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Publisher's Letter

Dear Readers.

2018 kicks off *Concrete Decor*'s 18th year. Wow, how time flies!

The New Year welcomes a section called Architectural

Concrete. Starting on page 29, we focus on ways structural concrete is used as a dominant construction component. This section examines how concrete addresses durability, sustainability and aesthetics that outperform other building solutions.

Continued growth in construction spending is forecasted for 2018, and *Concrete Decor* will answer the trade's informational needs with its powerful print and online platforms. What remains, however, is a growing need for a strong construction workforce, particularly in this industry.

We all need to address this challenge because it affects our ability to drive more business into the concrete industry. The answer rests in a renewed sense of community. As previously stressed, the internet is riddled with ways to reach customers. Unfortunately, many online solutions offer business opportunities that are independent of industry connection.

So what difference does this make? Consider this. I'm grinding a concrete floor's edges while my son vacuums ahead of me. The constant dust swirling around my facemask tells me that until he's on his knees grinding he'll never understand how important it is to get those years of accumulated dust out from the floor and wall gap. Who on earth is going to make a YouTube video on how to vacuum these edges? No one, because that's what gets taught on the job.

Similar to matching a concrete sealer's viscosity to the pressure in a sprayer with the proper-sized spray tip to prevent overapplication, these are just a few fundamentals often overlooked. It's something manufacturers and their representatives, supply store personnel and contractors with employees must understand if they want to increase their competitive stance in the construction market.

Concrete Decor will address on-the-job training in 2018. Industry partners agree the need for workers is coupled with a growing need to deliver quality training. A united focus on this trade's fundamentals along with good on-the-job coaching by experienced pros will drive our trade in a favorable direction.

I'm truly impressed with this edition and I hope you are too. Patronize our advertisers in 2018 and remember that New Year resolutions are never easy unless we have good friends and colleagues at our side. From all of us at *Concrete Decor*, we want to extend our best wishes to you, your family and your business for a happy and prosperous 2018.



Publisher

On the cover: The Salt Lake City
Public Library is among the exemplary
buildings that will be seen on a free
walking tour sponsored by ACI 124 during
the upcoming ACI convention in March.
Photo courtesy of ACI



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concrete DECOR

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Brandon Farmer is founder and creative director at Pixter, a small company specializing in video, design and brand development. His resourceful philosophy and cost-

effective approach has helped many decorative concrete companies and contractors strengthen their brand without breaking the bank. He can be reached at brandon@pixtermedia.com or (801) 810-7085. See Brandon's article on page 10.



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David Stephenson,

Polishing Management, a large national flooring installer. Throughout his career, David has owned contracting

companies that installed floors as well as manufacturing companies that made products that changed the industry. He can be reached at david@the-rpm-group.com. See his column, "The Polishing Consultant," on page 74.



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throughout North America. Reach him at questions@concretedecor.net. See Chris' column, "Concrete Questions," on page 70.

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This mixer is made for southpaws

Quikspray Inc. recently introduced its Left-Handed U-Blend Mixer to help increase productivity in the field. Users can now take advantage of two U-Blend mixers to use with their Carrousel Pump. One mixer can be in operation while the other mixer is being loaded, maintaining continuous operation.



Allowing for continuous operation, Quikspray's Carrousel Pump, U-Blend mixers and related spray and mixing equipment are capable of pumping epoxy grouts and heavily bodied materials, and being used to regrout mortar joints. They can also be used for spraying fireproofing, waterproofing, EIFS, artificial rock work, stucco and other commercial coatings.

The equipment is available in electric, pneumatic and hydraulic models.

www.quikspray.com

Backpack designed to be highly visible

Veto Pro Pac, a leader in professional grade tool bags, has partnered with 3M to incorporate its Scotch Guard protector water-repellant fabric to launch a high-visibility version of its popular product, the Tech Pac, called the Hi-Viz Tech Pac.

The Hi-Viz Tech Pac is designed to enable technicians to safely and comfortably transport a variety of tools when servicing equipment or in industrial buildings where walking long distances is required.

The new pack offers Veto Pro Pac's patented center panel, new metal locking zippers, and a heavy-duty stabilizing injection-molded waterproof base. It also has a list of new features not on the Tech Pac that include taller vertical pockets on the front panel, a redesigned stainless-steel tape clip holder, metal shoulder strap buckles and interlocking zippers.

With more than 50 pockets inside and out, the Hi-Viz Tech Pac has ample room for hand tools, meters, parts boxes, cordless drills and impact drivers, a tablet, and other bulkier items such as manifold gauges and hoses. The backpack tool bag features an innovative quick-release handle that gives easy access to the tool bay compartment.

It's structured around its patented center panel design, which offers dual bays with two tool storage platforms in each bay. The center panel design with the main tool and meter storage options on each side centers and stabilizes these two tool bags. Both bags, either when closed and ready for transportation or opened for quick and easy access, are designed not to tip over.

www.vetopropac.com

Precision lasers fit in a shirt pocket

Bosch recently introduced two digital lasers that are compact enough to easily fit in a shirt pocket. The Bosch Blaze One and Blaze Pro offer a precision laser measure with 165 feet range, accuracy up to $\pm 1/16$ inch and a backlit display.

The Blaze One includes default real-time measuring, adjusting as you move closer to or further from the target, just like a tape measure. The Auto Square function automatically calculates square footage for determining room sizes and material purchase estimates.

The Blaze Pro is a fully featured, simple-to-use tool that delivers real-time point-and-shoot measurement, plus area, volume, indirect measuring functions and a 10-measurement storage capability. The laser measure also includes addition/subtraction functionality.

Both lasers offer an easy-to-read display that illuminates numbers with distinct resolution, allowing work in low-light or no-light conditions. In addition, the measurement tools are built to withstand rainy or dusty job site conditions and come with an IP54 rating. The tools come with a handy wrist strap, target cards and a pouch.

www.boschtools.com

(0 (877) 267-2499

Cordless drill drivers deliver power

The Bosch DDH361 36V Brute Tough halfinch drill/driver and corresponding Bosch HDH361 Brute Tough half-inch hammer drill/driver deliver corded tool power and performance in a versatile cordless tool. The hammer drill

can handle tough materials that range from concrete to metal.

At only 4 pounds for DDH361 and 4.25 lbs. for HDH361, these tools are easy to carry and maneuver on the job. Each has two speed settings — one for high-power tasks and one for high-speed drilling.

Both tools feature a Kickback Control, an integrated acceleration sensor that limits tool rotation by detecting sudden movement and shutting down the motor. The feature mitigates injury risk in bind-up situations.

www.boschtools.com





Tie one on just about anywhere

Whether for the job, home or play, the newly launched One Tie promises to be the all-purpose cable tie for any activity. While traditional fasteners easily snap and succumb to weather and extreme temperatures, the One Tie was specifically created to be long lasting and chemical and UV resistant for years of use. The tie is meant to be used, abused and reused over and over in hot, cold, wet or dry conditions.

The tie. which is 100 percent made in the USA, comes in five sizes from 8

up to 32 inches and in seven colors. Among its many uses it can strap, secure, bundle or organize.

In 2017 it was the Open Call Winner for Investing in American Jobs at the Made in the USA Summit at Walmart

and in 2016 the tie — under the initial brand name of "Deratie" — won the American Manufacturing Awards' "Best New Product" at the National Hardware Show.

www.one-tie.com





Moisture Measurement in Concrete Slabs Webinar

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

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

Registration: This webinar is available by invitation only and online seating is limited. Please contact Wagner Meters today to reserve your seat for this groundbreaking presentation.

PRODUCT NEWS

Antiquing agent added to Bon line

BonWay, the decorative concrete division of Bon Tool Co., introduces BonTique Liquid Antiquing Agent, a concrete coloring product developed for existing textured concrete projects. The easy-to-use liquid has no VOCs and requires no cleanup.

The new product is available in six color concentrates and must be mixed with water at a ratio of 1 gallon of water to 6 ounces of material prior to use. It can be applied by pouring onto the surface or spraying on as a secondary color or as a highlight to stamped concrete.

For best results, the company recommends brooming it in and applying a film-forming sealer after application. A one-gallon bucket of material will cover between 2,000 and 3,000 square feet.

www.bontool.com

Coatings offer quick return to service

Coatings for Industry Inc. recently introduced two new UV-stable polyaspartic floor coatings, WearCoat 2020 and WearCoat 2035. Their innovative formula allows quick cure, but still leaves enough time to help preclude roller overlap marks.

Both new products have very low odor and contain no volatile organic compounds, making them safer for installers to use and comply with global environmental regulations.

WearCoat 2020 is a fast-curing mid-coat, making it ideal for projects where an immediate return to service is critical. It

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is typically ready for foot traffic in less than three hours.

The new topcoat, WearCoat 2035, offers a moderate cure speed to yield a smooth finish designed to help eliminate dry roller overlap marks.



The topcoat is available in clear for use over a pigmented or broadcast finish, or it can be pigmented before applying. It can usually accept foot traffic within six hours.

Together, this new polyaspartic system can typically be applied in one day, offering same-evening return to service. Once installed, the coatings also offer good resistance to abrasion and are color-fast with high resistance to UV exposure. They are available in standard colors, and can accept broadcast flake, sand or quartz.

👣 www.cficoatings.com

(215) 723-0919

Walk-behind saw designed for large areas

Inspired by how pros have modified saws for large commercial jobs, Skilsaw has taken the next step in scoring concrete with its 7-Inch Medusaw Walk Behind Worm Drive Saw for Concrete. This new saw is designed for scoring concrete in larger-area applications where productivity is important. It incorporates the same wet/dry dust management system and powerful worm drive motor as Medusaw, with the addition of an efficient walk-behind configuration.

The Medusaw walk behind is equipped with an adjustable arm that extends to the user's height and folds and locks into place for transporting and storing. A larger handle and two-finger trigger provide greater control when making long cuts such as control joints in a commercial build. An ambidextrous side-assist handle gives added

handle gives added support.

In addition to the walkbehind feature, the new

saw is equipped with an improved pointer for stronger support and a larger wheel for greater visibility. The three-point line of sight allows for accurate cuts, while a large foot and oversized wheels increase the saw's stability.

Similar to the original Medusaw, this walk-behind saw will help users meet OSHA silica exposure limits with integrated dust control in both wet and dry operation. It will be available beginning in January at World of Concrete.

💲 www.skilsaw.com



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To learn more, visit graco.com/cm20 or booth 040437 at World of Concrete.



Solid Branding:

Tips on Websites, Logos and Business Cards

by Brandon Farmer

DECORATIVE concrete requires an artisan's touch. You do beautiful work and the results speak for themselves. But like your work, your company image and brand identity should speak to that same level of quality. The modern consumer trusts brands that look professional and have a clean look. With a glance at your website it takes a mere 50 milliseconds for a visitor to form an opinion of your company.

Establishing a strong and appealing brand identity is as important as using enough powdered release — it leaves a solid first impression and brings more customers through the door. But what are the core elements any brand should have? And how do you go about developing them?

The digital world is becoming increasingly accessible, and new tools and resources make it easier than ever to develop a brand. Here are some core elements any brand should have, with practical approaches geared toward the decorative concrete industry:

Modern website

When was the last time you updated your website? If the answer falls before the day you bought your car then you may want to consider an update. Your website drives your business, so you

want it to be in good working order to do the job well. It's where many potential customers have their first conversation with your company, so make sure it's a good one.

STRAIGHTFORWARD, MODERN OR TIMELESS

For DIY types, Squarespace or Wix are great solutions, offering drag 'n' drop design functionality and rock-solid starting templates. If customization isn't your top priority and you have some time to put toward designing your own site, this may be just right for you.

If you're looking for a more custom website solution there are great things happening in the web design world for that as well. Web designers are no longer confronted with a white canvas to start from scratch. Standing on the shoulders of the giants before them, designers use templates and streamlined processes to create websites more efficiently and affordably. They can even deploy user-friendly interfaces for customers to manage their site on their own moving forward.

Pricing: DIY solutions like Squarespace or Wix are subscriptionbased, flat-rate. For custom websites, pricing could range between \$3,500

and \$8,000, depending on how many pages your site needs. Like your car, this investment matters as it will drive your business. Generally speaking, if you're paying more than \$10,000 for a 10-page custom website, you're paying too much.

A clean logo

Your logo is important. You don't want it to look dated or, even worse, pixelated. Does your logo communicate to some degree what you do, or what your company is about? Is it too literal, too busy or overcomplicated? Is it memorable? Some logos are abstract, and communicate a value important to the company, while others are literal and derive meaning from the product or service they provide.

Updating your logo may be something you're ready to consider. If you're willing to invest a small amount of money, a cost-effective solution can be found at 99designs.com. There, designers "audition" for your business by providing logo concepts they come up with. Simply provide a general description of what you're looking for and for a flat fee watch the logo concepts roll in. Choose a design you like and work with the designer from there to further hone the design.

If you prefer working directly with others, and many do, there are many freelance or boutique design companies ready to take great care of you. This is a more personable, trust-based option that often lends for more flexibility and clear communication during the creative process.



Helpful sources

Website Design:

Squarespace.com Wix.com

Online Printers:

VistaPrint.com Moo.com (business cards) QualityLogoProducts.com (promotional prints)

Print Assets and Templates:

GraphicRiver.net FreeDesignResources.net (free) Stock.Adobe.com/Templates

Vector Graphics/Icons:

Vecteezy.com (free) NounProject.com (free w/ artist credit) FlatIcon.com (free w/ artist credit)

Regardless of which route you take, make sure you have a version of your logo in vector format. Original image formats like .jpg or .png are defined by pixels, meaning the size of the image is locked or "cemented" in place.

Vector formats by contrast use math to define where the pixels belong, allowing the image to be infinitely scalable. This is helpful because you can use one file format for multiple applications, from a small business card to a large format advertisement on the side of a building.

Pricing: Logo design surprisingly can vary greatly. But typically, a custom logo design will cost between \$500 and \$750. This usually will include four to eight initial design options, with two to three revisions to nail down the final logo.

Memorable business cards

Some say business cards are oldfashioned, others say they're still very effective for business. Either way, one thing for sure is that they're here to stay. Business cards can be clever or straightforward, modern or timeless,

but whichever direction you take they should be unique. A clean business card provides a memorable and positive first interaction when meeting potential customers.

> Make sure you have a version of your logo in vector format.

Less is more. Highlight your logo, and embrace simplicity. Include your phone number(s), email and website. No need to include a map to your business, your fax number or an essay on your company values. Other elements worth considering are a business address or social media handle. But, again, less is more.

There are many great design templates available at graphicriver.net, providing a huge jump start to designing a professional card on your own. Most templates require professional

design software to edit such as Adobe Photoshop or Illustrator, but having this shortcut in your back pocket will make hiring a professional designer much more affordable. Just choose a template you like and find a designer willing to edit it for you. Or even better, find an employee who knows a thing or two about computers to figure it out, and boost their morale and feeling of value.

Pricing: \$50-\$300 plus printing cost. Great business card templates are generally less than \$10. Designer rates range between \$35/hour to \$85/hour, and should only take one to three hours to apply edits to a template you find, including revisions.

Brandon Farmer is founder and creative director at Pixter, a small company specializing in video, design and brand development. His resourceful philosophy and cost-effective approach has helped many decorative concrete companies and contractors strengthen their brand without breaking the bank. He can be reached at brandon@pixtermedia.com or (801) 810-7085.



You Can Help Build Concrete's 'Field of Dreams'

by Greg Iannone

YEARS ago, there was a Kevin Costner movie, "Field of Dreams," which has now become a classic. While this movie was full of overarching plots and subplots, the main takeaway was: "If you build it, they will come."

If the main character, Ray Kinsella, a novice Iowa farmer played by Kevin Costner, built a baseball diamond in the middle of his cornfield, people would come. They would come by the carload and willingly pay money for a chance to watch the legendary greats of an era gone by play America's favorite pastime — baseball.

Looking ahead in 2018, one of the main focuses of the decorative concrete industry should be: How can we build our industry so it will grow and be strong and sustainable, a decorative marketplace that everyone will want to be a part of? A marketplace where building owners and homeowners alike will come from far and wide in search of just the right contractor to construct their own "field of dreams," so to speak?

We all play a role in the success of the decorative concrete industry — architects, contractors, material manufacturers, suppliers and publications such as this one - and can help to shine a light to promote our industry. Each plays a very significant role in the process.

Competition is good

Healthy competition is good for our industry. Competition brings out the best in us. It's what forces us to "up our game" and produce our best work. More contractors doing quality work and more material manufacturers, not less, producing quality products keep the industry moving forward at a competitive rate. We have said for many years that work done well is free advertising. It's like having a billboard on the side of the road that points people to you.

Just as the poem suggests: A tree



Work done well is free advertising, while work done poorly is a black mark on the entire industry.

that's forced to fight for sunlight deep within the forest often becomes the strongest tree. Conversely, a tree growing alone in the middle of a field is often the weakest and can't weather the storms that come along. So it is within our industry.

Strong competition in all aspects of our marketplace will ultimately grow the decorative pie by expanding its reach and providing a stronger decorative industry, whereas a lack of strong competition and choices will ultimately lead to the industry's downfall during difficult times.

So, how do we expand the pie and provide healthy competition to move the industry forward? What are the roles of each of the players within our decorative marketplace?

Architects and manufacturers

Architects spend years in school, followed by years of supplemental training to become licensed in their profession. However, they spend very little time learning about products and product systems.

For architects to design and specify products and systems within the

decorative concrete industry, they must first have a working knowledge of them or, at the very least, trusted sources they can ask to help them keep abreast with changing trends and regulations.

Next up: manufacturers. I have long believed that manufacturers within our industry must be aware of all aspects of the decorative market. Manufacturers must work in both directions.

First, they must work with the architectural community to educate its members and make them aware of new products, systems, trends and regulations, and to help them become a resource to this community. Second, they must work with material suppliers and contractors. Not only to make them aware, but to train and educate them on how to use these products and systems and to make themselves available to troubleshoot projects that may require additional attention.

Suppliers, manufacturers and contractors

Material suppliers are crucial to the success of growing our industry. Just as material manufacturers must work in both directions, so it is with suppliers.

It's imperative they develop the proper relationships with manufacturers, keep workable/smart inventories and work "hand in glove" with manufacturers when training contractors on new products and systems.

Further, by working closely with manufacturers and contractors, it brings the three principal parties on a project together. Suppliers have worked hard to develop a close working relationship with their contractors. It can be a lot like bowling. The supplier sets up the pins (has the relationship with the contractor), and the manufacturer helps knock down the pins (works together with the supplier and contractor to ensure success on any given project).

By working together, the decorative industry wins.

Contractors helping contractors

Contractors are the lynch pin not only to a successful project but to the success of our industry. Contractors who have developed strong ties to both the material supplier and manufacturer are more prone to having successful and profitable projects than those who don't have that same access.

Further, contractors who are willing to aid fellow contractors by sharing ideas and experience to try to strengthen the industry will find greater success in the future on their own projects. As they reach out, the quality of the jobs in the marketplace will vastly improve, making it possible for the decorative industry to be both sustainable and highly profitable.

I know of a contractor in Idaho who, while driving to his own project, saw a homeowner struggling to apply an architectural sealer to his newly stamped driveway. He decided to pull over and offer his help. The homeowner explained that "his" contractor didn't offer sealing as part of his bid. The contractor came to the homeowner's aid for a couple of reasons. One, he knew that decorative concrete done well is free advertising. And two, decorative concrete done poorly is a black mark on the entire industry.

Publications such as this one are true advocates for the decorative industry. Concrete Decor can be a huge promoter, the megaphone of our industry. It can shine a spotlight on new trends, new challenges and showcase the amazing talents of the contractors that this industry has to offer.

If we realize we are all in this together, we can do great things. We all play a valuable role in building our own "Field of Dreams." If we build it, they will come.

Greg lannone is area sales manager for Solomon Colors/Brickform. He has worked in the concrete construction industry for more than 30 years and has provided training seminars throughout the U.S. and Puerto Rico. as well as Mexico and Japan. He can be reached at (801) 376-6750, (909) 434-3274 or giannone@solomoncolors.com.



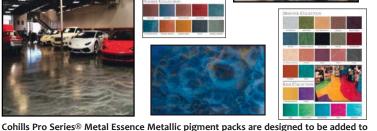




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WE SHIP NATIONWIDE

2017 Concrete Decor Show

From education to expo demos, presentations please the people

LTHOUGH the 2017 Concrete Decor A Show was smaller than it has been in years past, it still packed a punch. Held at the sprawling Innisbrook Resort and Golf Club just north of Tampa in Palm Harbor, Florida, it drew participants from around the world to partake in workshops held on the resort premises, a full roster of educational seminars and panels, and a two-day exposition that featured power trowel polishing and artisans demonstrating decorative vertical applications.

The educational sessions this vear covered seven different areas: coatings, countertops and cast concrete, hardscaping and vertical, overlays and toppings, polishing and grinding, staining and coloring, and stamping and texturing. Each area of emphasis included a panel discussion and a variety of technical sessions.

"I've been to three classes so far and my mind is blown," says first-time show attendee Julie Bancroft of Opus Stone Concrete in North Carolina's Outer Banks on the show's opening day.

To help promote networking and coating technologies education, Covestro was a primary sponsor of this year's event. The company marked its backing with an exclusive kick-off party the evening before the exposition opened to the public.

Akeem Lennard of Greencrete BVI in the Virgin Islands attended the party with the specific goal of checking out insulating concrete forms for projects he would soon begin. During one of last



Akeem Lennard of Greencrete BVI



EZChem drew visitors to its booth by offering them a chance to create their own metallic pigment-covered keepsake.

summer's hurricanes, "I lost my home and my business but I will rebuild," he says with confidence.

The eighth show orchestrated by Concrete Decor also included a golf tournament on the recently renovated Island Course, the ever-popular women in decorative concrete reception, and the Decorative Concrete Hall of Fame induction and dinner. The next show, which will become a biennial event, is slated to be held in Texas in 2019.



A great time was had by all who attended the Hall of Fame dinner.



Power trowel polishing demo

Easily the highlight of the 2017 expo, the power trowel polishing demonstration that showcased Lavina attachments and a dual-fuel riding power trowel was a definite crowd pleaser.

Power trowel polishing appeals mostly to contractors who have 30,000 to 40,000 square feet or more to polish and a tight time table to do it in, says Scott Thompson of Orlandobased Thomas Concrete Machinery, a Multiquip distributor that supplied the HHXDF5 used in the demo.

"It's one of the more popular machines we sell because with its propane or gas option it can be used indoors or in semienclosed areas," Thompson says. It's also equipped with hydrostatic steering so an operator has better control.

The driver of the machine, Matt Smith, a concrete products specialist for Multiquip, notes that the HHXDF5 has two perfectly timed rotors that "maintain the same constant rpm on either side," which makes it ideal for polishing.

The twin non-overlapping rotors also provide 8 feet of coverage, he adds, which enable it to cover more ground than conventional surface grinding equipment. Helical gearboxes are standard on this model and work at 98 percent efficiency, eliminating problems caused by overheating.

The HHDX5 was coupled with Superabrasive's Trowel Shine, a power



At left, Will Martin, sales manager for Superabrasive Inc., displays some of the Trowel Shine system's components. Above, Matt Smith of Multiquip demonstrates the abilities of the HHXDF5.

trowel concrete polishing system that gets the job done in five steps. The process began wet with a 100-grit diamond and proceeded all the way up to an optional 1,800-grit polishing step. The time and effort it takes to change pads with this system are fast and easy, Smith notes, and the results are hard to beat.

Maybe that's why even though they've been selling these trowels for years, "All of a sudden polishers' interest in them has skyrocketed," Smith says.

"Contractors can adopt this polishing system without undertaking costly or intricate conversions to their equipment fleet," he continues. "Jobs they previously took a pass on, or instead subcontracted, they can now choose to pursue without additional capital investment in equipment."

Products used for this demo included Ameripolish dyes, Lythic Densifier and equipment from Mud Hen for slurry management.



INDUSTRY NEWS

ICFs save on labor and time

At the expo, ICFs were also prominently displayed by Fox Blocks, an Omaha, Nebraska, company with 22 manufacturing plants nationwide. Fox Blocks is also one of the sponsors for the Decorative Concrete LIVE! exhibit at the 2018 World of Concrete that will focus on retail spaces.

ICFs, often hailed as "big boy Legos," are double-insulated reinforced concrete blocks that can be used below grade as



ICFs will also be on display at Decorative Concrete LIVE!

well as above grade for everything from homes to commercial buildings. And just like Legos, they come in an assortment of shapes including straight, curved and corners to accommodate architectural design features.

"Our ICFs are a five-in-one system: concrete form, plastic rebar holders, insulation for wall, furring strip for attaching drywall, and an air and vapor barrier," says Mike Kennaw, vice president of marketing and sales for Fox Blocks. Instead of having five trades coming in to do work, you've accomplished all those steps in one fell swoop. "The labor savings are significant."

John Riddle, vice president of business development for Turning Leaf Construction in Sanford, Florida, says his company is a Fox Blocks distributor as well as a custom home builder that has been using ICFs for nearly 10 years.

"In Florida, you need something that will stand up to large wind volumes. But even more importantly in this market you need to have properly insulated walls because of our constant warm, moist environment," he says. ICFs fill that bill with insulation on the interior and exterior walls and concrete in between.

Compared to concrete masonry units (CMUs), ICFs assemble quicker and are so much easier to handle. "One Fox Blocks (unit) forms nearly 5½ square feet of wall area and weighs 3 pounds," Riddle says, compared to a CMU that forms less than 1 square foot of wall area and weighs 35 pounds.

Experienced concrete contractors and framers, Kennaw says,



During the show, Troy Lemon demonstrates how to apply a coating onto an ICF wall.

typically find the building process very user friendly.

"It saddens me that people keep rebuilding the same way repeatedly although the technology is out there to build structures that will withstand these high-wind and heavy rain events," says Riddle, who attended the expo to discover other ways concrete products can benefit his company. "It may cost a little bit more to build with ICFs but what is the value of your life?"

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Workshops Total Eight:

2017 Concrete Decor Show Leaves Lasting Marks on Florida Resort

URING the 2017 Concrete Decor Show, the resort was buzzing with people talking about the improvements that were transforming the grounds and some of the facilities on the resort. From pools and walkways to countertops and floors, projects were conducted by seasoned professionals and completed by novices and decorative concrete veterans alike. The results of the workshops, eight in all, were valued at roughly \$104,000 in improvements.

Kevin Gioe, a general contractor by trade and now a building manager for the Hancock County Public Library in Greenfield, Indiana, was one of the attendees that sampled mostly all the workshops to help him come up with ideas of things like coffee areas and playscapes he could fabricate for his library system.

At the show in Indianapolis, he says, he went home with a Butterfield mold so he could make tables that look like big stumps. This year, he was interested in learning about color and stain and how to apply them effectively. Hands down, he says, the statue workshop was his favorite.

Adorned by Amethysts: Faux Bois Concrete Sculpture Trainer: Cindee Lundin, The Studio by Cindee Lundin

ND he wasn't the only one who was mesmerized by the And he wash time only one with the limit of the Lundin, who talents and vision of public works artist Cindee Lundin, who led the workshop outside the Innisbrook Resort's Salamander Spa. Freely admitting she sets her sights on shaping visually pleasing works of art often shrouded in fantasy, Lundin doesn't try to recreate nature. Her aim is to perfect it.

Assisted by a devout group of men and women, as well as her daughter/assistant, Lundin once again drew them in with her alluring charm, this time exploring faux bois, an artistic technique used to imitate wood and wood grains.

For the project EZChem supplied the faux bois mix, the Enviro Concrete Stains and Water-Based Sealer, and Metallic Pearls pigment in a variety of colors.

Budding and veteran artists helped Lundin create a concrete sculpture that started with an armature made from rebar, mesh,



foam and recycled materials. They then carved and colored it to resemble a wooden feminine figure they lovingly called Genevieve.



amethysts and flowers, some gilded with gold. She's depicted kneeling on a concrete rug for the enjoyment of passers-by and spa visitors alike for many years to come.

Design Versatility and Functionality of Microtoppings

Trainers: Brian Farnsworth, Cement Colors, and Troy Lemon, Cornerstone Decorative Concrete



OWN the road, past the Wildlife Preserve, Brian Farnsworth and Troy Lemon led a workshop that involved rejuvenating the tennis center floor. The job's particulars were decided weeks before.

"I'm a firm believer in producing samples beforehand," Farnsworth says. "It makes the process easier once work begins and the end-user gets a finished product that looks like the sample

approved." The color, he added, was their choice.

After ripping out the carpet, participants used a ChemSystems stripper to remove the adhesive left behind before grinding with a Diamatic 555 and 18-grit metalbond diamonds. After the floor was fully prepped, the crew installed ChemSystems Microtopping Interior in a customcolor dubbed Innisbrook Buff.

As part of that project, Farnsworth and his helpers applied a salamander stencil from Floormaps Inc. at the entrance and colored it with a mix of Smith Paint's metallic pigments and polyaspartic. After hard troweling two different layers, the design was finished with a clear topcoat of Smith's polyaspartic.

In an office further inside the center, EZChem metallic pigments were mixed with Spartacote polyaspartic from Laticrete and hard troweled over the microtopping. Tape was

applied prior to the mix so when it was pulled up, the floor pattern resembled large tiles.

The entire project was then finished with a coat of water-based urethane from Arizona Polymer Flooring.

During the workshop and afterwards at the expo, Lemon demonstrated how microtoppings could be manipulated to form a variety of finishes on both walls and floors. "It was fun to have more of an emphasis on microtopping and show



people ways they could use the stuff they hadn't thought of," Lemon says. "People came back day after day and sometimes we had 30 people (at the workshop)."

Dan Bobilya, of Quality Coatings in Montpelier, Ohio, was among the faithful who kept returning. This is the fourth Concrete Decor Show he's attended and he says it won't be his last. Unlike manufacturers' training classes that are held in controlled environments where



everything goes according to plan, these workshops are more like real life. "At times things get very chaotic but the trainers and others know how to handle the situations. People step up, get the job done and it turns out great."

The panels and the classroom presentations complement the workshops and complete the learning environment, he says. The organizers, teachers and trainers — some of the most reputable in the industry — are helpful and very approachable.

"At World of Concrete, I find it overwhelming because there are so many people," Bobilya says. "This show is truly a family environment."



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Metallic Manipulations on Concrete

Trainers: Daryll and Cody Bates, Excalibur Surfaces

EXCALIBUR partners and kin Daryll and Cody Bates worked their magic at the Lochness Pool by recoating several existing countertops with their company's epoxy, urethane, polyaspartic and metallic pigments. Participants were very hands-on during this workshop as they swirled in the colors with a variety of tools and watched the trainers torch the coating for special effects.

During the workshop, the Bates unveiled their newest product, a urethane with a matte finish. "It's more durable and scratch resistant than any finish we use," Cody says.

Hailing from Lagos Island, Nigeria, Modupe Oloye of

Interwork Co. can't wait to take her newfound metallic knowledge back with her to West Africa. "It really brings out my artistic side," she says.

In business for four years with five employees, she has



mainly been involved with exterior concrete stamping jobs but would like to also offer interior services. In West Africa, getting materials is a major hurdle. "The colors are terrible," she says. "They mess up my finishing."

Exhibitor Henry Ashworth, owner of RedArt Technologies headquartered in West Bountiful, Utah, managed to squeeze in some face time at Excalibur's workshop. Late one evening, he engraved the Loch Ness logo on one of the metallic countertops with his CNC Pro machine.



Polished Overlay to the Rescue

Trainers: Adrian Henry of Nex Systems and Mark Haen of Arizona Polymer Flooring

Athis project, it turned out the overlay project needed some rescuing itself. The workshop was just like in real life when things don't always go according to plan.

After the floor had been ground and prepped for the overlay, a few missteps happened that resulted in too many different height variances on the floor that couldn't be ground out.

Workshop leader Adrian Henry had to leave due to prior commitments. Luckily, Mark Haen, an APF sales representative who had helped extensively with the prep work, stepped in and took over after extending his stay so he could get the job done.

Supported by his best bud Dana Boyer of Concretizen, decorative concrete guru Bob Harris of Structural Services Inc., show organizers Bent and Sheri Mikkelsen and other dedicated industry members who kicked into high gear and worked night and day, the problem areas were ironed out by lightly grinding the floor with a Diamatic grinder until all was smooth.

Plan B involved applying APF Epoxy 100 Primer, followed the next day with APF Epoxy 400 with Color Chrome metallic pigment in Pearl and Copper. Team members then dispersed denatured alcohol to move the metallics to get a mottling effect. The crowning touch was applying a finish coat of APF Poly 501, water-based satin urethane.

"All the products were low odor so the pool house could still run business while we were doing the floor," Haen says. "I really enjoyed the challenge and being able to help. And meeting all the great people. That was the fun part."

One of those great people was Kimberly Robles, a territory manager with All Star Rents in Vallejo, California. She attended the show mainly because she wanted to learn about overlays. Although she was only at the show for two days, she was glad she had the chance to come and help prep the floors in the Island Pool building.

She spent most of her time on the Island Pool house project but she was very impressed with all the trainers and networking opportunities.

"Everyone was willing to share information and tips on how to do the job better, even if you didn't stay the whole time at their workshop," she says. "This show is a more casual way to meet people, not like the World of Concrete. It's so big and busy. Here, it's up close and personal. I'd come again."

Stamping and Scoring a Serving Area Patio

Trainers: Marshall Hoskins and Keith Boudart, Butterfield Colors

THIS workshop began with participants helping to place a slab before coloring and stamping it. To demonstrate different techniques, Butterfield's Marshall Hoskins, Keith Boudart and their helpers colored the two end sections with Butterfield's powdered color hardener in Arena Buff. They integrally colored the middle section with Gull Gray and used a clear liquid release.



Tory Lawson of Tru Wash Detail and Lawn Care, who described the show as the "Super Bowl of the Concrete World," attended this year's event to learn more about the concrete business so he could expand his landscaping services in Houma, Louisiana, and work year-round. He made the rounds, sampling mostly all the workshops and pitching in to help wherever he could.

Lawson says he learned the most from Hoskins' workshop, since he was especially interested in learning how to create the wood plank look. "I mean, it was like 'whoa' when we finished," Lawson says. And even though the wood look is what he wants to specialize in when he officially starts his new company, "Mr. Marshall told me not to include wood plank in the name," he says, as that would unnecessarily limit the scope of his business.



Building a Floating Bathroom Vanity

Trainer: Josh Thiel, Thiel Studio Designs

D AVID and Julie Bancroft of Opus Stone partook in the floating vanity with integral sink workshop taught by Josh Thiel. In it, they made two GFRC sinks, one with a Buddy Rhodes mix and the other with a mix from SureCrete.

"Two days just scratched the surface," David says, but they learned a new technique from Thiel on how to incorporate a slot drain that was a "plumber's dream."

"Some people try to keep some information close to the vest but he was the complete opposite," Bancroft says. "He shared as much as he could to bring the industry together as a whole in an effort to help keep it healthy and viable."



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Add Flagstone Finesse to Pool Deck

Trainer: Gregg Hensley, Stone Edge Surfaces

NE of the raised decks at the Cypress Pool was the setting of the flagstone project that involved a scratch coat of Stone Edge Pro Bond top-coated with Stone Edge Pro Stamp Mix, an overlay which was stamped, carved and colored.

"The workshop went extremely well," says trainer Gregg Hensley. "I was incredibly pleased with the turnout, outcome and participation of everyone involved.

Steve Scipelt of Amended Surfaces in Cincinnati, Ohio, spent most of his time going back and forth between the flagstone overlay and microtoppings workshops. He says he's new to concrete, still getting his company name and logo pinned down, and plans to launch next year. In the meantime, he wants to learn all he can.



A Cincinnati firefighter for the past 36 years, "I'm learning so much from the best of the best here," he says. "You just can't get this from anywhere else."

His biggest take away from the show was the realization that there were so many things that could be done with concrete. "The opportunities are endless," he says.

Jamie Castro with Epoxy Artisan in Bradenton, Florida, was at the workshop with his boss, Elton John Strawderman. This was Castro's first time texturing concrete to look like stone as he normally installs garage floors or works with projects involving Butterfield's Gilpin Falls plank stamps. "This was new for me but I thought it was pretty simple," he says. "I'll do it again."





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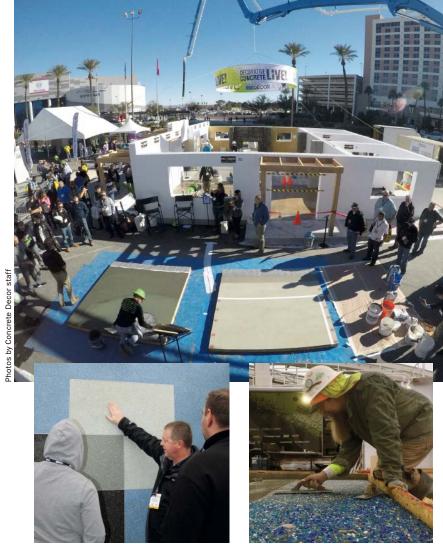
The Mall of Concrete is Open for Business!

F you were impressed with last year's Decorative Concrete LIVE! debut, have we got more in store for you! World of Concrete attendees will look at vertical applications of decorative concrete in a whole new way after this year's take on retail spaces inside and out.

From Jan. 23-26, artisans and concrete installers will demonstrate how to replicate brick and mortar assemblies, fabricate realistic stone-looking fireplaces, and pump material and finish faster and more precisely than you've ever seen before. In addition to applying vertical finishes that overflow with finesse, our contractors and company reps will fabricate countertops, fashion window sills, make concrete sparkle and create a memorial ... and lots, lots more.

> On the next page is a list of scheduled demonstrations and the 2018 sponsors who have helped make this year's Decorative

Concrete LIVE! an extravaganza that will keep people talking about it long after closing time!



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Demonstrations at the Mall of Concrete

DEMONSTRATION SCHEDULE

TUESDAY, JANUARY 23

12:45 PM: Speedy Mason: Using **Brick and Mortar Veneers**

1 PM: Redi-Mix Colors: Coloring Solutions for Roadways

1:30 PM: Fox Blocks: Building with ICFs

2 PM: Graco: Improving Production with Highperformance Equipment

2:30 PM: NewLook International: Coloring Sidewalks

3:30 PM: Nox-Crete: Colors and **Textures for Concrete**

WEDNESDAY, JANUARY 24

11:15 AM: Butterfield Color: Stenciling Vertical Surfaces

12:45 PM: Speedy Mason: Using Brick and Mortar Veneers

1 PM: NewLook International: Coloring Vertical Surfaces

1:30 PM: Fox Blocks: Building with ICFs

2:15 PM: Nox-Crete: Colors and **Textures for Concrete**

2:45 PM: Graco: Improving Production with High-performance Equipment

3 PM: Redi-Mix Colors: Coloring Solutions for Roadways

THURSDAY, JANUARY 25

11:30 AM: NewLook International: Coloring Sidewalks and Vertical Surfaces

12:45 PM: Speedy Mason: Using Brick and Mortar Veneers

1 PM: Graco: Improving Production with High-performance Equipment

1:30 PM: Fox Blocks: Building with ICFs

2:15 PM: Nox-Crete: Colors and Textures for Concrete 3 PM: Redi-Mix Colors: Coloring Solutions for Roadways



Other artisans will be at work throughout the show. Stop by and follow their progress.



ACI's Spring 2018 Convention Slated for March 25-29 in Salt Lake City

REGISTRATION is open for the American Concrete Institute's Spring 2018 Convention and Exposition March 25-29 at the Grand America and Little America hotels in downtown Salt Lake City, Utah. This year's theme is Concrete Elevated.

The ACI Convention is dedicated to bringing together leaders in the concrete industry to improve the design, construction, maintenance and repair of concrete projects. High on its agenda are educational opportunities that provide input on the concrete industry's codes, specifications and guides.

Committees meet to develop the standards, reports and other documents necessary to keep up with the ever-changing world of concrete technology. These meetings are open to all registered convention attendees.

Technical and educational sessions provide attendees with the latest research, case studies, best practices, and the opportunity to earn Professional Development Hours (PDHs).

Additionally, the ACI convention offers numerous networking events, where you can expect to meet with many of the industry's top engineers, architects, contractors, educators, manufacturers and material representatives from around the world.

Highlights of this year's convention include:

- Three-day exposition featuring organizations, manufacturers and suppliers.
- Fiber-reinforced concrete bowling ball competition for students.

- International lunch with speaker Professor Koichi Maekawa who will give an overview of the Maglev super-express train and ocean-extended Tokyo International Airport.
- Conference Center and Tabernacle Technical Tour.
- Architectural Walking Tour in Salt Lake City.
- Student lunch with speaker Nikki Stone, Olympic gold medalist.
- Utah State Capitol Base Isolator Tour.
- Contractors' Day lunch with speaker Dr. Matt Townsend who will address "Feeding the Seven Basic Needs of Healthy and Productive Relationships: The Art of Doing More with Less."
- Bishops' Storehouse Tour.
- Reception Honoring Michael P. Collins, a structural engineer whose research concerns the basic shear-transfer mechanisms in reinforced concrete structures that have improved the safety of buildings, bridges, nuclear containment structures and offshore oil platforms.

For more information on the conference, visit

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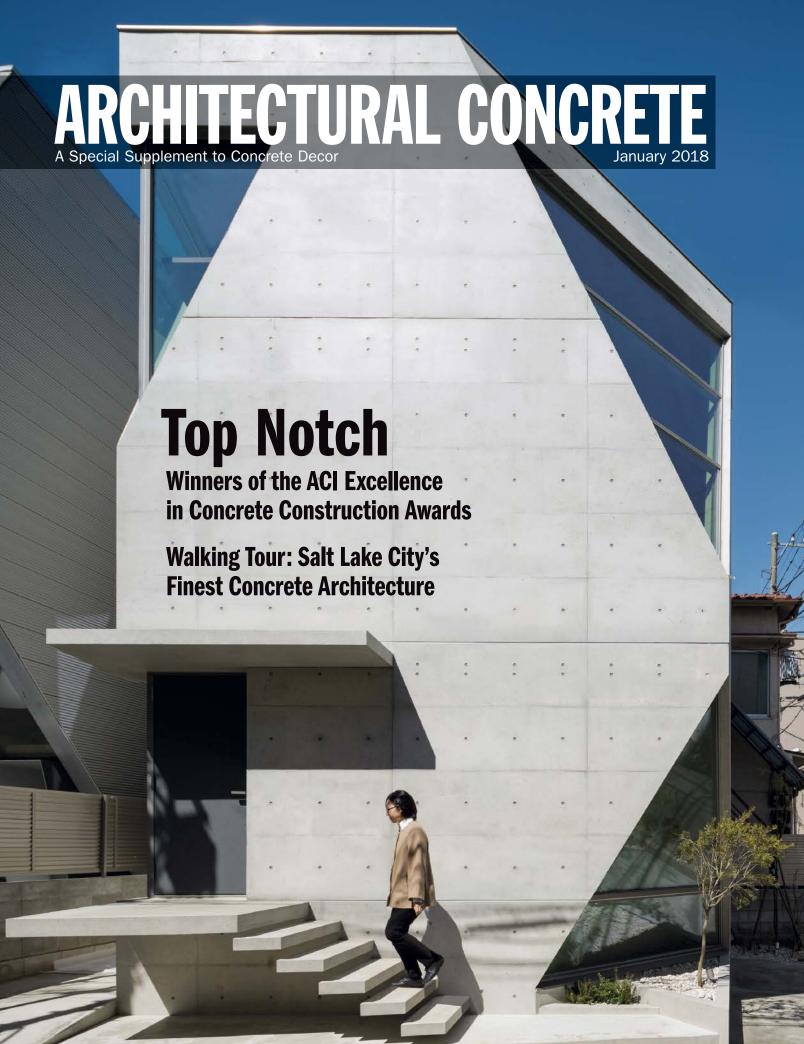




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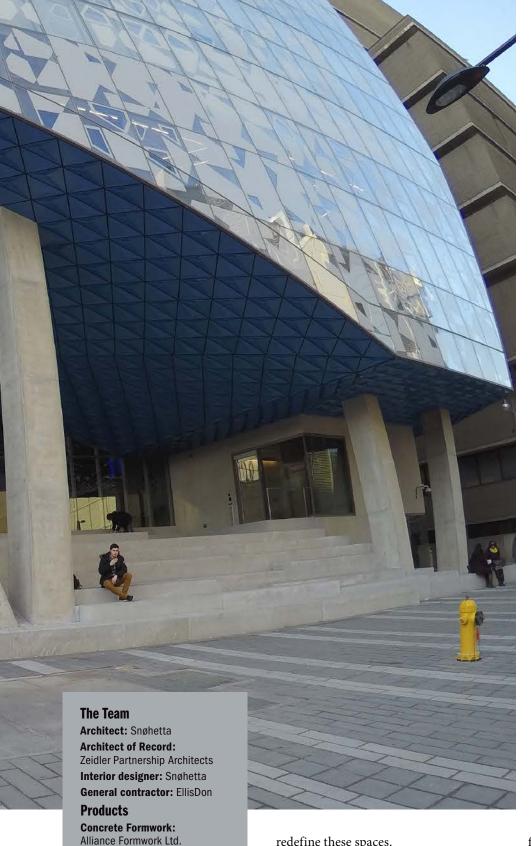
Editor's note: Architects and designers are recognizing that decorative concrete is much more than just a texture, coating or application. In this article, we explore how the design community is incorporating concrete in the designs of iconic structures worldwide.

by Rick Yelton

THE international architectural and design community recognizes the Ryerson Student Learning Centre as one of the leading educational structures constructed in the last five years. Located at the busy northeast corner of Yonge and Gould streets in a trendy part of downtown Toronto, this innovative structure provides the university

community a world-class environment in which to study, collaborate and discover.

The student center was conceived to be a library without books. The design team created seating zones to encourage group activities and shared learning, as well as quiet niches for individual contemplative study. The interior's openness was crafted to allow students to spontaneously









redefine these spaces.

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fabricated by Castle Precast Ltd.

Precast Concrete Stairs:

Hy-Grade Precast Concrete

Planks, steps and benches

Concrete Supply:

While the center was designed to incorporate the educational digital age into current learning experiences, students may not recognize that they are in one of the concrete industry's leading examples of decorative concrete construction.

In October, the Ryerson University Student Learning Centre received the

first-place award in the Decorative Concrete category of the ACI Excellence in Concrete Construction Awards. The American Concrete Institute established this award program in 2014 to recognize the concrete projects that represent the forefront of innovation and technology.

Over the past three years, ACI judges have made a bold statement on their view of the decorative nature of concrete. The

ARCHITECTURAL CONCRETE

winning projects in the Decorative Concrete category include features beyond treated and textured concrete surfaces. All three have featured innovative formed shapes cast with special concrete mixes.

Past winners

In 2015, ACI judges selected the Stade Jean Bouin in Paris, France. The original stadium structure was structurally and architecturally retrofitted in 2012 to increase seating



The Stade Jean Bouin in Paris, France Photos courtesy of American Concrete Institute

capacity and event services on its existing footprint.

By using 3,600 triangles cast with ultra high-performance fiber concrete, designers reduced the need for large structural elements in the stadium's expansion. Workers placed the panels on the multipurpose stadium's exterior in a decorative array that wrapped the stadium.

The project demonstrated the combination of concrete's strength with artist quality.

In 2016, ACI judges not only awarded the Palazzo Italia first place in the Decorative Concrete category, but they also selected the structure as the competition's overall winner. The Palazzo Italia was a demonstration building built as part of

HoverTrowel Training Classes for Contractors & Facility Maintenance Crews **Group Seminars & Private Crew Trainings** Powertrowel, Broadcast, Coatings & Much More **Color Quartz** Marble/Granite **Natural River Stone** Industrial Epoxy Mortars Hi Tech OneStep **StoneCarpet** Deco-Pour **EcoPoxy** & more 610-856-1961 HoverTroweL www.hovertrowel.com Morgantown, Pennsylvania a technology exposition in Milan, Italy. Designers used a new type of concrete construction approach to create a structure whose exterior and some interior spaces recall the shapes of branches in a thick forest. To create the desired



effect, workers placed individually cast precast panels on the entire outdoor surface and part of the interior surfaces. The panels were cast with i.active Biodynamic, a special cement that purifies the atmosphere from smog.

The cement contains a proprietary chemical ingredient that first "captures" certain pollutants in the air. Following its capture, the pollutants are converted into inert salts by sunlight. Eventually, they are washed away from the concrete surfaces during rainfalls causing no harm to the environment.

The selection of the Ryerson Student Centre in 2017 as the Decorative Concrete winner continued the ACI judges'

preference for structures that use concrete to shape their environment. Ryerson University officials had three goals for what has become their iconic expansion. The new structure had to fully use its small urban footprint, be architecturally interesting



Ryerson University Student Learning Centre in Toronto, Ontario

both on its interior and exterior, and be an example of the university's commitment to sustainability. Concrete played an important part in the project's quest to meet all three goals.

Small footprint, great impact

Ryerson's eight-story center is located on a small footprint on the edge of the university's campus. To fully utilize the property, designers employed structural concrete as the core to support a steel mechanical penthouse, and a bridge connecting the new building to the existing library on the second and third floors. The structural design also enabled architects to retain the neighborhood's commercial nature by including retail space at street level and below grade.

Concrete also played a part in the overall look of the building. By using special formwork, engineers added features that provided visual interest without impacting the overall budget. For example, by sloping some exterior columns, the building's south face was tilted 5 degrees from the vertical.

Concrete also was used to enhance the exterior public area. The landscaping included concrete pavers for the Yonge Street sidewalk. The Gould Street sidewalk has precast concrete pavers and the entrance at Gould Street received precast steps.

Concrete and glass contrasts

The structural concrete provides more than structural integrity. Designers didn't cover the columns and beams. The exposed concrete provided a background for additional decorative features.





Designers wanted the concrete structure to appear visibly rugged and heavy to contrast the building's distinctive glass skin. The special glass uses a frit pattern that emphasizes the skin's delicate nature while also creating varying lighting qualities within the interior. The fritted coating also acts to improve the shading coefficient and to increase thermal comfort and provide glare control.

The exposed concrete surfaces also aided in the center's interior design. Each of its levels has a distinctive character. Some are open and interpretive with flexible furniture, while others are enclosed study rooms dividing the floors into various configurations. To help students distinguish each setting, each floor has its own color scheme. The concrete's exposed surface allowed these color schemes to stand out.

Sustainable features

Ryerson University has held a long-time leadership position promoting sustainability. The student center incorporated many design features that demonstrated this goal. The building is rated to be LEED Silver compliant.

The concrete played an important part in this effort. For starters, the mix design contained fly ash, earning the project points by using a recycled material.

The fly ash provided another sustainable benefit. During the mock-up of the concrete placement, designers discovered that the final concrete surface yielded a lighter surface color. The lighter color added in reducing lighting requirements.



ACI Names Winners of Annual Concrete Construction Awards

THE winners of the American Concrete Institute's 2017 Excellence in Concrete Construction Awards were lauded during ACI's convention in October in Anaheim, California.

The highest honor — the Overall Excellence Award — was presented to R-torso-C of Tokyo, Japan. This award is given to a project that demonstrates excellence in concrete innovation and technology.

This house is in central Tokyo on a 710-square-foot lot and belongs to a married couple who share a passion for architecture and art. When they found a rare corner lot, they wanted to build a unique home "towards the sky" to capture a feeling of vastness on a small site with large openings facing upward.

Chamfered corners provide a view to the sky from the interior and also for the people outside. There is an audiovisual room in the basement, and a gallery and a Japanese room on the first floor. Functionality was prioritized on the second floor with a very small living room, dining room, kitchen and bathroom.

"Concrete has been and still is the main material used for the structure of contemporary architecture worldwide, a trend I believe will continue for a while," noted Yasuhiro Yamashita of Atelier Tekuto Co.

The ACI Excellence in Concrete Construction Awards were created to honor the visions of the most creative projects in the concrete industry, while providing a platform to recognize concrete innovation, technology and excellence across the globe. To participate in the Excellence Awards, projects had to have won at a local ACI Chapter level and submitted by that chapter or chosen by one of ACI's international partners.

An independent panel of industry professionals judged projects and selected winners. The winning projects this year were:



REPAIR & RESTORATION

First Place: Market Street parking garage restoration in Wichita, Kansas The Market Street Parking Garage in downtown Wichita was so deteriorated that the city had barricaded the entrances and condemned the structure for three years. Rather than tearing it down, city officials determined a rehabilitation was feasible and it would save the city millions of dollars. As the work progressed, repairs went far beyond the superficial. Ultimately the job involved replacing

It took 12 months and more than 1,750 cubic yards of concrete to bring the garage back to life and reclaim 550 parking spots. Through this project, the city of Wichita demonstrated its commitment to sustainable construction practices by reusing existing resources and being good stewards of community funds.

whole structural components, including concrete columns, beams and floor slabs.

Project Team Members: Owner: City of Wichita, Kansas; Architect: Law Kingdon Architecture; Engineering Firm: Krudwig Structural Engineers; General and Concrete Contractor: Martin K. Eby Construction Co.; Concrete Supplier: Concrete Materials Co.



Second Place: Chillon Viaducts in Veytaux, Switzerland

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ARCHITECTURAL CONCRETE





HIGH-RISE BUILDINGS

First Place: Embassy Lake Terraces in Karnataka, India

Embassy Lake Terraces is spread across 14.5 acres with nine "twisted" towers that orient the condominiums to offer spectacular views to the nearby Hebbal and Nagavara lakes. Five of the towers have two basements, a ground level, and 22 upper levels twisted at the 13th level, which also serves as the sky deck level. This level has been designed





as an active zone with a jogging track, yoga center, water bodies, landscapes and a gym. The other four towers have two basements, a ground level, and 11 upper levels.

The slab system for the apartment floors is a wall and slab system. At the 13th level where buildings twist by 30 degrees, slabs are post-tensioned voided transfer slabs. This unique solution of voided slabs with post-tensioning has added a clean soffit at the sky deck levels, which are landscaped for occupants to enjoy the best view of the lakes.

Project Team Members: Owner: Embassy Group; Architect: Andy Fisher Workshop; Engineer: Innotech Engineering Consult Private Ltd.



Second Place: Premiere on Pine in Seattle

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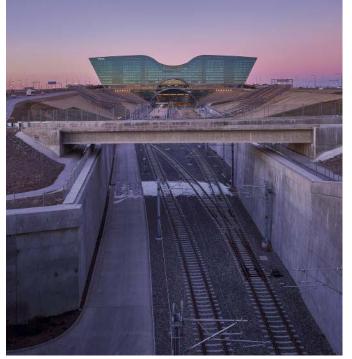




ARCHITECTURAL CONCRETE







MID-RISE BUILDINGS

First Place: Denver International Airport - Hotel Transit Center in Denver, Colorado

Years of planning, designing and construction went into the new Denver International Airport hotel and transit center. The project includes a new train station servicing the commuter rail connection to and from downtown, a 519room Westin Hotel and conference center, and an outdoor open-air plaza linking the hotel, conference center and train station to the Jeppesen Terminal.

The new 15-story building is predominantly made of cast-in-place concrete elements. Its upper 10 floors cantilever out 55 feet on each side of the building supported by leaning concrete columns. Much of the building's façade is clad in a running-bond precast concrete architectural system made with a complex custom form liner. Several concrete areas are exposed for view, including shear walls, columns, beams and abutments with architectural finishes.

Project Team Members: Owner: Denver International Airport; Architect: Gensler; Engineering Firm: S.A. Miro; General Contractor and Concrete Contractor: Mortenson/ Hunt/Saunders (tri-venture); Concrete Supplier: Martin Marietta.



Second Place: Columbia University Medical and **Graduate Education Building** in New York City



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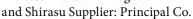




For architecture on a small site, sectional and volumetric design is very important. Cutting away the internal volume paradoxically creates a sense of spaciousness in the continuous four-story space inside. Large openings facing the sky effectively incorporate the feeling of vastness in the home's interior.

Project Team Members:

Owner: Private: Architect: Atelier Tekuto Co.; Engineering Firm: Jun Sato Structural Engineers Co.; General Contractor: Home Builder Co.; Concrete Supplier: Toyko SOC Co.; Additional Participants: Professor Takafumi Noguchi







Second Place: Frick Environmental Center in Pittsburgh, Pennsylvania



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ARCHITECTURAL CONCRETE







DECORATIVE CONCRETE

First Place: Ryerson University Student Learning Centre in Toronto, Ontario

The eight-story Ryerson Student Learning Centre marks the university's new face in downtown Toronto and provides a gateway to its ever-expanding community. Featuring an elevated plaza and glass façade with bridges to the existing library, the learning center is home to a range of academic and collaborative spaces for Ryerson's students, faculty and staff. Part of its frontage houses retail at and below grade.

While the concrete structure is visibly rugged and heavy, the building's glass skin is lightweight and transparent. A frit pattern emphasizes this delicate nature while also creating varying lighting qualities inside. To demonstrate Ryerson's long-time leadership in sustainability, the building is LEED Silver compliant and is topped with a green roof that encompasses at least half the rooftop. Overall, the project team had to overcome some unique architectural and structural challenges to design and form the concrete.

Project Team Members: Owner: Ryerson University.



INFRASTRUCTURE

First Place: Johnson County Gateway in Overland Park, Kansas

The first design-build project awarded by the Kansas Department of Transportation, the \$288 million Johnson County Gateway project was built in one of the most congested stretches of interstate in Kansas. Currently more than 230,000 vehicles travel the area daily with that number estimated to jump to 320,000 by 2040.

This project added much-needed lanes and reconfigured existing interchanges throughout the I-435/I-35/K-10 corridor, as well as added 22 bridges and two diverging diamond interchanges. To alleviate exiting traffic weaving onto city streets, two collector distributor roads were built on either side of I-435.

Normally a project of this scope that involved placing more than 600,000 cubic yards of concrete would take at least six years to complete. However, the design-build process allowed design and construction to be completed simultaneously. The project began in spring 2014 and was completed before its Dec. 31, 2016, deadline.

Project Team Members: Owner: Kansas Department of Transportation; Architect: HDR; Engineering Firm: GBA; General Contractor: Gateway Interchange Constructors; Concrete Contractor: Clarkson Construction; Concrete Supplier: Fordyce Concrete Co.





Second Place: Winona Bridge in Winona, Minnesota

More details on the winning projects can be found at www.concrete.org. Entries for the 2018 Excellence in Concrete Construction Awards are being accepted now through April 2, 2018.

www.ACIExcellence.org



See Why Salt Lake is a Great City for Concrete on ACI 124's Walking Tour

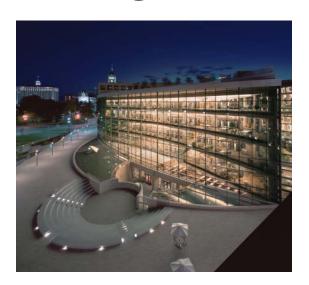
DURING the upcoming Concrete Convention and Exposition, join ACI 124 for a free walking tour of exemplary concrete buildings at 1 p.m. Monday, March 26. It will be led by ACI Intermountain Chapter member Sarah Sutherland, business development director of Forterrra Structural & Specialty Products.

The tour will last about an hour and will cover a variety of notable concrete buildings within easy walking distance of the convention venues, the Grand America Hotel and The Little America Hotel.

The tour will consist of these points of interest, among others:

Salt Lake City Public Library

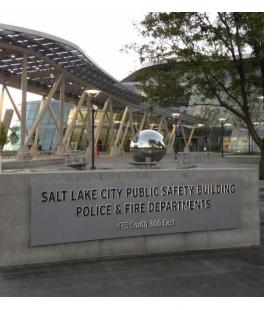
The main branch of the Salt Lake City Public Library at 210 East 400 South was completed in 2003. The architecturally unique 200,000-square-foot building was designed by the architectural firm of Moshe Safdie and Associates in conjunction with local architects VCBO Architecture. Since its opening, it has received numerous design awards and accolades.







ARCHITECTURAL CONCRETE



Salt Lake City Public Safety Building

The Salt Lake City Public Safety Building at 475 South 300 East was built in 2013 and was the first net-zero LEED Platinum-certified public safety building in the nation. The insulated precast wall panels help achieve the R-19 value providing resilient, sustainable structural elements that contribute to the design aesthetics.



Deseret News Building

The former Deseret News building at 30 East 100 South was built in 1997 using glass fiber reinforced concrete. The GFRC covers all nine stories and has a light acid-etch exposure.



Relief Society Building

The Relief Society Building at 76 North Main St. was built in 1956. This building has a white architectural precast concrete skin that exposes a white quartz finish and ornate detailing.



ARTISAN IN CONCRETE



Tamara Gilgenast

Concrete In-Counters, Enterprise, Alabama

by Vanessa Salvia

TAMARA Gilgenast combines passion and a veteran's discipline and attention to detail to create works of art in concrete. Though she only started her business about four years ago after discovering The Ashby System, she already has an extensive portfolio.

"Before concrete I served in the Army for three years as a legal specialist at Fort Lewis, Washington, where I met my husband, Ralph. Ralph was an Army helicopter maintenance test pilot and during his 32 years of active duty we had the privilege of living in and visiting some of the most incredibly beautiful places in the world including Washington state, Colorado, Germany, Japan, Switzerland, Italy, Greece and Australia," says Gilgenast.

In addition to being a military spouse, mother of two boys and grandmother to three, she has held high-level administrative positions with such entities as Fortune 500 giant USAA (United Services Automobile Association), the U.S. Army Garrison Japan and the 12th Combat Aviation Brigade in Germany.

"My family jokes with me that it took me a while to figure out what I really wanted to do," she says.

The Gilgenasts' final military move in 2008 was to Fort

Rucker, Alabama, the home of the U.S. Army Aviation Center for Excellence. where Ralph served until he retired from the Army in 2011. Gilgenast again worked on post with civil service, but wasn't happy and decided to pursue another option — staying home.

"I have a creative bug that wasn't being fed," she recalls. "I watched a lot of HGTV and saw concrete countertops and integral sink vanity tops and was enamored by them. I told my husband I wanted concrete in our kitchen and bathrooms. He said I'd better figure out how to do it then! So I did. I think he thought being a girly girl with French manicure nails and Italian stilettos would slow me down."

Learning the system

Gilgenast extensively researched the materials and process for the next few months. She admits that initially she didn't know enough to do it by herself, so she considered classes. That's when she discovered The Ashby System, created by Ben Ashby, and soon after attended the course.

"The Ashby System is unique from the others," she explains. "Ben Ashby has created a system that looks like natural stone and presents an earthy,

ARTISAN IN CONCRETE









warm appearance. It's absolutely stunning. The concrete has a beautiful rustic and raw look but remains warm and elegant."

While the system is designed to reflect a natural stone look, she says, "This system is so versatile in that I can create a piece that looks like rustic stone or create pieces that are solid tones and very modern."

Gaining experience with the system included creating integral sink vanity tops for their home's guest bathrooms and the shower and vanity top in the master. She is also preparing to install concrete tops in her kitchen. "My kitchen will have concrete," she says with a laugh. "The only reason we haven't completed the project yet is because we've been so busy with our customers."

In good company

Concrete In-Counters was established after word was out that the Gilgenasts were installing concrete in their home. Once the announcement was out that "the concrete girl" was doing quality decorative concrete, the jobs started to accumulate, she says.

The other half of Concrete In-Counters is her husband, Ralph. He works by day as a senior aviation analyst at Fort Rucker, then goes to the shop with Gilgenast in the evenings where he'll help her with things she can't do alone. Ralph also works the logistics and operations part of the company.

"He is my go-to guy when it comes to logistical support and a pro with loading and installing the concrete,"

Gilgenast says. "I create it and he leads the way from there. His military experience is priceless when it comes to professionalism in the shop and during installations."

Since their start, they've done about 60 jobs, including several new home builds and renovations throughout Alabama, Georgia and Florida. The Gilgenasts have hired two high school boys for after school and weekends.

"At present we have Wolfgang and Daniel," Gilgenast says, referring to her employees. "They are incredible boys, but will be joining the military and will be departing this summer. Both boys have been trained to do various operations in the shop and are a huge asset to us during installations."







Noteworthy projects

In June 2017, Gilgenast completed one of her most challenging jobs and notable achievements to date — a concrete fireplace face in a silvery gray wood grain finish that stands 14 feet high and 10 feet wide.

"Before I could create the estimate I had to figure out how I was going to create the molds," she recalls. "I even attended an advanced course so Ben and I could work on options. I used the Ashby ¼ inch - ½ inch Admix for vertical surfaces. I pushed the limits of the mix unscathed. When I finally had that moment to stand back and look at the completed fireplace, there were tears of relief, pride and joy."

Last fall, the Gilgenasts worked on some unique teal green bar tops for

a clubhouse in Destin, Florida. "Teal green isn't the norm," Gilgenast says. "Pigments were mixed to match the colors of the Gulf waters known as Florida's Emerald Coast."

As part of this job, Concrete In-Counters recruited a fabricator to create a handsome wrought-iron structure to support four 2-inch-thick sections of bartop that are each 9 feet long and 11/2 feet wide. There are two other 11-by-2 feet sections that make up the grill area.

Training is crucial to success

Gilgenast has attended multiple basic and advanced Ashby System courses. She feels it's important to keep up with new techniques and any product changes, and that training is crucial to the level of success an artist will have

with this system.

"Ben Ashby's training system and technical support is unmatched. I've always believed in continuing education — it keeps me updated and ahead in business," says Gilgenast.

"This is art in concrete — every piece is beautiful and unique in its own way. Continued training keeps it fresh. When I'm working with customers and they see the finished pieces, the joy on their faces of how much they love their concrete is the crowning reward for everything."

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To learn more about the Ashby System, visit www.stonecretesystems.com.



Winning Wager:

Terrazzo artistry delivers glitz and glam in Terminal 1

McCarran Airport, Las Vegas, Nevada

by Joe Maty

AS Vegas' McCarran Airport put its money down in a bet on a vibrant, colorful and imaginative new look for the airport's Terminal 1 ticketing and baggage claim area.

Visitors streaming through the area on their way to Sin City diversions and temptations might well agree this was a shrewd wager. For its money, the airport got visually appealing welcometo-Vegas imagery built on the concrete floor with the super-durable, venerable phenomenon known as terrazzo the poured-in-place or precast mix of cement or epoxy combined with chips of marble, quartz, granite, glass, or other durable and decorative materials.

Project at a Glance

Project: Epoxy terrazzo installation at McCarran International Airport, Las Vegas, Terminal 1 baggage and ticketing area.

Terrazzo contractor: Corradini Corp., Fountain Valley, California, www.corradinicorp.com General contractor: Sletten Construction of Nevada, Las Vegas, www.slettencompanies.com

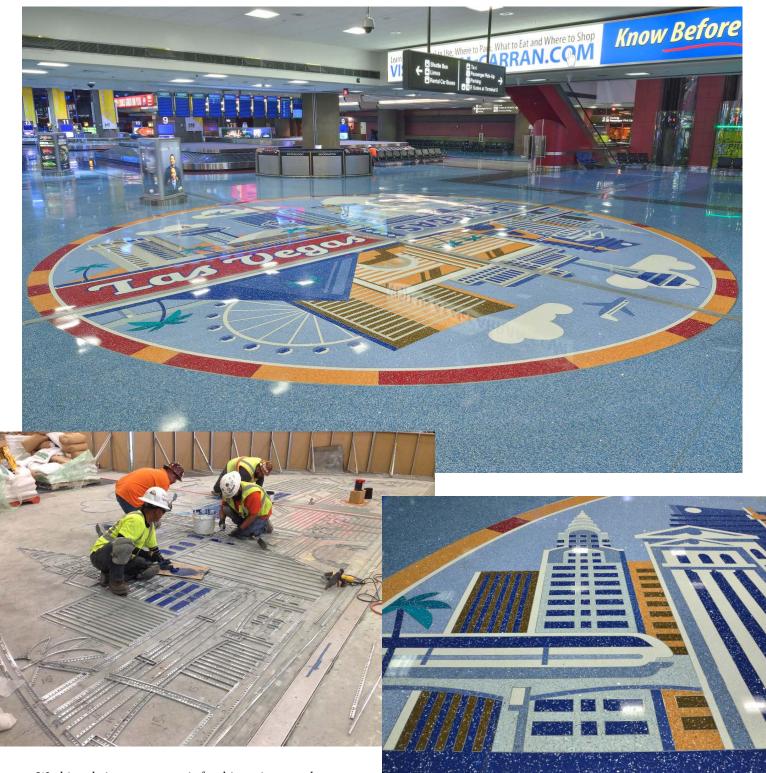
Architect: Doug Walton Architect, Las Vegas, www.dwaltonarch.com

Owner: Clark County Department of Aviation, Las Vegas

Epoxy resin and terrazzo aggregate supplier: Terrazzo & Marble Supply Cos., www.tmsupply.com

Scope of project: Replacing carpet and tile in a high-traffic area of the airport with 240,000 square feet of 3/8-inch epoxy terrazzo in 27 different colors, creating three logo designs, and integrating precast and cast-in-place elements.

Challenges: Execution of project on accelerated schedule; extensive detail and hand craftsmanship of terrazzo and precast elements; installation in multiple phases to allow continued functioning of airport baggage and ticketing areas; formulating color and design plans in discussions with owner design team and architect.



Working their terrazzo magic for this project was the terrazzo contractor Corradini Corp. of Fountain Valley, California, in collaboration with Doug Walton Architects PLLC of Las Vegas.

Corradini Corp.'s assignment: replace outdated carpet and tile in the high-traffic area with 240,000 square feet of epoxy terrazzo flooring in 27 different colors in a remodeling and modernization program in the baggage and ticketing areas of one of the nation's busiest airports. Mirror, glass and motherof-pearl aggregate was used in the wide range of epoxy colors to create "sparkle and pop" in the floor, says Chris Corradini, president of Corradini Corp.

Vegas-themed artwork

The artist who fashioned this terrazzo masterpiece's striking focal point — a medallion portraying the Las Vegas skyline, past and present — is almost as amazing as the installation's visual homage to Vegas. Graphic designer Randy Heil, paralyzed below the shoulders by an auto accident, learned to use his mouth to paint and design.

The border of the 40-foot diameter medallion is evocative of a poker chip, while the images inside the border depict features of the renowned Vegas Strip — like iconic hotel/ casinos new and old, and the Vegas Monorail. It also features

PROJECT PROFILE

other notable chapters from the city's past, such as Heil's boyhood hero Evel Knievel jumping Caesars Palace on his motorcycle, a mushroom cloud from an early atomic-bomb test in the Nevada desert and the silhouette of Howard Hughes in a window of the Desert Inn.

Newer Vegas Strip landmarks represented in the artwork include the Luxor pyramid, the Paris Eiffel Tower, the Wynn, the Stratosphere Tower and other houses of pleasure.

In a video about the medallion, Heil says he hopes the artwork serves as a condensed sort of history lesson for those not aware of an earlier edition of Vegas.

Fabulous welcome

Corradini Corp.'s task, then, was to turn Heil's medallion artwork and other design features of the entire terrazzo installation into reality.

Besides replacing the carpet and tile with colorful epoxy terrazzo, the job also included creating three different logo designs, where Corradini Corp. fashioned precast designs on slabs inhouse, using water-jet cutting to create a seamless look in names or specific design elements.

Using these water jet-cut terrazzo pieces allowed the artist to create an extremely detailed design, without



using many divider strips, where small details were included, such as the airplane's windows, hotel names or the welcome sign, Corradini says. For the depiction of the iconic "Welcome to Fabulous Las Vegas" sign, an exact match of the original color and design was re-created, he says.

Making it happen

Since business as usual continued in the fast-paced hum of activity in the ticketing and baggage area, the project was executed on an accelerated schedule. Corradini Corp. ran two crews in 10- to 12-hour shifts, seven days a week — essentially around the clock to complete the job ASAP. Temporary barriers separated the job site from passengers and airport personnel.

"This project was special for the amount of detail and hand craftsmanship that went into creating the terrazzo murals," Corradini says. For the 40-foot-diameter medallion, more than 5,000 linear feet of 1/8-inch divider strip was hand-bent on-site by Corradini artisans.

Attention to detail, precision and meticulous installation was never compromised by the demanding schedule, he says. "The amount of the medallion artwork and other logos could not be accomplished by anyone





glitter," says Christopher Popham, West Coast manager for Terrazzo and Marble Supplier, which supplied the terrazzo epoxy and aggregate.

In walking through the nuts and bolts of the job, Corradini says the existing flooring had been removed by the general contractor, with Corradini Corp.'s crews starting out by shotblasting the concrete surface. This was followed by applications of a primer and an epoxy floor-fill to flatten uneven areas.

Then came a thick-film (40-mil) flexible epoxy crack membrane, trowel-applied on a fiberglass scrim, and another primer coat. When those were dry, divider strips were assembled, hand cut and hand bent, to delineate different images and colors to follow. Pouring and leveling the terrazzo different colored epoxy with aggregate mixed in — then proceeded.

All these steps, including pouring the terrazzo, went forward in sections or phases — some 12 phases in all. Finishing methods included diamond grinding using several grit sizes, with a 200-grit polish completing this stage of the job. Two layers of grout coat were applied prior to the final polish, and four coats of a clear water-based sealer were added post-polish.

Installing a precast terrazzo base along walls, columns and other adjacent horizontal surfaces helped to give some

measure of the sheer size of this project - about 5,000 linear feet of precast. And, Corradini points out, there's



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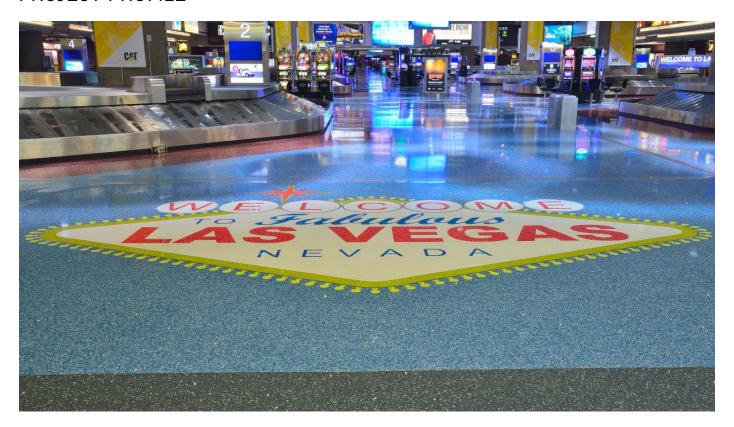
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the matter of forging a meeting of the minds with the architect and McCarran design team about colors, images and effects — with the medallion being at the center of repeated "back and forth" issues between the contractor and owner/designer.

The medallion may win the "rave" tally, but for Corradini it's the depiction of the Welcome to Fabulous Las Vegas sign that ranks as his favorite feature of the job, "because it's so iconic." As with other artwork for the medallion and logos, CAD drawings provided a detailed road map for the installations.

The job was done in small sections, right alongside the ongoing functions of the ticketing and baggage-claim areas, with four-foot-high barricades separating travelers from Corradini's terrazzo crew.

"That made things a little difficult, but in a way it was good marketing," says Corradini, "with people stopping to check it out." They got to see firsthand that terrazzo is a series of



demanding steps involving highly skilled tradesmen, and not just slabs of highly decorated flooring that look like marble or some other material.

The medallion in particular is "true artwork," he says. "It's a very intricate creation, and it's what we're most proud of with this job. It was a lot of work," as 27 different colors are interspersed in a 40-foot-diameter circle.

The 'nearly unimaginable' realized

In the view of architect Douglas Walton, the epoxy terrazzo installation gave the terminal a "completely updated and revived" look.

"Terrazzo, with its endless possibilities of colors and design, allows the nearly unimaginable to be created in the floors," Walton says. In addition to the custom logos, the baggage claim terrazzo features a geometrical design, framing each of the 16 baggage carousels, he says. The ticketing area terrazzo "is more of a whimsical design, directing traffic flow to the security gates."

The National Terrazzo and Mosaic Association (NTMA. com) was impressed with Corradini Corp.'s artistry, giving the installation its 2017 Project of the Year award. In a review of 2017 Honor Award projects, the NTMA described the project as "a showcase for design detail and meticulous hand craftmanship in terrazzo."

"The assertive design of the new terrazzo floor perfectly captures the character of the city while providing logical functionality," the description notes. "The 27 beautiful colors are consistently deep and rich, sparkling with mirror, glass and mother-of-pearl aggregate."

Based on these kinds of glittering reviews, there's little doubt that McCarran Airport got a solid payoff on its wager.

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Strategies for **Dust Control** Compliance

by K. Schipper

STILL struggling with how to meet the federal Occupational Safety and Health Administration's requirements on protecting your employees from silica dust? You certainly aren't alone.

If you're waiting for your favorite manufacturer to bail you out with new equipment, it may take a while. Many of them have new products in the works that will help contractors move toward a cleaner — and healthier — workplace, but changes have mainly been in the areas of beefing up vacuum systems and coming up with designs that will let people retrofit what they have.

The primary reason behind that: a lot of the equipment already on the market offers safe levels of dust collection.

If you're grinding, sanding or cutting dry, the best option for controlling dust is a system that contains the dust and collects it for later disposal. Respiratory protection — in this case a simple paper mask — is dependent on the level of dust an employee is being exposed to, and for how long.

Photo courtesy of Robert Bosch Tool Corp.

"A lot of the manufacturers have this figured out," says D.J. White, a tooling specialist in the Charlotte, North Carolina, office of Niagara Machine Inc. "There are certain standards they want that will prevent any dust escaping. It will give you multiple levels of filters and bagging systems, so you don't have to open the unit and reexpose the dust to the air."

The important factor is that it needs to be used as designed and recommended by the manufacturer. That includes not just trying to get by with a smaller, less-expensive option.

"For instance, if you're grinding dry, you have to make sure the dust collector is the proper size, with the right cfm (cubic feet per minute) for your grinder size," says Monika Angelova, marketing manager for Superabrasive in Hoschton, Georgia. "If you're using a 32-inch grinder, you can't hook up a small vacuum that's more appropriate for a 20-inch grinder."

You gotta have a plan

The new regulation doesn't mean that just buying the "right" equipment for a task is going to solve the OSHA conundrum, or that someone else's idea might not work just as well — or better — than what's available from the manufacturers.

For one thing, OSHA doesn't certify equipment. It simply says that if you're doing X work for Y amount of time, you must use the methods found in Table 1 or find your own control method. And, one way to do that is to buy correctly sized, professionally manufactured equipment, and use and maintain it properly.

"If you can't follow Table 1 for whatever reasons, you can also use what are called alternative methods," explains Clark Branum, Ultraflor program manager for San Diego-based Diamatic USA. "However, you may have to do mandatory air monitoring, which means you have to prove your method works, so it's a little bit tougher."

Whichever route a company opts to take, it must have each task broken out in its exposure control plan, and then it must have a "competent" person on each job site to make sure those procedures are followed. If they're not or if dust is visible, that person must have the power to shut down the job.

Just how important are those two components? Branum says he's talked with concrete contractors recently who have been asked by the general contractor to provide a copy of their exposure control plan when they bid a job.

It's also a document that employees should be trained on, and they're asked to sign off on it, as well. There's a reason for that, too, says Jim Bohn, director of strategic development for North America with Robert Bosch Tool Corp. in Mt. Prospect, Illinois.

"Everybody on a job site is responsible for the regulation," says Bohn. "Everybody should understand what they can do to avoid creating airborne dust."

Simplify, simplify

That's not to say companies such as Bosch have been sitting on their hands while this all unfolds, however. Bohn says his employer has been focusing on things such as how to make the overall



Having the proper-sized vacuum for any task is critical. Manufacturers are happy to provide information on what size works best for each piece of equipment.

process of collecting and controlling airborne dust simpler.

"Going to an integrated dust system that eliminates a vacuum and hose also creates a sense of convenience and less things to haul around," he says.

And, he believes most brands are doing what they can to create attachments that work with vacuums or integrated vacuum systems that can go on the tools people have today.

Better vacuums are in the sights of many of the equipment manufacturers now. Tulsa, Oklahoma-based Hilti

Corp., for instance, has come out with a whole new line of vacuums to provide customers more options based on their applications.

"If it's a heavier volume of dust, you're going to need a stronger vacuum with a lot more cfm," says Eric Hollister, Hilti's senior director of marketing for electric tools and accessories. "For those that have smaller applications that don't create a ton of dust, they may only need the simplest vacuum out there that comes with a manual filter-cleaning mechanism but is still Table 1-compliant."





Manufacturers are adding new products to help shops meet the new OSHA requirements, such as the Lavinia-X dust extractors offered by Superabrasive (above) or the MS 360 Vac Attachment from Husqvarna (below).

Photo courtesy of Superabrasive

Angelova says Superabrasive, too, has implemented changes to its vacuums that were introduced last year at World of Concrete. Again, the emphasis is on beefing up the cfms.

"We've also upgraded the filters," she says. "The larger models have cartridges with self-cleaning filters, and larger filter areas. All of them have HEPA (high-efficiency particulate arrestance) filters and all of them have self-cleaning mechanisms."

Ben Kruse, marketing director for Pulse-Bac Vacuums in Tulsa, Okla., says both are very important in a good vacuum system. All its vacuums come with HEPA filters, and they invented the automatic self-cleaning vacuum 15 years ago, which means even their original units meet todav's standards.

"I'd make sure I have an automatic filter-cleaning mechanism because I wouldn't want to fail a PEL (permissible exposure limit) test because one of my employees forgot to clean the filters like he should," Kruse says.

It's not all about vacuums, however. Angelova, for instance, says Superabrasive is focusing on improving its grinder designs. And, both Hilti and Olathe, Kansas-based Husqvarna Construction Products are working on new shroud designs.

Mark Michaels, director of product management for equipment for Husqvarna, says that company's recently introduced MS 360 Vac

Attachment is a good example of the company's thinking.

"Most of Photo courtesy of Husqvarna Construction Products our products

fit into Table 1 quite easily," says Michaels. "But, we've been trying to expand the ability to reach people who have special needs and need to write their plans a little differently and go outside Table 1."

Silica Dust Plan: Put it in writing

by K. Schipper

t's probably not an attitude shared by everyone, but Tom Martin, job site safety director for Diama-Shield LLC in Troy, Michigan, believes OSHA is there to help contractors.

But, then, Martin has been taking all the silica training sessions he can get since the agency's new regulations on controlling crystalline silica dust first showed up on his radar early last year.

"Every time you attend a session with a different instructor, you catch a different point they're focusing on," he says. "That's been beneficial to us in helping to evaluate our existing written plan."

As specialists in concrete grinding and polishing, Martin says Diama-Shield has been focused on controlling dust at its job sites since opening its doors, so the new regulations that began being enforced in September weren't entirely new to company officials.

Additionally, Michigan is one of 28 states that had adopted its own more-stringent controls before the OSHA regulations went into place.

"MI-OSHA does have morestringent rules under some standards, but they've adopted the OSHA standards for crystalline silica," he says. "We've utilized a lot of the engineering controls that OSHA is requiring since we've been in business."

For instance, the company has always used dust shrouds, dust collection systems or water to keep dust below permissible levels.

One challenge for concrete polishers: situations where they're not using water to cut because certain projects require a dry cut. Whether cutting wet or dry, Diama-Shield is careful to implement the engineering and work practice control methods outlined in Table 1, including dust-collection systems.

"We have done air samples on our own just to ensure we're meeting the new permissible

exposure levels," says Martin. "We like to remain below the action level with the engineering controls, but we have done sampling to ensure that."

He adds. "It was worth the time and effort to confirm that we'd met the standards."

Many manufacturers and distributors say one of the hardest things for some of their customers to do to meet compliance is to develop and put in writing an exposure control plan. Not so with Martin. He says he had a plan ready to present to the company's crews last January when they attended Diama-Shield's annual meeting.

"It's something we evaluate annually," he says. "I've already been evaluating and updating our current written program to ensure we remain in compliance and that will be part of our annual meeting again next year."

Additionally, every crew leader has been trained on the standard and is supplied with written instructions on what to do if dust is becoming an issue.

Martin says they aren't the only ones keyed in on the new regulations. Some of the general contractors for whom Diama-Shield works have asked to see the company's written program.

"I've created what I call a silica compliance sheet for projects where the general contractor is requesting additional information," Martin says. "It walks through the duties of each person on that specific job, what they'll be doing and an action plan to execute the project and prevent dust from becoming an issue."

Bottom line, Martin sees crystalline silica as the new buzz in the industry, especially now that general contractors are asking about it. He anticipates that will only increase in 2018.

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Plenty of options

The idea of retrofitting existing tools is a popular one, both with manufacturers and end-users.

"A lot of people are keeping their current equipment and buying a vacuum to try to hook up to it," says Michaels. "In most cases there are shrouds available, so people are buying vacs and then buying the attachments."

"Some manufacturers have been able to go back and retrofit equipment," agrees Niagara's White. "There's that middle-ground manufacturer who might have some equipment that meets the new standards and another portion that doesn't. Some are able to retrofit that portion of their equipment and make it compliant, and some just don't fit the bill anymore."

Not that plenty of people aren't out there buying. Several note the big push came this fall as the deadline for implementation got closer. However, White says he believes a lot of those were people who primarily work outside.

As for what comes next, there are several possibilities. An option to working dry, especially with cutting and grinding, is doing the work wet, which cuts airborne dust significantly. Heidi Barker, director of marketing with Runyon Surface Prep Rental and Supply in Carmel, Indiana, says she's seeing more companies turn to systems that use water.

"We have quite a few guys who have gone wet, just as a personal preference," she says. "They don't need a vacuum when they're doing their wet steps, although then it becomes a matter of slurry management."





As part of its training circuit, Runyon Surface Prep demonstrates a wet grinding method at a recent demonstration in Houston. For many grinding applications, the best method for controlling dust is with water. However, using a wet application means the slurry — which can become dust as soon as it dries — will have to be safely managed.

Superabrasive's Angelova says she's observed more contractors switching to wet grinding. However, that might not be the best answer for every job, either.

"It may not be appropriate," says Diamatic's Branum. "Most guys prefer to use soft-cut saws with vacuums attached, which is fine, but it doesn't fall under the Table 1 rule, and that may not change anytime soon."

The good news is that over the years manufacturers have continued to improve wet systems to reduce the amount of water needed which creates less slurry, says Husqvarna's Michaels.

Hilti's Hollister agrees, and says newer solutions do a better job of containing the water than ever before. However, he adds, "The conversations we're seeing this year are all about dust." Next year, he predicts, they'll probably revolve around what to do with that pool of slurry that will become dust in 45 minutes.

Bosch's Bohn takes a more upbeat approach. He expects today's awkward job-site situations to disappear in the future.

"You're going to see more things that are integrated into tools or that can be universally integrated into multiple tools," Bohn says. "We manufacturers are looking to make that convenience level as clean as possible without having dangling hoses and cords."

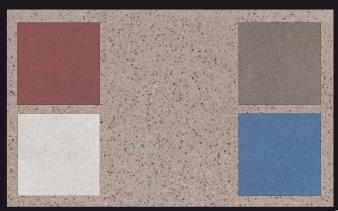
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YOU'VE seen concrete interior floors in such bad shape that your first thought was to rip them out and start over. But there's an easier approach. Self-leveling toppings or overlayments can be poured over concrete surfaces you didn't think were salvageable, saving time and money.

"It's faster and easier than pouring new concrete," says Paul Koury, president of Westcoat Specialty Coating Systems. Westcoat manufactures the Level-It family of self-leveling toppings.

"If you get the right mixer, the right gauge rake and the right roller, it's quick and easy to apply this stuff," says Joe Zingale, flooring group specialist at CTS Cement Manufacturing Corp., referring to his company's Tru line of self-levelers.

Still, they're not on everyone's radar screen.

"I would venture to say that 75 percent of designers aren't aware that you can put down a quarter- or half-inch cement topping and polish or grind it and seal it like you can with concrete," says Koury.



This Florida patio was created with Increte Systems' Level Top SP in a base color quickly followed by two integrally colored mixtures. The highlights were applied very quickly and hit once with a magic trowel/squeegee to achieve this polished marble-like surface. After curing, the patio was sealed with Increte's water-based urethane. Work was done by Matt Johnson with Mr. Epoxy and Paint in Sarasota.



This floor at the Aveda Salon and Spa in St. Petersburg, Florida, was microtopped with Increte's Level Top SP, acid stained with Stain-Crete and finished with a water-based urethane. Work was done by Brian Elsinger with Unique Concrete, formerly based in Tampa and currently in Sioux Falls, South Dakota.

Crowd pleaser

"There are a lot of things you can do with this product to decorate it," says Rich Cofoid, senior marketing and product line manager at Increte Systems/Euclid Chemical. "You can integrally color it, polish it or apply concrete dyes, acid stains and waterbased stains."

Many manufacturers now have products with aggregate, or you can broadcast your own.

CTS Cement Manufacturing offers the Tru family of self-leveling products with decorative features, says Zingale. "Tru is more of a buff-tone cement with fine aggregate. Then there's Tru Gray, with a light gray color added in the bag, and Tru PC, a gray with concretelooking aggregate. That's what's really taken off," says Zingale about the latter, a high-flow topping that simulates polished concrete. "We can add glass or color to simulate a terrazzo floor. We have various color and aggregate combinations to give customers a multitude of looks."

CTS has also found a way to give customers great aesthetic consistency, says Zingale. "We found a quarry we use for all of our aggregate, so if we have a customer in Germany and they have an office in the U.S., the look is going to match."

That issue of consistency is very important to the industry.

Referring to one ideal application, Andrew Fulkerson, technical services manager at Mapei Corp., describes an industrial space that had been partitioned and the concrete slab treated in a variety of ways. Now the customer wants the walls removed and the flooring to be consistent throughout.

"The old concrete will be damaged in different ways, depending on what's coming off it," Fulkerson says. "Carpet allows dirt and moisture to build up, flooring leaves adhesives and tile leaves grout behind. But the self-leveling product can go on over all of those surfaces for a consistent look."

Mapei offers three options of selfleveling toppings: Ultratop in both white and gray, and Ultratop PC, a salt-and-pepper finish that can be used in such interior moisture-buildup



Girdwood Elementary School in Alaska features art kids can walk on thanks in part to Mapei's Ultratop PC polishable concrete topping.



Ardex K 10 — a reactivatable, high-flow, self-leveling underlayment — was used on the floor of this high-technology manufacturing facility in Utica, New York.

areas as lobbies, commercial kitchens,

Mike Tracy, business development

manager at Ardex Americas, addresses

retailers over time. Each had treated (or

the issue of consistency regarding

a contractor project for a big-box space that had been used for various

mistreated) the floor differently.

and monolithic slab, they found

different ages, colors, textures and a

as slopes for drains and backfilled

mechanical trenches from over the

years. The polishable self-leveling

range of pre-existing conditions, such

"Instead of one uniform

a patchwork quilt of existing

surfaces. There were slabs of

bathrooms and bars.

overlay option offered the possibility of a consistent look despite the various challenges."

Mark Pryor, a contractor and president of Performance Floor Systems in Orange, California, most appreciates the application consistency of Ardex PC-T (Polished Concrete Topping). "I've had a job where I used eight truckloads of the product, each truck with 17 pallets, and I knew that every bag would be consistent in color and mix," he says. "Quality control is one thing I don't have to worry about."

The glass-smooth finish can be another draw to certain clients. Fulkerson says that one user is a Spanish-language network in Florida with robotic-driven cameras for newscasts that had to be able to wheel along the floor without jarring the shot.

Fast cure

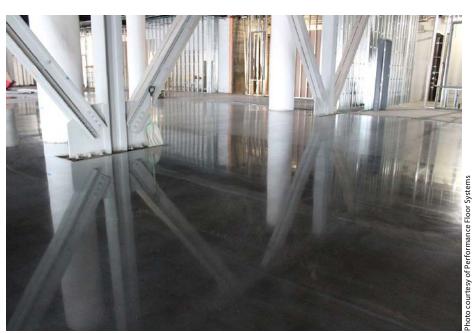
Ardex Americas introduced the underlayment product category in the 1970s, says Tracy. The Ardex line expanded to include Ardex PC-T, a polished concrete topping in white, gray and light gray, and, more recently, a product with specialty aggregate.

"We introduced K-521 for the polishing market earlier this year," says Tracy. "This 6,800 psi material is scratch- and indent-resistant and polishable in 24 hours. It also contains a specialty aggregate to better replicate the appearance of standard polished concrete."

So how does a self-leveling topping compare to the real deal?

"It's like concrete in that it's cementitious, but it's composed of a much finer aggregate," says Increte System's Cofoid. "Concrete has large rock aggregate. Self-leveling toppings can have pea gravel added as an extender. The mix also includes leveling agents and additional chemistry not found in concrete."

Westcoat's Koury explains it this way: "Concrete consists of four ingredients: sand, rock, cement and water. With the average self-leveling topping, you're looking at 10 to 20 ingredients that work together to give a hard-cured concrete finish within hours or days. It has to be fast drying, close to ultimate hardening in a week. In some cases, you're walking on top of



Mark Pryor, a contractor in Orange, California, appreciates that every bag of Ardex PC-T microtopping is consistent in color and mix so he doesn't have to worry about quality control.

the stuff in four to six hours."

That's a primary advantage. Consider, for instance, a big-box retailer that's expecting foot traffic by the time the store opens for business Monday morning.

"At minimum it's at 5,000 psi the next day," says CTS's Zingale. "Guys don't waste 24 hours waiting to polish it. They're on it in 12, 15 hours after pouring."

How and when

Compared to concrete, self-leveling toppings are relatively thin. The consistency of a self-leveler is more of a slurry, so gravity isn't the contractor's friend. That's why vertical surfaces are out.

Self-leveling toppings are primarily used on interior floors, but some contractors use them on countertops and in precast molds. Typical applications include warehouse floors and for institutional, educational, office and commercial, retail, supermarket and food service, residential and even light industrial use — with an emphasis on light.

"Polishable overlayments are intended for use with foot traffic and moderate, rubber-wheeled forklifts," says Ardex's Tracy. "They're not suitable for hard plastic or steelwheeled environments. They're not right for heavy-duty manufacturing and chemically harsh industrial environments. And dragging heavy metal equipment or loaded pallets with protruding nails will gouge, indent or damage the surface."

As with most flooring projects, the prep work is a critical starting point.

"Your concrete has to be sound," Mapei's Fulkerson says. "You have to go in and fix all the cracks, caulk the joints, repair the heavily deteriorated areas, bring them up to level somewhat and then install the system."

If you have a movable crack, forget about it, says Increte Systems' Cofoid. "The product doesn't suspend the laws of physics."

Once the prep work's done, says Koury, "You have to rough that concrete up by grinding or shot-blasting to an ICR (International Concrete Repair Institute) scale of about a three to five

so it's fairly rough — like about 20-grit sandpaper. Prime the surface with an epoxy primer that's moisture tolerant, then broadcast a little silica sand into it and pour your self-leveling material. But you have to pour very fast."

Lastly, finish according to the artistry of your choice.

Product precautions

Earlier versions of self-levelers had to be applied with trowels, and you'd end up with trowel marks, says Koury. "We got away with that 20 years ago, but now no one wants to see trowel marks unless it's a look they're going for. Now they want to see what looks like a machine finish." That's achieved with gauge rakes and rollers.

As for the durability issue of a halfinch-deep coating, Increte System's Cofoid has total confidence in his company's product line. "It should last the life of the building in most cases. That's in part because the topping cures out at 6,000-plus psi, twice the compressive strength of most concrete slabs," he says.

"If you add aggregates to the overlay, use a sufficient amount of material to completely cover the stone or a bumpy surface may result," adds Cofoid. "Should that occur, you will have to grind the surface smooth, exposing the aggregate or apply a second coat of selfleveling material."

Just like concrete

Koury says the decision to use this product versus concrete isn't always such an either-or decision. He uses the example of dental caps to compare the relationship of the topping with the concrete floor beneath it.

"You don't talk about your cap. You talk about your teeth," he explains. "If we do our job right in this arena of selfleveling polishable concrete toppings or overlays, and treat it properly, it should look like concrete."

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Superabrasive notes grinding-tool changes are quick and easy

by Joe Maty

BRAD Obbink went all-in as a polished concrete contractor a few years ago, discarding the paint pot and brush and hitching his fortunes to the concrete grinder/polisher, for better or worse.

Now, after a few years and miles of polished concrete behind him, he's ready to take a ride on one of the biggest — if not the biggest — technical leaps the trade has seen since the early days of its emergence as a major player in design and construction.

That would be continued development and refinement of the power trowel as a concrete grinding and polishing instrument. Obbink has ambitious plans for this pursuit under the banner of his Chicago-based company, ProFinish,

operated with co-owner, Ralph Monday.

"This is a game changer," Obbink says, in particular for big box stores, warehouses and other large spaces. "Those who can capture this market quickly and dominate from the technical side are going to retire young and healthy."

The math makes for a convincing case, he reasons: A conventional concrete grinding machine might process somewhere from 4,600 to 8,000 square feet in eight hours. A ride-on power trowel with an eight-foot span could process that much in an hour in an open space.

Obbink points to a recent demonstration project, an airport hangar in Alpine, Texas, where the whole grinding/densifying/polishing process was completed in about four hours, including cutting, honing, densifying and polishing. The job was videotaped as a demonstration of the power trowel's proficiency as a grinding/polishing tool.

It's no wonder that Obbink is a recent convert to the power trowel polishing methodology.

"This launched us into a much bigger arena," he says.

In another recent project, Obbink's company polished a 2,800-squarefoot concrete floor in a "man cave" in Austin, Texas.

In both these projects, Obbink's crews benefited from open spaces and expansive door openings that allowed entry with the sizeable power trowel. That's one of the keys to power trowel grinding/polishing — getting the machinery in the door.

The equipment, meanwhile, is a Multiquip power trowel modified by Lavina/Superabrasive under the Trowel Shine system banner. The addition of a slurry guard is an innovation from Obbink's company.

Superabrasive says grinding tool changes are "fast and easy" using 10.63-inch or 14-inch tool holders and diamond pads (depending on power trowel pan size and number of blades). Different diamond-grit pads are offered for two categories of concrete — "hard" and "medium and soft." Other grinding and polishing tools are offered for damaged floors or those that exhibit a "rain-drop" effect, and for additional polishing steps with finer grit sizes, namely 1,800 and 3,500.

Catching the wave early

Obbink, a man of expansive imagination and ambitions, is assembling a licensing program for concrete polishing, largely built around and catalyzed by the power trowelturned-grinder/polisher. The licensing business model is designed to simplify contractor start-ups or new business add-ons with the tools and expertise to ride the power trowel wave as it's just starting to gain momentum.

This business model, he says, will identify three different process protocols, based on project size — residential/light commercial (up to 50,000 square feet), commercial/ industrial (50,000 to 200,000 square feet) and distribution/warehousing (200,000 to 1 million square feet). The model for each size type will identify equipment needs and other project essentials, and spell out details of practices, processes and other job specifics.

As an example, Obbink cites the issue of slurry management as a critical element when concrete grinding/ polishing large spaces with power trowels. Here, it's essential to include large enough scrubbers and tanks to manage the hefty amounts of slurry. Obbink says his company is refining a slurry separation system that will turn solids into a gel that will go into a landfill, leaving water for reuse or simple emptying.

In another developmental project, the business is exploring a method to reuse material recovered from deteriorated concrete surfaces, mixing it with water and a densifier, and laying it as a new surface for the concrete.

But the key role played by the licensing business, he says, will be to provide answers and solutions to decision-making and problem-solving matters, such as determining which diamond tools to buy considering longterm performance as opposed to simply thinking price and only price.

Other paths to the prize

With the power trowel still in the process of finding its footing in the concrete polishing trade, suppliers of equipment and tooling that aid in these adaptations are rolling out new inventions and refinements that aim to smooth out the ride. A few examples follow.

Presto, change-o

Michael Littlefield, the engineer who developed the PowerGrind System for concrete polishing using power trowel equipment, says the PowerFlex Magnetic Quick Release Adapter represents a significant technical innovation in the use of power trowel equipment for concrete polishing.

The adapter is a key component in Polished Concrete Solutions' PowerGrind System. Littlefield is president of the company, based in Sanford, Maine.

"The flex technology within the adapter allows the operator to maintain precise control of the machine without causing uneven tooling wear, and the



Concrete Solutions' PowerGrind grinding and polishing system. Photo courtesy of Polished Concrete Solutions

quick-change magnetic feature allows metals and resins to attach magnetically,



eliminating the hassle of dealing with Velcro," says Littlefield. "No bolting, no Velcro, no fly-offs, no downtime."

"During the R&D phase, Velcro posed one of the biggest issues in the power trowel polishing process," he says. "Whether it was pucks hitting lippage and flying off or adhesive delaminating, Velcro was the greatest source of downtime and frustration. By incorporating a completely magnetic system, we've eliminated this common source of delay so the operator can keep moving. With a system designed to cover so much ground in such a short period of time, we knew we couldn't have an unreliable connection system."

Details in the company's literature states that the system's PowerFlex adapters bolt directly to the PowerPan drive plate or any conventional float pan. It goes on to note the PowerFlex adapter system can be used under any make or model power trowel, and can be run effectively on both ride-on and walk-behind power trowels.

The company maintains the PowerFlex system lets users run metal-bond tooling for more aggressive grinding on new or old concrete, in addition to magnetic quick-connect hybrid and resin-bond tooling for finer grinding and polishing.

Don't walk, ride!

"Why walk through slurry when you can ride the GHP LP230?" That's the proposition put forth by Wagman Metal Products regarding its new rideon polishing machine.



Wagman, a developer and supplier of power trowel replacement blades, pans and attachments for grinding, polishing and other functions, unveiled the planetary-action Revolution GHP LP230 at the 2017 World of Concrete. Figuring prominently in the company's pitch for the propane-powered machine is its path of 30-by-63 inches, allowing it to clear a 32-inch doorway and also fit in a pickup truck bed.

The system allows the tooling to "float," reaching low spots with a desired scratch pattern, says Jeff Snyder, Wagman vice president of sales and marketing. The composite pad offers additional processing and buffing out of swirls, he says.

Key elements of the power trowel-to-grinding/polishing machine include plate-bearing mounts and pad drivers, with mounts and drivers available in various sizes and for various rotors. Pad drivers are attached to plate-bearing mounts with hardware designed for the system, followed by installation on trowel arms.

Other components of the grinding/ polishing system are diamond pads designed specifically for wet processing with a power trowel, and optional splash guards, the SPS filtering system for slurry management and abrasion-resistant squeegees designed for polishing.

In addition to grinding and polishing, the machine can be converted into a high-powered scrubbing machine with optional brushes.

Aiming for 'standard' status

Concria, a Finland-based company with a U.S. distribution unit, emphasizes long service life in the equipment it offers for power trowel polishing conversions.

The company also is investing in extensive training programs in response to the rapid uptick in interest and demand in the power trowel polishing business, says Neil Roach, director of operations for Concria's U.S. distribution company, Architectural Concrete Supplies LLC.

Concria's power trowel polishing system, called TrowelPolish, offers grind/polish game plans for three different polish levels:



Ride-on power trowels from several different manufacturers can be adapted for concrete grinding/polishing with the Concria system.

- **Basic**, a three-step process that produces a matte-satin gloss with salt-and-pepper finish, basically a "low-cost system for warehouses and production facilities."
- **Unique**, a four-step process that creates a high-gloss shine with low or no exposed aggregate, where "concrete keeps its unique look after the process."
- **Pro,** a six-step process that delivers a high-gloss shine with salt-and-pepper finish, "for the customer who demands the best."

Roach says ride-on power trowels from several different manufacturers can be adapted for concrete grinding/polishing with the Concria system. The components are a standard floating pan and three elements from Concria — mounting pad, diamond discs and Velcro fastener. The components are available in sizes that fit different power trowel models.

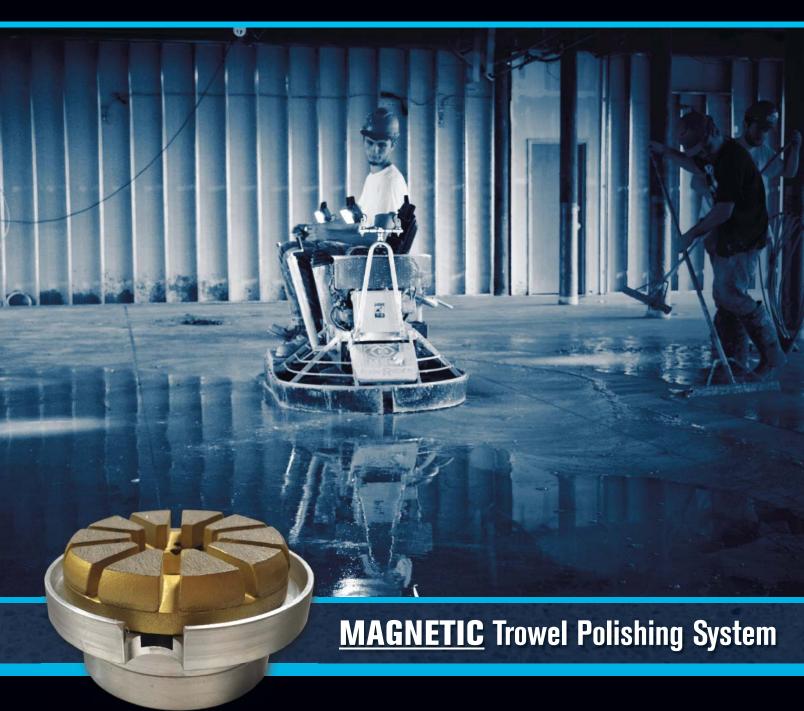
The polishing system also includes lithium densifier and sealer (guard) products from Concria.

Concria's marketing focus for the TrowelPolish system reflects a "size does matter" approach in clearly identifying big box retailers, warehouses, convention halls and production facilities as the types of facilities the company aims to elevate the grinding/polishing system to "standard."

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When You Don't 'Just Add Water':

Admixtures can impact decorative concrete in many ways

by Chris Sullivan

THE definition of a concrete admixture is "a material other than water, aggregate and hydraulic cement used as an ingredient of concrete or mortar and added to the batch immediately before or during its mixing to modify one or more of the properties of concrete in the plastic or hardened state."

Admixtures have become commonplace in modern concrete mix designs. They play an important part in making concrete better and easier to handle, and expand the limits of when and where concrete can be placed. This is great for concrete in general, but may not be so great for decorative concrete. In what ways do admixtures impact concrete? Understanding those impacts becomes especially important with decorative concrete's color and aesthetics.

Admixtures are added to concrete. so the impact, while aesthetic, is always going to be concrete related. This is less about understanding the chemical impact and more about realizing the aesthetic impact these admixtures impart.

It's important to note that water, while not an admixture, arguably has the most impact on decorative concrete aesthetics. More water equals lighter and/or washed-out colors. This includes water added to the mix, water added to the surface while finishing, diluting stains and overwatering any system where water is an ingredient. But water isn't the only culprit when it comes to unsatisfactory. Anything added to the concrete mix, admixture or otherwise, will impact the final concrete product.

When we look at the impact of admixtures on decorative concrete. we can break the results into two categories, color and finish.

Color

Some admixtures affect the final color of concrete, while others have no impact. The specific chemistry and



Changing the amount or type of admixture from one pour to the next can lead to color changes in the concrete.

amount added are the determining factors. Manufactured admixtures such as air entrainment chemicals. water reducers, plasticizers, accelerators and retarders — are easier to classify regarding their impact on the color of the concrete.

Natural or waste-stream admixtures such as metakaolin clay and fly ash are much more difficult to classify regarding impact. For example, fly ash, just like cement, can vary in color depending on its class (C, F or G) and the region from which it was obtained. This means the final color of the concrete can vary more when using these naturally occurring admixtures. The good news is that concrete producers have become aware of the variations and the impact they have on color and do a great job in controlling their sources to minimize color variation.

Finish

One of the main reasons admixtures were developed was to allow for easier handling and finish without affecting the performance of the concrete. These types of admixtures are widely used in decorative concrete applications to control set times (faster or slower) as well as improve workability and finish. They have helped push the boundaries for many decorative systems allowing better performance and enhanced finishes.

For example, using a delay-set admixture in a stampable overlay extends the working time and minimizes shrinkage cracking on a hot day.

Accelerators

Accelerators are used to reduce the set time of concrete and increase early strength gain. Speeding up set time allows contractors to pour concrete in cold temperatures and can also increase



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CONCRETE QUESTIONS



High loadings of fly ash or chloride accelerator can create blotchy and inconsistent effects when staining.

efficiency by reducing the amount of time a crew spends finishing. Many years ago calcium chloride was the only choice to accelerate concrete. Today, nonchloride-based accelerators have become the norm, thanks primarily to the decorative concrete industry.

Calcium chloride doesn't mix well with concrete and leads to a blotchy final surface. This is exaggerated even more when color is added to the mix. When dealing with stains, the aggressive water-attraction properties of the chloride ion, along with the inconsistent dispersion, create uneven and unnatural color finishes when using any stain that contains water.

Any way you slice it, chloridebased accelerators are a bad choice for concrete where integral color or post-applied stain will be used. Always request nonchloride accelerators when color is important.

Plasticizers

Plasticizers create low water/cement ratios and increased slump to make concrete easier to place without adding extra water. They are widely used in stamped concrete mixes because they produce a more workable and fluid mix. Regarding finish, there really are no negative effects when it comes to plasticizers as long as they are used as directed.

When it comes to color, one would think that if water has an adverse effect on integral color, then an additive that allows you to reduce the amount of water in a batch should result in brighter and richer integral coloring. This isn't necessarily true. The amount of plasticizer, also known as a water-

reducing agent, is critical. If too much is used, it can draw water to the surface and create a diluting effect, the same as if water was applied to the surface during finishing.

The other factor to consider is that most plasticizers are a dark color and high loadings can darken the mix. Studies have shown that over time the concrete can lighten, but that's a difficult sell to a client who expected a buff color and ended up with brown.

Retarders and air entrainers

Retarding admixtures slow down the hydration of cement, lengthening set time. Retarders are often used in hot-weather conditions to overcome the accelerating effects of higher temperatures on concrete set times. Retarders are widely used and, like plasticizers, have become prevalent in stamped concrete mixes.

Air-entraining agents incorporate small air bubbles in the concrete. The major benefit of this is enhanced durability in freeze-thaw cycles, an especially relevant attribute that's often specified in cold climates. Because air entrainment places microscopic voids in the concrete, light scatters as it reflects off the surface, which can produce a lighter final color. High levels of air can also create a "sponge effect" which affects how the concrete finishes.

Pozzolans

Depending on who you ask, pozzolans may or may not be considered admixtures. They are used as a replacement for a percentage of the cement in a concrete batch or as an addition to a mix. Of all admixtures, they have the most impact on both color and finish.

Fly ash and silica fume, which are widely used in many concrete mixes, are byproducts from coal-fired energy production. Depending on the type and region, fly ash can vary in color from white to beige (Class C) to many shades of gray (Class F). Depending on the type, they can affect the color — either lightening or darkening the mix.

The concrete industry has become

a large consumer of fly ash, slag and silica fume, resulting in improved color consistency of these pozzolans over the last decade. On the other hand, metakaolin clay, which is not a true pozzolan but is often lumped together in that group, is used to lighten mixes as well as improve the finish and handling of concrete, typically in precast applications.

It's important to note that high loadings of pozzolans impact concrete during finishing — fly ash allows concrete to finish easier, while it reduces the air content of air-entrained concrete. They can also reduce the amount of calcium hydroxide, produced by cement hydration, which is critical for color development when acid staining concrete.

In many cases installers will specify an all-cement mix when integral color is being used or acid stain is scheduled to be applied once the concrete has cured.

Make admixtures work for you

As with any decorative application, a mock-up or test pour is important to dial in a new mix or establish a baseline for color. Once you've established a baseline from your samples, mix consistency is the key. Finally, when you understand the effects of admixtures as well as you do the rest of your job parameters, you can better control your pour results.

Understanding how admixtures impact your mix will allow better control of the concrete and produce better overall results. Anything you add will have at least some effect on color. With that in mind, an important part of decorative concrete success is batch consistency. When you're pouring multiple batches, whatever admixtures are in the first batch should be in every batch.

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



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Future is Bright for Polishable Overlays in Retail Market Segment

by David Stephenson

OR nearly two decades, polished concrete has increasingly become more popular with retail clients as their flooring of choice. Overall, the polished concrete industry has been growing more than 20 percent per year for the last several years and the main driving factors are twofold.

First, retail designers want a look you can only get from polished concrete. And second, facility owners and managers realize polished concrete floors cost significantly less to maintain than their counterparts.

These aspects are the prime reasons the finish has grown in popularity but there are other contributing factors, such as the "green building" movement and the overall life cycle and replacement cost of concrete floors versus manufactured flooring products like vinyl or ceramic tiles. However, an increasing segment of the market is being left out of these conversations because the spaces are not in good enough shape to polish directly.



In ever-increasing numbers, retailers are discovering polishable concrete overlays that can resurface floors with unacceptable conditions and give a space new life.

Overlays to the rescue

A lot of factors can make a floor unpolishable. These include demolition

done by prior tenants, trenching and contaminants like oil marring the surface. Sometimes, because the floor was going to be covered by tile, it's just poor-quality finishing from when the project was first built.

In ever-increasing numbers, retailers are discovering polishable concrete overlays that can resurface these unacceptable conditions and give a space new life. These overlays are typically installed between 3/8 and 1 inch thick. This thin application allows for very few elevation-related modifications to the existing space.

In most cases, the existing space gets ground down at the doorways to make a more even transition to other flooring types. About a dozen manufacturers have products that are specifically engineered to be polishable. Most of the overlay products sold are not polishable.

For decades, most cementitious selfleveling materials were engineered to go under tile or carpet. These materials have proven to be way too soft for a



By adding larger aggregates to an overlay mix, it looks much more like concrete. Without aggregate, the materials have a plastic appearance.

grinder. The chalky nature of these self-leveling products also doesn't allow the floor to hold a gloss or a polish. The materials just do not hold up to traffic or standard cleaning and maintenance.

Some of the leading manufacturers like CTS, Laticrete, Ardex and Mapei all make great bagged cementitious products specifically designed to be polishable. "Retailers are increasingly turning to polishable overlays because the manufactured materials provide a consistent appearance, regardless of location or existing conditions, that matches a designed brand standard," says Joe Zingale from CTS.

Common characteristics

These bagged cementitious products all have a few common characteristics. The overlay has some form of larger aggregate built into it. By adding the larger aggregates to the material, the overlay looks much more like concrete. Without aggregate, the materials have a plastic appearance.

The aggregate also provides increased impact resistance. This helps





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stop "denting" or impressions from occurring when a heavy weight is rolled across the floor or dropped on it.

The aggregate's thickness also determines the thickness the material has to be when placed. This is why most polishable overlays are required to be installed at least 1/2 inch thick.

In the retail world, the cash register rules and the speed of a remodel is by far the most important factor. Large contractors can place up to 8,000 square feet of overlay in a night. All polishable overlays set up or get hard fast and are made to be polished in just 24 hours. Newly placed standard concrete can't be polished for at least 28 days.

When a floor is designed to take abuse from traffic and cleaning every day in a high-volume retail store, it must be dense and hard. If the material is not extremely hard with a high psi (pounds per square inch) rating, it will soon break down under the polishing equipment and wear through with foot traffic.

Regardless of the manufacturer, polishable overlays have an average strength above 6,000 psi, which is almost double that of most standard concrete slabs. Having a dense and strong material that will hold up to impacts and heavy weights and has an appearance that meets a retailer's design standards are all extremely important when engineering a product for this market segment.

Cutting costs

Most retailers that contract for totalstore, wall-to-wall overlays are small to mid-sized. It's unusual to see overlays go down in stores larger than 7,000 square feet because of the higher cost of materials and labor.

The industry is working on several areas to lower the cost associated with using overlays. One is related to the base material formulations. When the market size is small, manufacturers must stop producing their highervolume (and therefore higher-profit) materials and reconfigure the raw materials and equipment to make the "boutique" polishable overlay. The extra effort and time translates into them charging a higher price for the overlay.

As the market size has grown, the

amount of material made per run has increased. This helps manufacturers lower their base product costs.

The second factor that drives up prices is surface preparation. Overlays must bond to the surface of an existing structurally sound concrete slab. To achieve this bond, contractors must create a rough profile. This is typically done by shot-blasting, scarifying or installing an epoxy coat with coarse sand broadcast into the surface. This type of preparation is time consuming and labor intensive, so manufacturers are increasingly looking for faster and more effective ways to create this mechanical bond.

To address the mechanical profile issue, two manufacturers that I know of will introduce coupling mat systems at World of Concrete 2018. These mats are designed to eliminate much of the prep and cure time needed for the overlay material to mechanically bond. This type of technology, which lowers the overall time to install by as much as 25 percent, will continue to make using overlays more palatable to retailers.





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Aggregate in an overlay makes a surface more impact resistant. It helps stop "denting" or impressions from occurring when a heavy weight is rolled across the floor or dropped on it.

Additionally, advances in equipment development will seriously impact the cost. Right now, most contractors mix two bags of overlay at a time in 55-gallon drums. The mixing process is dusty so it's typically done outside. The wet material then goes into buckets that are hauled to the placement site.

It's a back-breaking job to tote the buckets and the manual labor drives up the cost to install the product, especially considering each bag only fills a few square feet. New mixing technology is making it much easier to mix, transport and place the product. Most manufacturers are even making their overlays pumpable.

A realistic solution

Polishable overlays provide a consistent and uniform appearance that many prefer, but the cost for the install is extremely high. In most cases the costs associated with installation outweigh the desire to have it.

Today, the average cost of an overlay is about \$15 per square foot. Compare that with the average cost of using standard polishing on existing concrete at \$5.50 per foot in a remodel environment, and it's easy to understand the hesitation.

Technological advances mentioned earlier should lower the total installation cost by \$4 or \$5 per square foot. And as contractors become more proficient at prepping and installing, their costs should go down another \$1 to \$3 per square.

When an owner's average cost drops to the \$9-\$12 per foot range, it is easily comparable to luxury vinyl or tile floors. I think that's when the demand will sharply increase and overlays will be much more commonplace.

This market segment is vital to the continued overall growth of the polished concrete industry. When retailers decide to make polished concrete their brand standard, the industry must have realistic solutions for any existing condition that provides the owner with a usable floor. All indications point in the direction that the industry is addressing these needs with polishable overlays.

David Stephenson, based in Dallas, Texas, is president of Retail Polishing Management, a large national flooring installer. Prior to his new position with RPM, he helped as a consultant with retail polishing programs and troubleshooting concrete issues for companies around the globe. Throughout his career, David has owned contracting companies that installed floors as well as manufacturing companies that made products that changed the industry. He can be reached at david@the-rpm-group.com.



















Using a Familiar Product in an Unfamiliar Way

by Vanessa Salvia

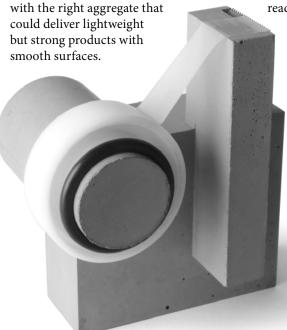
SEAN Yu and his wife, Yiting Cheng, a couple now in their 30s, met in college where they studied industrial design. They were both 22 when they graduated and decided to open a studio featuring their own hand-crafted items. They landed on a name that was as unpretentious as the items they sold: 22 Design Studio.

The material they chose to work with was concrete, a ubiquitous material in their home country of Taiwan. Yu and Cheng are the designers, and they have eight other people working with them in their studio.

"After graduation I knew I wanted to use this material to make something by hand because I think concrete is a material that is really familiar to Taiwanese people," says Yu. "Most of our buildings are made of concrete. There are no wooden structures in Taiwan now."



Of course, using concrete for a wall is very different than using concrete for a ring or pen. It took many trials and talks with material lab operators and importers to devise the right mix





"To use this material to make small things in delicate forms is really hard because the color will be different every time and the environmental conditions while you're making it needs to be controlled," says Yu. "But I've experimented and learned."

Compared with the density of stainless steel, which is about 494 pounds per cubic foot, the density of ready-mixed concrete is much less at

150 pounds per cubic foot. "So the rings and pens are actually very lightweight compared to brass or steel," Yu says. "And if you drop it their structure is actually quite strong. That's probably what surprises people the most."

22 Design Studio sells its items online and at boutique markets worldwide. Yu's designs for watches, rings, pens and desk items such as pen holders and tape dispensers are inspired by modernist architecture. At their heart is an appreciation for the material and for the design process.

"To make an item which is perfect on the surface you need to plan well before you even start to make it," Yu says. "I also like to use materials in their raw form, using exposed steel and uncoated brass, and plain concrete. I think it is more straightforward. They're clean and you can know exactly how it's done. That's the heart of my design." 👣 www.22designstudio.net

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