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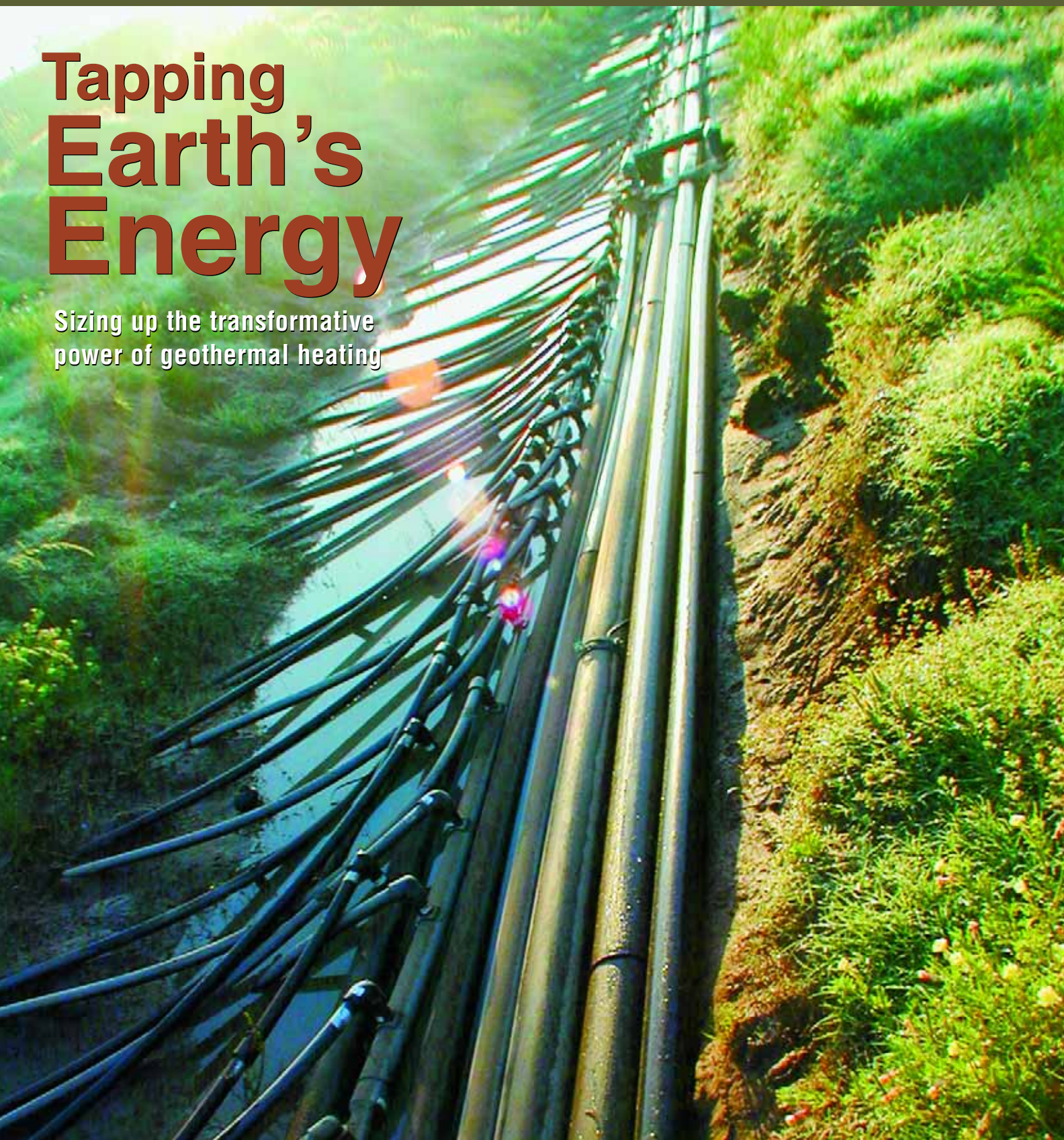
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24

Subterranean Energy

By Douglas Cook
An introduction to geothermal systems



30

Where Art Meets Technology

By Kris Kesler
Using computers to guide artful fabrications



38

Wiring Simplified

By Paolo Benedetti
A guide to safer, saner equipment-pad layouts



42

Civic Celebrations

By David L'Heureux
Revitalizing an urban center with water and light



Columns



- 6 Structures**
By Eric Herman
**Using water to
revive urban cores**



- 10 Aqua Culture**
By Brian Van Bower
**Keys to conducting
effective client interviews**



- 14 On the Level**
By Bruce Zaretsky
**Taking a stand in
support of fresh water**

- 20 Currents**
By Mark Holden
**Retooling what we do
for greener watershaping**

- 54 Book Notes**
By Mike Farley
**A giant step toward a
better base of knowledge**

Departments

- In This Issue 8**
Advertiser Index 50
Spotlight Index 50
In the Spotlight 51



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Gathering Places

By Eric Herman

Back in September 2009, I took advantage of my annual trip to the American Society of Landscape Architects' Expo by stretching things out with a few extra days in Chicago. I've always loved the city and was particularly excited by the thought of finally getting a chance to see Millennium Park in person.

I'd heard and read a great deal about it, of course, and my interest went way beyond our coverage of its Crown Fountain in our April 2005 issue: I'd always wanted to count myself among the millions who've enjoyed its open spaces, its beautiful features and the opportunities it offers to enjoy arts festivals and performances. In a very real way, it successfully redefined a big part of the city and has even had the neat side effect of driving up real estate prices in the surrounding areas.

I visited the park on a glorious, sunny afternoon with my great friends (and longtime *WaterShapes* contributors) Suzanne and Ron Dirsmith, and to say the park lived up to my expectations would be a gross understatement. Everything from the Crown Fountain and the spectacular Cloud Gate sculpture to the great lawn over which loom the sweeping arches designed by Frank Gehry – it all worked together in creating spaces and transitions of remarkable vitality and interactive energy.

The experience has stuck with me ever since, coincidentally at a time when a number of articles about revitalizing urban areas with parks centered on water and art have crossed my desk. In our January 2010 issue, for example, we covered St. Louis' Citygarden, and here again in February, we're covering Montréal's breathtaking *Place des Festivals* (see "Civic Celebrations" by David L'Heureux, beginning on page 42).

In both St. Louis and Montréal, city officials have invested substantially in the ability of water and art to attract tourists and offer locals a convenient place to gather and participate in cultural events. And they're far from alone: I've also been hearing lots of talk about the Promenade project in Dallas, for instance, and about a new downtown park in Los Angeles.

In all of these cases, dynamic watershapes are highly significant parts of the mix, and it's definitely exciting to hear about our industry's participation in the process of upgrading great cities in North America and beyond. But it's really not surprising, because this is what watershaping at its finest does: It elevates our collective standard of living by bringing beauty, excitement, tranquility and meaning to places where we meet, spend time, enjoy ourselves and indulge in philosophical and spiritual reflection.

As had tens of thousands before me, while I was in Chicago I took advantage of the beautiful day to act like a child and splash around in the Crown Fountain, and I must say that I experienced an elevation of my spirits and my enthusiasm about being part of this industry as a result. True, I also gave Ron and Suzanne plenty of ammunition for ribbing me gently about not acting my age, but I didn't mind – not at all.

While I was there in that wonderful city, in that fabulous park, within reach of that remarkable fountain, I really couldn't help myself. And the upshot? I felt the stresses of my life fade away in a few incredible moments of exuberance.

Here's hoping this trend catches on in city after city across the planet: Personally, and I'm certain some of you will agree with me, I'd probably benefit from getting good and regular soakings everywhere I go!

Eric Herman

WATER SHAPES

Editor

Eric Herman – 714.313-6136

Associate Editor

Melissa Anderson Burress – 818.715-9776

Contributing Editors

Brian Van Bower	Mark Holden
Bruce Zaretsky	Mike Gambino
Mike Farley	Dave Peterson

Art Director

Rick Leddy

Production Manager

Robin Wilzbach – 562.342-4012

Circulation Manager

Simone Sanoian – 818.715-9776

National Sales Manager

Camma Barsily – 310.979-0335

Web & Marketing Consultant

Lenny Giteck – lennyg123@sbcglobal.net

Publisher

James McCloskey – 818.715-9776

Publishing Office

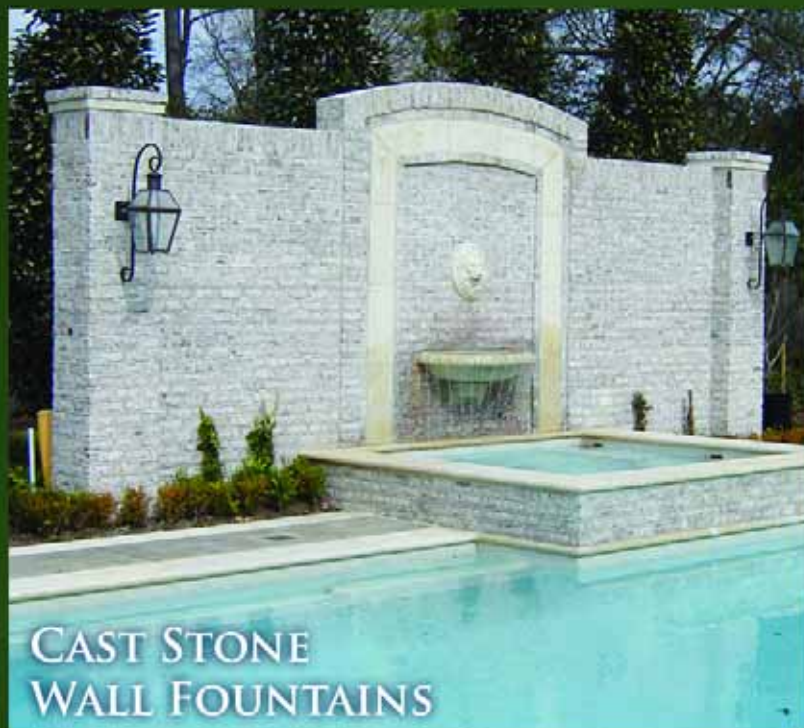
McCloskey Communications, Inc.
P.O. Box 306
Woodland Hills, CA 91365
Tel: 818.715-9776 • Fax: 818.715-9059
e-mail: main@watershapes.com
website: www.watershapes.com

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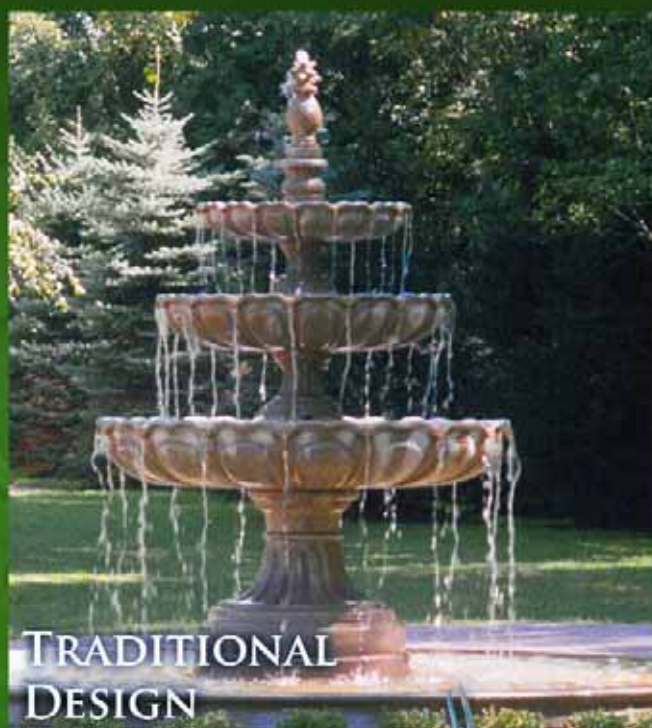
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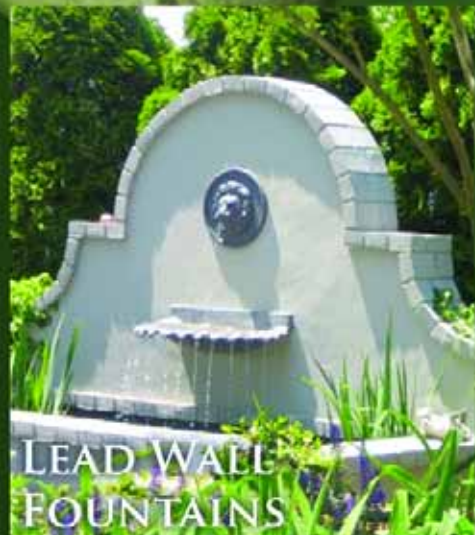


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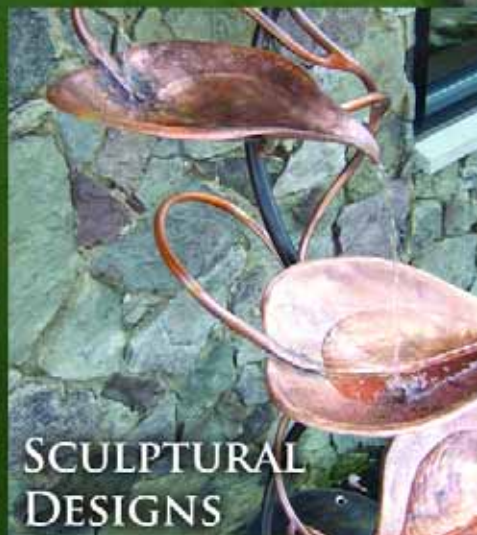
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In This Issue

February's Writers

Douglas Cook is owner of Aloha Pools Design Studio, a Franklin, Tenn.-based design/construction firm that focuses on custom swimming pools for residential clients. He began his career in water-related industries in 1980, working as a sales representative for Sta-Rite Industries and selling not only swimming pool equipment but also products for commercial irrigation and wastewater management. Among the many accomplishments in his long tenure in the watershape industry, Cook was salesman of the year for Sta-Rite in 1982 and qualified for membership in the Society of Watershape Designers in 2006. He also sits on the board of directors for the Dyer County Literacy Program.

Kris Kesler is head of engineering and design at Bobé

Water & Fire Features, a manufacturer of custom watershape fixtures located in Phoenix. As a metal fabricator and sculptor, he is the creative force behind the firm's lines of steel and copper fire and water pots, waterfall channels, fire pits and scuppers. Kesler began his career in custom fabrication while working for his father, Bob Kesler, who fabricates commercial equipment using stainless steel. His ambition is to shape copper and stainless steel into elegant yet durable artwork for high-profile homes and public venues.

Paolo Benedetti is founder and principal at Aquatic Technology Pool & Spa (Morgan Hill, Calif.), a firm dedicated to the design and construction of luxurious residential watershapes and exterior environments. He earned a degree in

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Interested in writing for *WaterShapes* on design, engineering or construction topics? Contact Eric Herman at (714) 313-6136!

business management from California State University, San Jose in 1984 and has continued his education in watershape design and construction through courses in materials science, art history, architecture, color theory and many other topics. Among his accomplishments, Benedetti was one of the first designers to be certified by the Society of Watershape Designers through the Genesis 3 Design Group. He has performed countless forensic case studies involving failed pool structures, consulting for property owners and contractors alike, and is also a prolific writer, having written numerous technical articles for pool and construction trade magazines including numerous past contributions to *WaterShapes*. Benedetti is currently an instructor in the Genesis 3 construction schools and is a Genesis 3 Platinum member.

David L'Heureux is co-owner and director of commercial sales (North and South America) for Crystal Fountains, a fountain supply and design company based in Toronto. A 30-year veteran of the fountain industry, he has experience in all aspects of the company's operation, including project management, and has worked on fountain designs and installations of every size and type, from residential waterfeatures to major metropolitan fountains. He is also an instructor for Genesis 3's fountain-design school, having taught classes in fountain lighting and assisted with the main fountain course.

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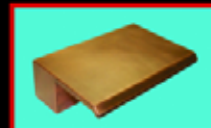
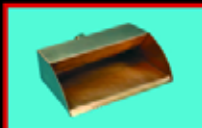
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The ability to communicate with clients is an essential building block of success in watershaping and in any other endeavor where making clients happy is important.

Inquiring Minds

By Brian Van Bower

Watershaping carries us onto the properties and into the private lives of our clients, and it does so to such a personal, even intimate level that I see the value and importance of getting to know them to the best of my ability. Invariably, that means asking the right questions and knowing how to listen and interpret the answers.

This isn't a new topic – in fact, it's been about ten years since I wrote an early string of *WaterShapes* columns on how I communicate with my clients at the outset of our relationships – but I think it bears discussion again basically because I continue to get questions about it from readers and from students in Genesis 3 courses.

This doesn't surprise me, of course, because all of those inquiring minds know that the ability to communicate with clients is an essential building block of success in watershaping and in any other endeavor where making clients happy is important. What

they're after from me is some mortar to hold a few of those blocks together.

This is a vast topic, of course, and it comes easily to some and only with difficulty to others. And if you're paying attention to the way you do things, it's also something you'll see evolving as time passes. But regardless of who or where you are, I find that early client communication – that is, the process of *interviewing* them to discover all you can about them – is something that requires forethought, care and close, ongoing attention.

two-way street

Through the years, I've developed a number of ways to jump into this topic in teaching classes and conversing with individuals, and one of my favorites is to start by pointing out that one of the first skills anyone needs to be an effective interviewer is knowledge of the art of keeping your mouth shut and your ears open. To be an effective interviewer, in other words, you must be an effective *listener*.

That may seem obvious, but I bring it up because I know for a fact that many of us are really bad at it. In fact, it's part of human nature to want to impress others with the things we say, so instead of actively listening, we spend the time in which clients are answering our questions thinking of how we'll react and respond to what's being said. It's as if our own silence makes us uncomfortable.

So what I tell people is that, no matter what, you must learn to listen. Perhaps you'll have to bite your lip (literally or figuratively) or run through some mental exercise to remind yourself to keep your mouth shut and actually listen to what your clients are saying. Whatever works for you, it's absolutely necessary to find a way.

And never forget that a big part of listening is actually retaining what your clients say. When you listen carefully, much of what they tell you will stick on some level, but personally, I need to take notes as they speak to remind myself of what was said, what they emphasized and how they phrased things – and keep those notes in a file. I've known some people who record these conversations, and others who take notes *and* make recordings as

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well. Again, whatever works: However you do it, you must have some method for registering the content of your clients' comments.

The last listening-related point that needs emphasis is this: When you conduct client interviews, you must be tangibly and completely *there* with them. This means turning off or at least ignoring your cell phone, removing the Bluetooth device from your ear and stepping away from your world and moving physically into theirs. It shows that you respect your clients' time and are focused entirely on their needs and desires.

This is all background, of course – the sort of mental preparation and commitment you need to run through to set your interviews up to be as productive as possible. With that beachhead established, you can focus on the content of the interview itself.

For me, this is a constantly evolving process: I tinker with my own approach every time I head into a meeting, and I've spent a lot of time through the years listening to what other watershapers do and adapting their techniques to mesh with my own.

Not long ago, for example, I received a great set of interview questions from Kate Wiseman, a landscape architect who runs Sage Outdoor Designs in San Diego, Calif. I was so impressed by what I saw that I've incorporated much of what she does into my own interviews and presentations.

In addition to those questions, she sends out a pre-interview questionnaire that she later uses to guide the discussion when she and her clients meet face to face and, in some cases, uses the responses to begin forming design ideas. What I like most about her questionnaire is that it purposely gets clients' creative juices flowing, prompting them to begin thinking in a more focused way about what they really want.

digging deep

Wiseman's questionnaire begins by offering a list of words describing various characteristics associated with swimming pools and other watershapes and asking the clients to pick the five they prefer while highlighting one term that stands out

among all the rest. (The list includes words such as "curvilinear," "flowing," "natural," "rectangular," "geometric," "modern," "architectural," "clean," "bright," "decorative," "peaceful," and "playful," among *many* others.)

Then she asks a string of key questions: From which rooms inside the house do you want to be able to see your watershape? Do you have a favorite garden or landscape? What's your favorite country or city to which you've traveled? What in that city or country particularly inspires you or do you find especially beautiful? Do you have a favorite artist, architect or landscape architect? Are there specific materials you'd like to use? Is there a local project or property that you admire?

Next, she asks a question I think we *all* should ask: How interested are you in participating in this project? The options: *Not at all* – you're the expert, you take care of it; *Minimal* – I'll complete the questionnaire, but that's about it; *Average* – I'll discuss options and possibilities; and *Extensive* – I'll personally decide most details.

The questionnaire then asks questions aimed at determining the clients' degree of familiarity with their home's architecture and design style by asking them to pick descriptions from a list of choices she supplies ranging from Craftsman and Colonial to Contemporary and Mediterranean Revival. Finally, she asks about color preferences, eliciting favorites as well as those the clients simply don't like.

My own pre-interview questionnaire – again, a constantly evolving document – has adopted some her ideas but diverges in other areas. No matter the specifics, the point is that such questionnaires are capable of gleaned a great deal of critical information from clients before we ever sit down with them in person. It's also not lost on me that filling out such forms is fun for some people – a wonderful way to get engaged in the process and express some of their likes and dislikes.

All of this, of course, sets me up nicely for the interview itself. When we meet, I start with a series of questions that some people might consider to be unnecessary – basic no-brainers – because my desire

is to help my clients feel relaxed and comfortable in opening up to me. My sense has long been that there are strong narratives at the heart of every great design – narratives that support the concepts that eventually make it onto the page and into the project itself – so my aim is to get them to a mental space where they're willing to tell their stories.

Once we pass through the preliminaries and everyone is at ease, I get down to the business at hand by asking them what has motivated them to begin the process of seeking a watershape and/or an exterior design. In effect, *Why are we here?*

talking time

My desire at this stage is to determine primary motivations and, in cases where the clients are anything from a couple to a whole group of people, to find out who in the room is truly driving the process.

This is where I learn, for example, that the husband's doctor has recommended swimming as a form of therapy for a bad back, or that the wife has always dreamed of entertaining by a beautiful swimming pool because of experiences she had as a child or on a recent vacation somewhere. In my experience, I've found that this single line of inquiry provides absolutely critical information that shapes everything that follows.

Backing off a bit, I then change things up by asking how they found me and my company. On one level, this lets me know if whatever sort of marketing campaign I'm pursuing is doing its job, but more important, it tells me a lot about the clients themselves. If, for example, they say they found me in the Yellow Pages and I know full well that I've never had such a listing or placed such an ad, I discover early on that my clients have an interesting relationship with the truth.

If they reached me by referral, I can make an entirely different set of assumptions based on the fact that birds of a feather do indeed tend to flock together. That's not invariably true, but I've found through the years that these people tend to dine in the same restaurants, belong to the same clubs and travel to many of the same destinations as their referring friends. If they've seen my work before, liked it and

have contacted me because of a positive recommendation from a business associate or friend, it tells me a good deal about the scope of the project – and sometimes even the budget.

(By this point, I've also done my homework: I generally know from the point of initial contact that a new client has been referred to me by a past client, and I call up the past client to express my appreciation and often am treated to details about the evolution of the referral. Sometimes, these past clients will even share what they know about the new clients' characters, giving me a heads up if I'll be dealing with someone who's extremely picky, for example, or, conversely, quite easygoing.)

Now that we're face to face, I also probe one of the most important of all issues to be covered in any interview: How do the clients plan on using their pool, spa or waterfeature? Although there are many important issues to be addressed in these interviews, this may actually be the most significant one to cover, and it needs to be pursued in depth.

I start down this path by asking how many family members will be using the watershape on a regular basis. If there are children at home, I want to know how many there are, their ages and their general activity levels. Beyond the answers, I keep my eyes and ears open for clues that will help me sort things out.

If, for example, the home is filled with pictures of kids engaged in baseball, soccer, cheerleading or scouting, I rest assured that, no matter what's explicitly said, the family is active and spends time together sharing away-from-home activities. Or I might notice that the kids are more sedentary and tend to be wrapped up in video games – or that the family has photos on the wall attesting to the fact that they love vacations in the tropics or in the mountains or in historic places.

finding the payoff

If you're paying attention, you should be able to come away from the interview process with a pretty good idea of how the family spends its time together – which in turn will give you a fair idea of how they'd be likely to use recreational

waterfeatures around their home.

It's also important to determine who outside the immediate family will be likely to use the pool. Do they have an extended family that will be frequent visitors, and do they bring the kids along as well? Do the children in the home have active social lives that would lead them to invite friends over for casual swimming as well as the occasional pool party?

What all of this becomes is a pile of information related to the basic issue of how the water will be used. Once I get the clients thinking along the lines of how they, personally, will be using the pool and how others, collectively, will enjoy the water, I find it's much easier to turn the corner and get them to start visualizing – that is, to start seeing all the ways in which their pool or spa or waterfeature will be used.

Visualization is a powerful tool: Once I get clients thinking in these terms, it's far easier to draw more detailed answers from them – and also draw them more deeply into the process and generate even more anticipation and excitement.

If I'd just blandly asked, "How will you use the pool," my suspicion is that, more often than not, I'd blandly hear, "For exercising." But when I press them to visualize their future relationship with the water, they tend to become more expansive and see beyond their initial concepts to include broader, brighter sets of water-oriented opportunities. In plain terms, these responses provide potentially critical information that goes far beyond any non-visualized reaction.

This, in a nutshell, is how a doctor's basic recommendation of aquatic exercise morphs into a vision of entertaining at poolside, hosting pool parties for the kids, relaxing in the spa with good friends or watching reflections off the water as the sun sets. It becomes a matter of the seductiveness of the space, and visualization is what helps my clients recognize water's appeal on all-new levels.

As these conversations progress, I generally find that my clients and I will open doors they've never considered – to the outdoor kitchen, to the lounging shelf for the grandchildren, to the outdoor dining

room, to the outdoor entertainment center and to a whole new lifestyle of which water is one of many components. All that, and the doctor will be happy as well!

What's happening now is that the interview has become a collaboration, and you're all working together to shape the story they'll be able to tell later about how much they enjoy what's been done. One byproduct, of course, is that I'm fully loaded with great information in defining design ideas; another is that we've also set the stage for further discussions of configurations, materials, and a whole host of details that will come together as the project moves along.

Much of this, in my view, is the product of using a questionnaire, an interview and processes of visualization to unlock creative potential and stoke the fires of anticipation and excitement.

big pictures

I've stated the following point in this column many times, but it bears repeating: Our clients come to us out of a desire for luxury, pleasure, prestige, excitement and beauty. They are, at heart, seeking their own slices of the good life.

Our job – and it starts from the very beginning – is to avoid doing anything that will disrupt their good mood. As important, we should also do everything we can to *amplify* those positive feelings and desires. By prompting our clients to imagine the joy and pride they'll have in their homes when all is said and done, we're doing all we can to lead them to see the future in a bright, sunny light. **WS**

Next month, I'll delve into the parts of the interview in which I begin discussions of a variety of specific design details.

Brian Van Bower runs Aquatic Consultants, a design firm based in Miami, Fla., and is a co-founder of the Genesis 3 Design Group; dedicated to top-of-the-line performance in aquatic design and construction, this organization conducts schools for like-minded pool designers and builders. He can be reached at bvanbower@aol.com.

On the Level



It has become more crucial than ever to work toward preserving and treating fresh water in such a way that its potable percentage will increase.

Let it Rain

By Bruce Zaretsky

If you spend as much time as I do reading the myriad journals available to the landscape trades, you'll no doubt have noticed their intense concentration on water quality and preservation. It's about time these issues came to the fore: We've spent so much time as a society focusing on making our lives easier that many of us seem to have forgotten that water is a finite resource.

Rest assured: I'm not somebody who believes that environmentalism is all about undermining the desire for beauty or luxury. Nonetheless and now more than ever before, it is apparent that we must find ways to manage, preserve and marshal dwindling water resources while at the same time we must continue to offer our clients spaces in which they can gather to enjoy beauty, tranquility or recreation.

The hard fact is, only about three percent of the water on this planet can be categorized as "fresh" – and only about one percent of that global total may further be characterized as "potable," with much of that fraction dedicated to irrigating fields, washing cars and flushing toilets.

In other words, despite growing scarcity,

humans have been cavalier with water and have put it at risk in many places. Take the Great Lakes as one example: For far too long, these immense bodies of fresh water have been taken for granted as catchments for industrial waste, human sewage, agricultural runoff and the flow of contaminated rainwater.

Although the water in these lakes is still classified as *fresh*, it is now something far from *potable*.

clear examples

There are many such instances in which our activities are compromising ecosystems and putting potable-water supplies at risk. Simply as a matter of coping with the planet's increasing human population, it has become more crucial than ever to work toward preserving and treating fresh water in such a way that its potable percentage will increase.

In some cases, that might mean environmental regulations aimed at controlling or banning industrial and agricultural discharges or reducing runoff from developed areas. In others, it might mean raising awareness among consumers and encouraging them to conserve in practical ways. And for us in the watershaping and landscape-related industries, it likely means learning more about how water works in nature and developing systems that aggressively conserve it.

The good news is, we're already on the way when it comes to using nature to find solutions. The use of bogs and bio-filtration systems in conjunction with ponds and streams is a common and familiar example, as is the growing use of artificial floating islands. In these cases, plants are used to absorb chemical compounds that render water harmful for human contact or consumption.

Another approach – simple and extremely effective – involves development of "rain gardens" or "constructed wetlands." (As I see it, the latter is the more descriptive term, basically because *rain garden* suggests simple diversion of rainwater to planting beds around a house: While such systems can be quite effective, the term *constructed wetlands* encompasses the larger-scale systems that can have a far grander influence on local ecologies. For clarity's sake, we'll focus here on these larger installations.)

Continued on page 16

"Absolutely Wonderful."

Really fast-paced, upbeat, and packed with an astonishing amount of information. I honestly would have loved another day or even two."

*Jayne Allen
Blue Haven Pools of OKC, Edmond, OK*

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On the Level

The general concept of a constructed wetland involves diverting water that would otherwise flow directly into storm drains to open areas filled with native plantings and underlying French drains that allow the collected water to percolate into the soil. In simple terms, this takes up water that would ordinarily run to waste and thereby reduces the volume of contaminated runoff that might find its way into natural bodies of water. At the same time, this water can be used to sustain beautiful planted areas.

In many cities, these wetland systems can relieve pressure on municipal treatment facilities that can be overwhelmed by the flows from major storms and end up dumping raw sewage into the water supply. By lowering the volume of water flowing into municipal systems, constructed wetlands do a fantastic and invaluable job of helping cities avoid these disgusting incidents.

Yet despite the simplicity of this concept, it actually seems to complicate things for engineers and developers who simply can't believe that systems so easy to design and build can actually have such a positive influence on a site and even reduce their costs. It's a classic case of traditional stubbornness: "This is the way we've always done it, so why should we change now?"

This sort of resistance has had the effect of turning me into a crusader for these systems among both my residential and commercial clients: I've seen constructed wetlands work so efficiently for so many years that I simply cannot avoid being their strong advocate whenever the opportunity arises.

making the case

As landscape consultant to the Town of Penfield, I've been persistent in my campaign and spend a good bit of time redesigning site plans to eliminate projects' storm-sewer connections and run the water to constructed wetlands (or to simple rain gardens in the case of smaller buildings). The engineers invariably respond by ignoring my comments, and they typically get what they want from review committees.

Even though my success rate is low so far, I know I'm raising the local aware-



Water enters the constructed wetland via a 12-inch pipe that drops it into a sediment basin built of rip-rap that removes large debris from the water. A French drain system below the plantings carries water not absorbed by the plants or percolated into the ground to a catch basin at the opposite end; this basin discharges into the Thousand Acre Swamp.

ness level with respect to these issues, and I must say that I'm drawing sustenance from a growing general awareness of environmental issues. My argument is simple: It's not, I say, a matter of being a tree hugger or naïve environmentalist; rather, it's about dollars and cents and the fact that using constructed wetlands to clean water that would otherwise be sent into storm drains or sewers makes enormous practical sense because

the systems are inexpensive, tremendously effective and can be beautiful – a classic win-win-win proposition.

In one recent triumph, I collaborated with Geoff Benway, the Town of Penfield's head engineer: Together, we designed an extreme test case for a site where the Sewer Department was planning to build a new facility right next to the Highway Department's headquarters.

The department's existing facility cov-

ers about five acres and includes a large parking garage for the municipality's trucks and heavy equipment; a huge barn for the storage of snow-melting salt; and a large asphalt area for employee parking. As developed, all runoff flows to storm sewers, taking any debris with it (including large volumes of salt) – something of a disaster, as I now see it.

With a new facility in the works to house additional trucks, cars and equipment, I saw the potential for even more pollution running into the storm sewers. And there was another issue: This new facility was to rise directly adjacent to Thousand Acre Swamp, a large, protected wetland through which much of this new, contaminated flow would pass on its way to the town's stormwater-collection system. (As a point of interest, this wetland is part of a tract donated to the town by the renowned landscape architect Fletcher Steele.)

Working with Benway, I designed a quarter-acre wetland right next to the

new building to handle runoff from the site's total impervious area of about three acres. All catch basins and rooftop downspouts flow to a twelve-inch pipe that empties into one end of the space, where we placed a sediment basin to capture any debris (small stones, dirt, leaves, paper and other debris).

In storm situations, the quarter-acre space can contain and control about six inches of water. Beneath the garden, we set up a series of French drains running in parallel. These connect to a lateral pipe that empties into a below-grade catch basin located opposite the sediment basin. This catch basin is positioned at a level six inches higher than the inflow, so it carries away any water rising above this level.

Our expectation is that any water flowing into the garden will gradually percolate down into the soil toward the drain system and will be cleaned as it passes through the roots of the plants. Any water issuing from the drainage system will,

in other words, have been cleared of its pollutants and can be allowed to pass harmlessly into the swamp.

the green thing

The key to such a system is letting the water flow slowly through the surface mulch and the plants' roots. Both are important: The mulch removes heavy metals from water running through it, while the plants' roots remove other pollutants including oils, salts and other contaminants. These wetlands don't have to be perfect to be effective, because *any* water leaving these areas is cleaner than when it entered.

Plant selection is extremely critical in any constructed wetland, basically because the selected species must be able to tolerate long periods of drought alternating with periods of inundation. Native species usually work best, so I visit local natural wetlands to find ideas and see which combinations of shrubs, trees, perennials and grasses will work best.

Continued on page 18



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On the Level

Another key point has to do with basic aesthetics: Far from being simple depressions filled with random plantings, these spaces can be design elements all their own. The Penfield Sewer Department's new facility, for example, is arranged as an abstract painting, with wide swaths of red twig dogwoods, grasses and perennials (including flowering lobelias and New England asters) creating dramatic sweeps of color.

Penfield has joined the fray by making the garden an educational facility, with signage and occasional presentations offered at its edges. This coming year, with the plants beginning to reach acceptable size, we will contact local universities and invite them to conduct tests to determine differences in water quality at the inflow basin and at the outflow point.

Armed with this kind of information, we will be able to demonstrate to local developers that what we're after will save them money by helping them avoid connections to storm drains (less piping, less trenching, less labor) and will also make them seem like good neighbors who value water quality.

From my standpoint as a watershaper and landscape-design professional, I see constructed wetlands as an opportunity to participate in the management of our most precious natural resource. I also see it as an opportunity to get in on the ground floor in development of commercial and civic properties; raise awareness about the conservation of water; and beautify landscapes for generations to come.

That's a heady bucket-load of benefits for my profession – one that buoys me in good times and bad. **WS**

Bruce Zaretsky is president of Zaretsky and Associates, a landscape design/construction/consultation company in Rochester, N.Y. Nationally recognized for creative and inspiring residential landscapes, he also works with healthcare facilities, nursing homes and local municipalities in conceiving and installing healing and meditation gardens. You can reach him at bruce@zaretskyassociates.com.



Once the site was brought to grade and made ready for planting, the perimeter was hydroseeded with a perennial ryegrass mix for quick germination and low maintenance (that is, once-a-year mowing). We then planted using mostly bare-root shrubs, perennials and grasses – and within a year, most of the plants had taken hold quite nicely. The switch grass was particularly vigorous, growing to almost full size from two-inch cell plants.



.....

"Heffner said, 'You'll have the project done by Labor Day.' I told him I didn't know if that was possible. He said, 'Did you hear me? You'll have it done by Labor Day.'"

— Ron Dirsmith

.....



The WaterShapes Interview

Ron and Suzanne Dirsmith:

Part One—Watershapers From Outer Space

For some five decades, Ron and Suzanne Dirsmith of The Dirsmith Group have designed imaginative structures and environments that incorporate waterfeatures and other natural elements. In the first installment of this two-part interview, the Dirsmiths tell why they claim they're from another planet when working with new clients.

Part Two—Building the Playboy Mansion Pool

One of the best-known projects by Ron and Suzanne Dirsmith is the famous swimming pool and grotto at the Playboy Mansion West. How did the couple get the assignment to design and build the installation? What was it like to work for Hugh Heffner? Read the second part of this interview to find out.

To read the two-part interview with the Dirsmiths, go to www.watershapes.com and click on Interviews.

WATER SHAPES
ONLINE



The green movement is rapidly on its way to becoming a mainstay of our shared cultural consciousness.

Global Watershaping

By Mark Holden

Have you had just about enough of the current chatter about the environment? Have the terms “global warming,” “carbon footprint” and “sustainable landscape” become more irritating to you than they are inspiring?

If so, all I can say is that I don’t think you’ll like the future. Indeed, for those of you who’ve spent the last little while waiting for the Green Revolution to fade away need to set aside any hope that it’s just a fad – just some trumped-up, pop-culture phenomenon that will go away as suddenly as it came to prominence.

In fact, the green movement – or whatever you want to call it – is rapidly on its way to becoming a mainstay of our shared cultural consciousness. While there are certain political and social aspects of the discussion that are undeniably annoying, the phenomenon is being driven by practicalities to such an extent that the revolution is, I think, here to stay.

And don’t just take my word for it: Talk with

your children, grandchildren, nieces and nephews: The college students I’ve taught, for example, take their seats in the classroom with a near-uniform dedication to the preservation of natural resources and the environment. In my dialogue with them, I’ve learned forcefully that this *isn’t* about politics; instead, they see these issues as having direct, tangible, global influence on the quality of their lives and their future standard of living.

And in some instances, they take it so seriously that they see it as a matter of survival – for themselves and the planet.

breaking molds

If you wonder why, well, take a look at the world into which they’re emerging: All their lives, these kids have borne witness to skyrocketing energy costs and a steady string of news stories about environmental disasters from the Exxon Valdez to the destruction of the Brazilian rainforests. It transcends liberal vs. conservative, and it’s much more than youthful idealism.

In fact, my gut sense tells me that once this generation really gets rolling in the workplace, they are going to press at the common assumptions their parents and governments have made and will come at perceived barriers with tremendous force – both as professionals and as consumers.

I’ve seen and heard enough in my classrooms that, as never before, I often find myself thinking about those barriers (and the assumptions and conventions that support them) with a fresh, open attitude.

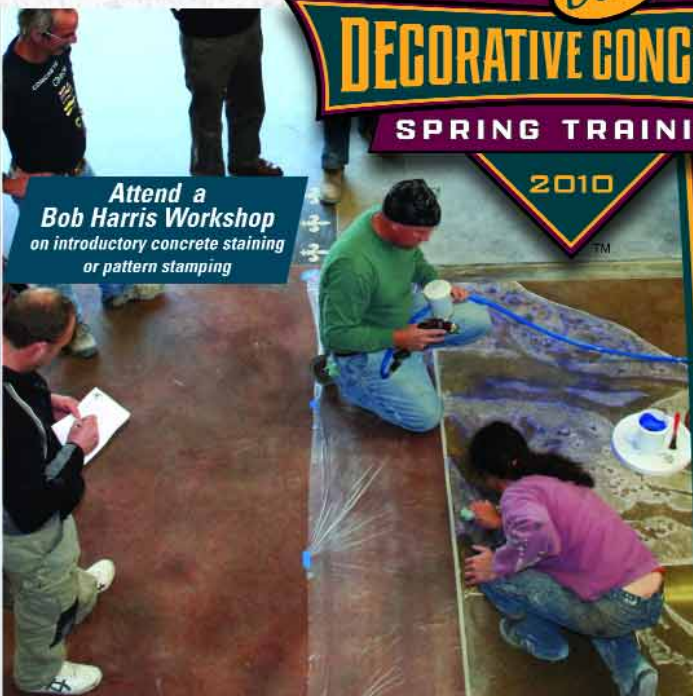
Back in October 2009 – the last time I wrote about the ecological effects of watershapes on our environment – I engaged in that sort of wide-open thinking in a discussion of the carbon footprints our beautiful creations carry. If you’ll recall, I brought my discussion to its turning point by asking, “How do we shape water in planet-friendly ways?”

The cynic in me knew that many of you would likely dismiss or even ridicule my “green-tinged ravings,” but to my surprise, most of the immediate feedback I received was from watershapers who told me that they are already building with the planet in mind.

I guess I shouldn’t have been so surprised, given the fact that there’s already a whole, new “green industry” out there, complete with its own publications, educational programs, trade shows

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and product lines. And from what I can see, that industry is already thriving and is rapidly becoming profitable – a real surprise considering the vacuum in which it so recently arose.

As a teacher, it's abundantly clear that landscape architecture students (and young people I encounter everywhere I go) already see the green industry as their home base – the foundation for their way of seeing things and pursuing their options. And they're far from passive: They are figuring out how to use what's available in beautiful, surprising and compelling ways.

The reality is that this is going on right now, despite the fact that the greater watershaping industry has done little to get involved. Yes, some suppliers, designers and builders are putting little green leaves or globes on their ads or handouts or business cards, but what I see mostly is new marketing of old approaches rather than the sort of reconsideration and new thinking my students are pursuing and demanding.

shifting grounds

A former student recently called me to discuss my October 2009 column and asked me, point blank, "Where do I start?" In response, I challenged him to abandon conventional thinking and to consider ways of building a watershape without using any manufactured or mass-distributed equipment or material – in other words, to start over from scratch with a watershape without barcodes or serial numbers.

To say he was puzzled would be to put it mildly, so I put on my teacher's robes and began to help him follow some specific pathways around and through the concept I'd proposed. Why, for instance, don't we all use photovoltaic technology to power our electrical systems? Entire houses and commercial operations run on them, so why can't we do the same with pool pumps?

The obvious observation we came around to is that we live in a world where almost all of the electrical products are designed around the wonderful, spinning turbines that give us AC current and send it across mile after mile of transmission

lines. It's the infrastructure we've had for more than a century – and it severely limits what we can accomplish.

So what we need in order to install greener pools (that run off photovoltaic cells that power DC pump motors) is a retooling of our own industry and several more industries besides – retooled manufacturing, reconstituted utilities and reorganized assumptions – to make suitable (greener) products generally available at comparable prices.

My hope is that our industry's more forward-looking companies are already on this path and that such products will be attainable before long. If they're not, the likelihood is that a new generation of clients, designers and builders will find other ways to get what they want.

Let's take this in another direction and look at pipe. I teach an architectural history class for Genesis 3 a couple times a year, and in that college-level course we look at watershapes that, for centuries, worked without the convenience or benefit of modern equipment or products. Indeed, the wonders of head pressure and mechanical ingenuity were all these early watershapers had to work with.

Today, we're wedded to PVC and other plastics because we have high-pressure systems and those pipes offer us reliable, affordable ways to contain and control the water moving through our systems. What would happen if we stepped back and started using low-pressure mechanical networks to achieve our effects – and did so with piping that was much less detrimental to the environment? The energy savings *alone* might make such systems worth considering.

The Moors made such systems work at the Alhambra in Spain 1,000 years ago,

and the Romans did, too, all around the Mediterranean more than 1,000 years before them. Heck, Rome at its height in 300 AD had more than a million cubic meters of water running through its systems at any one time – no pumps, no PVC.

hard methods

Let's take things to an even grittier level with the observation that watershapers dump immense volumes of concrete and hardscape waste into landfills with most projects – especially renovations.

We start by ripping up a driveway and taking the concrete to a local disposal site – then we bring the exact same material back to the job site in a semi-liquid form and let it harden into the same traversable flat stuff. To be sure, there are some who reuse that broken concrete to form garden walls and others who take the waste to a recycling center where it is crushed to be used in aggregate in new concrete; for the most part, however, the material is carted away, never to be seen again.

Thinking about the process at this level opens all sorts of new doors in watershape design and construction. Maybe our plans, for example, should have more to do with methods and less with materials. If, for example, we were to specify how big the chunks were to be from that doomed driveway and in what shapes they were to be cut, perhaps we might use that readily available material to make garden walks or retaining walls.

This is not a new concept – I picked it up in college 20 years ago – but it's never come close to being a priority, let alone a standard practice.

We also need to look at the sources of our hardscape materials. Some flagstones are stripped at such a rate and in such a

What we need in order to install greener pools is a retooling of our own industry and several more industries besides – retooled manufacturing, reconstituted utilities and reorganized assumptions – to make suitable (greener) products generally available at comparable prices.

manner that the process destroys ecosystems completely. If you don't believe me, visit a mass-production quarry sometime and see if anything thrives there beyond guard dogs and heavy equipment.

If we started reclaiming and reusing instead of dumping and buying, we'd actually be falling in line with a strong (if quirky) impulse of the Western design tradition: In Renaissance Rome, for example, sculptors who needed marble for a statue asked the Pope for permission to remove materials from ancient pagan temples. This might be seen as horrible desecration by modern standards, but it makes the point that, faced with limited resources, we often find alternative ways to create our art.

In a variation on that theme, I built a project in Montecito, Calif., many years ago in which we used indigenous Santa Barbara Sandstone boulders we'd found on site – a common building practice in the area. Why pay someone in some other county for a material you have in abundance in your own backyard? It's a huge step toward reducing a project's carbon footprint, that's for sure.

So can these various measures be combined to complete a project "without using any manufactured or mass-distributed equipment or material"? When I offered that thought above, it might have seemed outrageous, even dangerous. A few quick paragraphs later, however, and I think it's possible to offer a reasonable, practical, positive response to the challenge.

getting practical

First, I would suggest approaching projects with enhanced design plans. That is, our watershape specifications should focus on reducing the project's effects on a site and the world. Equipment, pipe

and hardscape all can still be obtained, but whenever we can do so, we should proceed using different, more responsible methods. (If we can imagine how to do it, ultimately we can do it.)

As I mentioned at the outset, there's already an entire Green Industry that has arisen to deal with just these sorts of issues, complete with products and techniques for us to learn and apply. As I see it, we can (and should) join forces with it and set a course for an approach to watershaping that will dominate the future.

And for those of you who can't let go of the good old days, a time is coming when you may have no choice. If you doubt that, just try building a great big pool with waterfalls in San Francisco: Water is so scarce there that only a handful of watershapers can find enough work to keep their businesses afloat.

As water resources seem to be dwindling everywhere, we should all observe what's happened in the Bay Area and recognize the handwriting on the wall we're about to smack into headlong: I'm not suggesting that we all go out and hug trees for a living, but as a matter of survival I believe our industry needs to shoulder a greater level of responsibility for what we do in a grander environmental context.

As I just mentioned, design is the first step. Our plans must provide exact instructions on how to demolish, reuse and recycle existing materials. They must hold builders to a strict set of standards that, I think, almost inevitably will become legal requirements before too much more time passes.

In small ways, this is already happening. In Santa Monica, Calif., for example, the building department requires installation of solar heating systems with every

residential pool. Those sorts of requirements are popping up in jurisdictions from coast to coast, and it'll be up to us to conform or get into another line of work.

In my book, however, I think we'd all do better by pushing the envelope along ourselves, farther and faster. And I know there are watershapers out there who are doing exactly this, getting out ahead of the curve and setting their own standards for methods and performance. (In fact, I'd love to hear from you so we can all speed the process together: See my contact information at the end of this column.)

My final questions are these: If we start supporting DC pump manufacturers and align ourselves with those who make photovoltaic-cell power systems, will they respond by making better products? If we demand that level of innovation from our usual suppliers, will they respond with genuine innovation, or will it all be about fresh, green packaging and marketing of the same old stuff?

As I've stood in front of classrooms filled with aspiring landscape architects, I get a sense that the answers to those questions have already been determined. If the products they are demanding are available to them when they need them, then watershaping has a future. If not, these professionals will move along to other decorative or functional possibilities and the watershaping industry as we know it will fade away.

If that sounds apocalyptic, well, I guess it is. My hope is that a positive, engaged response will be forthcoming and we can all move ahead together in a world in which a new, green way of thinking will become a pillar supporting us and our businesses. **WS**

Mark Holden is a landscape architect and a landscape and pool contractor specializing in watershapes and their environments. He has been designing and building watershapes for nearly two decades, and his firm, Holdenwater of Fullerton, Calif., assists other professionals with their projects. He is also an instructor for the Genesis 3 schools and at California State Polytechnic University in Pomona. He can be contacted at mark@waterarchitecture.com.

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Although heating water by using energy found beneath the earth's surface is far from a new idea, watershape designer/builder Douglas Cook reports that only recently has this geothermal bounty become readily available for use with pools and spas. Here, he offers a primer on this emerging technology, discussing ways in which the benefits of a fully renewable energy supply are starting to turn clients' heads – and transform the way watershapes are heated or cooled.

By Douglas Cook

Places just below the earth's surface have been a resource for heating and cooling basically since the planet took shape. Ever since, all sorts of creatures have taken refuge from excessive heat or extreme cold by burrowing into the soil, and it's no accident that some of the earliest examples of human self-expression have been found in caves deep below the surface.

With pools and spas, however, up until recently there's always been a legitimate question about whether this timeless heating/cooling approach was workable on any sort of cost-effective basis. If recent projects designed by my Franklin, Tenn.-based firm, Aloha Pools Design Studio, are any indication, that question has now been answered with a resounding *yes*.

On the face of it, that answer seems obvious. After all, the U.S. Department of Energy says that geothermal heating is more cost effective than a 95-percent efficient gas heater – and that the same would be true even if 100-percent efficient gas heaters were available. Only recently, however, have the suppliers of these systems reached a point where their equipment is properly scaled for residential applications, and we've found that they are a perfect fit with clients who want both energy efficiency and a greener world.

The Underground Edge

In approaching the technological progress that has made these systems available for use with pools and spas, let's quickly set the scene and see what's up with this fresh approach to watershape heating and cooling.

► What is geothermal energy?

Geothermal energy is a perfectly renewable source in the truest sense of the term, because it comes directly from nature in virtually limitless, inexhaustible quantities. In that sense, it's comparable to solar and wind energy, except for the fact that it is always there, day and night, no matter the season, the weather or any other factor that might intercede: It's *always* there, just below the earth's surface.

This is so because the crust of the earth is warmed by the

A diagram illustrating geothermal energy. It shows a cross-section of the earth's surface and subsurface. The surface is represented by a horizontal line. Below the surface, there are several vertical arrows pointing upwards, indicating heat rising from the ground. The arrows are colored in a gradient from light brown at the top to dark brown at the bottom. The text "Subterranean Energy" is written in a large, white, serif font across the middle of the diagram, with the word "Subterranean" on the top line and "Energy" on the bottom line. The background of the diagram is a gradient from light brown at the top to dark brown at the bottom, representing the earth's crust and subsurface.

Subterranean
Energy



sun above as well as by the planet's molten core. So just a few feet beneath the surface, the earth in whatever form it takes – soil, sand or rock – stays at a constant temperature ranging from about 50 to 70 degrees Fahrenheit, depending on location. And these zones of steady temperature are thick as well, starting about six feet underground and stretching down hundreds of feet in many places.

This is why, even on the hottest days, deep caves stay cool on hot days and relatively warm on cold ones. Ruby Falls, a massive cave near where I work in Tennessee, is 57 degrees inside every single day of the year, so it should come as no surprise that well water locally is at 56 or 57 degrees straight out of the water tank.

In essence, because of basic principles of heat exchange, this constant temperature is a source of stored and renewable energy. At the same time, we must recognize that this is quite distinct from the geothermal drama observed in volcanic activity, as with the geysers of Yosemite or Iceland: Those are isolated regions of a special nature quite distinct from the cool constancy of spaces over which most of us live.

It is this constancy of temperature that is the key to using geothermal energy to heat and cool interior spaces and, at long last, the water in pools and spas.

► How does pool and spa heating by geothermal energy compare to other energy sources in current use?

The best current means of harnessing geothermal energy for residential use comes in the form of a device known as a water-source heat pump (WSHP), which serves to facilitate the transfer of energy via either open-loop or closed-loop systems.

When compared with other water heaters, WSHPs are, in either configuration and according to the U.S. Department of Energy as well as numerous independent research firms, the most efficient. Indeed, when all pool heaters – gas, air-source heat pumps and water-source heat pumps – are compared on the basis of operating costs or cost per



million Btus transferred into water, the clear leader is water-source, with air-source coming in second and gas a distant third.

This is great news for watershapers, because a large percentage of professionals in the pool and spa industry are already familiar with the operating principles and efficiencies of air-source heat pumps, which use the same approach to extracting heat from the air and transferring it into pool or spa water. The main difference between the two approaches lies in the consistency of the heat source via which this transfer oc-

curs. Simply put, the earth's temperature remains the same, but outside air temperature constantly changes.

As a result, the most efficient operating level for an air-source system occurs at 80 degrees of air temperature at 80 percent relative humidity – fairly narrow windows that have made these units best suited to warmer, more humid climates in Florida and the Southeast. They can nonetheless be excellent choices in all 48 states and Southern Canada – but only for a limited number of months. In addition, system output is relatively limited, with larger single-



Installation of any of these geothermal systems (including the horizontal closed-loop approach shown here) involves skills that should be familiar to almost all watershapers. It's about removing soil and setting up the plumbing runs, manifolds and hydraulic systems needed to move the water from the piping to the heat exchanger and then back through the loop.

phase units topping out at about 135,000 Btus.

When the outside air temperature reaches about 50 degrees, some air-source heat pumps shut down completely – and those that still operate do so only with dramatically reduced capacity. In other words, although these are great systems where they're climatically workable, air-source heat pumps are nonetheless an incomplete solution and in many areas must in any event be supplemented by gas heaters to meet the higher heat-up requirements of uncovered spas.

► How do you decide which geothermal system best fits a particular application?

As we move forward in our general desire to select heating systems that make both economical and environmental sense, the key with geothermal systems is developing an understanding of how

the technology works: While the principles are similar to those familiar to us through use of air-source heat pumps, there are in fact some differences.

To use the earth as either a heat source (or, in the case of cooling systems, as a heat sink), the installer buries a series of pipes commonly called a *loop* in the ground near the watershape or the building that is being "conditioned." Such a loop can be oriented either vertically or horizontally, depending for the most part on site conditions and budget.

This loop circulates a fluid – typically either water or a water/antifreeze mixture – that absorbs heat from or relinquishes heat to the soil that surrounds it, depending on whether the ambient air is colder or warmer than the soil. As noted previously, these loops take one of two forms: open or closed.

An *open-loop system* draws well water for use as the heat source or sink; after use, that water moves to a drainage field or another well. *Closed-loop systems* (also

known as *earth-coupled systems*) use the water/antifreeze solution, circulating and recirculating it through buried pipes that extract heat from the earth.

As mentioned above, loops can be installed in either vertical or horizontal configurations, with the former tending to be more expensive but more suited to applications where space is limited. The length of looping pipe required varies depending on peak Btu demand for the pool or spa as well as upon soil type, loop configuration and system capacity, with a typical range of 250 to 1,000 feet per ton of heating or cooling capacity.

So how do you choose the best option among these various possibilities? Given the novelty of these applications, my basic recommendation is to work with a consultant. You can then go it alone or call in either a geothermal well driller (to install a vertical closed-loop system) or an HVAC/geothermal contractor (to set up a horizontal closed-loop system), but as I see it, there are so many variables

having to do with the heating needs of the pool and/or spa; an open loop's water-well capacity; a closed loop's ground temperature; and available space and budget. As a result, the most sensible approach (for the time being at least) is to rely on the expertise of others.

One advantageous detail about these systems that I've already learned is that the operating unit and control system can be installed just about anywhere – outdoors or indoors, in a vault below the pool or in the home's basement or attic. This flexibility is made possible by the fact that, unlike gas heaters, these devices do not require ventilation – nor do they need outside air or an upward exhaust, as do air-source heat pumps.

► **What are the cost factors involved in using geothermal heating and cooling?**

Geothermal technology does not come cheap, with systems ranging in cost from

about \$20,000 to levels well up in the six-digit range. This means that any discussion of the subject with clients will involve discussions of return on investment, financing and, helpfully, the possibility of tax breaks that may be available to them.

If that seems outlandish, consider this: In the "good ol' days" just four or five years back, few upscale clients expressed much care about pool- or spa-heating costs and thought even less about systems relative to the "green movement."

A Warm Complement

In discussing geothermal heating, there's a natural tendency to think of it as a replacement for fossil-fuel heating systems, basically because the cost per Btu is so much lower.

I look at things differently: The ability of geothermal systems to maintain the water at even temperatures in pools and spas at a low cost makes the use of gas heaters for fast heat-ups or temperature maintenance far more cost effective because the water starts out at a higher level and the temperature doesn't need to be raised nearly as much. (It also bears mentioning that, in the right climate conditions, air-source heat pumps combined with fossil fuel systems offer similar benefits.)

I'm fine with it when my more environmentally conscious clients want to eliminate fossil-fuel heating altogether, but I'm also encountering homeowners who appreciate the convenience of combining two approaches: Either way, my clients stand to save in the long run.

—D.C.



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Now, however, most homeowners are appreciably aware of these issues and seek out both energy-efficient and earth-friendly systems for their projects.

The way I approach these discussions is simple: All I do is point out that two very good things happen when a geothermal heating/cooling system is installed in conjunction with a watershape and other buildings on the property.

First, assuming that the client pays taxes and is interested in minimizing them, purchasing a geothermal system will, through 2016 at least, entitle them to a 30-percent tax credit on the installation. (It's important to note, as of this writing, that this tax credit applies to applications in heating and cooling *buildings* rather than pools and spas. There is apparently some progress toward including a provision for watershapes, but in the meantime, the credit is granted for projects that heat and cool buildings and, incidentally, pool and spa water.) In ad-

dition, some local power companies have been financing system installations on loans with little or no interest.

Second, there's a synergy between a pool/spa heating system and an air-conditioning system used to cool interior spaces in that the watershape becomes a place to dump the heat generated by the interior-cooling process. In fact, many of the water-source heating and cooling systems can be specifically programmed to work in this way.

Working through all of this with a sharp pencil and a bit of paper, I'm able to show clients that the return on investment comes faster and more easily than they might think.

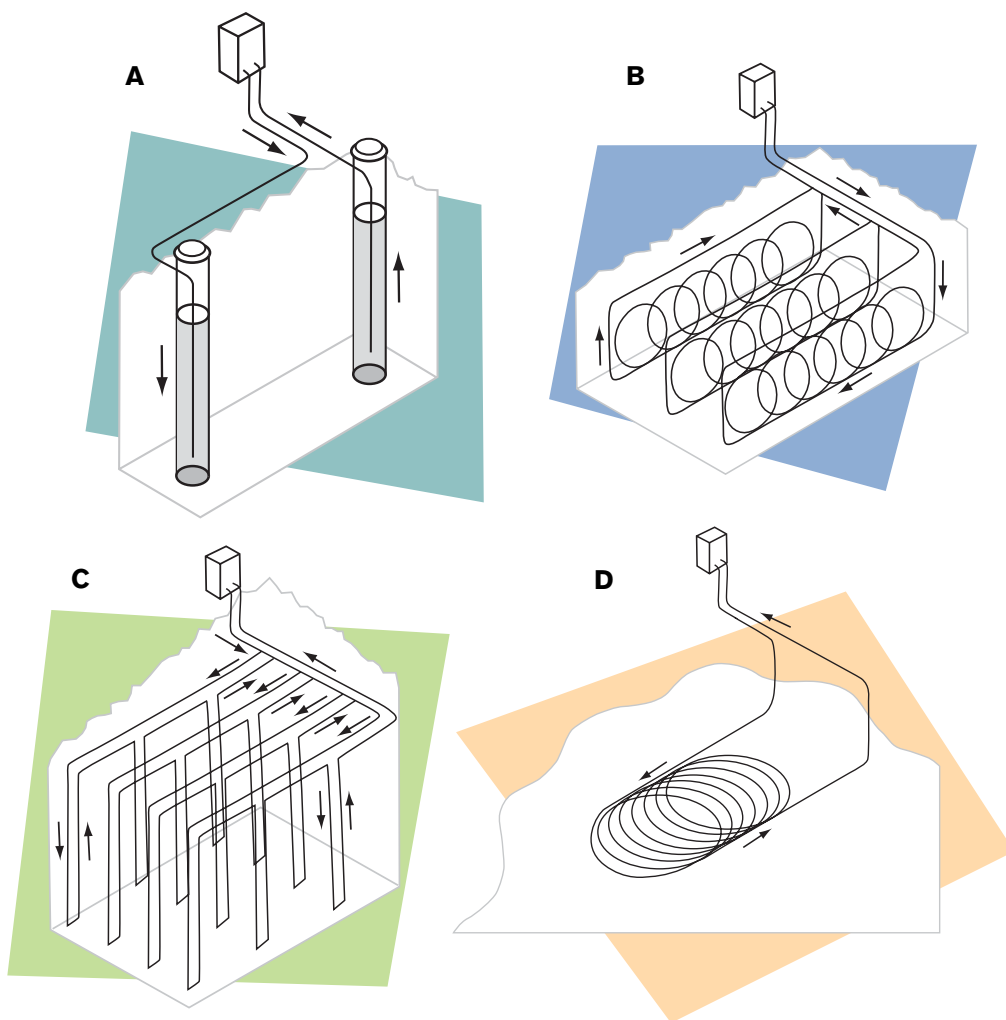
There for Everyone

The best thing about geothermal systems in heating/cooling applications is that the technology is time-tested and reliable. Many commercial buildings, schools and residences worldwide have

reaped the benefits of this clean, low-cost, renewable source of energy, and extending those applications to encompass pools and spas is simply a matter of using a familiar approach in a slightly different way.

As I see it, we watershapers stand to benefit from reaching out to professionals in other trades who can help us make our clients happy in the long run. In addition, in situations in which a watershape is being installed during construction of a new home, the synergistic benefits of tying their heating/cooling systems together makes simple, elegant sense.

As a builder, it was tough for me to get past the sense that geothermal heating was another fad being palmed off on us by tree huggers and wild-eyed environmentalists. In this case, however, the numbers told a story so compelling that I'm all for saving my clients money while also helping the planet!



These drawings, based on illustrations provided by the U.S. Department of Energy, show the four basic approaches to tapping geothermal energy for heating or cooling watershapes as well as homes. The *open-loop* system (A) uses well or surface water as the heat-exchange fluid and is only practical where there's an adequate supply of relatively clean water. The *closed-loop* systems (B-D) tend to be more practical for residential applications and require only an available piece of land. If that space is large, a horizontal system can be installed with relative ease (B). If space is limited, a system with a vertical orientation may be used (C), although it's a costlier option. And properties with large ponds may use those bodies of water to make the system work (D) – an easy, inexpensive option if the water's at least eight-feet deep. The good news is, there's an approach and a system for just about every situation.

Where Art Meets Technology

By Kris Kesler

Growing up in a family of industrial and commercial fabricators, I was steeped from an early age in traditional metalworking techniques—hammering, planishing, leather-sandbag shaping and my favorite, torch welding. Learning at my father’s knee in his commercial steelwork factory led me to admire the artistry of craftspeople as they transformed raw hunks of metal into functional and often beautiful works of art.

The power of that experience has always stuck with me. Later in life, when I decided to launch my own water- and fire-feature company, I was excited to get back behind the welding mask and combine my own creative roots with something inventive and exciting.

I quickly realized, however, that in today’s design endeavors, computer skills are just as important as good torch work and mastery of the English Wheel. More important still, I learned that by combining the two worlds I could unlock almost limitless artistic potential.

Digital Delights

It’s this combination of old-world savvy with modern technology that sits

When second-generation metalworker and sculptor Kris Kesler wanted to take his custom waterfeatures to a higher, more artistic level, he took off his welding mask and picked up a computer mouse. It’s been liberating, he says, enabling him to design everything from simple scuppers to hurricane-proof fountains and take care of the details that make them work on screen before he puts his hands in gloves and goes at it with hammer and tongs.

at the heart of my company, Bobé Water & Fire Features (Phoenix). From the start, our goal has been to create both off-the-shelf and custom pieces that can be recognized as works of functional art in their combinations of the fluidity of water or fire with the beauty and permanence of metal.

Computers and CAD technology have been around for decades now and have been useful design tools for a generation, and I knew I wanted to put them to good use. It surprised me to learn, however, that relatively few designers and fabricators were using them in place of classic techniques and plain old guesswork.

As I saw it (and still do), water in particular is a finicky medium—so unfor-

giving that even the slightest imperfections or design mistakes can result in unexpected (and highly noticeable) flaws in performance. In that context, I viewed computer modeling as the perfect means of ironing out the details before fabrication began, but I also recognized the fact that no CAD system can test the strength of a structure or its individual parts, nor can it simulate the effectiveness of different construction techniques or determine how well a completed project will work over time.

It’s a sensible two-stroke process, in other words, and it has been most satisfying to learn that starting my projects by working on screen can save me countless hours of finessing and fiddling with materials on the fabrication floor.

No matter whether I’m making the most basic spillway or the most complex water/fire feature, I begin the design process using SolidWorks 3-D CAD software from Dassault Systèmes (a French company with a U.S. office in Concord, Mass.): The software enables me to run thousands of simulations and virtually test everything from tolerances and leak resistance to the smoothness of the water’s flow.





This process takes time, of course, but working in metal is also time consuming, expensive and labor intensive, so I see tremendous advantages in devising and testing pieces digitally – not the least of which are eliminating the usual second guessing and giving myself the ability to move into the production phase with confidence that what we produce will perform as intended.

To my mind, it's a perfect way to help reconcile the eternal conflict between art and commerce. Through digital analysis, reliable results become far more certain and thereby relieve us of the costly need to engage in trial and error or start all over again when we miscalculate. It's a win-win situation that makes the pieces more affordable to clients as well as more durable and reliable.

Moreover, even with a completely one-off piece, my computer system lets me study how it will work in the real world. That means there's nothing left to chance and that even my most creative flights are grounded in functionality. That's great, I think, especially when you want to construct, ship and lift a one-piece, ten-ton, copper-and-steel fountain into place in a hospital courtyard – as we recently did in Phoenix.

One-Piece Triumph

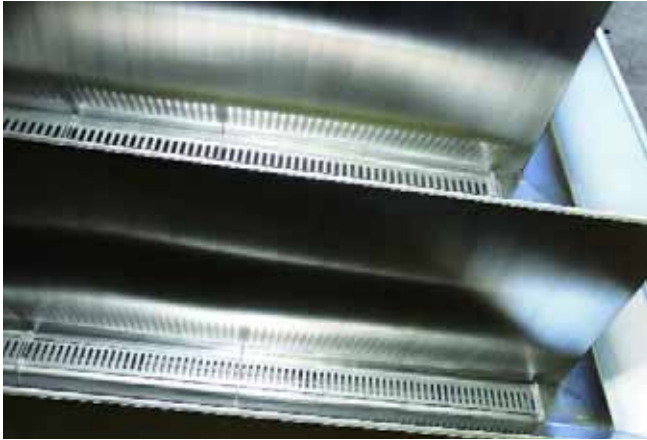
When the architects of the new pediatrics wing at the John C. Lincoln Hospital contacted us, they already had a fairly specific design in mind: a long, linear, S-shaped fountain to fill an outdoor courtyard. My task was to engineer the 20-foot-long, six-foot-tall double-sided system without letting the internal



This project, installed at the John C. Lincoln Hospital, required us to develop this 20-foot-long, six-foot-tall fountain and its internal array of 15 pumps as a single piece we could crane into the courtyard. Our computer was an invaluable tool throughout the design, fabrication and installation processes, at each step helping us visualize what could be done before we committed ourselves with welding torches.



This project isn't mentioned in the accompanying text, but it illustrates the level of detail that goes into a fountain structure that seems simple in appearance but is actually a mass of critical details, every one of which we must get right. Again, technology offers us a wonderful assist, allowing us to work through the details to make certain the finished product is exactly what we want it to be, functionally and aesthetically.





structure interfere with the predetermined shape.

On top of that, I had to figure out how to drop the pre-plumbed, ready-to-go fountain into a three-sided courtyard whose fourth side was completely blocked by walls, concrete benches and towering palm trees.

As installed, the fountain seems fairly straightforward. The exterior is sheathed in eighth-inch-thick recycled-copper panels (weighing 18,000 pounds in all) that we left untreated so they'd develop a beautiful natural patina over time. The copper itself provided very little by way of structural integrity, so we milled each panel to include an internal tab that could be bolted to a skeleton made from quarter-inch-thick stainless steel.

This interior skeleton was designed to support *everything* – including the upper water trough and the plumbing and the pumps – and keep it all together as we craned the piece into position.

If we'd had the option, we would have preferred using external motors and filters on a fountain of this type, both because it would be easier to service and because we were completely familiar with such systems. But the client specifically asked us to build all mechanical features into the fountain itself – a task further complicated by the fact that the site wasn't completely level.

I wasn't thrilled by the prospect of shimming up an already-heavy fountain made even heavier by its internal equipment, but we made it work. And by then, of course, I'd also figured out – aided greatly by my computer – how to organize the 15 submersible electric motors and an intricate system of manifolds and baffles to create even water flows of 18 to 20 gallons per minute per foot.

With those 15 internal motors running 24 hours a day, seven days a week, limiting vibration was a major concern. To do so, each motor as well as the entire copper skin float on rubber mounts

that allow independent movement. Not only does this take care of any vibration-related issues, it also helps the fountain endure the drastic temperature swings of the Sonoran Desert, where triple-digit highs and bitterly cold lows are all too common.

The computer modeling also allowed us to save time and money by facilitating complete construction in our shop. Long before the oversized load was dropped precisely into place, we had crunched the numbers on everything, from finalizing the location of all internal gussets and crane-lift points to designing a custom wood palette we could successfully load onto the back of a flatbed trailer.

The final crane lift into the courtyard was stressful, but it was comforting to know we already had run through the entire process on a virtual basis. All in all, it was an amazing installation day: The fountain was up and running within an hour of being put in place.

Bermuda Triangles

Another of our large-scale projects took us almost 3,000 miles due east of Phoenix to Hamilton, the charming capital city of the island nation of Bermuda.

In this instance, we were asked by a Florida-based architecture firm to come up with a signature waterfeature for a new, 107,000-square-foot building on the main boulevard coming up from Hamilton's bustling port. Backed by former Prime Minister Sir John Swan, the 10-story complex will be the country's tallest, largest commercial building when it's completed in mid-2010.

Designed in glass and stainless steel shaped to resemble ship sails, the illuminated fountain is the most intricate we've ever devised. With a ten-foot-diameter base and elements ranging in height from 12 to 14 feet, it will highlight the entry of a mod-



ern glass-and-steel tower with its soaring blue-green glass panels and stainless-steel frames.

It's a glorious, ultra-high-visibility setting – pressure enough on us without even considering the fact that the entire six-ton structure had to be designed to withstand the hurricane-force winds that regularly buffet the island. What's more, the entire support structure and all mechanical systems are to be buried in concrete before we install the sculpture, meaning every alignment must be *perfect* from the outset.

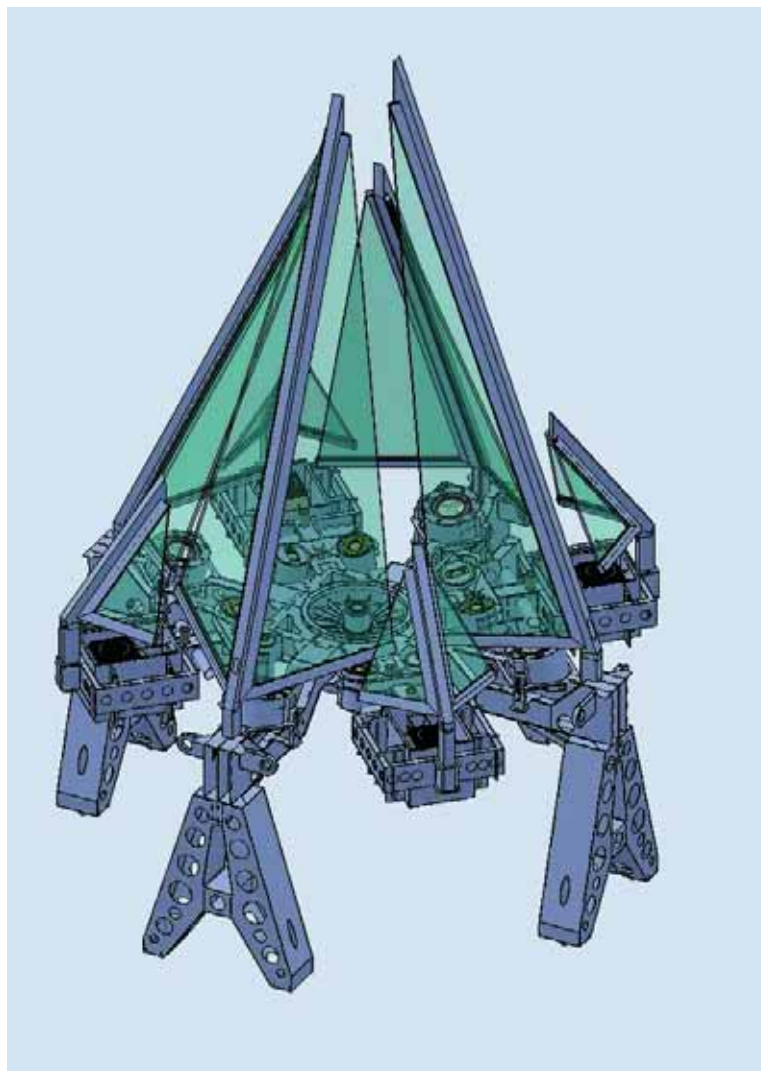
As always, I started with 3-D engineering software and plotted out the 3,000 feet of continuous welds that will give the fountain its strength once the sails are stitched onto the stainless-steel base structure. That base structure will house all of the plumbing, structural supports and lighting systems and will include adjustable feet that will enable us to fine-tune things once we arrive on the slightly inclined site. This will all be buried in concrete and topped by a granite slab penetrated by bolts that will secure the sails.

Weighing up to 3,000 pounds each, the glass sails are made using a three-layer, hurricane-proof glazing injected with a metallic blue-green reflective material. Putting additional stress on the contact points, each sail pitches over at an angle – and they all must rotate on their bases to allow service access to the main drain and the laminar jets arranged around the base.

At night, the LED-equipped laminar jets will shoot arcing beams of lighted water through the center of a larger water stream that will rise from 12 to 15 feet in the heart of the fountain, giving the whole space a seductively active glow.

Spouting Off

While the value of computer simulation has proved itself time and again with our custom projects, it has also had a trans-



This fountain structure, destined for installation in front of a major commercial building in the capital city of Bermuda, is still a work in progress, but I've included these images to show how a whole array of specific components are fabricated individually and then come together in final form. In this case, the supports for the sails (as well as such key features as a decorative center drain) gradually rise from the shop floor as we turn a beautiful, computer-supported vision to reality.

forming influence that reaches every corner of our fabrication business, right down to the simplest scuppers.

We know from practical experience that imperfections in their manufacture can lead to bubbly, uneven water flows that ruin the pristine, glasslike streams in which most clients are interested. So we started from scratch, combining virtual and real-world testing that led us to insert multiple chambers and angled interior baffles in all of our scuppers, letting them produce clear, bubble-free cascades without using filters or rock traps.

This constant tweaking and trial-and-error – both on the computer as well as the shop floor – lets us produce scuppers, spouts and a range of other products for a broad range of clients and applications. It has also made us highly responsive when clients call on us to do something out of the ordinary.

In one recent case, a distributor asked me to come up with an all-new water/fire feature that would truly catch the eye of his clients – something they'd never seen before. Using the newer “waterfall fireplaces” as a point of departure, I designed a freestanding, 360-degree fireplace in which the exterior shell was completely encapsulated in flowing water.

For design flexibility, the structure can be clad in copper, stainless or Cor-Ten steel. The central fire window is topped with a three-sided water fountain, while heat passes through a series of vents that rise only an eighth of an inch above the flowing water. It's just another example of how computer design has freed us to push the boundaries of engineering and artistry – even with products intended for wide distribution.

To be sure, computers never will replace the human touch. Although I've come to enjoy working on screen, I know I'll never see it as a substitute for traditional fabricating experience or the sort of intuition that comes directly into play as objects take shape in my hands. We may be more productive than we've ever been, but when all is said and done, it's still an art form – and work I truly love.





Photo courtesy Landscape Development, Valencia, Calif.

The work we do with our major, custom projects – and all we learn from designing and developing them on our computer – translates efficiently to reliable performance of small custom features as well as the scuppers, runnels and spouts we produce for the general marketplace.

Wiring Simplified

By Paolo Benedetti

Solutions

Although the details of a well-organized equipment pad are seldom the object of as much appreciation as are the purely aesthetic touches on a project, they are no less important to its success, says Paolo Benedetti. Here, in the latest installment of his series on design and engineering solutions to common construction challenges, he offers advice on a key part of pad organization – that is, the management of its wiring connections.

With today's watershape circulation and support equipment becoming ever more complicated, there's an increasing need to make equipment pads as uncluttered as possible. With that in mind, I've developed a few simple wiring strategies that let me keep things neat, organized and serviceable.

It requires some improvisation, unfortunately, because for all the efforts manufacturers have undertaken to improve product performance, in many cases they have failed to make the wiring task as easy as it should be. A classic example is found in all of the automated-control and circuit panels that just simply do not allow sufficient space or provide enough knockouts for connection of all required conduits.

The standard solution is to add wiring "gutters" around equipment pads, but that can get expensive rather quickly and is far from an elegant solution. I wasn't satisfied with that approach, so I developed an alternative that not only saves me money, but also allows me to make an almost unlimited number of wiring connections at these panels.

get started

We begin by turning the two or four standard three-quarter-inch knockouts on the bottom of our panels into two-inch apertures. To do so, my electrician uses a knockout die from LSI/Greenlee (Cincinnati, Ohio) to create clean two-inch holes, using the existing knockouts as guides.

Now that we have a means to run larger quantities of conductors into the panel, we connect runs of two-inch schedule 80 PVC to the expanded openings. These pipes run down into the ground directly below the panel, terminating in an un-

derground utility vault set just in front of the panel. This sub-grade box provides a clean, organized space for all of the cables that might be needed as well as a clear, clean spot to stand or kneel if the area in front of the panel is soil.

Within this utility box we terminate all of the line-voltage conduits from the equipment set, lighting systems, outdoor-kitchen fixtures and more. We may even install multiple vaults or simply get a larger vault if the project requires more than one panel. The conduits that provide the incoming power also run to this vault: Incoming conductors simply loop up into the control panel from there.

To supply electricity to the various devices on, for example, the equipment pad, we run one-inch conduits from the vault under the pad's concrete slab, stubbing them up between electrical components so that conduits are shared in a way that's efficient and looks neat in appearance.

These stubbed conduits terminate a few inches above the finish grade of the concrete slab, where we top them with aluminum double-gang electrical boxes. In a *second* hole in the bottom of these boxes, we install one-inch galvanized pipes with caps on the bottom: These pipes are set into the concrete, which we deepen slightly in these areas, and they provide both support and impact resistance for the boxes.

The caps on the ends of the pipes are important: They prevent groundwater from possibly bubbling up into the boxes. Also, I prefer to use boxes with five one-inch holes, simply because they leave us with three additional connection points we can use as needed.

We locate bonding wires at each of these boxes (tied to the equip-

ment pad's steel), wrapping the "flying ends" around each box before concrete is poured to keep them out of the way. And if a low-voltage or data feed is required for one of the components, we'll provide a conduit for that purpose as well. (More on that below.)

pulling wire

Once the concrete slab is poured, my electrician pulls the requisite wiring. Any flexible conduits are attached to the equipment with the "pigtail leads" provided on one end. This end is then attached to the double-gang box, where connections are made with wire nuts within the box.

This arrangement eases the way for future servicing or removal of the equipment, simply by virtue of the fact that the wiring is not one continuous conductor leading all the way back to the control panel.

Bonding is very important in these settings, and we give each piece of equipment its *own* bonding wire. I could probably save myself \$50 worth of bonding clamps by looping one long conductor through every component on the equipment pad, but

the way I see it, that's a false economy. In fact, the savings would vanish the first time I had to service the equipment.

Besides, I think it's too risky to rely on a single loop: One breakage and everything in the system loses bond, and the wires also pose a trip hazard in a space that has enough of them without any further help. Furthermore, because the boxes are strategically placed between components, the length of flexible conduit is kept to a minimum, thereby minimizing another trip hazard and making everything more readily serviceable.

We also use this same general approach with low-voltage systems that control valve actuators and connect temperature sensors, remote keypads, spa-side remotes, solar sensors and data communications. The low-voltage side of most panels won't accommodate two-inch knockouts, however, so we terminate the two-inch conduit about four inches below the panel. We then merely loop the low voltage wiring into the box through the factory-provided grommets.

The two-inch low-voltage conduit terminates within its own low-voltage sub-grade utility box. To ease installation of the



In planning our equipment pads and their wiring schemes, we decide where the equipment and control systems will be mounted, then figure out where within the slab we need to place sub-grade utility vaults or stub up for above-grade electrical boxes. This degree of organization makes the installation process go more smoothly, but even better, in the long run it makes equipment on the pad more serviceable by eliminating clutter (and trip hazards!) and by making over-all systems easier to maintain and expand or alter as need arises.



low-voltage wiring, we use the electrical nonmetallic tubing (ENT, also known as *smurf tube*) available at home-improvement stores for these conduits and lay it in the base material for the equipment pad's slab along with the line-voltage conduits.

The ENT tubing is brought up wherever I want or need a low-voltage wire, eliminating unsightly runs and the need to zip-tie wires to the plumbing. This prevents any damage to these wires that might result from the need to work on the pipes. In addition, being buried beneath the slab protects these lines from incidental damage by errant saw blades or clumsy feet.

Low- and high-voltage wiring that extends to the residence, outbuildings, solar panels, junction boxes and the like also branches out from the sub-grade boxes below the control panels. This lets us keep the wiring organized – and once it's underground it can run *anywhere*. And best of all, we keep the wiring neat, serviceable, out of the way and protected.

planning ahead

Many of our projects take place on large estates, and I find it's always beneficial to discuss future plans with these homeowners – even if they're only at the daydreaming stage.

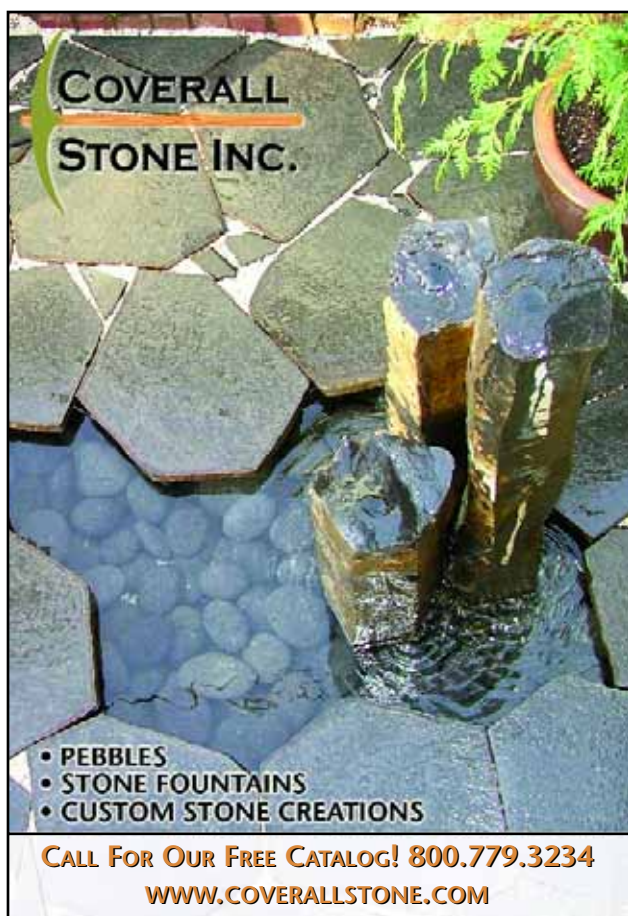
I look at it this way: We're already working on site and already have equipment and staff performing similar work, so taking the extra step of installing additional conduits and utility boxes around the perimeter of the estate (or at least around the pool area) is very cost effective.

These low- and high-voltage runs allow for easy addition of future data cables, lighting runs, telephone lines or even power from photovoltaic arrays – all without incurring the need to rip up the hardscape and landscape that crews have worked so hard to install. In past projects, I've even roughed in gas, sewer and water lines for future pool houses, guest quarters, garages and outdoor kitchens and showers.

To be sure, I have had a few clients through the years argue against the need for this work, but every single one of them has called months or years later to thank me profusely for my insistence on performing this work. In two of these cases, there would have been no way at all to insert utilities for planned outbuildings, as our work had effectively "landlocked" the property.

That's the true definition of "value engineering" – spending a few extra dollars now to save *thousands* of dollars later on!

– P.B.



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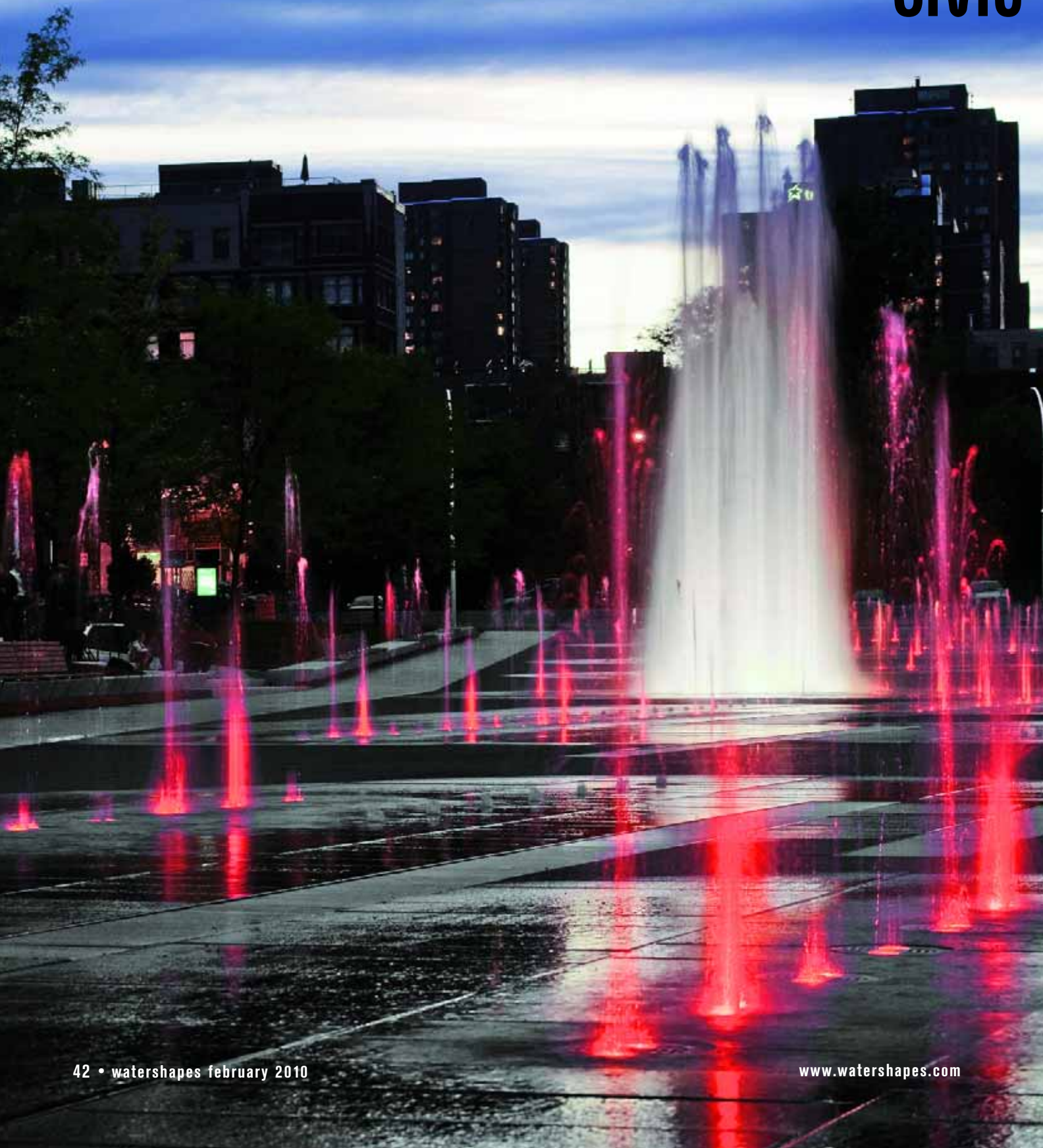
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Civic



Celebrations

For years, Montréal's arts district has been the venue for music and theater performances, art exhibitions, festivals and all manner of cultural events. As part of a revitalization process in the area, notes David L'Heureux, the city recently unveiled the Place des Festivals and a spectacular watershape he and a distinguished design team developed at its heart as a gathering place for residents and visitors of all ages and a civic focus for fun, relaxation and visual joy.

Throughout North America in recent years, cities have turned to a variety of watershapes to enliven and, occasionally, revitalize their public spaces.

These watershapes are more than the wonderful fountains long found in public parks and plazas. Indeed, the recent success of projects including Chicago's Millennium Park and its ambitious combination of significant waterfeatures with gardens, architecture and art has demonstrated the tremendous potential that lies in crafting interesting, multi-functional places for people to gather.

Canada offers a spectacular recent example of this noteworthy trend in the form of Montréal's *Place des Festivals* – a public square highlighted by a grand deck-level fountain that now forms the core of the entire surrounding district, which has been renamed the *Quartier des Spectacles*.

This area has long served as the venue of choice for art festivals, jazz clubs, museums and galleries but had become a bit run down. About three years ago, the city decided to spruce up the area and establish it once again as a regional hub for recreation, tourism and cultural activity. The fountain's impact in this program is augmented by the fact that it stretches along St. Catherine Avenue – the most famous street in Montreal and,

as such, a byway for the lion's share of the city's tourist traffic.

It's worth noting that this square is only the first of three major projects planned for the arts district, all under the direction of the Montréal architecture firm of Daoust Lestage. One of the driving factors in the entire scheme has been to ensure the future of the *Festival International de Jazz de Montréal* by having the district serve as its permanent home.

Beyond Play

We at Crystal Fountains (Toronto) were brought into the project early on to partner with Daoust Lestage and the fountain design/installation specialists at Piscines Soucy (Québec) in developing a system that would become Canada's largest and most complex public watershape. We had worked on similarly large projects in various capacities in the past (including the abovementioned Millennium Park), so we came to the process well aware of the demands and challenges involved in creating iconic watershapes.

The architect of record was Réal Lestage, a brilliant designer who envisioned the complete redefinition of the space. From the start, he made it clear that he didn't see the fountain as the typical sort of sequenced deck-level fountain in which the main purpose is to

By David L'Heureux





Linear jet arrays surround a circular core in this long, narrow space, and the intention from the start was to create a spectacle in water and red and white light that would befit the artistic orientation of the surrounding community. The fact that the jets are inherently interactive is, according to the designer, just a ‘side benefit.’

drench children while parents stand by and watch. Rather, he wanted the fountain to work as art befitting the character of a community that includes the nearby *Musée d’art contemporain de Montréal*, one of Canada’s most prominent art museums.

It was, of course, to be a deck-level system with programmable vertical jets with no barrier to pedestrians – thus it was still to be interactive – but he always described that as being a side benefit. The main ambition, he stressed, was to

create a spectacle of moving water and light that would fit in an arts-oriented urban setting.

We didn’t get that at first, seeing it instead as an opportunity to use variable lighting effects with water in countless colors and patterns – something you’d commonly see, for example, with a large interactive fountain in a shopping mall. Lestage quickly narrowed the range, letting us know that we’d be using only red and white lights to create a simple yet stirring graphic statement.

He also had firm ideas about the configuration of the jets as well as the material we’d use for the decking (both of which I’ll discuss below). Here as well, although we fully embraced his basic concept of using the water as a sculptural element, it wasn’t until later, when we saw the system operating in concert with the landscaping, the detailing on the benches, the lighting systems and oth-



The intensity of the LEDs used to generate the red color (and the halogens that provide the bright white) creates the wonderful impression that the water itself might be colored – all part of the vivid, dynamic design program.

er project elements, that we were fully able to appreciate just how well his ideas worked with the overall setting.

In other words, we knew from the start that this project would be special from an artistic standpoint, in terms of scale and with respect to the role the fountain would play in the urban environment. For all that, however, we weren't seeing it with Lestage's eyes and found ourselves enjoying every minute of the process as his vision unfolded before us.

Much of the credit for making it all work goes to Piscines Soucy's Stéphane Drouin, who worked hand-in-hand with Lestage on the design. Helpfully, this was the second collaboration for Crystal Fountains, Piscines Soucy, and Daoust Lestage – the first being the award-winning *Promenade Samuel-de Champlain* project in Quebec. We were all comfortable knowing we'd worked well together then and had developed a level of trust as well as familiarity with each others' skills and working styles.

Scaling Up

In the early stages of the project, we worked closely with Piscines Soucy to build a working mockup of the fountain to demonstrate to the architect as well as city officials that the equipment being used would operate reliably. (From the start, the city's representatives played an active role in system assessment, basically to ensure long-term reliability and serviceability. Ultimately, they contracted with Piscines Soucy to provide three full-time maintenance technicians for the fountain alone – a huge commitment to its ongoing performance.)

The mockup took us three weeks to build, and we ran it another three weeks. With everyone satisfied by its performance as well as its appearance, Drouin and his team then began their work on site. They broke ground late in May 2008 and were at it through June 2009. Testing and programming took up the time between completion and dedication ceremonies on September 7, 2009.

The square itself is approximately 460 feet long and 100 feet wide, and we were lucky in one key respect: Although we were working in a thoroughly developed urban space, Drouin encountered no sig-



nificant problems with existing underground structures beyond the need to reroute a variety of utility runs.

For all that, it was truly a massive undertaking. In all, the system includes 226 deck-level jets (150 of our own Choreo-switch jets and as well as 76 custom jets.) In addition, we situated an array of nine of our Dynamite Blast jets at the center of the fountain space. As arrayed across the space, the jets are laid out with a circular geometry centered on the blast jets that transitions to linear rows on the perimeter.

By the time Drouin finished his work, the system included more than two-and-a-half miles of plumbing and another three-and-three-quarter miles of electrical conduit. The water flows via gravity to a 2,650-cubic-foot surge tank that holds about 20,000 gallons – about the size of an average residential swimming pool. The overall system, which was designed in conjunction with François Menard of the mechanical engineering firm of S.M. Group International (Montréal), is driven by an array of 16 stainless steel pumps (manufactured by Goulds Pumps of Seneca Falls, N.Y.) ranging between five and 75 horsepower with a total system output of 205 horsepower on 600-volt electrical service.

Although Drouin would probably shrug off such praise, I'm perfectly comfortable saying that his company's work in the equipment room was nothing short of phenomenal: The organization and attention to details of plumbing and wiring are themselves a work of art.

For our part, we worked closely with the design team through every stage of the project, serving as equipment supplier, developing operating specifications, providing drawings and assisting where we were needed with installation advice.

The visual perfection of the finished plaza was matched by the thorough planning and careful installation of its hydraulic and electrical systems: The equipment vault, for example, is a marvel of organization and serviceability, while the performance of each of the more than 200 jets bears testimony to the fact that they all had to be individually manufactured to account for the deck's pitch.

At the Center

From our perspective, perhaps the most exciting element in the entire composition is the array of big jets located at the very center of the fountain.

These units, which we developed on a custom basis for use in Millennium Park's Crown Fountain (for details, see *WaterShapes*, April 2005, page 50), generate thick "blasts" of water that can rise as high as 35 feet – although in this application we limited that extent to just 20 feet. This is the largest application of these nozzles to date, and they've been set up to work independently or in sync to create massively unified columns of water.

We love their powerful presence, but the key here is that, when they operate in conjunction with the surrounding jets, the big jets are only role players in creating meticulously layered images of dancing water.

The difference between this application and the Crown Fountain is obvious: Where the Crown Fountain features the jets in a horizontal orientation as part of a totally custom panel system, the *Place des Festivals* installation is vertical and uses the jets on their own to add visual drama to an otherwise conventional deck-level system.

As might be expected in this context, Lestage had a very specific look and texture he wanted with these jets, so we went through an experimentation phase with different patterns and hole sizes. Ultimately, we settled on a different nozzle plate for the jet at the center of the array; the other eight all have the same configuration.

As was true of the Crown Fountain, while these jets are remarkably dynamic and have a powerfully vigorous appearance, they've been scrupulously designed to be low impact with respect to human contact: Although the volume of the flow is substantial, it is dispersed across the surface of the nozzles' face plates in such a way that it poses no hazards.

There's no containment structure at the fountain's perimeter, so the beautiful granite decking Lestage selected had to be pitched slightly toward the center for drainage. This posed a challenge in that all of the jets are vertical in a slight-

ly pitched field: Ultimately, we had to customize each jet in the system to suit its specific spot. For most of the jets, this wasn't really much of an issue; for the Dynamite Blast nozzles and their tiny apertures, however, it took plenty of adjustment to make certain the water would shoot straight up into the air.

Lighting was included by using a combination of our LED and halogen fixtures, all of which have been set up to illuminate the jets to their maximum heights. Although we can create a variety of colors using the LED technology, Lestage's design – as mentioned above – called for red and white *only*, with the red handled by the LED fixtures and the white by the halogen fixtures.

Some see this use of red and white as symbolizing Canada's national colors, while others prefer a more literary and artistic metaphor involving the flesh and divinity, a common juxtaposition in various art traditions. Regardless of how one interprets things, the red/white scheme is vivid and dramatic, especially when fully choreographed in such grand scale.

Pride Points

When the square was dedicated last September, the fountain system made quite an impression on the local media, which hailed the space as an important contribution to a city that has always been proud of its beauty and cultural traditions. Everyone seemed happy with this beautiful centerpiece and the way it struck a harmonic chord for the whole area.

Certainly, we were thrilled as part of the project team to see Lestage's vision become reality and for it to be so well received. Indeed, the experience reinforced the point I made in starting this article that cities are doing well these days by investing in their public spaces in ways that inspire and delight both residents and visitors.

Judging from what we've seen here and are seeing in many other urban centers, the use of water in these revitalization projects is growing. For those of us in the watershaping industry as well as all those who enjoy these systems, that is certainly a point worth celebrating!





The acid test for any space designed to attract a crowd is whether people actually show up – and this one has passed with flying colors. Almost immediately, the *Place des Festivals* was recognized for its contribution to the community, making just the sort of impressive splash that should encourage construction of similarly ambitious projects elsewhere.



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Page	
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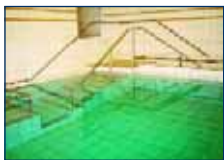
Page	
51	Aquafin
51	Ditch Witch
51	Waterway Plastics
51	Arto Manufacturing
51	Pentair Water Pool & Spa
51	IPS Controllers
51	Latin Accents
51	Reynolds Polymer Technology
52	Hidden Water Pools
52	Aqua Creek Products
52	AQURON
52	Intermatic
52	Bird-B-Gone
52	Green World Crete
52	Speck Pumps
52	Yellow Mountain Stoneworks
53	Ocean Images
53	Haddonstone (USA) Ltd.
53	AquaStar Pool Products
53	Pentair Water Commercial Pool & Aquatics
53	Fiberstars
53	Griswold Pump Co.

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Protective Coating



AQUAFIN (Elkton, MD) offers 2K/M, a cementitious, acrylic-emulsion-based, highly flexible protective coating and waterproofing barrier for a variety of watershaping and decking applications. The solvent-free, two-component material is resistant to water, moisture and abrasion and can be used as a stand-alone product or may be overcoated with flexible or rigid mortars or coatings for uniform appearance.

Compliant Drains



WATERWAY PLASTICS (Oxnard, CA) offers a variety of anti-entrapment drains, grates and suction fittings that comply with provisions of the Virginia Graeme Baker Act, including 8- and 10-inch round anti-vortex main drains; 9-by-9-, 12-by-12-, 18-by-18- and 24-by-24-inch grates; 5-inch super-high-flow suction fittings (with and without vacuum breaks); and a 24-inch (at its widest) clover-shaped drain cover.

Water Effects



PENTAIR WATER POOL & SPA (Sanford, NC) offers MagicFalls Water Effects. These waterfeatures, which can be ordered and customized online using an advanced, interactive design tool, are available in five configurations – Arc Rain, Arc Sheet,

Waterfall Curtain, Waterfall Rain or Waterfall Sheet. They come in six finishes and ten widths from 8 inches to 8 feet with either rear or bottom feeds.

Artisan Tile Catalog



LATIN ACCENTS (Livermore, CA) has published a catalog covering its artisan tiles and accessories. The 12-page, full-color booklet covers porcelain and traditional body tiles in a variety of styles – classic, colonial, baroque and more – and in various sizes from 2-by-2 to 6-by-6 inches. It also includes murals made up of multiple tiles and accessory pieces (bullnose, rope, beaks, caps and more) in 8 standard colors.

Ride-On Trencher



DITCH WITCH (Perry, OK) has introduced the RT45 ride-on trencher. Designed for comfortable, versatile, quiet operation, the powerful unit has intuitive controls and easy-to-read gauges; works with a range of attachments, including centerline or dual-position trenchers, vibratory plows, rotary saws, combination trencher/plows and backhoes; and is ideal for jobs in noise-sensitive areas.

Safety Pool Coping



ARTO MANUFACTURING (Gardena, CA) offers safety-grip pool coping in three formats, all of them suitable for public and commercial applications and for residential use by families with small children. The Big, Medium and Modern lines allow for a variety of design possibilities, depending on color and texture selected, and inside/outside corners and a wide selection of radius options are available.

pH Controller



IPS CONTROLLERS (Temecula, CA) offers the IPS-M770 automated pH controller for residential pool/spa applications. Designed to provide automated control of pH to ensure optimal sanitizing efficiency, the easy-to-operate device may be used with salt-chlorine generators as well as other chlorinating systems and will maintain consistent pH levels whenever the circulation pump is running.

Acrylic Sheet Brochure



REYNOLDS POLYMER TECHNOLOGY (Grand Junction, CO) has published literature on the use of its R-Cast acrylic sheets in the design and installation of swimming pools. The 4-page, full-color brochure illustrates a variety of applications, discusses features such as weatherability, safety, ease of cleaning, clarity and UV-resistance and outlines the design and engineering services the company offers.

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Adjustable-Floor Pool



HIDDEN WATER POOLS (San Diego, CA) offers a system that turns a hardscape surface into a multi-depth reflecting, wading or swimming pool at the touch of a button. The depth adjustment from an inch to almost 6 feet within 2 minutes provides easy disability access, and, when closed, the system virtually eliminates evaporative water losses, saves on chemical consumption and keeps kids safe.

Concrete Waterproofing System



AQUORON (Rockwall, TX) offers the Concrete Pool Shell Protector System. Designed to waterproof and strengthen concrete, protect rebar, increase the bond between a shell and its plaster coating, reduce bleed-through and efflorescence, reduce shrinkage cracking and more, the product penetrates either side of a shell to a depth of 6 inches, where it prevents all moisture migration through the concrete.

Bird-Control Catalog



BIRD-B-GONE (Mission Viejo, CA) has published a catalog on its extensive line of bird-control products for commercial, industrial and residential applications. The 50-page, full-color booklet covers a variety of new products (including the just-released Avian-Plus Bird Hazing System) among more than 100 other systems designed to help property owners solve almost all of their pest-bird problems.

Three-Speed Pump



SPECK PUMPS (Jacksonville, FL) has introduced the Badu EcoM3 pool/spa pump. Designed for cost efficiency as well as environmental friendliness, the high-performance, three-speed, medium-head device features a three-button panel for easy, efficient operational control and a permanent-magnet, brushless DC motor that offers cool, quiet running on pools ranging from 10,000 to 25,000 gallons.

Disability-Access Catalog

AQUA CREEK PRODUCTS (Missoula, MT) has published a catalog on its line of pool and spa access equipment. The 12-page, full-color booklet covers 11 lift systems designed for use in commercial, residential and medical settings, including permanently installed as well as portable systems. It also offers details on a variety of wheeled access chairs for use in and around water as well as parts and accessories.



Pool/Spa Catalog

INTERMATIC (Spring Grove, IL) offers a catalog on its lines of products for pool and spa applications. The 84-page booklet covers both residential and commercial applications and offers details on salt chlorine generators; digital, electronic, mechanical, pneumatic and remote controls; transformers, junction boxes and more. It also offers a complete guide to accessories and a variety of replacement parts.



Low-Carbon-Emission Cement

GREEN WORLD CRETE (Pompano Beach, FL) has introduced Geo-Green Crete, a low-carbon-emission cementitious product that offers a high-performance, cost-effective alternative to ordinary Portland cement. Made from post-industrial waste and naturally occurring aluminosilicates rather than limestone, the product results from a manufacturing process that involves near-zero carbon-dioxide emission.



Limestone Pavers

YELLOW MOUNTAIN STONeworks

(Seattle, WA) offers Rusty Manchu Caviar Limestone for use in landscape and interior applications. Originating in the region in China where the philosopher Confucius was born, the stone is available in custom sizes or in a range of standard-sized Roman cobbles in two finishes: a honed version with a silky, undulating patina or a lychee finish for a more rustic look.



Photographic Tiles



OCEAN IMAGES (Manhattan Beach, CA) offers unique tile murals and mosaics for use in various watershape applications – pools, spas, fountains and more. Imprinted with photographs of

wildlife, fauna and architecture taken in, around and under water, the tiles work in both outdoor and indoor applications and the images are stable when exposed to ultraviolet light, ozone, chlorine or bromine.

Low-Profile Suction Covers



AQUASTAR POOL PRODUCTS (San Diego, CA) has introduced the Sun series of suction outlet covers and mud frames. Fully compliant with the Virginia Graeme Baker Act and available in 9- and 12-inch-square versions, the UV-resistant, low-

profile units are ideal for applications in wading pools and spas, come in 8 standard colors and are designed for both single- and multiple-drain applications.

Wireless Control J-Box



FIBERSTARS (Pleasanton, CA) has introduced the Freedom Switch, an easy-to-install wireless control junction box for use with new pool construction as well as renovations. It can be used on many existing

junction boxes or to replace X-10 switches, and the wireless transmitter allows for easy control of color-changing lights. It also features a manual override as well as a self-diagnostic indicator light.

Garden Ornaments

HADDONSTONE (USA) LTD (Bellmawr, NJ) now offers West Lodge urns and fountains. Originally replicated for the prestigious West Lodge Park Hotel in England, the cast-stone garden and landscape ornaments are now available for general use in residential and commercial designs. The cast limestone from which the products are made will mature and weather like carved natural stone.



Commercial Heater

PENTAIR WATER COMMERCIAL POOL & AQUATICS (Sanford, NC) has introduced PowerMax XP, a compact, fan-assisted modular heater for commercial pools and waterparks. The easy-to-install unit offers front-panel diagnostics, an easy-access panel for igniter replacement and combustion-chamber sight glasses on both sides. It also has two-stage firing and runs reliably at altitudes up to 10,000 feet.



Centrifugal Pool Pumps

GRISWOLD PUMP CO. (Grand Terrace, CA) has introduced the F Series of heavy-duty, end-suction centrifugal pumps for pools, fountains, aquariums and other residential and commercial applications, including waterparks. Designed with enlarged pump suction and discharge nozzles that cut down on friction losses, the units have pumping capacities up to 3,000 gpm and heads to 125 feet.



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A Place to Begin

By Mike Farley

It's a bit hard for me to believe it, but it's now been fully 11 years since I attended my first Genesis 3 design school. One of the exchanges I remember most clearly from that first session was (among many others) David Tisherman laying out a bunch of books and recommending that we should immediately obtain and read all of them.

Always looking for a firm foothold, I asked him which one I should read first, and, without hesitation, he pointed to *Janson's History of Art: The Western Tradition*. I didn't act on his advice right away, but I eventually acquired a copy and started reading – and it took me nearly two years to get through its 1,100 oversized pages.

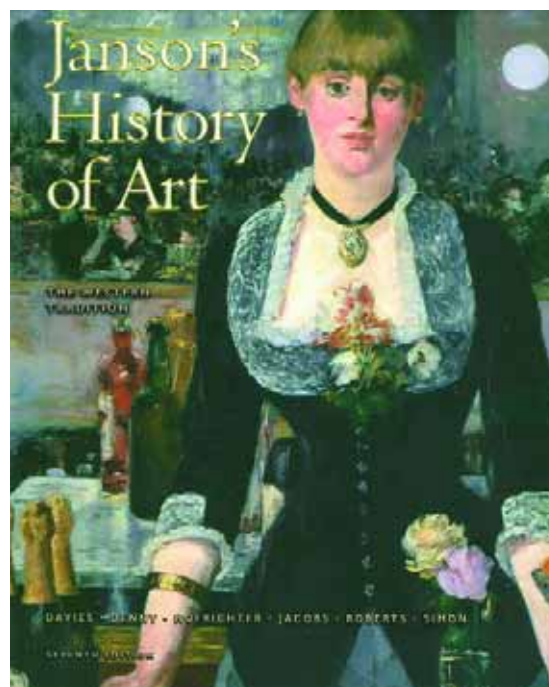
The book is the work of six eminent art historians – Penelope J.E. Davies, Walter B. Denny, Frima Fox Hofrichter, Joseph F. Jacobs, Ann M. Roberts and David L. Simon – and has been reprinted several times. The edition I own was published in 2007 by Pearson's Education, Inc. (It's widely used as a college textbook, so second-hand copies are readily available.)

A decade ago, I was in many ways just beginning my journey into the world of art and architecture: I had previously earned my degree in landscape architecture and had stepped into the workplace with the word “designer” stamped on my forehead, but the truth is, I'd finished school not knowing much at all about the history of art. In reading this book at long last, I was stunned to see how much was involved in the entirety of the Western design tradition, from antiquity to modern times – and most everything was new to me.

There are lots of ways to interpret this extreme form of revelation and define the importance of putting what we do in a grander context. Since completing the book, I've been most impressed to hear others say that art history constitutes a shared language designers use to communicate clearly and effectively with educated clients.

On a more practical level, I am aware that those who have embraced design education and have thus been able to focus their energies on custom work are holding up pretty well in our flat economy, while those who still treat pools as mass-produced commodities are either in serious trouble or completely out of the business. In that sense, art history can also be seen as spelling the difference between success and failure.

In essence, I have the sense that by embracing the grand, rich narratives of our creative past, we can all become ener-



gized by this expansive world of ideas and approach our work with greater enthusiasm and spirit. It even fuels a desire to travel and get out to see the world's beauty with our own eyes. In a very real way, in other words, reading this book has made my life more enjoyable and, personally, my work more dynamic.

I came full circle on this path last November, when I took Genesis 3's art history course and discovered that the instructor – my fellow *WaterShapes* columnist Mark Holden – uses *Janson's* as its centerpiece. And I wasn't the least bit disappointed, because when everything was explained through the perspective of such a talented designer and teacher, I found the book taking on new meanings and even greater significance for me.

To sum it all up, this volume is truly *the* place to begin your grandest creative journeys. **WS**

Mike Farley is a landscape architect with more than 20 years of experience and is currently a designer/project manager for Claffey Pools in Southlake, Texas. A graduate of Genesis 3's Level I Design School, he holds a degree in landscape architecture from Texas Tech University and has worked as a watershaper in both California and Texas.



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