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WaterShapes

Design • Engineering • Construction

Volume 10
Number 7
July 2008
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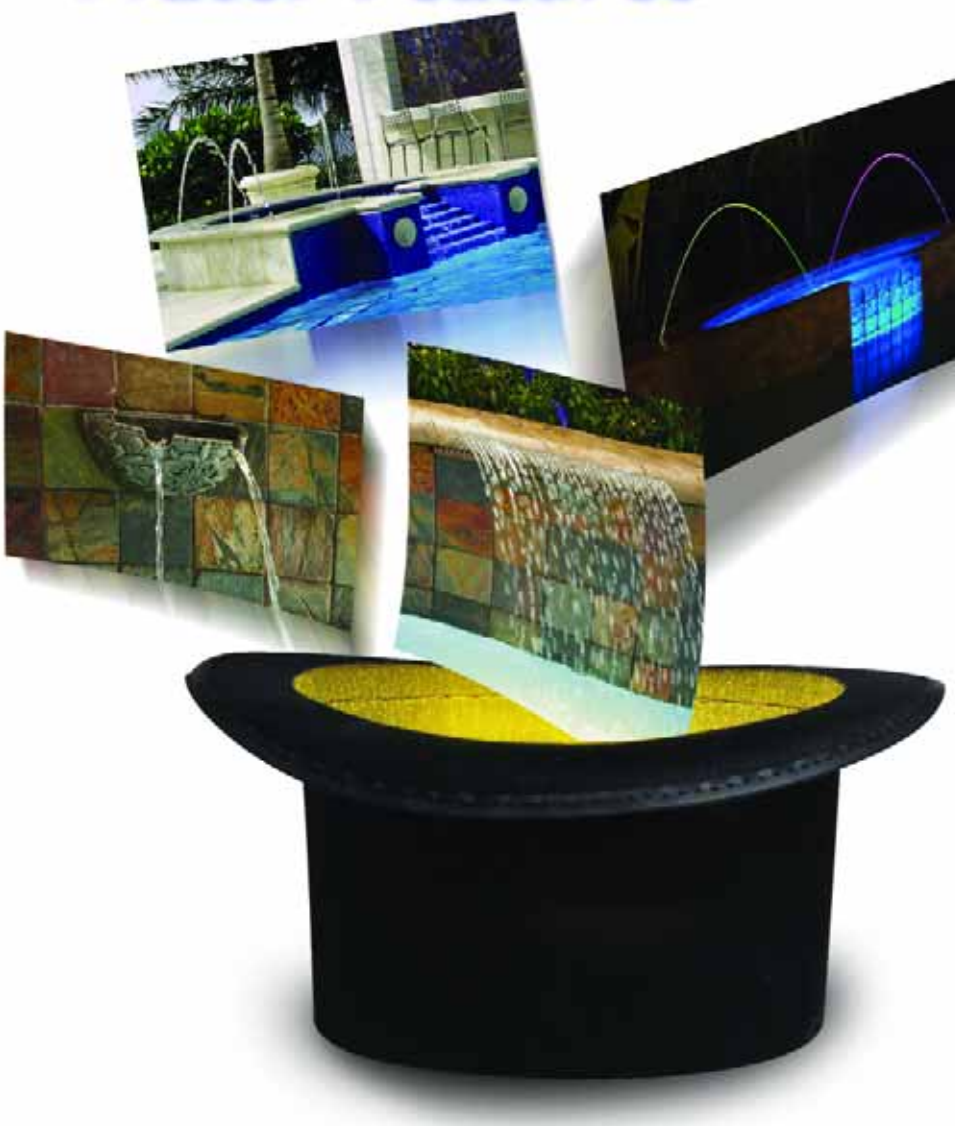

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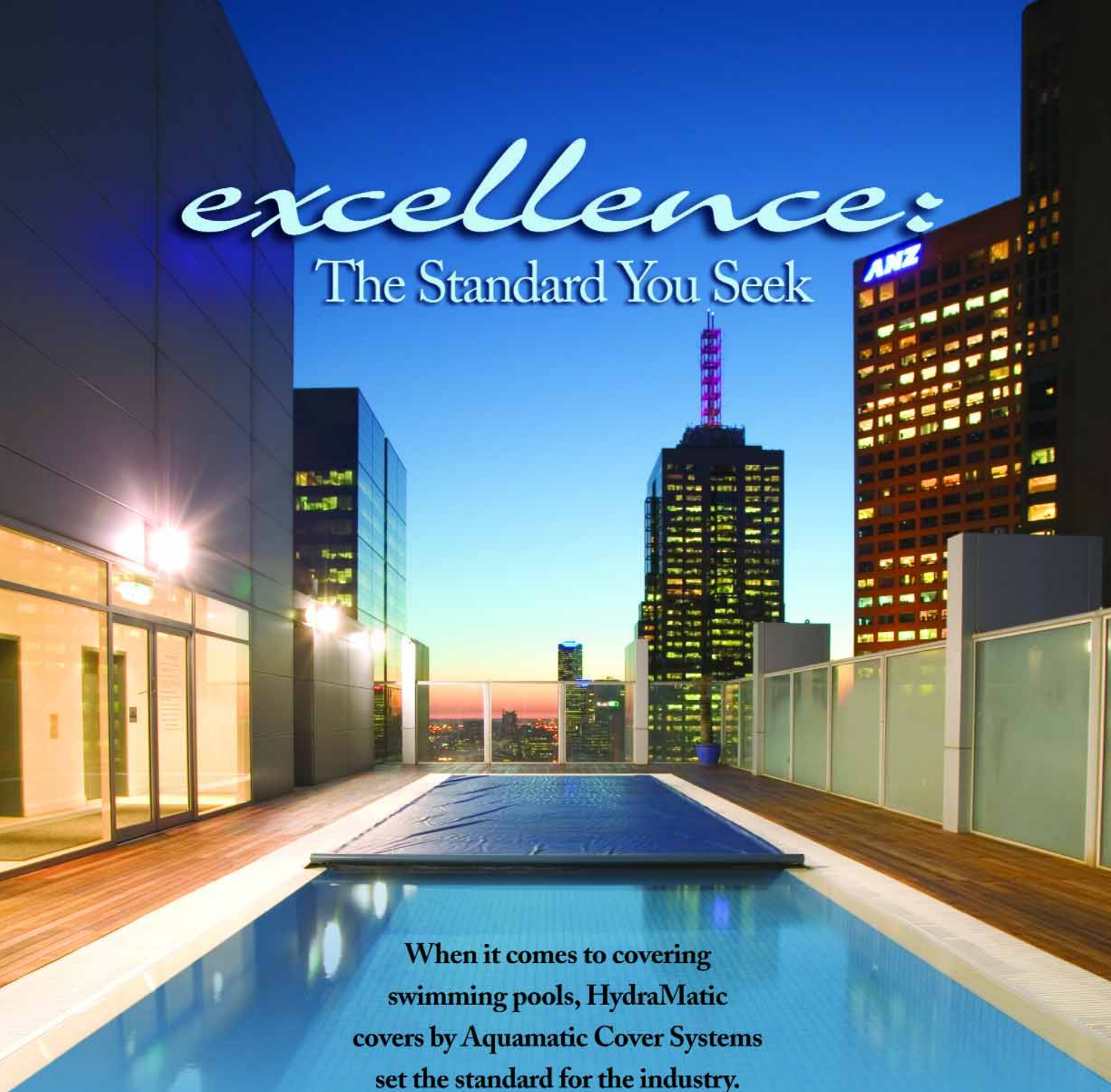

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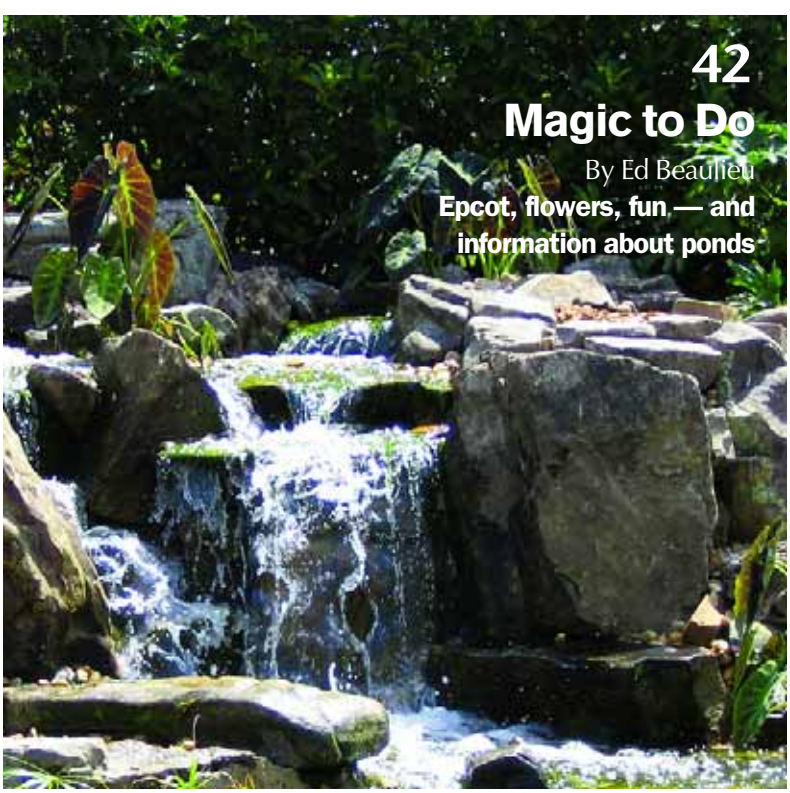
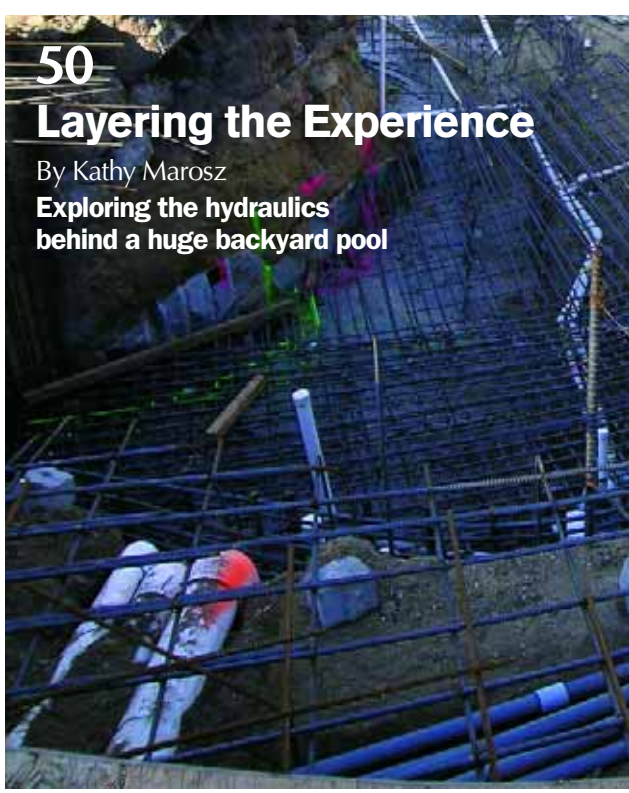
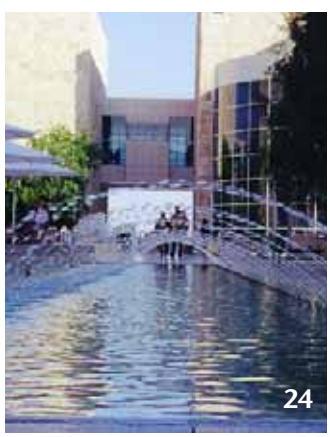




WATERSHAPES

Volume 10 • Number 7 • July 2008

columns



departments

Photo by Randy Beard, Pure Water Pools, Costa Mesa, Calif.

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By Eric Herman

Breathing in Water

I'm sure many of you have noticed by now that we've been devoting some of *WaterShapes*' pages to articles that in one way or another shine a light on the health benefits of swimming and other forms of aquatic activity. We've done so in the firm belief that the information is important and needs to be shared within the full watershaping community.

We're adding to that dialogue in this issue with a piece by Dr. Bruce Becker ("Increasing Access" on page 36) that considers the obstacles, both physical and psychological, that many people face in getting into the water. (Quite coincidentally, Mike Farley's "Book Notes" this month is about a book on the benefits of swimming.)

It's an important topic area – and one that hits home with me on a personal level: In April of this year, a chest X-ray that was part of a routine physical revealed some tissue damage in my lungs that concerned my doctor. Based on further tests, the diagnosis is that I have permanent lung damage as a result of many years with asthma and a couple bouts of pneumonia. Not to overdramatize things, but I'm well aware that the news could have been far worse.

In discussing his observations with my doctor, he strongly recommended swimming as an exercise for people who, like me, have limited lung capacity. The buoyancy and hydrostatic pressure of the water, he said, increase the heart's ability to pump blood and therefore makes the entire cardiovascular system more efficient. Moreover, he said he believed that inhaling small amounts of moisture would be good for both my trachea and my lungs.

His advice was easy to accept because it's absolutely consistent with everything I've heard and read about working out in water. In my case, it's not a huge adjustment because swimming has long been a part of my exercise program. But now, I'm even more motivated to increase my level of activity in the pool: As is the case with just about everyone I know who swims regularly, I've come to believe that the benefits are not only physical, but also psychological as well. In short, it is impossible to get in the water and not feel better – and those feelings stay with me when I get out.

In my case, the effect even in a few short weeks has been profound. I feel like a different and much healthier person when I'm swimming routinely: It's become the best part of my day, and I find myself looking forward to the moment I don my trunks and goggles and jump into the pool.

▼ ▼ ▼

Also in this issue, Brian Van Bower tackles the topic of intellectual property and proper attribution of design work in his "Aqua Culture" column, beginning on page 10. We at *WaterShapes* do all we can to support his argument, invariably asking our writers to be sure to credit outside creative inputs to their projects.

In another complete coincidence, that sort of credit was missing from a story published in our May 2008 issue. On the magazine's cover and in "Eastern Eclectic" (page 54) are images of a beautiful vanishing-edge pool that was part of an extensive project designed and largely installed by Ben Dozier's firm, Root Design Company of Austin, Texas. The text didn't mention that the pool itself was built by Liquid Assets, a pool design/construction company also based in Austin. We regret the omission.

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July's Writers

Randy Beard operates Pure Water Pools, a construction/service firm based in Costa Mesa, Calif. He was working in the entertainment industry when he started a pool service business as a sideline. Before long, he and his partner (wife Martha Beard) expanded their base by purchasing Pure Water Pools from another technician. As the route grew, they dropped their other jobs and focused entirely on the pool business as small repairs led to big repairs, big repairs to remodels, and remodels to new construction. Each year, the projects became more creative and technically challenging. Today, the firm works with many of the area's leading architects and landscape architects to create a range of custom watershapes for upscale commercial and residential clients.

Bruce Becker, MD, is a clinical professor in the Department of Rehabilitation Medicine at the University of Washington's School of Medicine in Seattle and is also a research professor at Washington State University in Spokane, where he directs the National Aquatics & Sports Medicine Institute. A graduate of Tulane University's School of Medicine (New Orleans), he completed his residency in physical medicine and rehabilitation at the University of Washington, after which he ran the residency program in that field as an associate professor at Wayne State University (Detroit) and from 1992 until 1998 served as vice president of medical affairs for the Rehabilitation Institute of Michigan. He moved to Spokane and served as medical director of St. Luke's Rehabilitation Institute from 1998 through 2006. He has an abiding interest in aquatic rehabilitation, serving as president of the American Society of Medical Hydrology. In 1997, he and Andrew Cole, MD, co-authored the textbook *Comprehensive Aquatic Therapy* (Butterworth-Heinemann), which has been translated to Portuguese and German. In

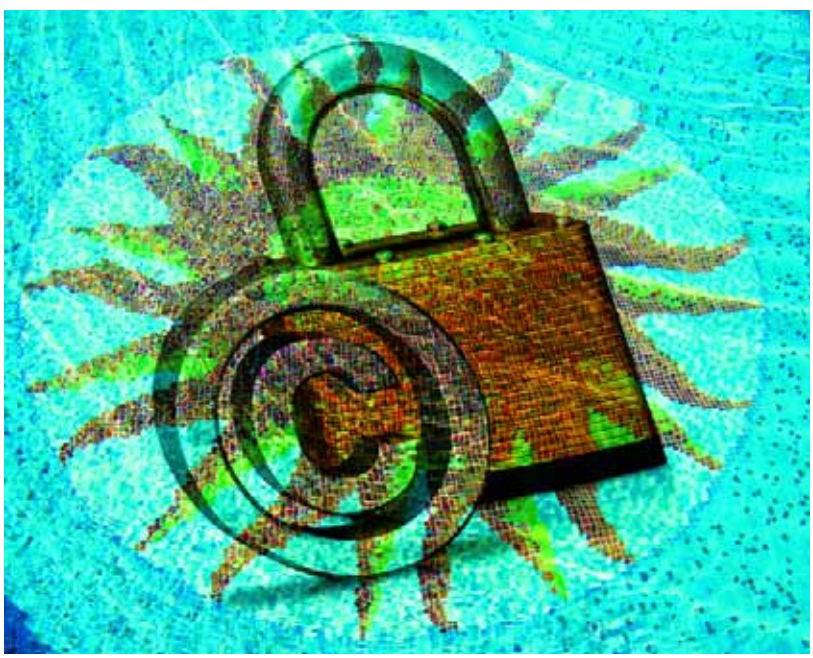
1999, Becker was named Aquatic Professional of the Year by the Aquatic Therapy & Rehabilitation Institute.

Ed Beaulieu is chief sustainability officer at Aquascape, Inc., of St. Charles, Ill. In that role, he has installed numerous custom waterfeatures, from small ponds to large lakes and commercial waterfeatures. He holds a bachelor's degree in zoology/limnology as well as a master's degree in marine biology. Now focusing on sustainability, Beaulieu incorporates water quality, storage and habitat considerations into custom landscape designs that have been featured in such publications as *Architectural Digest*, *Better Homes & Gardens*, *Nature's Garden* and *Irrigation & Green Industry News*, among others. He has been project manager for the company's waterfeature installations at the Flower and Garden Festival at Disney's Epcot Center in Orlando, Fla., for the past six years and has also appeared on various shows on the HGTV and D.I.Y channels.

Kathy Marosz is founder and principle designer at Vision Design & Watershapes, a landscape and watershape design/construction firm based in San Diego, Calif. She established the firm in 2006 as a reorganized offshoot of her previous company, Enviroscapes, which she had established in 1997. Marosz has specialized in residential landscape design and construction since 1989, the year she earned her degree in landscape architecture from California State Polytechnic University at San Luis Obispo. She was the first woman who qualified for membership in Genesis 3's Society of Watershape Designers and currently teaches classes in site analysis and architectural drafting for Genesis 3's design schools. Before entering the landscape and watershaping industries, she was a professional musician and recording engineer.

By Brian Van Bower

Keeping Control



As watershape designs have become more creative, more competitive and ultimately more valuable to our clients than they once were, it's natural that we have started paying more attention to protecting our output – what some call our "intellectual property."

This is indeed a large and important issue for many people in our business, virtually to the point where watershapers are now facing the same sorts of concerns that have preoccupied architects and landscape architects for decades. And we've caught up with our colleagues at a bad time: With technology being what it is now, the opportunities for fraud and the ease with which concepts can be stolen or otherwise misappropriated is now only a "click and drag" away.

For most of us who came to watershaping through the pool industry, this sense of a need to protect our designs is relatively new. In fact, when I started out in the pool-building business many years ago, I was one of those who designed pools strictly as a means of selling construction jobs. The design work I did, which was occasionally sophisticated relative to what others were doing back then, was just a sales tool – and the idea that design work had intrinsic value was an utterly foreign concept.

For anyone who works with custom watershapes, I'd argue that there is no upside to giving away designs. In fact, there are multiple downsides to handing over your ideas without any expecations of compensation.

merit basis

I'm thankful that the practice of giving away design work is largely a thing of the past among watershapers. I know there are some of you who still do it, and I suppose it makes sense for volume-oriented businesses that meet their needs by building with the same templates over and over again with perhaps a small number of variations. In such cases, giving designs away may have merit if only because they involve little original work once the production wheels start turning.

For anyone who works with custom watershapes, however, I'd argue that there is no upside to giving away designs. In fact, there are multiple downsides to handing over your ideas without any expectation of compensation – the chief being that if you're not paid for your design work, there is absolutely no way you can protect the products of your own creativity.

I've pounded this charge-for-designs drum for years now, and I have no plans to stop: If you're designing watershapes (or, for that matter, landscapes or any other types of structures or elements for exterior environments), you should be compensated for that effort. And this belief, of course, goes hand in hand with the notion that those who demand payment for designs should know what they're doing and that their work should actually have merit.

If you're in a position where you don't know what you're doing, you should not be designing watershapes and should instead retain or collaborate with someone who's qualified until by dint of experience you've established your own credentials. In fact, there's nothing wrong with that approach on any level: All it takes is a willingness to pay a designer for his or her efforts and give credit where it's due.

Indeed, this whole swirl of intellectual-prop-

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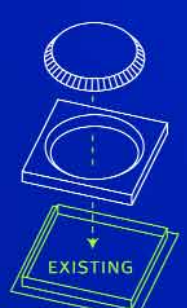

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erty issues boils down to those two things: fair compensation and proper credit.

I'm asked about these issues with increasing frequency these days, and of course what most people are looking for is some sort of categorical, chapter-and-verse legal definition from me. Yes, there are attorneys and copyright/trademark experts out there who can run down the myriad technicalities involved in determining the nature and extent of intellectual property, but I've rarely consulted with them because I have the sense that getting wrapped up in the niceties of the law is ultimately a limiting and even self-defeating endeavor.

Instead, I use a simple, one-page design contract that indicates my retainer, the scope of work, hourly design fees and fees for travel and site visits along with a rough projection of the cost. In proffering this document, I make it very clear – and this is *crucial* – that they won't receive my work until I'm paid for it. It's really as simple as that.

I know people (including my Genesis 3 partner Skip Phillips) who use far more complex contracts and include information about payment terms, legal fees, work stoppage, arbitration and much more. That's all fine and our documentation may look completely different, but the protective principle remains exactly the same: Charge for your work and be sure you get paid before it leaves your office!

why fight?

I'm so adamant about "payment before presentation" because I know that if I submit my work to a client before I receive a check, I expose myself to the very real possibility of my work being taken by someone else who claims it as his or her own and uses it to build a project.

That's a worst-case scenario, of course, but it *can* happen – although what occurs more commonly is that clients won't meet their obligations and hold up payments. Most of the time, happily, they come through, but we've all heard stories.

If a client takes advantage of you in this way, of course, you have legal recourse regardless of how detailed your written contract is. In fact, you'd have that same recourse without any written contract at all because verbal agreements are binding in court. So when anyone steals your work and doesn't pay you for it as agreed, you never have to give up your right to pursue the matter in court and seek full compensation.

The problem with such situations is that you have to go through the process, expense and mind-numbing hassle of engaging in a court battle – not the way I prefer to spend my time. So I don't even start the design process on any sort of legal-leaning foundation: I simply won't present my work until I'm paid for it, right up front.

Mine is a design-only firm, so once we're compensated for our work, the client owns the design and they can use it to obtain bids for construction, hang it on their wall or throw it away and start

over with us or a different designer. If yours is a design/build business, once you get paid for the design and the client takes possession of it, there's always the possibility that you might be underbid and someone else will build your design. As I see it, you come out well because you were at least paid for your design time!

In that sense, design work should be seen as a separate activity from construction. Sure, you can set up things so that if you prepare a design and the client subsequently has you build the project, you can discount the design fee to whatever extent you desire. That's up to you, but the point remains that you should be paid in full for the creative/intellectual part of the process.

Before I move on, let me make an important point about using your instincts. I'm utterly averse to anything that involves courtrooms and attorneys, so I've developed a reflexive, red-flag reaction to people who seem overly concerned with legal issues at the outset of a project. I respect anyone's right to do their homework on my background and see due diligence as important, but when a prospective client shows up at an initial meeting with an attorney in tow or makes it clear attorneys will be involved when it's not really necessary, I think twice about moving forward with any work at all.

It's a judgment call, but I've grown weary of dealing with people who see the courts as their way to resolve problems. And this cautious approach has worked well for me: I've only become involved in legal proceedings twice in my career – both times as the initiator – and that's just fine by me.

due credit

As mentioned above, there's a major component of this discussion of intellectual property that goes beyond compensation and has to do with credit for and proper attribution of work performed.

I've become aware of a number of recent situations in which watershapers I know are having their work stolen and claimed by others. In fact, there was just an incident where a company put up a Web site filled with projects claimed as its own when in fact the work had actually been done by several Genesis 3 members.

Not only was this company claiming credit for another individual's work (which happens pretty often), but this one was brazenly claiming credit for *several* professionals' creative output. It's outrageous, but in this day and age, it's so easy to cut and paste pictures, scan documents and pick up information from the Internet (and then rely on obscurity to hide yourself) that this sort of blatant plagiarism is just too much for some unscrupulous louts to resist.

Again, intellectual property law is complex and I'm not an attorney, so rather than look at this issue in hard, legalistic terms, my tendency is to look for practical responses.

For starters, there are some things we

all can do to make it difficult for people to steal images of our work: We can, for example, imbed logos or watermarks in our photographs that will require a discouraging amount of work for the typical plagiarist to hide. And there are also technologies that can be used to track the digital signature of images as they move around the Internet, making it harder for thieves to get away with their crimes.

Making these operations cease and desist can sometimes involve litigation, but my experience has been that simply calling these criminals out and insisting that they stop is all it takes in most cases. After all, it would take an almost sociopathic load of brass for anyone to claim work that doesn't belong to him or her to maintain a lie when confronted by the design's true source.

Taken from the opposite angle, there will be situations where these low-life scoundrels will get away with it for a while, but I say this to them: If you play this game for long, you'll eventually get caught and your reputation will suffer because clients will be slow to forgive if they discover you've misrepresented your qualifications. Further, there's the even more basic point that if you show off a photo of a David Tisherman project of a pool cantilevered off a mountainside and claim it as your own (and assuming you throw a good enough line of bull to land the job), there could come the rueful day when you might actually be called on, with no relevant experience, to build such a project.

My hunch is, if you're the sort of person who cuts these kinds of corners with the truth, there's a high degree of probability that you won't be in possession of the skills or the mettle required to pull off such a task. In other words, your goose will be cooked one way or another and you'll have no one to blame but yourself – so don't do it!

My hunch is, if you're the sort of person who cuts corners with the truth, there's a high degree of probability that you won't be in possession of the skills or the mettle required to pull off a challenging project. In other words, your goose will be cooked one way or another and you'll have no one to blame but yourself.

shared concepts

As is true in just about any discussion of creative processes and beyond cases in which one person's work is flatly stolen by someone else, there are instances where shades of gray creep into the picture.

In many cases, for example, designs for custom watershapes are the result of the input of more than one person. Who should get credit? Is it the architect who came up with the general concept? The landscape architect who refined or changed that original idea? Or the watershape designer who fleshed out the skeleton of the program with engineering and construction details as well as materials and finish selections?

The answer, I believe, is "all of the above." I am a firm believer in spreading credit wherever it is deserved. In fact, I believe that when we as watershapers share credit in this way, we make strong statements about our ability to work on teams. As an added bonus, our ability to cite collaborations with well-known or otherwise accomplished professionals confers credibility on us.

Just as I think it's fine to borrow a modicum of credibility from those with whom we've worked, I also see no problem in using the work of others as a means of brainstorming with clients so long as I am completely open and aboveboard about the fact that what they're seeing is someone else's work.

As a class of designers, watershapers are doing great projects these days, and I'm proud to share my best work while also showing off the output of my finest colleagues. In doing so, I run the slight risk of having my clients jump ship and pursue those other designers, but it doesn't bother me because I know in making the move, they'll be in good hands. And as a matter of fact, this has *never* happened.

Finally, and along these same lines, I think it behooves us all to be completely honest about our backgrounds and education. As I see it, over- or misstating your qualifications is another way of taking credit that isn't due. To that point, I'm the first to admit that I did not attend college and have little formal education. When people ask me about my history, I tell them I attended the school of hard knocks and came up in the industry via back roads.

I admire well-educated people and have always supported the notion that education is of the utmost value. I've done my level best to catch up where I can by taking classes, traveling and reading books on relevant subjects and have taken all of the required courses to attain Society of Watershape Designers accreditation (indeed, I found this water-focused curriculum to be more relevant and more valuable than the few college courses I have taken). But I also believe that, ultimately, experience is the greatest credential we can have and take pride in the watershapes I've designed, in the value people place on my work and in the great feedback I get from those who own or visit my projects.

Perhaps I'm an idealist, but I think if some people spent more time improving their game and less time finding ways to cut corners, then discussions such as this one would be unnecessary. In the meantime, however, I keep my eyes and ears open, protect myself the best I can and urge others to have zero tolerance for those who demean our profession by misrepresenting who they are and what they can do. 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.

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By Bruce Zaretsky

Familiar Visuals

Why did I want to fill the space with the overused, passé, totally boring Arborvitae? As I quickly explained to my client, I wanted to use something common in an uncommon way.

Where I work in the northeastern United States, several species of trees and shrubs have been staples of residential landscape design for so long that stands of these arboreal mainstays (very often deployed by firms not known for their creativity) have become something of a visual cliché.

Through the years, however, I've found that even these shopworn landscape icons can be used in beautiful and often surprising ways that seem perfectly suited to their environments while also making elegant statements.

Case in point: I was recently making a final design presentation to a client in which we were covering the last details of a grand plan that had included installation of a pool, Travertine decks, a custom outdoor kitchen, retaining walls, a fire pit and an outdoor lighting system. The project had been under development for several years by that time, and the client and I had a good, well-established working relationship.

As we worked through details of the planting plan during our meeting, it struck me that this yard would serve as a perfect occasion for using one of the most shopworn of all evergreens.

no afterthought

On a project of this complexity, I almost invariably offer generic plant specifications at the outset because, in my experience, this is the one phase of a large project that is most subject to change in some way or other.

My reasoning is simple: We want to make certain that what we design (and ultimately install) plant-wise will suit the site exactly. As I see it, it doesn't make sense to get specific about plantings until the pool and its associated structures have actually been placed and completed. Only then do we go in, survey the scene and decide in very specific terms what to plant and where.

As we conducted our final review in this case, it became clear that privacy was this client's paramount concern, and for good reason: The home sat on a typical half-acre lot in a fairly typical subdivision. We'd preserved some established trees to one side of the property, which meant we ended up positioning the pool within 20 feet of the opposite lot line with five feet of Travertine decking beyond.

The client was set on placing a perimeter fence five feet inside the lot line, which left us with ten feet of space in which to create a privacy screen. To do so, evergreens were the logical choice.

The neighbor's home is a corner lot, so from the pool and deck one looks across the adjacent backyard to a roadway – and on to a half-dozen other homes on the street beyond. The perimeter fence was to be an aluminum model from Jerith Mfg. Co. (Philadelphia) that would swing around to enclose the pool as well, but it was in an openwork style that offered no privacy at all.

As we stood on the pool terrace looking out across the neighbor's yard, my client flatly declared, "I want this completely blocked out with evergreens." It made perfect sense to me and I knew what I wanted to do right away. I just

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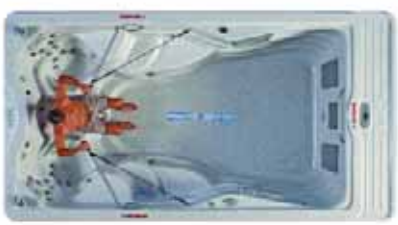

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needed to explain myself in full before he could automatically say *no*.

Why was I worried? It was because I wanted to fill the space with the overused, passé, totally boring Arborvitae. As I *quickly* explained to my client, I wanted to use something common in an uncommon way simply by considering different varieties of these evergreens than are usually seen in residential designs.

I've worked in the northeast my entire career, so I've seen more than my share of landscapes planted with row upon row of Emerald Green or Dark American Arborvitae. These trees grow in an upright, multi-stem fashion and take on the look of exploded cigars when snow falls on them. For the rest of the year, local deer populations sculpt what's left into green mushrooms, completely defoliating their lower halves.

So why do designers use them? My suspicion is that it's a matter of habit: They're well known, familiar, widely available and well suited to planting in tight areas where fences aren't an option. By default, it seems, they've endured as the plant of choice.

breaking a mold

Certain other evergreens have also become cliché in applications beyond privacy screening. In the 1960s, for example, it was all the rage among landscape companies to install various forms of yew as foundation plantings in front of homes.

In these cases, the most commonly used plant was the common *Densiformis* yew. After a few years, they fell out of favor and homeowners started inserting some color by using inexpensive plants such as Forsythia (more on these below). The problem is, these plants tend to grow to large sizes – leaving unhappy homeowners to devote their summers to keeping them at bay.

There are, of course, options to these visual disasters, and I was proposing to my client that we take one by selecting a mix of Green Giant Arborvitae (*Thuja plicata* "Green Giant") along with some grasses as a groundcover. Unlike the more common Arborvitae mentioned above, Green Giant grows in an upright, pyramidal shape with a single leader. It has a classic cedar-leaf pattern that whirls out of the plant as a beautifully textured detail.

Given its growth habits and visual character, I saw using Green Giant not only as a privacy screen, but also as a wind-break and as a nice run of specimen trees: Indeed, even small groupings of these trees make dramatic statements in open spaces as they grow quickly to heights of about 40 feet and widths of about 15 feet. That may seem large, but it really isn't by comparison to other common evergreens such as spruces or pines.

To me, Green Giant Arborvitae may well be the most beautiful of the species, a graceful green cone that looks great year 'round and doesn't splay out with

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the first snowfall.

If privacy were the sole issue, I could have supplemented the Arborvitae with Hick's yew (T*axus media Hicksii*): If left unpruned, they grow to about twelve feet tall and six feet wide, but they reach that full size only slowly and require a good bit of maintenance pruning to keep them in check (a fact that makes them generally unsuitable as foundation plantings). We didn't make this choice in any event because my client wanted the view cut off sooner rather than later.

We also might have used Dwarf (or Weeping) English yew (*Taxus baccata repandens*), a beautiful flowing plant that grows to no more than three feet tall and about five feet wide (although there are some larger specimens in New York's Central Park) to fill in under the trees. This is a plant much valued for its low, flowing appearance and its pruning-free maintenance.

At times, I've used it to mimic the effect of green rolling hills, and large group-

Of all the available arborvitaes, Green Giant is the best for use when you want to achieve a specimen effect and is, in my book, the most beautiful of what is too often dismissed as an overused species.

Newly planted Dwarf Yew (at left) is small and unassuming – and will stay that way for many years after installation: The one on the right, for example, was planted five years ago, has never seen hedge clippers – and never will.

Although overused, Forsythia can be a great plant. This, for example, is Lynwood Gold Forsythia the way it should be kept: Left on its own, it will grow up to 15 feet tall and will never need pruning.

ings take on a spectacular look when it snows. Indeed, this plant has no equal when paired with Japanese Forest Grass (*Hakonechloa macra aureola*) alongside a shady creek or pond: The weeping characteristic mimics the look of water cascading over rocks.

The key here is that these plants provided my client with a near-instant sense of privacy that was both effortless to achieve and perfect for the setting.

another player

In listing overused plants just above, I mentioned Forsythia. It's not an evergreen, but it's another plant that fits into this discussion because it can be either a nightmarish cliché – or can help in creating a distinctive garden space.

Not long ago, I shocked one of my clients who wanted to establish some privacy along the "back forty" of her property by recommending a common Forsythia called Lynwood Gold. The area in question was at the top of a rise from which her neighbors had an open view into her yard. I suggested Lynwood Gold as a relatively inexpensive plant that would give her near-instant gratification – rapid growth to about 15 feet tall and wide with no need for pruning.

In another context, this would not have been the right choice. Far too often,

In full bloom or not, Gold Tide Forsythia forms a great ground cover that won't grow to be more than four feet tall.

Forsythia is planted right against a home's foundation and ends up being pruned into lollipop or bowling-ball shapes to keep it in check. But if the setting is right and the client agrees, I won't hesitate to use Lynwood Gold or Gold Tide (Forsythia 'Courtasol' Gold Tide) – a variety that grows to about three or four feet tall and about six feet wide and serves well as a massing groundcover or as an individual specimen near a foundation. It's a tough plant that flowers early in the spring, then acts as a foil for other flowering plants throughout the season.

My point here is that plants often become cliché through no fault of their own. Instead, they're victims of landscape designers and homeowners who use them without thought, imagination or creativity.

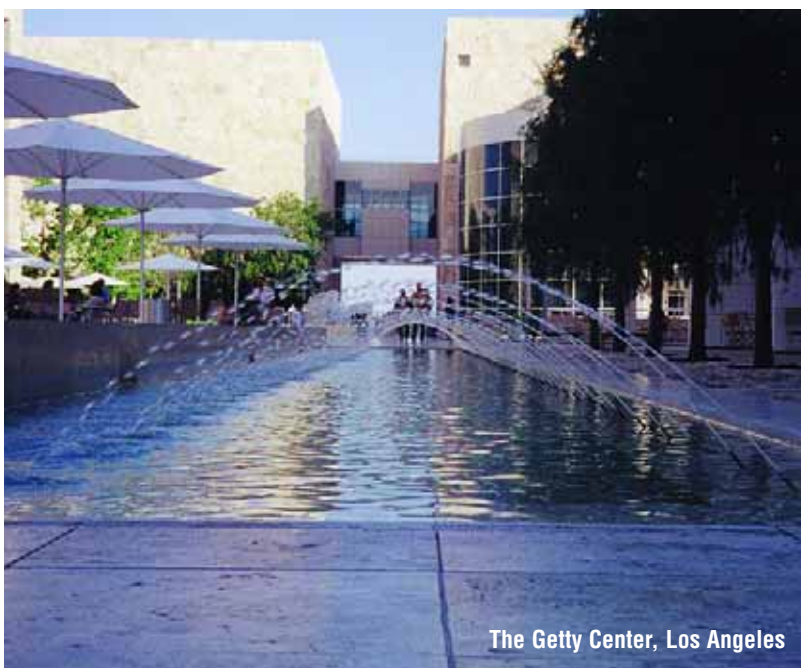
To me, choosing just the right plant for just the right place is the basic challenge of landscape design: To do no more than fall in line with trends or settle for what's most readily available is simple professional laziness. By keeping an open mind and by focusing on the needs of a setting and the client, you can break the shackles of conventionality, breathe new life into seemingly tired species and make your clients happy at the same time. WS

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

By Mark Holden

The Illuminating Past

Becoming literate about history redefined me: Overnight, everything I was doing in the here and now was somehow being defined by connections I was making to various cultures and design traditions.



The Getty Center, Los Angeles

What's the use of knowing about history?

For many of us, the answer to that question seems so obvious that it comes as a shock to find out just how many people in the watershaping and landscape fields don't grasp the all-encompassing significance of our collective past – but it shouldn't.

Using my own career as an example – and even though I now spend a considerable amount of my time teaching professionals and university students all about art and architectural history – I confess that I waltzed through more than a few early years as an aspiring landscape architect and watershaper in blissful ignorance of the history of much of anything, let alone art or architecture.

But when the big day arrived and I finally opened my mind to the importance of knowing the origins of what I do, everything changed: All of a sudden, my design process became far richer and much more fluid.

Indeed, becoming literate about history redefined me: Overnight, everything I was doing in the here and now was somehow being defined by connections I was making to various cultures and design traditions. Now, as I work to develop course materials about watershaping for university-level students in landscape architecture, I find myself freely professing a simple thought: "All of our new ideas stem from something that we have seen before."

In one way or another, this is true of all the arts – and watershaping is no exception.

master class

In explaining all this to students, I often cite the example of Frank Lloyd Wright. It's no knock on a towering architectural genius – a designer who utterly revolutionized his profession by synthesizing and reinterpreting Asian, Craftsman and Modernist styles – to say that he did not "invent" low, wide rooflines, for example, or that he wasn't the first to use interesting natural materials.

Still, he's widely credited as an innovator in these and other areas by people who have never been exposed to the work of those who inspired him. This begs the question: Do we "invent," or are we creatures who observe and imprint our egos on what we perceive? For creative designers armed with an education in art and architectural history, the answer is *both*!

As a university instructor, I see incarnations of what I call "the design ego" in students when they first start to discover that they can influence the environments in which we all live. That's a heady recognition and often leads them to believe they're creating something new when the reality is that they're simply pulling from their subconscious awareness of precedent and regurgitating something they perceive as new and inventive.

These kids are learning machines, but it's easy for them to delude themselves as they put all their energy into expressing themselves in competitive intellectual environments.

Using a younger version of myself as an example once again, when I started paying attention to the history of watershaping, I quickly discovered

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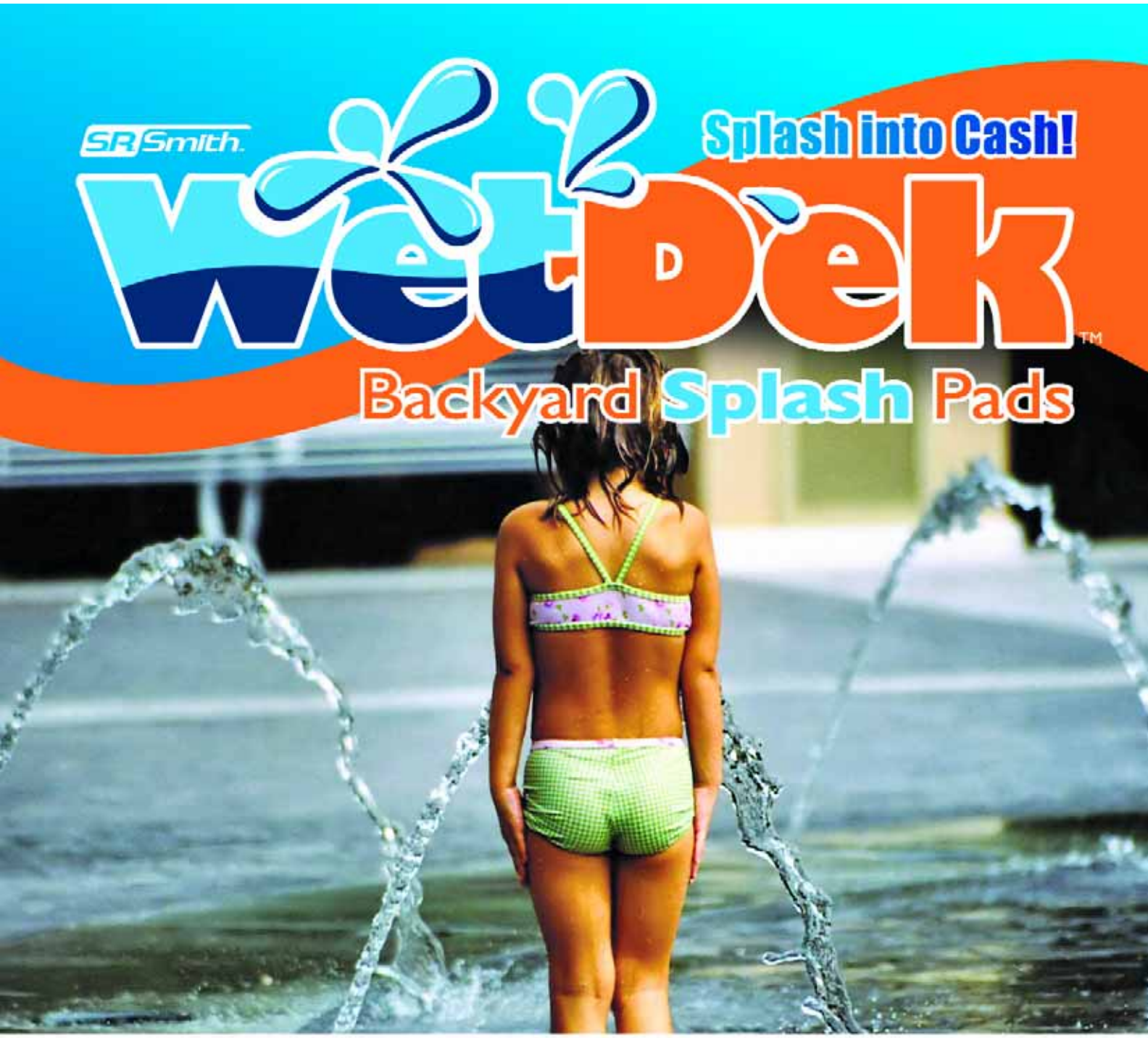

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that there are almost infinite sources for great and wonderful ideas. When we acknowledge this heritage, then we really start being "creative" as we work. Now we come to enjoy the advantages that flow from an intellectual foundation and learn ways to apply influences in new and interesting ways.

That might not be invention *per se*, but it's a world of fun.

then and now

As I've learned about the nature of "education" when it comes to landscape architecture students, I can't help seeing the inadequacies of having people totally uninvolved with watershapes govern the entire curriculum. I also can't help seeing the irony in filling young minds with information they will never use while denying them guidance not only in working with decorative and recreational water, but also failing to provide them with information on the traditions that influence *both* watershaping *and* landscape architecture.

As I've gotten more deeply involved in all of this, I've come to believe ever more firmly that it takes seeing and understanding past accomplishments to move forward and engage the future. It's reached a point where I've had enough of observing and regretting this situation and have become a man of action: As I see it, my goal now is to do all I can to spread awareness of our past wherever I can – because that, too, drives action.

In this sense, it's not a pure intellectual exercise; rather, this spreading of awareness is a matter of pure practicality. Although any comprehensive survey of art and architectural history is beyond the scope of this education-oriented column, I will do all I can to help everyone who reads this magazine recognize the importance of history in any sort of effective design education, whether I'm dealing with college students or those who call themselves watershapers.

In the curriculum I'm developing for my

Villa d'Este, Tivoli, Italy

college students, I start by considering the ancient Greeks and Romans and the way they altered the entirety of the way we look at designed and built objects. Their graceful columns and arches, their pioneering work with concrete and other now-common materials of construction have all contributed to the advancement of what we consider our basic tools of the trade.

It is a legacy that has, for generations, provided inspiration and sparked adaptations and variations that have influenced almost everything we design. To overlook the role of these designers, or worse, be completely oblivious to their influence is not only short-sighted, but is also foolish and needlessly limiting.

Working through this sort of discussion with my students has led me to believe that my fellow educators are truly being remiss when they overlook watershaping as a concept when they present the grand context of historical design traditions. And this blindness becomes absurd when you consider that the origins, the ancient roots of watershaping can be traced directly to irrigation and provision of potable water – keys to development of civilization as we know it.

forward fast

Irrigation endures as a dominant cultural need in almost all societies – a mass practical necessity – but the days when potable, everyday water was provided to urban citizens solely in centralized public fountains and wellheads are mostly long gone in industrialized nations.

Since that need for point distribution of safe drinking water has declined, fountains and pools have become almost purely ornamental (and sometimes recreational) – a transition that, in a sense, brought on the modern age of watershaping. At that point, art became the most important element in watershape design, and "impractical" criteria such as aesthetics and sound took over in guiding how, when and where we built our aquatic displays.

This new visual/auditory medium pulled architects and other designers into the picture: They shaped water as pure displays at a time when utility fell to a secondary role. But still, every time landscape architects, pool builders or fountain designers place three-tiered fountains in courtyards, they are working – whether they know it or not – within a historical trajectory that ties them *directly* to solutions offered by Greek and Roman designers more than 2,000 years ago.

Tracing that long developmental line through millennia until we reach the present day, we can see the genius at work in modern watershapes that still reveals the influence of these long-standing traditions.

Consider the legendary Modernist architect Ricardo Legorreta, who was inspired by ancient Moorish design as well as even more ancient Roman aqueducts in creating many of his most visionary works. Or consider the dancing fountains

at the Bellagio Hotel in Las Vegas, which owe their inspiration to Renaissance and Baroque palaces and the waterfeatures found, for example, at the Peterhoff and Versailles.

These are marvelous, revelatory present-day watershapes with respect to technological daring and achievement, but they also clearly owe debts of gratitude to design precedent. In this context, nothing is truly new: There is *always* a source for a creative vision, even if the designer is working away from it toward some new objective.

When I think about why these sorts of discussions fail to ignite interest in everyone who works with water, I concede that they can quickly devolve into intellectual exercises that induce yawns from even the stoutest among us. Just the same, when you consider the most basic functions of watershape and landscape design, it becomes brutally clear that a working knowledge of the historical foundation is utterly essential.

practicalities

Consider, for example, the plain fact that most landscape designs begin their existence as geometric constructs known as flat plans. Whether generated using the orthographic functions of CAD or developed using circle templates and drafting triangles, these are starting places for most of what we do.

Of course, these plans lose most of their significance as a project moves forward (unless you have regular access to a helicopter). We don't view the world with a bird's eye; rather, we see things at an earthbound eye level, which means flat plans must be translated at some point to perspective drawings. We may take these drawings for granted, but they're an indispensible part of the design and visualization process – and are also a legacy that has been passed down to us in the course of history.

But think about it: If you have no knowledge on how water effects look when completed (that is, if you can't see them in perspective), then by extension it is difficult to lift them off a flat plan and design them effectively (and nearly impossible to persuade a client to trust your vision). As I see it, there's another vital dimension to be considered: These drawn designs might stand on their own, but they will also be enriched if they are generated (and appreciated) within their historical context.

Consider the example of watershaping pioneer Thomas Church, who created what may be the first "kidney shaped" pool at a project in the Donnell Ranch area of northern California more than a half-century ago. His "invention" was based on the human experience of moving near the edge of natural lakes and ponds – a visionary leap that resulted from his keen understanding of design tradition melded with a sense of the human experience.

In pursuing this idea, of course, he inspired tens of thousands of other watershapers to do the same, so much so that the look became a cliché. Certainly, those watershapers who followed in Church's footsteps meant to mimic a good idea and bend it to their own purposes, but I can't help thinking if these designers had known more about Church's thought processes, motives and sources of inspiration, organically shaped bodies of water would not have become so shopworn and dull in the years that followed.

The Fountain of Apollo, Versailles, France

In other words, if we widen the range of where we look and what we look at for inspiration, then we almost certainly will expand our capacity to come up with progressive, original watershapes – or at the very least will be enabled to apply the styles pioneered by Church and others in ways that are far more informed, useful and appropriate.

No matter how powerful my argument seems to me, someone always asks, "Why should I care what pools looked like in 2600 B.C.?" My answer for these skeptics is plain: You are more than welcome to keep on crafting the same pools you did in 1985, but designers who truly want to distinguish themselves and carry the torches sparked by Lawrence Halprin or Pirro Ligorio need to open their eyes and minds to the history of watershaping.

All of this is why I feel compelled (and want other instructors to feel likewise) to teach students the *why* and *how* of historical watershapes. Right now, these young minds operate in something of an information vacuum when it comes to this sort of coverage, but my experience has been that just slight exposure lets them know where to start their own investigations of relevant design history.

architects of vision

In closing, let's consider Villa d'Este, the grand Renaissance estate in Tivoli, Italy.

This property features countless forms of weirs, spouts, streams, water chains and even the auditory thrill of a water organ. There is absolutely no way a landscape architect or watershaper could avoid being inspired after seeing such

multifarious manipulations of water. You can travel there in person or simply study the place in books: The immediate result is that you see how this one place has served as the foundation for the work of hundreds of modern designers.

Mining all these riches takes work, of course. As I write these words, in fact, I'm giving a test on art and architectural history to a class of watershaping students who've listened to my lectures as part of a 20-hour Genesis 3 program. The test consists of 130 questions that measure their retention of information covered with hundreds of slides presented to them along with my explanations of why each is important to their professional development.

It is my honest belief that every one of my students has benefited from these presentations through the years. To be sure, some might not realize it as they toil away through this particular four-day course, but my bet is that it will mean something to them before too long.

Similarly, in the college classes I teach, my aim is to transform landscape architecture students into what I call "water architects" by giving them some understanding of how and why watershaping started. I do so despite the fact that most colleges and universities with landscape architecture programs consider informing students about watershapes a waste of time; I can only imagine what their attitude about watershaping *history* would be.

As I see it – and based on the responses of students to the courses I've taught so far – there's a new generation of landscape architects who want and even crave more education on water. They've all heard about the aqueducts of Rome and seen the pools at the Taj Mahal and know they've barely scratched the surface. I'm also running into faculty members who seem open to the idea of enlightening these newcomers on the architectural aspects of watershaping – encouraging if not overly enthusiastic.

Bottom line: My goal in the classroom is to expose landscape architecture students to as much watershaping history as possible to help expand and refine their design capabilities. Through *WaterShapes*, my aim is to share what I myself am learning about what we do as I teach these classes to help all of us see that we're part of a grand set of traditions – a heritage you can explore in ways that will enrich your work, inspire your designs and please your clients.

And I'm wondering: Have any of you already used Google to find out who Pirro Ligorio is? 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.

Forms and Figures

Water and works of art have been near-constant companions for millennia, but that traditional pairing seems to be generating new enthusiasm, says watershape designer/builder Randy Beard, with more and more property owners seeking to make unique statements by putting artworks on display in and around water. He takes a look at this emerging trend here, using a number of his recent projects in southern California to illustrate the point.

By Randy Beard

As watershape design expands beyond the mostly recreational traditions of the recent past, more of us are being asked these days to design water elements that work more decoratively and serve to frame, reflect and otherwise accentuate or accompany art pieces.

In these situations, a pool, fountain or basin design is visually driven by the artwork, and whether the project is done for a private residence or a commercial complex, the results can be wonderfully dynamic. In most cases, requests for this design approach come from an owner who has a particular piece in mind; in a few other cases, the artist will commission a watershape to accompany a main attraction of his or her devising and becomes a key participant in the design process.

All in all, I see this as another manifestation of a trend in which increasingly ambitious clients seek to make highly personal statements about their tastes by seizing control of their exterior environments. Often, this desire is driven by travels in which they've seen artworks displayed in a similar fashion and want to recreate such settings for themselves; sometimes it's an entirely individualized impulse to do something special.

Whatever the source of these art-driven adventures, I've found the work to be stimulating, challenging and always *highly* customized: No two situations are ever exactly alike; stylistic flexibility is mandatory; and none of these clients is interested in anything that seems like an off-the-shelf approach.

Riding a Trend

What I'm discussing here isn't a matter of a client's going through a catalog and selecting a bronze of a little boy fishing or skipping stones across the water. I would classify that sort of art as an accent piece – a complement to a setting rather than its focus. To be sure, I'm running into more clients who also want these sorts of pieces, but the discussion here will focus on incorporating sophisticated, one-of-a-kind artworks into exterior spaces.

In these upper-tier situations, my experience has been that incorporation of the art and sometimes even the creation of the artwork itself is part and parcel of the watershape-design process.

What this means is that, as watershapers, we must be prepared to engage the original artists in a type of dialogue that is very different from discussions we're accustomed to having with other contractors, architects and landscape architects. Most are demanding, many are distinctly eccentric – and in almost every case they are *deeply* vested in the manner in which their art is to be displayed.

For my part, I've chosen to welcome them as invaluable members of the design team and have often been pleased to find that they come to the process with terrific ideas and fresh perspectives.

That degree of openness to outside input is not to every watershaper's taste, I know, and I've spoken with some who are impatient with this sort of process or are even intimidated by it to some degree. Personally, I find a good deal of enjoyment in pursuing this type of high-minded aesthetic dialogue, basically because you can't predict where it will lead you. Indeed, I know in my own work that this interactive process with artists has led me to work with details, configurations and materials I know I would not have conjured or encountered in the ordinary run of business.

There are times, of course, when there's no artist involved – as with imported pieces or antiquities, for example. But even in those situations, the same desire to integrate art and water is a driving force, and the experiences I've had in working directly with artists has given me an edge when it comes to speaking an aesthetic language that would otherwise be a bit beyond me.

With many of these projects now under my belt, what I find so exciting is that simply by engaging in these conversations, I become part of the process of artistic creation and help determine how the setting, the reflective qualities of water and the materials used to encompass the piece will influence how a work of art will be seen and perceived by others. That's pretty cool, I'd say.

To bring what this is all about into practical focus, let's take a look at a few projects that exemplify what I've been experiencing.

Solar Flair

One of the first times I was asked by an artist to build the perfect environment for a creative piece was in 2004, when I received a call from Lita Albuquerque, a Santa Monica, Calif.-based sculptor and environmental artist. She'd been commissioned by the Fish Interfaith Center at Chapman University (Orange, Calif.) to create a piece that was to be installed in a new chapel and would reflect the center's focus on unity between all religious faiths.

With that high-minded mission in mind, she created a wonderfully evocative piece called "Solar Star Score" – a nine-foot-diameter golden disk mounted on a long, bright-orange wall. Water flows gently behind the disk, making it shimmer and glow when lights hit it. As the artist puts it, her solar fountain envelops the viewer with its sheer size and golden light.

The waterwall we were asked to devise was to be the climax to the journey she intended viewers to take in walking over a blue-glass channel and down the hall to a large square lined by etched quotes from a variety of sacred texts. In entering the space, they encounter the disk.

To evoke the emotional response the Solar Star Score was designed to inspire, all elements of the watershape had to be exact in size and placement: The disk, for example, had to be affixed to the waterwall at just the right angle needed to catch the light and seem to glow. It also had to be just the right height to appear to be floating at just the right moment at the end of the observer's walk.

There was no margin for error when it came to realizing this artist's vision, and the result is a slice of Elysian bliss.

Crisp Reflections

Some years ago, I received a call from a client who'd commissioned a steel sculpture from artist Guy Dill of Venice, Calif. The client said he wanted the piece to be seen from his house at a very precise point that would be on center with the home's entry and that a pool and spa were to be designed around that focus.

The result will be familiar to many readers: It was the subject of a feature by Stephanie Rose in the November 2005 issue of WaterShapes (page 66): We collaborated with her on a perimeter-overflow design that provides a wonderful reflective surface for Dill's abstract composition.

I devised a pedestal that was to reach inside the shell in such a way that reflections were maximized while also making the large sculpture seem to float on the water. Dill was continuously involved right through construction process, providing us with templates for the sculpture's base and keeping us apprised of the piece's weight as we engineered the pedestal and bond beam.

Once the pool was finished and the sculpture was craned into place, we all reveled in the beauty of the effect: The steel piece is the dominant visual feature it was intended to be – and the reflection on the water effectively doubles its size.

Small Blossom

In stark contrast to other examples shown here in which works of art make strong statements, in this case the effect was to be all about subtlety and bringing out the best in other elements of the setting.

The clients have a home in Emerald Bay, Calif., that features a number of Middle Eastern and subcontinental Asian motifs as well as the metalwork of Rob Brennan, a Laguna Beach, Calif.-based an artist who specializes in the beautiful architectural details that adorn much of the property.

We were called in to develop a watershape to embrace a beautiful bronze lotus blossom the homeowners had purchased from a supplier in India. The result was a round basin finished in black absolute granite with a unique perimeter-overflow system recessed slightly into the deck.

– R.B.

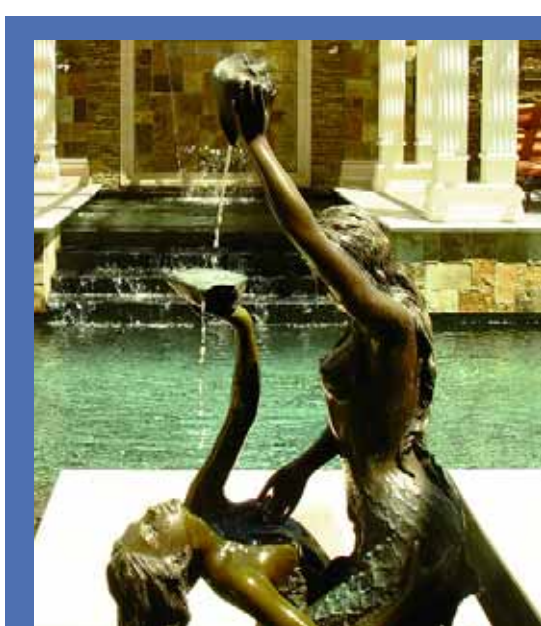
On the Sand

This project was built right on the sand in Newport Beach, Calif. The owner had purchased adjacent homes and wanted to place a pool between them in such a way that it would help in making a bold artistic statement on the wall of what was to become the guesthouse that would be visible from the balcony of the main house.

The piece here was the creation of the homeowner, an avid art collector who pulled in a number of craftspeople to bring his concept to fruition. Called "The Warhol Wall" and dedicated to the work and memory of one of the client's favorite artists, the composition features a number of colorful spheres.

Working as a grand team, we all collaborated in developing a design that included spheres of varying sizes, all painted in different colors and patterns and meant to be suspended off a large, sheeting waterwall made with stacked Bouquet Canyon stone.

Beyond that main focus, the project also included a number of other works of art arrayed playfully around the site. There's a sculpture of a foot beside the spa, for example, and a beautiful tile mosaic of a beach scene that backs up a covered patio area. The property also has a swirling bronze-and-steel entry gate that's one of the most distinctive in a neighborhood renowned for dramatic architectural statements.



Whale's Tale

I recently finished a fountain that hosts a massive bronze whale and calf for the entrance area of the Newport Beach, Calif., headquarters of Pacific Life Insurance Co. The owners had commissioned the piece from artist Randy Puckett of Salinas, Calif., who has gained acclaim for his portrayals of these mammals.

In this instance, I was brought into the project not by the artist or the owner, but instead by the office building's general contractor, Snyder Langston. The 30-foot-tall whale and calf were being created in the artist's studio several hundred miles to the north of the headquarters site, which required both close coordination and numerous trips to Salinas to make certain templates were correct and that the sculpture's base would fit the fountain.

Interestingly, this piece was such a labor of love for Pacific Life's CEO that he was often the one who traveled to Salinas to observe the artist's progress and take the critical measurements. For us, the principal challenge was hiding the fountain works, to which end we buried a large, pre-cast equipment vault next to the fountain base in accordance with strict local codes for venting and flood prevention.

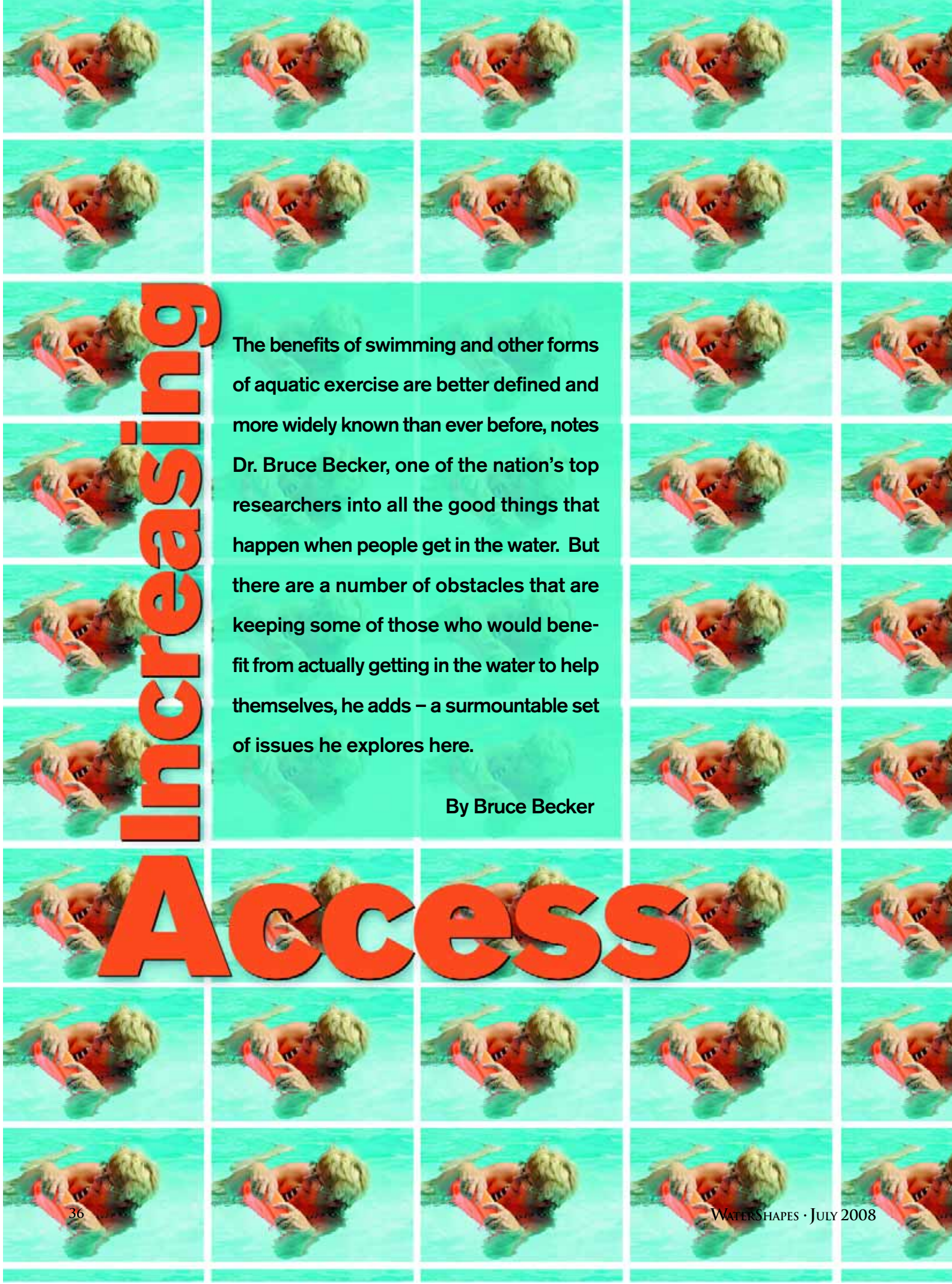
When the sculpture finally arrived (30 days ahead of schedule, but fortunately we were ready), we all watched for six hours as the whales, often swaying in mid-air, were moved into place. When the water came on shortly thereafter, she and her calf were fully in their element, playing in their own small ocean.

Languid Mermaids

This beautiful bronze sculpture came from a shop in New Orleans. I don't know the artist's name, but the piece is the focal point for views from inside the home and serves as the dominant visual feature of the backyard design.

As you walk through the front door, you see these elegant mermaid figures through large bay windows. Outside, the pool, spa and raised waterwall were all designed to frame the piece, drawing attention first to the mermaids and then into the space beyond.

– R.B.



Increasing Access

The benefits of swimming and other forms of aquatic exercise are better defined and more widely known than ever before, notes Dr. Bruce Becker, one of the nation's top researchers into all the good things that happen when people get in the water. But there are a number of obstacles that are keeping some of those who would benefit from actually getting in the water to help themselves, he adds – a surmountable set of issues he explores here.

By Bruce Becker

It seems obvious enough. To reap the physical and psychological benefits of swimming and other forms of aquatic exercise and therapy, a person must first get into the water.

Experience shows, however, that this initial step is often not so easily taken: Whether the reason is psychological, physical or practical, it has long been clear that many people who would benefit magnificently from immersion simply don't get into the water the way they should.

I've always believed the medical community needs to take the lead in developing and disseminating information that will help people get past these obstacles – yet I know personally that there's a mountain of ignorance and indifference to be overcome even among my medical colleagues before effective messages will reach the public on any sort of mass scale. This work has begun, but there's a long way to go.

As I've moved forward in my own mission of spreading the good word about aquatic activity, I've also become increasingly aware that a natural alliance exists between the medical and watershaping communities when it comes to getting people into the water. My purpose here is to share my observations about what keeps people out of pools and spas and explore some ways in which watershapers can get involved in turning these situations around.

Getting In

One of the key reasons people have trouble engaging in aquatic activities has to do with access: There simply aren't enough pools and spas to go around.

According to the most recent U.S. Census report, there were 36.3 million Americans older than 65 and 4.9 million older than 85 in 2004. We know our population is aging and it's certain those numbers will only increase for many years to come; we also know that approximately one in five U.S. citizens suffers with some type of disability. No matter how you slice these numbers, the current situation equates to a potentially enormous demand for aquatic facilities that are not nearly as common as they should be.

Where I live in Spokane, Wash., for example, there hasn't been a new public pool built since 1988 despite steady growth and migration of the population away from those areas where the existing pools were built. This adds up to a lack of nearby facilities where people can swim as well as a tendency toward crowding of existing facilities that drives many would-be swimmers away.

Certainly, there are people who have access to pools in their backyards, apartment or condo complexes or residential developments and therefore don't need to rely on public pools, but that access is far from universal; actual usage of these pools (especially in a place such as Spokane) is seasonal; and relatively few of these watershapes are designed with exercise or therapy in mind.

It's a tough situation from my perspective because the cost of suitable watershapes can be high, but my ambition is to get enough information out there that the public will demand construction of more pools and that even residential designs will start coming with standard features that increase the long-term, transferable value of these watershapes as homes change hands and new residents with new needs come into focus.

Any momentum to be found here will originate with increased awareness: Familiarity with the benefits of swimming and other aquatic activities will lead to greater use of and greater demand for facilities. Without that familiarity, there might be only limited motivation to build new pools – especially at the civic level, where city councils and parks departments face tremendous budget constraints and finding funds for projects as costly as public pools is decidedly hard to do.

Photo by Nancy Dressel, Dreamstime.com

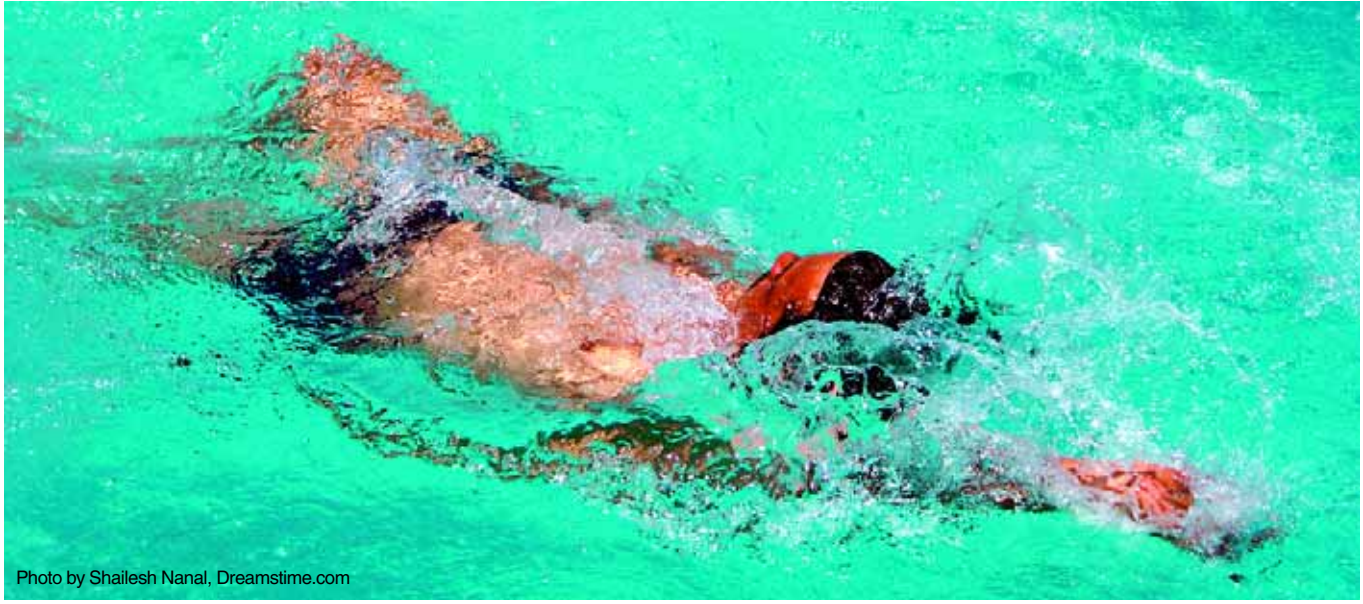


Photo by Shailesh Nanal, Dreamstime.com

The best way to turn this around, of course, is to get more people in the water, but that's difficult to do in a universe in which access is becoming more limited rather than expanding.

Indeed, at this point the problem may be self-perpetuating and will only get harder to overcome. For my part, however, I don't think we've reached the point of no return as yet, which is why I so firmly believe that the watershaping industry and the medical community need to come together and fully embrace and promote the health benefits we've been discussing.

There's also potential for a stop-gap approach in which existing pools might be upgraded to make them more accessible to citizens who need them most. Too many facilities are only marginally in compliance with the Americans with Disabilities Act (ADA) and are less than truly accessible. If we can't build new facilities from the ground up, perhaps the focus should be on retrofitting existing public pools and spas to enhance their ability to deliver the benefits of immersion.

If those benefits gain greater exposure in this way, demand will increase and perhaps our longer-term goal of seeing more pools and spas in more accessible places will be met as well.

Measured Accommodation

While the long-term trends have led to a situation in which precious few facilities are being designed or built to relieve the need to find more ways of getting people into the water, I was truly impressed by the article in the August 2007 issue of *WaterShapes* (page 46) in which Dr. Belinda Stillwell led us on a tour of a facility built from the ground up to meet a variety of aquatic-therapy needs.

Her article, which covered a facility built at California State University, Northridge, struck me because it was so unique in its accommodation of the wheelchair-bound that it merited special coverage. Indeed, such complexes are rare – and that's exactly the situation that needs to be changed.

It's my observation (and I'm certainly not alone) that when governing bodies consider either the installation of a new pool or the upgrading of an existing facility, there's seldom anyone in the deliberative loop who serves as an advocate for health benefits or can make the case for wheelchair-accessible design details. This is a critical moment: Developing a facility around concepts of utility and access doesn't cost that much, but adding suitable features later on can be prohibitively expensive.

The design elements involved here are all fairly basic and mainly have to do with easing passage into and out of the water. This might mean a wheelchair ramp or broader steps with adequate railings or a raised beam at the edge of the pool where someone might transition from a wheelchair into the water under their own power.

Lift-and-transfer systems also come into play here. The designs of these systems have come a long way with respect to ease of use, and there are several excellent options. Here and elsewhere, when you consider the benefits to users relative to the cost of these systems, it's staggering to consider how few pools are equipped with them.

Perhaps the ultimate system is one described in some detail by Dr. Stillwell – that is, movable floors in which the bottom of the pool rises to deck level and those in wheelchairs simply move onto the surface to be lowered gradually into the water. Obviously, this approach is a significant investment, but it's a benefits-delivery system of the highest order and should be considered in more design processes.

Along with these direct aids to getting people wet, facility designers also need to think through the physical layout of such amenities as locker rooms. In many cases, these spaces are so cramped that they discourage the use of a facility, no matter how accessible the water itself might be. The same can be said of pool decks that are too narrow for easy wheelchair maneuvering: It's not horribly costly to accommodate these physical needs in the design phase, but later on it might simply become impossible.

Before I move on, it's extremely important to note that this discussion does not only apply to helping people in wheelchairs. When a pool has a ramp, for example, many people will use it who aren't in wheelchairs simply because it's the easiest way for them to get in and out of the water. Indeed, as our population ages and people have hips or knees replaced, cope with arthritis or simply deal with being in poor physical condition, not having to negotiate steps can dramatically increase their comfort level as they enter the water.

In the Mind

So far, we've dealt with some of the large-scale, facility-oriented issues that separate people from the water. Now it's time to narrow the focus to the individual level and explore some factors I've encountered that are just as capable as poor facility design of keeping people away from the many benefits of getting in the water.

In some cases, for example, people who are either able-bodied or limited in some way suffer from a fundamental fear of water. (According to a recent Gallup Poll, a staggering 46 percent of adults are afraid of deep water in a pool, while fully 64 percent fear open water.) We are, in fact, land-dwelling creatures and instinctively know that water is a foreign environment. We know as well that swimming in the ocean or in other natural bodies of water can be dangerous and that even swimming pools can be risky at times.

As I see it, without increasing their awareness of the health benefits of immersion, there's not much at hand to counterbalance innate fears. Watershapers have, of course, done a great deal to ease such concerns and have made the case for years that the controlled environment of a swimming pool or spa involves low risk. We in the medical community have done our part by letting people know that injuries in therapeutic settings are exceedingly rare.

Again, this is all about exposing the public of the benefits in order to create greater momentum toward the water: You don't have to be a psychologist to know that if an apprehensive person sees others using a pool or spa to improve their physical condition, it's easier to overcome fundamental phobias.

On a different level, I've also encountered people with disabilities or other physical limitations who are reluctant to get into the water along with the able-bodied. It's understandable: If you're in a wheelchair or use a walker to get around, the thought of swimming with aggressive teenagers isn't exactly inviting. This is a basic programming issue, of course, and simply involves setting aside certain times for purely therapeutic usage of a pool.

There are also people for whom vanity is a deterrent to immersion. They're uncomfortable being seen in swimwear because they have issues with their physical appearance – a significant challenge for the obese, for example. It can take real courage for these people to overcome this particular type of modesty, and doing so is both a programming issue as well as a matter of communication, staff attitudes and peer support in many cases.

All of these programming issues boil down to this: While it can be difficult to arrange schedules and staffing in such a way that people with certain issues can be grouped and their passage into the water eased by being matched with others who face the same issues, the sooner they become comfortable in the water (and with other people being around them in the water), the easier the scheduling becomes.

Indeed, I've found that as significant as this cluster of issues can be for some people, once they overcome the basic hurdle it disappears very quickly because they feel so much better as a result of moving around in water. After just a few workouts, they see the activity as something that improves their self-image – a wonderfully positive outcome.

Ease and Comfort

Along with fears, I've found through my work with those in need of aquatic therapy that there's an additional cluster of factors that can keep them from wanting to get in the water. Most of these have to do with personal comfort: Water temperature, for example, can play a surprisingly large role in the desire to enter a pool.

Photo by Kathy Wynn, Dreamstime.com

Overcoming Fear

Given the fact that so many people have a fear of water, it would be useful for both the medical and watershaping communities to embrace approaches and programs designed to address this issue.

One such program I've become familiar with is known as "Conquer Fear." It's an adult-education program offered by a Sarasota, Fla.-based organization called the Miracle Swimming Institute, which offers swimming classes designed to help adults overcome hydrophobia. The program is currently being offered in several locations in California, Florida, Massachusetts, New Jersey, Nevada and overseas; there are also videos, books and instructor-training programs.

In a nutshell, the 24-hour program teaches participants the five stages identified as being essential to feeling in control in the water. Once people gain that control, they can learn to swim.

As I see it, this course might serve as a model for overcoming the fear of water – another concept that should be embraced and promoted by anyone interested in promoting the health benefits of aquatic activity.

For more information, visit *www.conquerfear.com.*

– B.B.

Photo by Iris Schneider, Dreamstime.com

For the most part, happily, water temperatures suitable for exercise are basically the same for people with physical limitations as they are for those in good condition: Whatever initial shock there is in getting into water that's below body temperature goes away very quickly when exercising starts.

But water can be plain too cold, as often happens in unheated pools in shaded courtyards of apartment complexes, for example. In these cases, both chilly water and the cost of heating the pool become substantial obstacles to sustaining an environment suitable for swimming or exercising. The use of energy-efficient heating systems such as heat pumps or solar heating grids can be a big help – and represents yet another case where accommodating such issues at the design stage is far more cost-effective than bringing them up after the fact.

It's also true that there are some people who really only benefit from exercising in water that most would consider to be exceptionally warm – in the 95 to 98 degree range in some situations – because they need the initial warmth to increase their flexibility and relieve tightness in their joints. The good news here is that there's no need to go any higher, because the water temperature for a workout should never go higher than body temperature, but even indoors keeping water so warm is an expensive proposition.

This issue with aligning water temperature with the needs of bathers is quite complex and is among a number of factors that are almost matters of individual need and preference. My thought here is that designing with flexibility in mind is the key: If temperature is something that makes people reluctant to get in the water and that can be overcome by some mechanical means, making allowance for a heating system (or at least considering it in the planning stages) has real long-term value.

Another concern some express about getting wet has to do with water quality: Few among us want to be in water that seems dirty and therefore possibly unhealthy. Dealing with this issue is a

challenge in facilities that focus on aquatic exercise because of frequently high bather loads and the byproducts of strenuous physical effort.

As I see it, there's no substitute for good maintenance, but my preference is to see human operation supported by automatic chemical treatment systems that make the job easier. This is certainly why so many health departments now require use of these systems. It's also a matter of common sense: Why even build an aquatic facility if the water itself is going to become an obstacle to use?

Making It Work

My desire as a researcher and physician is to change what the general population thinks about getting into the water and, in addition, to get them to consider and embrace the value of swimming and other forms of aquatic exercise. A big part of that is overcoming any obstacles that stand between any given person and any given pool or spa; even my limited experience so far tells me that this task is larger than any of us might think.

In other words, while overcoming the resistance people have to getting into the water may be a simple matter of implementing some very straightforward measures, making these upgraded facilities available won't necessarily change things overnight.

As one who studies these issues and works directly with people with physical challenges, I know aquatic exercise should become commonplace not just as therapy for treating existing conditions, but also as a means of preventing physical problems by making us all healthier. Simply put, these activities should be our core values: There is no form of exercise that more profoundly improves quality of life for people of all ages and physical capabilities.

That in mind, I've long been puzzled about why the medical community has yet to embrace this cause and put water exercise over the top; I've also wondered why the watershaping industry hasn't invested more energy in persuading people of the health-related benefits of its products. Perhaps the natural alliance I mentioned at the outset of this article is the key and we're all on the verge of a real breakthrough.

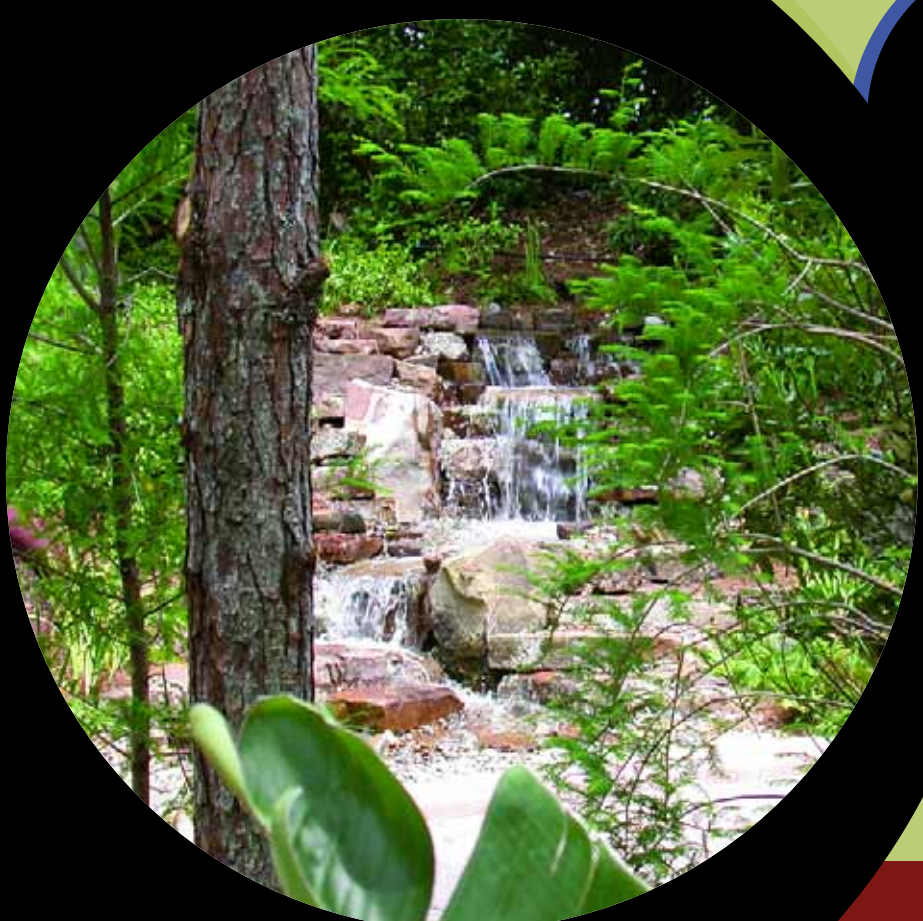
I look at it this way: When aquatic exercise becomes more commonplace, there will be a greater demand for pools and spas – which makes pressing these points a matter of informed self-interest for the industry. As important, if we in the medical community keep pushing and the benefits of aquatic exercise and therapy become more widely known, more people will turn to the water to improve their physical condition and even greater momentum will build toward increasing the availability of recreational water to help those who are still reluctant to enter the water to get past their resistance and finally take the plunge.

What a wonderful world *that* would be!

Every year since 2003, Ed Beaulieu has led a cadre of Aquascape's pond installers in building temporary water-garden exhibits for Disney's Epcot Center in Orlando, Fla., in conjunction with the park's annual International Flower & Garden Show. The program, he says, represents not only a great opportunity to expose millions of visitors to the joys and beauties of watergardening, but is also something of a celebration for the installers.

Magic to Do

By Ed Beaulieu



One person's error is often another's opportunity – and that's exactly how my relationship with Disney's Epcot Center began.

The famous Florida theme park has held its International Flower & Garden Show in the spring for many years now, and one of the festival's more popular highlights has long been the program's "Water Garden Wonders" exhibit.

A local Floridian pond contractor had always taken care of the waterfeatures for the show, but after a series of problems, officials at Disney decided to make a change and I was contacted to see if our company, Aquascape of St. Charles, Ill., would be interested in taking over the pond-construction duties.

I was immediately on board with the idea. After all, how do you say *no* to Mickey Mouse? My children never would have forgiven me.

After some additional conversations, I met in early 2003 with about a dozen Disney representatives and architects in Orlando to review the designs they had for that year's display. I expressed some concerns with the plan and found the team open to suggestions, but I could also tell right away that I was going to have to prove myself to this group before they would trust me fully.

Taking the Ride

The two features they had in sketch form for 2003's event were formal, cut-granite affairs. The first, which was to be in close proximity to visitors wandering by, was a simple pond with no waterfall. The intention was to hide the skimmer with lots of aquatic plants and to provide aeration with a "living rock" lava fountain.

The second planned feature was somewhat more elaborate and had a waterfall and small pond. Given the small space, I tactfully suggested using one of the pondless waterfall systems our company had developed. Once I described the concept and its advantages to the team, they agreed to the alteration.

This pondless installation was to be part of a children's garden and became a unique challenge when we learned that a play structure was to be built nearby: There were concerns, they told us, that installing it would take several weeks. In addition, there was apprehension about our feature's proximity to so much frenetic activity.

The first point was easily set aside: We finished the installation in just a few days with the help of several of our certified contractors. The second point proved trickier, as we found out that, as installed, the waterfeature was actually two feet *closer* to the playground than planned.

After much deliberation back and forth, it was determined that it would be easier to relocate a few palm trees and move the playground back a few feet rather than rip out our work and start all over again. It was a satisfying solution, but it taught me several lessons about working with Disney and helped me see the lengths to which park representatives would go in preserving the integrity of their creative vision.

As part of the agreement with Disney, I was to give seminars every 90 minutes to gatherings of show visitors. I was thrilled when 30 to 50 people interested in watergardening started showing up regularly, and things went well enough from the park's perspective that I continued with these programs for the next two years.

After that third year, the format of the festival changed and the presentations were discontinued, but we've been creating waterfeatures for the International Flower & Garden Show ever since that first call in 2003. In fact, immediately after our first year's effort, we were pleased when Disney locked us in for the next year. In fact, much to the absolute *delight* of my children, Aquascape has become Epcot's official waterfeature partner for the garden show – and we haven't looked back.

As the program has progressed, the designs have gone through several iterations and have moved to various locations in the park. The one constant has been the support of our contractors, who annually come in to do what has always proved to be challenging, unique and thoroughly memorable work.

Yearly Gatherings

When 2004 rolled around, I was called in to meet once again with the Disney team and must concede that I was somewhat taken aback by what they had in mind.

As I learned, the Epcot complex includes an area of sunken concrete near the "Mission to Mars" exhibit that's intended to reclaim water used to wash down all of the concrete in that area of the park as well as to control and channel the rainwater that regularly (and sometimes heavily) falls in central Florida. They described it to me as a critical system – then told me they wanted us to create a pond/waterfall system directly on top of the sunken area in such a way that the display wouldn't impede its flood-control function.

Once I evaluated the situation, I suggested using drainage board to elevate our pond above the concrete surface by ap-

2003: Our first Epcot project included one of our pondless waterfalls – and the challenge of setting it up in close proximity to a children's play area. Our performance here was impressive enough that we were invited back for the next year.

proximately an inch. Atop that, we'd install the liner, rocks and gravel to create our ecosystem.

But that wasn't all: The space we were given was also hemmed in by concrete walls and a built-in seating area. Building our waterfeature over existing concrete structures that had to be returned to their normal state after the show offered me a challenge I'd never experienced to that point in my pond-building career.

Again, once I had a chance to reflect on the situation, we were able to turn the structures to our advantage by incorporating the benches as shelves for our aquatic plants. We used the same liner we'd been planning to use, but now we added a rock-friendly underlayment to protect it and then filled the area with rock and gravel to shape planting pockets and rows.

Away from the benches, we also rocked-over a 5-foot-tall concrete wall to create a natural-looking waterfall, topping the composition off with several bamboo-covered copper pipes we used to shoot water back into the pond and taking full advantage of the large oak trees that loomed over the site to provide a beautiful backdrop for our oasis.

One Disney dignitary became so attached to this particular feature that he made a point of stopping by to look it over every day during his daily rounds of the park. In fact, he went so far as to request an impact study to determine the consequences of keeping the feature right where it was after the show ended. For a variety of reasons, the proposal wasn't feasible, but we were proud and happy that it had been considered at all.

Symbolic Gestures

Perhaps because of the success of the 2004 display, we were assigned the same space for our watergarden in 2005. The design was roughly similar, but to keep things fresh we changed the rock type and varied the aquatic plantings. There was also a surprise built into the package once our work was complete.

As hardcore Disney fans know, representations of Mickey Mouse's head and ears appear in various and sometimes unusual spots throughout the park. (In one case, the visual can be appreciated only in an aerial view: One of the parking lots is set up using the famous shape.) For park visitors, it's like a game of "Where's Waldo," and some of them spend hours spotting the image.

To make a long story short, once we finished our work, Disney officials decided to deploy the Mickey Mouse symbol in the bottom of our pond, using rocks to outline the shape. That was quite a feather in our cap – and lots of fun as well.

But speaking of feathers, the following year placed the proudest one of all in my design cap: For 2006, instead of being presented with sketches of waterfeatures prepared by the park's de-

signers and architects, the panel asked me what I thought we should do.

Everything I'd heard about Disney operations to that point told me how reluctant they were to cede any control of the reins to an outsider as they worked to create fantasies and pleasurable experiences for millions of visitors. I was challenged and humbled at the same time – and proud of the team of contractors who'd helped me win the trust of the garden show's creative team.

It was a whole new world: For the first time, we met with park officials and landscape architects from Day One to determine where we'd put our latest display.

The only ground rule we were given was that the location had to change after two years to keep things fresh – which meant, of course, that my days of hanging ponds over concrete were gone. After careful consideration, I decided we should offer a progression of waterfeatures near the entrance to the World Showcase to take advantage of its high traffic and extreme popularity.

My idea was that a visitor interested in watergardening might decide to start out first by dabbling in container watergardens to get their feet wet. From there, we'd progress to a small pond or pondless feature and then move along to a full-scale pond. Once the location and the parameters of the project were decided, I was entrusted with developing designs for each of the display's five waterfeatures.

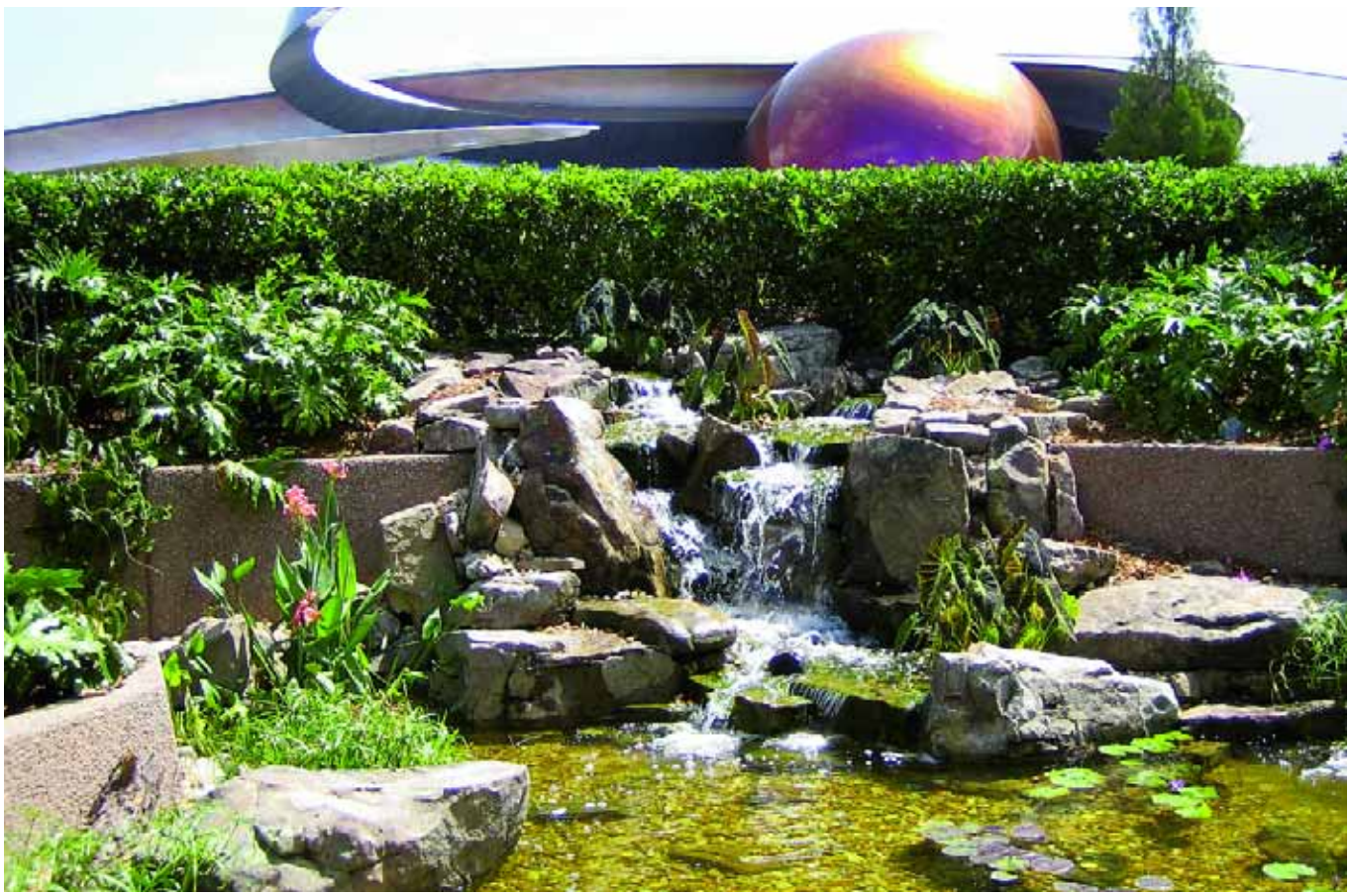
Practicalities

After details for the 2006 show were settled, a group of our contractors rolled into town, and we all met to review the designs and determine how we'd execute them. We all had the sense of moving up the Disney ladder, advancing from pairs of waterfeatures in previous years to doing five this time.

With these increased responsibilities, we all knew we had to collaborate as never before to make certain we'd all stay on the same page during construction.

What's unique about building anything at a Disney facility is that everything happens in the park's off hours – in our case from midnight until 8:00 a.m. *Nothing* can interfere with the Disney

2004: The space we were given was large but rigidly enclosed – and still had to serve its key function as a drainage and flood-control point. We ended up suspending our pond over the concrete and taking full advantage of the existing hardscape.



2005: We worked in the same place and used the same suspended approach that had proved so successful the year before – and this time we were honored to have our pond included in Epcot's program of placing Mickey Mouse's famous silhouette at surprising locations throughout the park.

magic, so no hint of construction is allowed to detract from the overall impression the park makes. In practical terms, this meant that, before ending a shift, we all had to clean the area meticulously and hide any hint of disruption before the public arrived.

With a couple years' experience under our collective belt, we were ready to work within those constraints and systematically lined up our features. We started with the simplest – a grouping of container watergradens displayed around an existing fountain – before moving on to a small, preformed pond and fountain that showed the next step a watergardener might take.

Next came a pondless feature, then an eight-by-11-foot pond and, finally, a large, advanced pond with multiple waterfalls. To explain this program, the area was set up with attractive signage that completed the water-related package.

It seemed like a wonderful program to us: Not only was it beautiful, but it also gave us an opportunity to teach large, enthusiastic crowds about the joys of watergardening. Yet our pathway to that level of satisfaction was not as smooth this time as it had been in previous years: A bit to our surprise, our location required us to work around an abundance of under-

ground pipes and cables.

It was as bad as working around thick tree roots, because nothing was buried more than six to 12 inches deep. And where some of the lines were marked, not all of them (particularly the irrigation pipes) had been traced. Once we moved past our initial dismay, we figured that these turns of events aren't all that uncommon for contractors working around the park, because Disney officials simply handed us a list of emergency numbers to call if anything happened.

The upshot was, where we normally would have used excavation equipment on the larger features, we had in this instance to dig everything by hand – a fact that made the work both more physically difficult as well as somewhat more nerve-wracking.

All in all, however, things worked out beautifully once we established our working rhythm. In addition to the ponds themselves, we also set up a winding walkway of recyclable pavers and ADA-approved foot bridges throughout the watergarden complex to give visitors greater access. Once we were done, Disney's landscape staff added shrubs and bamboo fencing for safety as well as some finishing touches intended to give the area a mature, established look.

Increased Complexity

The response to this grouping of ponds was so highly positive that we chose to work in the same area again in 2007 despite the subsurface challenges.

But rather than show a succession of waterfeatures this time around, we decided to showcase effects that were popular among consumers at that time. To that end, we included a pondless waterfall, a six-by-eight-foot pond and an eight-by-11-foot pond along with a series of overflowing urns, fountain rocks and a stream system that meandered beneath a walkway into a large pond com-

2006: This time, we moved ahead with a design of our own devising and used the space allotted to us to introduce visitors to the various levels of watergardening in which they might get involved, from the elementary to the relatively sophisticated.

NIGHT MOVES: From the start, working on these installations has meant working at times when the park is closed. These night shifts are challenging, but the burden is eased by the participation of so many experienced installers.

plete with three waterfalls and a bog area.

These were installations that fully showed us the advantages of having won the full faith of Disney officials: Where most of the show's contractors are required to supply detailed drawings of their projects, we didn't need to supply that detailed sort of information – a point that worked in our favor as it allowed us a certain level of on-site improvisation to make things look and function their best.

After our two-year stint near the World Showcase, we needed to move to a new location in 2008 and take a fresh look at the suite of possibilities we were asking visitors to consider.

This time, we were particularly excited because our company has released a rainwater-harvesting system that fits in with our own corporate philosophy of sustainability as well as Disney's. We also installed several decorative fountains and "Water Gardens of the Future," which featured an eleven-by-16-foot pond and a pondless waterfall.

To bring the rainwater-harvesting system to life, we designed the façade of a home (built by the Disney team) and used it to help visitors visualize and track rainwater as it flowed from the roof to the gutter and downspout before passing to an underground reservoir in which the water is filtered before shunting it into the waterfall/stream/pond system or diverting it for irrigation or further storage.

It's our most elaborate garden-show display ever, and we're pleased that in addition to being visually attractive, it's also teaching park visitors about important principles of sustainability and responsible water control and use.

A Growing Showcase

The International Flower & Garden show is currently the largest special event Epcot hosts, and in the years since it started the head count has grown from 1.3 million to 2.5 million attendees. Despite the challenges of working the graveyard shift to construct waterfeatures that will be dismantled ten weeks after we install them, we at Aquascape and all the contractors we involve in these projects have agreed that we'll keep coming back as long as Disney will have us.

How could we turn our backs on the pleasures of 3:00 a.m. coffee-and-energy-drink runs to local convenience stores? Or the backstage glimpses we get of Disney characters getting ready to fan out once the sun peeks over the horizon? Or the joy of working in and around iconic settings recognized by millions worldwide?

Our experiences through the past half-dozen years have given us all a chance to see the magic that goes on behind the scenes firsthand and I have to say that the same feelings I experienced as a child have carried over to my adult years because of the time I've spent working on these displays. Perhaps the awe I felt as a child has grown from wonderment to the sort of respect one develops for orderly, efficient business operations, but it's *still* awesome and gives us all a sense of accomplishment we all enjoy, year after year.

2007: We were in the same space as we'd been the year before, but we used a different approach this time and showcased some systems we knew to be popular. Three ponds were featured, and we augmented them with a meandering stream and overflowing fountain rocks and urns (including one with a famous silhouette).

2008: This time, we expanded on the educational function of our displays by setting up a rainwater-harvesting system ande demonstrating ways in which the flows could be used for irrigation, to keep a stream/pond system rolling or to provide water for artful fountains.

Layering the Experience

Watershaper and landscape architect Kathy Marosz relies on two words to describe her installation of a wildly elaborate watershape complex in the hills of north San Diego County: unending complexity. Here, in her second article on this outsized project, she digs into the intricacies of a unique hydraulic network that gives the homeowner a dazzlingly broad set of options to pursue while enjoying his 90,000-gallon backyard paradise.

By Kathy Marosz

It's a project I won't soon forget, believe me.

In the April 2008 issue of *WaterShapes*, I offered the first of what ultimately will be three articles on an enormously ambitious project I began working on more than two years ago. In that span, I've found myself taking whatever solace I can from the fact that everyone who's become involved with the project (or has even *heard* about it in any detail) concedes that it's probably the most complicated backyard watershape they've ever encountered.

Last time, I covered the scope of the project in general terms, outlining the design-development process and rolling through some of the more intricate details of the early construction phases. This time, we'll move along to take a close look at the multiple water systems and effects and the hydraulic approaches needed to make them all work. (In thinking things through in preparation for writing this article, I began to suspect that there might be enough here to fill a small book; being a merciful soul, however, I'll stick to the key points and keep things moving.)

To recap briefly: The project features a 90-foot-long, roughly 53-foot-wide freeform pool with a raised spa, a large artificial-rock grotto, a 25-foot-long vanishing edge, a grand swim-up bar and beach entrances for both the shallow and deep ends – everything finished in hundreds of square feet of custom glass- and ceramic-tile mosaics.

The client wanted an environment that could accommodate up to 250 guests at a time – or function beautifully for just his three children. As things developed, more and more ideas came into play because he kept saying *yes* to just about everything. At this juncture, however, we seem to be caught up and all of the major systems are ready and running. Reaching this state of semi-completion has *not* been easy.

Water in Transit

As was mentioned in the previous article, the configuration of the pool is somewhat unusual.

Let's start with the vanishing edge, which looks like a small dam that isn't quite holding back a large, elevated body of water that overflows toward the house and down into a relatively small, beach-like kiddie pool. In basic design terms, the site is not one that would typically be considered suitable for a vanishing-edge treatment, but the client wanted it anyway to provide a dramatic visual effect as well as a safe, easily monitored play area for children.

Making this effect work took a great deal of homework and planning on many levels – structural, practical, hydraulic and, of course, aesthetic – because this was no conventional trough. First, we needed to be sure that the water would be contained the way we wanted it to be, given the fact that the design incorporated not only a vanishing edge with more than 2,000 square feet of surface area behind it, but also included three beach-entry areas. In other words, surge containment was a primary consideration.

After assessing the site, the pool size, elevations and potential obstacles and working through a number of calculations I picked up in water-in-transit programs conducted by Skip Phillips of Questar Pools (Escondido, Calif.) and others in various Genesis 3 programs, I was confident that, by including a relatively long gutter/collection system at the perimeter of the kiddie pool (therefore 48 feet long compared to the 20-foot length of the vanishing edge), the pool's surge could be collected and fed by gravity to a remote surge tank.

Now we had to accommodate the demands the deep-end beaches would place on the system. Engineering constraints as well as aesthetic considerations came into play here; to make a long story short, we decided to include a small step up

from the submerged parts of the beaches to the bond beam, cladding all the resulting horizontal surfaces with limestone to borrow the appearance of a white-sand beach. (Eventually, these beach areas will be extended as dry decks and will be finished with a matching limestone to create a seamless visual flow.)

Once we'd confirmed that all of these systems would function properly together, it was time to start thinking about the surge tank itself as well as the equipment set. Working with Steve Sebo of All Water Tek (San Diego, Calif.), we developed several viable configurations – a process involving many factors including the knowledge that the client was planning at some future point to build atop or near the spot selected for the surge tank/equipment room.

At this point, those future structures have yet to be designed, but I had a pretty good idea of what would be needed given the client's desire to host hundreds of people in spaces around the pool complex.

At this point, we called upon the expertise of Dave Peterson of Watershape Consulting (Carlsbad, Calif.) – a civil engineer, *WaterShapes* columnist, Genesis 3 acquaintance and a watershape designer/builder himself. Using considerably more sophisticated calculations than I'd used originally, he determined an exact size for the surge tank and also engineered the concrete-block structure of the tank and equipment room to accommodate the potential surcharge of future outbuildings. In his plan, the equipment room shares a wall with the tank.

We also followed the advice of Tom Schoendienst of Pentair Water Pool & Spa (Sanford, N.C.), who helped us pinpoint features of the amazingly complex control system and decide which type of pumps would be optimum for each of the planned applications.

Special Effects

In retrospect, all of the above now seems relatively straightforward when compared to what we had to do to accommodate all of the water effects that were scattered around and within the pool: Each one, in fact, required its own engineering and plumbing treatment.

For starters, in the same area as the vanishing edge and the whitewater effect that can be achieved by running a healthy flow over the battered, quartzite-ledger dam wall, we installed several extra waterfalls to augment the overall aesthetic impression.

The edge itself is run by a dedicated variable-speed pump that draws water from the surge tank through a dedicated diatomaceous-earth filter (both from Pentair). At low operating

Before the steel crew began working in earnest, we set up the basic suction/return lines and skimmers in the floor and walls of the pool (A) and began the process of setting up plumbing for the spa (B). In addition, we had to take care of all the special water effects, including the cylindrical housings for the dancing jets within the structural deck around the kiddie pool (C). Before long, it was plainly clear that the sheer volume of pipes we'd be running to the equipment pad – from the spa in particular (D) – was going to be nothing if not impressive.

speeds, water barely trickles over the stone – but at higher speeds, the flow turns into a torrent.

Just to the right of the edge and imbedded in the outer wall of the spa, we set up four waterfall units from Custom Cascade (Temecula, Calif.) that span about 14 feet in all. Each is individually valved, and the fixture closest to the vanishing edge was placed at the same elevation as the edge so it appears to be an extension of the main effect. The other three units ascend up the spa wall in stages, with the last one set to match the elevation of the step just below the spa's bond beam. These four fixtures are driven by another pump that draws its water from the surge tank.

The same stone treatment used on the vanishing-edge wall surrounds the four waterfall fixtures. By balancing the flows over the dam and through the fixtures, the whitewater effect takes on all-new dimensions – and the same pump that runs the four fixtures on the spa wall also feeds a *separate* waterfall system on the opposite side of the vanishing edge (also from Custom Cascade). In other words, the kiddie pool is completely surrounded by what can be, at full throttle, a truly dramatic visual display.

Two more waterfall systems bear mentioning: The first is the large rock waterfall in the swim-up bar area (a single-pump affair), while the second flows down over the grotto's entry and is powered by either one or two pumps to create anything from a mild rain effect to a massively raging waterfall.

All three of these pumps divert water from split, three-inch suction points in the pool wall. These points have been covered with fittings from AquaStar Pool Products (San Diego) that allow for the appropriate flow rates and have been finished with the same material that covers the walls. Another pump with split suction from the pool powers eight hydrotherapy jets (provided by Waterway Plastics of Oxnard, Calif.) in the backs of the benches inside the grotto.

Once again, where in retrospect these waterfall systems all seem complicated compared to the main pool systems, as we'll see below they were fairly simple when compared to making arrangements for the interactive waterfeatures we installed in various spots around the pool.

Truly Amazing

From the outset, the client was interested in deploying programmable waterfeatures as a means of maximizing fun for the children while providing visual displays that would keep adults interested as well. To meet the need, we selected an array of FyreFly Jets, Foam Jets, Laminar Leapers and pop-up ChoreoSwitch dancing jets – all from Crystal Fountains (Toronto).

Eventually, Daniel Maitland of Aquatic Creations (Murrieta, Calif.) will come in and program "shows" and various interactive sequences along with lighting effects for all four jet arrays. But that was a long way off when we started tackling all of the practicalities involved in getting these systems installed and ready to work.

For each group of features to have maximum visual impact, we specified four WhisperFlo pumps from Pentair. The client's


A


B


C

The kiddie pool was among the most intricate of all the spaces we prepared on site. The pool itself was bounded by a gutter that had to be precisely level across its entire 48-foot span – a trick we accomplished by mounting the form on threaded rod for complete adjustability (A). The area includes a large structural deck that reaches well beyond the gutter and will eventually flow onto a larger lounging/supervision area. After the shoot, you can still see the tops of the dancing-jet cylinders just beyond the gutter and the extent of the waterplay space this will afford the client's children (B & C).

There was enough going on *within* the spa to keep us plenty busy, but the design also called for installing four waterfalls in the spa's wall where it rose above the kiddie pool to extend the look of the flow over the vanishing edge. These falls rise step-wise across a span of 14 feet.

electrician, Donald Martins, fabricated custom interfaces between the pumps and a show-control system that eventually will coordinate water flow among all four pumps, sending more or less water as needed to each grouping of jets. (The control wasn't immediately available, but the pumps and jets were set up anyway with manual overrides so everything could be tested and the client could run the system manually.)

Water for these systems is drawn from the surge tank. The four foaming jets in the kiddie pool's beach and the five deck-mounted FyreFly jets in the round patio off the deep end are the simplest of the systems, both hydraulically and functionally. The foaming water finds its way directly into the gutter system that encompasses the kiddie pool, while the FyreFlys spray water into the main pool so that it eventually winds up in the same gutter system and flows to the surge tank.

The dancing and laminar jets are a completely different story. There are, for starters, six laminar jets in all, and while they are individually valved, all are driven by a single pump drawing water from the surge tank that eventually returns via the

The gap in this low wall is the space into which a four-foot-square acrylic panel can be placed to isolate the 9,000 gallon swim-up bar from the rest of the pool. This division enables the client to warm the bar's water for greater comfort; it also prevents waves created by riotous activity in the rest of the pool from sweeping refreshments off the counter.

In Hot Water

As with the rest of this project, the spa is a marvel of complexity.

It's equipped with five pumps – one for circulating its heated water (in an arrangement that essentially mirrors that of the system established for the swim-up bar area), and four more to power 42 jets grouped as four clusters. All five of these pumps are variable-speed models from Pentair Water Pool & Spa (Sanford, N.C.) to provide the greatest possible versatility in jet action.

All suction lines are equipped with split drains, and one of the three-inch returns supplies water to eight spa jets arranged in the floor near the benches and deep buckets seats. In all, there are three groupings of jets (from Waterway Plastics of Oxnard, Calif.) – with each group on a separate pump.

The two deep bucket seats each have manifolds for back and calf jets, while the four bench areas share a total of 10 jets. There's also a deep well designed for standing: This features 10 jets for full-body therapy. All of these jet groupings run off of three- or four-inch suction lines and three-inch returns.

Given the cool early-spring weather hereabouts, the client and his family found the water in the main pool to be a bit chilly – and the spa to be a welcome refuge.

As the spa portion of the project took shape, Steve Sebo of All Water Tek (San Diego, Calif.) pointed out that, for various maintenance reasons, there might be occasions when the spa might need to be drained. At 3,000 gallons, that's a lot of water we didn't want to lose, so instead of running the drain line to waste, we thought to have the drained water flow to the surge tank.

We ran the idea past our civil engineer, Dave Peterson of Watershape Consulting (Carlsbad, Calif.), who had done all the calculations related to sizing the surge tank. He did a bit more number crunching and determined that the original tank would be adequate to the task, so that's how we set things up – and saved a lot of water in the process.

– K. M.

The spa was the most concentrated and physically difficult of all the spaces we worked on in the course of this project. It isn't all that large, but it contains 42 hydrotherapy jets – and shooting it while ensuring complete encapsulation of the steel was a difficult, painstaking process. It all worked, but it was an amazing challenge in a project that's been full of them.

gutter system. Each of these jets has a switch that can instantly open or close to start or stop the flow of water while the pump continues to run, so each one needs to be housed in a waterproof box that includes a drain.

Complicating matters, the boxes are of substantial size (about 24 inches long by 18 inches wide and deep). Moreover, the control units housed inside cannot be completely submerged, meaning the tops of the boxes (including their lids and finish materials) had to be set about a foot above the water level of the vessel into which each one drains.

If not for the existing boulders and overall crazy design, this wouldn't have been a big deal – and, in fact, four of the six laminar jets installed fairly easily and were blended into their surroundings by our faux-rock contractor Dan Musetti and his daughter Crissy. They fashioned boulders around each of the four jets' boxes after they'd been precisely placed by the pool plumbers.

Complications

The other two laminar jets were more difficult to install. The one located at the tip of the planter that separates the swim-up bar from the kiddie pool's beach, for instance, had to be set up with its drain connected directly to a main trunk line running to the surge tank. This worked out well mainly because one of the gravity-fed lines passes below the floor of the beach.

The last of the laminar jets required the most attention because we placed it in a grouping of faux rocks that create a path to the main pool by ascending from the beach/gutter elevation to the top of the vanishing edge. The drain for this jet housing also flows into a main trunk line to eliminate spurts of water flowing onto the beach as the switch opens and closes.

The same sub-beach trunk line also serves the deck-level dancing jets located on the dry side of the gutter of the kiddie pool. One pump supplies the water to all five of these jets, each is individually valved and all draw water from the surge tank. Each is housed in its own waterproof container (12-inch stainless steel cylinders 16 inches long) with fittings (including a drain) in the bottom and switches that open and close while the pump continuously runs to create pop-up jet effects.

Because these jets are mounted at deck level and are intended for interactive play, a good deal of splash out needed to be contained and directed back into the gutter system. To accomplish this, we extended the bond beam of the pool structure by several feet beyond these features during the design process.

To all the world, the area on the dry side of the gutter appears to be a separate deck and ultimately will be expanded to hold lounge chairs and the like. This added portion will slope away from the pool, as a typical deck should. The structural portion that houses the dry-side jets, however, slopes gently toward the gutter to allow splash-out to flow back to the tank. At about two percent, this slope isn't too steep for safe play, and we set it up with a non-slip surface of sandblasted limestone and heavily textured mural tiles from Craig Bragdy Design (Denbigh, Wales).

One last note on the gravity system: Three six-inch trunk lines provide the flow to the surge tank. One collects drain water from the five dancing jets and two of the laminar jets. The gutter itself connects to the other two six-inch lines via 11 two-and-a-half-inch pipes placed at intervals along the 48-foot gut-

Text continues on page 60

What seems like miles of three- and four-inch PVC pipe and additional miles of conduit and control cabling run across both the front and back sides of the pool, with everything converging on an amazing equipment room that will eventually be surmounted by yet-to-be-specified outbuildings. We had to keep track of every single line and bring each and every one of them up through the floor to a precisely mapped location.

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Once the pool was filled, we began the process of testing and debugging all of the water effects to ensure that they functioned properly and took full advantage of the flexibility we'd built into their operating systems. In this case, we tested the flow over the weirs above the grotto's entrance to make certain everything from a gentle rain curtain to a raging torrent was possible.

ter. Of course, the capacity and operating levels of the tank and its elevation needed to account for all of this moving water and cope with the various systems that actively draw down the tank's water level.

Variable Circulation

As mentioned at the outset, the client's planned use of his watershape confronted us with the need to accommodate wildly varying bather loads and develop an immensely versatile circulation/sanitization system. To accomplish this while making the system as energy efficient as possible, we quickly settled on Pentair's variable-speed pumps – *several* of them.

In essence, the pool has four complete systems divided by usage into two big zones.

The first zone is the swim-up bar, which comfortably accommodates 15 adults, holds about 9,000 gallons and can be almost completely separated from the more active area of the main pool by sliding a four-foot-square acrylic panel into channels cut into two sections of faux rock.

The bar area is intended for adult relaxation, so comfort was of paramount importance. Even though the client had not requested it, we knew this area would benefit from having warmer water than the main pool as well as its own sanitizing system.

To that end, we placed two skimmers and split-drain suction plumbing in this area along with seven inch-and-a-half directional eyeball returns set throughout the odd-shaped space. As mentioned above, this area has its own waterfall, so we plumbed its split suction line within the bar area and used a dedicated variable-speed pump to enable it to recirculate the space's warmed water.

This area has lines that trace their way to the equipment room and is served there by an IntelliFlo variable-speed pump, a dedicated 100-square-foot D.E. filter and a MasterTemp 400,000-Btu propane heater (all from Pentair). There's also a Model 155 heat pump from AquaCal (St. Petersburg, Fla.), a corona-discharge ozone system and contact tank from ClearWater Tech (San Luis Obispo, Calif.) and a chemical automation/injection system by Chemtrol (Santa Barbara, Calif.).

To avoid any potential corrosion issues with the substantial square footage of limestone used underwater, we chose not to specify a salt system to generate chlorine. Instead, we decided to inject chlorine (for residual protection) and acid (for pH balance) with a Chemtrol system set up to detect parts per million levels of chlorine rather than oxidation-reduction potential (ORP).

We did so because the ozone system dominates with respect to pool sanitization, with the contact tank allowing about four minutes of ozone exposure at our current flow rates. Complementing this ultra-sanitized water with injections of relatively small amounts of chlorine made sense, and in the event that additional residual protection is required, the system can easily supply large quantities of chlorine in a reasonably short period of time.

So far, the system is working perfectly and the water is absolutely pristine.

Mirrored Perfection

The main pool's circulation system roughly parallels that of the swim-up bar's – only on a far grander scale.

This array features three pumps, three filters, three heaters, three heat pumps and three ozone systems with individual contact tanks, but there's just one chemical-injection unit for chlorine and acid: All three systems are plumbed in parallel, so just one chemical controller gets the job done. To be sure, that's an awful lot of redundancy for a residential pool, but if any one system happens to fail on a day our client is hosting a pool party with 250 guests, such an incident cannot be allowed to become a disaster.

As the photographs show, plumbing all these systems was a monumental task involving what seemed like miles of three- and four-inch PVC pipe running from the pool, spa and vari-

ous beaches to the equipment room and back – plus innumerable valves and fittings. Working within and around the steel cage and its double and sometimes triple curtains was no walk in the park, either. The crews from All Water Tek – and especially the foreman, Paul Reed – gamely persevered through what was often a chaotic and taxing process, both physically and mentally.

As discussed in the first article about this project, the site is shot through with granite outcroppings that made a traditional return loop around the watershape impractical (if not impossible). This left us to provide adequate circulation in a wildly freeform lagoon holding about 90,000 gallons of water (with depths ranging from three to more than ten feet deep) and accommodate the separate needs of the swim-up bar area.

The main pool's system starts with dual main drains in the deepest area and includes five skimmers strategically placed throughout the vessel. Returns are located wherever needed in the floor and walls to maximize circulation and avoid dead spots. There are 16 returns in all – eight in the floor fed by a four-inch primary line that branches down to successively smaller lines; and another eight that have directional eyeballs to make certain we cover all the pool's various nooks and crannies.

As a precaution in an area in which the water table can be quite high, we equipped the deepest area of the vessel with a hydrostatic-relief valve. It's unlikely anything so massive could ever budge, but with a project such as this, there was no thought of tempting fate.

At this writing, the watershape has been up and running for several weeks, with all flows running at 75 gallons per minute with line velocities of less than six feet per second and a turnover rate of about five hours. As everything stabilizes and the real-world needs of various bather loads can be determined, we'll keep tweaking everything to squeeze as much efficiency as possible out of all of the systems we've arrayed across the client's backyard.

To say there's a lot for him to explore is a profound understatement, but through it all we're confident the water he experiences will be crystal clear and squeaky clean.

Next: In a final installment, we'll cover some significant details and tour the completed project.

While much of the positioning of the various jet systems was preordained at the planning stage and locked in by placement early in the construction phase, with the FyreFly jets we were able to play just a bit with positions and angles before setting them permanently in place.

Of Interest

The following information has been provided to WaterShapes by product suppliers. To find out how to contact these companies, look for the Product Information Card located on page 58.

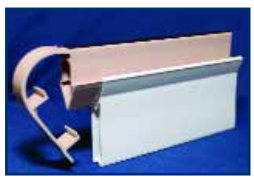
Pool Enclosures

Circle 135 on Reader Service Card

CCSI INT'L offers the Garden Prairie line of pool enclosures as eco-friendly, energy-saving options for pool projects. Featuring insulated, light-transmitting polycarbonate roof glazing for solar-energy retention, the structures assist in keeping pool water at desired temperatures, reduce cleaning time, limit wind- and sun-related evaporation and help minimize chemical consumption. **CCSI Int'l**, Garden Prairie, IL.

Deck-Joint System

Circle 136 on Reader Service Card



QUAKER PLASTIC has introduced a control joint system featuring a unique arrow-shaped body that presses easily into wet concrete. Designed so there are no channels to obstruct installation, the unit is available in 12-foot lengths in white, tan or gray and locks into the concrete with minimal seepage. It also comes complete with a double-thick peel-off tape that protects the top during installation. **Quaker Plastic**, Mountville, PA.

Aeration System

Circle 137 on Reader Service Card

OTTERBINE BAREBO announces Air Flo 2, a diffused aeration system that provides optimal aeration while maintaining the natural appearance of ponds up to 12 feet deep. Engineered to induce oxygen into the water in the form of tiny bubbles at a pond's bottom, the system affects the entire water column, mixing bottom and top waters and breaking up thermal stratification. **Otterbine Barebo**, Emmaus, PA.

Commercial-Grade Salt Chlorinator

Circle 138 on Reader Service Card

PENTAIR COMMERCIAL now offers the IntelliChlor electrolytic chlorine generator in a commercial-grade model. Designed to provide superior water quality without the drawbacks of manual chlorine addition, the easy-to-use unit can generate up to two pounds of chlorine per day and offers full diagnostic capabilities, including cell-life tracking, daily performance data and more. **Pentair Commercial**, Sanford, NC.

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The Power of Transformation

For more than a decade, the Genesis 3 Design Schools have influenced the professional lives of hundreds of watershapers. It's an unfolding story of elevation and transformation best told by those who've experienced 'life after Genesis.'

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'The mission of Genesis 3 is very exciting: Your feet-on-the-ground experience over several decades of work makes it possible for us to learn much more effectively without making nearly as many mistakes that cost our customers and our reputations.' **– David Bartsch, Bartsch & Radner Design, Boston, Mass.**

'Genesis 3 has set the standard in watershape design and construction. I found the information to be very informative for everything from site layout to start-up. These courses should be mandatory.' **– Troy Rankin, Custom Pool & Spa Concepts, Richmond, Texas**

'I have a lot to do when I get home and back to work – a lot of new ideas and systems to be put in place. I loved it!' **– Michael Dawson, Acclaim Pools, LLC, The Woodlands, Texas**

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October 1-4, 2008
Grand Hyatt Buckhead
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Fees: $3,500 includes 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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(David Tisherman)

Bonding, Grounding & Electrical
(Terry Brannon)

Concrete & Decking
(Randy Beard, Paolo Benedetti & Ron Steadman)

Tile & Coping
(Greg Andrews & Ron Steadman)

Hydraulics, Plumbing & Gravity Flow
(Skip Phillips & Steve Gutai)

Plaster
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Start Up & Follow Up
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Shell-Protecting System

Circle 139 on Reader Service Card

AQURON offers Concrete Pool Shell Protector, a material that, properly applied, penetrates into a concrete matrix to a depth of six inches and prevents moisture migration. It waterproofs and strengthens concrete, protects reinforcing steel and helps increase the bond strength between the shell and the surface treatment while reducing bleed-throughs, efflorescence, shrinkage cracking and slab curl. **Aquron**, Rockwall, TX.

Automatic Pool Cleaner

Circle 140 on Reader Service Card

AQUA PRODUCTS offers the Aquabot Turbo T-Jet, a self-contained, self-propelled pool cleaner that consumes minimal energy and significantly reduces pool filter maintenance. Featuring a 5,100-gallon-per-hour pump and reusable filter bag, the unit captures 23 quarts of dirt and debris from palm leaves and rocks to silt and algae down to two microns – keeping it out of the filtration system. **Aqua Products**, Cedar Grove, NJ.

Dancing-Water Controller

Circle 141 on Reader Service Card

CRYSTAL FOUNTAINS offers ChoreoSwitch, which combines with the company's submersible LED lighting arrays to make it easy to create exciting interactive water effects for splash parks as well as residential play areas. The control system can be programmed to produce effects that change at up to 10 times per second and, when lit, can be used day and night. **Crystal Fountains**, Toronto, Ontario, Canada.

Deck Lighting

Circle 142 on Reader Service Card

HADCO offers literature on its line of low-voltage deck-lighting fixtures. The two-page, full-color sheet depicts products available in a variety of materials, styles and finishes including copper, steel, brass, bronze and powder-coated black, white and green. Designed variously for applications on posts, walls or steps, all units come with a lamp, six feet of 18-gauge wire and a low-voltage connector. **Hadco**, Littlestown, PA.

Tubular Fencing

Circle 143 on Reader Service Card

EVOLUTION FENCE CO. offers the Kentucky line of ornamental fence products. The all-tubular fence profile features an oval top rail with mid- and bottom rails that have soft radiuses on the corners. Easy to install, system components lock together securely without screws to form six-foot-long, 54-inch-tall unibody fence sections with pickets that don't rattle and won't dislodge. **Evolution Fence Co.**, Hauppauge, NY.

Pond-Project Software

Circle 144 on Reader Service Card

STEEL DRUM has introduced a 2008 edition of its Pond Salesman software. Developed to help custom pond designers and installers calculate project costs efficiently and accurately, the program asks the contractors to enter the size of the pond, then helps determine how much rock, labor and materials will be required before creating a contract, estimate, receipt and work order. **Steel Drum**, Janesville, WI.

Construction Dome

Circle 145 on Reader Service Card

PLASTIMAYD has introduced Construction Dome, an air-inflated structure designed for builders who need to extend the construction season in early spring as well as late fall and winter by effectively creating an indoor environment that allows work to proceed. Made of a rugged fabric to withstand job-site conditions, the system is still light enough to move from one site to another with ease. **Plastimayd**, Oregon City, OR.

Grated Deck System

Circle 146 on Reader Service Card

THRUFLOW introduces its Premium Decking System for applications in or around water. Featuring a grated design, the system keeps water from collecting and has an ADA-compliant, slip-resistant profile that makes moving around pools and spas safer for bathers of all ages. The material includes no wood, so there's no possibility of slivers – nor will it rot, warp or be damaged by insects or chemicals. **ThruFlow**, Wallaceburg, Ontario, Canada.

Fountain Basins

Circle 147 on Reader Service Card

EASYPRO POND PRODUCTS offers basins that can be buried to support fountains in which water flows over statues, vases or rocks and then disappears. Designed for clients who want moving water but do not have room to construct pond or waterfall systems, the basins can also be used indoors or on decks and can be easily be concealed with rocks or other materials. **EasyPro Pond Products**, Grant, MI.

Revamped Pool Cleaners

Circle 148 on Reader Service Card

PENTAIR WATER POOL & SPA has redesigned its Legend and Legend II pressure-side pool cleaners with new looks and enhanced debris collection capacity. Now with wider bases for stability and wider intake throats, the devices have larger debris bags to capture more dirt with less-frequent emptying. The bags also have wider openings and reliable snap-lock closures. **Pentair Water Pool & Spa**, Sanford, NC.

Cascading Waterfeature

Circle 149 on Reader Service Card

ABBY ROCK offers Twin Cascades, a waterfeature designed for use in various settings. Made with molded/cast composite materials and based on native rock formations, the unit offers flows of up to 2,400 gallons per hour, with access to fittings via a removable weir. Available in two colors (Platinum and Mojave), the unit has a drain plug for winterizing and includes two planting pockets. **Abby Rock**, Fort Wayne, IN.

Deck Finish

Circle 150 on Reader Service Card

DECK-O-SEAL offers Deck-O-Grip, a transparent, easy-to-apply, non-yellowing, high-solids, acrylic-based liquid cure and seal. Designed to provide a clear, flexible, abrasion- and stain-resistant protective film, the product also offers improved resistance to most of today's common pool chemicals while retaining and enhancing the appearance of colored concrete and exposed-aggregate surfaces. **Deck-O-Seal**, Hampshire, IL.

Compact Excavator

Circle 151 on Reader Service Card

BOBCAT has introduced the Model 418 compact excavator. Designed for use in unusually tight working areas with an access-width requirement of just 28 inches, the lightweight, joystick-controlled unit has a dig depth of six feet and operates with no tail swing or overhang, thus allowing the operator to optimize spoil placement and minimize machine contact with structures and other nearby objects. **Bobcat**, West Fargo, ND.

Pump Vault

Circle 152 on Reader Service Card

ATLANTIC WATER GARDENS offers the Model PV2300 Pump Vault. With more than six cubic feet of internal space and an 18-inch service-access port, the 23-by-30-inch structure accommodates larger pumps with flow rates up to 15,000 gallons per hour and features a heavy-duty lid and a pair of top and bottom panels that allow for creation of custom plumbing configurations. **Atlantic Water Gardens**, Mantua, OH.

Multi-Pool Controller

Circle 153 on Reader Service Card

ACU-TROL PROGRAMMABLE CONTROLLERS has introduced the Model AT-8 as an entry-level system that manages up to eight bodies of water with one master control. Offering proportional control for exact chemical dosing, the unit monitors pH, ORP, chemical levels, temperature and flow of all vessels, providing reliable data streams that simplify service and please clients. **Acu-Trol Programmable Controllers**, Auburn, CA.

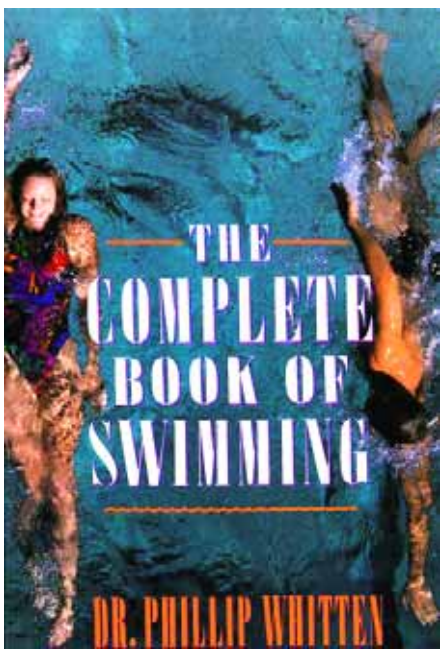
Aerator Catalog

Circle 154 on Reader Service Card

AQUAMASTER has published a catalog on its line of water-quality-management products. Designed to relieve problems with algae build-up, aquatic weeds, bottom sludge, foul odors, insect infestations and stagnation in lakes and ponds, the aerators covered in the 24-page, full-color booklet range from 1/3 to 25 horsepower and come in dozens of spray patterns – some reaching to 96 feet. **AquaMaster**, Kiel, WI.

By Mike Farley

Finding Fitness



For a good while now, I've been on the lookout for books that define the health benefits of swimming and other forms of aquatic exercise. I've largely come up empty, with only a couple of worthy exceptions.

It's been important to me for two reasons: First, I'm convinced (as others in this magazine have argued) that the watershaping industry is doing both itself and its clients a disservice by not promoting the remarkable healthfulness of aquatic activity. I think this is a deficit we desperately need to address – and also that this effort must begin on a solid base of knowledge and fact. Second, as I progress through my forties, I'm finding that running is becoming more and more difficult because of hip problems; my intention is to turn to the water to maintain my physical fitness, but I want to know more about it and how to do it right.

So far, the best resource for information about swimming I've found is *The Complete Book of Swimming* by Dr. Phillip Whitten (Random House, 1994). It's older than some other volumes I've found, but I think it's the best because it deals with the broad health benefits of swimming instead of focusing only on specific swimming techniques – which seems to be the main target of most of the others I've seen.

Whitten breaks his discussion into three topic areas, the first of which is a detailed rundown of the almost innumerable ways that swimming benefits the body. Not only is it easy on the joints (which we all should know by now) and great cardio exercise, but it's also great for just about every other part of a body, including the skin, overall muscle tone, the heart and mental well-being, to name just a few. I was amazed to learn that people who swim regularly have life expectancies averaging 20 years longer than those that don't – a point he lays on the line by calling swimming the true "fountain of youth."

The book's second section deals with different swimming strokes, which for those who are committed to improving the value of their swimming workouts will, I can imagine, be extremely helpful. The third section is really fascinating: It covers a range of issues that basically encompass the "swimming lifestyle" and leads him into discussions of the nature of training, the lives of competitive swimmers and how swimming is one of the best-known treatments for depression.

It's a bit off the beaten track, but this section also includes information on the sex lives of swimmers: Whitten cites studies indicating that so-called "master swimmers" in their 80s have sex on average as often as people in their 20s and 30s – nearly eight times a month. That's an enticing statistic – and one that speaks volumes about the fundamental benefits of the swimming lifestyle.

The doctor comes to the ultimate observation that people who swim are healthier, happier, look better, enjoy life more and live longer than those who don't. As watershapers, we create products that promise to bring those benefits to our clients: Isn't it about time we start making that point a bit more sharply? I, for one, certainly think so. 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.

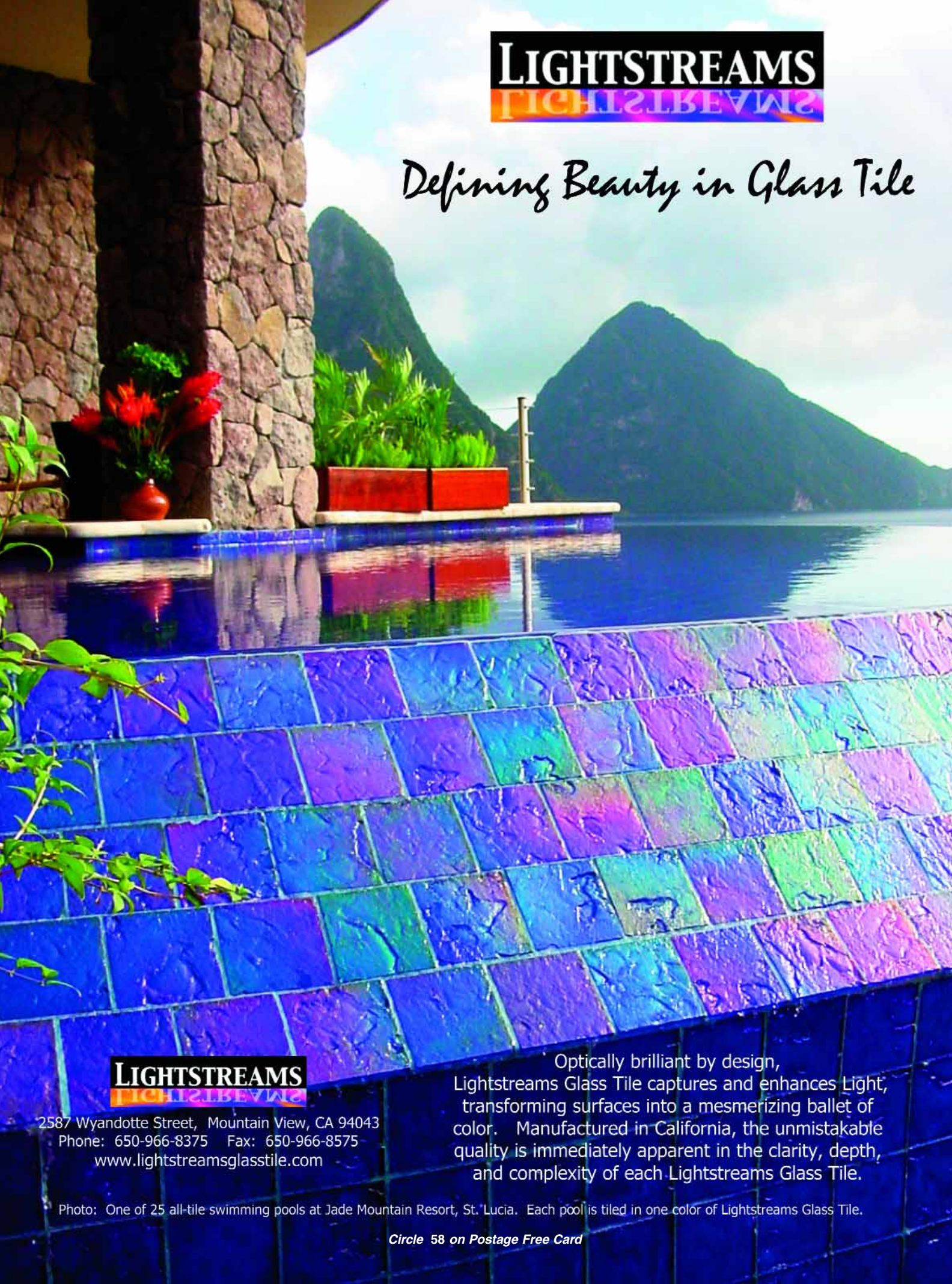


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Photo: One of 25 all-tile swimming pools at Jade Mountain Resort, St. Lucia. Each pool is tiled in one color of Lightstreams Glass Tile.

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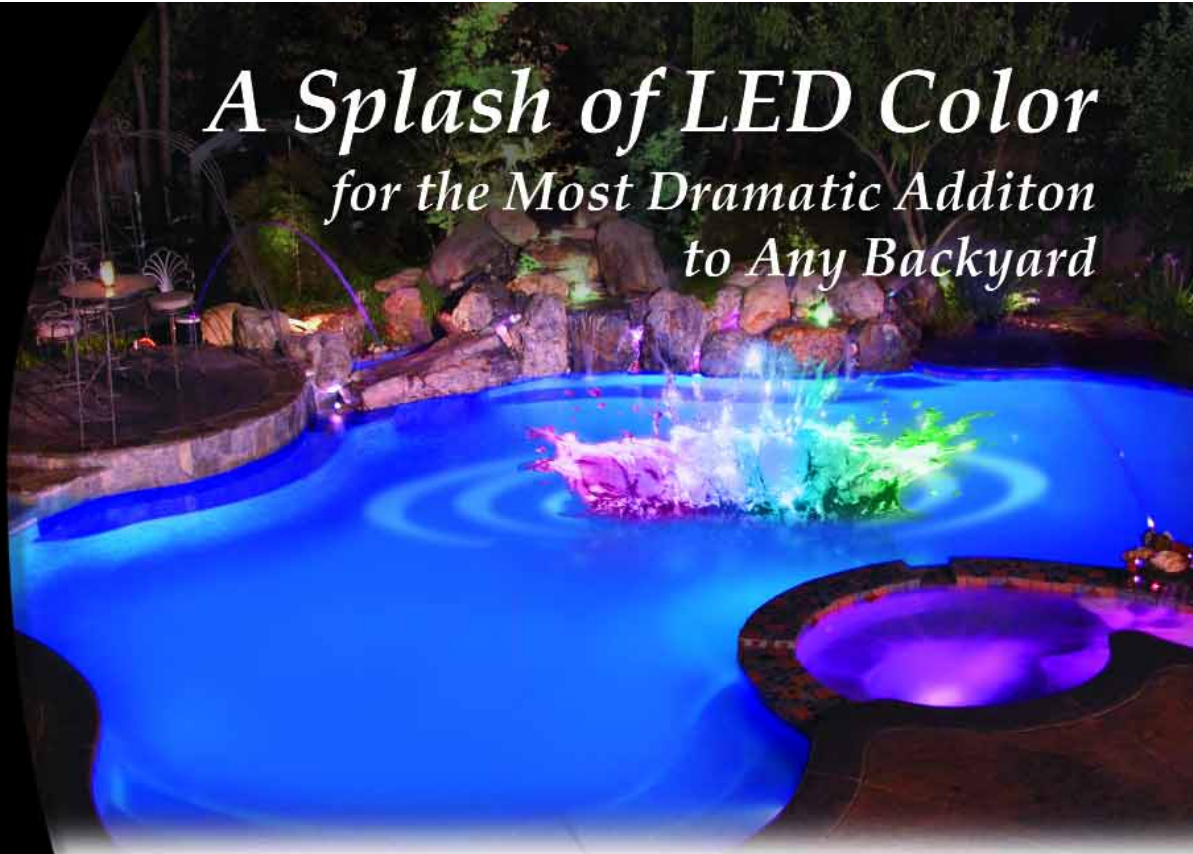

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