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Vol. 13 No. 7 October 2013

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FROM THE editor's DESK

Dear Readers,

Next fall will be a first for the *Concrete Decor* family. We've hosted our Concrete Decor Show in the spring every year since 2010. In 2014, we're moving it to the end of September in Fort Worth, Texas. (The workshops will be Sept. 29-30 and the exhibits and education Oct. 1-3. But you don't need me to tell you that — you can find all the specifics at ConcreteDecorShow.com.)

Among other things, moving the show to fall gives us a few extra months to plan events that are really special. The Lone Star State has historically been forward-thinking in embracing decorative concrete, as this issue's Texas-based Artisan in Concrete, Cory Hanneman, can tell you. But even so, we're going to knock their socks off in Fort Worth.

Several members of our staff, including our show management team and our publisher, Bent Mikkelsen, just wrapped up our first official pre-Show planning meeting in Fort Worth to brainstorm our annual "decorative concrete makeover" at a local nonprofit and investigate other ways we can make our mark next year. Our group, which included manufacturer reps, trainers and some of the nation's most skilled decorative concrete pros, toured four sites and discussed potential projects there and at the Show itself.

We came back with a great game plan.

We plan to do our makeover at the Presbyterian Night Shelter, which is reportedly the area's largest provider of homeless services. Our overhaul will include floor resurfacing, an outdoor patio, a potentially huge amount of vertical work and a whole lot of polishing. The makeover is the focus of our Show workshops every year, so when you sign up to attend workshops at the 2014 Concrete Decor Show, you'll be signing up to transform the Shelter.

Improvements at Paddock Park downtown will include a bull sculpture by renowned concrete artist Thom Hunt. He will finish the sculpture on the Show floor during exhibition hours.

We also have our eye on improving "wayfaring" directional markings at two Fort Worth landmarks, the Fort Worth Stockyards and the Cook Children's Medical Center. The medical center must provide guidance to anxious families and sick children, while the Stockyards annually host thousands of school kids who need to be steered through the property.

Even if you didn't attend the planning meeting, it's not too late to join this once-in-a-lifetime opportunity to remake a city in decorative concrete. Go to the Show website, ConcreteDecorShow.com, for more details.

Sincerely,

John Strieder
Editor

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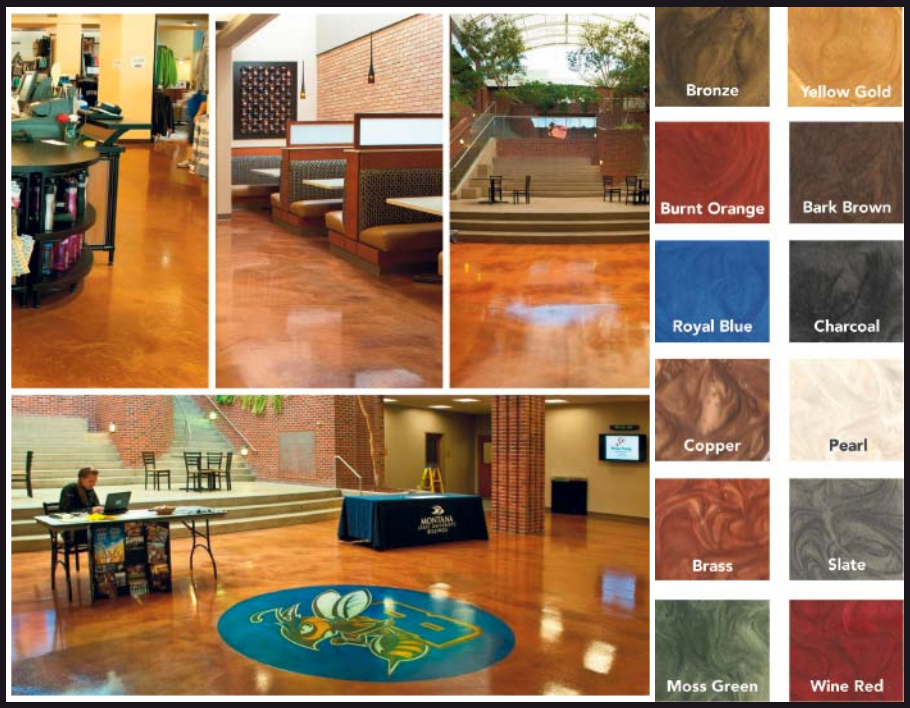

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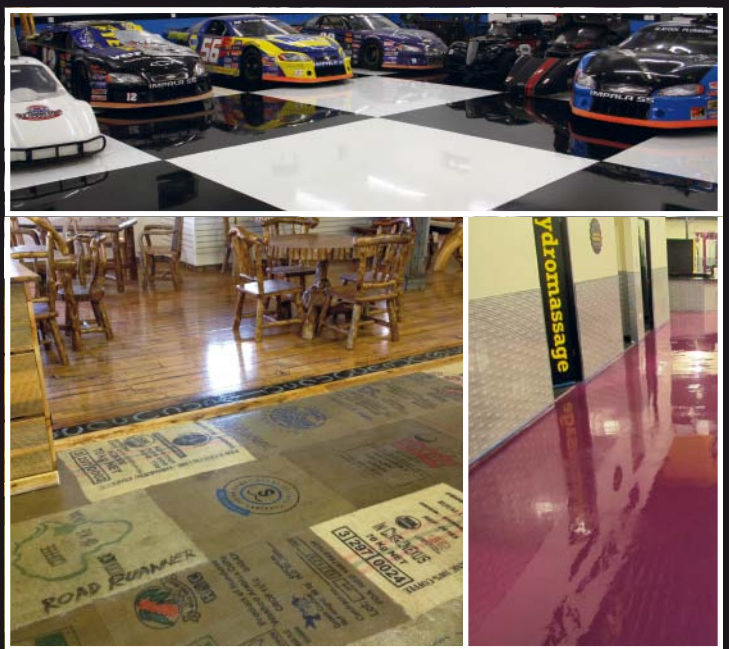

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FEATURES

BUSINESS & INDUSTRY

On the cover: This issue's Artisan in Concrete, Cory Hanneman, and his team at Element7 Concrete Flooring created this fireplace at a San Antonio, Texas, home featured in the 2010 AIA Walking Tour.

Everything in the picture is concrete except for the rockwork wall. The hearth was cast in gray concrete and overlaid with Thin Finish and Micro Finish from Elite Crete Systems. The artisans tinted layers with blends of Elite Crete Portion Control pigments Desert Beige and Palomino.

The top portions of the hearth were precast with ChemSystems Integral Color #1425, then acid-stained with L. M. Scofield's Lithochrome Chemstain Classic in Dark Walnut cut 4-to-1 with water.

On the floor, Hanneman used a bit of raw sienna paint pigment in impregnating sealer. He finished with burnished Italian beeswax. "The initial design called for a floor that was supermodern, but it ended up earthy," he says. "It was a better backdrop for everything supermodern in the house."

The house was designed by owner David Stewart and built by Adam Wilson Homes, San Antonio. To learn more about Hanneman, turn to page 24.

Photo by Christina Burke

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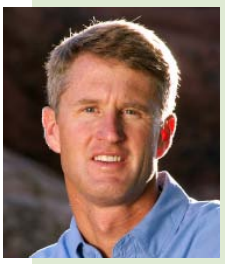
Doug Carlton *is working on his third decade in the decorative concrete industry. He's the owner of Carlton Construction, located at the base of the Big Horn Mountains in northeastern Wyoming. Doug can be reached at carltondoug@sbcglobal.net. See Doug's article on page 68.*

Jennifer A. Faller *is vice president of operations for The Professionals, a polished concrete contracting company in Greensboro, N.C. She is also co-chairman of the Concrete Polishing Association of America board of directors. Contact her at jennifer.faller@gmail.com. See Jennifer's article on page 58.*

Jeffrey Girard *is founder and president of The Concrete Countertop Institute and a pioneer of engineered concrete countertops. He can be reached at info@concretecountertopinstitute.com. See Jeffrey's article on page 37.*

Troy Lemon *is founder and president of Cornerstone Decorative Concrete, in Holland, Mich. Reach him at troy@cd-concrete.com. See Troy's article on page 65.*

Jimmy McGhee *handles sales and technical support for Versatile Building Products. Contact him at jimmy@garagecoatings.com. Read Jimmy's recommendations on page 34.*



Chris Sullivan *is vice president of sales and marketing with ChemSystems Inc. He has led seminars and product demonstrations throughout North America. Contact him at questions@concretedecor.net. See Chris' column, "Concrete Questions," on page 62.*

Talk back! Weigh in online at ConcreteDecor.net

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Elite Crete Northeast	●	●								
Elite Crete South	●	●	●	●		●				
Engrave-A-Crete Inc.	●	●	●			●				
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Kingdom Products	●	●	●	●		●	●	●		
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Pure Texture	●	●	●	●						
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Butterfield Color Inc.	●	●	●	●		●		●		
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Concrete Decor Show	●	●	●				●	●		
Deco-Crete Supply Inc.	●	●	●	●		●				
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Concrete Decor Show	●	●	●				●	●		
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Concrete Solutions by Rhino Linings	●	●	●			●		●		
Deco-Crete Supply Inc.	●	●	●	●		●				
Diamatic USA		●	●	●	●	●		●	●	
Elite Crete Northeast	●	●	●							
Elite Crete South	●	●	●	●		●				
Engrave-A-Crete Inc.	●	●	●			●				
Flex-C-Ment		●								
Increte Systems	●	●	●			●				
Kingdom Products	●	●	●	●		●		●		
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SS Specialties	●	●	●	●		●		●		●
Super-Krete	●	●	●	●		●		●		
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Kingdom Products	●	●	●			●		●		
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Niagara Machine Inc.	●	●	●	●	●	●				
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Increte Systems	●	●				●				
Kingdom Products	●	●	●			●		●		
Niagara Machine Inc.	●	●	●	●	●	●				
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Butterfield Color Inc.	●	●	●	●		●		●	●	
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Concrete Decor Show	●	●	●				●	●		
Concrete Solutions by Rhino Linings	●	●	●			●		●		
Diamatic USA	●	●	●		●	●		●	●	
Elite Crete Northeast	●	●								
Engrave-A-Crete Inc.	●	●	●			●				
GranQuartz	●	●		●		●				
Increte Systems	●	●	●			●				
International Polished Concrete Institute	●	●	●	●		●			●	
Kingdom Products	●	●	●	●			●	●		
Niagara Machine Inc.	●	●	●	●	●	●				
Quest Building Products	●	●	●	●						●
Runyon Surface Prep Rental & Supply	●									
SS Specialties	●	●	●			●		●		●
Super-Krete	●	●	●	●		●		●		
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ChemSystems Inc.	●	●	●	●			●			
Concrete Decor Show	●	●	●				●	●		
Concrete Solutions by Rhino Linings	●	●	●			●		●		
Deco-Crete Supply Inc.	●	●	●	●		●				
Elite Crete Northeast	●	●								
Engrave-A-Crete Inc.	●	●	●			●				
Increte Systems	●	●	●			●				
Kingdom Products	●	●	●	●		●	●	●		
Super-Krete	●	●	●	●		●		●		
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ChemSystems Inc. offers all levels of training on our complete product line, including: integral & dry-shake colors as well as topping compounds, overlays, acid stains, solvent and water-based dyes, bonding agents, liquid & powder release agents and sealers. At CSI we do not strive to be the biggest, but rather focus on color consistency, product quality, and personalized technical and customer service.

The Concrete Countertop Institute
2810-5C Yonkers Rd.
Raleigh, NC 27604
p: (888) 386-7711
www.concretecountertopinstitute.com

Concrete Decor Show
P.O. Box 25210
Eugene, OR 97402
(877) 935-8906
www.concretedecorshow.com

The Concrete Decor Show features hands-on workshops and classroom training in all areas of decorative concrete, plus an extensive exhibit hall with live demonstrations from industry leaders. Our fifth annual event will be held September 29–October 3, 2014 at the Fort Worth Convention Center in Fort Worth, Texas.

See our ad on Inside Back Cover · Reader Service 02

The Concrete Protector
15970 Sidney St.
Wapakoneta, OH 45895
p: (567) 297-3700
www.theconcreteprotector.com

The Concrete Protector is the concrete industry's most trusted supplier of products, equipment and training to protect, repair and design concrete. Our goal as a Decorative Concrete Supplier is to ensure that every product we distribute is professionally and carefully DELIVERED and installed. At The Concrete Protector our job is not done until your customer is happy with your installation. Don't leave your next job up to chance! Success in installations comes through dealing with a well-executed plan. Get results you can depend on through our quality products and hands-on training.

Concrete Solutions by Rhino Linings
9151 Rehco Rd.
San Diego, CA 92121
p: (800) 232-8311
www.concretesolutions.com

Concrete Solutions Concrete Overlay Workshops are "hands-on" 3-day training events held monthly at our training facilities in Las Vegas, Nevada. Our workshop covers everything from concrete surface prep to concrete seal. No previous experience necessary!

Attend our training and learn the techniques and systems you need to know in order to become a contender in the decorative concrete industry.

See our ad on page 5 · Reader Service 05

Deco-Crete Supply Inc.
133 N Kohler Rd.
Orrville, OH 44667
p: (330) 682-5678
www.deco-cretesupply.com

Deco-Crete Supply offers quality decorative concrete supplies with field training and technical support.

Diamatic USA
5220 Gaines St.
San Diego, CA 92110
p: (866) 295-5512
www.diamaticusa.com

We are a full-service grinding and polishing manufacturer offering a complete selection of equipment and services for concrete polishing and surface preparation contractors. We offer a complete certification program for our network installers. We also have multiple educational formats including online webinars and videos for our customer base.

EDCO
100 Thomas Johnson Dr.
Frederick, MD 21702
p: (800) 638-3326 f: (800) 447-3326
www.edcoinc.com

Since EDCO was founded in 1959, our goal has been to build high-quality, easily serviceable, long-lasting equipment for use by the surface rehabilitation and maintenance industry. The 'Rental-Tough' trademark signifies our involvement with the equipment rental business, which has been our proving ground for many years. What better way to introduce a new product and prove its dependability than to make it available from a reliable source — for trial, for rent or for sale!

See our ad on page 59 · Reader Service 39

Elite Crete Northeast
701 Canal St.
Bristol, PA 19007
p: (215) 781-0356
www.elitecrete.com

We provide service/supplies to the decorative concrete industry. We also help new companies with training and support.

Elite Crete South
24765 Hwy. 69
Jasper, AL 35504
p: (205) 522-5334 f: (205) 221-3976
www.elitecrete.com

Training, Distribution, and Technical Support for "Elite Crete Systems" the recognized leader in decorative concrete overlays, fluid-applied flooring, stains, dyes and custom interior and exterior flooring solutions.

Engrave-A-Crete Inc.
403 Oak Ave.
Mansfield, MO 65704
p: (800) 884-2114 f: (417) 924-2500
www.engraveacrete.com/training

Forget messy, expensive and difficult overlays, toppings, tear outs and stamping. Learn to engrave stunning designs into existing concrete that will earn you profit and keep your customers happy. Designs are unlimited and de-lamination is a thing of the past. Learn from internationally known decorative concrete pioneers Darrel and Brandon Adamson in an action-packed, three-day, hands-on seminar covering engraving, staining, sealing and marketing. Bring a buddy discount.

Flex-C-Ment
1205 Palestine Rd., Bldg. B
Picayune, MS 39466
p: (864) 877-3111 f: (864) 967-2299
www.flex-c-ment.com

Decorative concrete material manufacturer.

GranQuartz
4963 S. Royal Atlanta Dr.
Tucker, GA 30084
p: (800) 458-6222 f: (770) 621-9771
www.granquartz.com

GranQuartz was founded in 1971 and above being the largest distributor of stone tools, equipment and supplies in the United States, we supply tools, equipment, chemicals and training for Concrete Polishing and Concrete Staining. GranQuartz has 12 stores and distribution facilities located throughout the United States to better serve our customers and ensure orders are processed and expedited quickly.

See our ad on page 15 · Reader Service 07

Increte Systems
1611 Gunn Hwy.
Odessa, FL 33556
p: (813) 886-8811 f: (813) 920-1516
www.increte.com

Increte Systems, a full-service manufacturer providing the industry's most complete and versatile line of decorative products, tools, and comprehensive training. One-Stop-Shop for innovative engineered systems from stamping and formliners to a full line of overlays, stains, and high-performance coating systems, and backed by Best-in-Class factory training and technical field support.

International Polished Concrete Institute
P.O. Box 1174
Norris, TN 37828
p: (865) 494-7881 f: (865) 494-8757
www.ipcionline.org

The International Polished Concrete Institute (IPCI) offers a two-day, technique-driven, hands-on, Craftsman Certification.

For flooring contractors, polishers, and architects.

Kingdom Products
45 Underwood Rd.
Throop, PA 18512
p: (570) 489-6025 f: (570) 383-6711
www.kingdom-products.com

Kingdom Products - Premium Quality Decorative Concrete materials for the Professional Artisan. Color Hardeners, Release Agents, Colors, Dye, Pigments and Coatings

See our ad on page 63 · Reader Service 56

Kut-Rite Mfg.
27456 Northline Rd.
Romulus, MI 48174
p: (734) 955-9311
www.kutritemfg.com

Manufacturer of surface prep equipment.

Niagara Machine Inc.
325 W. Front St.
Erie, PA 16507
p: (800) 622-2048 f: (814) 454-0160
www.niagaramachine.com

Niagara Machine is an industrial surface preparation specialist: A full-line distributor of shotblasting machines, cutters and scrapers, concrete floor grinders and polishers, HEPA filter dust extractors, separators and air scrubbers. To complement our equipment lines we carry a complete line of parts and consumables including diamond cup wheels, abrasive discs, diamond plugs, diamond segments, polishing pads, carbide cutters and diamond blades. Niagara carries dyes, densifiers, overlays, stains and concrete treatments. Training available on-site or in our 22,000 sq. ft. training facility. Call today! (800) 622-2048

See our ad on page 61 · Reader Service 45

Pure Texture
3123 - K Cedar Park Rd.
Greensboro, NC 27405
p: (336) 698-9800 f: (336) 698-9900
www.puretexture.com

Quest Building Products
1129 N. Patt St.
Anaheim, CA 92801
p: (714) 738-6640 f: (714) 738-6950
www.questbuilding.com/news/training

Quest Building Products is California's full-service store specializing in decorative concrete products to prepare, protect, and decorate any concrete surface. Offering tools and coatings, Quest also provides equipment sales, service and rentals. With a knowledgeable staff and the support of reputable and dependable manufacturers, Quest is your one-stop shop.

Runyon Surface Prep Rental & Supply
410 W. Carmel Dr.
Carmel, IN 46032
p: (800) 896-8665
www.runyonsurfaceprep.com

Runyon Surface Prep Rental and Supply is a full-service stocking distributor and rental facility. We have a sales team dedicated to sales and rental exclusively for the surface prep industry. We have the highest level of support from all of our manufactures and suppliers. As a result, we are able to provide our customers with outstanding service and support. We provide training classes to demonstrate our equipment and techniques for floor prep, polishing, and removal.

See our ad on page 7 · Reader Service 15

SASE
2475 Stock Creek Blvd.
Rockford, TN 37853
p: (800) 522-2606 f: (865) 745-4110
www.SASECompany.com

Concrete polishing & preparation equipment & tooling.

See our ad on page 13 · Reader Service 16

SS Specialties
125 NE 40th St.
Oklahoma City, OK 73105
p: (866) 906-2006 f: (405) 526-2008
www.ssspecialtiesconcrete.com

SS Specialties carries decorative concrete products that get consistent results and develops confident contractors. We carry a complete line of decorative concrete products from coloring systems, concrete countertops, coatings & sealers to maintenance products.

See our ad on page 12 · Reader Service 17

Super-Krete
2705 Via Orange Way, Ste. B
Spring Valley, CA 91978
p: (619) 401-8282 f: (619) 401-8288
www.super-krete.com
Since 1985, Super-Krete products have been enhancing, protecting and restoring concrete installations worldwide. With successful applications under severe temperature cycles such as the icy winters and freeze-thaw conditions of the Czech Republic to the extreme humidity of the Pacific Islands and the blazing heat of the western deserts, Super-Krete Color Stains, bonding agents and surfacing systems have proven to withstand both time and the elements of nature. The Super-Krete family of quality products are guaranteed to help you meet and exceed your concrete challenges.

SureCrete Design
15246 Citrus Country Dr.
Dade City, FL 33523
p: (352) 567-7973
surecretedesign.com/Concrete_Training.php
SureCrete is a manufacturer of decorative and architectural coatings. We specialize in eco-friendly high-performance commercial coatings designed to simplify application, lower labor costs, and increase your company's profitability.

Vexcon Chemicals
7240 State Rd.
Philadelphia, PA 19135
p: (215) 332-7709 f: (215) 332-9997
www.vexcon.com
Certi-Shine products transform ordinary concrete into beautiful, high-performing, economical polished floors. Choose from high gloss to a satin sheen with unlimited color possibilities for a low maintenance, durable floor guaranteed to change your definition of concrete. Certi-Shine Polished Concrete: It's where science and art join for a lasting shine.

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San Diego, CA 92102
p: (800) 250-4519 f: (619) 262-8606
www.westcoat.com
With over 30 years of industry experience, Westcoat offers innovative, durable surface solutions for the discriminating architect, contractor, specifier, or property owner. Take the guesswork out of selecting and applying coatings with Westcoat's simplified solution for every type of coating application. Westcoat Specialty Coating Systems — an all-inclusive line of step-by-step coating products — make selecting the right process for every job even easier. Engineered to achieve superior results, Westcoat delivers numerous protective, textured and decorative options for a variety of applications.
See our ad on page 21 · Reader Service 20

Xtreme Engineered Floor Systems
3303 Hudson Trails Dr.
Hudsonville, MI 49426
p: (800) 234-8208 f: (616) 896-8332
www.v8coatings.com
Manufacturer of the V-8 High Performance Floors product line. Products include high-performance polyurea/polyaspartic coatings, high-performance epoxy coatings, pigments, concrete patching kits, cove, grip additives, slat wall, and cabinet wall systems. We offer monthly training classes and training DVDs for your convenience. Sign up online or call us today!

Find and use the
Training & Events Calendar
at www.ConcreteDecor.net

INDUSTRY NEWS

Portland Cement Association predicts big cement use growth next year

The Portland Cement Association reports that an unusually wet spring and early summer dampened cement consumption for the first quarter of 2013 but did not put a wet blanket on the opportunity for strong growth in the construction sector in 2014 and beyond.

According to the September 2013 PCA forecast, cement consumption will increase a modest 4 percent in 2013 but will approach double-digit growth in 2014 and 2015, with 9.7 percent consumption increases in both years.

"Nearly two-thirds of the anticipated growth in 2013 cement consumption will be caused by gains in the residential construction market," said Ed Sullivan, PCA chief economist, in the news release. "Home inventories are declining, signaling that it is time to start building, while the lingering effects of damaged credit due to foreclosure activity have created a robust apartment demand."

The PCA asserts that just as a recession creates a pent-up demand for consumer products like cars, it also builds demand for construction. The trigger lies with a willingness to spend and reinvest in capital. According to the PCA's scenario, consumer and business attitudes are expected to increasingly focus on the positive economic fundamentals rather than potentially adverse political uncertainty.

"Sentiment and confidence indices are extremely volatile. Business sentiment now stands at pre-recession levels," Sullivan said. "Assuming Congress has learned its lesson from the fiscal cliff and will take a more rational approach with the upcoming debt limit discussions, political uncertainty and its adverse impact on the economy is expected to dissipate."

Sullivan predicts an increase in local spending on public construction beginning in fiscal 2016, driving a prediction of an 11 percent consumption gain in that year.

(847) 966-6200

www.cement.org

New digs for Stain Store Austin

The Stain Store in Austin, Texas, has moved to a new location at 2415 Kramer Lane, Austin. The 3,500-square-foot location is in a better part of town for retail and contains more warehouse space, allowing the construction wholesale outlet to stock more inventory. The new facility also includes a showroom and tool room with stained overlay flooring.

The Austin branch is managed by Mark Hamlin. His brother, Eric, owns it as well as the original Stain Store in San Antonio.

(512) 323-5550

www.thestainstore.net

Super Stone expands into Texas

Decorative concrete supply manufacturer Super Stone has opened Super Stone of Texas, a new distribution branch in the Houston area at 10302 Cash Road, Stafford. The new branch features a wholesale storefront for contractors, with a showroom that takes up about a fifth of the store's 5,000-square-foot warehouse. The location stocks Super Stone

products along with a complete line of Kraft tools for decorative concrete.

Super Stone plans to use the new location to build distribution to other concrete supply houses in Texas, surrounding states and throughout the Midwest. The company operates a manufacturing facility and two stores in Florida, plus a branch in Las Vegas.

(832) 539-6891

www.superstone.com

Polaris acquires HTC Sweden AB

Polaris Private Equity, a leading Danish/Swedish midmarket private equity investor, has successfully acquired HTC Sweden AB, a global developer and manufacturer of professional floor grinding systems and floor solutions.

HTC has been growing rapidly in recent years, driven by expansion into new geographic markets and the launch of new products. The new owner will seek to consolidate its position in key geographies such as Europe and the U.S., as well as extend its offerings into emerging markets such as China and Brazil.

www.htc-floorsystems.com

www.polarisequity.dk

Shaw & Sons Construction absorbs themed concrete creators

In an effort to continuously advance architectural concrete in the Southern California area and meet the ever-changing demands of the architectural community and owners, Shaw & Sons Construction Co., of Costa Mesa, Calif., has acquired Marshall Barabasch and his team at MB Concrete Systems for their unique and reputable approach to architectural concrete.

Barabasch boasts more than 35 years of themed, stamped and architectural concrete experience. Specializing in themed concrete has made him and his team a desired concrete contractor for numerous Southern California theme parks.

www.shawconstruction.com

NEW faces

Donnie Denton, service center manager for Atlanta, Husqvarna Construction Products

Robert Dorris, service, Concrete Solutions and Supply (San Diego)

Sean Dunn, sales representative for Texas, Westcoat Specialty Coating Systems

Lee Dzierzanowski, business development manager – West, Dur-A-Flex Inc.

Jeff Iafornaro, district manager for New Mexico and El Paso, Texas, Husqvarna Construction Products

Howard Kanare, technical director, Koster American Corp.

Randy Payette, technical director and manager, Super Stone of Texas

Nathan Person, district sales manager for Southern California, Husqvarna Construction Products

Sean Sheehan, district sales manager for New Jersey and Philadelphia, Husqvarna Construction Products

Randy Silver, district manager for Georgia and South Carolina, Husqvarna Construction Products

PRODUCT NEWS

ADMIXTURES

Use silica fume to make brighter, stronger concrete

Technical Silica Co. is formally introducing BriteFume to the general public. The white amorphous silica fume is used to create high-performance decorative concrete. While BriteFume has been available to a select number of users for some time, it has only recently been fully released to market, with a finalized trademark secured by Technical Silica earlier this year.

Users typically replace 5 to 10 percent of portland cement mixtures with BriteFume to achieve optimum performance. BriteFume's truly white color maintains, and often adds to, the brightness of concrete mixtures. This is conducive to accurate color matching. Also, BriteFume has the distinctive ability to add substantial strength to concrete mixes. Measures as high as 15,000 psi are not uncommon when BriteFume is utilized.

Silica fume consists primarily of amorphous (noncrystalline) silicon dioxide. Its individual particles are extremely small, approximately 1/100 the size of an average cement particle. It fills empty pores in the cement and helps produce a stronger, more compact material. It also provides significant improvements in the permeability, abrasion resistance and chemical resistance of concrete. It reacts with the cement paste to form additional calcium silicate hydrate (CSH).

BriteFume is available year-round in bulk bags or 50-pound bags.

(404) 321-0460

www.britefume.com

MICROTOPPINGS

H&C adds microtopping to product line

H&C Concrete has added a microtopping to its line of decorative concrete products. H&C Micro-Topping is an extremely thin cementitious topping ideal for interior applications. It is designed for horizontal surfaces and can be used in conjunction with H&C Decorative Stains and Sealers to create a smooth architectural finish.

H&C Micro-Toppings can be applied in just a single coat, contain finely blended aggregate and require only water to be added.

(800) 867-8246

www.hcconcrete.com

OVERLAYS

Company touts limestone-based overlay, stone veneer

BrazoStone was founded in 2012 as a manufacturer of high-quality crushed limestone-based products and has more recently introduced itself to the greater decorative concrete industry.

The new company has the advantage of coming to market with a long-term proven performer in its lineup: Surface Overlay, a unique overlay system that has been beautifying horizontal surfaces for more than 20 years. Another key product from the company is Vertical Stone, a lightweight decorative stone veneer that gives tired vertical surfaces a facelift. Both Vertical Stone and Surfaces Overlay are installed over existing surfaces.

(800) 279-2729

www.brazostone.com

New resurfacing and vertical overlays from Kingdom

Kingdom Products has released a series of overlayment and resurfacing products for the professional contractor.

The first is Kingdom's Vertical Wall Mix, which is engineered to be both lightweight and exceptionally strong. Its formula offers strong adhesion and workability. It can be built up to 3 inches thick in one lift if needed, and it will not sag. The mix can be applied by traditional hawk and trowel, sprayed on, or hand-packed. It can be carved or molded as it gains strength, or it can be textured.

Top Cap Overlay is designed for resurfacing commercial and residential floors, decks, driveways, patios and more. The one-component product is a broomable and spray-down overlay engineered to develop maximum strength and attain a tenacious bond to the substrate. It can be pigmented, and it's compatible with any stencil use. It can be used indoors and out.

Finally, Kingdom Products' Deep Fill Repair Mortar is a nonshrinking mortar that has been engineered to fill voids between 1/4 inch and 5 inches deep in one lift. It is semi-self-leveling, but it is not designed to be spread to a featheredge.

(570) 489-6025

www.kingdom-products.com

POLISHING

HTC's latest series of products for floor prep

The HTC GL Superprep series contains a mix of crushed PCD (polycrystalline diamonds) and diamonds to offer a high cut rate. This series is perfect for applications such as floor preparation and the removal of coatings, glue or any other floor topping.

The series consists of four tools: The EZ GL Superprep 0 SC, a very aggressive floor prep tool with crushed PCD and coarse diamonds to be used on soft concrete; the EZ GL Superprep 0 HC, a very aggressive floor prep tool with crushed PCD and coarse diamonds to be used on hard concrete; the EZ GL Superprep 1 Silver, an aggressive floor prep tool with crushed PCD and coarse diamonds to be used when you need a coarse tool for stripping, coarse grinding or as a starting tool; and the EZ GL Superprep 2 Gold, a floor prep tool with coarse diamonds to be used when you need a finer tool for stripping, coarse grinding or as the second step after 0 or 1.

(865) 689-2311

www.htc-floorsystems.com

Kit converts hand-held concrete polisher into edger

Kut-Rite Manufacturing Inc. has introduced the EDGEKutter Hand Grinder/Polisher Dolly Kit. The kit turns a handheld grind-polish machine into an effective tool for finishing quality edges on a polish job.

The kit includes one dolly, one dust shroud and a 12-segment cup wheel. It contains all the tools you need to mount your 7-inch hand-held machine.

(877) 786-5067

www.kutritemfg.com

SPIKES & SHOE GUARDS

Better shoe guards and spikes

Shoe-In Pro Finish shoes are designed to help decorative concrete jobs go faster and more efficiently. The first shoe in the product line, the Shoe-In Pro Finish, is a strapless shoe that you can slip your existing shoe into with ease. It helps keep heel marks and tread patterns out of stamped concrete, while also spreading release powders.

The company also offers the Shoe-In Pro Finish Spike. The spike version offers superior stability without the hassle of straps to drag or break and no nuts that can come loose or fall off.

(612) 221-1849

www.shoeinprofinish.com

STAINING & COLORING

Easily transportable samples from H&C

H&C has launched its Hard Sample Box Series, featuring H&C stains, dyes and color packs.

The samples are 2 inches by 2 inches and are packaged in boxes that are easy to carry and store. Every sample includes on its backside the decorative color system used to create the sample. Blank samples are also available to allow you to create custom color combinations and sealer systems for specific projects.

Sample series include: H&C Semi-Transparent Decorative Stains, 16 colors; H&C Acetone Dye Stains, 16 colors; H&C Infusion Reactive Acid Stains, 12 colors; and H&C Concrete Resurfacer Color Packs, 30 colors.

(800) 867-8246

www.hcconcrete.com

STAMPS

New Walttools stamps are Brickform-friendly

Walttools has released a BC line of custom concrete stamps that are fully compatible with Brickform's Ashlar Cut Slate, Random Stone and London Cobble patterns. The BC stamps feature textures and stones that are designed to compliment and improve the look of the Brickform stamps by mixing up the sizing and pattern look. They can either be used alone or in conjunction with the Brickform patterns.

BC stamps from Walttools are custom-made from handpicked, chiseled and formatted stones that are meticulously fitted into a design pattern that is fully compatible with respective Brickform lines.

(888) 263-5895

www.walttools.com

SURFACE PREPARATION

Werkmaster's new versatile Titan XT machine

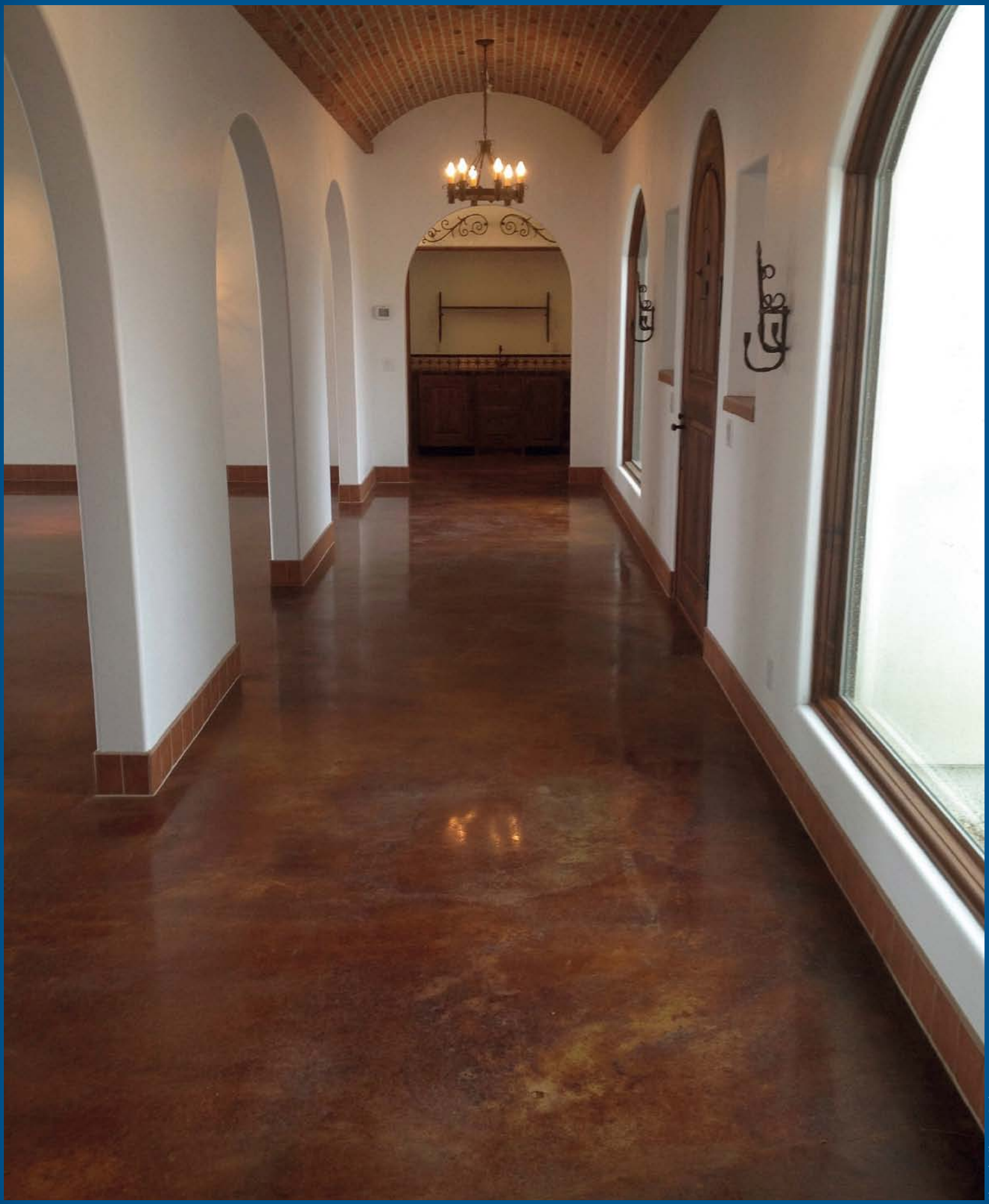
The WerkMaster Titan XT is an aggressive surface prep machine designed to exceed the needs of the professional contractor.

The Titan XT is used for commercial, residential and maintenance projects and is available in 230-volt or 460-volt models. It acts as a grinder, stripper, sander, buffer, burnisher, polisher and edger. It is capable of removing thin-set, epoxy, glue, paint, mastic and microtoppings, and it runs wet or dry on concrete, stone, hardwood, terrazzo or VCT tile.

The Titan XT features WerkMaster's Octi-Disc technology with eight counter-rotating heads, plus the 6 3/4-inch Ultra-Flex Plug 'N Go tooling system. It does edges to within 1/8-inch of the wall. The Titan XT weighs only 600 pounds and has a 20-inch footprint and an auto-sensing dual-voltage variable frequency drive (230-volt model only). Disc rotation speeds range from 450 to 1,800 rpm. It runs on single-phase or three-phase power.

(866) 373-9375

www.werkmaster.com



Photos by Christina Burke

ARTISAN
IN CONCRETE

Cory Hanneman, Element7 Concrete Flooring

Marble Falls, Texas

by Joe Maty

Decorative concrete is more than an occupation or a career for Cory Hanneman. It gave him direction at a time when he needed a compass.

"Decorative concrete utterly changed my life," says Hanneman. "Until I was inspired by this trade, I was a classic underachiever. It was 2006, and I was in my sixth or seventh year of undergraduate studies of mathematics at the University of Nevada. I was nearly pulling straight A's but had no reason why."

By that time Hanneman had married a nice girl from Texas, had two young children, and "urgently needed to figure out what I was going to do when I grew up."

Working at a Vegas hotel, he heard about another employee's plans to stain the concrete floor of a house he was having built. Hanneman, who was making a few extra dollars laboring in concrete construction work, immediately liked what he saw.

"As an amateur mathematician, concepts were a big deal and that one captivated me," he says. "The idea of meeting such a basic human need (flooring) in such a cool way totally turned me on."

The day-to-day challenge of creating value remains a turn-on for Hanneman, 36, who applies this philosophy to his work as owner and chief operating officer of Element7 Concrete Flooring, a decorative concrete business based in Marble Falls, Texas.

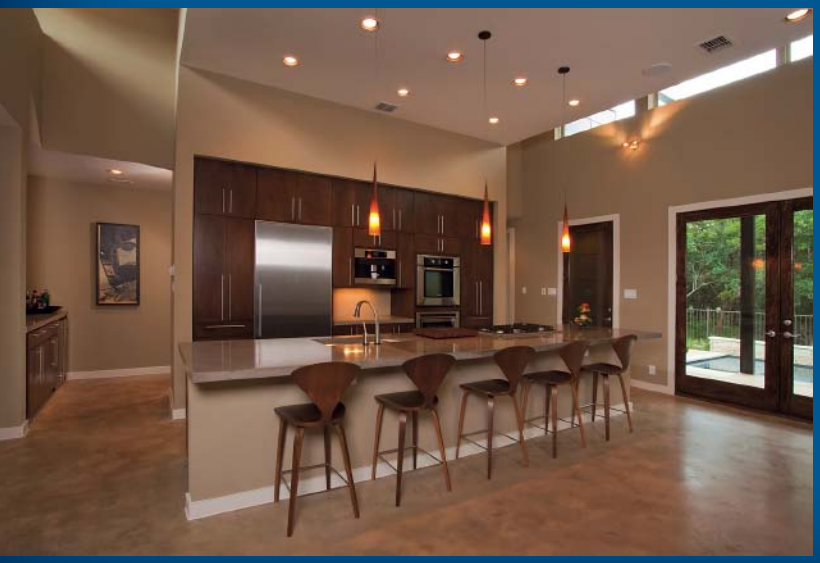
"The idea of putting something into a home that would not have to be replaced … that whole concept really resonated with me," he says.

Other than his taste of concrete construction in Vegas, Hanneman started at square one when he acquired a business called Texas Etch & Score Inc. in 2006. A Texas native, his wife Shelly had seen an advertisement for the company in searching for business opportunities back home. It didn't hurt that Marble Falls is situated west of Austin in the Highland Lakes region of the Texas Hill Country, a part of the state that held great appeal for the couple.

In 2007, Hanneman changed the company's name to Element7, both to reflect a broader range and because he "grew weary of being referred to as Texas Etch-a-Sketch, Texas Tech and Soar, Texas Itchin' Soar."

Hanneman, then 29, was hitting the books studying the craft and business of decorative concrete as he began to chart a course for his new venture. "I took the academic rigor of proving theorems to the study of decorative concrete," he says. "I enrolled in every training program I could. I read through massive stacks of *Concrete Decor* back issues. I read, re-read and made heavy notes in Bob Harris's books, Gaye Goodman's binders, and dozens of ACI papers and material technical data sheets."

A quick learner since being designated a "gifted" student at age 11, this onetime wannabe-professional skateboarder, sheet-metal worker, bellhop, swimming-pool repairman and beef-jerky factory worker has



tripled the sales of his decorative-concrete venture in just a few short years, while expanding it from a one-man show to a team of eight employees.

Creating value

Learning the science of decorative concrete from the best books and top minds in the trade doesn't necessarily translate into mastery of the art. Yes, Element7 does its homework in the technical and application departments. But the company also deviates from the norm in embracing a "reverse mindset" of wanting to create value rather than simply scramble to book more jobs.

At Element7, the focus is on the long-term value of the result. In practice, this means an emphasis on methods and materials that contribute to durability, serviceability and what Hanneman calls "timeless, restrained design."

Polishing, staining, saw-cutting of patterns, stamping, precasting and, to a lesser degree, stenciled medallions are Element7 specialties. Polished and stained floors are the engine that drives the business, accounting for roughly 80 percent of its workload. Overlays and countertops account for about 10 percent each.

For Hanneman, polished and stained concrete have no peers.

"People need homes, homes need floors, and there is nothing on earth less likely to wear out or fall out of style than polished concrete flooring," Hanneman says in a recently issued vision statement for Element7.

"I've joked with our customers that concrete flooring does not wear out, that the house could flood or burn to the ground and the concrete would still be there," he says.

That boast was put to the test when a custom-built home with scored and stained floors was destroyed by fire. The slab was charred and discolored, but the owners heard from a previous Element7 client that the company "seemed to be able to deliver a first-class floor no matter what was thrown at us," Hanneman says.

"We processed the slab with a pair of HTC 500s, re-cut the score lines — as

there was so much grinding that many of them disappeared — stained and finished it," he says. The crew employed poultices, detergents, wet grinding and "some clever patching," and the resulting finished floor "is arguably better than it was before the fire." The patching process involved the use of five self-consolidating concrete mixes, two homemade, he says.

No fake rocks

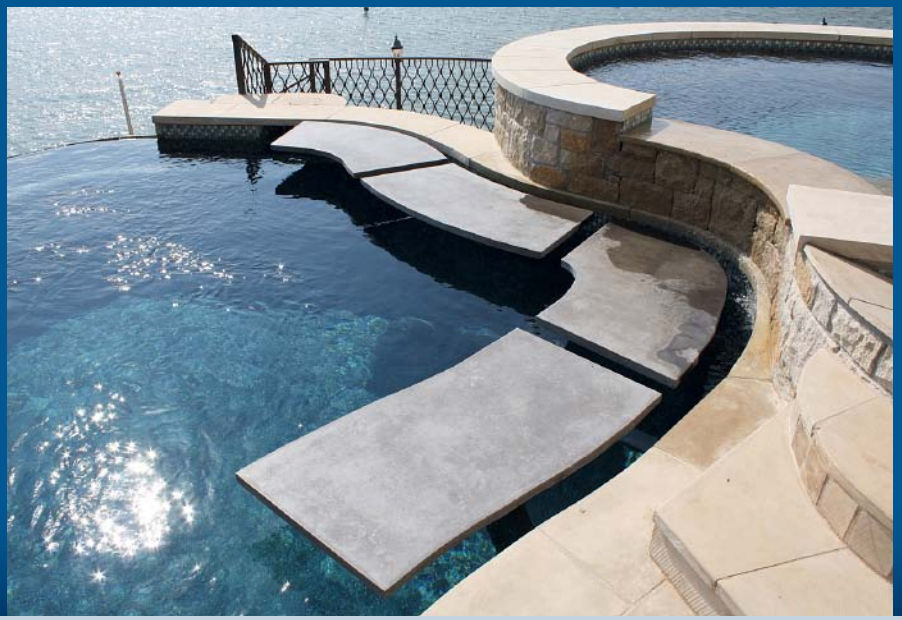
Acid staining gets Hanneman's vote as the best coloring method for concrete. "Though some of the new dyes are incredibly UV-stable, we believe that the colors created by chemical staining, although less predictable and consistent, are more timeless," he explains. "Pigment colors go in and out of fashion, but the metallic salts of stones and stained concrete look good regardless of what they are paired with or what is trending."

Other techniques also reflect the company's take on sustainability and timeless design.

"We saw-cut a lot of our floors, but we try to steer our customers to patterns that look like great scored and stained concrete rather than mimicking other surfaces," he says. The concept of timeless design means using materials "honestly, but in a novel way." He cites as inspiration the reconstruction of the Ahwahnee Hotel in Yosemite National Park in the 1920s, where concrete was made to exhibit a wooden look but, in his opinion, is still obviously concrete cast against wood.

"We love to stamp with texture skins and then either leave it as a monolithic slab or saw-cut a pattern unique to concrete," he says. "A lot of artisans make great fake rocks, and we really respect that, but we rarely do that because we feel that real flagstone will be more appreciated decades later. A tight but plausible pattern cut into a slab with an Italian slate or rock-salt finish could be better than either. Rather than a wow factor, we are after work that never goes out of style.

"When we precast, we make pieces that are more sculptural and use the liquid nature of the concrete."



Maybe it was fate or maybe it was just luck, but Hanneman's vision for Element7 and decorative concrete appears to be an optimal fit for Llano County and the Highland Lakes area. The area has a rich history of decorative concrete work, he says, pioneered by the developers of Horseshoe Bay, a resort community on Lake Lyndon B. Johnson built in the 1970s. "I have (local) peers and local competitors that have been staining concrete longer than I have been alive," he notes.

A mission and a message

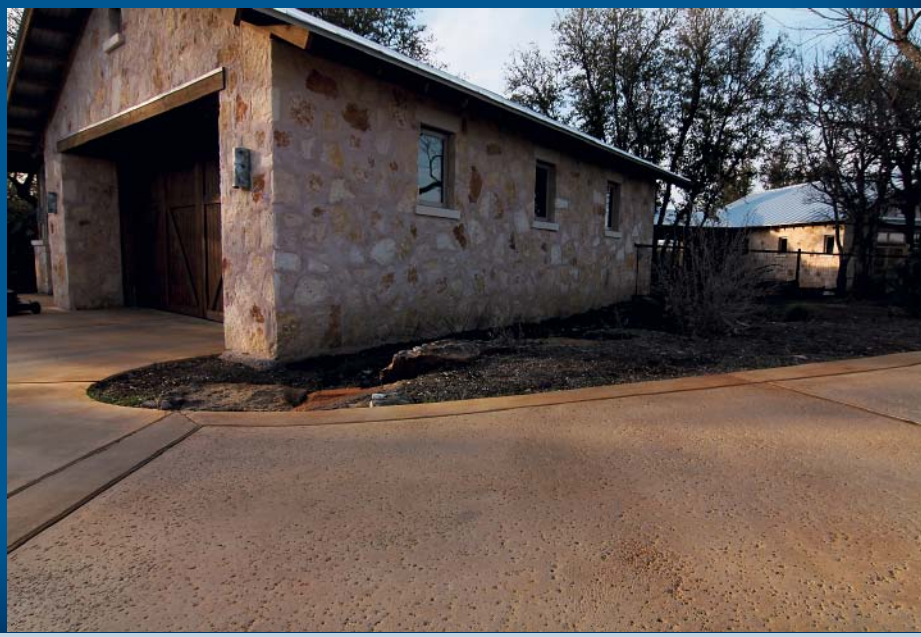
Hanneman, who places tongue in cheek in calling himself "the underachiever who is now a philosopher/construction worker," views his endeavor as more than a career and a business. For him, it's a mission of offering an alternative to carpet or tile, selling the concept of "less" with technologies that optimize the sustainability of concrete flooring.

Hanneman says Element7 strives for a client experience that's markedly different from the big-box model of "massive selection and predictability."

"Having a strong reputation in a small market has led me into a lot of situations where I charge to consult on jobs that have gone wrong. Many times, there is not much technically wrong with the work. However, decorative concrete is inherently imperfect and sometimes a bit unpredictable. If the customer doesn't trust the person doing the work, the nuances can look like errors and the experience falls apart.

"People seem to be conditioned to want variety and then predictable results. By framing the experience correctly, you can set people up to enjoy the serendipity of a decorative concrete project rather than just bring their Wal-Mart mindset to the deal."

www.element7concrete.com



A Concrete Artisan's Strategy for Marketing Like Apple

Cory Hanneman has put a lot of thought into developing a sales strategy for decorative concrete that involves, in his words, "raging against the big-box machine" and its road map of "massive selection and predictability."

Specifically, his five-point plan was inspired by Apple. If the computer company can make frustrating technology warm and inviting, he reasons, Element7 can do the same for unpredictable concrete.

"This sales process and collection of procedures came about after noticing how the Genius Bar at the Apple store always made me feel good despite how problematic technology can be," he says.

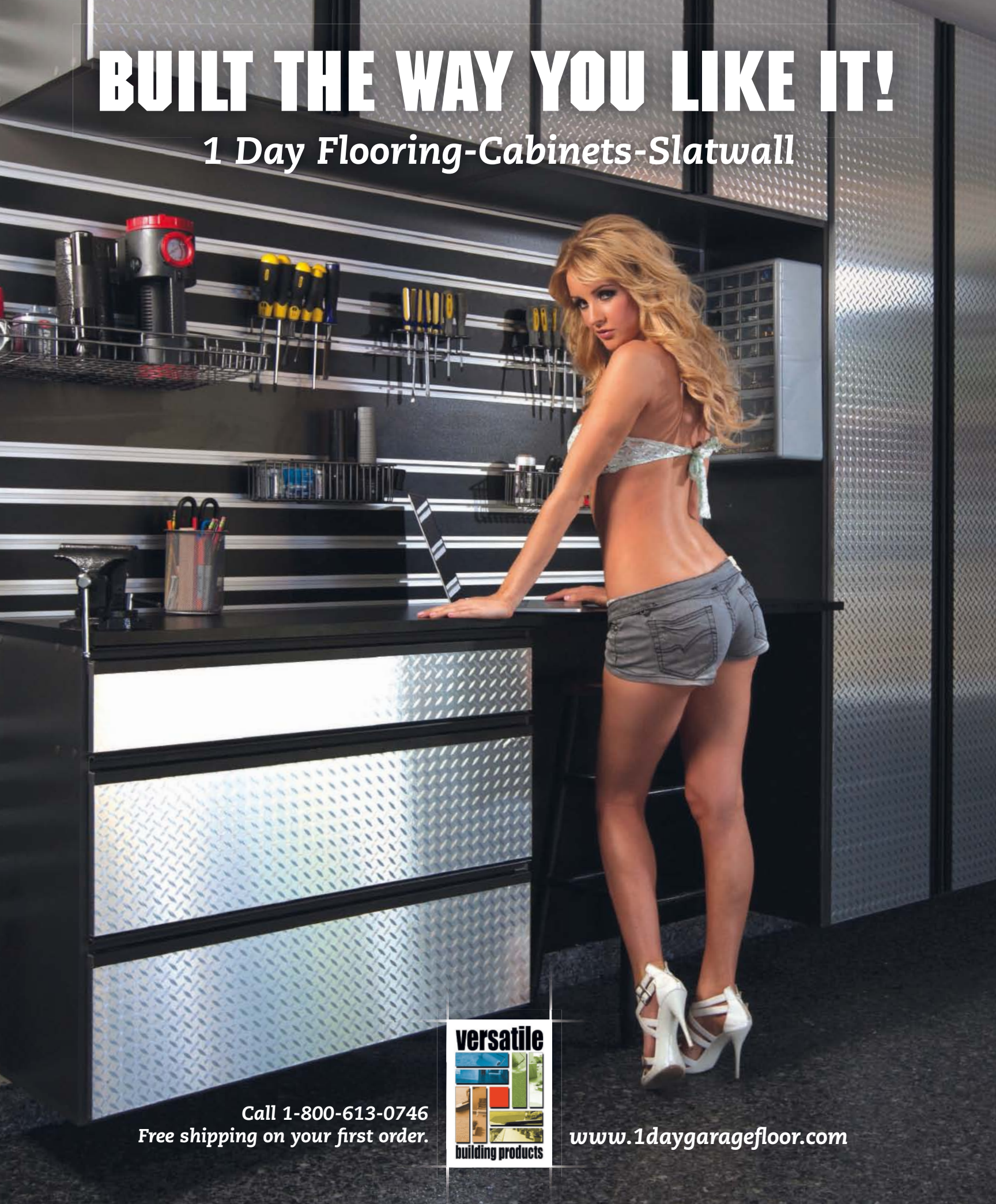
"1. We make a lot of art out of concrete and have filled a gallery downtown and donated a handful of cool benches to the city with our logo.

"2. We invite people into our gallery and just let them look around. We begin by talking about acquiring tastes and the beauty of imperfection — things like Bob Dylan, Levi's jeans, old Harley-Davidsons, etc.

"3. We frame stained concrete as something timeless and great, but not for everyone. Most people want crap from a big box store where they can feel in control because of how marketers manipulate them.

"4. We admit that acid stain really boils down to, like, 4-6 colors, but they are all classic. Green jeans, anyone? No. Of course they should be indigo, and brown concrete sounds pretty good, too.

"5. We create an experience where the artisan and the client get to dance with the concrete to make something that looks world-class. Maybe more important is a consistently great experience despite the inconsistency of concrete and the staining process."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Flashy Mica Flake Attracts Concrete Artisans

The rock chips are garnering praise as a high-quality alternative to vinyl flake

by Joe Maty

If you're looking for a rock that will dazzle, there's a hot new entry in the market.

This rock is mica, and it's lending glitz to floors when used in combination with polymer-based systems formulated for application over concrete.

"They are unique in terms of their look. They add a little bling, kind of flashy," says Ken Miedema, owner of Concrete Revival, a concrete-flooring contractor based in western Michigan, near Grand Rapids.

"Applications have to be suitable for that kind of look," he says, mentioning salons, bars, restaurants and other high-visibility commercial settings.

"It can be an alternative to an acid-stained floor, though it looks different," Miedema says. "If someone says they want an acid-stained floor, they might be candidate for mica flake, due to color tones with the flakes."

He cited a recent project where the client inquired about acid staining. "Because the floor had been painted, we would have to grind that off, and the mystery of stains, or blemishes and unknown patching could compromise the look they were going for with an acid stain. I presented the mica chip as an option. They loved the option."

Miedema said another benefit of the mica-chip-and-polymer floor is durability. "It will hold up really well and does not have to be resealed or waxed as other concrete finishes might require."

Photo courtesy of Fuller Industries Inc.

Fuller Industries Inc., of Nashville, Tenn., installed 18,000 square feet of Crawford Laboratories Inc.'s Florock FloroChip mica flooring system at a secondhand book and CD store in Nashville, Tenn. The crew broadcast a custom blend of mica chips from Torginol Inc. into polymer components from Florock.

Elegant and high-end

Bruce VanWieren, president of Xtreme Engineered Floor Systems, calls the look produced by mica chips "elegant and high-end, like you might see in a bank lobby, airport, casino, office building, clothing store or mall. It's more of a natural metallic look versus a manufactured vinyl paint chip."

Xtreme, also based in Michigan, offers mica chip as an option with its V-8 Hybrid flooring system, a proprietary polyurea-polyaspartic formula that is also marketed as a more traditional vinyl-chip application. The company installs the flooring systems and markets the technology to other contractors, including Miedema's Concrete Revival.

A third effect option offered by Xtreme is its Platinum system, which incorporates metallic pigments into the polymeric formula as opposed to having them broadcast on the newly applied flooring surface.

"A mica chip will compete with marble-looking tile," VanWieren says. "It is a little harder to install, and does cost a bit more" compared to vinyl chip flooring. "This is because mica is sharp when coated and needs to be sanded and topcoated the next day versus a standard one-day installation we accomplish with our vinyl flake system."

Cost works as a plus for mica polymer flooring, however, when compared to terrazzo or marble tile —VanWieren gives a ballpark consumer price of $6 to $7 a square foot for mica-chip polymer flooring, installed, compared to the $20-and-up neighborhood for terrazzo and $8-$10 or more for high-end decorative tile.

Mica, however, remains something of a novelty to this point. "The market is going to be more of a decorative environment, where you are more accustomed to seeing terrazzo or marble, and it's going to take awhile to get into those markets."

Miedema, of Concrete Revival, gives similar estimates — "not less than $6 a square foot," he says, compared to $4-$5 for a vinyl

chip floor and a $3-$4 range for acid staining. But he cautions that pricing hinges on several variables, such as amount of preparation work needed, degree of difficulty of the job, and size of the job in square feet.

The higher cost is attributed more to additional labor (more steps) than to the material. "Mica chips cost more per pound but because of their light weight, you get a lot of chips per pound, and thus they seem to require half the quantity compared to a vinyl chip," Miedema says.

Others get in on mica

Other key suppliers of polymer flooring systems are Dur-A-Flex Inc., HP Spartacote and Elite Crete Systems Inc.

Dur-A-Flex in 2012 rolled out its Mica-Flex E and Mica-Flex M decorative flooring systems, based on the company's epoxy and methyl methacrylate (MMA) resin chemistries. The epoxy system employs a urethane topcoat, while the Mica-Flex M system is all MMA.

HP Spartacote's Sparta-Chip MICA system is built around polyaspartic resin chemistry and consists of a pigmented base coat, clear broadcast coat, mica chips, and clear topcoat. Its mica chip color blends are named Freestone, Glacier, Copper River, Beechnut and Antique Gold. The company's Sparta-Chip MICA VOC/Odor-Free version uses a water-based, rapid-cure epoxy as the base coat, instead of a polyaspartic.

Elite Crete's polymer flooring system for mica flake includes epoxy primer and pigmented base coat and aliphatic urethane topcoat. Mica flake is from color-flake suppliers such as Torginol. The company's polymer flooring system using mica is identical to its vinyl flake flooring system.

Sparkle and shimmer

Mica's impact on the concrete flooring market is of an incremental, rather than viral, nature at this point. Much of it can be traced to Torginol Inc., a producer and marketer of decorative coating materials, including polymer flake, quartz granules, metallic pigments and mica flake.

The company is the exclusive United States distributor of mica flake, and functions as a "master distributor" of the material to makers and marketers of polymer flooring, says Torginol vice president and general manager Jason LaBouve.

John Justice, president of Justice Products Inc., which distributes Torginol's mica

To show off their materials to potential customers, Xtreme Engineered Floor Systems decked out a trade show booth to show the array of mica colors and vinyl colors available with their V-8 Hybrid system.

Photo courtesy of Xtreme Engineered Floor Systems

flake in parts of the Eastern U.S., says the material is getting more notice in a number of building materials, including polymer flooring, countertops, and as an additive for cementitious surface accents for swimming pools.

Justice says mica remains a "niche" product in those markets, but adds, "People are discovering mica. There seems to be a lot of interest in it. It gives a kind of shine and translucence."

Providing a capsule geology lesson on the material, LaBouve says mica is found in small concentrations in mineral deposits of various rock formations. Published information defines mica as a group of sheet silicate (phyllosilicate) minerals. The most commercially important types of mica are muscovite and phlogopite, which are of value in a range of applications due to functional and visual properties.

In addition to pearlescent automotive paints, mica's crystalline composition contributes to the visual qualities of shimmery plastics, specialty inks, and cosmetics such as eyeliner and eye shadow, hair and body glitter, lip gloss, nail polish, and others.

Tips and Techniques for Broadcasting Mica Flake

Jimmy McGhee, who handles sales and technical support for Versatile Building Products, here offers his own unique tips and techniques for distributing mica flake on a flooring job.

Toss it up, not out

Take half a handful and toss it straight up in the air, 4 or 5 feet from the ground. Let it open up and flutter down. It's like confetti basically.

You just need to allow a little bit more time compared to a regular-flake floor because it takes a little bit longer. Because it's such a light fluffy flake, it opens up like little parachutes and flutters down on the surface, so the time to flake it is actually a little bit longer than with a typical vinyl-chip floor.

You don't want to throw out handfuls of it because you only get 10 pounds at a time in the container. If you treat it like a typical flake, if you grab it by the handful and try to throw it out over the surface and clump it together, realistically, you're only going to get 150 square feet out of it. (Full coverage from 10 pounds should be anywhere from 450 to 500 square feet.)

Backroll it

What we prefer to do is work with the same rollers that we're using for the epoxy, the 18-inch-rollers. They'll have plastic covers and we leave them on the rollers and put them on the roller frame. The weight of the roller frame and roller will actually help push the flake or embed the flake into the epoxy as we backroll over the whole surface to push that flake down. You get full coverage on the floor, nothing is bleeding through and nothing gets on the actual roller to contaminate it.

You're only rolling a thin coating of the epoxy. The way it dives into the concrete, Versatile Building Products' 4195 is not like a typical epoxy, where you've got all of a sudden a thick-film build, and when the epoxy takes the flake, the flake sits on an edge and creates all these different crazy looks. The 4195 lays down flat so the chips have a tendency to lay down flat also.

Photos courtesy of Fuller Industries Inc.

Protect the area

We need to put plastic up about 4 feet high above the floor itself. The flake is so light that if it catches any wind it actually travels quite a bit. It creates a very fine powdered dust, especially when we're sanding the surface. That dust is very difficult to get off the walls and everything, so there's a lot more precautions needed in taping off the areas around the floor.

Also, we don't want any wind blowing because the flake gets everywhere.

Clean, scrape, sand and vacuum

After we sweep the floor we're going to scrape the floor — the flake over the epoxy — fairly aggressively. We're not going to sweep it and recoup excess flake, because it breaks so easily into smaller particles.

Then we want to lightly sand the floor. That can be with a floor buffer machine or a palm sander or even just a pole sander they use for drywall. Either 120-grit sandpaper or 150-grit screen would be fine.

You need to vacuum the surface after that, too, because the residue becomes a powdery dust. You have to vacuum it at least once or twice.

Left and above: Crew members for Nashville-based Fuller Industries Inc. install a mica chip floor at a Nashville book and CD store using mica chips from Torginol and Florock polymers.

Put two coats on top

We put two coats of sealer on our floor because even after you sand and put the first coat of primer down, if there's anything sticking up on edge it becomes very sharp, and you end up with a rough-texture surface. So we apply our hybrid primer sealer first and then apply a topcoat of 5073 polyurea about 60 minutes later. The primer is a clear sealer — we use it as a primer but it can be used as a standalone sealer. It dries in about 60 minutes. Basically it gets two coats of sealer but we can get it done in one day.

It's going to have a slight texture to it. You don't want to make it too slippery.

Jimmy McGhee handles sales and technical support for Versatile Building Products. Contact him at jimmy@garagecoatings.com.

LaBouve says mica has proven effective in producing the kinds of "sparkle" polymer flooring suppliers and installers have long sought but had difficulty achieving with metallics, vinyl flake or quartz.

"It's more of a high-end, decorative look," he says, contrasting mica with vinyl flake. Other descriptors heard are earth-toned, subtle, warm, lustrous, rich and sophisticated.

Torginol offers mica flake in five solid colors; gold, amber, silver, a rum shade, and one called midnight (black that gives a coal-like impression), plus a multicolored version. LaBouve says the flake is compatible with all major polymer flooring types — epoxy, urethane, polyaspartic, polyurea and methyl methacrylate.

LaBouve says mica flake costs about $7 per pound, compared to approximately $3 per pound for vinyl flake. "However, the cost per square foot is approximately the same," he says, noting that a pound of mica flake covers more than twice the area of polymer or vinyl flakes.

The flakes are offered in Macro and Micro sizes. "The sizes can be used separately to create an obvious contrast with the Macro flake or more of a subtle contrast with the Micro flake," LaBouve says. "Or, the sizes can be mixed together to create a terrazzo-like appearance with Macro flakes scattered throughout a Micro-flake canvas."

Miedema says he views mica-flake floors as exhibiting visuals similar to a flooring system with metallic pigment. He adds, however, that the metallic pigment is a part of the resinous matrix of the flooring material and produces a more glassy-smooth finished surface. This surface would be more prone to scratching and marring than the mica floor, he reasons.

A chip floor can also provide greater slip resistance, he adds, by manipulating the mils of topcoat as well as accommodating traction polymers. The look of metallic floors, on the other hand, is compromised if traction is added.

Mica-specific application practices

Putting down a polymer floor with mica flake differs from installing a vinyl flake or quartz system, according to suppliers and users, due in part to the characteristics of the mica and the importance of proper distribution in the broadcast.

Typically, says Torginol's LaBouve, the flake is broadcast onto the polymer-flooring system's color base coat. "It's lighter-weight flake, so it's distributed differently," LaBouve says. "You shake it over the surface."

Photo courtesy of Xtreme Engineered Floor Systems

The corporate office at Lamar Construction Co., Hudsonville, Mich., has six bathrooms done with Xtreme's V-8 Hybrid mica chip system.

After this initial broadcast, the surface is allowed to dry. Then it's scraped to knock off edges of the flake that protrude. Then comes a first clear coat, followed by a more complete dry, and then sanding followed by one or two clear topcoats for the final finish.

The sanding is needed because the mica flake is "somewhat plastic," LaBouve says, and tend to bend when scraped. Thus, some sharp edges remain projecting from the surface after scraping.

Miedema says Concrete Revival's standard practice starts with a grind of the concrete floor with a diamond grit of 25 or less, followed by application of a primer coat. The company uses Xtreme Engineered Floor Systems hybrid materials for all the resinous components of the process.

Photo courtesy of Xtreme Engineered Floor Systems

The coated kitchen floor at the corporate headquarters of Lamar Construction Co., based in Hudsonville, Mich., was decked out with Xtreme's V-8 Hybrid mica chip system.

After a brief dry of 30 to 45 minutes, the color base coat is applied. Then the mica chip is broadcast onto the wet flooring.

"With the hybrid, you have to be right behind with the broadcast. You don't even have to wait two minutes," he says, citing the rapid dry and cure of the polyurea-polyaspartic chemistry. The mica flake is very light and doesn't sink into the surface like other chips, he says, adding that his broadcast method is "pinches" rather than handfuls, with a motion that disperses the flake high into the air.

After a light scrape and recovery of loose flake, a second random broadcast application over a clear-coat application helps to even out the coverage, Miedema says — the mica flake can leave blotchy areas where the base coat color is not adequately covered with flake.

The surface is scraped and cleaned again following an adequate dry, then a first topcoat is applied. The second topcoat may need to be preceded by a sanding or screening of the first topcoat. This is needed, he says, due to "bending" or "curling up" that is characteristic of mica flake.

"You may have to wait several hours to allow for more thorough curing to effectively sand the first topcoat, so that your sanding screens don't stick," he says.

He notes that the rapid-dry hybrid flooring system allows chip floors to be installed in a single day, but he says Concrete Revival prefers a two-day procedure due to the additional steps and dry time needed prior to sanding.

The Skinny on Casting Concrete Furniture with GFRC

by Jeffrey Girard

Concrete furniture has been around for as long as concrete countertops have. In those early days, concrete furniture was primarily made out of precast concrete. Since it needed to be reinforced with steel, the concrete tended to be thick, massive and heavy. This made large, thin and delicate pieces impractical or impossible.

The current trend towards using glass-fiber reinforced concrete (GFRC) has changed that. GFRC is a form of concrete that has inherently high flexural strength. It can be easily shaped into complex, three-dimensional shapes that don't need to be thick to be strong.

Furniture-making in and of itself can be challenging, since the object being made often has to be functional, ergonomic, durable, lightweight and portable. Plus, it has to be aesthetically pleasing. These challenges can be daunting when it comes to using concrete as the material of choice. Even GFRC, with its higher flexural strength and ease of molding, has limitations.

GFRC has a density almost four times greater than wood, yet wood's flexural strength is roughly four times greater than GFRC's. This means that your design must accommodate GFRC's strength-to-weight disadvantage. This doesn't mean GFRC is inadequate. It simply means that it may not be possible to replicate the thin, delicate lines of a particular design based on wood.

Still, with a bit of care, understanding and adaptation, concrete best known for flat two-dimensional slabs can be crafted into stunning three-dimensional pieces.

Why GFRC is the right stuff

GFRC is concrete, but it's the fiber reinforcement that creates the high flexural strength necessary for thin, lightweight shapes.

Flexural strength is also called bending strength, and it is this characteristic that is the most important when it comes to making a durable, high-strength material.

Photos courtesy of The Concrete Countertop Institute

The author's first concrete lounge chair. Read on page 39 how he cast it.

In the past I've discussed steel reinforcing principles in great detail. But to appreciate the benefits of GFRC I think it's worth summarizing the significant differences (and advantages) that GFRC has over steel-reinforced concrete.

Conventional steel-reinforced concrete has two important and very different components: the concrete and the steel reinforcing material. The concrete is often an aggregate-based mix, but it also can be a mortar or all-sand mix.

Either way, the unreinforced concrete component can be described as a highly brittle material with high compressive strength and low flexural strength. This means the unreinforced concrete portions of the piece are very strong in compression but will crack fairly easily if they are bent or flexed the wrong way. The steel reinforcing is structural steel very high in tensile strength. Its job is to resist all of the tension forces that are developed in the concrete when the concrete object is flexed.

With the right design and construction the steel completely resists the tension forces and doesn't stretch to the point where the concrete cracks and those cracks become

Furniture Pieces that Showcase GFRC

To illustrate what GFRC can do in furniture form, Jeffrey Girard describes three projects — a table, a lounge chair and an S chair — that show off the strengths of the material.

A cube table and base

This cube table was a project that I completed when I was in the Cayman Islands a couple of years ago. My student and friend Terry Wilson who lives there made the tabletop as a gift to a close friend. It was designed to be an outdoor dining room table spacious enough to fit eight people around it.

The top was polished GFRC with embedded glass hand-placed by his friends prior to casting. The original idea was to make the base out of Jatoba, a kind of mahogany-like hardwood. I became involved when I learned that the friend's wife just had a baby and that the table would be a surprise present. She was due to return home in a week's time, and there wasn't any Jatoba on the island. So I designed a monolithic GFRC base for the table. In less than five days it was formed, cast, processed and installed.

Two big advantages that GFRC offered are that it is weatherproof, not requiring maintenance, and that it can be made heavy. Hurricanes are always a concern in the Caribbean, and outdoor furniture either has to be very light, so it can be moved easily, or massive so that it won't blow away. With the solid top on it, the base and table weighed more than 500 pounds, giving the clients peace of mind.

Both the top and the base were made using white portland cement and local sand. This gave the concrete a warm cast and helped it fit in with its environment.

Because I was using concrete instead of wood, I wanted the overall look to suggest a wooden base design. The clean open-frame design gave the piece a visual lightness, and the lower horizontal braces gave the legs strength and stability.

The forms were built in two halves so that the mist coat could be sprayed onto all of the visible surfaces. The mating surfaces where the two halves came together were masked with blue tape. This kept the form surfaces clean when the mist coat was sprayed on. We peeled off the tape just before bringing the two halves together, then brushed the joint with more mist coat to create a seamless corner.

Spraying the mist coat into each form half.

Cleanup and honing with a wet polisher.

Outdoor polished GFRC dining table.

After that, the backer was applied in thin layers, one face at a time. This ensured the backer would stick to all of the form surfaces, especially the face that was upside down. The form was rolled after each face had a layer of backer applied and then compacted.

The forms were built on a Tuesday and the table cast on Wednesday. Thursday the piece was stripped, the interior honed, and stainless-steel feet were epoxied into holes drilled in the bottom of each leg. On Friday the base and top were delivered, assembled and enjoyed.

visible. Good industry practice (and the laws of physics) dictate that steel reinforcing in this application should be placed close to the area with maximum developed tension. In all beams, that area is near the face that stretches the most when it's flexed.

Greater bending strength is obtained when the distance between the compression face and the tension face is large. This is the main reason floor joists are oriented so they are tall and skinny, not wide and short.

Because the steel must be embedded inside the concrete and the concrete piece still has to be easily constructed, strong, steel-reinforced concrete beams tend to be relatively thick and therefore heavy.

Further complicating things, furniture tends to be moved and handled much more frequently than countertop slabs, so the concrete gets flexed much more often and it is frequently flexed in different directions. To resist the flexing, the steel reinforcing must be placed everywhere tension is anticipated, which is sometimes challenging to predict and often very difficult to achieve. These two factors make steel-reinforced concrete less than ideal for most furniture applications.

In contrast, GFRC is essentially a single material that encompasses the concrete and its reinforcement. Yes, there is a thin, decorative, nonstructural face coat that hides the fibers, but the principal strength element is the GFRC backer coat, the bulk of the material. Because the glass fibers are mixed into the concrete, the strength is more or less the same everywhere. Not only is the material much easier to cast, but it behaves more uniformly, a great benefit to furniture that gets pushed and pulled and moved often.

That said, GFRC must be made correctly. The right kinds of fibers should be used in the right amounts and the concrete should be cast in the correct way. Too often GFRC is made incorrectly, and the result is disappointment and failure.

Use the right fibers

GFRC gets its strength from a high volume of alkaline-resistant (AR) glass fibers. The glass is treated with zirconia to resist the highly alkaline environment inside concrete. Alkalinity will weaken ordinary glass fibers (those used in fiberglass applications like boats and spas), so the first key to success is to use the right kind of fiber.

A lounge chair

The first concrete lounge chairs I ever saw were in a magazine about 10 or 12 years ago. They were clean, simple S-curves that inspired me to create my own design. But unlike the thick and massive "vintage" lounge chairs, I wanted mine to be thin, slender ribbons of concrete.

Designing a lounge chair is different from designing a table base. The table base design was fairly straightforward and simple, since it really wasn't meant to be moved frequently and comfort wasn't a consideration. In contrast, chairs are quite challenging because they have an ergonomic intimacy that most other furniture lacks. A chair must support you, it must be comfortable, and it must look good doing so. Furthermore, most chairs need to be light enough to move but strong enough to safely support most people's weight.

My first step in the design was to identify a comfortable body position. I sat on the floor in my living room and used pillows to create the back and knee support that I wanted the concrete chair to have. A little trial and error was necessary. After taking a few key measurements, I drew up a design in a 3-D graphical modeling program. A few revisions later and I had the plans for building the forms.

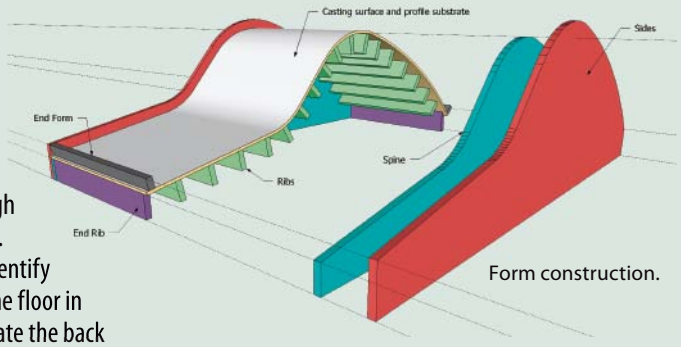
I used smooth laminate as the casting surface and bendable plywood for the curved substrate that supported the laminate. I cut the ribs, spines and sides out of plywood — I used plywood because it's more durable and I wanted to make this mold reusable. To waterproof the plywood I coated it with epoxy.

A simpler step would have been to cut the sides out of melamine, but this would require remaking new ones each time a new chair was cast. Melamine readily absorbs moisture through the cut edges and it swells, making the forms single-use.

Casting the lounge chair begins like almost all other GFRC castings: A mist coat is sprayed into the mold and a thin layer of backer is applied and compacted.

Because the chair is thin (only 3 centimeters thick), I laminated scrim into both faces of the chair, close to the visible face and close to the underside. This was to ensure that regardless of how the chair was flexed it would not crack or break.

The underside of the chair was finished by troweling on a thin layer of mist coat so no fibers would be visible. A light honing smoothed the back and edges, and hand-sanding finished the rest of the surfaces.



Form construction.

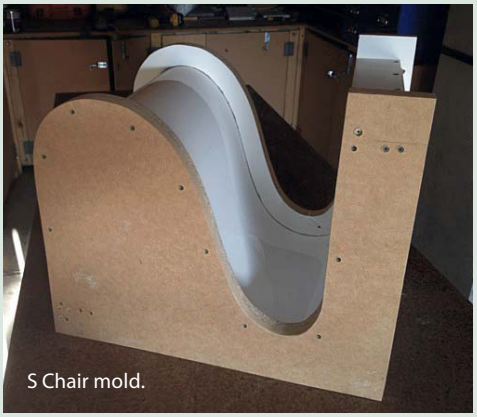

Spraying the mist coat.


Rolling and compacting the backer in thin layers.


Laying in AR glass scrim.

One more GFRC furniture piece: the S Chair

The S Chair is the creation of Peter Bennett, one of my students in Australia. This chair has an interesting back story that I'd like to share. Like many people, Peter has started a concrete bench-top business (they call countertops "bench-tops" in Australia), and it includes his whole family. Peter's daughter, Paris, told him she needed a new chair for her desk. She wanted the chair to be her dad's concrete, so she sketched out an S-shaped chair for him to make.


S Chair mold.

Peter and I discussed forming and construction methods. His formwork and casting process mirrored those I used for the lounge chair.

Since he's my student, he used my mix design, which gives him a very strong GFRC mix. He cast three of these chairs: one for his daughter, one in a different color, and one for testing. Peter's challenge was to make a chair that was light enough for his daughter to move but strong enough for adults to use. At just 50 millimeters (2 inches) thick, Peter's test chair withstood 100 kilograms (220 pounds) dropped from 1 meter (3 feet) high, which is more than adequate for a chair designed for a young girl!


Completed S Chair.

Use the right amount of fibers

Because AR glass fibers account for about a third of the material cost of GFRC, there is a disturbing tendency to use fewer fibers in order to save money. This is not a good idea, because using less fiber creates GFRC that is weaker and more brittle.

GFRC gets its strength from the fibers, and lower fiber contents dramatically reduce the flexural strength. Generally a minimum dose of 3 percent fiber provides useful flexural strengths. Reducing this to 2 percent or less can drop the flexural strength so much that the result is little better than unreinforced concrete. In contrast, increasing the fiber content to 4 percent or even 5 percent can boost the flexural strength significantly, provided it is cast properly.

Cast the right way

Another disturbing tendency is to make "self-consolidating" GFRC backer coat. The idea is that soupy GFRC is easier and faster to cast. This also creates GFRC that is weaker and more brittle.

GFRC that is made to be highly fluid and then simply poured into a mold has its fibers randomly oriented, so only about 5 percent to 10 percent of the fibers are able to provide any meaningful strength. GFRC's whole purpose is to have high flexural strength, and that can only be achieved by applying the GFRC in thin layers and then compacting each layer with special rollers. This compaction process orients the fibers into a more two-dimensional configuration, dramatically boosting the fibers' effectiveness because 30 percent to 50 percent of the fibers are now optimally oriented. In addition, AR glass mesh, also called scrim, can be laminated into the GFRC to boost the flexural strength even more.

The concrete used to make thin, lightweight and functional pieces of furniture requires a material with a high flexural strength. Correctly made GFRC is formulated to provide these high strengths, so to ensure your furniture is strong and durable, you must make the GFRC correctly.

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

PROJECT PROFILE

Plaza Uses Decorative Concrete to Talk About Water

East Bay Public Plaza, Olympia, Wash.

by Joe Maty

A small slice of the rugged Puget Sound coastline has appeared in the heart of Olympia, Wash.

Located in the East Bay District of Olympia — Washington's capital city — the East Bay Public Plaza celebrates a theme of water stewardship with interactive water features that re-create natural shoreline, streambed and wetland areas.

The rocky stream and sandy beach come alive thanks to the vision and design of Robert W. Droll Landscape Architect, Lacey, Wash., and the craftsmanship of Belarde Co. Inc., an architectural concrete contractor based in Snohomish, Wash.

It's all about water — a local wastewater treatment agency, the LOTT Clean Water Alliance, wants folks to know about the significance of water reclamation and reuse. The stream is itself reclaimed water.

"They wanted a plaza telling how reclaimed water goes through the environment," says Robert Droll, the landscape architect and designer for the project. "It's a series of features, with a streambed and pavement that looks like beaches, using coarse aggregate to fine-grained sand."

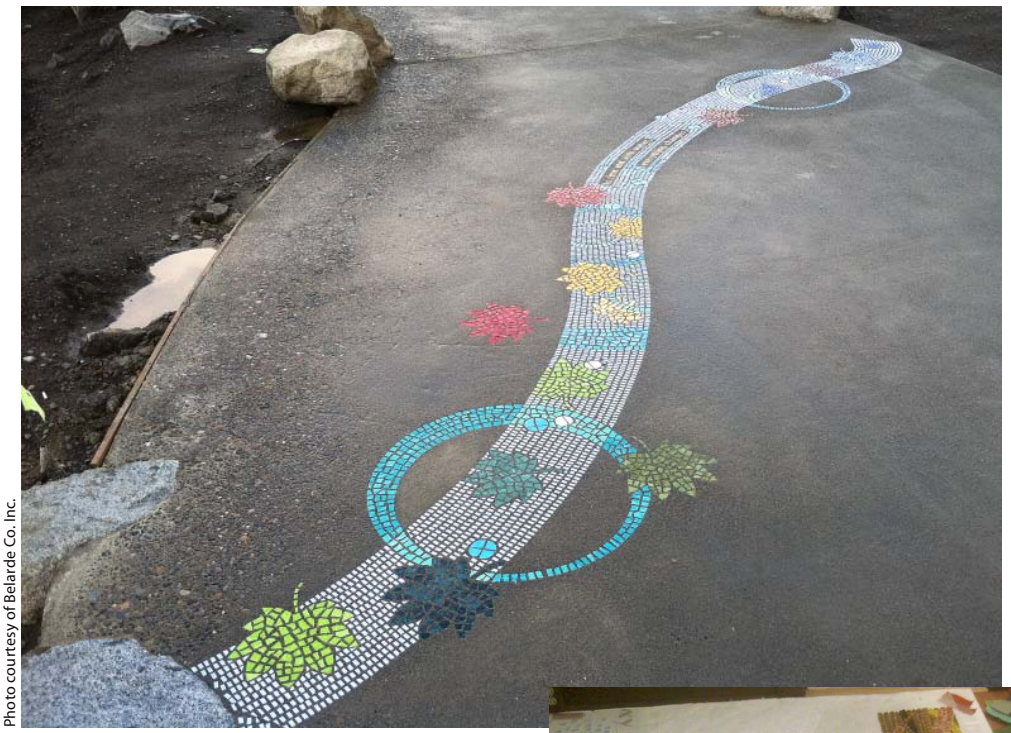


Photo courtesy of Belarde Co. Inc.

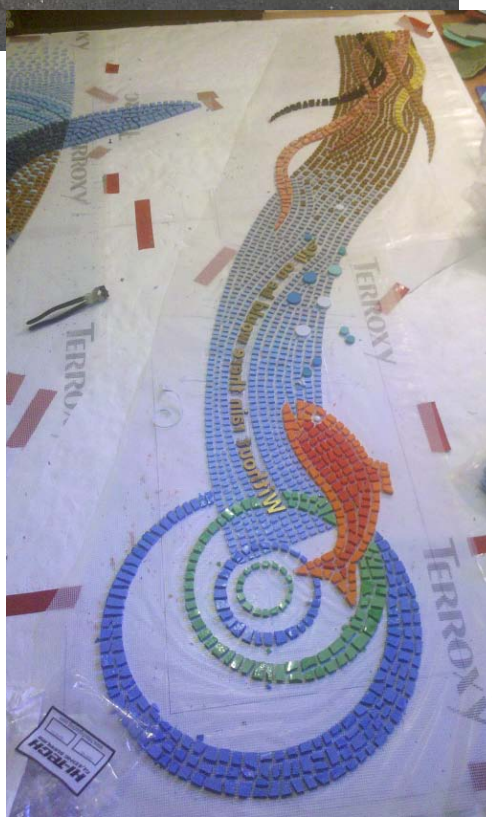


Photo courtesy of Amanda Klemaske Conahan

Visitors to the plaza will also encounter 29 "water lines" — quotes that relate to the theme of water stewardship — written out with mosaic tiles in the pavement along the stream. Installation of Lithocrete's LithoMosaic compositions are a specialty craft of Belarde Co., employing a structural concrete process that allows mosaic compositions to be set into place as an integral part of monolithic concrete.

In the case of the East Bay Plaza project, the 29 mosaic "water lines" were placed on a mesh backing that is used as part of the LithoMosaic system. Here, mosaic artisan Amanda Klemaske Conahan, of San Luis Obispo, Calif., was retained by Belarde Co., and worked closely with Droll in his

Project at a Glance

Client: LOTT Clean Water Alliance (Lacey, Olympia, Tumwater and Thurston County, Wash.)

Decorative concrete contractor: Belarde Co., Snohomish, Wash.; John Belarde, owner

General contractor: Berschauer Phillips Construction Co., Tumwater, Wash.

Landscape architect/designer: Robert W. Droll, ASLA, Robert W. Droll Landscape Architect P.S., Lacey, Wash.

On-site landscape architect: Eric Williams, ASLA, Robert W. Droll Landscape Architect P.S.

Project description: Installation of decorative concrete elements of East Bay Public Plaza, Olympia, Wash., using integrally colored concrete, stains, mosaic tiles and other features

Mix design: Miles Sand and Gravel, Puyallup, Wash.

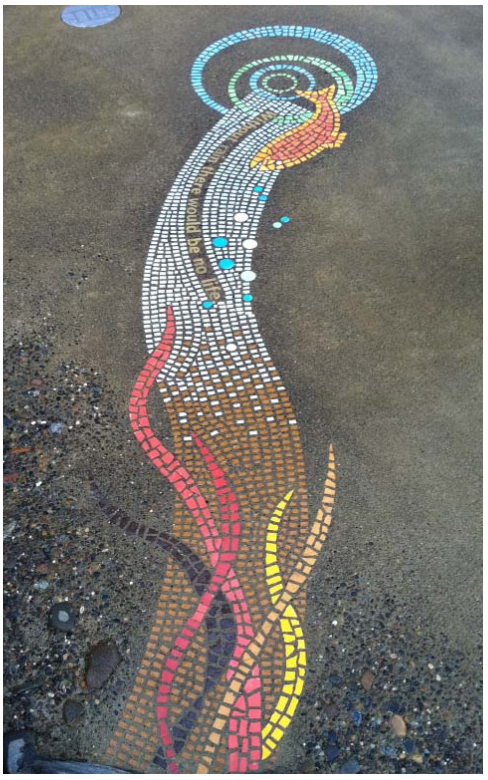
Products used: Lithocrete LithoMosaic; L. M. Scofield Co. Chromix Admixtures (integral color) in Limestone, Sombrero Buff, Coachella Sand and Shadow Slate; L. M. Scofield Co. Lithochrome Chemstain Classic stain in Weathered Bronze

Challenges: Construction of decorative concrete elements, installation of mosaics, alignment of seep holes with plumbing

Photos courtesy of Belarde Co.

concepts for the mosaics into the finished compositions. These were then put in place during the concrete installation process handled by Belarde Co.

The wording of each quote relates to water in some way — for example, "In time and with water, everything changes," and "Without rain there would be no life."



Lithocrete's process offers enhanced visuals and long-term performance, as the mosaics are an integral part of the concrete structure, the contractor says.

"We wanted the color (concrete) admixture to flow between the tiles," Droll says of the effect achieved with the process. "That's what LithoMosaic allows you to do."

The results have received national attention. Belarde Co. captured awards from the American Society of Concrete Contractors (ASCC) Decorative Concrete Council earlier this year for its work on the project, in the categories of Cast-in-Place, Special Finishes, Over 5,000 Square Feet and Multiple Applications Over 5,000 Square Feet.

The making of a masterpiece

John Belarde says Droll, the designer, came to his company with a concept, but needed to utilize the company's architectural concrete expertise to translate it into the intended result.

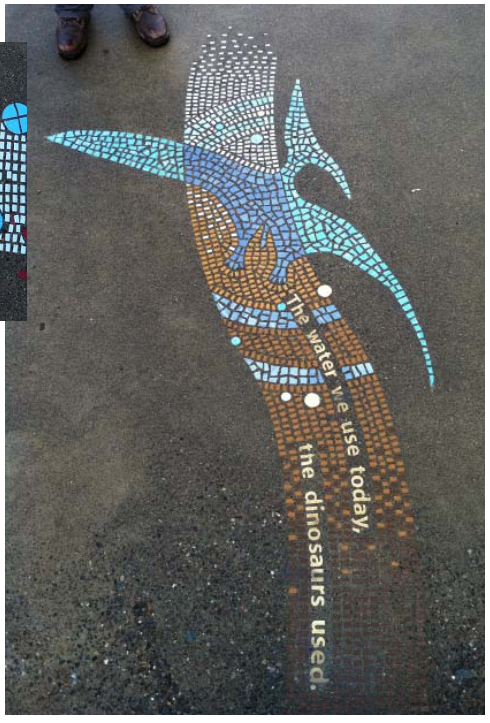
In its submission for the DCC award program, Belarde Co. cited three prominent concrete hardscape features: the Lithocrete Sedimentary cutbank wall and stream, the LithoMosaic waterlines and the wave-gradation concrete paving. The streambed, beach and wetland elements incorporated several tons of locally harvested rocks and pebbles.

The sedimentary cutbank wall is dotted with seeps that facilitate a slow water trickle. The design also encompasses strategically placed rocks and bronze wildlife, bird and leaf imprints, and artesian springs in the stream's bed. And, of course, the entire project is radiant in a variety of colors and shades.

The company used formwork and hand-placed concrete to build the cutbank wall, finishing it with troweling and texture mats, with stains applied for additional color variation. Four integral colors from L.M. Scofield Co.'s Chromix Admixture line were used for the project: Limestone, Sombrero Buff, Coachella Sand and Shadow Slate. Three of the colors were layered in the cutbank wall, which required switching concrete trucks during each layered pour.

The Limestone color was also used in the paving that functions as the beach and streambed elements of the plaza. Varying concentrations of Scofield's Lithochrome Chemstain Classic stain, in the color Weathered Bronze, were used on the cutbank wall and streambed.

Each LithoMosaic "water line" includes a bronze water-theme educational phrase surrounded by thousands of hand-selected, hand-cut and hand-placed glass tiles assembled by artist Klemaske Conahan. The tile artwork was glued to a mesh backing by the artist and then aligned and placed into the concrete by Belarde Co.



The sandy beach was installed in a wave gradation pattern using coarse to fine aggregate. Rocks were hand-placed to show the variety of sizes and stones found on a marine shoreline.

Belarde Co. workers also hand-seeded aggregates, using pebbles and cobbles ranging from 1/4 inch to 4 inches in size and concrete forming and tooling to fashion the plaza features. They added shell-type materials resembling broken oysters and other aquatic species. Oak leaves were collected on-site to make impressions in the paving surface, and a taxidermist supplied duck feet for tracks in the surface, at Droll's request.

"We worked very closely with the architects on-site. If they saw something they wanted highlighted or a shade variation, we did what was needed," says John Belarde. "It was painstaking, bits at a time."

Playing a key "hands-on" role in design execution on-site was Droll Landscape Architect's Eric Williams, "answering any questions, adding extra touches here and there, and helping our crews as much as he could," says Johnna Belarde, Belarde Co. contract administrator. "It helped a lot."

In an adjacent section of the plaza, Belarde Co. installed colored concrete for a wetland-pond element. Mosaics were placed there too.

Crafted on sound foundation

In its submission for the ASCC Decorative Concrete Council award program, Belarde Co. stated, "Although we encountered several challenges, major precautions were taken on the installation of the cutbank wall and the LithoMosaics."

A key technical challenge was ensuring that the seeps were aligned properly with the plumbing to allow for only a trickle of water.

"The massive size and weight of the tiled LithoMosaic artwork sheets, some more than 20 feet long, required a deliberate and deft touch," the company said. "Making sure the tiles were secure to the mesh during transportation and installation was our main concern."

Weather conditions also added a complicating factor, and the company used tents on-site daily to keep the project on schedule.

Artistry and craftsmanship figures prominently in the visuals, but John Belarde says solid concrete construction methods provided a crucial foundation for the success of the project.

"The challenge of the bigger flatwork areas is, it's still concrete, and it still has to have control joints and reinforcing," he says. Concrete was placed in grids, typically 12 feet by 12 feet. Steel dowels were used to transfer load from one panel to the next. Finishing and artisan expertise produce the monolithic, authentic impression of a natural landscape.

"The whole thing starts with good concrete practices. Then you elaborate with the artwork around that," he says.

Besides its ASCC DCC awards, the project has recently won accolades from the Washington Aggregates & Concrete Association (Excellence in Concrete Construction 2013: Special Application/ Artistic Merit) and Associated General Contractors (AGC) of Washington (2013 Build Washington Construction Award: Public Building Under $10 Million).

www.belardeco.com

PROJECT PROFILE

Stone and Sand Finishes in a Beach-themed Backyard

Brush Backyard, Las Vegas, Nev.

by Chris Mayo

Like a lot of jobs, the transformation of Wade Brush's backyard in Las Vegas started with a feeling of simply desiring something different, something special. "I had a general idea of what I wanted," says Brush. "Some kind of tropical theme."

Brush's backyard is dominated by a swimming pool with waterfalls, a rocky cliff look, and lots of concrete from the 1980s — far too much to remove the existing concrete and redo everything. But he happened to be remodeling his kitchen and mentioned to the carpenter that he was thinking of doing something with the concrete in the backyard. The carpenter recommended Randy Payette, manager of Super Stone of Las Vegas and owner of Concrete Rescue Corp.

Photos courtesy of Concrete Rescue Corp.

Payette is an interesting story. Working as the Las Vegas store manager, he was providing products to decorative concrete contractors for several years before launching Concrete Rescue. He found that he was becoming increasingly frustrated with decorative concrete contractors who were doing shoddy work: skipping essential steps, mixing and matching incompatible materials. He decided to start doing the work himself and formed Concrete Rescue Corp. last year.

In July, Payette accepted a job as technical director and regional manager of Super Stone's new location in Texas. He dissolved Concrete Rescue and put his artisan work on hold. But he'll start up again after the new location is on sure footing, he says. "Once you get a taste for it, it's very addictive."

A beach in the desert

"Brush's backyard was a job made for Super Stone products," says Payette. "The pool is a walk-in style pool, meaning it slopes into the deeper end instead of there being steps leading into the water. It was perfect for creating a beach look. When we started brainstorming about the possibilities, it didn't take long before we arrived at a tropical look, with the shallow end of the pool and the surrounding deck simulating a sandy beach."

Payette and Brush decided to incorporate

Project at a Glance

Client: Wade Brush, Las Vegas

Contractor: Concrete Rescue Corp., Las Vegas, Nev.

Project description: Stamped overlay and epoxy on 2,600 square feet of concrete.

Super Stone materials used: Super Surface Overlay in Ivory Sand, Super Surface Polymer, Super Tex bond coat, Liquid Color Dispersion in Oak, Colored Sealer in Brown Stone, Low Gloss Acrylic Sealer, Seamless Epoxy in Adobe Buff and Clear

Other materials used: Floric Epamine Chroma-Quartz in Serengeti

Challenges: Achieving a natural appearance, dealing with heat.

the sand into the steps leading up to and around a bar area, as the sand provides a nice nonskid surface. However, they didn't want the entire deck around the pool to look like a beach, so they decided on an overlay with impression stamps to simulate stone that has been worn down by water and wind. The stone would be colored with a combination of Super Stone colorants. Payette suggested that the transition lines between the sand and the stone should meander to increase the sense of a natural beach.

Preparation and application

A scarifier was used to prep the existing concrete, metal poles were removed and the holes filled. Trenches that held electrical and plumbing lines for the rock features were also filled in.

Payette describes the job as fairly straightforward, but there were a few challenges. "The real challenge was staying with the resort/desert island feel of the project," says Payette. "It could easily have turned out looking fake, with straight lines and abrupt transitions from the sandy look to the rock look."

Payette trusted his artistic instincts and freehanded the meandering edges of the shore with a Sharpie. He floated on Super

Stone Ivory Sand Super Surface Overlay and used his trowel to cut a wavy line mirroring the Sharpie mark. "That's what makes it more natural-looking," he says. "It's not exact radiuses that were cut. Its all swervy."

Pushing up against the "rocky shoreline" of the overlay is the "sand" — two coats of a Super Stone epoxy seeded with Epamine Chroma-Quartz quartz crystals from Floric Polytech. The Floric material, colored Serengeti, is a color match to the Pebble Tec topping in the pool.

Payette sprayed Super Stone Liquid Color Dispersion, in Oak, over the top of the overlay to color the stone pattern, watering it down immediately. Once it dried, he used a mix of 4 ounces Super Stone Colored Sealer in Brown Stone to 1 gallon clear sealer as a antiquer. He prefers this antiquing agent to release power and xylene. "It looks a lot more fluid."

And the sealer mix doesn't permeate the entire surface of the overlay, avoiding a problem that occurs when some concrete sealers are applied over overlays, which often have larger pores than concrete does, he says.

He hollowed out patterns in the overlay on the tops of the steps, filling the hollows with quartz to make it look like sand. The floor of the bar is quartz too. "It appears as thought the bar is sitting down in sand, if you look at it."

Heat was a challenge throughout. July in Las Vegas can be brutal. The overlay material was mixed with cool water, and Payette increased the number of texturing mats to ensure the crew had time to set impressions before the material hardened.

A special touch

Though the beach and stone feel was going to be nice, the artisan wanted something more. "As a new company, I wanted the job to be really picture-worthy," says Payette.

He proposed adding a compass rose near the sand-to-stone transition adjacent to the shallow end of the pool, and Brush agreed.

Payette used a compass to align the compass rose directionally and used stencils for the letters depicting direction, dremeling the edges to get a rough appearance. The rest he did freehand with a dremel, a truss strap and a framing square. He colored the points carefully to set them apart from the surrounding shades of brown in the stone finish.

According to Brush, Payette's dual jobs as part-time artisan and full-time Super Stone manager presented an advantage. "I think it helped that Randy knew his product so well. From the start, I believed that he was going to deliver exactly what he said he was going to. And he did."

While Payette has moved to the Houston area to open Super Stone of Texas, he looks forward to eventually resuming his artisanal work. "I'm probably not going to give it up because of my love for the art of it. I like the design, the satisfaction of the end result, feeling proud of making something that was nothing into something beautiful. I have to back-burner it just momentarily while I get this branch up and running."

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PROJECT PROFILE

Improved Practices Make Better Polished School Floors

Eisenhower and A.C. Davis High Schools, Yakima, Wash.

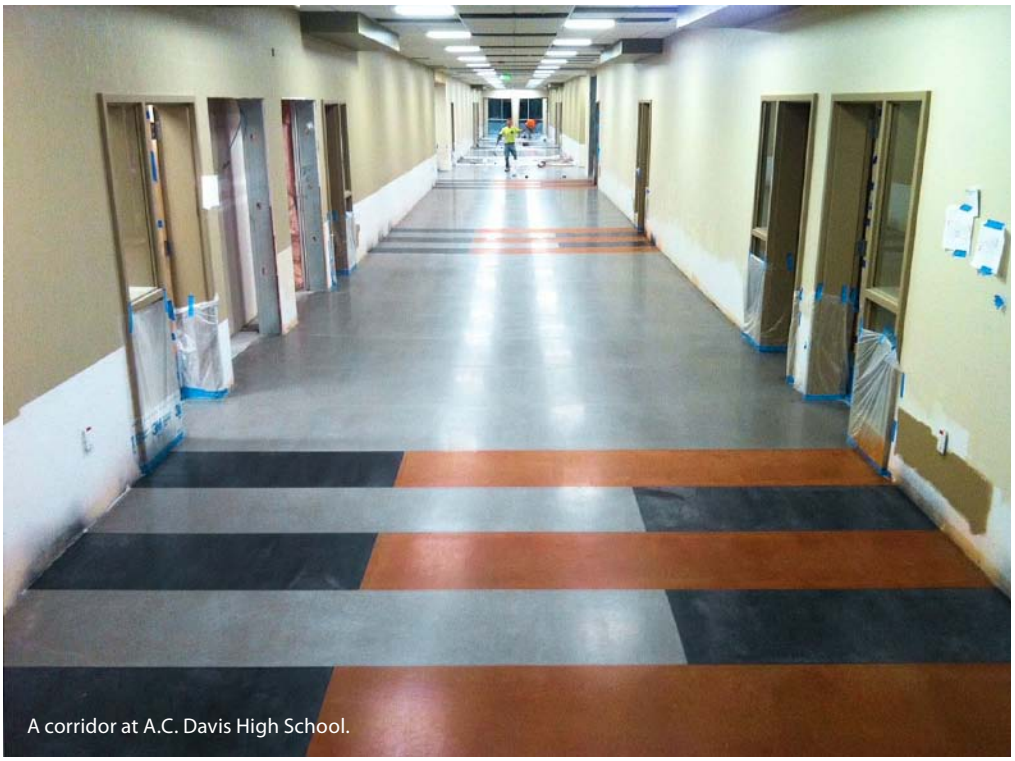
by Gail Elber

One of the advantages of landing a contract for several polishing jobs is that the later ones can improve on the minor missteps of the earlier ones. A recent pair of jobs for the Yakima, Wash., School District is a classic case in point.

In 2009, voters in Yakima approved a $218 million facilities improvement bond for their school district. In addition to upgrades and repairs throughout the district, the bond funded three major construction projects — replacement of Stanton Academy for the 2012-2013 school year, replacement of Eisenhower High School, known as "Ike," for the 2013-2014 school year and a major remodel of A.C. Davis High School for the 2015-2016 school year.

For all three projects, the school district chose polished concrete for floors in the high-traffic areas of the buildings. Lundeen Simonson Inc., of Spokane, Wash., did the polishing on both the Eisenhower and Davis projects.

After dealing with scheduling problems and a damaged slab at Eisenhower, Lundeen Simonson staff approached the A.C. Davis job determined to make use of what they'd learned. Applying the lessons of Eisenhower — and some ideas that had worked well at Stanton Academy — has made A.C. Davis a much better polishing project for everyone involved.



A corridor at A.C. Davis High School.

Photos by Skyler Owen

Project at a Glance: Eisenhower High School

Client: Yakima, Wash., School District

Decorative concrete contractor: Lundeen Simonson Inc., Spokane, Wash.

Lead architect: KDF Architecture, Yakima, Wash.

General contractor: Graham Construction, Spokane

Equipment and materials used: HTC 800 HDX and 800 RX grinders, HTC EZchange diamond tooling, L. M. Scofield Co.'s Scofield Formula One Lithium Densifier MP, Scofield Formula One Liquid Dye in Leather and Bahama Blue, Scofield Formula One Guard-W water-based finish.

Project description: New construction of high school for 2013-2014 school year, with 70,000 square feet of ground, polished, and stained concrete

Challenges: Precise dye layout, fast-tracked schedule (10 weeks from start to finish), huge building footprint to coordinate work force in

An acre and a half of challenges

Eisenhower, Washington's biggest high school, was a 70,000-square-foot job that posed challenges because of the size of the project, problems with the new slab, and elements of the design.

"When we get into the 60,000-to-80,000-square-foot range, you get into a whole other level of challenges," says Skyler Owen, Lundeen Simonson's project and sales manager.

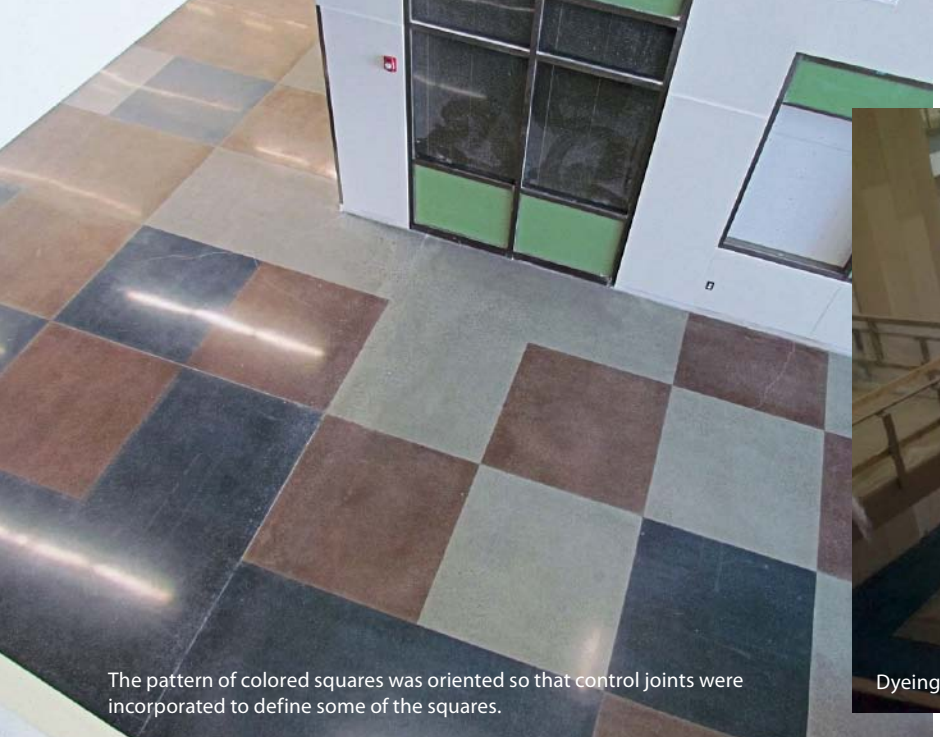
And so it was with this new pour. "The placement wasn't so great," Owen says. "It wasn't very flat, and there's a lot of cracking and damage to the floor."

Architect Ryan Monson of KDF Architecture (Yakima, Wash.) originally envisioned dyed rectangles in the floor accented by a grid of saw cuts filled with grout. But when it became apparent that the grout lines would increase maintenance work, Monson modified his plan.

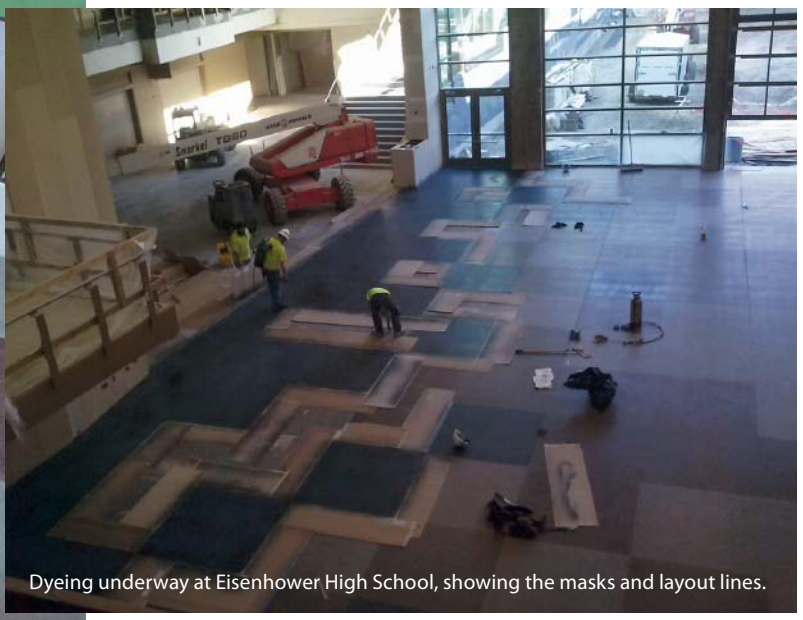
The original design also incorporated crushed glass broadcast over the surface after the pour. But when Lundeen Simonson did a mock-up slab on the site, workers discovered that it was hard to get the glass to feed consistently over the surface, so that feature was dropped from the design.

Eisenhower's construction schedule allotted 10 weeks for concrete polishing which were slotted late in the project. "We ended up working around finished walls," Owen says. "All the other trades were in our way."

When they started polishing in April 2013 — more than a year after the pour — Lundeen Simonson's crew discovered that the slab was unusually hard. It also had sustained damage from previous construction



The pattern of colored squares was oriented so that control joints were incorporated to define some of the squares.



Dyeing underway at Eisenhower High School, showing the masks and layout lines.

operations. "You want a hard slab," Owen says. "But it was hard and not flat."

"We tried dry grinding. We tried different combinations of tooling and super-soft diamonds," Owen says. Eventually, Owen's team decided that wet grinding, using HTC 800 HDX planetary grinders with that company's EZchange tooling, was the only way to achieve a satisfactory finish. "If you switch over to wet grinding, nine times out of 10, that solves all your problems," he says. "It keeps your diamonds cool, softens the concrete a little, and allows the tools to stay open and work. And it provides protection (from silica dust) for the people."

Slurry disposal on a 70,000-square-foot job was a significant task. Lundeen Simonson worked out an agreement with the contractor to dispose of the slurry in its washout pit. An estimated 20,000 to 25,000 gallons of slurry was collected in barrels, which were emptied into the pit.

When it was time to stain the concrete, Lundeen Simonson's foreman, Monte Plough, drew on his experience pouring foundations and footings to do the layout. "He used string lines, reference points and a lot of patience to get everything set," Owen says. "It was pretty unbelievable how fast and efficient he was at getting everything laid out. There were thousands and thousands of feet of layout, squares and dimensions and pullout points."

Project at a Glance: A.C. Davis High School

Client: Yakima, Wash., School District

Decorative concrete contractor: Lundeen Simonson Inc., Spokane, Wash.

Lead architect: Loofburrow Wetch Architects, Yakima, Wash.

General contractor: Absher Construction Co., Puyallup, Wash.

Equipment and materials used: HTC 800 HDX and 800 RX grinders, HTC EZchange diamond tooling, L. M. Scofield Co.'s Scofield Formula One Lithium Densifier MP, AmeriPolish Surelock Concrete Dye in Burnt Sienna and Midnight Black, and L. M. Scofield's Scofield Formula One Guard-W water-based finish

Project description: New construction and renovation of high school for 2015-2016 school year, with 66,000 square feet of ground, stained and polished concrete

Challenges: Precise dye layout, fast-tracked schedule and multiple trades working in the space.

Educated choices at Davis

Lundeen Simonson staff approached the A.C. Davis job with the Eisenhower problems in mind. "We had a prepour conference," Owen says. "We sat down with the concrete contractor and the architect, and we discussed expectations and mix designs and submittals."

The principal architect on the A.C. Davis project was Gary Wetch, of Yakima-based Loofburrow Wetch Architects. He had been involved with the Eisenhower job, and he also had been the principal architect on the school district's first polished concrete project — Stanton Academy, a new 49,500-square-foot facility polished by Meidling Concrete Inc., of Spokane Valley, Wash. Stanton, which opened for the 2012 school year, had gotten good reactions from the community and students. In fact, Wetch says, Stanton's success gave the school district confidence to specify polished concrete at Eisenhower and Davis.

Wetch designed the A.C. Davis remodel using polished concrete in the corridors and a commons area. The concrete floors in the older parts of the building would be polished and dyed to match the new construction, with a pattern of colored rectangles unifying the old and new sections.

Having used polished concrete on five previous projects, Wetch knew that cosmetic cracks might become an issue at A.C. Davis. "When you have a steel building with a metal pan deck (on the second story), you will get more cosmetic cracking," he says. "If you use steel I-beams, it's more expensive, but it's a little more rigid, and you would get a little less cracking."

To minimize cracks, Wetch specified a concrete mix that included 3 pounds of fiber reinforcement per yard. He also specified a 5-inch slab instead of the 4-inch slab used at Eisenhower.

In a thicker slab, "you can use bigger aggregate, which allows for less cement and less cracking and more durability and strength," he says. "My opinion is that with a thinner slab, you have more potential for curling. With a thicker slab, the weight of the concrete helps prevent some of the curling. You have more expense with additive mud but can use bigger aggregate, which keeps the costs down."

When a slab will be polished, Wetch also likes to seed the surface with aggregate and trowel it in. He used that technique at Stanton.

"It gives you a terrazzo-like finish, and the eye is not drawn to any cosmetic cracks," he explains. "But the sheer volume and size of the Davis and Eisenhower projects didn't allow that, and on Davis we also had to try to match the existing concrete."

On the A.C. Davis project, where old concrete floors would be polished along with new, Lundeen Simonson's Owen worked closely with Wetch to develop the spec for polishing the existing floors, spelling out the costs of repair work that might be needed.

Wetch and Owen also made sure school district decision-makers understood the appearance issues that might arise. Chuck Doan, the district's director of maintenance and operations, went to a remodeled Lep-re-kon Foods supermarket where Lundeen Simonson had polished the floors, and took video showing polished floors that bore shadowy marks from stripped-off tiles and former walls. The evidence helped

school district representatives form realistic expectations of how the old slab might turn out.

"The owner was well aware of that going into it and still sees the benefit and payoff of polished concrete," Wetch says.

"You can actually take existing buildings and enhance and incorporate them, and the blemishes add to some of the character, some of the nostalgia and some of the history," Wetch says. "As long as the owners go into it with their eyes wide open, polished concrete will do what it's supposed to do — rate of return."

As a result of these measures and the close communication between Lundeen Simonson and Wetch, the A.C. Davis polishing job has gone smoothly for Lundeen Simonson. "That job is about the same size as Eisenhower, but it's broken up into six different buildings," Owen says. "Everything is a more manageable and controllable size. And the placement and the concrete was 10 times better."

High-profile projects

Eisenhower High School will hold its grand opening celebration in October, and A.C. Davis is scheduled to open in fall 2015. Owen says Yakima's investment in polished concrete is a powerful endorsement of the technology. "Seeing the whole school district do polished concrete because they believe in it is really exciting," he says. "We have 130,000-140,000 square feet in this one city. These are two major schools for which they decided to go in that one direction."

Owen likened Yakima's choice to that of JC Penney, whose wave of store renovations last year raised polished concrete's profile.

"These larger projects showcase the design capabilities and the function capabilities" of polished concrete, he says. "This is almost like a living, breathing flooring."

lundeensimonson.com

Vertical Polished Concrete Inspires Innovators

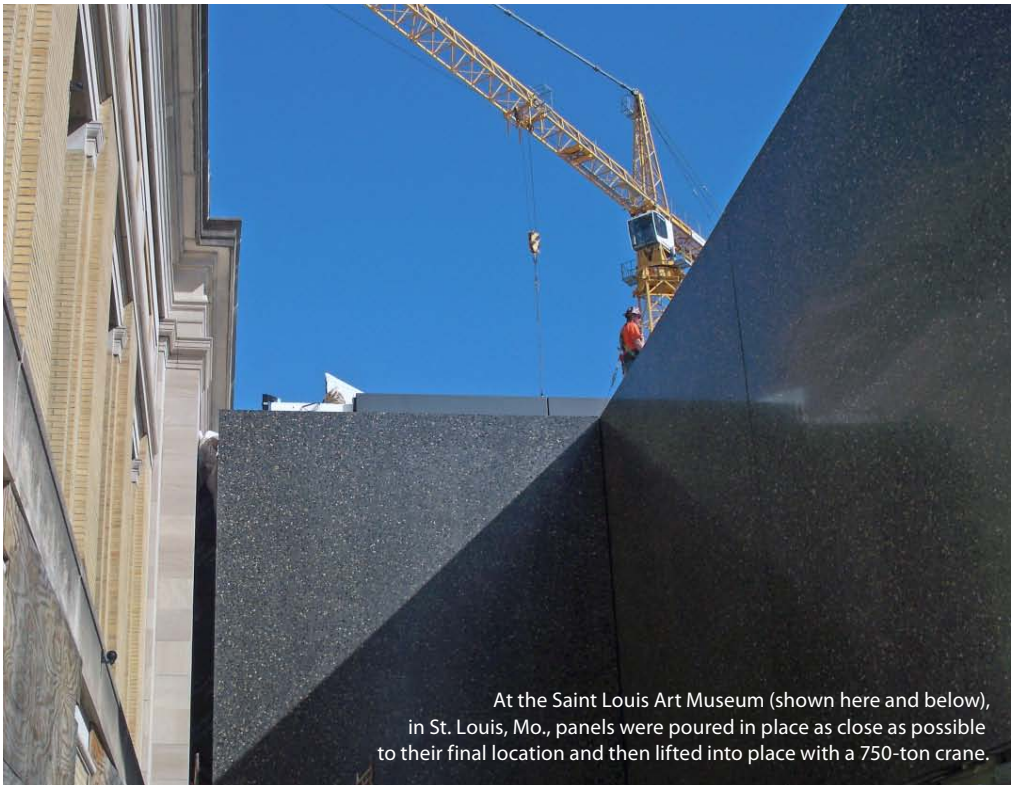
by Amy Johnson

WHAT do you do when your client asks for polished concrete walls? Not many contractors have responded to that request in the affirmative so far, but some are starting to ask, "Why not?"

Gregg Denton, concrete restoration specialist for Jon-Don, suppliers of janitorial and restoration supplies, is one. A reformed "stone snob" he admits that after overcoming his bias he realized that "for every square foot of stone there are a half-million square feet of concrete out there." The process for polishing stone is the same as polishing concrete, so Denton sees this as a new business opportunity. "It's not impossible," he says, "it's just hard-ass work."

One reason vertical polishing is hard work, according to Denton, is that it requires all the same steps as a high-quality horizontal job — preparation to get the surface clean, flat and uniform; grinding to remove the cream; honing to a matte finish; and polishing to a reflective surface. "Each diamond's job is to remove the evidence of the previous one," Denton explains. "It's not rocket science, but it is physics. Horizontal polishing is time-consuming, but at least gravity's your friend. Gravity is anything *but* your friend on vertical."

Nathan Baggett, design and project manager for DreamKrete, Richmond, Va., discovered this when assigned to grind and polish four-foot high walls at the Shops at Willow Lawn outdoor shopping center in Richmond. (See *Concrete Decor,* July 2012.) He and his colleagues rigged up a cart to bear the weight of a three-headed planetary grinder typically used for countertops. But when they got to the job site they discovered that the ground of the active construction zone was too uneven and cluttered to allow the cart to roll as needed. In the end it took two men using 5-inch hand grinders 18 days, most of the time kneeling, to finish



At the Saint Louis Art Museum (shown here and below), in St. Louis, Mo., panels were poured in place as close as possible to their final location and then lifted into place with a 750-ton crane.

Photos courtesy of Saint Louis Art Museum

grinding and polishing about 1,800 square feet of vertical concrete. "It was like doing a thousand sit-ups," Baggett remembers.

He believes that beginning grinding after the concrete had been in place for only 10 days may have made the earlier stages of the process a little easier than it might have been with fully cured concrete.

Baggett admits that vertical polishing might be better on a smaller scale. He says the cost is between two and three times that of grinding and polishing flatwork, mostly because it is so time-consuming. Referring to a sign he once saw — "Fast food is not good, good food is not fast" — he says, "Good vertical concrete is not fast. It is a costly, slow procedure to have it done to the standards to which we hold ourselves."

T.B. Penick & Sons, San Diego, sometimes adds small areas of vertical polished concrete to larger jobs. For example, an elevator lobby or the wall behind a reception desk may be polished. "We do accent pieces," says Victor Klemaske, senior project manager. "It's fairly expensive because it's a lot of handwork." They use the same hand grinders used to finish the edges of horizontal polished concrete. Once again, the challenge is gravity — getting enough pressure on the machine to actually grind and polish. "It's as much pressure as a man can create just using his arms," Klemaske explains. If the surface to be polished is higher than about 5 feet, they erect a scaffold so no one will have to use a grinder higher than shoulder height.

One way Klemaske controls time and cost is to finish the job with wax. "A vertical wall is not a wear surface, so instead of taking it up to a polish with diamonds alone, we add a wax and burnish it like you would a car. This saves cost and provides the shiny surface people are looking for."

The vertical polished concrete exterior of the expansion to the Saint Louis Art Museum, opened in June, is the opposite of an accent piece. Matt Pfund, vice president for St. Louis-based Tarlton Corp., called the concrete walls "the most unique use of tilt-up I've ever seen." Pfund served as project director on the Tarlton/Pepper/KAI joint venture general contracting team for construction of the new East Building.

Ordinarily a tilt-up panel is poured onto a smooth form so the bottom of the slab is a finished surface. In this case, the top of the slab was ground and polished. In addition, the architect wanted no seams at the corners, so some panels had to be poured with the concrete turning 90 degrees and continuing on for 4 feet.

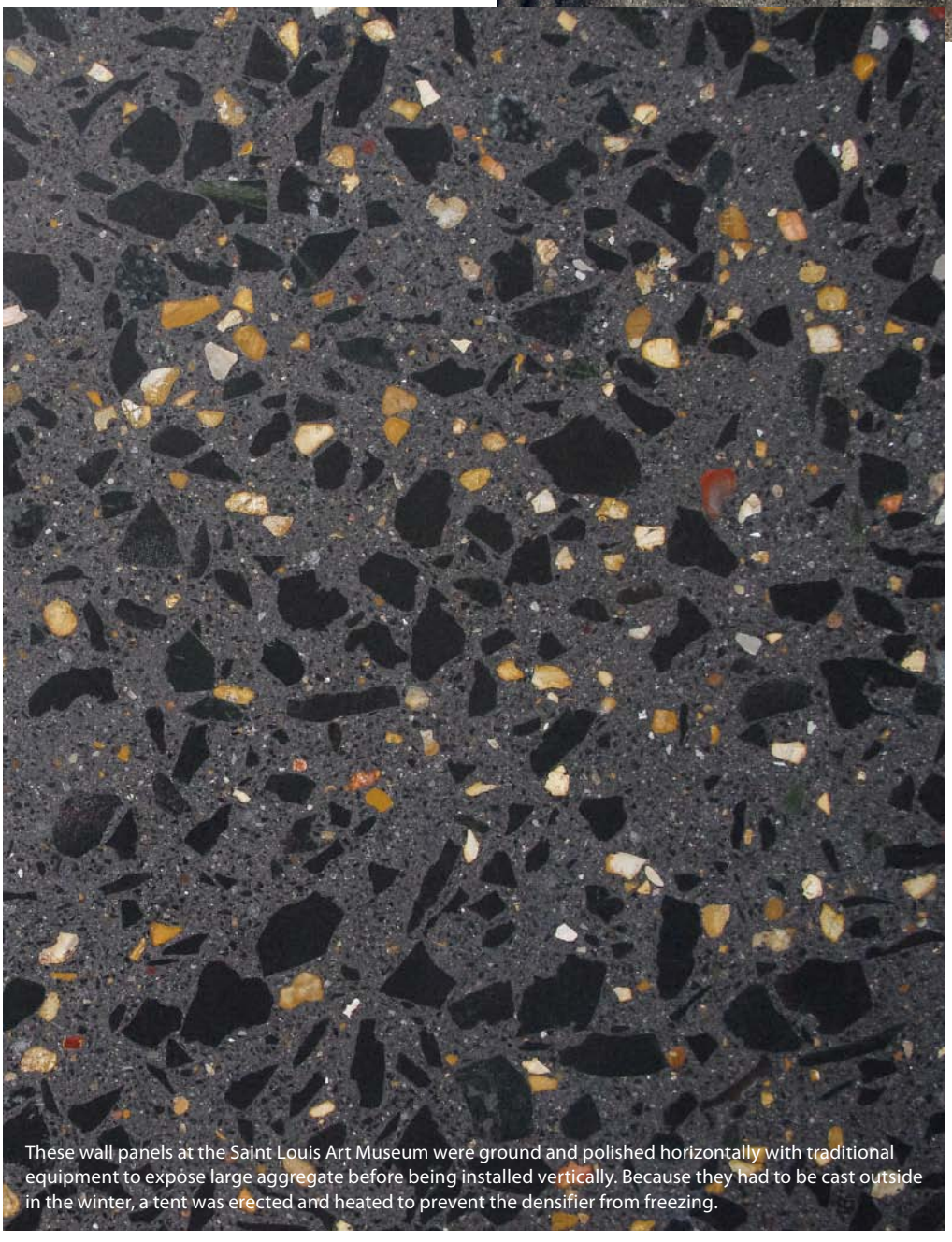
In all there were 23 panels, each about 23 feet tall and ranging from 15 to 30 feet wide. Contractor Fenix Construction, St. Louis, poured the concrete for each panel on a raised horizontal casting bed so it could be screeded and floated without anyone standing on it and disturbing the aggregate. To make a panel with a corner, the casting bed was erected 4 feet above the ground with an adjacent scaffold built turning down 4 feet. The large part of the panel was poured horizontally and the shorter return section was poured vertically at the same time.

"This job required really crisp edges so we poured big and then saw-cut down to size. This gave us a straighter edge than we would get from forms," explained Jason Sternau, who oversaw the pour for Tarlton and is now employed by Fenix.

The large horizontal panels were ground and polished with traditional equipment

and the return sections were ground and polished with hand grinders. Fenix removed 1/2 to 3/8 inch of concrete for maximum exposure of the large, colorful aggregate. The completed panels were 7 inches thick.

Because of their mass and weight — as much as 80,000 pounds each — the panels were poured as close as possible to the installation site. A 750-ton crane was used to lift them into place, using specialized lifter inserts on the face of the panels. The panels are bolted to a steel frame so they have the appearance of floating. Once the panels were set, the lifter inserts were patched and polished to blend in with the rest of the panel.



These wall panels at the Saint Louis Art Museum were ground and polished horizontally with traditional equipment to expose large aggregate before being installed vertically. Because they had to be cast outside in the winter, a tent was erected and heated to prevent the densifier from freezing.

Most vertical polishing projects are much smaller — accent pieces, stair risers, low walls — and the contractors who do them use hand grinders they already have. Mark Listermann, sales and product manager for Boride Engineered Abrasives, believes his company's Easy Edge diamond tool can make the process a little easier. By eliminating metal-bond cup wheels, the tool delivers a consistent scratch pattern that is easily polished by the next step, according to the manufacturer. The Easy Edge's light weight is an added advantage.

So, will vertical polished concrete catch on? "Vertical polishing is a very time-consuming process if you want an extraordinary outcome," warns Gregg Denton.

He fears that vertical polishing could repeat the history of concrete countertops. After the counters debuted in high-end commercial and residential installations, other clients asked for them, too, but at lower prices. "You can only go so far before you start cutting out steps to save time and then the quality begins to decline."

Whether vertical polishing overcomes the laws of gravity and the limits of technology to become a widespread practice remains to be seen, but as the St. Louis Art Museum and other dramatic installations show, the technique has a place in the world of decorative concrete.

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Densifier Tips and Tricks from the Field

by Joe Maty

You've heard of densifiers. But let's face it — much of what you've heard about them to date has come from densifier manufacturers.

The following suggestions and observations on the use of densifiers in concrete polishing come from contractors with considerable expertise in the industry.

Learn how to recognize rejection. Identifying when the densifier has been applied to the point of rejection is an important challenge, says Roy Bowman, a member of the Concrete Polishing Association of America board of directors and owner of Concrete Visions Inc., Tulsa, Okla. "Typically you will see it on the surface and not being readily or fully absorbed. Then you know you've got enough. Manufacturers' literature may not state this."

Don't obsess about cost. Bowman and other contractors drive home the point that the densifier represents a relatively low-cost component in the context of the job as a whole.

"It's pennies per square foot to do it right," Bowman says. "The cost to take care of something done wrong is a whole lot more. It doesn't matter which densifier you use. It's important to get enough in the concrete, rather than coming back for repair with diamond grinding, application of color, stain guard. They all cost more. Plus there's the labor.

Softness and hardness dictate when. If the concrete is very hard, Jim Cuviello, owner of Cuviello Concrete and Terrazzo Polishing in Stevensville, Md., says he sees a benefit in applying the densifier later in the process — for example, after grinding with 400-grit resin-bonded diamonds.

If the concrete is extremely soft, maybe apply densifier before the process begins, and even three times during the process. "We typically know, by looking and scraping with something metal, what we have to do."

The other extreme is if concrete is "extremely dense," where the concrete may not accept the densifier at all. "In this case you can just do a sprit coat at the end."

The nature of the concrete will vary regionally, he says, with a softer mix seen in Florida, for example, due to higher lime content.

Rely on technical support. Chad Gill, owner of Concreate Inc., Richmond, Va., says he's used every type of densifier successfully. In every case, he tries to be sure he's on solid ground with the manufacturer and distributor.

"The only reason we choose one over the other is the spec or if we are doing a porous floor. It does not matter as long as it is a known brand and has a distributor we have a strong relationship with. That's the most important relationship I'm going to have.

"We don't want someone who will just sell. We want someone who has faith in the product and will provide technical support and service as needed."

Take hints from your slurry. "We begin cutting and we watch to see how quickly the slurry is drying out on the slab," Gill says. "Very hard concrete typically does not absorb the moisture out of the slurry as quickly because of the density. We also look at the thickness of the slurry itself. Soft concrete will rapidly grind away, yielding a high-solids, very thick slurry. Hard concrete slurry can look like murky water. More than just concrete hardness can affect this, but it is a hint of what is before you.

The mechanical process, not the densifier, polishes concrete. Cuviello says differences in densifiers pose less of an issue than misunderstandings about them that have taken hold among designers and owners.

"The densifier is not going to turn concrete into a polished surface. The only thing that does that is mechanical abrasion of diamond abrasives and the concrete surface," Cuviello says. Densifiers enhance the overall polish achieved, and they will contribute to increased durability of the slab.

Residue is an issue. Shawn Halverson, CEO of Surfacing Solutions Inc., Temecula,

Calif., says that with sodium silicates, the "big learning curve is after you are done and it's time to rinse the floor, to make sure you remove 100 percent of the residue. I have seen what happens with a partial clean, where we had to go back and recut the floor and there's a rock-hard surface. There can be a kind of glaze on the surface."

With lithium silicate, "you don't have the topical glaze left on the surface. It penetrates when applied and it's easier to recut the floor if needed."

Resist spin. Gill says he is bombarded with sales pitches for new products billed as saving on costs and covering more square feet per gallon.

"Everyone is concerned about cost per square foot. Well, you might get 2,000 square feet per gallon, but how much went into the concrete, and what did it do?

It may be OK to let specs and systems choose for you. Halverson, whose polishing portfolio is exclusively commercial, says specifications are the key driver in materials choices for his business. Also, if the densifier is part of a complete system, it makes sense to stick with it, he says.

Halverson says his experience with densifiers is limited to sodium and lithium silicates, due primarily to specifications by designers and owners.

"I don't necessarily suggest the type, especially if it is prespecified by the architect. And I don't usually question it, unless it is some kind of obscure brand."

Surfacing Solutions focuses exclusively on commercial jobs in California, Nevada and Arizona, and "95 percent come with a set of specs," he says.

Mastering Polishing Specifications for Success and Profit

by Jennifer A. Faller

The time will come when a general contractor, architect or another flooring contractor will ask you to bid on polishing floors in a new construction project.

They invite you to enter their virtual plan room or physical office and view the plans, specs and addenda. Where do we start? Why can't the GC just tell us which drawing number to reference and how many square feet are being polished and let us give him a quote? This has happened to me only once since 2001, so do not count on it being that easy!

Polishing new floors is a unique segment of the construction process with many small but important details that differentiate it from polishing older floors.

The ability to navigate and comprehend the daunting amount of technical paperwork in a new-pour project will make the difference between winning contracts (and making money) or fruitlessly going through the bidding process and never winning the contract. Unfortunately, the devil really is in the details! Let's dig into the mound of specifications and drawings you'll likely encounter and find our most important sections.

It is vital to understand the overall structure of these documents. The guiding structure used by most architectural firms is MasterFormat, a system created by the Construction Specifications Institute, or CSI. This standards format is designed to organize specifications and other written information for building projects. A specification is the document that is written by the specifier at an architectural firm. The specifier writes up the details for multiple projects and for ALL of the different divisions that comprise the entire building, including Concrete, Plumbing, Metals, Wood, Finishes, etc. Currently, there are 48 Divisions.

Section 03 35 43 Polished Concrete Finishing

Search the project documents for several key items, beginning with the specification for polishing. This will normally be found in Division 03, Concrete. The **03 35 43 Polished Concrete Finishing** subdivision, created about three years ago, is what's used most often. Specifiers rarely understand how to polish concrete, so this section may not be fully fleshed out. Also, many nonstandard subdivisions within Division 03 are also still being used for polishing.

There are three parts to all specifications, and the 03 35 43 Polished Concrete Finishing subdivision is no different. **Products and Manufacturers** are specified in Part 2, and **Execution** will be found in Part 3. Read through parts 2 and 3 to verify that it is worth your time to bid the project.

Next we will locate other important documents. Some are specifications, and the rest are either drawings or addenda with updates on the project.

Section 03 30 00 Cast-in-Place Concrete

Important items covered here include **mix design**, **compression strength** in psi, and **air entrainment** percentages. Concrete mixes typically have strengths that range from 2,500 psi to 5,000 psi, with engineered-design mixes at about 10,000 psi for specialized applications. The psi (and finishing procedure used) help you predict many of the concrete's characteristics in order to make an informed selection of a starting grit level of metal-bond diamond tooling.

The percentage of **cement substitute** (supplementary cementitious material) is commonly around 20-30 percent, but occasionally we encounter up to 50 percent. These substitutes are also called pozzolans, and include fly ash, ground granulated slag, silica fume and metakaolin. The more substitute in the mix, the denser the slab and the slower it reaches ultimate strength. This can affect the timing of the

first cut. Also, the higher the percentage of substitute, the less vivid any topical color will be.

The percentage of **air entrainment** should be 3 percent or less for polished concrete. This percentage helps you to predict how many small air holes to expect when cutting through the crust of the slab. There are now many "grind and fill" products, and it may be necessary to add a line item to your bid if the air percentage is high.

Regular and **lightweight concrete** are different materials, and they will polish differently. They take stain differently, require different diamonds, and need different quantities of chemicals such as silicate densifier. Getting concrete made with these two types of mixes to match in appearance can be difficult. This should be mentioned during the pre-con meeting.

Levelness (FL) and **flatness (FF)** numbers will help you figure out if a specified appearance can be achieved. The higher the FF (floor flatness) number the flatter the surface, and the flatter the surface the more uniform the reveal can be. If the specification calls for a CPAA (Concrete Polishing Association of America) Class A cream finish, a floor with FF 50 or higher is recommended and will greatly reduce the chance of revealing sand and small aggregate.

Curing methods affect the polishing process. If a method is not specified, ask the architect. Having the surface cured correctly is key to all processing with diamonds. A surface that is soft and has a lot of laitance will cut much differently than a hard, well-cured one. The spider cracks or plastic shrinkage cracks occur during this period and can be avoided when the concrete is cured according to ACI C 309.

Section 01 00 00 General Requirements

This section should get a quick read for the overview on how the project will be run. It will cover bonds, how to make a substitution and many other general housekeeping items.

Drawings and Finish Schedule

This should be in the A-numbered (A stands for Architectural) pages — for example, A 101. Look for **Floor Finish** and **CONC, PC or PC-1** for the actual floor plan areas to be measured. Find the scale located on the plan and then either do an online takeoff or use a ruler to calculate the square footage from the scale of the drawing (i.e., 1/4-inch = 1 inch).

Once all of these documents have been digested, look at the flow of the job. Is it one big open area or many small rooms with lots of edges? There may be an opportunity to educate the architect, owner or GC about how to better sequence the polishing.

Make use of Concrete Polishing Association of America specifications. They have been written by some of the foremost experts in polishing today and can assist in resolving questions and producing outstanding polished concrete floors.

The goal is to do the reading and research. Then we will be prepared to ask the right questions and bid the project accordingly.

Specifications and drawings are our best friends, and understanding this information keeps you in the driver's seat. Refer often to the specs and drawings. Subtly let the GC know that you expect the job-site conditions to follow these documents. Submit an RFI when polishing-related items do not meet specified written standards. This will help you complete the project on time and on budget, and you may earn extra compensation associated with change orders.

Taking the time to understand MasterFormat will allow you to bid correctly on new projects and add value to your polishing business. The devil is definitely in the details, but the details will guide you to profitability and project satisfaction.

Jennifer A. Faller is vice president of operations for The Professionals, a polished concrete contracting company in Greensboro, N.C. She is also co-chairman of the Concrete Polishing Association of America board of directors. Contact her at jennifer.faller@gmail.com.

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CONCRETE QUESTIONS

The Acid Stain Looked Good at First … What Went Wrong?

by Chris Sullivan

Question: I just stained a concrete floor in a new restaurant using acid stain. The concrete was power-troweled and had a very smooth, hard, dense finish. We mopped the floor with soap and water, did a clean-water rinse and let it dry overnight. We then came back the next morning, protected the walls and sprayed the stain using a pump-up sprayer. We let the stain sit all day and came back eight hours later. The restaurant owner loved the color and the way it looked.

We then washed the floor with soap and water and removed almost all of the color. The floor now looks spotty and ugly. Why did all the color come off, and what can I do to make it look like it did before I cleaned the floor?

Photos by Rick Gilmore

Above and below: Acid stain dusting off the surface prior to sealing due to lack of penetration and reaction.

There are a few different things going on that led to the floor looking spotty and unacceptable. The first red flag is that there is no mention of any sample being completed prior to the project start. I, along with most every stain manufacturer, strongly recommend sampling on all stain jobs, especially on commercial projects.

And when I talk about samples, I mean a sample placed in an inconspicuous place on the actual floor that will be stained that includes all the steps that will be completed on the actual project, including sealer and wax. These types of mock-up samples are frequently placed in a closet or bathroom, or in an area where furniture or other flooring will be installed. Too often I see samples created on boards or concrete chips that have no relevance to the concrete floor that will be stained. Or the mock-up or sample is not sealed, which can significantly change the look and color of the final product.

It is important to note that samples are not just about picking a color. You as the

installer should be paying close attention during the sample process to make sure the stain is taking properly, the colors are developing and you don't have any red-flag issues like fish-eyeing or orange-peel effect that indicate contamination in the concrete.

I have worked with some installers who take the time and walk the area to be stained, spraying the entire floor with water looking for contamination or trouble spots. Today's concrete often contains fly ash and other pozzolans and chemical admixtures. While these can be good for concrete strength, durability, finish and cost, they can often retard the stain's ability to penetrate or develop the proper color. A good rule of thumb is that if you have trouble getting plain water to absorb into concrete, chances are you will have trouble getting a stain to absorb. It is a lot easier and cheaper to discover a concrete issue by spraying water before you've started the job than after you have sprayed the floor with stain.

You mentioned in your question that the floor had a "very smooth, hard, dense finish." This should have been an immediate warning sign that the concrete was probably going to require additional preparation. I

am always surprised at how many installers don't think that floors that are going to be acid-stained require much surface preparation. In some cases they don't, but in many situations, especially on commercial flooring where the concrete is machine-finished, you do. The surface preparation you described in your question — "We mopped the floor with soap and water, did a clean-water rinse and let it dry overnight" — falls a bit short, especially on a hard, dense floor. In many cases a floor with a machine finish will require sanding or a mild acid etch to break the surface tension of the concrete. If you do use acid to etch concrete prior to acid staining, I recommend using a diluted phosphoric acid detergent to treat the floor.

In this situation, the stain looked good before it was cleaned because all the mineral salts (which are what react with the concrete to produce the color) are lying on the surface as residue. The concrete was both too dense and hard or had some type of contamination that kept the stain from penetrating and reacting.

Always remember that there is a process by which all stains must go through to work properly. First, the surface must be porous enough for the stain to break the surface and get inside. The second is penetration, where the stain migrates into the surface paste of the concrete. The third is reaction and/or adhesion. This is the ability of the stain to react with cement-based material to develop its color. If any of these three steps is missing or reduced, the process slows down or stops, resulting in poor stain color development. Whenever I troubleshoot a stain issue, I always look at porosity, penetration and adhesion/reaction. (Similar process can be noted for dyes and sealers, too.)

In regard to fixing this stained floor, I would start by cleaning off the residue from the first staining attempt. I would then prepare the surface by either sanding with a walk-behind and pad or lightly etching with a diluted phosphoric acid detergent. Once that is complete, stain the floor, and consider using brooms to work the stain into the concrete to promote better penetration and reaction. The last step would be to properly neutralize and clean the floor to get it ready for the sealer.

A hard-troweled floor after the acid stain was cleaned off. The blotchy finish is the result of a lack of penetration and reaction on the part of the stain.

I strongly recommend sampling this process to dial in the right steps and to make sure you will obtain the results you are looking for.

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

Movement, Contrast and Texture

How An Experienced Contractor Explains Color Options to Customers

by Troy Lemon

I LOVE color. Bright, vibrant, fun colors that pop. Deep, rich tones that soothe. Soft, gentle tones with minimal contrast. But thinking about color always leads me to texture, mottling, layering, variegation or marbling. I cannot think of even one instance when I would want a paintlike solid color on one of my projects. To me, color and depth go hand in hand.

Fortunately, that is the nature of concrete and the beauty of decorative concrete in particular. I often say that it is the anomalies inherent in concrete that are the most outstanding.

This leaves us, however, with the very real problem of conveying our passion to a public that has little to no experience with the possibilities available to them outside of the most common of decorative concrete finishes.

When explaining the possibilities to customers, I tend to break color options

How Troy Lemon describes this finish:
Minimal contrast with arc- or trowel-like movement.

Vibrant colors with clean delineation.

down into three categories and then design the application to suit:

1) Movement: This is the ways the highs and lows separate from one another. Do they fade into each other or are there crisp delineations? Organic mottling or veins? Arches or slate shapes?

2) Contrast: Are the highs and lows subtle or extreme? Are the tones one color or multiple colors?

3) Texture: A project can have the appearance of texture but be smooth, or it may call for actual texture, subtle or extreme.

Once these three categories have been addressed, I have a very good idea of what the client expects. The client may, for instance, want a smooth floor in blue gray and medium gray tones with minimal contrast and the movement to be "slatey" in nature.

Great! Now we have a concept and, if the client would allow, we'd be tempted to move forward. But keep in mind, although you do this every day, the description you've agreed on is still very subjective. Consider, for instance, how many shades of gray there are in a Sherwin-Williams fan deck. The client's visualization of these terms may still differ, sometimes greatly, from yours or mine.

Very minimal variegation and contrast.

Then there are those who will simply not be able to visualize it until they see it.

So regardless of how sure you, and even they, may be that you are on the same page, always create a carefully measured and documented sample.

Also, be realistic about what you can do in the shop on a sample board and what you can do in the actual conditions of the actual site and on a large scale. We are often working not only with specific pigments, but with percentages of white and gray cements and pozzalans that may change in hue or even color from one manufacturer to another. Gray cement changes in particular.

Troy Lemon is founder and president of Cornerstone Decorative Concrete, in Holland, Mich. Reach him at troy@cd-concrete.com.

Sometimes the client just trusts that you have the vision and lets you go.

Consistent Concrete Yields Superior Stamping

by Doug Carlton

BEHIND every successful slab of stamped concrete is an accumulation of effort by you (the decorative concrete artist) and your local ready-mix provider. If one participant falls short the project becomes compromised, maybe not to the point of being unsalvageable but still to where it does not meet the goal of most professionals.

As I work on my third decade in the decorative concrete profession it becomes clear that the secret to stamping concrete is consistency — from concrete placement to imprinting, from coloring to the last coat of sealer.

Within the stamping process, there are three issues that ultimately lead to a less than consistent installation, and all three are worthy of the time and space of this issue's column.

Concrete placement and mix design

The most common thing a pour crew says upon introduction to a new ready-mix driver is, "Run a little out so I can take a look." The placement crew relies on what runs down the chute to be the primary component of a day's effort to create a lasting example of their decorative ability. However, far too many stamp projects start off doomed by concrete that is overly wet, too dry, or mixed with an inappropriate admixture that further complicates the already complex task of stamping concrete.

This scenario plays out time and again. The contractor is unorganized or chooses to deal with an unorganized ready-mix supplier. Or, someone is not willing to pay a few dollars more per yard for the right supplier or concrete mix. Leaving something as important as the ready-mix ratio to chance is not an option, not if the goal is consistency.

There are three steps each stamping professional should take long before one rock rolls down the chute.

Identify the best mix for stamping, not the easiest to work with but the best. Stress to the supplier the importance of ready-mix consistency as it relates to the stamping process.

Establish a slump that requires a pour crew to add less than 1 gallon of water per yard on-site, if any at all.

Negotiate the best pour time according to weather conditions, traffic, overtime and so on.

Coloring

The days of tossing water-soluble bags of color into a mixing drum are over. Most reputable concrete suppliers now offer liquid coloring that is monitored and controlled by computer. I'm not much on

integral coloring, but I will admit that liquid coloring has greatly improved the decorative concrete world.

Regardless of the coloring method, dry-shake coloring or integral, color consistency is another key component in transforming something ordinary into something extraordinary. Both coloring options have their individual benefits and drawbacks, so find a method that works best for your crew and stick with it.

If broadcasting color hardener is your coloring choice, please remember it is not necessary to completely cover the entire surface. Far too many stamp crews take precious time recoloring when they should be imprinting instead. It is more important to keep the coloring consistent then to achieve complete coverage. This is especially important on jobs that require multiple pour days.

If your crew struggles with the color hardener process, try switching to another manufacturer to see if this helps.

The coloring process most commonly requires a secondary release color. This accenting agent is not meant to penetrate

the surface but will provide an antiquing effect and, more importantly, provide a permeation layer between the stamp tools and the semiwet concrete surface. For consistency, try to use a release color only slightly darker than the troweled-in base color. Too dark of a release choice will leave the surface spotted with release splashes. This spotting will not be visible until it's too late to correct.

Here are some other tips:

- Always aerate the release powder before applying, because the powder will have compacted during shipping.
- If possible, use a yard blower to remove the release powder soon after stamping, to judge the consistency of the imprinting.
- Try a liquid release if imprinting consistency remains a problem. (Remember, all stamped concrete looks good until release powder is removed.)

Photos courtesy of Doug Carlton

The stamping process

The concrete itself will dictate the starting point, direction and pressure necessary to imprint the concrete's surface.

Texture stamps are more forgiving than interlocking patterns. Interlocking stamping requires more planning before the stamping process begins. The first row of stamp tool placements is the key to providing alignment with your surroundings. Texture mat stamping requires no preplanned alignment or course of travel.

Begin the stamping process as soon as the surface will hold the stamper's weight. Remember, the stamping window can be short, depending on humidity levels, so an early walk-on start is vital to overall consistency.

Far too many stamping crews try to overdetail grout joints, wasting precious minutes. I recommend stamping the entire surface first, knowing the stamp tools can be carefully re-placed onto the surface afterward, allowing a more relaxed state of grout joint detailing.

This residential job in northeastern Wyoming was broadcast with 60 pounds of color hardener per 100 square feet of surface.

A few more tips:

- The best opportunity for stamping consistency is when the same individual, or team, imprints the entire project.
- Spray-on surface retardants work well on hot windy days to maintain moisture within the concrete's surface.
- Don't allow visitors or incoming calls to distract your team when it's time to imprint.
- Have one person working edges who is also available to assist the individual or team imprinting.

Doug Carlton is working on his third decade in the decorative concrete industry. He's the owner of Carlton Construction, located at the base of the Big Horn Mountains in northeastern Wyoming. Doug can be reached at carltondoug@sbcglobal.net.

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