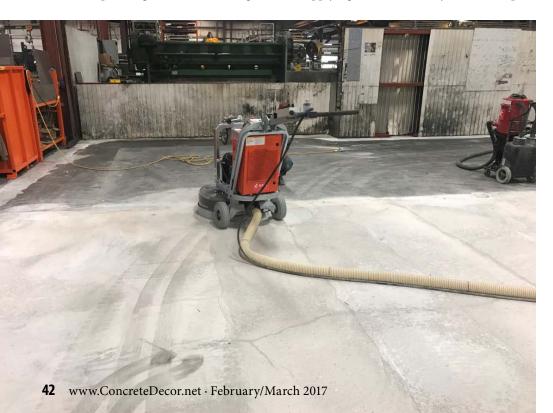
Without the luxury of shutting down the trailer plant's operation, R.N.D. Coatings first needed to come up with a plan to work around the facility's production schedule. The solution was to "flip" the process, with the production line beginning at the opposite end from the normal starting point. This opened up a sizeable section of the plant floor — an area with some of the worst conditions — for the restoration program.

The work was scheduled to start after plant production ended on a Thursday afternoon. It would continue while the plant was down from Friday through Sunday. Preparation got underway with diamond grinding of the floor to produce a relatively uniform surface, followed by a considerable amount of patching defects and damage.



Following the Thursday-Sunday timetable, R.N.D. Coatings completed sections of about 2,500 and 6,600 square feet in early December 2016, then another 13,000 square feet was completed the last two weeks of the year. Additional sections, adding up to 40,000 more square feet, are in the plans, with R.N.D. currently putting a bid together.

The typical marching orders are repair and preparation over a few weeknights following end of the production day — and applying the Endurable system's multiple-



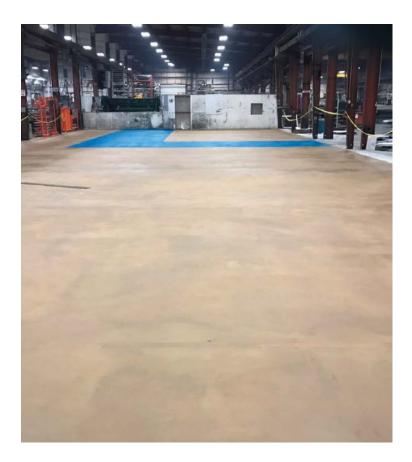
step process late Thursday night and early Friday, MacDonald says. That allowed for a complete cure by Monday morning.

Delivering a new pavement

Endurable Polymer Pavement's installation involves several steps and materials:

- Spray applying concrete hardener, which reacts with the existing concrete to fill voids and strengthen the substrate. A short dry time of 40 minutes to an hour follows before work continues.
- Installing the Polymer Pavement material, mixed and rolled onto the surface.
- Broadcasting silica sand into the still-wet polymer material. This is to help hide the existing concrete surface, enhance traction and boost durability.
- After a drying period, removing excess sand from the surface and reclaiming it.
- Applying Inceptive Coating to encapsulate the sand and Polymer Pavement and adding Endurable Concrete Stain for color.
- Applying two coats of Endurable Matte sealer, a two-component clear sealer, to provide stain and chemical resistance.

MacDonald says the trailer-plant floor may not win any beauty prizes with a showroom-quality appearance, but for projects such as this one, the objective is "beastly strength with a decorative touch."



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- Fork lift rated



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The system

Endurable Polymer Pavement — the key component in the resurfacing system — is a two-component resurfacing material with a pot life of two to four hours. Described as an "alternative to epoxy and polyaspartic coatings" for interior and exterior projects, the material can be installed over smooth, troweled concrete surfaces as well as roughened existing surfaces.

"This is a response to industry demand for a material that can be installed on smooth concrete to facilitate installation without grinding or scarifying or otherwise roughening the surface," says Endurable's Hudgens.

According to Hudgens, Endurable Polymer Pavement delivers a bonding strength on power-troweled concrete of 531 psi and allows a high degree of moisture transmission. It also has low VOCs and is easy to work with for both first-time users and experienced contractors.

As with other resurfacing technologies, moisture issues in the substrate should be dealt with prior to installation, he says. Also important for successful installation and performance is complying with film-thickness guidelines, as a too-heavy application will dry and cure slowly and offer reduced strength.

Hudgens says the vast existing-concrete market is viewed as offering significant potential for the pavement system, with considerable interest among owners of substantial facilities where sprawling, aged concrete surfaces are common.





Are You Afraid to Seal Concrete?

by Greg Iannone

FIRMLY believe that the lifeblood of our industry is new and innovative products that continue to move the decorative market forward. A close second, the oxygen of our industry, is word-of-mouth advertising by satisfied clients who have had their expectations met.

Over the past several years as I've traveled from coast to coast promoting the decorative concrete industry, I've witnessed a growing tendency by an increasing number of contractors who exclude sealing decorative concrete as part of their scope of work. Some might describe this omission as an angst or even some sort of subconscious fear of failure. Those who still offer this service seem to take a "fingers crossed" or "roll the dice" approach.

What I've witnessed doesn't come from lack of effort or from the industry not wanting to put out a quality product. Rather, it seems to come from not quite knowing how to keep up with or adapt to ever-changing rules and regulations that have necessitated formula changes away from "our daddy's sealer."



When properly applied and maintained, sealers are durable and will provide long-lasting protection.

An early-on example

The first time I personally came across this sealer situation was several years ago in California. A friend of mine was having a very expensive backyard swimming pool built for his family. He asked me if I'd help his wife and him choose the dry

shake hardener and release powder color combination that would best complement the surrounding rock, brick and other features of the backyard. Once the colors were chosen and with the contractor onboard with the selections and how and where they would be applied, it was full speed ahead. Or so my friend thought.

The pool deck was poured, the colors applied and the pool proceeded as designed to near completion. I asked my friend to let me know when everything was completed

Coming next issue: Part II: Discover an **Untapped Revenue Stream Through Sealers**





Many contractors are afraid to apply sealer for various reasons. When not applied correctly, problems such as bubbling, flaking and blistering can result.

and sealed because I wanted to see the end result. That's when he informed me that the general contractor, as well as the pool deck contractor, had excluded any type of sealer from the project.

I asked, "What do you mean excluded from the project?"

He said, "They do not and will not seal concrete." My friend and I had discussed various color combinations with the clear understanding of how the pool deck would be enriched and enhanced by the type of sealer used. My friend was very frustrated to say the least.

I called a local contractor who in recent years has become somewhat of an expert on sealing concrete in California. He explained to me that most of his work comes by way of referral from contractors who no longer seal concrete.

When I asked how a contractor could complete only part of the project, he told me many contractors are afraid to apply sealer for various reasons including, but not limited to, issues associated with applying low-VOC sealers. Many states — California and parts of Utah being the most restrictive — require all concrete sealers to be 100<VOC grams/liter. There are many other states where the law is 350<VOC g/l.

Applying low-VOC sealers requires more than just a cursory knowledge of how these sealers perform under various conditions, such as time of day, heat, wind and direct sunlight, and how they are to be applied, such as sprayed or rolled, what type of spray equipment and proximity of spray tip to the surface. When one applies a low-VOC sealer outside of ideal conditions many things can happen, and none of them is good. Bubbling/blistering, flaking, lacking adhesion, applying too heavily or with too few applications can all cause problems.

Of course, even sealing concrete with a high-VOC sealer, where still permissible, can present problems if one is not knowledgeable and careful.

I wish I could say that my experience in California was an isolated incident, but it's not. I've found that in nearly every state from coast to coast I've traveled, there's a growing number of contractors who don't want to seal concrete.

Knowledge is power

Most contractors in our industry continue to include sealing within their scope of work and do an admirable job. Yet, I find that this trend of not sealing a bit troubling and believe it will ultimately have a negative impact on our industry if not properly addressed.

The reasoning behind contractors not wanting to include sealing within their scope of work can't be pinned down to one single thing. Yet, there are common threads. Some don't understand how low-VOC sealers work. Others say they don't want the liability/slip factor. Still others want to get in, get paid and get onto the next project. Some who understand the low-VOC sealers don't feel that their crew has the "skill set" or they don't have a specialized "detail crew" to cost effectively handle the sealing aspects.

It has been said that knowledge is power. Well, if this is true then I advocate

for manufacturers to better disseminate information and help properly train our industry. Yes, low-VOC sealers are more difficult to apply than "our daddy's sealer." However, when properly applied, they are just as durable and will provide long-lasting protection.

I said earlier that the lifeblood of our industry is new and innovative products and that the oxygen of our industry is a satisfied client. The industry will continue to innovate and, in this case, provide new sealers that are durable regardless of how stringent VOC regulations become. Our satisfied clients will be like the old shampoo commercial of the 1980s — They will tell two friends, who will tell two friends, who will tell two friends 🦇

Greg lannone is sales manager for Innotech Decorative Concrete Products headquartered in Twinsburg, Ohio. He has worked in the concrete construction industry for more than 30 years and has provided training seminars throughout the U.S. and Puerto Rico, as well as Mexico and Japan. He can be reached at (877) 829-7880 or Gregl@Innotechdcp.com.



CONCRETE QUESTIONS

Consistency and Coverage Rate: Sealing for a Uniform Look

by Chris Sullivan

Question: I was wondering if you could help me understand why I'm getting uneven gloss on this stamped concrete patio I just completed for a customer. The concrete cured for 45 days before sealing. The surface was clean and dry. The sealer was roller applied midafternoon to evening, and I used 5 gallons for approximately 600 square feet. The picture shows what the patio looks like about one week after sealing.

Right after the sealer was applied, the entire slab looked like the dark spots with the "wet look," which is what we wanted. As time passed, the wet look began disappearing, turning to the lighter gray, which we didn't want.

What can I do to help make the gloss and dark color uniform across the slab, and have it stay that way?

HIS issue of blotchy and inconsistent color and gloss created by a sealer is not that uncommon. There are multiple factors that can create this appearance, but the two most common are application how the sealer was applied — and surface what the sealer is being applied to in regard to density and porosity.

The application side can be controlled. You have to deal with the surface side.

Application or absorption?

When applying a sealer, consistent application, using the recommended application method and targeting the recommended coverage rate are critical to achieving the desired protection, color and gloss. The picture shows random dark gray areas that are clearly defined compared to the lighter gray color that makes up most of the patio.

The blotchy dark areas can also be described as having a higher gloss and more of the "wet look" compared to the surrounding lighter-colored concrete. The dark areas have the distinct pattern achieved when roller applying a sealer that results in inconsistent coverage.



Blotchy and dark shiny areas are created when a sealer is inconsistently applied with a roller.

From the evidence provided, one can conclude that the sealer is forming a thicker film in those areas that are darker. The question then becomes: Was the sealer improperly applied or did the concrete inconsistently absorb the sealer?

Consider the coverage rate

We know from the provided information that the patio is about 600 square feet, and an entire 5-gallon pail of sealer was used. Based on the universal sealer coverage rate of 300 square feet per gallon, the first coat should have consumed a little bit more than 2 gallons of sealer. A second coat should consume the same or possibly slightly less. Factoring 10 percent for loss and waste, and using a perfect world scenario, there should have been about a half gallon of sealer remaining.

Since we don't live in a perfect world, and applying sealer with a roller on stamped and textured concrete usually yields lower coverage rates, I can see where a full pail could easily have been used. So does this automatically conclude that the issue was caused by the concrete and not the application? Not necessarily! What we don't know is the sealer type and the solids content, which can play a part in gloss, life span and absorption.

Contributing factors

Considering what we know and what the pictures show us, we can conclude a few factors are involved in creating the blotchy dark areas. This is not a surprise, since very few issues in our industry are created by a single source.

I think the biggest culprit is the application method. As the saying goes, the evidence doesn't lie, and the photo evidence is pretty clear. There is no denying that a saturated roller created the blotchy dark spots. The shine and depth of color in the dark areas indicate significantly more sealer than the lighter areas. The long, narrow, rectangular shapes of the dark spots further support the claim of a heavy hand with a roller.

It appears that in certain areas the roller was run across the surface loaded with sealer in short, narrow patches leaving a higher concentration. The roller was worked across most of the patio surface spreading the sealer out thinner and more consistent.

Not to lay all the blame at the feet of the installer, I also think that the concrete looks like it absorbed the sealer differently. This is a secondary factor leading to the significant dark spots. If the concrete was finished and/ or stamped inconsistently, this could lead to the sealer absorbing at different rates



To a lesser degree, but still important to note, are low areas in the concrete where sealer could puddle and increase inconsistencies in the overall look.

increasing the inconsistencies.

To a lesser degree, but still important to note, are low areas in the concrete where sealer can puddle and increase the inconsistencies. The type of sealer, in regards to solids content and resin quality, also impacts the final look. You typically get what you pay for when it comes to sealers. A cheap sealer with low solids can dull out quickly, especially in areas with high sun exposure.

Answering the question

The final question was: How do I fix the issue so the patio would be dark and shiny moving forward? The short answer is: Apply more sealer! A word of caution: Sealers are designed to provide a level of protection and gloss at a recommended thickness. Expecting a sealer to do something it's not designed for is a recipe for disaster. So, my suggestion would be to seal the surface — spraying, if at all possible, in thin coats until a uniform color and gloss is achieved.

Keep in mind that the sealer being used may not be designed to provide a high gloss or a wet look on exterior surfaces. Before proceeding, you should research the sealer and determine if another product may be a better fit. If a sealer change is made, a test area needs to be applied to assure compatibility and that the desired results are achieved.

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

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Over time, manufacturers began to make metal tooling with rounded edges so they wouldn't scratch the surface as much.

The Polishing Consultant Abrasives for Concrete Higher-quality tools can lower project labor costs

by David Stephenson

THE processes used for polishing concrete are quite possibly the most misunderstood piece of the business. A tremendous amount of sales propaganda is available that can either provide some clarity or add serious confusion. Most of this information comes from a wide range of "manufacturers" in the industry that number so many it's hard to easily separate them.

The cost of the grinding and abrasive pads, which I will refer to as tooling, is a large part of the cost to complete any



Years ago, all metal tooling was shaped like this.

project. Whether you're an experienced contractor, a newcomer or a customer I hope you'll gain some valuable knowledge from this article.

Grit size

Let's start with the types of tooling and their uses, beginning with the grit size from the most aggressive to the least aggressive options. The larger the particulate size, the more aggressive the tooling. Most of this tooling uses diamond pieces to grind or cut concrete. Based on the size of the particulate, there are several different matrix types used to hold the diamond pieces.

The more aggressive larger diamond pieces are suspended in soft metals. As these tools are pushed across the floor, the metal wears away at a measured rate, allowing for diamond pieces to continually be exposed. The diamond does the actual work. Metal is necessary because it must have a firm hold on the particulates so they can do their job of cutting.

If a large diamond piece is held in an

extremely soft matrix, the pressure quickly pulls it out of suspension and doesn't allow it to cut the concrete. The grit number is based on the size. With diamond tooling, the grit numbers are actually ranges and they relate to the size of the screen that holds a particular piece of diamond.

Imagine a silo, a tall round structure that typically stores grain. In this silo, cleaned and dried industrial-grade diamonds are blown in from the top. As they settle, imagine screens with varying-sized mesh spacing inserted at different levels. The larger the hole size, the smaller the number associated with it. So, a 25-grit screen has openings four times as large as a 100-grit screen.

The smaller diamond pieces fall toward the bottom and the larger pieces are caught closer to the top. This is how diamonds are sized. So, 25-grit diamonds are pretty large while 3,000grit are extremely fine pieces of diamond particulates, practically diamond dust.

Matrix varieties

Typically, lower-grit diamonds are

referred to as "metal bonds" since the diamond chunks are suspended in a shapedmetal piece. The higher-grit diamonds are generally referred to as "resin bonds" since the diamond dust is suspended in a shapedresin matrix.

These two types of matrixes have changed shape a lot over the years based on new understandings of how concrete can be cut and what is left behind after each tool is used. When I first started in the business, all metal tooling was shaped with two rectangles attached to a backer plate (see page 48, lower left).

Over time, contractors and manufacturers figured out that if they rounded the edges the metal itself wouldn't cause so many scratches (*see page 48, top*).

Resins used to all be held in round plastic cylinders. The industry now calls these "finger style" since the pieces are about the size of the end of a finger (*top right*). With this type, the plastic that held the resin in place would sometimes heat up too much and leave scratches in the floor that had to be worked out by going backwards. Some manufacturers perfected the plastic so this issue doesn't occur. Over time most of the resin tooling has changed to one solid piece of formed resin. This type of tooling is typically referred to as "puck style" because they resemble hockey pucks (*below*).

Most of the industry's recent changes have focused on tooling called "transitionals," which are made of either a combination of metal and resin or out of another material. For instance, a few years ago Diamatic, one of the larger manufacturers, introduced a transitional made of porcelain (an entirely new material to this industry) that has performed extremely well (see page 50, bottom left).

Transitionals are used to remove

Most resin tooling today are one solid piece of formed resin. They are referred to as "puck style" since they resemble hockey pucks. polishing steps. Typically running one step of transitionals removes the need to run one step of metalbond and one step of resin-bond tooling. So, they're a two-forone trade. They lower the total tooling cost as well as the labor cost. Labor overall makes up about 50 percent of the costs on decorative concrete projects. The tooling alone is generally 20 to 25 percent of the total costs.

Quantity matters

Manufacturers use grit size to sell their tooling. The larger pieces (with smaller numbers) are sold for grinding, removing existing coating or prepping floors. The finer grits (with higher numbers) are sold to polish and bring up gloss. Probably the single-most important thing to understand is that tooling is sold by the *size* of the particulate, not the *amount* of particulate. This small — but very important difference — separates manufacturers.

Most contractors don't know or don't think about this significant difference. For example, a good, high-quality manufacturer may use one *tablespoon* of 40-grit diamond pieces in its tooling. A low-quality manufacturer might use one *teaspoon* of 40 grit-pieces. Both manufacturers will then sell that tooling as 40-grit segments. Because both are using the same-size particulates, they don't differentiate in their marketing yet the product difference is massive. The tooling with the higher diamond content will cut significantly better than the tooling with less.

I regularly talk with contractors when they have issues on projects. When we discuss tooling, I ask them what manufacturer they're using. If I haven't heard of the company, I ask why they chose that particular brand. More often than not, they say their regular manufacturer was too expensive and this new one is selling the same tooling for half the price. To that I say: The quality of the tooling makes all the difference and is naturally reflected in the cost.

Quality matters, too

In the concrete market today, very few manufacturers directly make the tooling they sell. Most find a company that will custom make the tooling based on their requirements. Known as private labeling, this is not necessarily a bad



With "finger style" resin tooling, sometimes the plastic securing the resin in place heats up too much and leaves scratches on the floor that have to be worked out by going backwards.

thing and is common throughout the industry.

Today the highest-quality tooling is made in the United States and Europe, but the bulk of the tooling sold is made in Asia. The Asian markets, especially South Korea and China, make tooling so cheap it's almost impossible to compete without it. One manufacturer I talked with told me Asian markets routinely offer tooling at a third to a quarter the price of European or American tooling.

Asians have significantly upped their quality over the last five to 10 years, but there's still very little quality control. I'm regularly on projects where brand new tooling will have flaws that cause major scratching that sometimes takes hours to work out, a situation many contractors have come to expect. It's a clear tradeoff for lower-cost tooling.

Everyone wants/needs to offer competitive pricing for the bulk of the tooling lines and using manufacturers with lower prices but also lower quality control is how that's accomplished. It's cheaper for manufacturers to regularly send out replacement tooling at no additional cost than to pay for a higherquality product on the front end. Only very specialized tooling can be effectively marketed outside of the Asian markets. Contractors are willing to pay a large premium for these high-quality tools.

A similar decision has been made on the difference between actual diamond particulates and synthetic diamonds. Synthetic diamonds don't cut as well, but the cost offset has forced most of the industry to use synthetic lab-grown diamonds for its tooling. Essentially wellmade tooling with real diamonds and high-quality standards cost too much for the ever-tightening margins in the flooring industry to sustain. Manufacturers have just adjusted their sourcing and manufacturing partners to match the pricing requests of their customers and their competitors.

Hard versus soft

Another often misunderstood aspect of the tooling market is the relation of hard or soft concrete to hard or soft tooling. Every concrete slab is different and a lot of variables lead to these differences. Concrete mix designs are contributing factors with the ratios of cement, fly ash, sand, rock and other additives affecting the overall hardness.

The finishing process also greatly affects the hardness. If a slab is finished tightly, the gradation of the concrete particles is tight and dense, which makes for a hard surface. Compare this to wood. If the concrete is soft and porous, it's similar to pine which is softer and easier to dent, scratch or wear away. If the concrete is dense and hard, it's similar to oak or walnut with a very tight grain that's hard to cut or scratch.

When the concrete is hard, it takes a lot more diamond particulates to cut it. The diamond is harder than the concrete without question, but where the issue comes in is the delivery of that diamond particulate to the concrete surface. Generally, when discussing hard or soft tooling, we concentrate on the metal bonds. By the time you reach the higher-grit resin-bond diamonds, the floor has been opened up so there isn't a problem. If the metal that holds the larger diamond chunks is hard and the concrete is hard, the metal will not wear away at a rate that will allow the diamond to remain in contact with the concrete. So for hard concrete, softer metal matrixes are used.

The opposite is true for softer concrete. If a soft metal is used on soft concrete, the metal will wear away very quickly. I didn't



A few years ago, Diamatic introduced a transitional tool made of porcelain that has performed extremely well. Transitionals are used to remove polishing steps.

understand this relationship when I was just starting out as a contractor working on a school project that involved a 5,000-squarefoot cafeteria. The concrete was soft, but I didn't know that.

We started with a 40-grit diamond and I had bought five sets of tooling which should have been enough to grind the whole 40,000-square-foot school. After about an hour, the crew told me we needed to order more diamonds. They had used all five sets on the first 2,000 square feet. Very expensive tooling that was supposed to last 8,000 to 10,000 square feet per set only lasted 400 to 500 square feet. I went ballistic and was upset because my crew didn't stop and try to figure out why we were going through tooling so fast. This was an expensive learning experience for all of us.

I remember another job where we went through a set of 25-grit diamonds in 30 feet on the first pass. The machine started prepping for the sample area and very quickly we heard a grinding noise that didn't sound right. We lifted the machine and the diamonds were worn down to the plates.

I have had just as many projects where the tooling was too hard and the concrete would not cut. The hard tooling just bounces on top of the hard slab and then the metal heats up and covers the diamonds. This is usually referred to in the industry as "glazing over" or "glazed up." These are just a few examples of what you can run into if you're not using a tooling matrix to match the hardness of your concrete.

There are many ways to tell if your concrete is hard or soft. The most common method is to use a Mohs hardness test using small picks. This test is done at the beginning of the job or preferably before it starts. Based on the results of your scratch test, tooling can be ordered to best fit the project.

Choose wisely

As there is no standard or governing body that sets specific testing points on tooling, sometimes it's hard to separate the good from the bad. With so many manufacturers pushing their systems, there are a lot of both in the marketplace.

When I was a contractor, I selected my supplier based on field testing. I figured all manufacturers are in business to make a profit, so they work to achieve the lowest cost tooling that will provide the standard of cut to meet their customer's requirements. Now, remember what I said at the beginning of this article about most manufacturers using a third party to make tooling to their specifications. I figured each of those manufacturing plants are also in business to make money.

So what happens is ABC manufacturer contracts with DEF manufacturing plant to have the tooling made. ABC provides a list of standard product points — such as size, shape and amount of particulate and DEF fills these orders. The product works fantastically well. But DEF is trying to eke out as much profit as it can as well so it subtly changes the tooling. It may use a slightly different and cheaper metal or resin. It may change the diamond particulate supplier to one that's a bit cheaper. These small changes still meet ABC's contract requirements so everything is good.

Meanwhile, in the field, the tooling that was cutting really well last month is a bit off this month. In this way, the manufacturer's quality levels are changing constantly. So testing was a big part of determining our tooling supplier. I'd test several manufacturers' products and then stick with the winner for a year until the next round of testing. Sometimes this process would yield one manufacturer for metal-bond tooling and another for resin-bond products.

In addition to the cut, another telling factor is how long the tooling lasts. This is especially important in resin-bond diamonds. Simply put, each step should physically remove the scratches of the step before. A lot of resin manufacturers will cheat the system by lowering the amount of diamond in their higher-grit tooling and softening the resin itself. This leads to a false shine caused by melted resin sitting on the surface and filling the scratches from the step before rather than removing them. This is commonly referred to as "resin transfer" and will significantly lower the life of the tooling.

This shine looks great at the time of completion, but doesn't last long. The resin starts to come up with foot traffic and regular cleaning. If your resin diamonds aren't lasting 10,000 square feet or so, this is an indication that you're melting resin into the scratches and not physically removing the scratches. These diamonds are typically cheap so the contractor usually doesn't pay as much attention to the rate of wear.

In the long run, though, this practice is bad for the industry. Floors with a resin



The best addition to floor prep tooling in the last few years has been "bush hammers." These tools eat through anything so quickly they're really amazing to watch.

transfer polish don't last as long and aren't maintained as easily. By lowering the life cycle, the cost valuation of polished concrete versus cheaper installation flooring types is not as good. Lower customer satisfaction from higher maintenance and lower floor life eventually leads customers away from polishing.

When I'm writing specifications, I generally try to stay on the safer path by selecting larger, well-known manufacturers. I assume they have more reputation and larger customer bases at stake so they spend more money and time ensuring they have high-quality tooling products. I test a lot of newer manufacturers and new products to try to determine the quality level and decide if my customers will be well served by allowing these tools into the specifications.

Preparation tooling

Finally, there's a whole tooling subset based around floor preparation or removal of other flooring materials. There are tools that eat through VCT or epoxy coatings and tools made for taking large amounts of concrete off the surface. These tools have been made to fit plates that attach to concrete grinders.

The addition of these types of tooling has provided a wider range of available services using the same equipment. Contractors don't have to buy as much specialty equipment to prep floors so I think they have been a welcome addition. In my opinion, the absolute best recent addition has to be "bush hammer" tooling *(above)*. The speed at which these tools can remove surfaces has really changed the industry.

Saving money on the tooling price but adding labor costs to deal with the lower quality result is a losing proposition. You're much better off to use higher-quality manufacturers and tooling and try to leverage the better results into lower project labor costs. Labor always has a higher cost than supplies. With a better understanding of the tooling available you can provide your customers with a better-quality product.

Author's note: Several companies contributed photos and information for this article. A special thanks to Concrete Polishing Solutions, Diamatic and HTC for their support.

David Stephenson owns Polished Concrete Consultants, based in Dallas, Texas. As a consultant, he offers decorative concrete programs for retailers and troubleshooting for a wide range of clients. Contact him at david@polishedconsultants.com.



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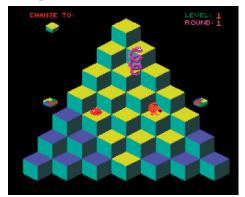
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Geometric Tile Playing with Parallelograms

by Rick Lobdell

WHEN I'm planning a project with a geometric tile pattern, I always think of the arcade game Q*bert. Many of you probably already know how much of a geek I am but let me remind you of my age. Yes, I grew up playing Q*bert, the original version. The idea that you can take three connected "squares," change the color for all three and make them appear to be two walls and a floor is pretty cool to me. That you can do this to a floor is even cooler.

There is a catch: You cannot actually make this design using "squares." Even good old Q*bert didn't use squares. They look like squares, you want to believe they are squares, but they aren't. Instead they are parallelograms. If you start this design thinking you're making squares you'll fail immediately. Once you start working with geometric shapes, and not just tile, the idea of a square is out the window.



Understand the definition

To pull off this design, you must visualize what size parallelograms you want. But first, let's define parallelogram. A quick internet search notes, "A parallelogram is a simple (nonself-intersecting) quadrilateral with two pairs of parallel sides. The opposite or facing sides of a parallelogram are of equal length and the opposite angles of a parallelogram are of equal measure." The difference between

a trapezoid and a parallelogram is a trapezoid only has one set of parallel sides.

Now in high school I had studied all



the heavy hitters — in algebra, geometry and calculus — but I had forgotten about a parallelepiped, or rhomboid, until I looked up parallelogram. A parallelepiped is a 3-D figure formed by six parallelograms (the term rhomboid is also sometimes used with this meaning). By

analogy, it relates to a parallelogram just as a cube relates to a square or as a cuboid to a rectangle.

I dare you to tell clients all this in a sales call. I would love to see the blank faces trying to keep up with all this information.

Visualize the design

All this is very important. As you develop your design skills, the better you are at visualizing the design the easier it gets to lay it out. In sales calls, I'm often told that my competition warns clients that I'll be too expensive and will take too long. This is only because they don't understand how to draw and how to use basic math to lay out designs like this.

I've never lost a sale because I took too long to lay out a design. In fact, 99 percent of the time my clients can't believe how fast I complete the design-work phase on my projects. My philosophy is let the competition stay confused and I will steal every one of those sales from them while they are still trying to understand how to draw a basic tile pattern. As long as you understand the visual picture and how to get there, most anyone can do this in a reasonable amount of time.

Follow the steps

Let's break down how to draw a floor of parallelograms. Like always, depending on the space, start with a 6- to 10-inch border around the room. Find the center in one direction and chalk a line through it. From there, measure the size you want your main parallelogram to be.

Your measurements are the far points of the diagonal, not the width of the tile. For

this article, we'll use 36 inches. Measure 36 inches from the center line in both directions. After chalking those, measure 18 inches between all your 36-inch lines to establish a center line for each.



During this time, you're planning the size and shape of your main parallelogram. Since one diagonal length is 36 inches, the other must be either longer or shorter. If they were the same, we would be back to making a square instead of a parallelogram.

For this article, we'll measure 28 inches. Plot a line of parallelograms through the center of the room based on these



measurements. Next, we must visualize the design's 3-D aspect. So that everything can break down easily, don't complicate the design with an unusual measurement. Just split the diagonal in half. With this floor, that's a 14-inch 3-D side to the parallelogram.



It quickly starts to get easy here. Measure 14 inches in both directions off the initial parallelogram on all your 18-inch lines. Now connect the dots and you'll see the 3-D. Of course, it will be easier to see it once you stain and show three different value changes, but we'll talk about that in another article. This one is about how to draw the design.

Repeat after me

After you draw the 3-D tiles, repeat all these measurements until you fill out the entire floor. As you're measuring, you'll see how the tiles are in the same line as they travel diagonally through the space. You can use this to your advantage when finishing the last lines that touch the borders. After you chalk out all the lines, erase those that travel through the larger parallelograms you started with.



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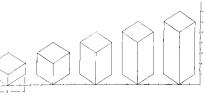




DESIGN THEORY

There are so many directions you can take the look of this design. No matter what size you make the shapes or how extreme you stretch the look of the parallelograms, if you keep math organized it will always look 3-D. This rhomboid illustration shows how you can make the





shape look more or less 3-D by how big you make the vertical side of the design.



Visualize all my measurements as 1-foot increments. This will help you see how big they can quickly get. The main parallelogram is 3-by-2 feet. The vertical starts at 1-foot wide and grows to 5-feet long by the end. Yes, you must imagine a floor full of these shapes. This is how this design works.

Unlike the basic tile pattern which involves the entire floor, this design is about understanding the size of this visual shape and then repeating it. Remember designs like this can get busy very quickly. We are in an era of design where less is more and people don't want extremely busy floors.

Think big, think simple and have fun. These floors are cool to do once you practice and get the hang of this design.

Rick Lobdell, a classically trained artist with a master's in fine arts in painting from the Savannah College of Art and Design, has also studied math and drafting. In this series, the owner of Concrete Mystique Engraving in Tennessee will explain how he lays out his well-known designs. He can be reached at rick@concretemystique.com.

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Relief was Close but No Cigar

by Stacey Enesey Klemenc

T HE language barrier was the least of the obstacles a team of two professors and a student from Southern Arkansas University had to overcome during a weeklong trip to Cuba last November for an art project with the University of Artemisa. The saga began with a lack of supplies and ended with the death of Fidel Castro the night before the Americans left.

Even though materials from the U.S. were properly shipped and delivered early, the supplies never left the customs house in Havana, says Steven Ochs, a concrete artisan and a professor of art at SAU. Try as they might — they even contacted the country's Ministry of Higher Education to plead their case — they couldn't get the Smith Paints stains, sealers and polymer overlays and eight bags of cement released because the professors hadn't obtained the needed signatures.

"Plans A through D were out the window," Ochs says, "so we moved on to Plan E, which is an everyday occurrence in Cuba." That is, to make do with what you can get.

Ed Kardas, the team's distinguished professor of psychology, ended up driving an hour north to score enough black market acrylic paint to bring the project between the two schools to fruition. Luckily, he and Ochs had stuffed brushes and die grinders and angle grinders, as well as turbo diamond and crack chaser blades, donated by Bosch, in their suitcases. Even though they couldn't build up areas in relief without the cement, they could "seriously score some concrete" and paint the mural they had planned.

The SAU trio and Cuban students prepared the mural wall by washing it with laundry soap and buckets of water specialized cleaners and garden hoses are luxuries the Cuban people live without and preparing the concrete canvas with some ordinary white latex paint.

Artemisa students and faculty drew several thumbnail sketches but the design wasn't finalized until the U.S. team got to Cuba. The resulting mural is a free-flowing, motion-packed abstract full of images representing the emerging relationship between the two schools. Prominent features include the red, white and blue colors of both countries' flags, a dove symbolizing peace and the obvious books and pencil. More sublime elements include pixilation squares so familiar to modern-day artists.

"The most interesting thing was that we didn't need interpreters while we were designing side by side. The art design was a language we all shared and understood on so many levels," Ochs says. Body gestures, hand gestures, eye contact and spoken words, whether fully understood or not, bridged the communication gap. A reciprocal trip, where a Cuban team will collaborate on a project with SAU, is planned for late summer.

Oh, in case you're wondering, the trip to the airport after Castro's passing was rather uneventful (Ochs credits this to timing) and the team made it out of Cuba without any major altercations. The supplies, however, are still being held hostage.





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