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12:01 PM 2/5/2003 7:08 AM 2/5/2003 Pour/Stamp 2/5/2003 12:41 PM 2/5/2003 3:07 PM Pour/Stamp 2/6/2003 7:16 AM 2/6/2003 12:15 PM Pour/Stamp 2/6/2003 1:05 PM 2/6/2003 3:16 PM Pour/Stamp 7:21 AM 2/7/2003 2/7/2003

2/7/2003

Signature

11:50 AM Seal/Coat 12:40 PM 2/7/2003 3:19 PM Seal/Coat ylow Employee subtotal Bill Winston

36:13 hours

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2:39 hours

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Got Passion?

oes this question have you scratching your head? If so, you may have overlooked some exhibits at this year's WOC show in Las Vegas.

While part of the show gave contractors the means for enforcing a stronger mix, adding productivity and ensuring more durable finishes, another part of the week-long event was showing the same contractors how to turn these permanent fixtures into lifelong works of art.

Pigments, additives, reactive stains; embossing, polishing and stenciling tools; forms and liners; epoxies and sealers; overlays; new uses for many everyday concrete tools — all had their manufacturers showing creative new methods for carving a decorative niche for yourself in concrete.

Many of those who have decided to learn decorative applications have discovered a new passion for concrete as well as increased business and profitability. For others, the new concrete applications may be an unwelcome change from programs that have been working just fine. Although tradesmen are often reluctant to face change, it is truly healthy, and it actually keeps us from becoming lodged in routines that are too comfortable or which keep us from maximizing our full potential.

Unlike other industries, the concrete construction trade has tremendous resources awaiting those who choose to tap into them. Education abounds, and it's mostly guided by people like you and me who find concrete such an appealing material with unlimited potential. Many of those trainers are people whose passion for the trade can easily rub off on you and your team in the most natural way. A passion for concrete and a commitment to change are the most important tools for inscribing higher quality standards into your concrete finishes.

Passion develops from within. It keeps us seeking, experimenting, discovering and seldom content with the status quo. If today's industry developments have not already created that passion for exploring new applications in concrete, it is likely that the exciting direction this trade is taking will ignite your interest very soon.

Concrete Decor is committed to helping you realize your potential in decorative concrete, both through informative, well-illustrated articles and by plugging your business into our Web site, where consumers can find contractors — like you who are passionate about what they do.

Sincerely,

Bent Mikkelsen Publisher

ON THE COVER: As radiant floor heating gains greater acceptance as an economical and logical choice for property owners, concrete contractors are warming up to its potential for new business. Photograph courtesy of Watts Radiant.





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Industry News

Multiquip CEO retires

Irv Levine, chairman of Multiquip Inc., has retired nearly 30 years after founding the construction equipment company. "It's been an unbelievable

experience for me and one heck of a ride," Levine says. "I believe our success is truly due to the philosophy of taking care of our customers and our employees."

Levine founded Multiquip in Long Beach, Calif., in 1973, establishing the company as the exclusive U.S. distributor for Mikasa compaction equipment. After purchasing a number of other companies over the years,



the company is now a leading supplier of soil and asphalt compaction equipment; concrete placing, finishing and cutting machines; portable power generation equipment; dewatering pumps; welders and light towers. Multiquip has more than \$200 million in annual sales, with offices in England, Mexico, Canada and Brazil.

Multiquip's new CEO is Tom Yasuda. He has been associated with the company for more than 20 years, serving most recently as executive vice president.

For more information, visit www.multiquip.com or call (800) 421-1244.

Sanders Saws celebrates 50 years

Sanders Saws Inc., one of the most respected names in cutting tools and diamond blades, celebrates its 50th anniversary this year. Founded in 1953 by Eugene Sanders, the Honey Brook, Penn., manufacturer serves the professional concrete contractor and the masonry, refractory and quarry industries. Sanders Saws' product line includes a full line of concrete and masonry saws, diamond core bits, diamond blades, and grinding heads.

Under Eugene Sanders, the company was among the first to develop the popular hotpressed process, which blends powdered metals and diamonds to produce superior diamond blades that cut faster, wear longer and are more cost-efficient. In 1983, current president Robert B. Priest purchased Sanders Saws. The same year, the company acquired Mission Diamond Products of Mission Viejo, California, which was then renamed CPR Diamond Research Division and relocated to Sanders Saws' headquarters. In 1985, Sanders Saws added diamond blade manufacturer Wispurr Cut of Vancouver, Canada.

To accommodate the rapid expansion, improve production efficiencies, and continue its goal of high quality manufacturing, the company moved into a new manufacturing plant in 1992. A decade later, Sanders Saws was acquired by California-based Multiquip Inc.,

one of the world's leading light- and medium-sized construction equipment suppliers.

Today, Sanders Saws Inc., a Multiquip company, continues to thrive as one of the premier manufacturers and marketers of concrete saws, diamond blades and cutting tools. The company has more than 40 employees and is a member of numerous industry associations, including the American Concrete Pavement Association, International Grooving & Grinding Association, Concrete Sawing & Drilling Association, Associated Equipment Distributors, and the American Rental Association.

For more information, call 800/486-0207 or visit www.sanderssaws.com.

Concrete technology training offered

A five-day course offering concrete technology training and certification will be held in Denver, Colo., March 3-7. The short course, offered by the NRMCA, is a comprehensive curriculum on concrete and aggregate technology designed to provide the fundamental knowledge needed to perform job functions successfully and efficiently. The course covers the specifications, testing, properties and uses of concrete as well as its ingredients, materials, mixture proportioning, quality control procedures and more. Laboratory sessions on proper testing of fresh concrete and aggregates will be held. The course culminates with examinations offering three levels of industry-wide recognized certification. For registration forms or more information, visit www.nrmca.org or call (888)-84NRMCA.

Education facility opens

A state-of-the-art education facility that will serve the ready-mixed concrete and related construction industries recently opened adjacent to the headquarters of the National Ready Mixed Concrete Association, in Silver Spring, Maryland. The facility, called the RMC Research Foundation Education Center, will host a wide variety of courses and seminars aimed at improving the performance of concrete industry personnel, including dispatchers, drivers, sales persons and technical employees. "In today's competitive environment, well-trained employees are a critical element for a successful concrete business," says NRMCA member Tom Chandler, chairman of Chandler Concrete Co. of Burlington, North Carolina. Information about the education and training courses offered by the NRMCA can be found at www.NRMCA.org.

New director of marketing

Marshalltown has promoted Dan Kester, formerly product development manager, to director of marketing. "Dan brings an excellent combination of experience and talent to this position," says Jim Stormont, vice president of



marketing for the company. His proven abilities will certainly bring great corporate success in promoting Marshalltown's name and products." Marshalltown, founded in 1890, is

America's largest manufacturer and marketer of masonry and related hand-tools. The company recently acquired the complete product line of Embee Corp., thus uniting two of America's oldest tool companies under one roof.

Sika Corp. continues expansion

Sika Corp has broken ground on a new warehouse in Lyndhurst, New Jersey, to accommodate the company's expected annual growth in sealant sales. The \$3.7 million building, part of a master plan for expansion, will be completed by October 2003. The 17,300-square-foot building will include 4,000 feet of office space. Sika, a world leader with over 90 years of experience in concrete materials and restoration technology, provides solutions and products for concrete production, repair and protection. For more information, call (800) 933-SIKA or visit www.sikausa.com.

Sanders appoints national sales manager

Chris Priest has been named national field sales manager at Sanders Saws & Blades, a



leading supplier of concrete saws and diamond blades. Priest has been with the Honey Brook, Penn., firm for more than a decade, serving most recently as mid-Atlantic and southeast regional

manager. He has also been instrumental in training new sales managers and is active in many industry associations.

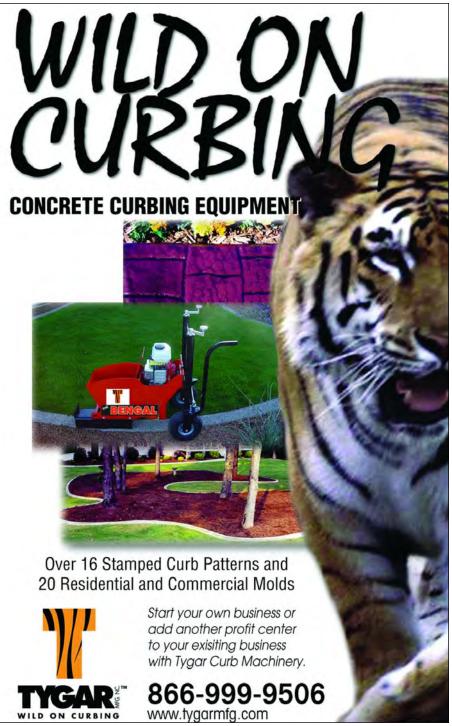
ACI meets in Vancouver

The American Concrete Institute (ACI) will hold its 2003 spring convention in Vancouver, British Columbia, from March 30 through

April 3. More than 1500 delegates, mainly engineers and contractors from throughout North America and other countries, are expected to attend the five days of meetings, exhibits and related events. Sea-to-Sky Highway construction in advance of the 2010 Olympic Games will be a feature of "Contractor Day" on April 1, when Peter Milburn of the B.C. Ministry of Transportation will review improvement plans for the busy

Vancouver-Whistler corridor in a luncheon address.

ACI is a technical and educational society dedicated to improving the design, construction, maintenance and repair of concrete structures. One of the world's largest concrete associations, it has more than 30,000 members and 93 chapters in 30 countries. For more information, call Kari Yuers at (604) 324-8280 or send her an e-mail at kari@kryton.com.



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We look forward to hearing from you!

Pigmenting Liquid Release

by Clark Branum

iquid release agent is quickly becoming the choice of many decorative concrete contractors. With the increased demand for quicker turnarounds, cleaner job sites and environmental concerns, using liquid release agent for stamped concrete becomes an obvious choice.

One concern for contractors who are currently using powdered release is whether they could still create highlights in the stamp work if

they were using the liquid. It can be done through a simple process I will explain here.

The most common way to achieve color highlights is to add an oxide pigment directly to the liquid release before the texturing process begins. Raw pigments may be used, but they are very concentrated and difficult to control. Adding a powdered release agent in small amounts is a clean and simple way to accomplish our goal. That way the liquid release acts as a carrier for the powdered color, which is already formulated and easy to use. Usually I pigment an entire five-gallon container at one time in order to maintain uniformity with the job. The amount can be adjusted to the size of the project.

I recommend starting with a small amount of pigment to begin with. You can always add more if needed, but you will not be able to go lighter once you begin applying the solution. A quarter-cup per gallon should be sufficient to start. Apply the liquid release to the stamping tools and to the concrete surface with a low-pressure sprayer — set it to a fine mist so you will not over-apply. Continue to move the stamping tools as normal.

As you move your texturing tools you will find that some of the pigment will lift with the stamps. This is normal. To compensate you will mist lightly over the already textured



areas to even out the highlighting. After the texturing process has been completed you may apply a touch-up coat as needed.

As the liquid puddles it should carry the pigment into the relief areas of the texture and the joints, where you want the highlighting. The liquid release should evaporate from the surface within 12-24 hours depending on the ambient temperature, leaving the pigment we added on the surface. With a little practice,

your technique will improve. You may not want to attempt this method on a steep grade, as runs in the color process may occur.

Tips for success.

- Make sure that you mix the dry pigment thoroughly before adding the solution to the sprayer.
- Test your sprayer off the slab to ensure proper color and dispersion.
- Continue to shake your sprayer from time to time to keep the pigment suspended.
- Always start with a light solution. Darken as necessary.
- Do your detail and touch up work before you re-apply.
- Prepare samples using this method whenever possible.
- Use caution not to begin stamping too wet, as impacting of the release may occur. This can also occur with powdered releases.

Happy stamping!



Clark Branum has been a flatwork finisher for 20-plus years and a decorative concrete installer for the last 10. He now works full time for Brickform-Rafco Products as area manager for the Northwest Territory.

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Contractor helps Northeast clients warm to decorative concrete

Ira Goldberg reflects on almost twenty years with Bomanite

by Denise Wendt

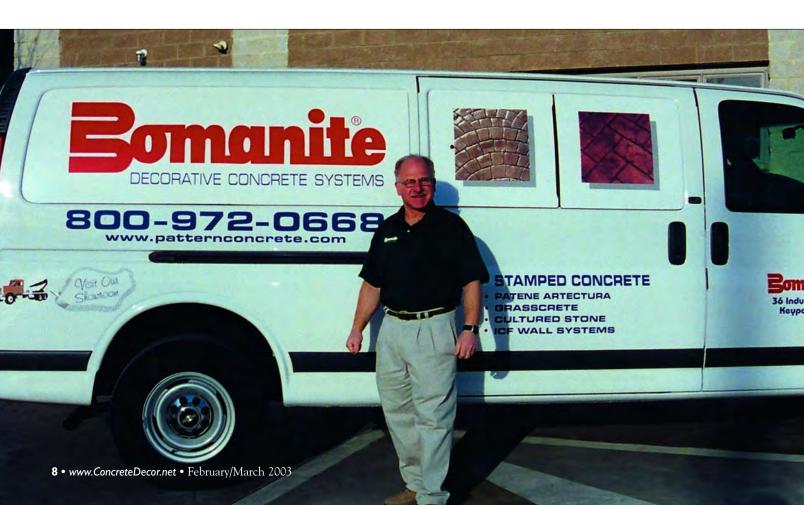
ra Goldberg says he was born with gifted hands. The Brooklyn native wanted to share his gift, so he attended Brooklyn College and graduated with a teaching degree in industrial arts.

But life had other plans for Goldberg, and after graduation he started his own contracting business.

"My partner and I did major highend renovations and additions. We were number one in New Jersey," says Goldberg, who owned Alberg Custom Contracting.

Meanwhile, Palo Alto, Calif.-based Bomanite Corporation was just getting started, expanding its reach by establishing franchises around the United States. "Between 1979 and 1982 I saw a lot of plans coming in that called for Bomanite," says Goldberg. But the fledgling corporation had too few franchises in the area to respond to every request for its product.

Goldberg saw his opportunity. He contacted Bomanite about becoming a franchisee.



"They wanted a concrete contractor," he says. "We were general contractors and builders. It wasn't a perfect match for them until they checked us out and found out our reputation was impeccable."

Goldberg became a licensed Bomanite franchisee in 1984. He started with a small area in New Jersey that included Monmouth, Middlesex and Ocean counties. He quickly proved himself there and expanded his territory to include areas from Bergen County to Cape May, eventually incorporating all of New Jersey.

"By 1989 we had added all of Long Island and the five boroughs of New York City to our territory," Goldberg says. Since then he has added eastern Pennsylvania. Bomanite of New Jersey, New York City, Long Island and Eastern Pennsylvania now employs 36 people (and as many as 60 during peak periods or extremely large jobs) and is one of the largest Bomanite territories (per capita) in the country.

Bomanite stands the test of time

In 20 years, Goldberg has seen a lot of changes. He remembers a time when he had no competition to speak of.

"If a customer wanted stamped, decorative or any kind of high-tech concrete, there was nobody else to call. Now there are thousands of contractors across the United States and hundreds in our area alone who are trying to duplicate what we do."

"There are people out there who are not quality-minded and make a bad name for the good people out there," he says. He has to remind property owners and architects alike that all stamped concrete is not Bomanite. "We still separate ourselves [from other concrete contractors] by the quality of our work, the system we use and the proprietary things that make us just a little bit better than the competition," he says. "They'll

get there eventually, and then hopefully we'll be a step ahead of them."

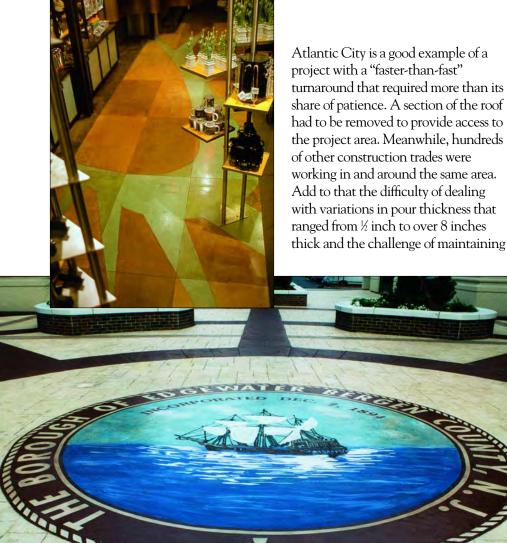
Decorative concrete in the Northeast

"When we started we had to convince architects that [decorative concrete] works here," says Goldberg. Some architects had only seen it used in California and Florida and were not convinced that it would hold up in the Northeast, where freeze-thaw conditions are the norm.

But Goldberg changed their minds when he reminded them that their patios and driveways were concrete. "We just do decorative, beautiful concrete, using mix designs that work for our freeze-thaw climate," he says. "They were speccing concrete on every one of their jobs. Why not make it beautiful?"

Today he draws potential customers through his proven track record in decorative concrete work. But the eyecatching results don't hint at the trials and tribulations that go along with many projects. Caesar's hotel and casino in







quality when heavy equipment was driven over the surface between the time of placement and the seal. Despite all these problems, the project received an award from an independent panel of architects for the best Bomanite project worldwide.

Goldberg's other major projects include Six Flags Great Adventure in Jackson, N.J., Madame Tussaud's in Manhattan and Bally's in Atlantic City. On a smaller level, he lists thousands of patios, pool decks and driveways. He's currently working on a \$60 million renovation on the Tropicana, also in Atlantic City.

Family ties

With a degree from UCLA in computer science engineering, Ira's son Brian is taking his father's business into the 21st century. Ira's wife Ellen manages the office. Ira's business partner of 15 years is Manual Cardoso, a native of Portugal who spoke little English when Goldberg met him. "Someone told me he was amazingly talented," Goldberg says. "So I watched him work. His son translated for us that whole summer." Goldberg hired him, later promoted him to foreman and in 1987 offered him a partnership. "He's been my partner ever since."

In 2001 Bomanite of NJ put together its first sublicense — North Jersey Bomanite — for the residential north Jersey market. Goldberg sees this as an opportunity to focus on larger commercial projects. The operation is proving to be successful in its first year and will likely lead to the addition of future sublicenses.

In 2002, Bomanite of NJ moved into its new home, a 10,000-square foot office and warehouse and one-acre interior/exterior showroom. Here future and repeat customers can view all types of decorative concrete samples and get a realistic idea of what Bomanite can create.

Growth through sharing

While the competition from non-Bomanite contractors has steadily

increased, Goldberg is happy to say that contractors operating under the Bomanite name are encouraged to share their knowledge. The Bomanite International Society (BIS) exists as a vehicle for this exchange. Through corporate-sponsored training and a new BIS web site designed by Goldberg and his son Brian, the network of Bomanite-licensed contractors can share questions, ideas and techniques.

Goldberg has twice served as chairman of the BIS Advisory Board, which serves as a liaison between Bomanite contractors and homeowners and between contractors and the Bomanite Corporation. He currently serves as treasurer of the board.

Training is everything

Goldberg's teaching skills have proved useful, as he is certified to lecture on concrete technique and control of concrete and teaches classes that provide architects with continuing education credits. He is also a certified



ACI technician and concrete finisher and an active member of the New Jersey Concrete and Aggregates Association promotion committee.

"We're constantly training," he says. "We like everybody on our crew to learn every aspect of what we do, so that everybody can fall back into someone else's position at any time."

His advice to contractors: Keep training. "Training your people is the most important thing. And they need to know what you expect from them. You need to operate as a team, where every player on that team knows what he's doing and what's expected of him."

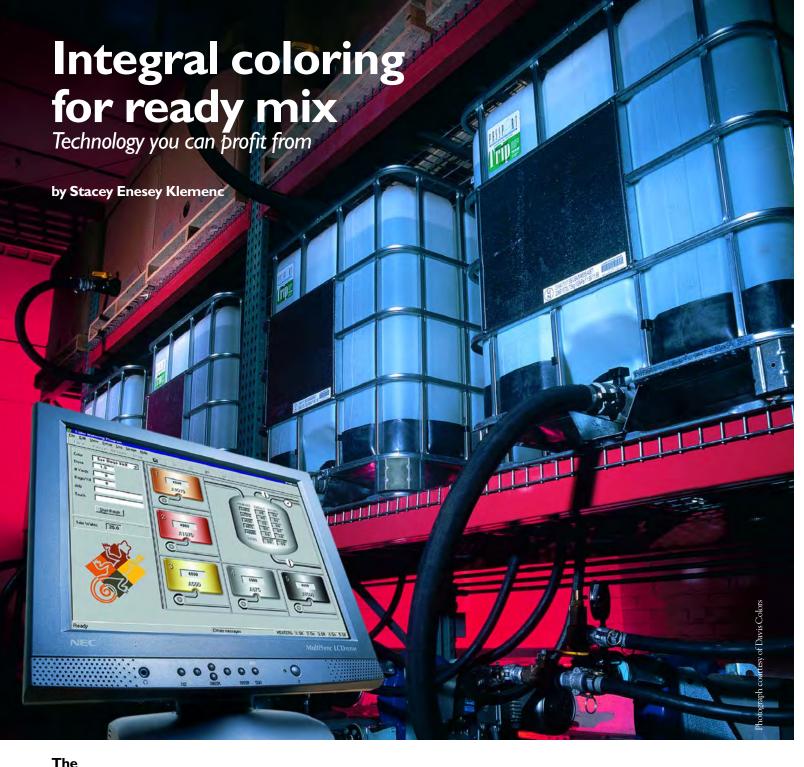
He adds: Don't cut corners, and don't compromise quality.

"If you're going to do this as a side business, you're going to fail," he says. "You have to make up your mind that you're going to put 100 percent into doing decorative concrete work. It may be hard in the beginning, but it's going to pay off."

Bomanite of New Jersey, New York City, Long Island and Eastern Pennsylvania is located in Cliffwood Beach, NJ. To contact them, call (800) 972-0668, email them at info@patternconcrete.com or visit them online at www.patternconcrete.com.



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Chameleon is equipped with powerful reporting features that allow ready mix producers to monitor their color use and verify job deliveries.

t's finally happened: Computers and concrete do mix. And they're mixing well, especially when it comes to integrally colored concrete.

Thanks to the technology of companies such as Solomon Colors, Davis Colors and Master Builders Inc., there are systems designed to automatically weigh out the correct amount of liquid coloring agents into a holding tank which then discharges it directly into the mixer truck. The primary components consist of a control panel, a weigh chamber and hose pumps.

"It takes about 10 minutes to train someone how to use our system," says Nick Paris, vice president of marketing for Davis Color, a subsidiary of Rockwood Pigments headquartered in Los Angeles. "Our goal was to make it as easy to use as an ATM machine."

The Chameleon, as Davis' system is named, combines liquid color metering technology with the computing power of a standard PC and the versatility of a Windows operating system. Likewise, Solomon Colors' ColorSelect liquid

dispensing system and Master Builders' CHROMIX CAM (Coloring Admixture Measuring) System operate on a Windows-based platform, with the CAM featuring touch-screen controls rather than a keyboard.

The strength of all three, proponents say, is that the dosing and mixing is completely automated, thus avoiding potential mistakes, guaranteeing batch-to-batch consistency and eliminating unnecessary labor and cleanup. Because — shades of George Jetson — all you have to do is push the button.

The color revolution

"Liquid color has revolutionized the way color is added to ready-mix concrete," says Rich Solomon, president of Solomon Colors Inc. in Springfield, Ill. An operator simply enters how many yards will be colored, the bag mix, the name of the desired color and "the machine figures out the rest. It's easy. You don't have to think." And best of all, he adds, "You'll get the same uniformity batch after batch."

In the United States, the demand for colored concrete is estimated at more than 4 million cubic yards per year — approximately 1 percent of total production — but that figure is expected to grow three to five times higher within the next decade. Colored concrete is being used today on everything from tilt-up concrete panels and residential sidewalks to stamped concrete creations and roadway beautification.

According to Bob Nussmeier, executive director of Master Builders Inc., a Cleveland, Ohio-headquartered company that has an alliance with the L.M. Scofield Co. to market and manufacture the liquid CHROMIX L coloring admixtures, "Throughout the country, 2 percent of all concrete is supplied with color from a readymix producer. We see that growing to 5 percent by 2006 because of improvements in product and dispensing technology that make it easier to supply the demand in the marketplace."

Dry vs. wet

Although those in the know maintain that liquid and dry colors share the same physical characteristics and each can get the job done well, they admit that the dry colors take longer to disperse throughout a mixture. Because of this, Solomon explains, "There's a potential for more streaking when the color is not fully developed. You won't get that with a liquid added at the plant."

New integral color machines are a welcome mix in the concrete equation

Ready mix executives from coast to coast agree that the color dispensing machines on the market today are a godsend.

"I'm totally happy with my equipment," says Tim Tolland, president of National Ready Mix Concrete headquartered in Encino, Calif. Tolland, whose company has 11 plants in Southern California and owns three of the Chameleon systems made by Davis Color, is in the process of getting two more.

Likening his operation to a paint store, he says that not only can his plant now produce color concrete to order but the machinery is a tremendous labor and injury saver. "Before [we got the Chameleons], our drivers had to climb up ladders and dump 50-pound bags of pigment into the truck," he says.

Not to mention, he used to get complaints ranging from inconsistent coloring to paper bits in the concrete when his company used powdered pigments. But in the last two years, he says, "We've virtually received no color complaints. Our colors are a lot more consistent."

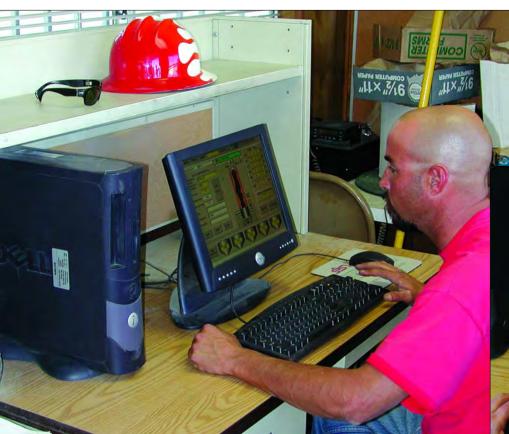
Jeff Kelly, who heads the decorative concrete department for Irving Materials Inc. in Greenfield, Ind., says he, too, is very pleased with the Coloring Admixture Measuring (CAM) dispenser his company acquired from Master Builders last fall. He agrees the new technology creates colors that are "very consistent," with a method that is a lot cleaner than the old powdered route.

"We also have two portable systems that we can move from plant to plant," Kelly says. Called CAM Jrs., these metering devices can accurately dispense a premixed color directly into a truck. "They're usually within two-tenths of a pound to be exact on every load," with the average color dispersion about 100 to 150 pounds per load. The CAM Jr. draws the premixed color from a tote, which can hold up to 3,300 pounds of liquid color.

Kelly says the devices are very handy for IMI, which has 130 plants nationwide with eight in the Indianapolis area. Although they use the main system more, the CAM Jrs. and totes can be loaded onto flatbed and trucked to outlying plants to create colored concrete on site.

In Charlottesville, Va., Brad Cogan, vice president of Allied Concrete Co., is just as happy with his Solomon ColorSelect, citing the machine's superb load-to-load consistency. Since his plant acquired the machine three years ago, it's produced 5,000 cubic yards of colored concrete. With the better quality of the colored product, "It's been selling itself," he says. "It's even accurate in small dosage rates, as low as a half percent."

And then there are the dry color bags to contend with. For starters, it's no secret that you inevitably get little pieces of paper in the mix, no matter how much they're pulverized. And if you rip the bags and pour, things tend to get a bit messy, the ready mix operator included. And in the course of storing and moving the bags about, the bags get



The ColorSelect Pro Liquid
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Echandi, batch man for Fourth
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wet, rip and some of the powder is lost — which translates into less color for the mix and inconsistent batches.

Finally, ready-mix plants have to have a pretty hefty inventory of dry color to produce the shades customers order. And if you want just a tad more of a certain color and they're out of bags, you're out of luck.

With liquid color, ready mix operators only need to have four or five primary colors — typically a yellow-tone red, a blue-tone red, a yellow and a black or two — and they can produce hundreds of different colors in quantities large and small.

"Contractors are reporting better color consistency with these systems," Paris says. "But the primary benefit is the better availability of color. Ready-mix producers can produce virtually any color at a moment's notice," he adds, with the exception of the more expensive greens and blues.

But that could change as technology marches on. "We're in the process of doing field verification and a limited release on exciting new color technologies that will dramatically expand the color range," says Nussmeier of Master Builders.

Matches and batches

Because these new systems are much more accurate with dispensing color, many ready mix plants so equipped will guarantee color accuracy for batches as small as two yards.

Solomon says his company recommends a two-yard minimum but, "Our system is accurate enough to get good color mix at one yard."

But, interjects Paris, "Most ready-mix companies have a minimum of 3 cubic yards."

As for the percentage of color in a mix, "You can have too much color," Paris continues. "The intensity of a color rises to a certain level and gets maxed out," somewhere around 7 percent to 8 percent. "If you go past 8 percent, the color starts displacing the cement and it can reduce the strength of the concrete," without intensifying the color. "Typically, most color dose rates are 5 percent or below."

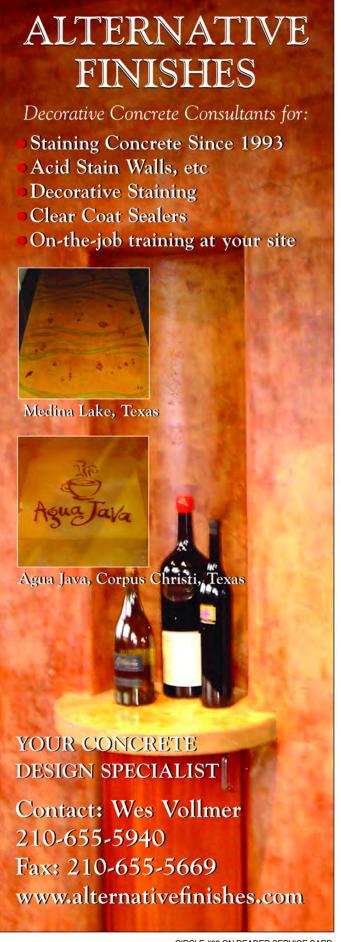
Solomon, who says most of his company's formulas go as high as 4 percent, adds that operators would have to manually override the software on the new coloring systems to make the percentage go higher. "Theoretically, it's not going to happen."

The color load can go as low as .5 percent, he adds, but he recommends the percentage be 1 percent or more to achieve uniform color.

Adding color at the plant shouldn't have any adverse effects on the concrete, all three men agree, as long as the percentage is around 4 percent to 5 percent and the slump 4 inches or less.

The bottom line

For the ready-mix producers, these integral coloring systems cost in the neighborhood of \$40,000, depending on the



CIRCLE #02 ON READER SERVICE CARD

Buckets o' color to go

kay, so now you're sold on this new color technology but don't know of any ready mix plants in your area that have the proper equipment to produce integral colors. What's a contractor to do?

According to Bart Sacco of Concrete Texturing Tool and Supply — a training center and supply house for decorative concrete tools, supplies and products based in Throop, Pa. — get in touch with someone like him. He owns a ColorSelect liquid dispensing system from Solomon Colors and ships buckets of pigment nationwide to contractors and ready mix plants alike.

"We have the ability to match any color from any major manufacturer's color chart," says Sacco, who's been operating the new equipment since last April. "We package to suit individual orders.

We can put multiple cubic yards worth of pigment into one pail for ease of loading pigment into the truck or we can put the pigment into several pails. However you want it."

For instance, he says, if you're pouring 5 cubic yards one day and 3 the next, he'll package the pigment accordingly. "But we usually don't package higher than 5 gallons because the pails get too heavy," he adds. On average, a bucket of pigment with a 1 percent loading dose weighs anywhere from 8 to 12 pounds. Two percent would double that weight and so on.

Sacco, who has white as his fifth color to offer his patrons a wider selection, says his buckets of color have an indefinite shelf life. "If they freeze, let them thaw, re-agitate and add to the mix. And you're good to go."

options selected. There are several ways to obtain a system, including buying it outright or over time with a surcharge added to the color agent or material purchased from the manufacturer of the machinery.

"In ready mix plants, truck time is money," Solomon says. With these systems, "you can batch out colored concrete just as fast as gray concrete" with a much healthier profit margin. As far as installation labor, integrally colored concrete is less intensive than other decorative techniques.

As contractors, you'll enjoy anywhere from a 10 percent to 50 percent markup, depending on whom you ask and what part of the country you're in. The colored product is no more complicated to install than plain gray concrete but, cautions Paris, purchasers of colored concrete have higher standards of appearance then purchasers of uncolored concrete, so contractors need to raise their level of workmanship to meet increased expectations.



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Maintaining Decorative Concrete

Regular cleaning and sealing will keep your work at its best by Christina Camara

oncrete's durability, strength and low maintenance have long been hallmarks of its appeal. And now that the market for decorative concrete is exploding, customers are willingly paying premiums for colorful, eye-catching driveways, walkways, pool decks, patios and more.

While maintenance of concrete is minimal — that's the beauty of it — decorative concrete does require regular cleaning and resealing to extend its life and eye appeal for years into the future.

Unfortunately, though, regular maintenance programs are often overlooked by contractors and customers alike.

Ronald Borum, executive vice president of Crossfield Products Corp. and manager of the Miracote Division, says the industry as a whole has failed to do a good job of teaching customers how to maintain the color integrity, brightness and brilliance of decorative concrete. Concrete is indeed durable, but the color itself may have less resilience.

"I think a lot of people in our industry — designers, architects, landscape/hardscape persons, contractors — sell that pristine look without looking down the road, and the customer ends up buying something that two years or more down the road they're very dissatisfied with because they don't understand how to keep it pristine and close to that original look."

Education about the importance of regular maintenance can result in happier customers and more business for contractors.

Cleaning is the cornerstone of maintenance

A thorough cleaning is the foundation of proper maintenance. It's critical, because concrete is so porous. "Concrete is not a piece of Formica, it's more like a sponge," says Steven W. Hicks, president and CEO of ConcreteScience International Inc.

His Minnesota-based company handles the dirtiest of industrial jobs, where simple pressure washing just isn't enough. ConcreteScience's extraction cleaning services involve pretreating the surface with specially formulated chemicals. The cleaning equipment uses heat and pressure to remove the contaminants and vacuums away most of the water, leaving the surface nearly dry. Most sealants can be applied immediately.

"When you extraction clean, it's incredible what happens," Hicks says. "What you've done, other than make it look pretty, is you've extracted the dirt out of the pores of the concrete."

Many times, Hicks says, clients are surprised to find colored concrete beneath the dirt and grime. "Sometimes it's just so filthy, you have

"Sometimes it's just so filthy, you have no idea what you're going to find when you clean it up." Extraction cleaning can reveal the color, but a sealer can make it shine. "To get the color to pop, typically you put a film-forming sealant on the surface that really magnifies the color — it's like putting wax on your car."

A good pressure washing is acceptable in some applications, Hicks says, because it will dislodge the debris from the porous concrete. The down





side is there's water everywhere when you're done, and drying can take 48 hours — a window that allows more dirt to collect.

Even so, it's a good alternative in many situations. Manufacturers and contractors say that decorative concrete driveways, patios and walkways can be hosed down once a month or so, with a good pressure washing once or twice a year. Interior floors need only be cleaned with a bucket of soap and water and topped with a polish or wax. Floor scrubbing equipment should use long, soft bristles that won't scratch the concrete and sealers.

A pressure washer and a scrub brush also work well to clean joints and other hard-to-reach areas, such as decorative concrete applied with form liners or stencil overlays. Borum recommends warm water and low pressure, from 400 to 800 psi, which is enough to dislodge the debris but not too much to chip the surface. He recommends light detergents at low concentration, not acid mixtures, which can attack the concrete.

How often should decorative concrete surfaces be cleaned professionally to lift the dirt, grease and oil away? Experts say it depends on the conditions the concrete is subjected to, but if contractors educate their customers about the basics of regular cleaning, it will make the job easier when the professionals come in.

Sealers protect investment

Once the surface is cleaned and dry, it must be protected from the elements and from wear and tear with a high-quality sealer that repels water, limits damage from UV sunlight and resists abrasion.

John Maskas, technical director of SuperStone of Florida, says a solvent-based penetrating sealer is the workhorse for the residential market. Sealing for residential use is recommended every two years or so, but again that depends on the environmental conditions and wear and tear. "Just like there's not one application, there's not one answer," he says.

The Florida sun can be particularly punishing to decorative concrete. Alex Metrovich, president of the Florida-based Innovative Concrete Technology Corp., says UV rays can break down the sealer, dulling the glossy finish and fading integral colors. A thorough cleaning and resealing can make the color look fresh again, but it's important that the surface be maintained properly from the start.

Borum warns that integrally colored concrete has its limitations. He's seen some projects fade in a matter of months because the materials were not carefully formulated. In addition to keeping a good sealer on top of the project, protecting it from UV and chemicals is critical to proper maintenance.

Nick Paris, vice president for marketing of Davis Colors, says the iron oxides in Davis' integral colors cannot fade. Integral colors can look faded if the concrete surface is worn away or because of efflorescence, the white deposit on concrete that's left behind when water moves through the material and evaporates, leaving salt on the surface. That's why maintaining a top quality sealer on the concrete surface is so important, he says.

Bob Ware, president of The Decorative Concrete Store in Cincinnati, Ohio, likes the effects of working dry-shake color hardeners onto decorative concrete. Hardeners increase the surface strength to 7,000 to 8,000 psi, and extend the life of the



project. "By cleaning and resealing it, it's going to look just like the day you did it," he says. "That's the beauty with the shake-on hardeners."

Steve Adams, chief formulator for Seal Pro, Inc. Research Labs, manufacturer of sealers, overlays and curing agents in Medford, Ore., says a top quality sealer makes cleanup easier, improves the looks of a project and extends its life.

It's important to pick the right sealer for the job, he says. For example, some sealers are specially formulated so that gas won't seep through and oil stains can be wiped off with a rag. Look for a sealer that is specially designed for UV protection, or it may turn yellow over time. He also says that hydrophobic sealers keep water out of hairline cracks, preventing them from expanding during the freeze/thaw cycle.

Moisture another problem

Moisture intrusion is another enemy of concrete. Applied Concrete

Technology Inc. offers a product that can penetrate concrete to form a permanent barrier against moisture. It waterproofs the concrete both internally and externally and needs to be applied only once.

Company co-owner David Johnson recalls selling Disney executives on the product, the Protecrete Densifier, when they were looking for a way to save sandstone and cement animals that were disintegrating in a water feature at Animal Kingdom in Orlando. Johnson took a crumbling turtle and sprayed on the Densifier, which reacted with the portland cement inside the turtle and solidified it. Since then, Protecrete products have been applied to all the concrete in Disney's theme parks and attractions.

Another product, the Mix Water Conditioner, is added at the batch plant to create a higher quality concrete that is more durable and less prone to cracking. Johnson says using both nontoxic products can also prevent efflorescence.

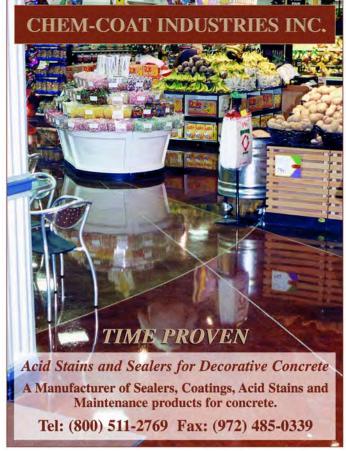
Contractors must understand regional conditions, products

Decorative concrete must withstand some pretty harsh conditions, and contractors must be experts on the environmental conditions of their area:

- Rain and Wind Wind carries dirt, and rains break it down into tiny particles that can seep into the surface and stain it. A strong, steady wind in desert areas can sandblast concrete. Acid rain in polluted areas can erode it.
- Snow and Ice Salt and chemicals used to melt ice in northern climates can allow moisture and chemicals to soak into the surface. When the temperature drops, the water freezes and expands, which can crack the concrete. Sand and salt from people's feet will scratch concrete.
- Sun The sun's UV rays can degrade sealers, fade integral colors and bake stains into the concrete.







CIRCLE #14 ON READER SERVICE CARD

Manufacturers say contractors also must educate themselves on the products being applied to the concrete. Different products have different life cycles and maintenance requirements, and customers should understand that buying high quality products directly from manufacturers will cost more initially, but will save money over time.

Maintenance contracts

Maskas, of SuperStone, says it makes good sense for a contractor to build a maintenance program into his original bid. "No. 1, it's a good way to keep him close to the people who can help him grow his business. No. 2, it can help him in term of growing his business with an existing job." Customers are more comfortable dealing with the original contractor, so why send them to a competitor for a resealing job?

"Those are the upsides," Maskas continued. "The down side is that it does take manpower away from perhaps a more profitable job." If a

contractor has the employees to handle ongoing maintenance, it will give him a competitive advantage, he says, but if the company isn't geared to it, don't over-commit and under-deliver.

Borum agreed. "If they're big enough and organized enough to make it a profit center, then by all means move in that direction." But he added that it's important to market maintenance programs properly, or they can be a real drain on expenses. In some cases, contractors would be better off creating a relationship with another company that can do the maintenance work.

Metrovich says getting that repeat maintenance business can be as simple as sending a reminder postcard to the customer, just as a dentist will send cards out to patients reminding them to get their teeth cleaned every six months. He also suggested contractors could send out reminders when warranties are about to lapse.

Theo Hunsaker, inventor of Concrafter tools and the principal

owner of the company, says that when a job is complete, the customer will receive a thank-you note with a photo attached. On the back is all the contact information the customer needs to keep their project looking as pretty as that picture.

He believes contractors should revisit their project sites every few years. That way, they can continue building their relationship with their customers while making specific suggestions for maintenance based on the conditions at that particular site.

Hunsaker, who has 50 years of concrete experience, says contractors should base their reputation on quality, not quantity. Contractors who are serious about their work and want to become leaders in the field need to take maintenance seriously too.

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by John Strieder

Project Focus

Concrete helps architect Fu-Tung Cheng make

A Perfect Cup of Tea

s residential architects go, Fu-Tung Cheng gets his name out there. He's won a myriad of awards, written a stack of books and seen his name published in an array of newspapers and magazines.

But despite Cheng's accolades, few people get to see his work. A well-designed home is, after all, still somebody's home. The only way his achievements can be enjoyed by the general public is when they are photographed.

So Cheng came up with a genteel solution — have the public over for tea.

Cheng is designer and part owner of Celadon, a gourmet tea shop that opened last summer in Albany, Calif., near Berkeley. "It was a chance for me to go pretty full-out on my own design in a public place," he says.

When Cheng wanted a centerpiece for his establishment, he turned to his specialty, concrete. The result: a cylindrical tea bar that flares at the top to provide counter space for eight patrons and a server. Customers' legs tuck cozily underneath the lip.

The distinctive shape of the bar was designed by Cheng to suggest traditional Chinese teaware. Molding the piece was a challenge, he says. But as with tea from hand-picked leaves, the extra work made for a finer finished product.

The project

Cheng intended the concrete bar to be the focal point of his tea shop. And as befits an anchor, it's massive and practically immobile, cast and cured on the spot. It weighs close to a ton and measures about eight feet in diameter, with a 43-inch hole in the center for wait staff.

He acknowledges that it would have been cheaper to cast the bar as, say, a cone shape. "Even my guys were saying, 'Fu-Tung, just make it straight."

But Cheng the shop owner gave the go-ahead to Cheng the designer. He says he's a firm believer in splurging on a couple of central design elements and keeping the rest low-key. "I do a lot of high-end design on those things that are important to me."

He was drawn to the flared top, which makes the bar look something like the top part of a golf tee, but with a more graceful curve. "I just thought it would be a more dynamic shape," he says.

To help him create the tea bar, he used NeoMix, a concrete countertop kit

manufactured by Cheng Design for homeowners and contractors. The kit includes pigments, admixtures, finishing tools and decorative aggregates. Cheng selected a green pigment called "jade" to color the piece.

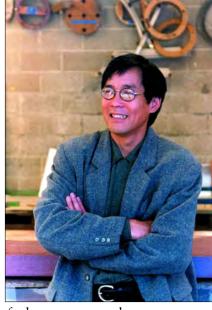
For concrete, he obtained about 25 bags of Quikrete 5000, a commercial-grade blend that is commonly available at hardware stores across the country. It costs more than other options, he says, but it's known for providing an even mix of cement powder and aggregate throughout each sack, a quality essential for this job.

To build a mold for the piece, he started with a frame of bamboo plywood from China. His choice of wood in his work has evolved, he says. He used to favor vertical grain Douglas fir, but switched to hemlock to avoid putting any more demands on dwindling old-growth forests. Bamboo, he's since discovered, is even more environmentally friendly — a mature forest grows in just five years, he says, and the plywood made from the harvested plant suits his purpose nicely.

After securing the cylindrical wood frame with wire, he attached a piece of curved aluminum to an arm and mounted it on a pipe in the middle of the frame. He applied a layer of plaster on the inside of the wood frame and rotated the center assemblage to smooth it. Then he shortened the arm and put down another layer, then a third.

Finally, it was time for the pour. To keep the center hollow, he replaced the pipe with a length of Sonotube, a form for molding concrete columns.

Not everything went perfectly. Cheng applied a layer of drywall mud onto the plaster to get an additional degree of smoothness on the surface of the concrete. But the mud was too soft, he says. When he pulled away the framework, some of it stayed behind. "It never affected the concrete," he says, "But we had to do a little cleanup. It made it harder."







He would have been better off getting the same effect from a fourth layer of plaster spiked with retardant, he says.

The bar cured for 10 days. Next came grinding, finishing, and the application of penetrating sealer and wax. And that was it. "We wanted a good finish," Cheng says.

Time for tea

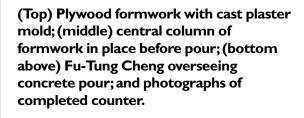
With its vaguely Eastern shape, the tea bar reflects Cheng's design scheme for the whole establishment. It's concrete that makes a statement about culture. "I wanted to show that Chinese design doesn't necessarily mean red and gold and dragons all over," Cheng says. "There's an essence to Eastern design that can come through in a modern context."

The exotic flair of the concrete piece complements Celadon's menu, which features gourmet and whole leaf teas from China and Taiwan, with a few offerings from India, Korea and Japan added for flavor.

These are "connoisseur-level teas," Cheng says. And preparing them is, like decorative concrete work, a science of variable control. Servers monitor and control the temperature of the water, the temperature of the cups, the number of infusions the leaves have endured, even how the brew is stirred.











Tea's time has come, Cheng says. "Tea is where wine was in the 1960s. People don't know what good tea is yet. They just don't have a clue."

As for showcasing his design skills, the tea shop is proving to be a ripping success. Since it opened, Cheng has found he loves to just lay low and steep in customers' oohs and ahs. "I sit at the tea bar like Norm in 'Cheers,' watching people come in and their jaws drop," he says.

For more information about Cheng Design, call (510) 849-3272 or visit www.chengdesign.com.



Other projects by Cheng are shown above.



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Early-entry cuts for decor

Concrete saws increase productivity and design options by John Strieder



xtreme-sports pioneer Tony Hawk isn't the only southern Californian to start a revolution with a skateboard.

Sometime in the early 1980s, a concrete contractor named Ed Chiuminatta pulled the wheels off a board and attached them to a Skilsaw. The result? A saw blade that could roll across green concrete, slicing a control joint in a fraction of the time it would take to carve the groove by hand.

Today, Chiuminatta's company, Soff-Cut International Inc., is the leading manufacturer of green concrete saws — machines designed specifically to cut concrete before it dries.

Kelly Dickinson, sole proprietor of Superior Concrete & Masonry in Riverside, Calif., says that 10 years ago most jointing was done by hand. "At last some people are starting to convert over to different things," says. (He should know; he has helped Soff-Cut test and fine-tune saws for years.)

Crack control is a concrete contractor's biggest headache, Dickinson says, and green concrete saws are the miracle cure. They allow a contractor to do expansion cutting before the concrete has set long enough to start cracking. "It's as close as you get to a guarantee that you're going to control crackage," he says.





Early-entry saw cuts are faster, easier and look better, states Jim Johnson, an engineer who designed and improved the Robo-Kut saw, which is being marketed worldwide by N-E-D Corp. "After the concrete has set there for a day, most cracks have already started," he explains. "The sooner you can start the better."

What's more, he says, the machine slashes labor costs. With the saw's help, even a rookie can finish off an entire floor the same day it was poured. That's cost effective, he says, especially on jobs where state regulations require contractors to match union wages when paying the crew.

Because of early-entry saws, Dickinson's firm can pour more concrete and use less labor to do it. So he's making more money. In a word, he's sold. "We've got tens of thousands of dollars invested in Soff-Cut saws," he says.

Soff-Cut dominates its niche, but these days, it's hardly the only brand on the market. Early-entry saws can be as big as carpet-steamers or as small as electric brooms. They can be powered by gas or electricity. They also vary in features.

The Soff-Cut brand is known for its skidplate, which slides over the concrete on both sides of the blade to prevent spalling or crumbling.

The Robo-Kut saw features torque control, which monitors the load on the motor and adjusts the speed of the blade to suit. "If you run into a hard spot, like a bunch of rocks, it slows and keeps a constant load on the blade," Johnson says. "The reason why we have torque control is so the operator cannot abuse that saw. He cannot screw up the concrete."

Soff-Cut blades cut up, while Robo-Kut blades cut down. There are other green cut saws on the market too. A saw manufactured by Rapidcut Industries LLC, for example, is touted as having the ability to cut right to the edge of a wall and be particularly good at making straight cuts.

Contractors also have their pick of blades, ranging from basic cutters to blades that "chase" existing cuts, carving V-grooves, rounding edges, or otherwise duplicating a hand-tooled effect. "You can accent your saw cuts that way," notes Soff-Cut application specialist George Shields.

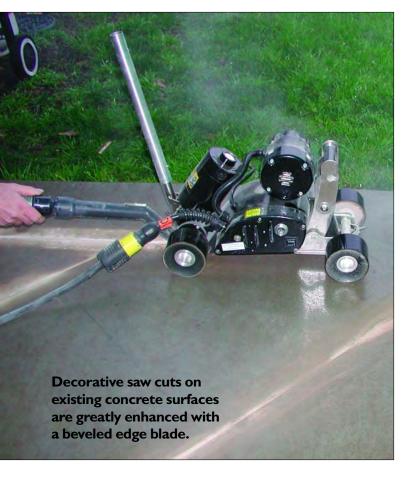
These options make early-entry saws especially intriguing for decorative contractors, who could use them to offer another cheap, good-looking option to their menus.



But especially when looks are important, experts warn, contractors must be careful when cutting green.

When it comes to decorative concrete, the more cured the better, Johnson says. "You want to cut them green. But cutting green decorative concrete is very difficult. The best cuts ever made were on cured concrete."

If the machine is pushed across the concrete too slowly, the saw blade can flutter, he says. If the machine stops, it can leave an ugly scar.







Shields recommends getting on to the concrete "as soon as you can walk on it and not leave a wheel-print."

That's a crucial distinction — judge by wheel-print, not footprint. The ball of a worker's foot may exert less pressure (measured in pounds per square inch) than the wheel of a mechanical saw. Harder, smaller tires press the entire weight of that machine onto the concrete at one point. Larger and softer tires, on the other hand, exert less pressure against a given square inch of concrete.

"It's not how much something weighs, it's how much surface, what spike you put it on," Johnson says. "As long as it's less than the weight of a man, you're okay."

Chris Green, partner in Rapidcut Industries, says a contractor can start cutting as soon as the concrete will take a blade without spalling. But if the concrete doesn't yet have the proper surface strength, the aggregate will pop out, he says — and it can do so even after the job is finished. "On warehouse floors that's a huge issue," he says. "They've got forklifts going over them and all of a sudden the joints start spalling. It coasts a huge amount of money to fix."

A chaser blade must be used to grind away the damage. Otherwise, it degenerates like a pothole, he says.

Green concrete also requires blades with a harder bond than those typically used with dry concrete, Green says. "Green concrete is softer and more abrasive, so you need a little harder bond. A softer bond will cut through it like butter, but you won't have blade life."

Another well-documented controversy surrounding early-entry cutting is whether joints in green concrete need to be cut to the same depth as those in hard slabs. Many say shallower cuts work just fine, and Johnson is one of them.

"Cracking is not going to be as big an issue," he says. "If you cut it early enough you don't have to cut it deep at all."

But he quickly adds that, because of liability issues, it's not a good idea to deviate from ACI standards for hard concrete, particularly if they are specified in the plans. "If the engineer specs it out, the contractor doesn't do it and it cracks, the person who paid for the job can come back and say, 'You didn't cut it as deep as you were supposed to."

Decorative applications

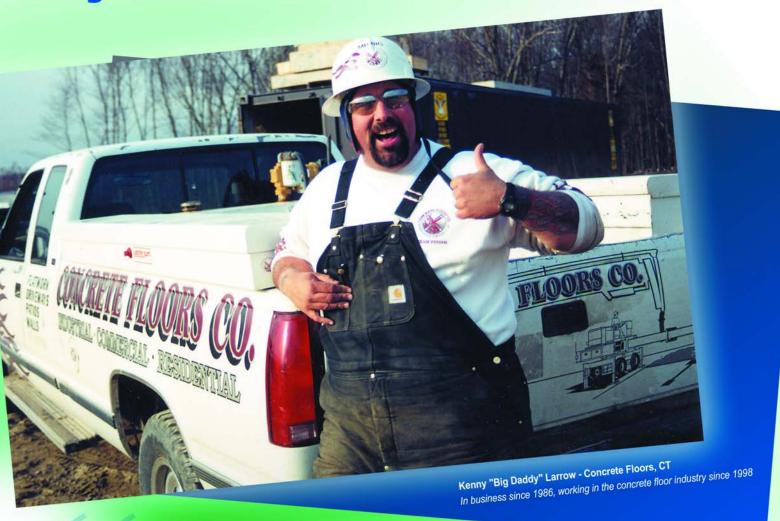
These tools offer unique opportunities to concrete contractors. "A lot of guys aren't aware yet that you can do it with a saw and make it look decorative," Green says.

Dickinson says decorative cutting and scoring is a big market for his firm right now, and early-entry saws allow him to score and cut decorative patterns much faster than he could by hand. Add some staining, and contractors can achieve mural-type effects, he says — circles, patterns, and emblems. "That's a real popular thing."

The saws give the cutter more control than hand cutting, making it easier to keep the joint straight and to put it where it needs to go, Dickinson says. With a blade small enough to maneuver, a saw can even be used to cut a joint down the center of a serpentine driveway, in a line that follows the curve of the slab.

Rudy Tena, owner of Tennaco Concrete Inc., a commercial outfit in Eugene, Ore., notes that the saws are cheap enough to just buy and have around for when you need one. "At \$3,500, it's a bargain, really," he says. But in Tena's opinion, hand-tooled joints look better than machine cut, even after they are prettied up with a chaser blade. You would see aggregate in the machine cut, he says, and the

"If you're not using Soff-Cut, you're a cave man." Kenny "Big Daddy" Larrow



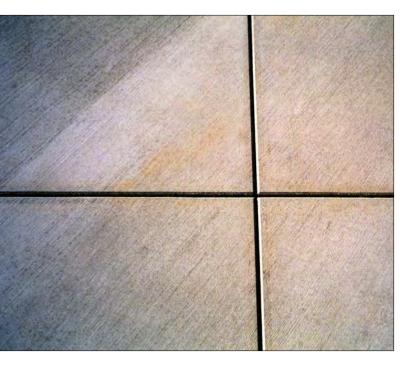
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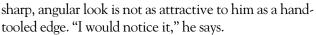
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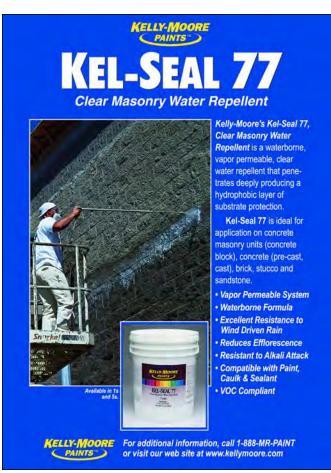
Dickinson agrees that some jobs call for special detailing. "Having the exposed look of a traditional hand tool is pretty unique," he says.



But as contractors become more aware of what green concrete saws can accomplish, the saws are earning their place on more and more job sites. "When you get somebody who's experienced and they have a feel for it you can do some pretty amazing things," Dickinson says.

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PRODUCT PROFILE

The Pebble-Flex System

The Pebble-Flex System, made by United Surface Technologies, is a new system for resurfacing concrete that not only offers a decorative look, but adds life to the substrate.

Pebble-Flex is a porous thermoplastic rubber made into unique pebble-like shapes and designed to be applied over the top of old or new cracked concrete as well as wood, metal or fiberglass surfaces. It bonds to most surfaces and will resist surface movements. It is comfortable to walk on, UV stable and will not deteriorate or become inflexible even under harsh weather conditions.

The company has tested the product for over 5,000 hours in its Xeron Weather ohmmeter machine without any fading or discoloring (equivalent to 20 years of exposure to UV sunlight). Pebble-Flex comes in 10 standard colors, and the company will custom match any colors at an extra cost. Common uses include patios, pool decks, driveways, sidewalks and steps. For more information, call (800) 509-4144 or visit www.pebble-flex.com.



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Photographs courtesy of Davis Colors

Manufacturer Profile: Company thrives on

chemistry, color

Davis Colors celebrates 50 years of coloring concrete



After arriving in the U.S. as a refugee from World War II, Frank Davis became a partner in the Roberts-Davis Company in Los Angeles, a predecessor to the Davis Colors Company he founded in 1952.



As decorative concrete has become more widely used, contractors in all parts of the country have grown increasingly skilled in the craftsmanship required for high quality colored concrete work.

rank and Jackie Davis fled their native Austria after the Nazis confiscated their pigment business during World War II. After settling in southern California, Frank used his training as a chemist and colorist to blend and distribute pigments especially for the concrete industry. His love of color, heightened by the freedom he experienced after escaping the war, was expressed in his philosophy: "Color is light. Light is life. Color is life."

His company, incorporated in 1952 as the Frank D. Davis Company, remains a pioneer in the use of iron oxide pigments for coloring concrete. Now known as Davis Colors, the company has grown to become a global leader, with more than 140 employees, manufacturing facilities on three continents and the largest line of pigments and automated color-dosing systems in the construction industry.

Since the company began, integrally colored concrete has become part of the fabric of our landscape. Colored concrete is now used in every part of the country and is acknowledged as an important design option for all forms of concrete construction. In the ready mixed concrete industry, it is found in everything from the most humble driveway to the grandest of monuments. Precast concrete owes part of its growing popularity to the design versatility of colored concrete finishes. And colored products now dominate the market for concrete masonry units.

Initially, colored concrete was used primarily in small projects such as sidewalks. To prove the reliability of color additives, Frank Davis collab-

orated with industry associations to establish standards. As confidence in the material increased, colored concrete became stylish on larger projects. Frank Lloyd Wright, a pioneer in the development of architectural concrete, worked with Davis Colors on the Grady Gamage Auditorium, built in 1959 at Arizona State University. Integrally colored concrete was also used in the mid-1960s reconstruction of San Francisco's famous Palace of Fine Arts.

Over the years, colored concrete has kept pace with changing tastes and building methods. In the 1970s, for example, Davis Colors provided the adobe tones for the CMU slump blocks

Once used almost exclusively as an exterior building material, Davis Colors are now equally at home in residences and commercial interiors.



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that were enjoying popularity. Today, on the other hand, color is a big part of the appeal of interlocking concrete paving units, a concrete masonry product which is rapidly gaining market share. Color has also found a home in pattern-stamped concrete simulating brick, stone and other textured pavements.

Throughout the 1990s, colored concrete was increasingly used in environmentally sensitive projects such as a bridge in Zion National Park and the parking structure at the Hoover Dam Visitor Center — where earthtoned pigments harmonized with the natural landscape. Other environmental benefits of integrally colored concrete have also gained in importance. In comparison to painting a concrete structure, for instance, integral colors are free of volatile organic compounds and provide a permanent finish that improves lifecycle value by eliminating the need to reapply coatings.

And of course, colored concrete is now immensely popular as an interior finish and is now used for flooring and countertops in both homes and commercial establishments.

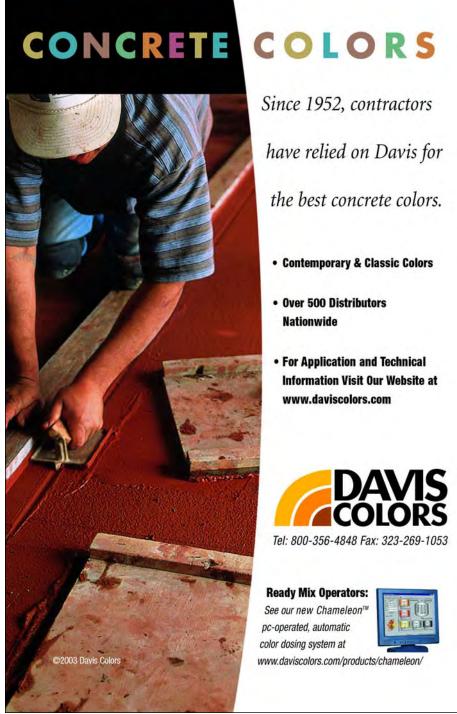
Frank Davis' company was renamed Davis Colors in 1976 when it became a division of Rockwood Industries. It continues today as a division of Rockwood Pigments, the global pigment division of Rockwood Specialties Inc. In addition to its original manufacturing facility in Los Angeles, Calif., Davis Colors now has facilities in Maryland, Missouri, Germany, Italy, and the United Kingdom, as well as a joint venture in China. The company is vertically integrated, synthesizing its own iron oxide pigments as well as blending, liquefying and granulating colors to meet a variety of customer requirements.

The Davis Colors product line includes concentrated pigment powders, Hydrotint liquid slurries, Granufin low-dust granulated pigments, and packaged pigments such as True

Tone mortar colors and Mix-Ready disintegrating bags for convenient dosing of mobile concrete mixers. The company also produces automatic, computer-controlled concrete coloring systems, including Granumat for use with granulated pigments and Chameleon for use with liquid slurries.

"As people continue to understand the beauty of colored concrete and the value it provides concrete producers and homeowners, they will find more ways to use color," says Rockwood pigments managing director Ronald L. Rapaport. "We are excited by and ready for the challenges of the next fifty years."

To learn more about Davis Colors, visit www.daviscolors.com.





hen a technology has been in use for some 2,000 years you'd be right in thinking that the originators might have had a pretty good idea. Of course, the technology of radiant heat has improved through the centuries. And, today, many people are giving radiant floor heating another look as an option in commercial and residential applications.

Radiant heat delivers warmth without ducts and registers; heats evenly, in an energy-efficient manner; and is silent. There are hydronic (hot water) and electric systems.

"A lot of smaller jobs [such as baths and kitchens] and retrofits are done with electric systems," reports Hoyt Corbett, a consultant and publisher of The Radiant Flooring Guide," based in Seattle. Electric systems are growing fast, especially in conjunction with tiled floors, as the electric elements can be embedded in the thinset layer, he adds.

Most big projects are hydronic, Corbett says, because there is a better level of control with regard to water temperature and circulation. "In 2002, there was approximately 130 million square feet of [new construction] hydronic radiant flooring installed—and about half of that was installed in concrete slabs."

And Corbett reports that the installation of radiant heat flooring is growing at about 20 percent to 25 percent a year. So, it makes sense, he observes, for concrete contractors to investigate and form a relationship with radiant heat installers in their area. "The fit is very good!"

It's what you do anyway

Whether or not radiant floor heating presents an opportunity for concrete contractors depends on the area of the country you're in and the usual method of construction there.

Radiant floor heating is a natural in on-grade concrete slabs. The heating tubes are normally fastened with plastic ties to 6-inch by 6-inch concrete mesh so the tubing winds up in the middle of the slab. These slabs expand and contract more frequently than slabs without









radiant heat, so all care of the normal steps should be taken with the pouring and curing. But hydronic tubing is very flexible, so some cracking should not be problematic, just cosmetic. Corbett explains that in Europe the systems are typically done in two pours, with the tubes embedded in a topping slab.

If radiant floor heating is to be installed without a slab on-grade or on

the second floor — or higher — the standard installation involves attaching the tubing to the subfloor, and then, most frequently, a 1½-inch slab of concrete or gypsum-based cement product is poured on top. (In some applications, the tubing is attached under the floor, between the floor joists, but that doesn't really apply to this discussion.)

The good news for concrete contractors is that concrete floors have the highest output of radiant heat, and the best heat retention. The cost to install radiant floor heating runs from about \$3.50 to \$14 a square foot, depending on where you are in the country and how elaborate the system, according to Corbett. And, he says, there is a shortage of installers.

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"Today, radiant heat is the fastest growing segment of the heating industry," said Mike Chiles, president and general manager of Watts Radiant, a leading supplier of radiant heat products (www.wattsradiant.com). "We're seeing an incredible rise in interest among those in the concrete industry — not just for the popular PEX tubing, but also for synthetic rubber

tubing, and electric radiant mats in, and over concrete. Commercial hydronic installations are rising fast, both for large concrete floors and large snowmelt systems. We're seeing a lot more of these with stamped concrete finishes."

Beautiful warm floors

Dave Pettigrew, owner of Diamond D Co. in Capitola, Calif., works the Bay area and has plenty of experience with radiant heat floors. When it comes to installing the systems, he lets the plumber take care of laying the tubing, but Pettigrew is the concrete specialist.

"When I saw [concrete] staining about 12 years ago, I knew I was interested and I took that on to the next step, to find the best market, which was radiant heat," Pettigrew





recalls. Not only does a concrete floor conduct, hold and radiate heat well, "it's beautiful with stain and art work."

Pettigrew says he'll do just about any kind of decorative surface his customers want, but, generally, he uses stains and colored micro-toppings. He also prefers pouring the slabs in two layers: a structural slab, then a 3½-inch

concrete layer with the radiant heating tubes. In between the concrete layers is an insulator.

What about applications with plywood subfloors? Pettigrew has developed his own system for that, too. First, waterproofing goes down, then the tubes are attached. Pettigrew uses a pea



gravel concrete to fill up to the top of the tubes or coils — about three-quarters of an inch thick. He lays a crack isolator on top of that, and then pours 1½-inch concrete for the decorative concrete work. "One and a half inches of concrete





weighs about the same as marble," Pettigrew says. He adds saw cuts at pressure points to minimize random cracking.

Valerie Wells, a decorative concrete contractor and owner of ArtScapes in Albuquerque, N.M., has been applying her hand to radiant heat floors for about eight years. She comes in after-the-fact — after the concrete with the embedded tubing has set up. Her specialty is decorating the floor surfaces. "Decorative finishes are more costeffective than other floor coverings," she reports. "It's comparable to carpet, cost-wise." For customers who are wary of decorative concrete by itself, she says some customers have had her apply a decorative finish and then they add area rugs.

Wells favors decorative cuts and acid stains to achieve her decorative effects. She has also applied overlayments for stamped textures. Flagstone and rock textures are popular in the southwest. As in other concrete work, expansion joints are important, says Wells, however, hairline cracks can be used to decorative advantage. For example, hairline cracks can add to the design of a faux marble finish.

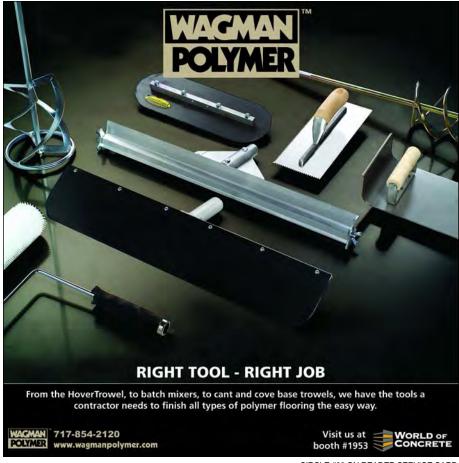
Decorative concrete artisans might like concrete radiant heat floors for another reason — they make it easier to work in cold weather. "Sealers are temperature-sensitive, so radiantheated floors are good to work on in the winter," Wells points out. She typically uses a two-part epoxy sealer with urethane over it because it is more environmentally friendly, but she also uses solvent-based sealers and solvenated acrylics in commercial applications.

More about the "G" word

Depending on whom you talk to, Gypsum-based cement products such as Therma-Floor, Gyp-Span and LEVELROCK may have a couple advantages over cement with regard to radiant floor heating systems. Gypsum-



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Radiant heat floorcoverings at-a-glance

ere's an overview of typical radiant-heat floor covering products and how they compare to decorative concrete. Cost for all floorcoverings varies from region to region and depends on the quality of product and installation.

Decorative concrete

- No barriers to inhibit heat
- Can be stained, coated, integrally colored, stamped, textured, saw cut, you name it
- Typically easy to clean and care for

Tile and stone

- Good heat conductivity
- Easy to install over radiant heat floors
- Easy to care for

Roll products and linoleum

- Check with manufacturer for compatibility
- Floor temperature may affect adhesive time
- Rare, but radiant heat may cause discoloration or a bad odor

Hardwood flooring

- Wood should be acclimated to room temperature before installation
- Consideration of moisture content is very important!
- Various installation techniques can be used, including floating floor, glue down, direct nail or nail to sleepers
- Moisture barrier a must between hardwood and concrete or gypsum subfloors
- Wood floors require special care

Carpeting

- Most carpet products and pads can be installed over radiant floors, but check with manufacturer for compatibility
- Pad and carpet act as thermal insulators, so they cut down on conductivity; it's best to select the denser, less insulative carpet padding (thicker, plush products have higher R-values)
- Ongoing care and cleaning can be a concern



based cement products adhere well to various subfloors and adhere to and seal the radiant heating tubes so you don't have air bubbles to worry about. These products can be poured in a thin layer, are lighter in weight than concrete and don't shrink as they cure. In addition, they cure quickly and virtually any kind of finished floorcovering can be applied on top.

On the negative side, gypsum-based cements are not a wearable, finished floor surface, with one exception todate. United States Gypsum Co. has introduced PROFLOW to its line of LEVELROCK Brand Floor Underlayments. According to the manufacturer, PROFLOW can be used as a finished floor when it is "coated with an approved decorative finish from Richard James Specialty Chemical Corp." Don Brandt, market manager for LEVELROCK products, reports the decorative finish is a specially-developed acrylic-based epoxy topical coating. Brandt says PROFLOW can be integrally colored and you also can mottle the topical coating to achieve a faux finish.

Beyond the pros and cons of using gypsum-based cement products, concrete contractors may view them as another way to expand their business. Sharon Goerlach, marketing assistant for Construction Products Network Inc. in Prospect Park, Pa., says "There is a lot of crossover in concrete contractors who also install [gypsum-based cement] products." A lot of the same application techniques apply: raking it into place and floating it out. But it requires specialized equipment and training. "Only trained, licensed applicators can install it," reports Michelle Thompson, marketing communications coordinator for Hacker Industries Inc. in Newport Beach, Calif. Concrete contractors interested in learning more about these products and available training opportunities should contact the various manufacturers of gypsum-based cement underlayments.

Other things you might see in the field

If you, as a concrete contractor, decide to enter the radiant heat floor market, there are a couple of fairly recent items that you might encounter or decide to use.

When pouring slabs on-grade, a moisture barrier is important. If your slab will integrate radiant heat, you might consider an insulating moisture barrier.

Innovative Energy Inc. developed TUFF-STUFF, a high-strength, insulating moisture barrier, especially for use below heated concrete floors. Warner Buchelt, the company's national sales manager, says you typically don't lose a lot of heat to below the slab, but "having an insulating barrier will increase the efficiency of heating the building." It will ensure the heat is directed upwards, not lost, either to the soil below or to groundwater, which can carry away heat. TUFF-STUFF reduces downward heat loss by more than 50 percent.

Contractors who cross over into the radiant heat flooring market or pour gypsum-based cement underlayments may encounter the BEKOTEC Modular Screed System, which allows for continuous screed surfaces without control joints or saw cuts. Kimberly Rielly, public relations coordinator for Schluter Systems LP, the manufacturer, explains that the system's lightweight studded polystyrene panels are placed over the substrate, the radiant heat tubing is looped between the studs and a screed or gypsum-based cement product is applied on top. Any microfine cracks that develop during curing occur between the studs, which "confines the curing stresses to each module, eliminating the need for control joints in the screed."

For more information about radiant floor heating systems, visit the Radiant Panel Association's Web site at http://www.radiantpanelassociation.org.



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CIRCLE #26 ON READER SERVICE CARD

Industry Spotlight

Concrete is Central to Home Vacation Retreats

o say there has been an explosion in demand for decorative concrete is quite the understatement. Homeowners are hiring decorative concrete specialists to color, stain, score, stamp, overlay or otherwise decorate the pool decks, entries, driveways and walkways around their homes.

Training opportunities for decorative concrete applications are exploding. The Stamp Store in Oklahoma City recently started offering two training classes per month instead of one just to meet demand. Concrete Solutions Inc., out of San Diego, Calif., notes that their training classes are filled with contractors adding decorative concrete to their repertoire or adding on new decorative techniques.

What is driving this huge growth in demand for decorative concrete? What trends are emerging that those of us with an interest in the decorative concrete industry can fill? Think vacation spot — homeowners want a resort right in their back yard.

AMCON, located in Gaithersburg, Md., is seeing a large increase in pool-related projects. AMCON creates an array of hardscape projects — including patios, porches, walkways, and driveways — by using stamped and colored concrete



techniques that complement a variety of landscapes and provide a touch of individuality to a homeowner's back yard. "Many homeowners not only want a pool, but a total package — a backyard retreat in which they can escape and relax at the end of the day and on weekends," says Mary Amaro of AMCON.

Adds Mike Boedekker of Pristine Concrete in Paso Robles, California: "Today, people want their own private vacation spot, somewhere they can retreat to every day."

Homeowners often want an extension of their house — an
exterior surface that flows with the indoor flooring materials



they have used. Boedekker is also receiving a lot of requests for outdoor kitchens with barbecues, sinks, burners, warmers, refrigerators and even storage areas.

Using decorative concrete as part the overall design of a home is also happening in the Staples, Minn., area. "We have been doing large decorative driveways, 2,000 to 5,000 square feet, lakeside patios and wrap around porches," says Mike Verlennich of Verlennich Masonry and Concrete. "This is in keeping with the rustic and log homes found in the lake areas." Verlennich also noted that sometimes someone will see one of their projects out in public and have to find out more. One woman visiting her local Dairy Queen eagerly entered the drive-thru and asked not for an ice cream but for information — she wanted to know who created the

sandblasted, red cobblestone patio, accented in black.
When the woman found out about Verlennich, she contacted the company and said she wanted her sidewalk to look just like the Dairy Queen patio — minus the big Dairy Queen logo, of course.

Decorative contractors are also sprucing up existing concrete. Concrete Art, located in Carlsbad, Calif., turns boring gray concrete into surfaces with innovative





designs and vibrant colors. "We enhance existing surfaces so homeowners don't have to go through the arduous process of replacing concrete," says company president Jeffrey Grieve. Concrete Art, whose clientele is equally split between residential and commercial, installs 350 projects per year. "With the large amount of refinancing occurring in

Southern California due to low interest rates and soaring values in real estate, people are spending money enhancing their homes, not only as an investment vehicle, but to make living in them more pleasurable."

Bill Guthro of Distinctive Concrete, located in Boston, points out that stamped concrete is also very cost effective. "Stamped concrete is usually about one-third less than the price of installing natural materials," according to Guthro.

As more homeowners and business owners see the options they have available with concrete, and with the creativeness shown by decorative concrete contactors, the decorative boom is sure to continue and grow out into the future. After all, given the chance, who doesn't want a vacation spot right in their back yard?

Jim Peterson is founder and president of The Concrete Network (www.concretenetwork.com). Founded in 1999, The Concrete Network serves architects, builders, designers, consumers, and remodelers with over 1700 pages of concrete information and a nationwide network of local service providers for concrete countertops, stamped concrete, acid-etch staining, concrete resurfacing, and 43 other types of concrete work.







Brushed Finishes

Grab a broom and let your imagination run wild by Joan Stanus



pplying brushed finishes on concrete began as a practical matter. Contractors needed a method to aesthetically "put a bite" on smooth concrete so driveways, pool decks and other surfaces wouldn't be too slippery.

But today, as contractors increasingly seek new methods to decoratively finish concrete, brushing or "brooming" the surface has evolved into a fairly uncomplicated, yet versatile, technique to create unique artistic applications.

"The possibilities are endless," notes Devin Johnson, vice president of Architectural Concrete and Design Inc., the Salt Lake City-based company that serves as the Utah franchise for Bomanite Corp.

"It's more or less artistry," he adds. "It's like putting a brush in an artist's hand and letting him create on a canvas ... except this is on concrete. You pick a pattern and go with it. People just keep taking it a step further and further."

Contractors like Lee Levig of Concrete Works concur.

"You can really get creative with broom finishes," Levig says. "A good thought to keep in mind is to mix applications to get different looks. You can mix the broom with stamps or with stains and different colors. There are all kinds of things you can do when you get creative."

In fact, Levig adds, brushing can part of what he calls a "budget decorative" project. "For the long spans of concrete, like a driveway," he says, "you just color it and broom it. Then you do the borders with a stamp."

The basics of creating brushed finishes are fairly simple — brooming concrete is not that much different from sweeping the floor with a broom. At its most elementary, contractors simply push or pull a broom across the concrete while the pour is still soft.

The finished look can vary widely, however, depending on how soon the brooming is done, the texture of the bristles and whether the concrete surface is wet or dry.

The tools for the job are simple. There are essentially two types of brooms — those made of horsehair and those made of

synthetic materials such as nylon. Brushes come in either hand or push varieties.

Horsehair brooms create finer textures than do the synthetic varieties, although manmade brushes are manufactured in various diameters, allowing contractors the flexibility of fashioning dramatically different looks.

In recent years, brush manufacturers such as Marion Brush Co. in Iowa have developed systems specifically for brooming concrete. Marion's handleless finishing system, the Chameleon Trac II, for instance, allows contractors to finish pours that are awkward and to reach farther than traditional brushes extend. The system is equipped with color-coded brushes of different sizes and textures, an angle adjustment device and an adaptor to convert to a twin-brush system.

"Normally, you can't go wider than about 30 feet with a brush," notes Doug Rouse, Marion's general manager. "But with our handleless system, you can go as far as 200 feet if you want and still get consistent and even strokes. The beauty of the system is that you only need to take one pass to get what you want. That doesn't happen in traditional brush systems."

The moisture content of the brush is also critical to creating various looks. A damp, stiff- bristled broom, for instance, can produce a coarse texture, perfect for heavy traffic areas and sloping surfaces. Dry, soft-bristled brooms are best suited for creating medium to fine textures.

"The general rule of thumb is the stiffer the bristles, the coarser the finish," notes Levig. "But, really, it all has to do with timing and when you get on the concrete."

Therein lies the rub, say contractors. Getting on the concrete too early can create a weak surface; getting on it too late can mean the strokes won't make the desired indentations.

Knowing when the concrete is ready to be brushed is largely a matter of "acquired touch," contractors maintain.

"I touch it," notes Levig, who is based in Fairfield, Calif. "When I push hard and barely feel the movement in the cream, I know it's ready. It's something you really learn from experience."



"I do the 'finger test," echoes Johnson. "I push my finger in and if it's hard enough and my finger doesn't leave an imprint, then it's ready. Once the concrete is troweled, it really needs to dry enough so when the brush is pulled over it, the surface doesn't come off."

The readiness of the concrete can also vary from region to region and with the technique used.

"The weather is a big factor," notes Rouse. "Contractors on the West Coast

What to avoid when you're brooming

- To much water on the surface
- Waiting too long to begin the process
- A dirty broom
- Getting on the concrete too early or too late

may broom before those in Iowa. Generally, if the water bleeds off the top, the concrete is ready."

A critical factor to ensuring the desired effect is keeping the brushes

clean. Whether synthetic or horsehair, the bristles should be rinsed frequently to keep the tips clean.

Rouse recommends dipping brushes into a 5-gallon of bucket of water, then shaking off the excess moisture, between each stroke.

"You should wash as you go," adds
Levig. "You don't want a dirty brush.
You'll ruin the cream and remove part of
the top." Before he brooms, Levig always
moistens the surface of the concrete to
ensure enough moisture exists for his
technique. That can be done by misting
the surface of each section before
brushing (being careful not to use too
much water) or can be a byproduct of
dipping the broom in water to clean it
before each stroke.

Johnson, too, cautions against adding any dirt onto the concrete.

"You don't want any build-up," echoes Johnson. "It can be disastrous to your look."

Also disastrous to the look is inconsistency in brooming different areas of the pour. In brooming, timing is everything, contractors like Johnson and Levig maintain.

"You have to be sincere about what you're doing and pay attention," Levig cautions. "You have to have the same pressure on the broom throughout. That might mean you may have to apply different pressure at the end of the job than you did in the beginning because you're doing it at a different time of the day and the conditions are different. You want the whole slab to look the same.

"You also have to be careful from one truck to the next," he adds. "Where the two trucks meet, you may have to go lighter on one side and heavier on the other. You have to use your eye and be



aesthetic. It's all common sense and experience."

Contractors like Ray Hight with California-based Tom Ralston Concrete cautions that ensuring consistency in brooming, especially with colored concrete, can be tricky.

"We got away from brooming a few years ago because it can change the shade of the concrete and create very uneven colors," he says. "Even if there is no color in the concrete, you can get different shades."

Depending on the conditions of the pour, admixtures can enhance the brooming possibilities by buying the contractor some time and making the pour dry more evenly. In cold weather, for example, adding calcium chloride to the pour can speed the hardening process, allowing contractors to get on the concrete faster and coordinate the timing with the second pour.

In the end, however, it's all about the look. The broomed effects possible are limited only to the contractors' imagination, say those in the field.

Some of the possibilities:

- Changing the direction of strokes with different textured brushes can simulate the look of wood grain, similar to that of a parquet floor.
- Finishing the concrete with alternating brush strokes in jointed blocks can resemble a checkerboard.
- Swirls can be created by pulling a lightly featured brush in a circular motion.
- A "picture frame" look can be achieved by using the trowel's hard edge to block off the broomed parameter.
- A broom can be used to create curves, waves, herringbone patterns, even circles.

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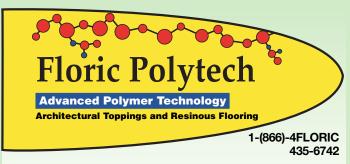




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is a paid listing of quality-related products. If you would like more information about any of these products, circle the appropriate number on the reader service card found between pages 52 and 53 of this issue.



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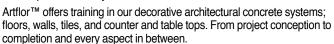


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Product News

Integral coloring systems for ready mix

QC Construction Products has launched a new "total systems" approach to integral coloring for the ready mix market. QC ColorTech-E delivers superior concrete finishing performance from a blend of dispersements, conditioners and water-reducing agents that offset water demand caused by pigments. It contains engineered colored admixtures that do not require mix adjustments at the ready mixed plant. Ideal for ready-mixed concrete

and all horizontal and vertical applications, QC Color Tech-E can be utilized for concrete flatwork applications that feature salt, broom or rotary



finishes as well as a wide range of other architectural concrete installations. High-strength pigments yield an expansive palette of colors. Designed to replace QC Integral Color, it is packaged for one cubic yard of ready-mixed concrete in disintegrating bags for exact dosing.

As an alternative, QC ColorTech provides an economical option for coloring ready-mixed and precast concrete. Designed for high volume in ready mix, it delivers high-performance color without the hidden costs or variability found in liquid coloring systems. The end result is a lower cost per pound of color and increased profits for ready mix customers.

QC ColorTech, available in one-, five- and 25-pound disintegrating bags, replaces Bayferrox by QC. For more

information, visit www.qcconstructionproducts.com.

Adhesive anchoring adhesive

Sika Corp. has entered the adhesive anchoring market with the introduction of four new injection cartridge systems. Geared to the professional contractor, Sikadur AnchorFix-2 is a high-performance epoxy acrylate anchoring adhesive that's easily dispensed from a good-quality, standard caulking gun. AnchorFix-2 exhibits high load capabilities, can be dispensed in all types of weather conditions, and cures in colder base-material temperatures than traditional epoxies. Each cartridge includes two static mixing nozzles, eliminating mixing errors and reducing waste.

AnchorFix-3 is the fast set version of Sikadur Injection Gel. The product's superior bond strength and fast cure times allow for same day loading of heavy-duty anchors. Each 22-ounce cartridge is packaged with its own static mixing nozzle. Larger, "hi-flow" static mixing nozzles for the 55-ounce cartridges are sold separately.

AnchorFix-4 is the regular-set version of Sikadur Injection Gel. Excellent long-term performance and

the same superior bond strengths provided by AnchorFix-3 meet the commercial construction industry's demand for reliable attachment to concrete or masonry base materials.

For more information, call (800) 933-SIKA or visit www.sikausa.com.

Walk-behind trowels

Stow offers four walk-behind trowels with a host of advanced features that improve operator comfort and control as well as providing "the flattest finishes anywhere." The four-blade Honda-powered trowels are offered in 36- or 46-inch diameter guard rings with power options ranging from 5.5 to 11 horsepower. The 36-inch ring diameter models can finish seven square feet of concrete per revolution. The 46-inch ring diameter models can finish 11.5 square feet of concrete per revolution. All four Stow trowels come fitted with the standard handle with a star wheel for precise adjustment. For

those who prefer smooth and easy pitch control, a quick-adjust handle with a tensioned lever mechanism is available. All models include

fingertip throttle control and a durable centrifugal safety switch that automatically stops the trowel should the operator lose control of the handle.

For more information, call (800) 421-1244 or visit www.stowmfg.com.

Diamond blades for dry cutting

The new Side Winder II diamond blades from Diamond Back are changing the face of high-speed dry cutting. The blades, which are available in 12- and 14-inch models, feature a ribbed core that reduces friction and heat while providing faster cutting and application versatility. The blades' T-shape diamond segment design enhances fast cutting performance, making them ideal for cured concrete, brick, block, asphalt and green

concrete as well as a variety of other materials.

The unique T-shape design also provides outstanding undercutting core protection, preserving the integrity of the steel core while extending blade

life and providing a greater return on investment. The blades are offered at prices comparable with competitor products.

For more information, call 800/417-0171 or visit www.diamondbackblades.com.

Galvanize your aggregate bin

Customers of Cemen Tech Inc. may now have their aggregate bin galvanized. When the Cemen Tech aggregate



bin is completely immersed into a molten zinc bath, the steel of the aggregate bonds with the zinc, creating zinc-iron alloy layers. The zinc layer acts as a barrier against water, oxygen and atmospheric pollutants and protects the steel from imperfections and abrasions. The galvanized bin will not only last longer, but because of its abrasion resistance, will also aid with the flow of aggregates. For more information, call (800) 247-2464.

Roller makes light work of compaction

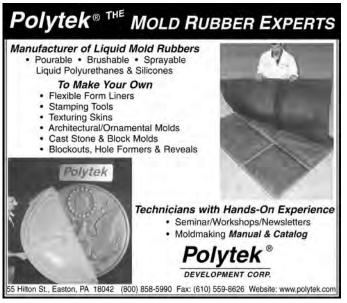
Multiquip's new AR-13H tandem drum roller is a lightweight solution to heavyweight compaction challenges. The 3,088-pound ride-on roller is built for asphalt and sub-layer granular and mixed-soil compaction jobs, making it ideal for work on parking lots, driveways, and roads. The AR-13H boasts 3,100



pounds of centrifugal force with 4,000 vibrations per minute. It has a 35.7-inch drum width and travels up to 4.8 mph. For improved efficiency and reduced labor cost, the AR-13H sports a 1½-inch clearance on the right side for close operation near walls and obstacles; a 19-inch curb clearance ensuring flush compaction to the curb; and unobstructed



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driver visibility. The AR-13H's front drum vibration with static rear drum provides a smooth and even surface. For additional ballast, the rear drum can be filled with water.

The AR-13H is powered by an 18horsepower Honda gasoline engine and has a maintenance-free vibratory assembly that reduces downtime. The roller also features a hydrostatic drive with infinitely variable speed control for simple forward and reverse maneuvering. This allows operators to stop and start the roller smoothly while promoting even operation and helping to eliminate asphalt marring.

For more information, call (800) 421-1244 or visit www.multiquip.com.

Glass-based cement for soil stabilization

Esportec, a French company, has developed a glass-based cement suitable as a stabilizing binder for soil. Waste from glass containers and flat glass is ground, chemically activated and processed into a binder which can be mixed with crushed sand to stabilize soil in park pathways, bicycle lanes, footpaths, game areas, sports grounds and car parks. The new Eco'Stabil® binder can be used to produce reinforced stabilized soil that retains the natural texture and color of sand. Other advantages include the self-repair of



micro-cracks; weather resistance; insensitivity to weather and flooding; load-bearing capacity and durability of at least 10 years. In addition to the reinforced stabilization of natural soils, glass-based cements can be used in foundations for road building, mortars, concrete and stabilized sports grounds. For more information, visit www.e-esportec.com.

Face-shield/respirator combo

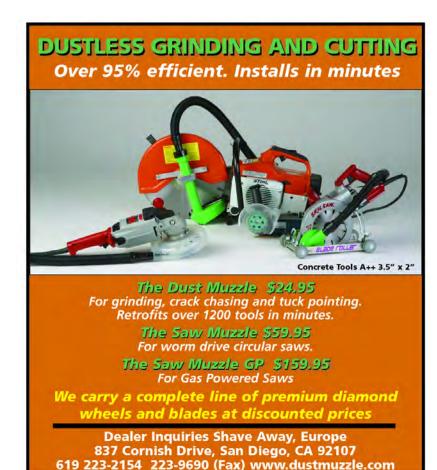
The new Clear Visor with Adflo system combines full eye and face protection with a slim, lightweight, powered, airpurifying respirator. The polycarbonate face shield has exceptional clarity and a wide viewing area, while providing protection from high-impact hazards. The respirator is used with a highefficiency particle filter that can be "stacked" onto an optional Adflo cartridge for additional protection against organic vapors, sulfur dioxide, chlorine and hydrogen chloride fumes. Additional features include a brushless motor, automatic airflow control, and a ventilated leather belt shaped for



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maximum freedom and back support. The system comes with a "smart" battery charger that controls the battery charging process automatically. The blower's breathing tube port is parallel to the worker's back, so it tends to stay closer to the user's body and is less likely to catch on surrounding obstacles. The system can be used in a multitude of settings, including aggregate processing, cement and stone cutting and other dusty environments. For more information, call (800) 628-9218 or visit www.hornell.com.



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