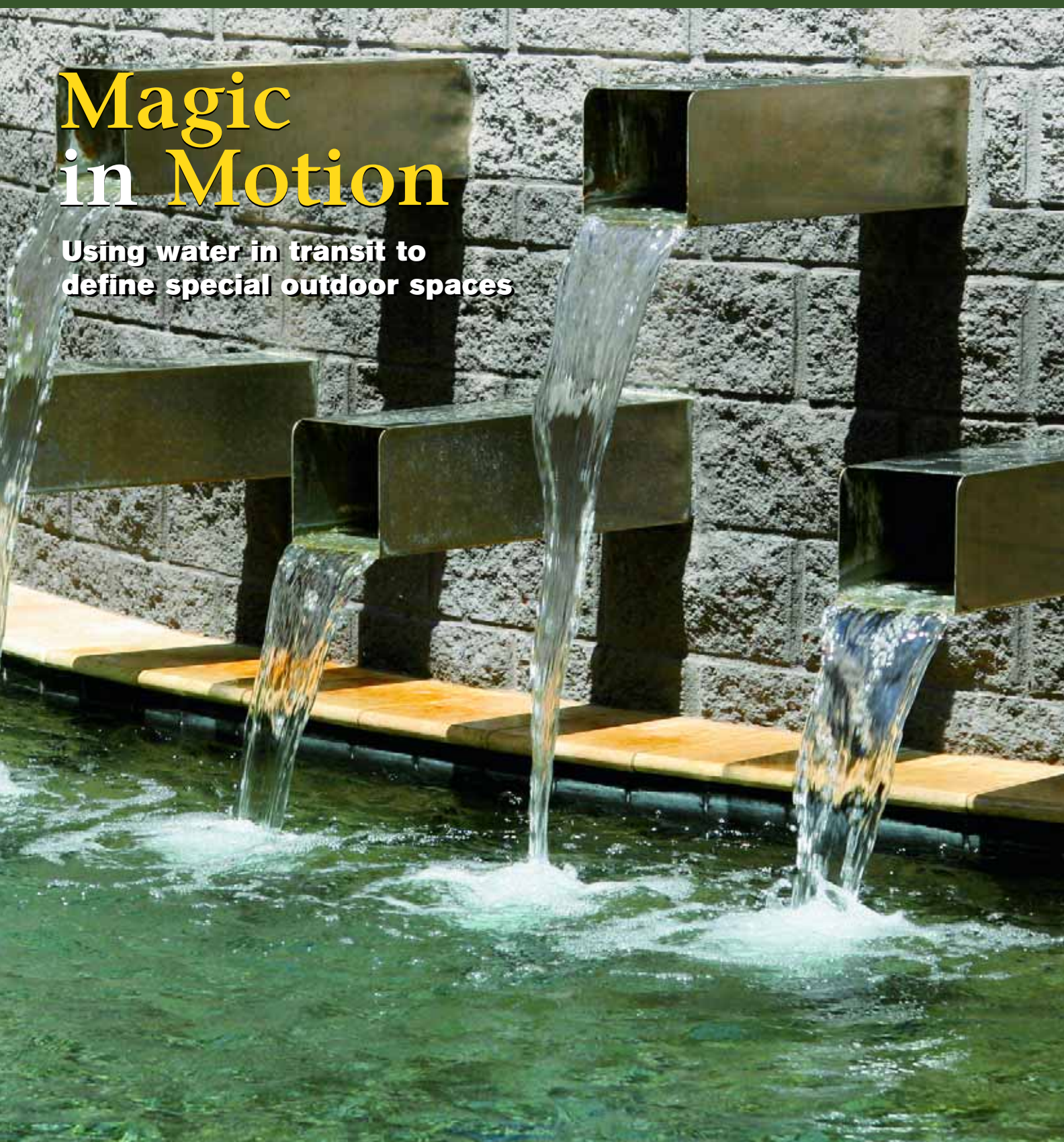
WATER SHAPES
Design
Engineering
Construction

Volume 11
Number 4
April 2009
$7.00

INSIDE: Healing Gardens • Front-Yard Waterfeatures • Artificial Rockwork



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On the Cover: Photo courtesy Hydroscapes, Fountain Hills, Ariz.

WATERSHAPES (ISSN 1522-6581) is published monthly by McCloskey Communications, Inc. 6119 Lockhurst Dr., Woodland Hills, CA 91367. A controlled circulation publication, *WaterShapes* is distributed without charge to qualified subscribers. Non-qualified subscription rates in the U.S., $30 per year; Canada and Mexico $48 per year; all other countries $64 per year, payable in U.S. funds. Single copies $10 per issue in the U.S. and Canada. All other countries $15 per issue. Subscription requests must include name, job title, business location, address information and a signature and date.
POSTMASTER: Send address changes to *WaterShapes*, P.O. Box 1216, Lowell, MA 01853-9930.
Periodicals postage rates paid at Woodland Hills, CA 91365 and additional mailing offices.

To the Forefront

By Eric Herman

I've always enjoyed spotting trends in watershaping, and I think I've found another that bears mentioning.

This one first caught my eye on my daily walks through the neighborhood surrounding my home in Laguna Beach, Calif. I've always reveled in the creativity homeowners in this upscale seaside enclave apply in detailing their properties. Better still, it's a place where no two homes are the same and almost everyone takes pride in doing something a bit different in customizing their surroundings.

Last fall, I started noticing that more and more homes hereabouts were sprouting watershapes in their front yards, clearly visible from the street. Some were simple or even folksy, as with the one in which an antique wellhead pump sent water into a wooden barrel; others were more elaborate, including several with combinations of sculpture and water and the occasional naturalistic waterfall and stream.

At first I didn't pay much attention – water in front yards is, after all, not the newest idea – but then I started seeing them pop up like wildflowers in front of homes that had previously been water-free. The increase seemed significant, so I checked in with a local nursery that has long offered ornamental waterfeatures: The manager confirmed that, yes, up-front fountains and the like were hot, even in this economy.

Soon thereafter, I began chatting with watershapers about the concept, and many confirmed that they, too, had noticed an uptick in interest among their clients in smallish bodies of water in front yards. Some attributed this to a growing interest in Feng Shui, while others point to the obvious fact that these projects give homeowners who want water in their lives something they can do on a budget.

Still other watershapers – and these are the ones who really caught my attention because they seemed to have high levels of enthusiasm – proclaimed front yards to be the New Frontier for watershape and landscape design and the area in which they saw the greatest potential for growth in the decade to come.

We at *WaterShapes* are already following that line: Brian Van Bower covered the topic in his *Aqua Culture* column last month ("Moving in Miniature," page 10), offering a variety reasons why out-front watershapes make sense. This month, we pick up the discussion with pond and stream specialist Bob Dews, who writes about his front-yard endeavors in "Welcoming Waters" (starting on page 26).

Dews, a master of pond- and streamcraft whose work has appeared before in *WaterShapes*, called me to discuss feature ideas a while back. Without any prompting on my part, he mentioned that many of his recent projects had been in front yards or by entryways and that he'd developed some guiding principles that were helping him develop these designs. I'll leave it to Bob to fully articulate those ideas, and I'm confident you'll find his observations to be quite compelling.

Just how far and wide this trend might spread is anyone's guess, but my hunch is that this is a watershaping genre whose time has come. And who are we to complain about an impulse that's driving people to put water on display for all the world to see and enjoy?

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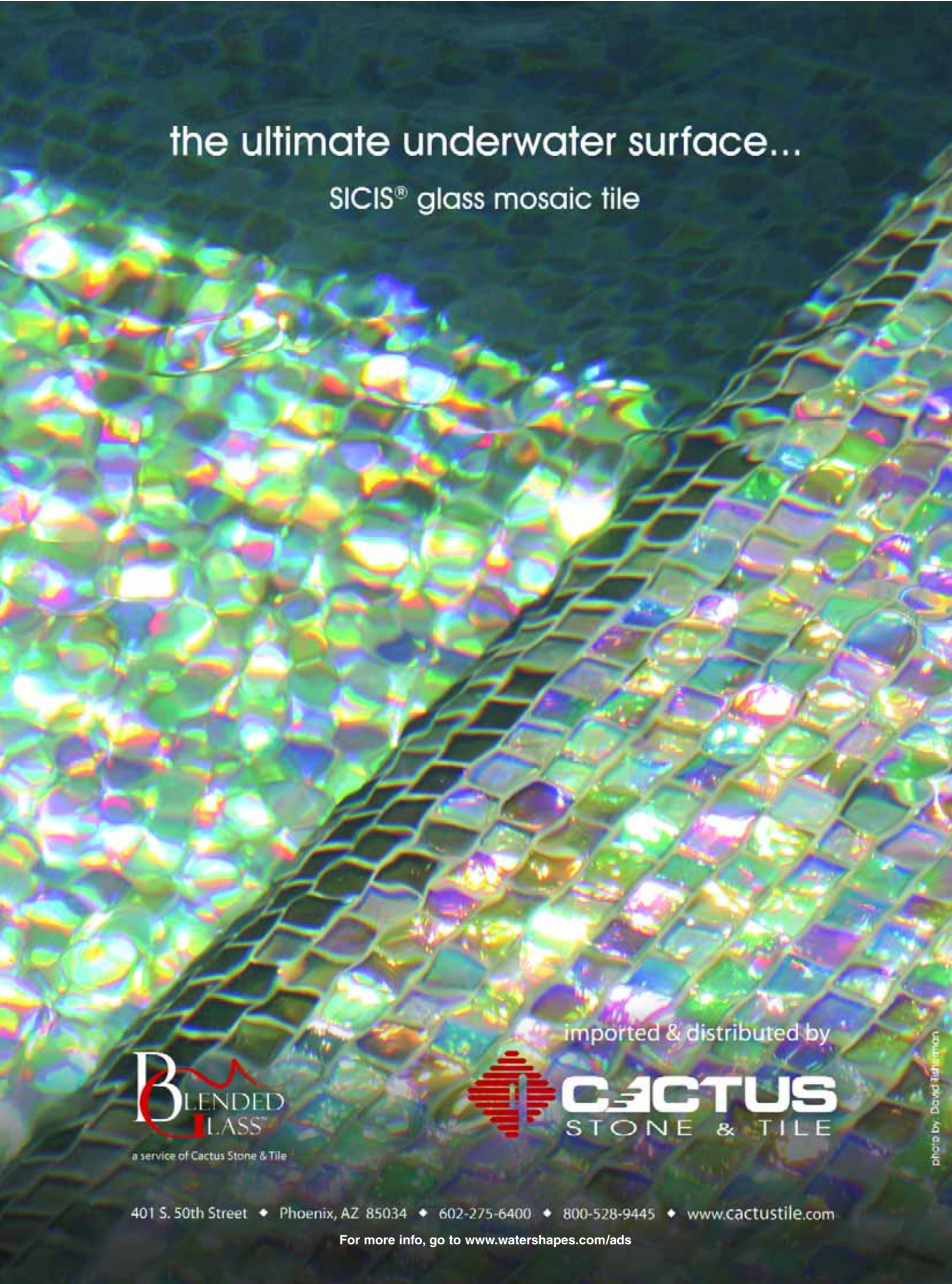
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In This Issue

April's Writers

Bob Dews is founder and president of Xstream Ponds in Cashiers, N.C. His focus is on designing and engineering watershapes that emulate the natural streams and cascades of the mountainous areas where he lives in western North Carolina, and he credits the abundance of these natural waterfeatures for his past and continuing education in the field. During the past several years, Dews has conducted seminars and written extensively in the pond industry to help educate the trade about the importance of "naturalizing" artificial water systems. When not designing and engineering his distinctive brand of watershapes in the Blue Ridge Mountains, Dews and his family operate a small motel they own in Cashiers.

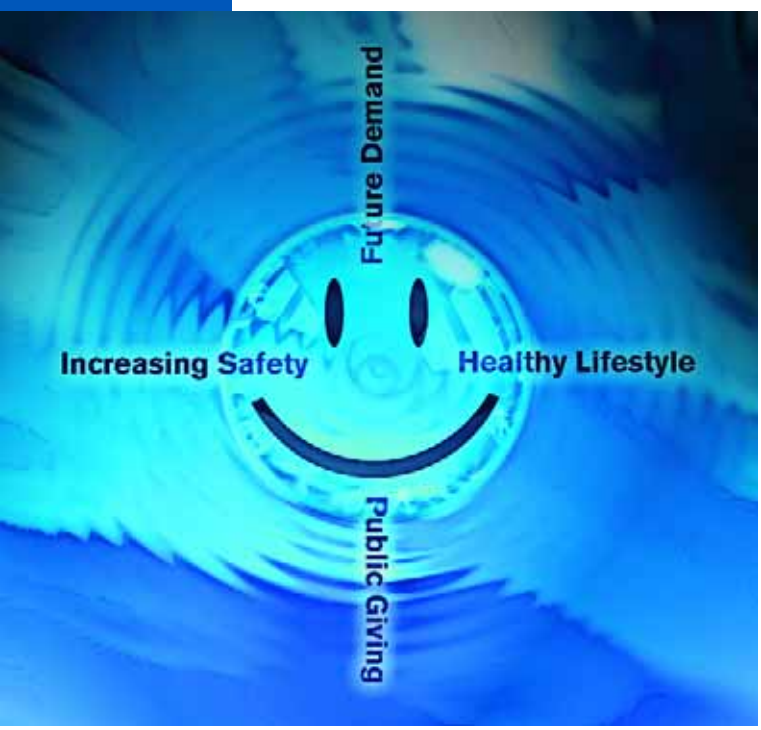
Paolo Benedetti is founder and principal at Aquatic Technology Pool & Spa (Morgan Hill, Calif.) – a firm dedicated to the design and construction of luxurious residential watershapes and exterior environments. He earned a degree in business management from California State University, San Jose in 1984 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 construc-

tion schools and is a Genesis 3 Platinum member.

Matt Wilson is the principal of Second Nature Environments, a custom watershape/exterior-design firm based in Alamo, Calif. With more than 30 years' experience, he has designed and built unique landscapes and environments for both residential and commercial clients, including several zoological and museum exhibits. Wilson, who credits travel through more than 20 countries for much of his inspiration, has been developing his style and techniques since his teen years: He received California Certified Nurseryman's status at 17, and after several years in that business, he started his own construction company in 1981. In 1992, he was introduced to the creative potential of artificial rock – which he sees as a sculptural form of art – and has since dedicated much of his energy to using that material to create a range of environments. He is currently in the process of establishing a new firm, Bachanalias, to serve ultra-high-end clients who seek resort-like environments for their homes.

Roger Soares II is president of Hydroscapes, a custom watershaping firm based in Fountain Hills, Ariz. His background includes 26 years in residential and commercial construction and extensive experience as a plumber. He and his wife, **Sheri Soares**, co-founded Hydroscapes in 1998 as a service and repair firm. They quickly moved into residential pool and spa design and construction and now focus on providing mostly high-end clients with creative watershape and landscape designs and installations. She also has a background in real estate development.

Aqua Culture



I see no better way to improve our collective mood than by stepping out and helping others.

Positive Engagements

By Brian Van Bower

One of the greatest epiphanies I've ever had as a watershaper came many years ago when I was asked to tell a group of businesspeople what I did for a living.

I'd been invited to attend a meeting of the Miami Chamber of Commerce and, as a newcomer, was asked to say a few words about my company and my work. I was to go second: The first speaker was in the carpet-cleaning business and, as I recall vividly, described what he did in such a way that it would've been a great cure for insomnia.

Standing up after his sleep-inducing performance, I was determined to take a different path and find something compelling to say about the way I earned my living. I was younger then and maybe a bit naïve, but I felt good about my work and did what I could to share that pride and excitement.

I started by saying, "I'm in the business of providing a product that brings people together and offers them a place to exercise, improve their health, relax and relieve stress." I went on to talk about giving people places to entertain their friends, enhance their pride of home ownership, experience beauty and enjoy relaxing sights and sounds before observing that I also gave families a place to spend time together and have fun.

Only then did I conclude by saying, "I design and build swimming pools and spas." Well, it worked: My message came across clearly, and I received an unexpected ovation.

Up until that point, I'd never really thought about pools and spas in exactly those terms – but since then, I've never thought about them in any other way. Better yet, my belief in the profound benefits our products has informed everything I've said and done about watershaping through all these years.

negative tides

Unfortunately, our industry has never done a particularly good job of promoting those benefits. In fact, just the opposite has too often been the case.

A specific example can be found in the Virginia Graeme Baker Act and the cascading morass of rules and regulations that have emerged to prevent suction-entrapment incidents. Yes, it's important to do all we can as an industry to prevent these terrible occurrences, no question about it – I just wish that, as an industry, we had come up with safer pool system designs on our own instead of having them mandated by others. A regrettable side effect of these recent events is that the public has been bombarded by negative information about dangers associated with pools and spas.

It's terribly unfortunate that these regulations were so muddily conceived that, in some cases, they've provoked the needless closure of public swimming pools – not because they're unsafe, mind you, but because what's needed for compliance is so confusing or terribly expensive.

In essence, this current round of controversy is an extension of the public debate over child drowning that took center stage starting in the mid-1980s. For decades now, in fact, the leading message the public hears about pools is that children are at risk of dying in water.

To be sure, it's in everyone's interest to prevent any and all aquatic-related incidents, whether it's child drowning, suction entrapment, diving accidents or even waterborne illnesses – and I praise those who've gotten involved for tackling what are in-

herently emotion-packed issues.

For all that, however, I believe this focus on the negative has led to the downplaying of the even more profound benefits our products bring to our society. This is where we've *always* come up short, at least in my 20-plus years of close observation of what's been happening. It's almost as if we've collectively been afraid to stand up and herald the fact that we provide venues for swimming – the healthiest physical activity ever found.

Indeed, recent studies are telling us that swimming, aquatic exercise and hydrotherapy are good for everybody – children and senior citizens as well as the physically disabled and those with a variety of illnesses, including multiple sclerosis. I am profoundly grateful to the National Swimming Pool Foundation for funding many of these studies, which are being led by some of the nation's leading health-research scientists.

Now more than ever, we must find ways to make these amazing benefits known to the public at large: They take the benefits I once used to describe what I did for a living and raise them to a level of much greater value and significance.

Unfortunately, however, we've never been good at that as an industry, at least not on any sort of consistent or enduring basis. I'm nonetheless encouraged by the fact that information is there, ready-made, to advance our cause: All we need to do is pick up that ball and run down the field.

the power of giving

It occurred to me recently that perhaps the most powerful way to bring this message across is for us, as an industry, to become involved in some sort of public-health-related philanthropy. I don't know exactly what that would be, but I do know that we have a lot of intelligent, well-meaning people in our industry as well as products with huge societal value and a common need to spread the news of those benefits to the public at large.

I would argue that, given the times, we need to find a cause and take action – the sooner the better.

To illustrate what I mean, I can recall a handful of isolated cases in which our industry has stepped up with meaningful charitable actions. I think back, for example, to the work Region 1 of what was then the National Spa & Pool Institute undertook on behalf of Paul Newman's Hole-in-the-Wall Foundation. Closer to home, I remember working with the Miami Chapter of what was then (even earlier) the National Swimming Pool Institute to build a pool at a school for severely handicapped children.

In that case, chapter members solicited contributions of equipment and materials and donated the labor it took to renovate a pool so wheelchair-bound kids could enjoy the water. It was a won-

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derful endeavor, drew its share of local media attention and, most important, demonstrated the benefits of immersion for children who otherwise wouldn't have had the opportunity to get in the water. It also energized the chapter for a time and gave us all a wonderful feeling of having done well by others in our community.

The problem, at least in the Miami Chapter's case, is that this was a one-time deal and went no farther. As an industry, I think we need to develop recurring, enduring programs that consistently will spread the good word about our products and at the same time provide benefits to the public on an ongoing basis. Only in this way will we sustain the message and extend the excitement.

As an example of how well this can work, I was involved years ago with "Days of Taste" with the American Institute of Wine and Food. In this program, local AIWF chapters staged events that involved kids in learning about nutrition, cooking and dining. After groups of children were taught some food basics, they were taken on shopping sprees at local farmers' markets under the guidance of local chefs. The program still exists and has introduced tens of thousands of children to the joys of food, cooking and dining.

I don't see much of a leap from that sort of program to one about learning to swim, for example, or about broader "Pools and Wellness" events that will engage children as well as their parents and other adults. There's little doubt in my mind that national programs along those lines would not only expose people to the benefits of swimming and other forms of aquatic exercise, but would also elevate the profile of our industry and its products.

finding the time

We live in a time in which we're seeing rapid growth of an aging population that's increasingly concerned with health; we're face to face with unprecedented levels of childhood obesity; our cities offer diminishing resources for healthful aquatic activities. Isn't it time to address those issues and advance our cause?

This might seem a counterintuitive suggestion at a time when many of us are wondering if our businesses are going to survive the current economic situation. To me, however, the fact that our entire society is facing these economic and social challenges spells opportunity if we adjust our mindsets and move forward boldly, despite our collective worries.

For starters, if there ever was a time when we need to feel good about what we do for a living, it's right now – and I see no better way to improve our collective mood than by stepping out and helping others. Years of prosperity have made us unusually self-centered, and there's a lot to be said for the idea of changing pace by calling for everyone in our society – affluent, poor, middle class, old or young

– to get involved in community-oriented, philanthropic activities.

Call it karma, goodwill or just good, common sense: We all know that when we move beyond our routines and act selflessly on the behalf of others, we benefit from the effort as well. We may not appreciate or even care that such efforts serve our own interests or that those benefits come from unforeseen, unanticipated directions, but there is no question that charity of almost any sort benefits both recipients and those engaged in the act of giving.

In tight times, many of us might not have financial resources to dedicate to charitable activities, but it's a virtual certainty that we now have the time. And that's great, because charitable programs are almost always built primarily on donations of time and effort. I also think there's a lot to be said for bold action in troubled times, when the natural inclination might be to hunker down, circle the wagons and hide until the situation changes.

I say all of this as someone who leads a self-centered lifestyle, and I'm certainly not proposing that self-interest is a bad thing – quite the opposite. For all that, I can't help thinking that now's the time to reach out with a charitable spirit, collectively or individually, and seek positive, long-term results.

The gap in what I'm saying here, of course, is that I don't already have a full-scale, national program in mind. For that, I'm calling on you to define a need and your ideas about meeting it. Some of you might already be involved in local programs that have national potential. Others might already know of great programs that could use an infusion of fresh energy and willpower.

starting a movement

If you're in the know, I'd like to hear all about it. Better yet, I've discussed this concept with *WaterShapes* publisher Jim McCloskey and editor Eric Herman, and they've indicated that they'll happily use the power of the press to forward this sort of agenda. So please, don't hesitate to contact me (or them) with your ideas.

The benefits of our products are such that enabling others to experience them can only lead to good things down the line. Whether we think of what we're doing as driving future demand, increasing safety, working for public health or giving the underprivileged access to the joys of swimming, I believe we can't go wrong by making the effort.

We need to start on this path – *soon*. WS

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

Refined by Need

By Bruce Zaretsky

Last month, I opened a two-part discussion on healing gardens, a trend in landscape design that's become popular among managers at hospitals and other healthcare facilities who desire spaces where patients, visitors and staff can spend a bit of time in nature to heal, set aside stress and otherwise regenerate themselves.

In the time since I first became involved with these spaces, I've also seen demand for these gardens – known in other contexts as "tranquility gardens" – grow among churches and retirement homes. What I've noticed in all cases is that these gardens resemble lots of residential projects my firm has tackled in which the curative, relaxing powers of nature inspired my clients to give us a call.

Through the years and in the course of many such projects, we've learned our share of important lessons about designing these gardens and the value of always keeping the specific needs of defined, key sets of users in mind.

Most of us have no problem reaching out to touch a leaf or put a hand into a cascade, but people in wheelchairs don't have that luxury.

It doesn't take much thought, for example, to recognize that many people who will use healing gardens at hospitals and other healthcare facilities and retirement homes will be confined to wheelchairs. Right off the top, this places importance on smooth pathways and gradual grade changes and, in some cases, deployment of appropriate ramps.

rolling revival

While paving materials such as concrete, pavers or brick are the most common (and obvious) choices, you don't need to work within those restrictions if you don't want to. Indeed, I've found that stone dust or crushed granite can be used instead if compacted to smoothness and sustained by adequate drainage systems.

In a garden we designed and installed about five years ago, for example, solid paving was a budget-breaker, so we used a compacted stone dust to create wheelchair-friendly pathways. To make certain all was well, I even borrowed a wheelchair and found no issues in a few test runs in which I covered the full space in both directions. My observation of the completed garden confirmed this fact: The many users I saw in wheelchairs had no difficulty at all in navigating the space.

There's also an obvious need where ramps are involved to set them at the proper pitch. The Americans with Disabilities Act stipulates that wheelchair ramps should have no more than a one-in-twelve pitch – about eight percent. In our work, we always aim for something even more gradual than that, but space availability sometimes limits what we can do.

A far less obvious need for wheelchair-bound users is some means of access to the garden's plants and waterfeatures. When standing, most of us have no problem reaching out to touch a leaf or put a hand into a cascade, but people in wheelchairs don't have the luxury we have of leaning over and using more than an arm's-length reach. In addition, the chair itself is an obstacle to closer contact.

What this means is that we need to take into account such details as raised-bed walls, which shouldn't be more than eight inches thick (a limit that can play havoc with engineering standards but is doable). We also need to position planting beds at heights at which people sitting in wheelchairs easily can reach.

I've had wheelchair-bound clients who are avid gardeners, and I set their planting-bed levels at 24 inches above grade. In another case, there wasn't room for raised beds, so I used containers – a series of matching planters filled with vegetables, herbs and annuals set on a large, flat, easily accessible patio. The client tended these plants daily, and the effect it had on his general spirits was profound.

As for watershapes, they must be set up in such a way that splash-out isn't an issue (you don't want slick surfaces or to create situations in which anyone can get trapped in mud. And if the watershape is on the same grade as an adjoining pathway, you need to set up some sort of barrier to prevent any chance of the wheelchair entering the water.

The water's proximity to pathways is, of course, another issue. If your aim is to create spaces where the wheelchair-bound can touch the water, you need to raise the vessel to a touchable height. And if the water's moving, keep these effects small and subtle to prevent any issues with safety or comfort.

(It's important to note that some healthcare facilities are adamant that their patients *not* be able to touch the water, with a fear of waterborne contagions outweighing the benefits of feeling the water. Indeed, we're working with exactly that edict with a garden we'll install this spring at Rochester General Hospital and have heard from a number of other designers we've contacted that this can be a key concern.)

beyond the visual

In several cases, we've been called upon to design garden spaces for people with some degree or other of visual impairment, from reduced capability to total blindness. In our practice, we don't consider these conditions to be any sort of impediment to enjoying a healing garden because, after all, fragrance and touch are still in the picture.

In fact, of all the senses, the most memories are tied to the sense of smell. Who doesn't recall Grandma's apple pies of yes-

teryear when you walk past a bakery today? We all have those kinds of memories associated with aromas and fragrances, so in gardens intended for use by these folks, we'll focus on creating just this sort of sensory experience.

We also seek out and use textured plants, which are available in great variety just about wherever people build anything, and always use falling water both for the attractive sounds it generates and the smiles it brings to the faces of those who reach out and touch it.

In one of these "sensory gardens," we used 75 varieties of fragrant and textured plants. To identify them, we commissioned 40 brass plaques with the plant names in Braille. We also set up a mailbox at the entrance to the garden in which users found sheets in Braille that identified the plants in greater detail than the plaques could convey. It's worked out so well that this particular garden is used by the seeing public as well as the visually impaired for whom it was intended.

One of the highlights of this space is a small waterfall that drops into a stream and passes beneath a concrete bridge (stamped with animal footprints) and into a pond. We built the bridge to within a foot or so of the waterfall so that those with limited vision could comfortably touch the cascade without any perceived danger that might have resulted from making them lean over to reach the water. (This sort of design also works for wheelchair-bound visitors, who can roll right up and reach into the cascade.)

As mentioned last time, we also have gotten involved in designs intended for use by patients with Alzheimer's and other age-related issues. Here again, fragrance is a huge factor: Research has shown that the apple-pie factor mentioned above relates to these patients specifically and that fragrances recalled from youth bring happiness and occasional sparks of clarity or well-being to these often-confused patients.

With these people in particular, however, extreme caution must be taken in specifying plants. Anything the least bit toxic should be avoided, as Alzheimer's patients have been known to ingest leaves and fruit without hesitation.

balancing acts

In all such design projects, it's important to bear in mind that what works for one group of users might not be ideal for others.

Early in this discussion, for example, I mentioned that wheelchair users can get along quite well on compacted stone dust or crushed granite in addition to other forms of paving. With Alzheimer's patients (or other ambulatory users with limited mobility), the choices are more restrictive.

In most such gardens, the paving has to be some type of poured surface that minimizes joints and seams. Not even cost-conscious designs that use concrete

pavers are truly appropriate: The beveled edges on these pavers can present trip hazards to those who walk with a shuffle, and they can topple I.V. stands that might have to go along with either an ambulatory or wheelchair-bound patient.

If poured concrete is the option of choice – and it frequently is – then it should be colored in such a way that glare is minimized. Railings are another consideration: Lots of Alzheimer's patients, for example, are older, have limited mobility and can use the support.

As mentioned in last month's column, it is also of paramount importance that *any* pathways in an Alzheimer's garden be organized in some form of a closed loop. With their tendency to get confused, making choices among pathways can become traumatic experiences and can easily make these patients fear they've gotten "lost," even when all they need to do is turn around.

In all of this, as designers we need to appreciate the fact that one of the issues that make staying in hospitals and other healthcare facilities so disquieting is the sense patients have that they've given up any sense of control over their lives and the environments they occupy. We go through our daily lives choosing what to wear, what to eat, when to go to work and when to shop. When hospitalized or in assisted-living situations, we're placed on schedules based on the policies of the institution.

Think about that for a moment: These folks go from 100-percent control of their lives to almost none. They're told when to wake up, when to eat, when to take medicine. They wear hospital gowns and are hooked up to who-knows-what contraptions. In many cases, they're bed-ridden and lonely. Is it any wonder that one of the greatest of all life's stresses is a stay in the hospital?

Healing gardens address that stress directly by meeting patients' desire to be outside, in nature. While they're in these spaces, they want to control where they

For gardens intended for use by the visually impaired, we do all we can to make them accessible to users of *all* capabilities – but focus our choices specifically on plants with distinctive (and often familiar) smells and textures.

Simply being outside and surrounded by nature's beauty is a tonic not just for patients, but also for those who've come to visit their friends and loved ones – as well as the healthcare practitioners who work in these facilities day in and day out.

go, what they see, what they touch and how much time they spend pursuing these simple activities. They also – and this is important – want to decide where to be, which is one of the reasons our designs almost invariably include sturdy but easily movable furnishings.

personal liberation

Nobody enjoys the waiting-room experience of sitting on chairs bolted to the floor and the impossibility of enjoying a private conversation or even private thoughts.

When outside in our healing gardens, these people want to find furniture they can adjust to suit their needs and nobody else's. Simply being able to slide a couple of chairs close together in a private location allows people to get away and have private, even intimate conversations beyond earshot or view of others who might be using the space.

It occurs to me, of course, that so

much of this is *exactly* what we're after in designing many of our residential gardens: What clients really want most is a private retreat in which they can escape from a day's cares and concerns and either commune alone with nature or share the experience with a spouse, a friend or a child.

Before I ever took that course at the Chicago Botanic Garden in healthcare-related exterior design, I'd always applied common sense along with my own personal style to these types of gardens. With education, however, my sensitivity to the full range of issues involved in designing these spaces has grown and carried my work to new and more-focused levels.

As we all age (and unfortunately, it's something we're all doing), most of us will become, willing or not, residents of retirement communities, assisted-living centers or hospices. So where would you rather be, an antiseptic-smelling room or out in the open in a well-designed garden? WS

For the caregivers

Some neat observations came to light while I was learning about the design and installation of healthcare gardens – studies revealing the fact that facility staff, bar none, was the largest group of healing-garden users.

Indeed, one such evaluation found that 75 percent of all users of a hospital's garden were people working there. And this wasn't about cigarette breaks or lunch outdoors, neither of which were even allowed in this particular garden. Instead, the staff – particularly the nurses and doctors – used the garden to break away from the incredible stresses they faced daily. In interviews, they reported that just a few minutes of communing with nature was enough to help them face the rest of a day – a wonderful and unintended benefit.

And it gets better: One hospital administrator told me directly that it costs up to $100,000 to replace a critical-care nurse. He told me that the simple fact that his facility had a healing garden and made it available to staff increased his ability to retain top staff (and save recruitment money) because the garden had proved such an effective stress reliever.

– B.Z.

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.

Advancing Technology

By Mark Holden

It's in *every* watershaper's interest, young or old, landscape architect or mainstream pool builder, to consider the full range of available system options.

One of the longest-standing knocks against the pool and spa industry is that too many designers and builders rely too heavily on convention and seem disinclined to pursue new paths and ideas no matter how compelling they might be.

Of course there are exceptions, but there's a lot of truth to that statement when it comes to the technology chosen, for example, to drive circulation systems and chemically treat or light the water: All too often, pool and spa professionals tend to keep on specifying and installing equipment they've used for years – even if it's outmoded or is no longer the best available approach – because they feel comfortable with it and have a sense of its long-term reliability.

In educating landscape architecture students about watershaping, however, one of my chief goals has been to open their eyes to the variety of technical solutions now available on the market – many of them much more energy efficient, serviceable, safer and more flexible than the "conventional" approaches I see in such widespread use.

My ambition in doing so is to help these students emerge from the educational process with their eyes wide open not just to what's available, but also to anything new that might come along to replace current possibilities as their careers progress. Truth is, manufacturers have been making unusual leaps in technology in recent years that allow for more creative designs: On that level, it's in *every* watershaper's interest, young or old, landscape architect or mainstream pool builder, to consider the full range of available options.

smart lessons

To understand the full power and importance of these technological advances, all we need to do is take stock of some of these breakthroughs and look at how, even in a short time, these innovations have reshaped the industry.

It was a bit before I entered the business, but there was a time when open-faced bronze pumps were the industry standard. They'd only deliver about 75 gallons per minute at two horsepower, but for decades these rugged devices were basically the *only* option and could be found on almost every residential swimming pool.

At some point, however, manufacturers upped the ante and began making pumps with plastic components and closed-face impellers: The fact that these pumps were much easier to work with and increased average flow rates to 120 gallons per minute with the same horsepower led, in time, to their wide adoption by the industry.

Although these new pumps were warmly greeted and gained strong acceptance, the industry was characteristically slow to appreciate the full implications of their arrival. To this day, in fact, there are pool professionals out there who try to shove that increased flow capability through the same, conventional inch-and-a-half pipe they've always used – a complete waste of the improved pumps' capabilities.

It's taken some time, but by now I think we've all finally gotten the message that we need to size our pipes based on flow – well, most of us have, anyway. So now, after decades of transition, our hydraulic systems have generally become far more efficient: Technology advanced, and eventually the industry did, too.

The same is true in other areas. Indeed, there are even newer pumps as well as sanitizing systems and lighting products that are changing perceptions of what watershapes are and what they'll be and will do in the future.

Where some of us apparently prefer to think of the industry's technology as static, as an open-minded professional and instructor, I am sure the arc of progress will continue and that there's value in watching what's happening and in teaching students to focus on cutting-edge technology. In other words, we work in a dynamic, evolving industry, and I don't want anything to pass by unnoticed.

What future landscape architects learn from me is that there are alternatives when they find themselves in sticky situations and need to reach beyond convention to resolve design issues. Perhaps more important, I teach them not to rely solely on the opinions of builders in resolving those issues: In my book, too often this will lead them to unnecessarily narrow solutions.

Fortunately, the resources these fledgling watershapers (and their experienced colleagues) need are readily available: All you really have to do is open the pages of *WaterShapes* or attend water-oriented seminars, schools and trade shows to get a sense of just how broad and deep those resources are. We live in the Information Age, and these days there's really no excuse for remaining uninformed.

safely green

In that spirit, I'll now discuss three specific products that I believe stand as strong examples of game-changing technology. Before I begin, however, let me declare that the selections I've made are entirely subjective, and I'm the first to acknowledge that there are several other products I might have chosen to make my point. With that caveat, let me start in an area near to my heart.

In classroom settings, I've been encouraged by the number of students who are concerned with safety and "green" building practices. In fact, I can easily say that *most* technology-related questions I get fall into one or the other of these categories.

I respond to these inquiries by pointing out a handful of products that address *both* issues. In addition, I use these questions as an object lesson in why design professionals must know as much as they can about innovative approaches and apply what they see in their design packages to ensure that their projects are as safe as possible while also minimizing a given

project's carbon footprint.

This brings us directly back to pumps and new safety laws that took effect late in 2008: In the months leading up to implementation of the new rules, the watershaping industry spent considerable time tripping over its own feet in a scramble to modify (conventional) systems and address now-pressing safety issues.

For the most part, what the frenzy produced was band-aid remedies for the fact that pumps create vacuums that can injure swimmers. We focused on drain grates, plumbing and SVRS units, but drain grates and plumbing solutions can get broken or be removed, while SVRS units can be disabled (something I've seen countless times, despite claims to the contrary). And in all such situations, either poor installation or improper maintenance practices can expose bathers to risk.

Apart from that hubbub, truly significant action was taking place with the product that actually is at the core of the issue – that is, the pump.

Much to its credit, Pentair Water Pool & Spa (Sanford, N.C.) saw what was happening and quickly released a new version of its latest pump – that is, the IntelliFlo VF+SVRS model – which improved the original pump's sensitivity to changes in operating conditions (a step that dramatically increases hydraulic efficiency) by adding a switch that cuts off the flow entirely when the pump is seriously strained, as is the case in suction-entrapment incidents.

The safety function of these SVRS-equipped pumps cannot be disabled on site. They also save money by using exactly the right amount of electricity and are among the quietest pumps currently on the market – all told, a significant advance in both safety and "green" efficiency and a product I encourage landscape architects and students to take seriously in every appropriate application. Indeed, I'm so convinced of the value of this approach that I have the feeling that, one day, *all* pumps will effectively be clones of this one.

Does this technology resolve *all* safety and efficiency concerns? Certainly not: As I discussed in my "Currents" column in January 2009, safety is a multi-headed beast that calls for a wide-based set of solutions – and the same can be said for energy efficiency. There are no magic bullets, but in my book this new pump is an important tool in helping us achieve important safety and efficiency objectives.

sane sanitizing

Another area where I've seen significant technological progress is in the broad field of water treatment.

Just as the bronze pumps with open-faced impellers were once the industry standard, so, too, was basic chlorine sanitization via one of many dosage regimes. Since the early 1980s, however, sanitizing technology has reached well beyond di-

rect chlorine administration, and watershapers have had their choice among a host of treatment options from ozone and ionizing systems to automatically controlled chemical-dispensing systems.

In fact, many of these technology-based options are so common now that we often take their effectiveness and efficiency for granted.

A latecomer to the list of alternative approaches – that is, systems based on the use of saltwater – has found what seems to be a greater and quicker level of acceptance than any other. And it is indeed a great concept that essentially enables a body of water to become self-sanitizing.

With any new technology, of course, come sets of concerns. With salt chlorination, for example, if the salt level gets too low or voltages vary, the system's chlorine output can be inadequate. In addition, the cells that do the work of transforming salt into chlorine need frequent cleaning.

The bottom line: Sometimes these systems work beautifully, while other times they don't. This is why, to this day, most Health Departments will not allow these systems to be used as primary sanitizers on public pools and spas.

Recently, however, a company called Fluid Logics (Upland, Calif.) has introduced a line of products that have the potential to eliminate some and possibly all of the major complaints associated with salt chlorination as a means of sanitizing and oxidizing water. Although the products, as designed, handle large, commercial-scale bodies of water, as systems they fit neatly within the watershaping realm and merit attention.

These chlorinators are capable, for example, of producing chlorine with salt levels as low as 700 parts per million and as high as 40,000 parts per million, and one unit in particular can produce up to 52.9 pounds of chlorine per day. They also operate with line feeds from 90 to 264 volts AC and require no user adjustment of any kind. Finally, I've seen with my own eyes how the cell cleans itself, in just moments.

Basically, the folks at Fluid Logics looked at what was holding salt-chlorination technology back and addressed each issue in turn; the fact that they did so in a package that is both compact and lightweight is a substantial bonus. So now designers can specify a product that is safer for bathers, provides an ecologically sound sanitizing method and reduces operating costs, all with a system that will run for years – another technology to watch *and* specify.

light years

The third and last technological area I'll address is lighting in watershapes – a field that has been slow to advance relative to what's happened in other lighting sectors through the years.

For a very long time, incandescent bulbs were the standard despite any concerns

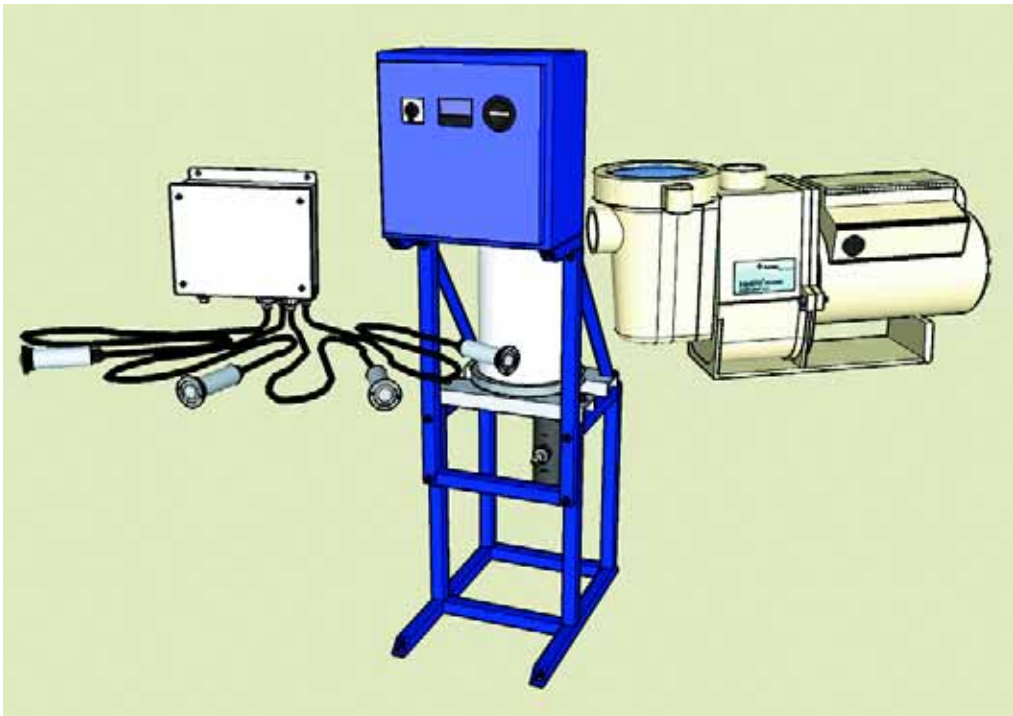
about the wisdom of placing line-voltage devices within the confines of a body of water. A response finally came about 20 years ago in the revolutionary form of fiberoptic systems, but the newcomer has been slow to catch on – despite its inherent safety benefits – probably because of a relatively high cost per lumen and also because fiberoptics never seemed to be quite bright enough to meet the practical needs of watershape applications.

Within the past few years, we've seen the rise of LED technology – and in the past year or so have watched it get considerably brighter. (Indeed, they've come far enough along that all-white LED arrays can now be used in public pools.) So, what's next? LED arrays are already cheaper to operate, emit comparable light and have longer service lives than their incandescent cousins, but until recently they've been held back by the fact that they are still line-voltage systems in close proximity to water.

That changed when Nexxus Lighting (Charlotte, N.C.) released the Savi-Note M4 LED system – a low-voltage system that not only removes a source of high voltage from watershapes but also eliminates the need to include visually intrusive light niches. In terms of both safety and "green" building, this is the way to go.

For me, the key is the fact that this low-voltage array fits in the space occupied by a standard inch-and-a-half return fitting and feeds back to a one-inch conduit beyond the watershape's shell. Helpfully, the lights are run off a transformer that can be located as far as 150 away from the LED emitters; even better, the LEDs last approximately 50,000 hours, aren't as visually arresting as large incandescent bulbs and don't produce hot spots on a pool's floor. Finally, they're less expensive than (and don't present the installation challenges associated with) fiberoptic systems.

All watershapers, from my students to seasoned professionals, should pay attention to what Nexxus Lighting is doing and find ways to get involved with the latest in watershape-lighting technologies. The fixtures are small and work well in commonly troublesome situations, including lighting of shallow water or in dry applications. And they are so compact that there's not even a need for protective grating – truly an idea whose time has come.



designer resources

These three products are all examples of what I define as a crying need among designers to learn about and specify new watershape equipment rather than leave these choices to builders or subcontractors. From my perspective as both instructor and project consultant, it's exciting to think of a time when designers will no longer be at the mercy of installers who are likely to be slaves to convention and unlikely to share ambitious design visions.

As I tell my students, the status quo just isn't sufficient and they can't afford, as professionals, to see their work compromised because those charged with installing their projects are rooted in outmoded approaches and can't be bothered to keep up with technologies that better meet the designer's needs.

At the same time (and to be fair), it's not the builder's job to read the designer's mind or educate designers to what's possible. Their job, by contract, is to follow plans: If those documents offer them no guidance, they're forced to fill in the blanks, make judgment calls and develop solutions that may or may not be based on a complete understanding of unconventional technologies or the designer's intent.

For years now, I've said and written that design professionals must take control and that the best way to do so is to stay current with technology and specify pumps, filters, sanitizers, lighting systems and other project elements that will make the project turn out as intended. To do less is to put designs at risk at a time when clients are demanding efficiency and safety at levels old-school approaches can't deliver.

That's not a risk any of us should be willing to take. 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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Welcoming Waters

By Bob Dews

For years, watergarden specialist Bob Dews has built his reputation by designing and installing streams, cascades and ponds of remarkable beauty and extraordinary realism. Lately, as he explains here, he's embraced a new trend by executing projects in the front yards of clients who want a bit of tranquility to ease and invigorate their daily comings and goings and greet visitors with the sort of experience previously only found behind these homes.

For a long time, we've focused on producing highly naturalistic ponds, cascades and streams that fit seamlessly into the wooded landscapes of North Carolina – projects of such quality that they stand up well in comparison to the vast numbers of natural watershapes we see just about every time we turn around.

Until recently, the overwhelming majority of these watershapes were installed in backyards, away from public view, with many of them situated on these properties in ways that removed them from immediate access or turned them into remote destinations.

That preference among our clients at Xstream Ponds (Cashiers, N.C.) seems to be changing. In the past few years, in fact, we've noticed a significant increase in the number of homeowners who want some kind of watershape installed in their *front* yards – someplace close to their homes' main entrances. The basic idea: They want the water to become an integral part of their homes' architecture rather than a separate backyard destination.

We have an advantage of working in a part of North Carolina where the homes feature a distinctly rugged, rustic style that looks comfortable in the presence of woods and water. These residences serve as perfect canvasses for our projects no matter where we place them. In the case of ponds and streams in the fronts of homes, however, this new demand gives us unusual opportunities to create the illusion that the water was there first and that the homes were built right up to its edges.

The Home Front

In tackling these front-yard projects, we know we must clear a high bar when it comes to making things seem completely natural.

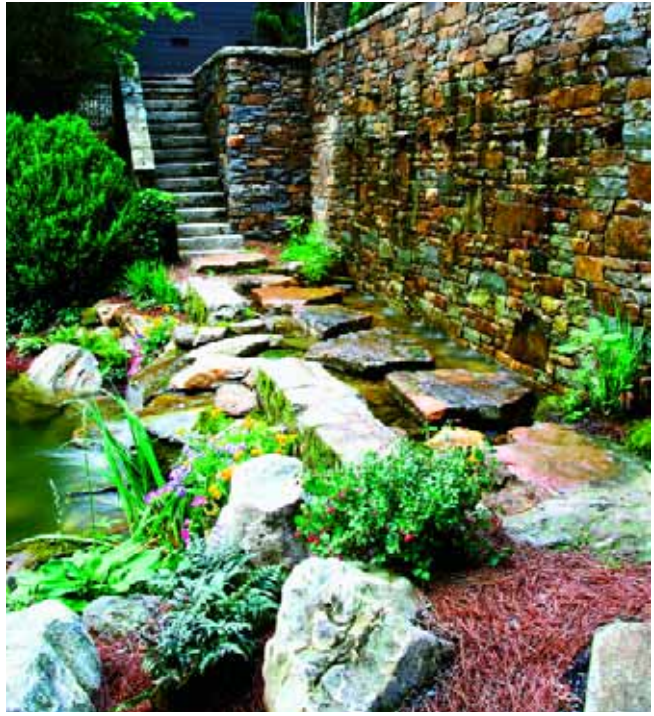
Indeed, given the up-close visibility of entryway installations, there's no room at all for revealing our human handiwork. And while there are similarities between what we've long done out back and what we're now doing up front, we've actually come to see this street-side work as a new genre and a fresh opportunity for us to use water to enhance our clients' daily lives.

As many times as it's been written in these pages, it bears repeating: There's something about the presence of water that resonates with the human spirit and psyche. And when those bodies of water successfully bring the subtlety and complexity of nature right up to and even into the home, those emotional connections can be surprisingly powerful.

When you situate water adjacent to a home's entry, those connections are renewed each and every time someone arrives or departs. Instead of confronting an expanse of lawn divided by a utilitarian path to the front door, the resident of (or visitor to) a home with a front-yard watershape is welcomed by the sights and sounds of reflective or moving water – not to mention the rocks, plants and fish that give the watershape its deeper, rustic character.

Personally, I can't think of a better greeting at the end of hard day's work – or a more perfect way to set myself up for a great day. Outside our homes, the world has become a speedy, stressful and even threatening place, turning the spaces we occupy into sanctuaries from traffic, worries, pressures and everything else we experience while we're away. Coming or going, a well-conceived watershape creates a physical and psychological buffer that causes residents and visitors alike to slow down, take notice and catch a deep, refreshing breath.

And if the water is visible from the street (which is usually the case in our projects), even passersby have a chance to pause and take in the scene whether walking or driving by. It becomes a sig-



Our front-yard/entryway projects have a fantastic range, from the very modest to the highly elaborate and architectural. Whichever way it works out, our focus is on making the process of coming and going one to remember – the sort of experience homeowners and their visitors won't have any objection to repeating over and over again.

nature – a subtle yet powerful statement about the character of the home and, by association, the people who live there.

I don't know about you, but it's tough for me to feel cynical about a home (or the people in it) when the scene out front is defined by a beautiful body of water. It all just seems so neighborly, so friendly, so down-to-earth!

Unexpected Peace

What's interesting about all this is that, to a person so far, our clients don't seem to anticipate all the joys and benefits that await them when they call us in to install a watershape in the front yard.

Yes, they have a rational attraction to the idea of beautifying their homes – and in most cases have seen some of our work, which seems most directly to have inspired them to seek out the beauty that only these watershapes can provide. But when I tell them just how much they're going to appreciate having water at their front entrance, it's clear to me that they think I'm overstating the case and am simply putting on a hard sell.

That doesn't bother me in the least, because experience has shown me that, without fail, when our clients begin living with their front-yard watershapes and come to appreciate just how much they increase the satisfaction of home ownership, they invariably come back and tell me just how right I was and how happy they are. Sure, that happens with backyard waterfeatures, too, but the joy increases manifold times with front-yard installations simply because clients are exposed to them with far greater regularity.

I take it as an encouraging sign, moreover, that our front-yard installations are almost always better maintained by homeowners than are those located in back corners of their properties. That may be entirely due to the fact that these front-entry features are much more frequently seen – perhaps several times each day – and that, as a result, our clients become more attuned to their rhythms and needs and are aware of what it takes to keep the water looking great and the fish and plants in good health.

I find encouragement as well in the fact that we're getting lots of inquiries – some of them quite adamant – from prospects who want us to tell them what we can do with their entryways. As is also the case with many watershaping firms, our work comes by way of referrals, and the fact that people are coming to us with such keen interest in how we can transform their front yards tells me that this is more than a passing fad.

As a businessperson, I see an additional benefit in the fact that these watershapes aren't hidden away in backyards where nobody other than family and friends can see them. These watershapes are creating a strong, additive demand where there was not much before. Indeed, to use an industry analogy we can all understand, I've come to see these projects as self-priming pumps and the placement of water out in the open in front of homes as a win-win situation for everyone involved.

Key Concerns

As I suggested above, the real work of watershaping in front yards is not substantially different from what we do in backyards: All the same principles apply as we layer the experience, focus on edge treatments, create believable vertical transitions, compose beautiful subsurface rockscapes, establish hospitable environments for fish and fuse stones and plants into the surrounding landscape. That's always true no matter where our bodies of water are situated.

As I also suggested, however, this new genre involves some design characteristics and challenges that set it apart from

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other types of work.

For starters, you need to consider that the water is part of a well-traveled thoroughfare. The upshot of this observation is that we generally establish two paths – a primary one that lets people move quickly from the street or driveway to the door, and a secondary one meant for exploration of the watershape.

■ *The primary path* is wide and comfortable, allowing for easy passage by those carrying groceries or delivering packages to the front door. Here, we'll use large, flat stones that let people pass by without fear of stepping into the water or onto the softscape. Stones blend visually with the rock material used in the watershape, giving those who use the path a sense of continuity and of moving *through* the environment rather than on a path separate from it.

If the path runs right *alongside* the stream or pond, we'll be sure to use stones that are at least three feet wide. If it *bridges* the water (one of my favorite details), then we'll use stones that are a minimum of four feet wide, just to provide an added sense of safety and comfort. In either case, we lay things out so this primary path cuts a relatively short, direct route to the door. That's not to say it's perfectly straight (in fact, it really shouldn't be), but rather that it should be free of major turns.

■ *The secondary path* is where we accommodate the desire to explore the watershape from a variety of vantage points. This can be a much narrower, winding trail that leads to destinations we've established – flat rocks for viewing and sitting or even small patio-type seating areas next to the water.

The fact that we encourage people to use this secondary path and get a good look at the watershape leads to a discussion of one of the biggest challenges in the design and installation of front-yard features – that is, how do you handle the water's origin and destination?

One of the most obvious indications of a body of water's human manufacture occurs when the viewer can immediately see where the water starts flowing. In backyards, there are generally lots of places these origins can be concealed using elevation changes and landscape features; out front, by contrast, available spaces tend to be flatter and are also open and more visually exposed – two factors that can make source concealment more difficult to manage.

This is why, whenever possible, we'll wrap a portion of the stream or cascade around a corner of the house or some other structure in the landscape. This turn, which we wrap in plants and/or stones, typically gives us the cover we need to conceal the source.

As for the water's destination, we always try to place the terminal, pond portion of the design right next to the house. This helps us create the illusion that the home's structure is a sort of dam that was built right up to the water's edge, supporting the idea that the water is natural and that the home has been built to accommodate its presence – the exact opposite, of course, of what has really happened.

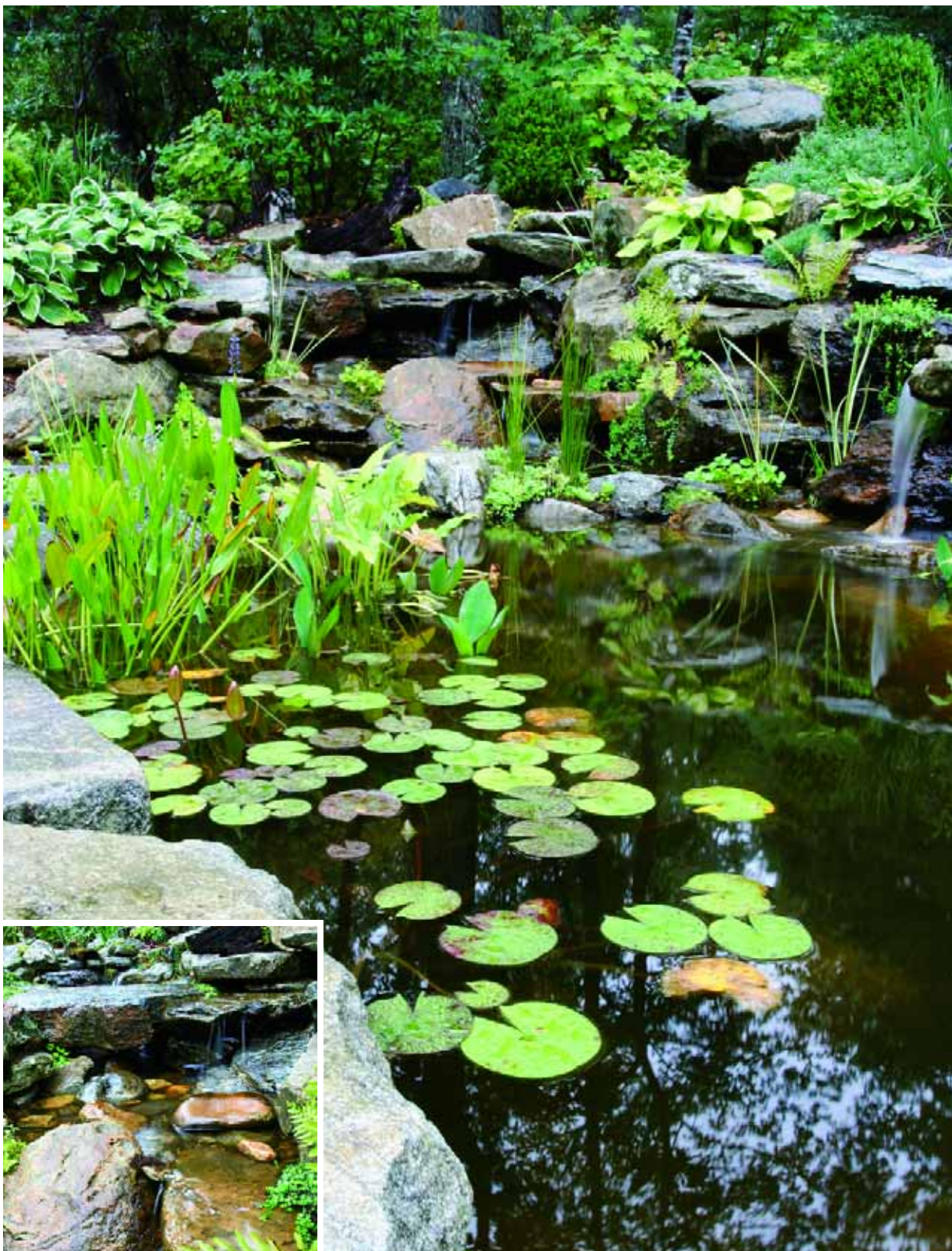
In organizing these spaces and the trails that allow people to explore them, we also always try to arrange things so the origin and destination of the water flow are not easily visible from any *single* location.

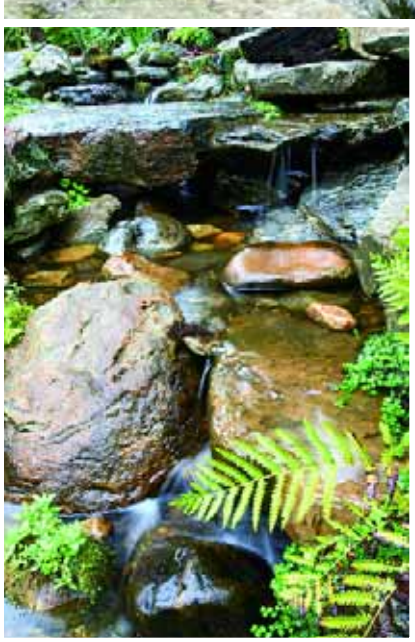
Visual Management

This concept of controlling how the watershape will be seen and perceived is of crucial importance, but it pales in comparison to the largest of the aesthetic issues that must be confronted in designing and installing these features – that is, in placing a watershape right next to a home, you must *always* be keenly aware that the water is there to complement the home, not obscure it or otherwise create visual distractions.

As mentioned above and as can be seen in the photographs accompanying this text, we have an advantage in that many of the homes in our area are designed with the surrounding landscape in mind. In crafting front-yard watershapes for these homes, we do all we can to use the water to function as natural transitions between landscapes and structures.

First, this means that the water is set at the same level as the base of the home. Not only does this make plain, common sense, but in aesthetic terms, it also means that you can use the flat portions of the watershape to conjure beautiful reflections of the home – another reason we





These watershapes are meant to be seen at very close range on a more or less continuous basis. This puts a premium on finishing them with details that provide immediate, familiar visual delight as well as infusing them with fish and plants that give the setting a sense of constant change, growth and variety no matter the season or the time of day.

generally place our ponds close by. In addition, the flat surface of a pond is a visual magnet that draws the eye and leads it to views of any structure that rises above it. In planning the layout with key focal points from the street or driveway in mind, you can use this flatness and the resulting reflections to wonderful effect.

Also, it's important not to include plants or structures near the home that block the view. We don't go for tropical-rainforest effects here; rather, the plants and rock materials we use close to the home almost always have low profiles. Again, when working in the front yard, we recognize and fully accept the fact that all paths (both physical and visual) lead toward the home. This is often a complete philosophical departure from backyard watershapes that tend to serve as destinations deliberately set apart (or even isolated) from occupied spaces.

Moreover, because front-yard watershapes are adjacent to the house, we always consider the need to enliven views of the water from inside. In fact, when we're planning the basic layout, we always go indoors and map key focal points through windows that offer prime water views.

Often, we'll position small cascades or stream features away from the home (but visible through windows) to create intimate vistas that link interior spaces with outside views. These details are rarely very tall given the flatness of most front yards, but even with just a few inches of vertical transition, we're able to create complex streams and small cascades that flow gracefully toward the home and offer interesting views to anyone looking outdoors from inside.

Shallow Delight

Another point I consider in setting up front-yard ponds is the depth of the water: I make no bones of the fact that I prefer shallow ponds and streams, basically because in our climate zone, fish can live year 'round in just a few feet of water and because working in the shallows gives me the opportunity to create complex, submerged scenes. That latter feature is important for any pond or stream, of course, but it's of particular significance with features subject to near-constant appraisal by people walking right by (or even over) the water.

We use a variety of approaches to create the high, ongoing levels of interest we're after, including planting shelves, islands, depth variation, emergent plants, stone placements, fallen timbers and variations in stone sizes, colors and textures. When you establish these features with awareness of the way light changes with weather and the seasons – not to mention the growth patterns of surrounding trees, shrubs and everything in between – you build nonstop interest into subsurface features and fully exploit a watershape's complex, ever-shifting visual potential.

I personally love the idea that a client can leave in the morning and absorb one set of views and come back in the early evening and experience something completely different. This, in fact, is one of the main reasons I favor naturalistic watershapes over architectural ones – mine are always changing in ways that more formal watershapes can't.

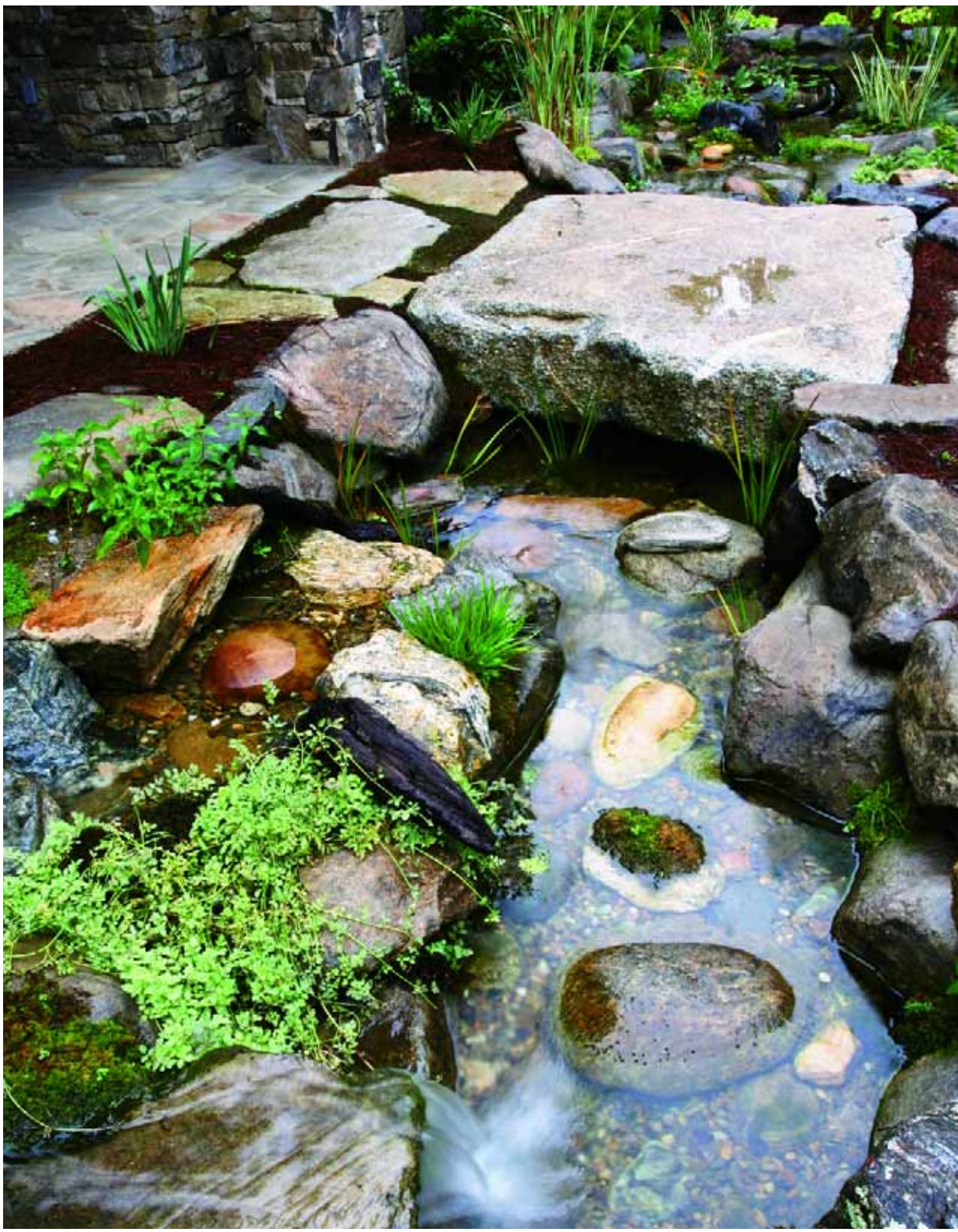
And when you bring lighting into the composition, naturalistic waterfeatures get even better in my book, especially in front of a home. Fact is, these bodies of water are more likely to be experienced after dark than are backyard ponds or streams. This means that, on a functional basis, they need to be well lit so that nobody accidentally steps into the water at night. At the same time, it also means that the appearance of the pond or stream will be entirely different – often dramatically so – when experienced after the sun goes down.

We like to use landscape lighting (always low-voltage) to bounce light off the water and onto the side of the house: Even relatively still water will throw moving patterns onto nearby architectural features, giving the scene a shimmering appearance. That effect *alone* makes the idea of front-yard watershapes irresistible in my book: The opportunity to link watershape and architecture in this way is just too good to miss.

Sounds and Fish

There's also the sound of moving water and the way it generates enjoyment – a powerful potential given these watershapes' proximity to homes.

Even if you can't *see* the water, in



The homes in our area tend to have rustic looks that are well served by our entryway ponds, streams and waterfalls. In as many cases as we can, we'll build on the drama by setting things up in such a way that homeowners and visitors need to cross over the water at some point to reach the front door, giving them immediate, close-up views of the water on both sides of the path.

hearing it you still sense its presence and derive the feelings of peace and comfort it carries. In my experience, this is a feature of all our watershaping projects that's underappreciated – until, that is, the system starts running.

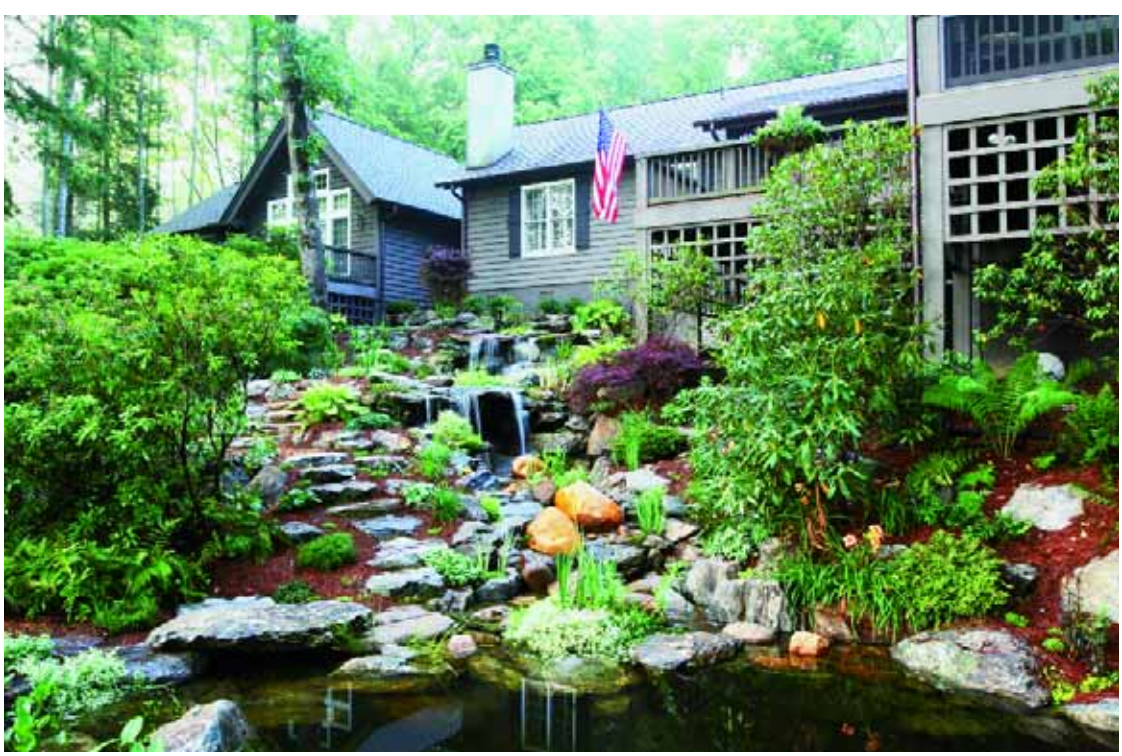
With proximity, sound becomes even more important – and there's much that can be done to enhance the experience. Depending on the situation and the size of the watershape, for example, you can build in complex collections of cascading, gurgling sounds or just a gentle babbling or trickling or something in between. Whatever you choose, the sounds these waterfeatures make will always add to the sense of tranquility and comfort, no matter their size or extent. And in these types of projects, the sounds also tend to mask nearby traffic noises, yet another benefit.

This is why every single one of our projects, backyard or front, includes moving water: Not only do cascades and waterfalls look great, add visual interest and convey a sense of motion, but they also compose water's beautiful music.

Then, finally, there are the fish. In the majority of our projects, we crown our work by including these creatures: For all the beauty and visual diversion natural watershapes alone provide, day and night, it's often the fish that create the greatest sense of delight for our clients and their guests.

As with all other aspects of our outfront features, we exploit the fact that fish are viewed and enjoyed with greater frequency and seem to draw out the biggest smiles from our clients. There's just something about seeing them, day after day, that is purely and simply enjoyable. And if the chosen fish are friendly and come to the surface to welcome anyone who passes by, the happiness generated by the scene is redoubled.

That's where I'll leave this discussion; because happiness is what good watershaping is all about. In the case of these front-yard features, it's thrilling to see just how much joy they provide – and to perceive the opportunities that flow from introducing prospective clients to their full, dynamic potential.



In some cases, we're able to integrate our front-yard features with a program for the entire property. Here, for example, we replaced an existing dry creek with a waterway that wraps around the front of the house before passing under a bridge and emerging as part of an elaborate backyard watergarden. This sort of approach admirably builds the illusion that the water was there already and that the home was built to accommodate its presence.

Quicker Compaction

By Paolo Benedetti

On many pool projects, the excavation phase often calls for the addition of competent fill to establish a foundation solid enough to support a concrete structure. That extra step can be both laborious and expensive, observes watershaper Paolo Benedetti, who uses this fresh entry in his new series on sensible solutions to common technical problems to describe a time- and money-saving alternative to standard methods of soil remediation.

Without exception, you must be certain you're building your watershapes in competent soil. That's why in my firm's work – as designers, as builders and even as consultants – we require a geotechnical investigation for *every* project in which we become involved.

Trouble is, even with capable site analysis, you'll sometimes run into surprises: Although geotechnical engineers carefully select where to bore holes in the areas where pools, spas or fountains are to be built, these sample points result only in generalizations about a site's conditions. Oftentimes during excavation, in fact, we'll encounter conditions that are much worse than reports would have led us to expect.

For the most part, these variances have to do with unexpected thickness or unpredictable distribution of ground deposits, and they can occur whether we're working in rock, clay or loose fill materials. Typically, geotechnical engineers will ask us to remove the incompetent material and replace it with newly compacted fill – a laborious process to which we've found an acceptable alternative.

a quicker fix

Standard removal and refilling requires all the labor involved in excavating and carrying away the "bad" material, bringing in "good" material and then compacting the new material – a process that requires constant inspection by geotechnical engineers to verify that everything has been done properly, layer by layer.

This isn't something that makes anyone happy – except maybe the engineers, who are paid for their time but still must endure the tedium. For the most part, it's a woeful redirection of effort that throws contractors off schedule and is invariably an expense that homeowners haven't anticipated.

In recent years, I'm happy to say, we've found a different approach that's faster, easier and more economical.

When we encounter incompetent material in the excavation phase, we complete the work as though nothing was wrong. At that point, with the site fully exposed, we bring in the geotechnical engineer for a look in what is often, for pool-only projects, called "bottom inspection." (Such inspections are built into the geotechnical contract after every significant excavation operation, whether we're digging a pool, preparing for caissons or setting the footings for a retaining wall.) The purpose of this visit is to verify that the soils are not worse than were anticipated during the exploratory drilling.

If it is determined that the materials are not too extensive (say, three to six feet deep), we move forward and over-excavate to get rid of the garbage. We then prepare the site for importation of "engineered fill" – a slurry/grout mix containing 3/8-inch rock.

In doing so, we place all required plumbing that will stub up in the area, creating shallow trenches in the competent soil and covering them with sand. We then wrap the vertical risers in a half-inch of foam (or newspaper bound in duct tape) to ensure maintenance of voids in the engineered fill.

The fill's mix design includes water-reducing admixtures, so even though the slurry seems fluid and self-consolidating, it actually contains very little water. To control its flow, we stack gravel-filled sandbags to serve as berms – in sloping areas of the excavation, for example – that contain the mix at various elevations. We then place the fill up to the level of our initial

1 After we'd removed an undesirable layer of expansive clay material, the shallow end of this pool became too deep for the planned beach entry. To remedy the situation, we placed a six-inch layer of drain rock and created terraces with gravel-filled bags intended to retain an engineered fill.

2 The fill in this case was delivered from the chute of a ready-mix truck, and we added it until the material achieved the approximate level of what would have been the rough excavation if everything had proceeded without the interruption required to deal with the expansive clay material.

3 Once we cleared away all of the problems associated with the excavation and setting the floor of the pool, we were ready to proceed from this point forward with the rest of the construction process – all without significantly disrupting the schedule. (The goat, incidentally, was responsible for eating the permit set, which was three-quarters of the way gone by the time anyone noticed!)

"rough excavation" before vibrating it into place.

This becomes the competent base atop which we place our reinforcing steel. From that point on, construction proceeds as usual.

This is a much simpler approach to soil remediation than standard compaction – one we've also used with structural-concrete mix designs, for example, in creating "deepened foundations" for hillside pools where we've needed to build up an earthen substrate to the desired elevation for pool construction.

This is a terrific solution in appropriate situations: It doesn't push geotechnical engineers out of the picture by any means (after all, they still must inspect the excavation and approve the use of engineered fill), but it considerably speeds the process in ways that save my clients money and helps me keep projects right on track.

Rock Talk

Artificial rock is so commonly used in today's watershape and landscape settings that it might easily be taken for granted. That's not the best of situations, says faux-rock artist Matt Wilson, because too much of what's being done fails to live up to the material's full potential. Here, in the first of two articles on the fundamentals of artificial rockwork, he begins the process of defining qualities that set superior work apart from lesser efforts.

By Matt Wilson

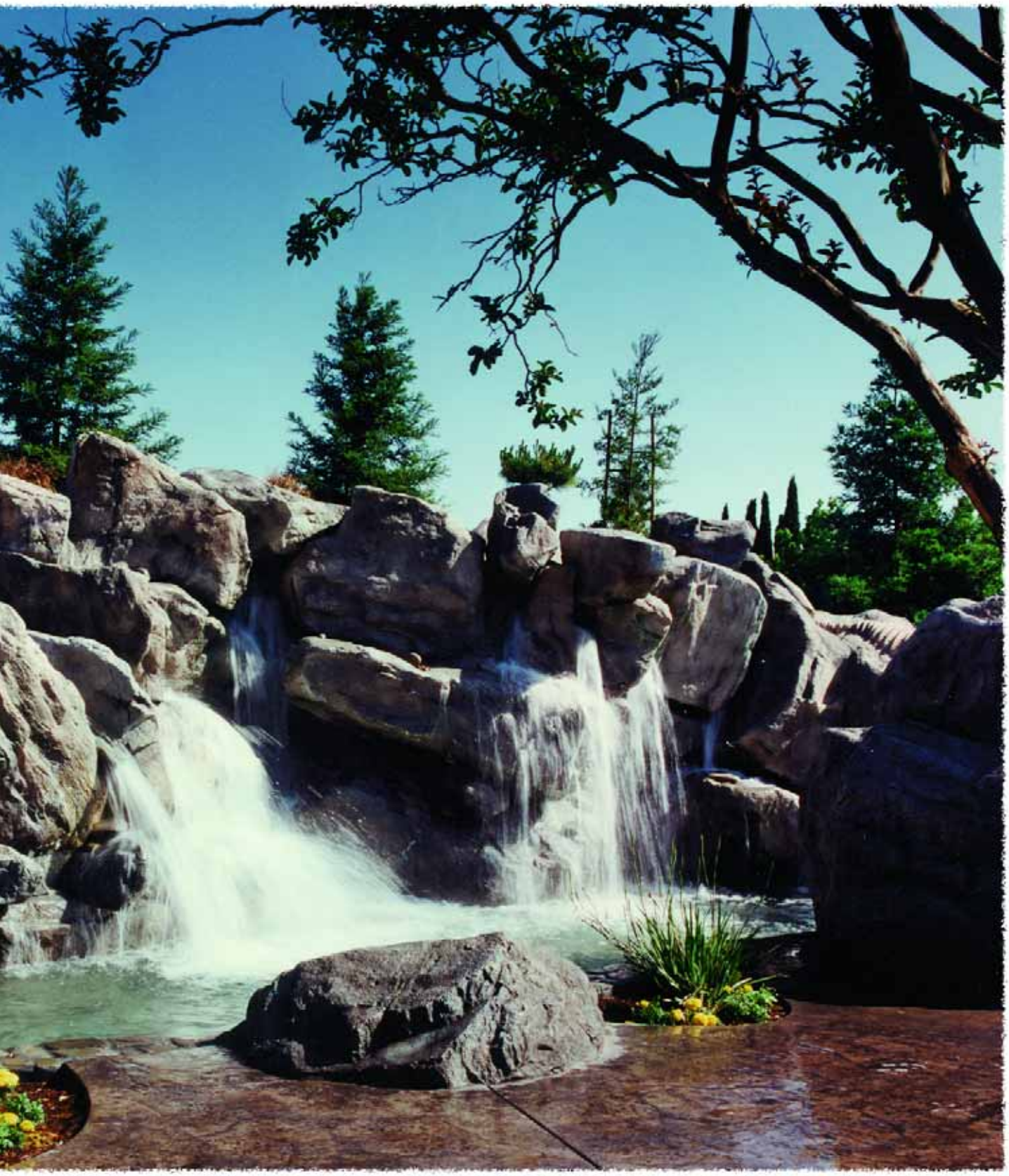
Artificial rockwork is hardly new. In fact, its roots stretch back more than 100 years to Germany, where it was used for the first time to enliven zoological exhibits.

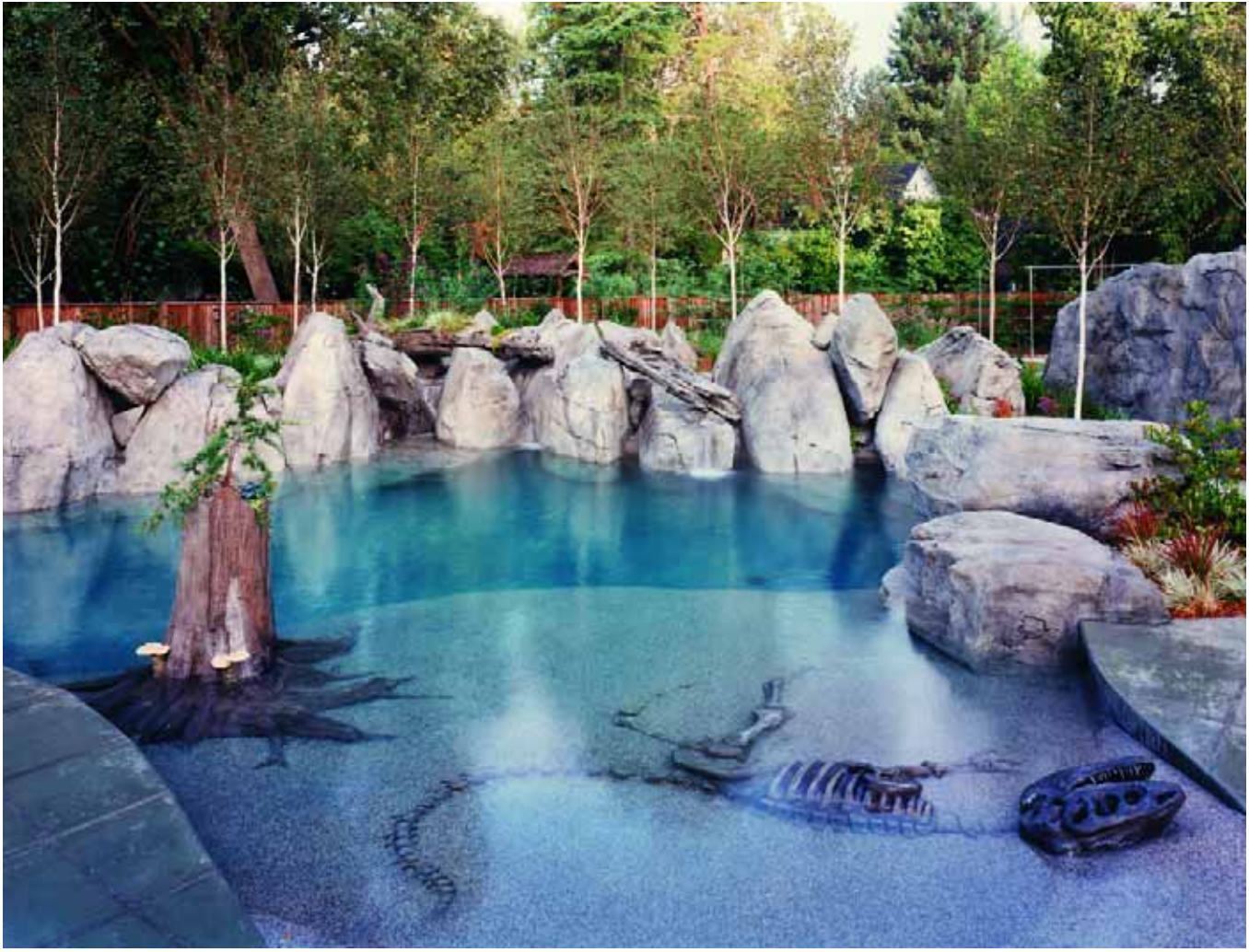
Those early examples of artificial rockwork were definitely crude by today's standards – nothing more, really, than solid mounds of dumped concrete – but they met a need that couldn't be accommodated by natural stone and made it possible to display hoofed stock (including antelopes and gazelles) on raised, natural-seeming terrains.

Those early efforts were far from beautiful, and it's no stretch to say that things have come a long way in the century since those first attempts took shape. Indeed, those of us who've worked in artificial rock for any length of time are proud to have witnessed the product's evolution to a point where materials and techniques are now applied that are capable of transforming otherwise mundane settings into scenes of striking, naturalistic beauty.

Certainly, deploying natural rockwork is another means of achieving the same end, but success often involves great expense and comes by placing considerably higher loads on supporting structures. While natural rock can be a truly wonderful material, the fact remains that it is not *always* the best option.

With that in mind, let's take a look at how rock environments have changed through the years – in this article with a look at artificial rock's history and basic applications and, in a future article, with an examination of design issues and application techniques.





modern advantages

Artificial rock is a distinct beneficiary of technological advances that have taken place in the past 100 years, particularly when it comes to the use of shotcrete and other pneumatically applied mortars as well as the emergence of new finishing materials and techniques.

Using these products, technologies and techniques to their optimum extents, pioneering faux-rock artists were able to minimize the aesthetic and practical advantages enjoyed by natural rock and, I would argue, established a market in which artificial rock could actually be *superior* to natural stone in many applications because skilled practitioners could do things with it that simply couldn't be done using the real thing.

Just as is the case with pool shells, the early success of artificial rock owed much to the ability of pneumatically-placed concrete to "go vertical" with great structural integrity and, in some cases, without the necessity of rigid load-bearing forms or solid masses of material. This gave the artificial-rock designer much more free-

The expressive potential of artificial rock is one of its greatest assets, as in this case, where we created a 'Jurassic pool' complete with faux-fossil remains and a rock structure that resembles the jagged teeth of a raptor.

dom to create structures that were unique as well as more natural in appearance.

Through most of the formative decades of artificial rockworking, however, the underlying structures required a heavy framework of reinforced steel bars (generally from three-eighths to three-quarter inches in diameter) bent in a crosshatch grid to mimic natural rock shapes and create a skeleton that began transforming given spaces.

Next, some material – burlap, stucco lath, masonite, cardboard or even used carpet – was suspended within the rebar armature as a backing form for the concrete. Once that backing was secured, the concrete material was shot onto the rebar to form a permanent structure – but without the cumbersome mass that would have been produced by a solid block of concrete with the same profile.

Many fabricators use this process even today, stopping at this point of expertise and simply using fillet knives to cut fractures and seismic breaks in the still-moist concrete surface and also texturing the crude concrete before coloring their work.

Such an approach may be fine for animal exhibits, where the work is seldom the subject of close scrutiny. To create realistic environments in backyards or in more-demanding commercial settings, however, faux-rock specialists learned to take advantage of a further evolutionary step by applying a second, more workable plaster surface to the rough concrete substrate. This plaster material, which has much finer sand with no rock, could be textured to a far greater level of believability.

The next step – that is, making faux rockwork that effectively cannot be distinguished from the real thing – has been pursued through the past 30 years with the advent of cast-rock technologies. Where carving techniques are superbly viable in many situations, I would argue

The ability to enhance existing slopes and/or mirror nearby formations without dramatically surcharging either the slope or nearby structures is another benefit that comes from working artfully with artificial rock. In many cases, these looks just wouldn't be feasible if natural stone had to be used.

that cast-rock systems are a last and conclusive evolutionary stage that is carrying artificial rockwork to its full potential.

A New Cast

In these cast-rock systems, molds are made using real rocks and formations.

Originally, the insides of these rubbery molds were slathered with thick layers of a heavy-duty cementitious material – enough to make certain the finished product would maintain its shape and structural integrity. Nowadays, however, those same molds are filled with glass-fiber-reinforced concrete (GFRC), a much lighter material that, once applied, is allowed to harden. Released from the mold, these GFRC panels are transported to construction sites where they are suspended over metal armatures.

As is true in so many creative fields, the developers of Walt Disney's properties were pioneers in the pursuit of cast rockwork. In building Disneyland, for example, the "Imagineers" collaborated with B.F. Goodrich in developing processes for using latex to create molds of almost any object.

What Disney wanted was faster ways of making believable reproductions, and rock casting filled the bill. The early techniques, however, were still fairly primitive, and the castings were often made with three inches of thickness to ensure their stability. It took some time for the process to improve, but gradually the castings became much thinner and lighter – mainly as a result of the emergence of GFRC.

GFRC came to light more than 30 years ago, when it was first used in commercial high-rise developments in England. As is the case with many inventions, GFRC was born of necessity: Architects desperately needed a strong but lightweight skin to cover their steel beams, and the new material provided a perfect option. It weighs just three to nine pounds per square foot (depending on thickness) and is incredibly strong, with a compressive strength of 7,000 to 9,000 pounds per square inch at a half-inch thickness.

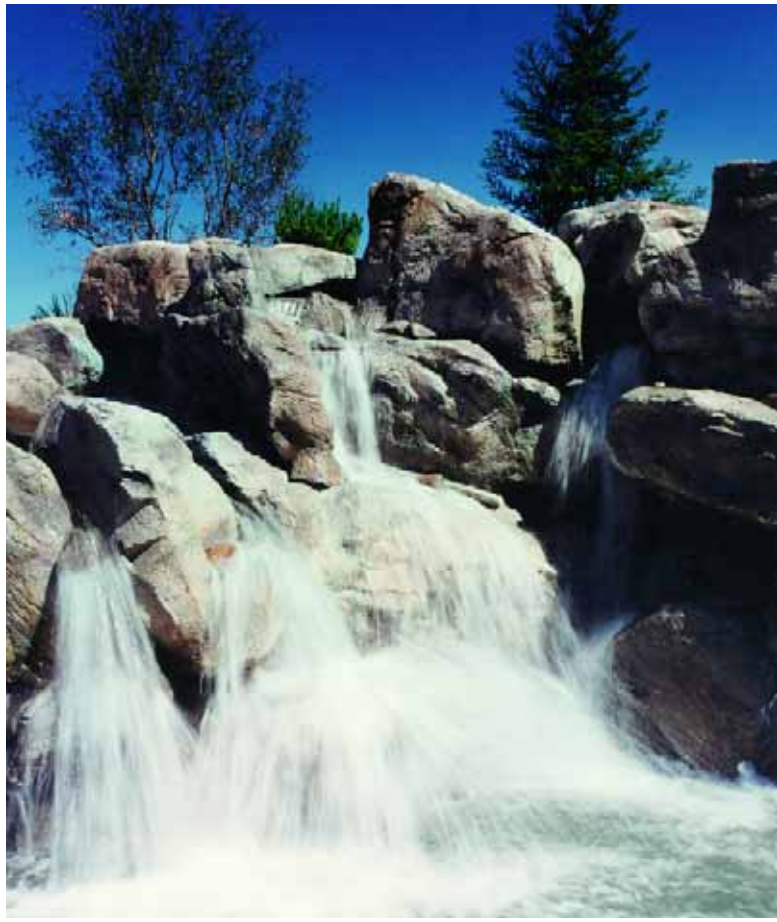
This remarkable combination of lightness and strength resulted in a quick, broad proliferation of the material. Indeed, it's reached a point where more than 5,000,000 square feet of GFRC are used annually in various applications – artificial rockwork prominent among them.

The GFRC material has been both a revelation and a revolution – *effective* because it can easily be used in the construction of large artificial boulders and cliff faces, *desired* because the results can be so realistic and *efficient* because panels can be transported to job sites with ease compared to natural stone.

Imagine working on the top floor of a high-rise office building: In most any circumstances, working with real rock would be labor intensive, difficult and costly. By contrast, GFRC rock panels can be shipped anywhere and be handled with human strength, thus eliminating the necessity of expensive and cumbersome crane rentals and myriad other challenges associated with transporting heavy materials to job locations.

Casting Realism

The appeal of using GFRC to generate rock castings goes well beyond convenience, cost and speed of installation: Nothing in the artificial-rock realm looks more authentic because of direct casting's ability to generate exact copies of real rocks and formations.



One challenge for architects, homeowners, commercial clients and developers these days is that buildable space comes at a premium. This often presents those who need or desire rockwork features with relatively small working spaces – spaces in which they cannot sacrifice any authenticity or compromise the impression that the installed rockwork is actually an existing geological formation.

For its part, using natural rock can be problematic in modern housing developments, where it's not uncommon to have just five or ten feet of space between structures – a squeeze that makes it difficult (if not impossible) to get heavy machinery in position to build natural-rock structures, let alone get the rock materials on site in the first place using anything less than high-reach cranes.

The case is altogether different with cast-rock panels. Workers only need a space large enough to fit in a technician and some GFRC castings, thus allowing designers much more freedom to create one-of-a-kind structures outdoors as well as indoors.

Rock castings also offer advantages in remodeling work. If you wanted, for example, to transform a pool area by draping rock details over the bond beam or establishing them in front of a retaining wall, real rock's weight would make its use impractical with anything short of a complete structural makeover – and perhaps even demolition and reconstruction. With GFRC rock castings, however, the desired looks can be achieved by dowelling into existing pool shells or wall structures without

dramatically surcharging them.

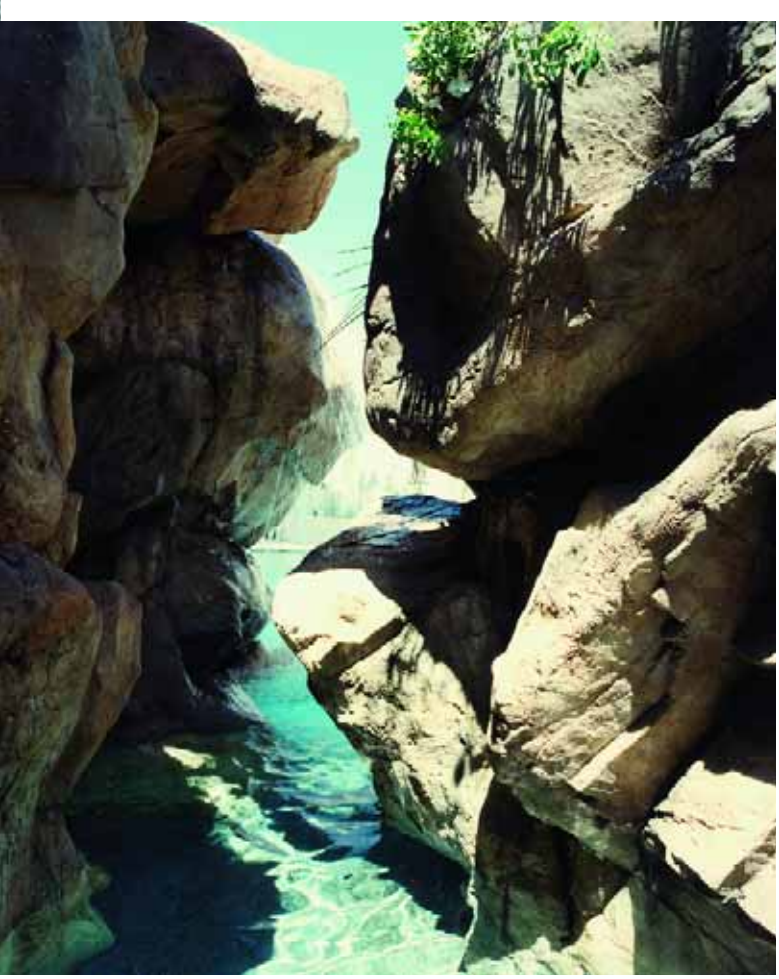
GFRC castings also have an edge in seismically sensitive areas. Securing clusters of large boulders can be a monstrous engineering challenge on a hillside lot in southern California, for instance, and would, at a minimum, involve heavy-duty structural footings.

If a client has the budget for that sort of endeavor, that's great, but in many cases, working with natural rock in such situations will involve compromises that might even make real structures seem strangely artificial. That's generally not the case with GFRC structures – and the same can be said of choosing between natural and faux possibilities for work in above-grade structures as well.

Another benefit of this form of artificial rock is that it can be made extremely strong: Using an engineered concrete foundation and 7,000-psi-plus GFRC rock castings with a substructure of rebar and in-filled grout will produce a structure that will outlast most building foundations.

This isn't to say artificial rock is a perfect substitute for the real thing: Rather, it's a product that, in situations such as those detailed above, has its advantages over real rock. When well applied, in fact, it is a fully viable alternative to natural rock and, in the hands of master craftspeople, can be finished in a way that makes it virtually indistinguishable from the real thing.

If you keep your eye on the way nature does things, you can introduce spectacular, wonderfully realistic formations to your clients' projects that would be difficult if not impossible to produce in real stone – and at a much more reasonable cost as well.



Marks of Mastery

The key phrase in that last paragraph was, "when well applied." As anyone who has spent any time looking at artificial rock knows, success in creating naturalistic impressions can be elusive, and what has happened through the years is that a number of approaches have been developed in attempts to systematize effective methods and make good results reproducible.

It all began, of course, with hand-carving, which involved cutting, texturing and coloring a pneumatically placed cementious material that had been laid atop a structurally sound substrate – a method that required speed in working before the material set and therefore a certain level of skill and artistry to master. (The subsequent use of plaster helped the situation somewhat in allowing a second process of carving, texturing and coloring with a finer material, but again, it required working at a brisk pace.)

With cast rock and GFRC panels, by contrast, the hardest work of hand-carving is done in the molding process and the material comes ready-made with realistic contours. Nonetheless, there's much skilled work to be done in fusing panels together (where needed) and applying credible finishes and colorations.

This need for finishing skill is why we all see some really good artificial rockwork and some really awful artificial rockwork. Generally speaking, the distinction breaks down to location, intended use and budget – the same factors that drive quality in construction of projects of every type on every level. If the client is a miniature golf course, for example, few will be upset if the "natural" rockwork resembles cardboard boxes slathered in *papier mâché*. That same approach, however, will not fly with a high-end home.

In the latter case, the job of creating artificial rockwork cannot be left in the hands of the inexperienced. Trouble is, an inexperienced contractor might look at a photo and feel confident about duplicating a specific formation – for a grotto, say – but in truth, he or she will soon confront the overwhelming rigors of producing such a structure.

True artisans in any field are made, not born. One needs time to learn the craft fully – and then considerably more time to perfect it and figure out ways of approaching rockwork structures as whole compositions in much the same way as sculptors, painters and architects create their masterpieces.

Personally, I'll confess to having produced some terrible rockwork as I moved along my own learning curve. As with most other crafts, however, I've found that practice makes perfect and facilitates the development of an artistic eye complemented by necessary skill. In my view, artificial rockwork is now at a point in its evolution where many have achieved a clear level of mastery – and many more are aspiring to earn that distinction.

Next: A look at artificial rock as a design medium and an exploration of critical application techniques.

Modern Movements

Moving water has an uncanny ability to soothe and refresh no matter where you find it, observe watershapers Sheri and Roger Soares II – but, they quickly add, it has a special power in arid, desert environments, where its appearance is both unexpected and reassuring. That's why their projects almost always include water-in-transit effects, from subtle spillways or runnels to complex vanishing edges or perimeter overflows.

By Sheri & Roger Soares II

It's not unusual for watershapers to have their signatures. For some, these noteworthy effects extend from their educations and personal design preferences, while for others, inspiration comes from distinctive qualities found in local landscapes or from tailoring designs to suit the characters of their clients.

In our case, we at Hydroscapes in Fountain Hills, Ariz., pull on all of the above and more in our design work.

Through the years, we've done a lot of projects associated with Contemporary-style architecture – a specialty, perhaps, but not what we'd call a signature. This work has led us to invest lots of time in studying modern masters including Frank Lloyd Wright and John Lautner – and, as they did, in learning about Japanese garden design and the work of the great Craftsmen architects such as Greene & Greene.

Those influences flow neatly together for us because all of those designers embrace simplicity of line and form as well as elegance in the use of colors and materials. It doesn't hurt that these legacies suit our personal tastes as a husband-and-wife design team – and it helps even more that a majority of our clients these days seem to start with similar ideas in mind: They want straightforward design schemes, rich materials palettes, and colors and textures that draw connections between interiors and exteriors and desert vistas beyond.

In most cases, however, we up the ante and make certain our projects involve water that *moves*: That's where we've developed our own signature.

Guiding Lines

Before we get down to specifics, however, we need to set a stage the way we set it for our clients.

We've found through the years that it can be *very* difficult to describe in words or even show in photograph the qualities that moving water will bring to a setting and the overall mood it creates for anyone entering the space. As a result, while our clients may be thinking about or are in some way open to the notion of moving water, relatively few of them have enough familiarity with it to embrace the whole experience.

To make this happen, we focus on communication and conveying information and guiding clients toward effective design solutions. These conversations will vary in detail and complexity from project to project: It all depends on how far we need to go to open their eyes (and ears) to the possibilities.

In some cases, for example, we start out with relatively vague ideas the clients have, pick up all we can and then nudge them in the direction of some particular concept, whether it's a runnel or a vanishing edge or a set of spillways. These are voyages of discovery on both sides, and we'll work at it until ideas are polished and ready to go.

In other situations, far more practical and specific concerns come into play. We recently completed a project, for example, with clients whose office complex is located on the flight path of a major airport: What they wanted most of all was moving water as a source of white noise to mask the sounds of low-flying jets. They also had a pre-existing block wall that had to stay.

The solution in this case was a water-feature in which five stainless steel spillways emerged from that wall. They did *not* want the sound of the water to be overwhelming, so we custom-designed spillways that not only fit perfectly within the pattern of the CMU blocks (and the architecture of the complex), but also offered them the flexibility needed to tune the sound of the flowing water to meet their desires.

In this case, the clients had no solution in mind other than that they wanted noise (but not too much of it). We had to bring them along, educate them about some applicable forms of water in transit, and ultimately guide them to a solution that did a great job of meeting their needs.

In doing so, we never considered off-the-shelf approaches. In our work, in fact, we rarely use standard fixtures to achieve desired water-in-transit effects because they limit our options with respect to the width of the spillway and the water flow. For the project just mentioned, for instance, we used custom-fabricated stainless steel troughs that fit perfectly into the existing wall and, perhaps more important, enabled us to determine the water's behavior.

Running Over

As a result of these sorts of projects, we've developed something of a reputation for innovative, custom work with spillways and runnels – the first strokes in our water-in-transit signature.

We've learned a lot along the way about what makes these features tick, and that's one of the reasons why, as mentioned above, we don't tend to use manufactured fixtures: In a lot of cases, these devices are set up so that water is forced out of a system's manifold – an approach that makes them seem more like nozzles than spillways.

We're generally after more subtle effects, so our custom systems feature reservoirs that simply fill with water and flow out of the fixture by way of gravity. As we see it, this creates a more natural-seeming flow of moving and falling water – something that reminds us (and our clients) of the action of gentle, natural streams or springs even though the fixtures are manifestly architectural. When water is pushed out un-

‘Our custom spillways feature reservoirs that simply fill with water and flow out of the fixture by way of gravity. As we see it, this creates a more natural-seeming flow of moving and falling water.’

der pressure, by contrast, it’s always clear that the flow is artificial.

It’s also our view that standard sheeting waterfalls are very often much too wide for given applications. As we see it, scale is *extremely* important, especially in smaller water-in-transit systems, and it’s always important to avoid overwhelming the space with either the visual mass of the sheeting water or the sound it makes.

Much of our insight into these matters can be traced to our appreciation of those who’ve influenced us (see the sidebar on page 50 for more on this subject). When it comes to spillways, however, we’ve always found specific inspiration in the work of David Tisherman, who for years has advocated the use of multiple, small spillways rather than long, continuous sheets of water. By breaking up the flow, we have more flexibility in

aligning features to scale; beyond that, the multiple flows have the simple advantage of carrying greater visual interest than do single, sheeting falls.

There are no rules of thumb here, of course, because the requirements of every project are different. In many cases, for example, we'll design these systems with odd numbers of spillway openings and find that these arrays have wonderful senses of balance – but that rule can go out the window on another project depending on whether we're striving for symmetry, asymmetry or some other visual effect.

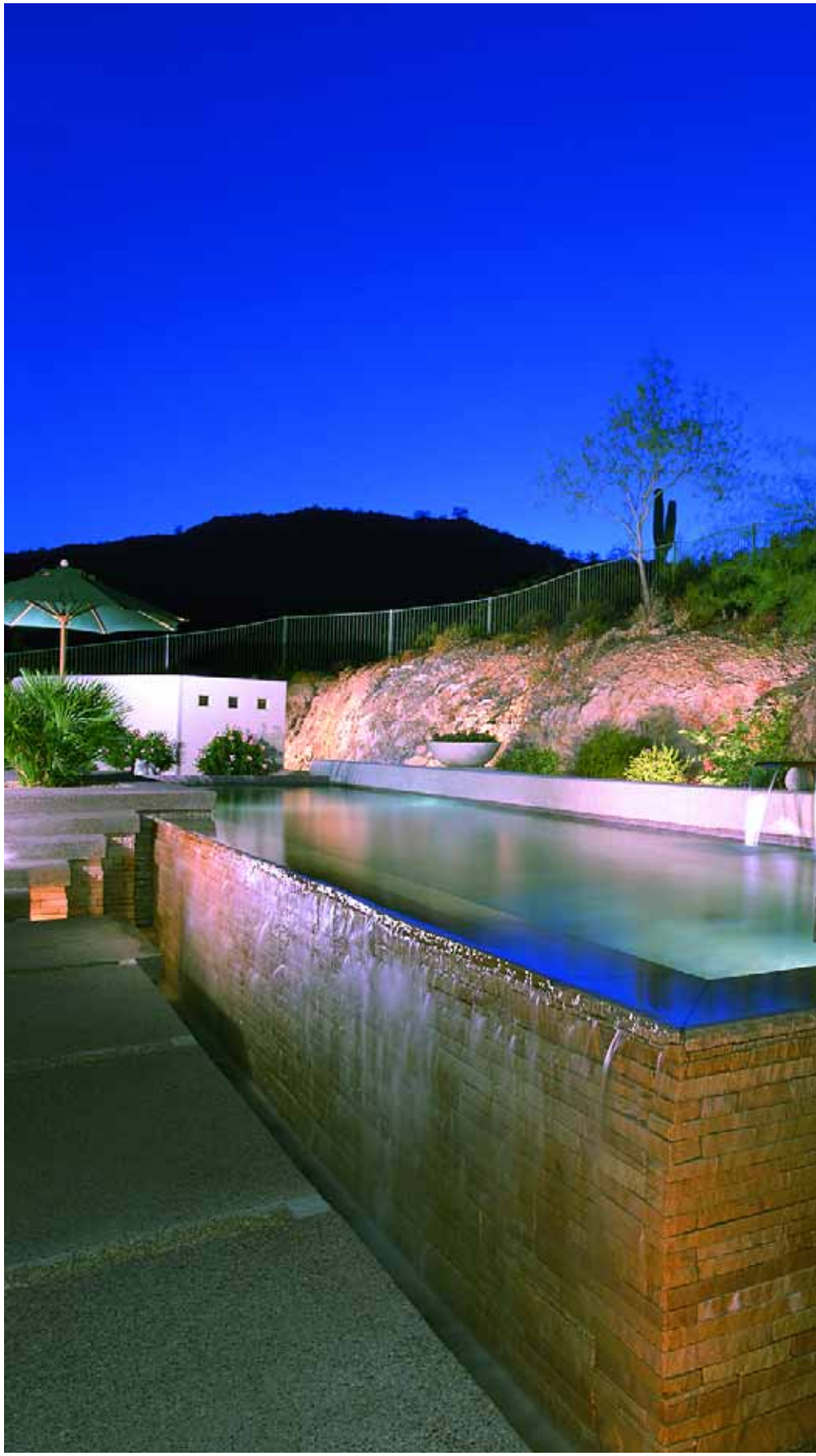
We also like spillways because they can be any size and fitted to most any type of watershape in any number of contexts. We'll put them in retaining walls, set them up in freestanding structures, place them above spas, insert them into pilasters – almost any vertical plane that rises above a body of water will do.

On occasion, we'll vary the distance covered by the water as it flows through the visible part of the spillway troughs. In some cases, in fact, we deliberately extend these troughs several feet from their points of origin to create runnels. We do so because we like the contrast: Although these are manifestly architectural features, the gentle flow of water passing along a runnel draws the eye and creates sights and sounds that remind observers of small, natural streams.

We particularly advocate the use of spillways and runnels in place of the sheeting spillovers so commonly found between spas and pools. In most cases, we treat spas as distinct sculptural elements that become focal points within overall compositions. A good spillway treatment enhances that focus and can even *drive* it by adding special interest and variety to the visual transition.

On Edge

The other "letters" in our signature have to do with the most dramatic of all water-in-transit effects, that is, vanishing edges and perimeter overflows. Both involve multiple design, engineering and construction challenges that go well beyond the scope of this discussion; suffice it for now to say that we've worked with them long enough that we don't hesitate



‘Although these are manifestly architectural features, the gentle flow of water passing along a runnel draws the eye and creates sights and sounds that remind observers of small, natural streams.’

to bring them into our conversations where they fit settings and clients.

The principal advantage of these systems is that they create knife edges that visually define the surface of the water – the key to why they work so well in Contemporary designs – and create dramatic visual transitions. Even though they're familiar to most designers and many clients by now, they both are still the subjects of limitless fascination.

The trouble with many vanishing edges, in our view, is that they're misapplied. The typical design involves water falling away from a home's primary focal points, thereby linking the surface of the water with distant vistas. That works beautifully when watershapes overlook oceans or other large bodies of water or, by contrast, offer broad views of valleys or mountain ranges. Many projects, however, distinctly lack such prized views.

As a result, in most of our projects that call for vanishing edges, we turned the detail around to *face* the primary focal points: By having the water flow back toward the observer, we take advantage of the water flowing over the material used to create the edge and finish the dam wall. These flows, in effect, become beautiful water-wall features that draw the eye into the backyard.

This doesn't mean losing the vanishing-edge effect: Indeed, we almost always create secondary viewing locations on the far sides of these yards, rewarding observers who venture out to these

Tracing Inspiration

In our work, we don't see associating ourselves with "Contemporary" styling as being terribly restrictive, because this category encompasses a huge range of possibilities under an immense conceptual umbrella. For us, distinction comes from being selective and working with details that can be used in a variety of ways: These lead us to develop designs that are sufficiently unique to be visually appealing *and* reflective of both our clients' specific desires as well as the requirements of given settings.

Where we work in the Phoenix area, however, the harshness of the sun influences the colors and materials we use because they fade and lose their luster far more rapidly here than they do in other places. And of course, the desert's color palette drives many of our choices in the first place, making us lean toward natural colors to harmonize with the enveloping landscape.

In our projects, we're responsible for bringing water into the picture – and we certainly appreciate that there are a huge number of ways to do so while operating under the "Contemporary" banner. Indeed, as we've developed as watershapers and have refined our approaches to variations in style, settings and clients, we've found ourselves using a flexible set of design details that have become common to most of our projects.

In general, we now use water's natural horizontal planes to create reflections and define lines and levels within our landscapes. The key is that we now almost invariably focus as well on the *vertical*, making water flow over surfaces, down spillways, into perimeter overflows, through runnels, over vanishing edges or from spas into pools.

These water-in-transit details can be traced to the works of Frank Lloyd Wright and John Lautner, but we've also been inspired by the Alhambra in Spain and its use of gravity-driven waterfeatures. There are also the works of Antoni Gaudi, the amazing Spanish architect: Although he's not known for his use of water, there's a fluidity in his use of line, color and organic shapes that speaks volumes to us.

All are masters when it came to finding different ways to move water from one plane to another in visually striking ways.

And the value of creating these flows in the midst of a desert cannot be understated: They provide our Phoenix-area clients with a sense of comfort and repose that's common to all watershapes with water in motion, but there's also a symbolic, personal power that comes with making water move in arid places where it typically doesn't.

This leads us to the additional observation that our design inspirations reach back well before the 20th Century to include Moorish architecture and the Moroccan and Spanish Colonial styles that have become so popular locally in recent years. This works for us on several levels, because all of these practitioners and styles – Contemporary, Craftsman, Moorish, Spanish Colonial, Moroccan – engage in rectilinear or otherwise geometric forms and warm colors. There are differences, of course, but many similarities as well.

It's in this mix of styles and forms that we find inspiration for our various edges, runnels and spillways. It is also here that we've come to recognize just how still and even stagnant watershapes can seem when there's no palpable sort of motion.

– S. & R.S.

‘The principal advantage of vanishing-edge systems is that they create knife edges that visually define the surface of the water – the key to why they work so well in Contemporary designs.’

seating areas or viewing rocks with the traditional vanishing-edge effect.

As for perimeter overflows, we respect them as the most complex and costly of all water-in-transit systems and appreciate the fact that the subtlety of the visual effects they create completely belies the difficulty of the engineering and construction used to achieve perfectly level wetted edges.

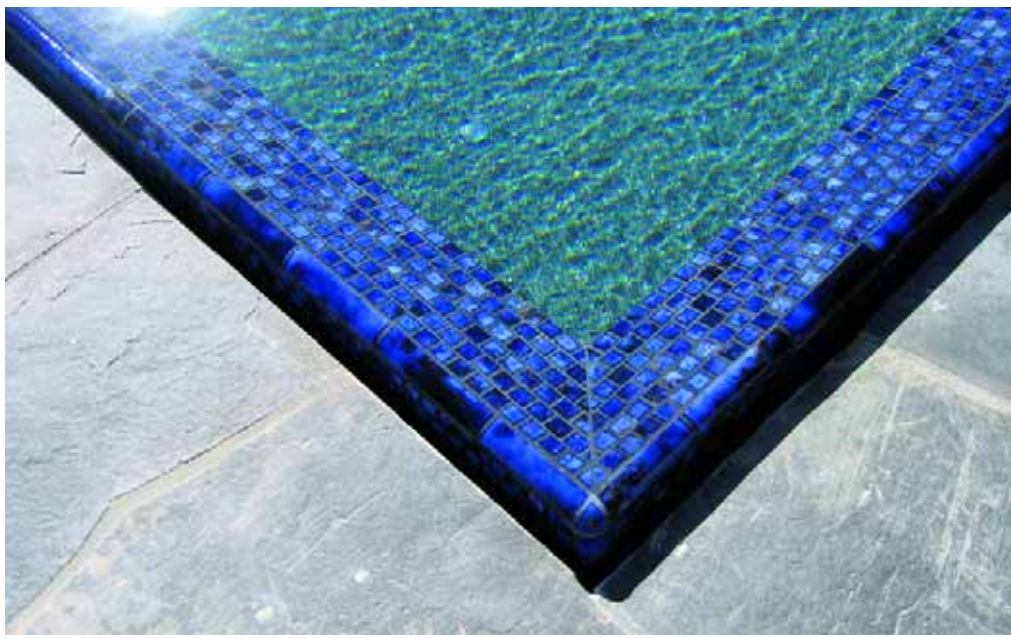
As a practical matter, we don't design and install perimeter overflows where we know that budgets are inflexible: More than any other watershaping element, these systems involve levels of onsite problem-solving and adjustment that are often difficult to anticipate in early project phases. The work must be flawless just the same, and that often takes extra time and effort.

Generating Interest

If there's a unifying principle that applies to watershapes of all types and styles – Contemporary or Classical, residential or commercial, simple or complex, architectural or naturalistic – it's that water in a landscape generates *interest*. Most of the time, if these watershapes are well devised, that interest is accompanied by sensations of tranquility and relaxation.

In thinking creatively about the use of water flowing from one plane to another, we find ourselves with many options when it comes to developing compelling water-in-transit details within these scenes. Sometimes the solution is as simple as water flowing from a small scupper into a tiny pond; other times it's as sweeping as a long vanishing edge or a masterful perimeter overflow. No matter what comes, by setting water in motion you cause those who experience your watershapes to take notice.

In our case, we've used water in transit to expand our palette in, largely, Contemporary-style designs. What keeps us centered – what helps us maintain the value and integrity of our design signature – is that we keep our focus on the experience of someone sitting next to and enjoying a small stream in the mountains: That's a primal appeal, as old as humankind, yet it's always new and delightful.



Special Sensations

No matter whether we're working with the smallest spillway or the longest vanishing edge, we must inevitably consider sound in designing water-in-transit systems.

It might seem like a stretch, but our approach to sound was first informed by marveling at pyramids: One of the characteristics of these structures is that they generate a very subtle "white noise" once you're inside. This almost imperceptible sound is quite soothing, and studies have shown that people entering pyramids will immediately shed stress and relax.

In a very real sense, the sound of moving water works in much the same way: We all know that when water flows from one level to another, it's going to make noise – a fact that hasn't escaped our clients, many of whom crave those soothing sounds and the relaxing atmosphere they create whether they can see the water or not.

Having worked with these systems for many years, we've learned a great deal about how to give the water its "voice" – that is, find ways to draw out a variety of tones and textures to go along with the volume. (As mentioned in the accompanying text, we seldom use manufactured sheet waterfalls, one of the main reasons being that they create sounds that are too loud for these settings.)

The key is to create enough sound so that it can be heard throughout the space – but not so much that it commands primary attention. Yes, there may be specific cases where, say, traffic noise must be overcome with a robust flow, but more often than not what's required is the soft sound of a gentle flow – one that doesn't echo or reverberate through the space like a Mack truck.

With vanishing edges and perimeter overflows, managing sound is almost always a key consideration. With vanishing edges, we manage flows so that they wet the edge and the dam wall without creating torrents; with perimeter overflows, we use baffles in our collection troughs to minimize the gurgling, echoing sounds the water can make as it moves into and along the overflow system.

It's largely a subjective exercise, and we let experience guide us. Whenever there's a doubt, however, we've always found that although the sound of moving water is a big benefit, in most cases *less* truly is *more*.

– S. & R.S.

‘We appreciate the fact that the subtlety of the visual effects created by perimeter overflows completely belies the difficulty of the engineering and construction used to achieve perfectly level wetted edges.’

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The Power of Transformation

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– Justin Scott, Scott Swimming Pools, Woodbury, Conn.

'I am very happy to learn that there are many other craftsmen like me out there who still care about the finished product, like we all should. The instructors were very knowledgeable and informative. It opened my mind.'

– Frank Juliano, Pooltek of Palm Beach, Riviera Beach, Fla.

Experience the power of transformation yourself!

Basic Perspective Drawing: An Eight-Hour Workshop

October 7, 2009
La Jolla, California

Before the next Elements of Construction school convenes, David Tisherman will lead an eight-hour, entry-level class in 'Basic Perspective Drawing.' This workshop will cover the essentials of one- and two-point perspective and introduce skills needed to communicate visually with clients, contractors and fellow designers. (Note: This class is a prerequisite for Larry Drasin's 'Design Communication – Measured Perspective,' a 20-hour course that will be offered in Las Vegas in November 2009.)

Fees: $799 ($699 if also attending The Elements of Construction); includes one hotel night and meals.

Come join us in La Jolla!

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In keeping with our mission of advancing education on a global level, we are pleased to offer our newly expanded, three-day Elements of Construction course as the latest component in our design-certification program.

The school's curriculum covers plan review, excavation, layout, soil and drainage, steel placement, plumbing, utilities, gunite, tile and coping, decks and drainage, plaster and start-up and includes the Genesis 3 Edge Program as well as a key roundtable discussion. All sessions are taught by top-flight tradespeople, designers and engineers from the watershaping industry and beyond.

Fees: $3,950 includes four nights' accommodations, meals and course materials. (If a spouse or guest joins you, an additional fee of $1,150 will be charged to cover accommodations and meals).

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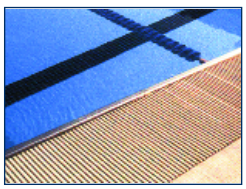
In the Spotlight

Grate Systems



NATARE (Indianapolis, IN) makes PVC grates and grating systems for use with watershapes. Designed for toughness and durability, the components come in I-bar and T-bar configurations that resist chipping and cracking, won't deteriorate with sun exposure and are inert with virtually all pool chemicals. Reinforced with composite tie rods, the products offer slip-resistant surfaces and are available in custom colors.

Spa Jet Systems

VENTURI JET SETS (Salt Lake City, UT) offers preassembled jet kits for installation in concrete spas. The easy-to-install units come in three- and four-jet configurations, with ports on both sides to continue plumbing loops as well as integrated air-supply lines. They accept either two- or two-and-a-half-inch lines and have flow rates from 10 to 22 gallons per minute, depending on the choice of jet fittings.

Water-Repelling Sealer

DECK-O-SEAL (Hampshire, IL) offers Deck-O-Shield, a ready-to-use sealer/water repellant for applications with natural stone, concrete and masonry surfaces around pools and in waterfall systems. Designed to limit the penetration of water into structurally sound, crack-free surfaces, the product also can be used to seal natural stone decks, walkways, or patios – almost any area near or around swimming pools.

Chlorine Analyzers

HANNA INSTRUMENTS (Woonsocket, RI) offers the PCA 310 series of chlorine analyzers. Designed to reduce the chance of chlorine overdosing and monitor chlorine levels in pool and spa applications using the DPD colorimetric method, the devices feature large, backlit graphical displays and user-friendly interfaces. They also can store up to 3,500 data points for transfer to a computer.

Pool Finishes

COLORED AGGREGATE SYSTEMS (Leesburg, FL) offers AquaGems, a pigmented, quartz-based aggregate that, combined with Portland cement, gives watershape interiors a durable finish that resists bleeding, fading and general wear. Available in ten standard colors and two aggregate sizes, the material strengthens plaster against UV exposure, chemicals, acid cleaning and abrasion.

Decorative Accents

PENTAIR WATER POOL & SPA (Sanford, NC) has introduced WallSpring Decorative Accents, an array of four dozen elegant architectural details, wall accents and handholds designed to serve as finishing touches within or near swimming pools. Made of a lightweight polymer, the figureheads, lion heads, sconces and rosettes are available in gray, natural, white, brass, copper, silver and bronze.

Decking System

GENOVA PRODUCTS (Davison, MI) has collaborated with BASF Styrenes to introduce Genovations Decking, a system that offers homeowners the beauty they want with a functionality that lasts and looks better longer than wood or other composite materials. Designed not to fade or stain, the product has a low-gloss/low-glare finish and a rich, authentic wood-grain embossment.

Installation Guide

ALLAN BLOCK CORP. (Edina, MN) has published literature on how to build segmental retaining walls for commercial, residential and other settings. Designed to guide contractors through the process from beginning to end, the 64-page, full-color booklet covers planning and designing, then uses text, graphics and photos to show the installation of gravity, reinforced or patterned walls.

The following information has been provided to WaterShapes by product suppliers.
To contact these companies for details, please use the live links at **www.watershapes.com/ads**.

Pool/Spa Pumps

ZODIAC POOL SYSTEMS (Vista, CA) has introduced Jandy's FloPro Pumps. Designed as medium-head, high-flow, drop-in replacements for existing pumps, the units offer easy installation, low cost, quality performance, maximum effectiveness and dependability for pool/spa applications. They come in several sizes and are intended to offer a compact filtration alternative to other products.

Fire Features

HEARTH PRODUCTS CONTROLS (Dayton, OH) offers a range of products for fire features. The line includes fire rings in heavy-gauge stainless steel in sizes from six to 48 inches; match-lit and electronic-ignition fire pit kits in a variety of shapes and sizes; systems for inground and aboveground applications; and accessories such as log sets, fire pit enclosures and decorative glass for burner pans.

Robotic Pool Cleaner

MAYTRONICS U.S. (Norcross, GA) offers Dolphin Diagnostic 3001, a robotic pool cleaner designed for reliability and affordability. The unit scrubs, brushes, vacuums and filters a pool's floor and walls (including the waterline) and uses a large, internal filter surface to collect dirt, debris and dust particles. It also has an advanced software system that teaches the device how to optimize its pool coverage.

Waterpark Thrill Ride

WHITEWATER WEST INDUSTRIES (Richmond, British Columbia, Canada) has introduced Family Boomerango, a waterpark attraction that starts off with an inner-tube ride at an easy pace, then takes a steep drop before propelling riders high up on a vertical wall. At that point, riders enter a reversed freefall that accelerates them over a six-foot-high transition bump and into a splashdown pool.

Waterfeature Components

BOBÉ FIRE & WATER FEATURES (Phoenix, AZ) offers custom copper and stainless steel products designed to accent pools, spas and landscaped areas. The line includes a wide array of scuppers, po pots, fire pots and fire/water pots, all of which can be tailored to individual applications. The company also has a division specializing in large-scale residential and commercial projects.

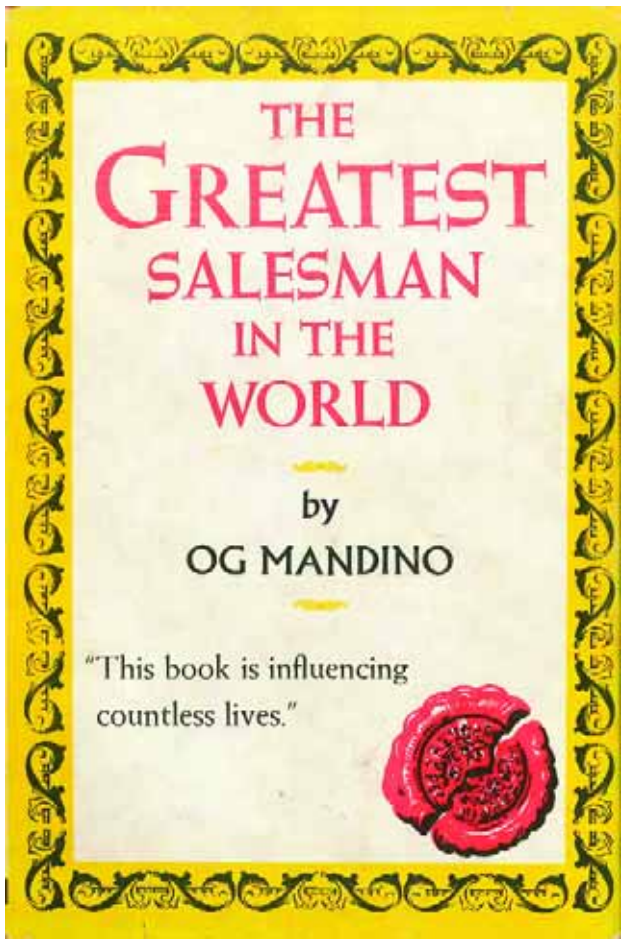
Artificial Rockwork

COST OF WISCONSIN (Jackson, WI) has published a brochure on its capabilities in designing, engineering, installing and consulting on projects that involve simulated rockwork. The leaflet highlights applications fabricated with GFRC or hand-carved rock and offers details on services that range from mechanical design to complete installation of naturalistic ponds, architectural fountains and more.

Book Notes

Daily Inspiration

By Mike Farley



When times are tough, I sometimes find it useful to think about the things in life that I'm able to control while giving less thought to those I can't. The plain fact is, no matter how troubling the news is or how tough the economy makes our working lives, nothing can ruin our positive attitude if we don't let it.

In other words and no matter what, we are always in charge of how we greet the world.

That's a point I've had confirmed by re-reading *The Greatest Salesman in the World* by Og Mandino (Frederick Fell Publishing, 1964). To my mind, there are few books that truly warrant the label "classic," and this is one of those masterpieces. I regard it among the most inspiring and life-altering books I've ever read – and I'm apparently not alone: It has been reprinted several times and is still widely available.

I first encountered it as a teenage Boy Scout, just after I won a contest by selling the most tickets to a special Scout-sponsored event. Seeing that I had a knack for sales, one of my troop leaders suggested that I read Mandino's book. What I found was a source of inspiration that extended well beyond the art of sales.

I read the book again in college as part of a class that focused entirely on the book's teachings. It was a fascinating course, taught by an instructor who literally could recite the entire text, word for word. I'm now re-reading it again with my 12-year-old son, who seems to be gleaning gems of wisdom from it as well.

The book tells the story of a wealthy trader, Hafid, who lived in the 1st Century A.D. Nearing the end of his life, he recounts his career and how he rose from humble origins and eventually came to operate the world's most succesful trade caravan.

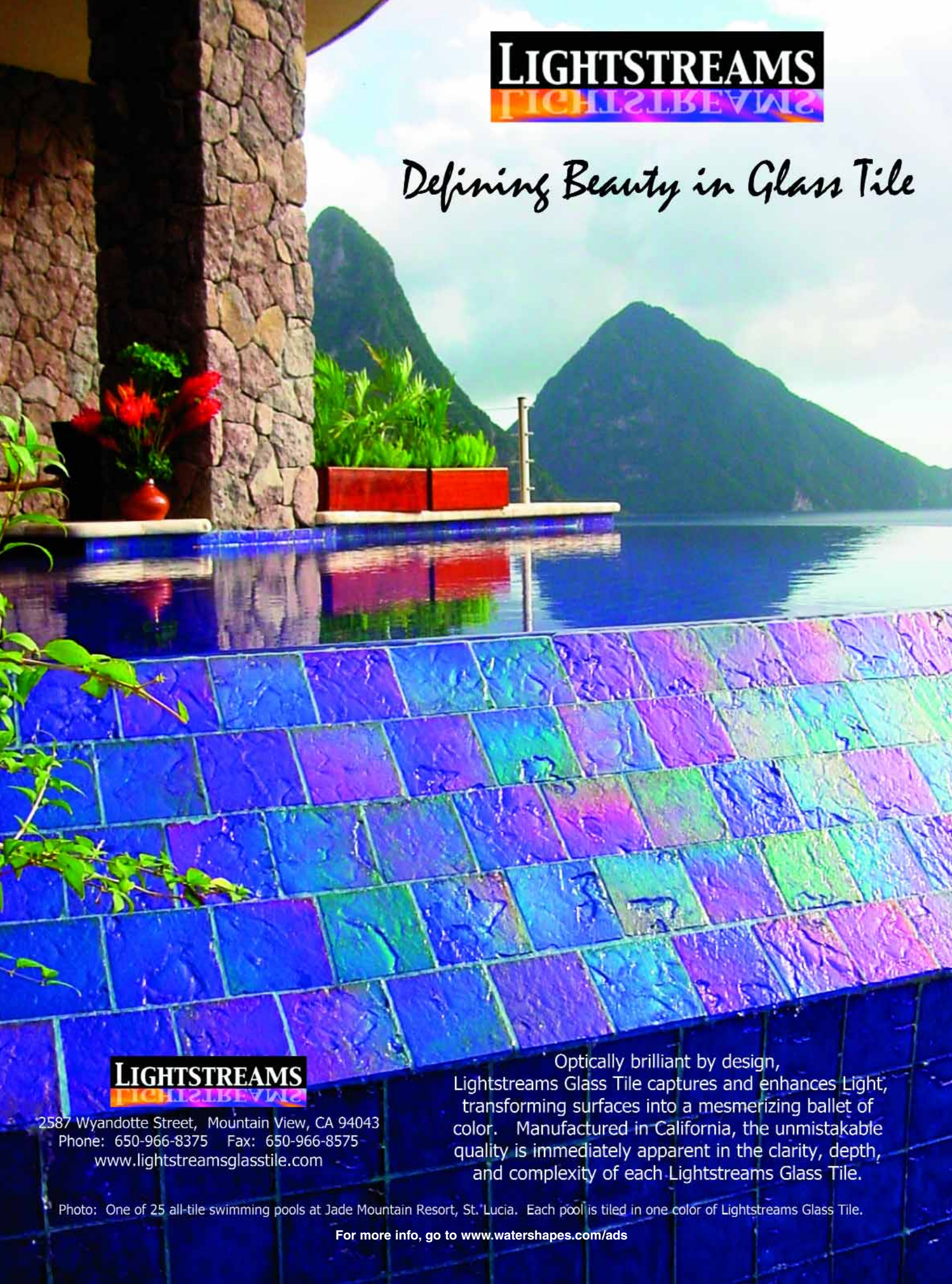
The book's 108 pages are organized as 10 "scrolls," each covering a different life-affirming concept or basic human trait. The suggestion is that the reader should tackle each scroll over and over and over again for a month before moving on to the next, making the absorption of the text an exercise that spans a full 10 months. (You don't have to read it that way, of course, but having done it that way myself, I see value in the repetition.)

For the most part, the scrolls affirm things we already know: the power of persistence, for example, or the benefits of laughter or, perhaps most relevant these days, the importance of greeting each day with a smile. The writing is so convincing and compelling that, amazingly, revisiting the material never becomes boring. Indeed, the messages seem to gain strength and amplification as you move along.

Having read it at three distinct points in my life, I'm further amazed at how Mandino's teachings have resonated with me no matter how old I happened to be or where I found myself on my life's journey. I won't go into specifics here, because any general recounting would betray the book's genius. But I will say this: If you are finding it difficult to keep your head up these days, this slim volume may be just the tonic you need.

Speaking for myself, I know it's helping me greet each day with a smile! 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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