

Inside: Brian Van Bower on 'Thinking Positive'

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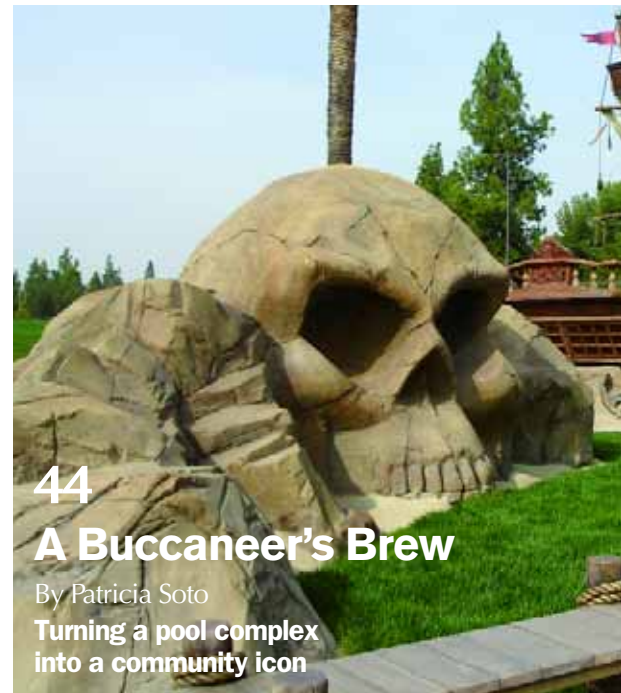


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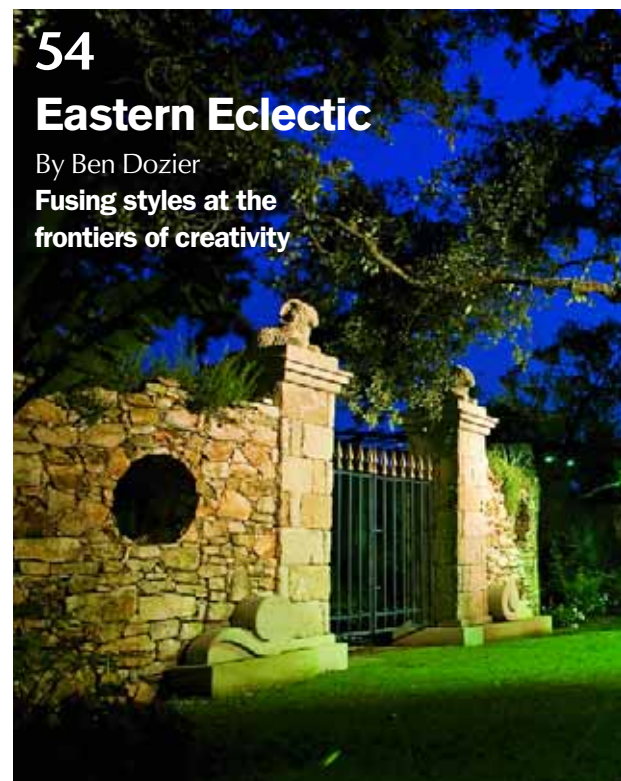


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By Eric Herman

Healthy Trails

It's great when people start talking about important issues – and satisfying to have a hand in provoking those discussions.

In the past 18 months or so, you may have noticed that we at *WaterShapes* have published occasional articles about swimming, aquatic activity and hydrotherapy as they relate to health and fitness. One of them appeared in our January issue: "Swimming to Wellness" by Barbara Goldstein (page 52), which described one woman's use of her pool to combat multiple conditions including asthma and multiple sclerosis.

Our goal in publishing her story – and with others we've printed along similar lines – has been to make the case that such profound benefits should become points of common discussion within the watershaping industry and with the public at large. We are in the business of providing products that, according to recent research and in point of scientific fact, are capable of providing people with the healthiest known set of physical activities, bar none.

At a time when the U.S. population is aging and people everywhere are becoming more and more concerned with staying healthy and vital, that's undeniably significant.

And check this out: Wanting to spread the word to people who live with similar ailments, Goldstein posted her article on a few Internet sites that serve people with multiple sclerosis. Within days, there were more than 300 postings about her story, with some saying that the article had convinced them, *finally*, to take the plunge and buy a pool. Talk about a powerful message!

It's indicative of what's happening in the wide world that the National Swimming Pool Foundation (NSPF), which has truly taken the lead in spearheading the pursuit of information about the health benefits of aquatic activity, recently donated \$1 million to Washington State University to help establish the National Aquatic & Sports Medicine Institute. That effort is being driven by Dr. Bruce Becker, one of the leading researchers into the benefits of aquatic exercise (and someone who was interviewed extensively for an article in our December 2006 issue, page 44). His ambition is to create the world's premiere facility for such studies.

It's clear that the scientific and medical communities are beginning to embrace aquatic activity as a means of dealing with a range of physical conditions – and of promoting better health among those without physical ailments. It only makes sense that watershapers should become engaged by these efforts, even if it means little more than keeping up with the news. NSPF deserves a great deal of credit for leading the way; we'll do our part at *WaterShapes* by continuing to report, support and promote any progress.

For my part, I've long believed that our industry has never taken full advantage of all the information that exists on these important health-related topics and that this is a subject matter we should all explore (and promote) with much more energy than we tend to do. Bottom line: Knowing more about the relationship between aquatic activity and health benefits *everyone*, and it's high time for watershapers to get up to speed – and stay that way.



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Interested in writing for WaterShapes on design, engineering or construction topics? Contact Eric Herman at (949) 494-4533!

with offices in Los Angeles and St. Louis. A New Zealand native, she has a long professional background in architecture and has specialized in the design of swimming pools for the past ten years. Swimming has been a lifelong passion, and her work reflects decades of experience through the care and insight she brings to her work in designing aquatic facilities and building close working relationships with clients.

Ben Dozier is partner and principal of design at Root Design Co., a landscape architecture, pool construction and estate management firm

located in Austin, Texas. The firm focuses primarily on private commissions related to residential estates, with an emphasis on unique gardens and watershapes. A graduate of Western State College in Gunnison, Colo., with a degree in recreation business, Dozier has extended his studies in the industry through the Mike Lin Graphic Workshop and continuing-education courses sanctioned by the American Society of Landscape Architects, the Association of Pool & Spa Professionals and Genesis 3. He currently serves as chair of ASLA's Design/Build Professional Practice Network.



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By Brian Van Bower

The Light of the Long View



I've always believed that pessimism is useless.

At times, I think it can even be destructive, which is why I personally beat the drum for positive thinking every chance I get. Sure, there are always going to be those who accuse optimists like me of seeing the world through rose-colored glasses, but I counter that by saying that I also believe that optimism is worthless if positive thoughts aren't backed up by equally positive actions.

That this is the foundation of my philosophy should be obvious to anyone who's been reading my columns for any length of time. It's a message I believe with all my heart and soul and is one I think merits constant and enthusiastic repetition.

I also believe it's a message that is more important now than ever, because we are facing some tough times. During the past six months of attending trade shows and various industry and Genesis 3 events, I've spoken with scores of watershapers of all stripes and have heard all the stories: As we all know, we're experiencing a

I've learned through experience that when people 'think positive,' it drives them to actions that are absolutely essential to success in business – and life in general.

crunch at a level the industry hasn't seen since the late 1980s and into the very early '90s – the last time, we all remember, that the housing market took a dive.

With some noteworthy exceptions, what I'm hearing is a negativity that is a cause for concern. What I'd like to do here and now is initiate a strong push in the other direction.

measuring mood

I've learned through experience that when people "think positive," it drives them to actions that are absolutely essential to success in business – and life in general. By contrast, when people allow the opposite form of thinking to infect their minds and drive actions based on fear rather than hope, it's almost inevitable that undesirable results will follow, especially when trends beyond our control are there to shape opinions and push us more profoundly toward despair.

It's been easy for years to feel the glow of blue skies: Since about 1992, our industry has been so flush with work and raw energy that we couldn't keep up with demand, and it seemed there was no end to the potential we all had to expand our businesses and revel in the creativity that seemed to infuse every corner of the business.

A great many of you entered the watershaping industry during this period of almost explosive growth, and I know it's been a sad shock for you to be confronted by so substantial a set of challenges. But even those who've experienced tough times before will suffer this time if they can't keep a longer-term viewpoint in mind.

That can be difficult in this era of 24-hour-a-day financial news that bombards us with tales of the mortgage crisis, plummeting home values and a rising tide of foreclosures. The flood of equity that consumers once used to finance

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home improvements has all but vanished for many of our one-time prospects, especially among the middle class.

There's also plenty of conjecturing and finger pointing about why all of this is happening, with so-called experts as well as politicians blaming irresponsible lending practices or, contrariwise, citing the faults of a consumer culture that prompts borrowers to overreach.

There's merit in both positions: On the one hand, if lenders hadn't extended credit to unqualified borrowers, no matter how badly people without steady incomes or good credit histories wanted to borrow, they would have been turned away. On the other, there's really no question that in our financial behavior in the United States is often defined by our ambitions and appetites rather than by prudent planning.

Common sense tells us that when shortsighted decisions drive both sides of that financing equation, economic stability will suffer. For a long time it didn't

seem to matter much, because when property values were on their white-hot ascent, everybody was coming out ahead, long-term thinking or no. Now that trends have turned, we shouldn't be surprised by the opposite result.

(Another thought keeps running through my mind: The big news services, self-styled experts and politicians have sets of interests often best served when they sensationalize the daylights out of drama or conflict of any sort. My suspicion will always be that rather than reporting or commenting on tough times, these folks in some ways are guilty of spreading fear unnecessarily to make their roles or insights seem somehow more valuable. But that's a whole column on its own.)

to the grindstone

From all of this, I find reinforcement for my additional belief that mood is the key to the way things go in our society.

Indeed, I'd say that the tides of macro-

economics are governed as much by mood as any other factor. The most dramatic example of this can be seen in the stock market, where a single economic report or event can drive prices way up (or way down) in a few short hours. And then everything seems to adjust more or less to the original shape of things in a matter of days or weeks. I'm no stock analyst, but I'm always amazed by how subject a system as sophisticated as ours can be to trivial mood swings.

The media play a role here as well: It's fair to say that little is helped by doom-and-gloom prognostications that tend to make moods plunge. In the blink of an eye, it seems, the entire landscape of the future changes one way or the other to satisfy the needs of a voracious news cycle.

As an industry that depends on the availability of capital in both the residential and commercial markets, it's obvious that shifting fortunes and the attendant shifting hopes can become self-fulfilling

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prophecies for us as well.

As I've traversed the country talking to friends and acquaintances, I find that I'm far more concerned about our attitudes toward these times than I am about the times themselves. Yes, we're in a tough space now, and it's likely to continue – but anyone who's been around for more than 15 or so years knows that the economy is

cyclical and that, as a nation, we spend far more time in upswings than we ever do in downturns.

I'm not generally a proponent of government intervention in the marketplace, but it's fair to say that our country has an impressive record of deploying various safety nets to help steer us away from the rocks. In a perfect world, such bailouts

wouldn't be necessary, but the reality is, we do live in a society with a capacity for collective self-correction in both the private and public sectors. I haven't seen much yet to convince me we're in good hands, but history works in our favor even on that front.

Indeed, if history is any sort of roadmap to the future, we know with a high degree of certainty that this current mess is going to turn around – we watershapers just don't know when. For now, there's plenty of suffering, with the production/volume side of the construction market taking a big hit that has the rippling effect of hurting the manufacturing sector because of its dependence on volume sales to drive marketing, research and development, production and distribution.

That erosion is, I think, dramatically balanced by the state of affairs in the custom market, which (based on every single conversation I've had) is still moving along quite well. As I've observed in previous columns, people doing creative, custom work for upper-tier clients are flush with work in good times and bad. Of course we're concerned about the economy, but it's tough to have your mood torpedoed when you're as busy as ever.

beyond the moment

I'm proud of the fact that the positive philosophy and approach to business promoted and defined in the pages of *WaterShapes* and by the Genesis 3 programs have proved to be so manifestly sturdy as things have gotten rough all around.

In my recent travels, in fact, I've been gratified and heartened myself to see that people are fully engaged with the dialogues that take place in the magazine and continue to sign up (even in record numbers) for Genesis 3 programs. I'm also encouraged because everything I see is evidence of a well of optimism that is essential to our industry's collective success, now and in the future.

Yes, it's true that the strength of the so-called "high-end market" has led some players who previously operated at the production end of the business to target more sophisticated clients before being

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ready to do so. This raises the marginal possibility that their substandard work might jeopardize the stability of the upscale marketplace. As a positive thinker, however, I believe that the upper-end clientele's insistence on creativity and quality will pull some of the volume players up by the bootstraps – something I see as being a good thing for all of us down the line.

As important, this upward, quality/creativity-oriented pressure we're feeling reinforces a positive value system for everyone. So rather than viewing current conditions as destructive, I prefer as the eternal optimist to see this as a grand opportunity to sharpen our skills and improve our industry's ability to thrive in all types of market conditions.

My point is that, now more than ever, we have everything to gain by keeping our sights trained on quality, creativity and optimism. We *know* our products improve the quality of life our clients enjoy. We *know* we bring beauty, luxury, enter-

tainment, family togetherness and health into their lives. There is simply no economic tide that can wash away consumers' demand for the benefits water-shaping has always delivered.

The risk we run by giving in to despair and letting a downturn define future prospects is that we become authors of our own defeat. To show you exactly what I mean, I'm going to share a story that's way out of character for this column – and I do so only because it defines just how absurd pessimism can be and how awful it is to give in to a hopeless view of the future.

In brief, I recently attended a funeral of a man who worked with me when I was involved in the contracting side of the business quite a while ago. He was one of our project managers and, after working for several other companies over the following years, decided to strike out on his own. I thought he made that transition prematurely, but he was determined to go for it and hang out his own shingle.

During the market's best times, he began fairly well and built some worthy projects. But when times became tough, his company faltered. I don't know the specifics, but I was told he was depressed by the debts he was carrying and saw little chance of digging himself out. Sadly, he chose to deal with the situation by taking his own life.

staying strong

At the service, I couldn't help thinking how wrong it was for him to see suicide as the answer to life's problems. It occurred to me that if I was ever to find myself in such dire straits that my business' goose was cooked, I'd probably move to an island somewhere and work on a fishing boat or as a waiter and continue living as best I could. Life is simply too precious to think of the future in any other way.

Perhaps I'm being unfair to him and simply can't feel the pain he suffered, but in any event his decision underscores the



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lethal power of negative thinking. Whatever the circumstances surrounding his death, there's always a second act in life, always a chance to make a new start, and all I can say is that I wish this person had been able to see past today's hopelessness and find the light that waits at the end of every tunnel.

Please believe me, I'm not suggesting that this extreme example of negativity is indicative of what our industry's experiencing these days. This isn't Wall Street in 1929. As I see things, it's just the springboard for my desire to encourage others to remember that good times will be back and that we can't let the dark patches drive our thought processes about the future. There's *always* hope so long as we choose to embrace it in our thoughts and amplify it in our actions.

Nor am I so naïve to think that simply willing things to be better will make them so. I do, however, believe that the more we think positively and act on those encouraging impulses, the sooner our fortunes will turn. Indeed, I believe firmly in the power of positive visualization: When you can see good things happening, you are better able as a result to act in a way that makes them happen.

The positive actions we pursue can take many forms, whether it's righting things financially in a way that you don't expose yourself to personal debt; restructuring your company to accommodate a stretch of lessened revenues; shifting the focus of your business to maximize opportunities; or even stepping away from watershaping and taking a job that offers greener pastures. There's power in plotting a course and taking steps that you believe can move you in a better direction. Even if things are slow for the foreseeable future, working to a plan will give you peace of mind and high hopes for better days.

It takes courage in unsettled times to think positively, but I believe that people who've made a go of it in this business are by nature independent, ambitious and creative souls to whom courage is no stranger. If things are tough, you have nothing to lose and everything to gain by being brave and staying as physically, mentally and spiritually strong as possible.

Yes, challenges abound. Yes, the news

is troubling both within and beyond our industry. And yes, what we're passing through now may mean there are difficult passages and changes ahead for all of us. But none of that alters the long-term, positive prospects for our chosen field of watershaping, and better times do lie ahead—maybe even the best times we've ever known. **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

Wings of Whimsey



In the often wild and woolly world of custom landscape and watershape design, it's sometimes impossible to predict the sources of the most interesting and challenging projects – or anticipate how we manage to find our ways into the middle of them. It's all part of what makes this profession so uplifting at times – and so confounding at others.

I've worked hard to accept and embrace the strange tides of fortune this business entails. As a case in point, this month (and next) I'm going to relate a story that captures the essence of what it can take to accommodate the unexpected and enlist the nerve it sometimes takes to support your belief in what you see as the best solutions.

In this instance, the story began four decades ago with a well-known Rochester, N.Y., socialite named Margaret Woodbury Strong. She was an omnivorous collector of everyday treasures and by the time of her demise had amassed a collection of more than 500,000 dolls, toys, commonplace objects and ephemera. Toward the end of her long life, she founded Rochester's Strong Museum in 1968 – just a year before she died.

While it started out as little more than an elaborate personal showcase, through the years the Strong Museum has evolved to become a world-renowned venue dedicated to children and education. Various interactive exhibits and play areas have been introduced, including Sesame Place, where kids become

This is a story that captures the essence of what it can take to accommodate the unexpected and enlist the nerve it sometimes takes to support your belief in what you see as the best solutions.

part of Sesame Street's culture write their own stories, and One History Place, where they dress up in period costumes.

Eventually, it became clear that the museum was in need of some updating – and that's where the story's current chapter begins.

connections

In 2004, the museum's administration and supporters embarked on a most ambitious project: a \$37-million expansion that would double the size of the play area and bring interactivity to new levels.

One of the areas slated for addition was the Dancing Wings Butterfly Garden – the only butterfly conservatory in New York. It was designed as an abstract butterfly shape with two "wings," one of which would be the conservatory itself and the other a greenhouse to house the many different plants that would continually be rotated through the main exhibit space.

My company became involved via a most convoluted path. About 15 years previously, we had installed a small retaining wall for an architect-client who, as it turned out, was a principal at the architecture firm that had been hired to design the museum's additions, including Dancing Wings.

That past relationship (as well as our good standing in the local landscape-design community) led to a call from the museum asking us to consult on the project. We were thrilled: As residents of the area, we took great pride in being invited to shape such a high-profile project – one that would ultimately benefit many who live nearby or might come to visit.

The design itself was a challenge, basically be-



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cause it developed with no clear precedents and was the work of architects who had no experience with the design of such conservatories. They picked up ideas from similar institutions in Canada and the United States when it came to heating and ventilation systems, but essentially the rest of the design was based on ideas from the museum staff.

The architects' conceptual design called for a 42-foot-diameter garden incorporating three waterfalls, intertwining pathways, thousands of plants and some type of woodwork. This left many unanswered questions, including how all of the desired features were to be built and the plantings were to be watered and maintained.

After an initial plan-review meeting, we added to the collection of questions, focusing on installation logistics complicated by that fact that the project had not one but two general contractors who were to guide two separate project areas. Our aim was to give the museum's administration a reasonable understanding of

We brought up so many issues and suggestions about the project that the museum's administration felt our presence was needed to make sure all important concerns were addressed.

what that meant – at which point they asked us to increase our level of participation: We'd brought up so many issues and suggestions that they felt our presence was needed to make sure all important concerns were addressed.

So we signed a consulting contract with the museum and went to work in deconstructing and deciphering the plans.

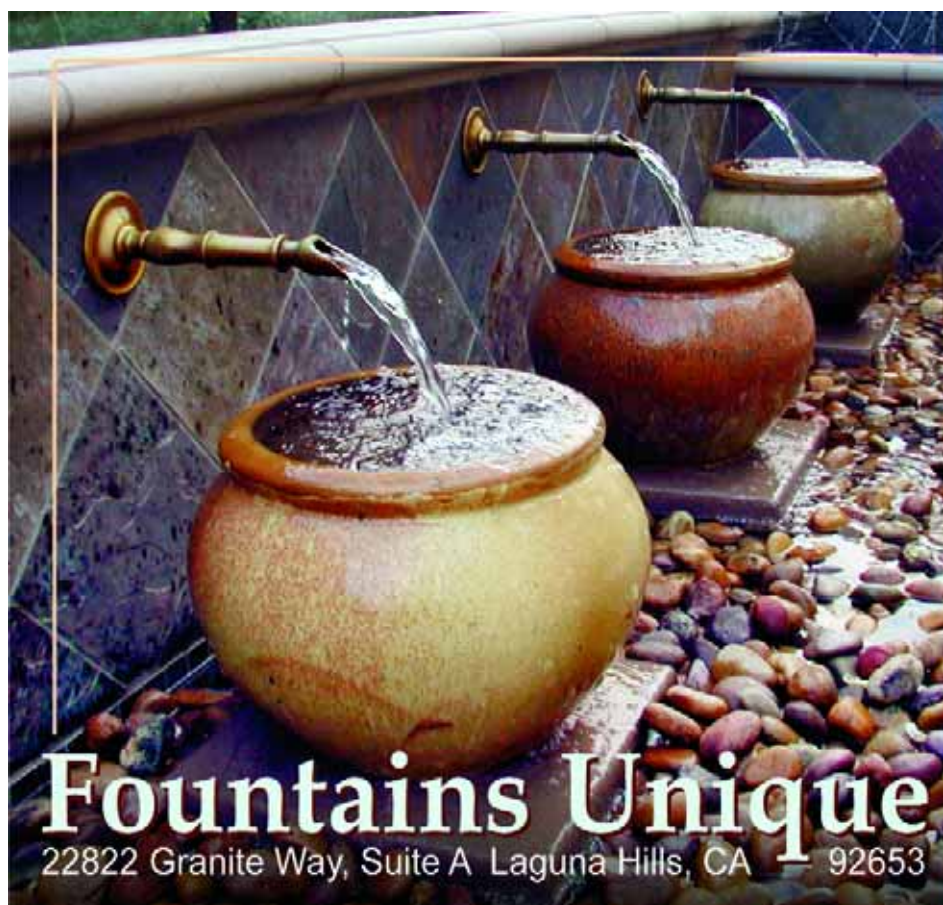
in deeper

When we'd examined the plan in detail, we found that one of the garden's major features was to be a nine-foot waterfall adorned with various tropical plants.

The documents, however, gave no in-

dication of materials nor of any sort of structural support for the waterfall, which was to be set up against a concrete wall flanked by the butterfly garden's entry and exit points. In other words, this "major feature" was allocated a six-foot-wide, nine-foot-tall wall space – and there was to be a pond below it that would extend 12 feet out into the garden. The best word we could find to describe the resulting waterfall system was "confined."

As planned, the structure was to be built of natural stone, but no allowance had been made for footings of any kind. In fact, the plans called for no more than a mud slab – essentially a 3,000-psi con-



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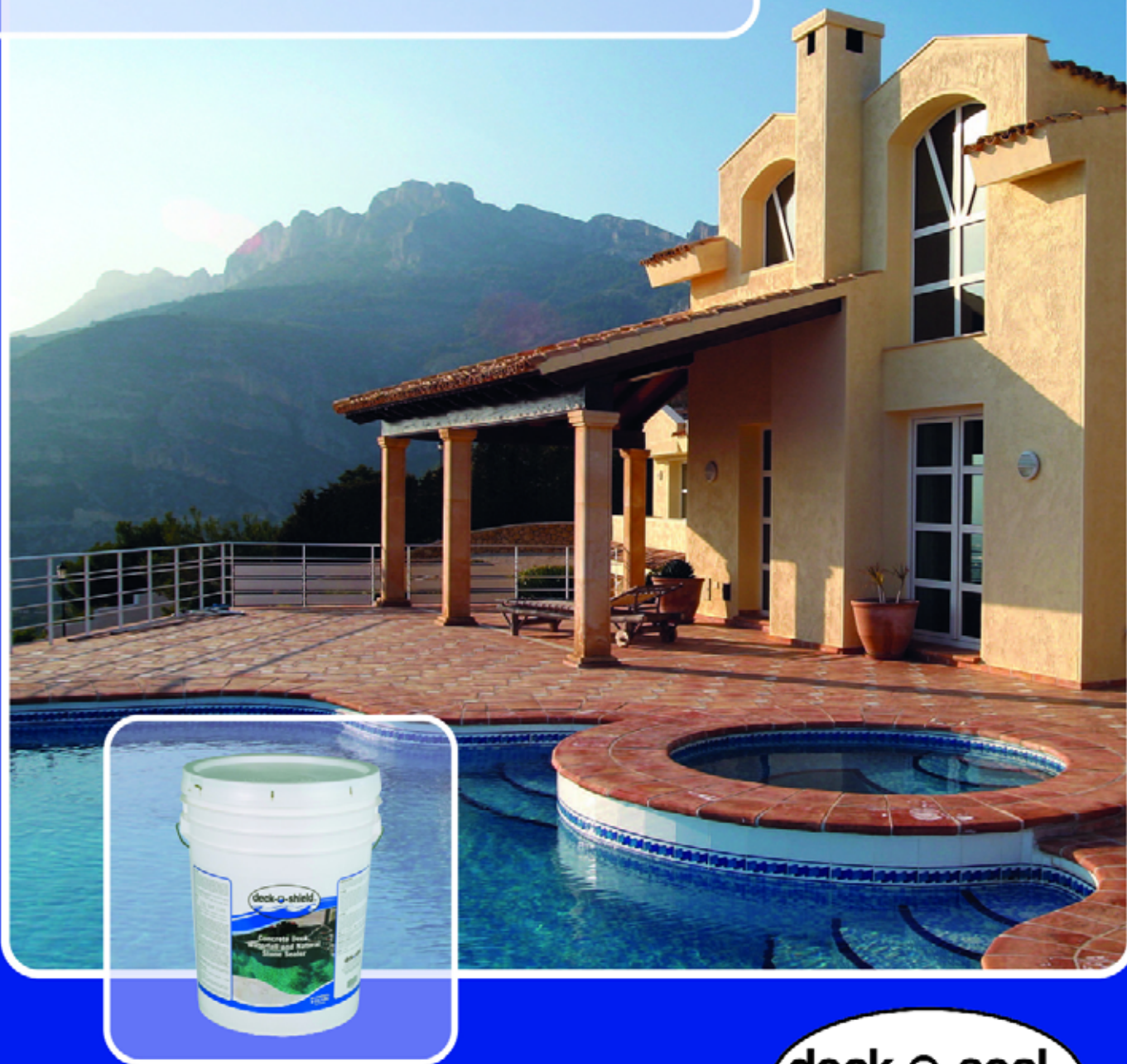
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crete floor set on a base of drainage stone – two feet below the final floor level. This was to allow room for a special soil mix and plantings in the areas between the walkways.

As our thoughts encompassed the waterfall and pond and other features called out in the plans, it didn't take long for us to see that what the architects and administrators wanted simply couldn't be built in so tight a space. So we immediately recommended waterfall construction using faux-rock panels.

We had no experience with that type of construction (we work exclusively in real stone), so we called Rock & Water Creations (Fillmore, Calif.). They in turn recommended us to Rod Russel-Ides of Dallas, who travels the country building artistic faux-rock waterfeatures.

After contacting Russel-Ides, we sent him a copy of the plans – and he immediately responded with sketches and elevations. His excitement from the start assured us that he'd come aboard for the duration of the project (assuming, of course, he and the museum could come to terms). Our thought was to build the faux stone up to make it look as though the concrete walls of the conservatory had been built around a natural waterfall found on site.

To speed the process, we asked Russell-Ides for a ballpark estimate of what it would cost to build the large waterfall we were now discussing. Simultaneously, we brought in a local company, Design Pool & Spa of Fairport, N.Y., for feedback on what it would take to build the basins into which the waterfalls would cascade.

As these relationships fell into place, we all continued to discuss whether we could build a believably natural waterfall in the small allocated space. The entire conservatory was to be just 42 feet in diameter, so we hesitated to make it any larger. Ultimately, what we ended up doing was reworking the space to include just two ponds instead of the original three that had been proposed by the architects.

rolling along

As we worked through the engineering stage for the watershape, we also met with the general contractor who'd been hired to build the conservatory.

For some reason known only to the

In this type of situation, we insist on having all the decision-making and otherwise influential parties present.

museum's administration, one general contractor had been hired to build the main addition and another to build the butterfly conservatory. That would have been fine, but we learned in our conversations that, although the scope of our involvement extended only to the conservatory, the pumping and filtering equipment would be housed in a vault in the basement of the main building!

This meant that we needed to deal with *both* general contractors as well as subcontractors in the heating/cooling, glass, electrical, plumbing and concrete trades before we'd be in an adequate position to provide the museum with recommendations related either to "buildability" or budget for our part of the conservatory.

We navigated all this and finally set up a meeting with the administrators. In this type of situation, we insist on having all decision-making and otherwise influential parties present, which in this case meant having the museum's chief executive, head of engineering, public relations and all other fiscally responsible officers in attendance. For good measure, we also invited a representative of the architecture firm and both general contractors.

At this point, we were strictly consultants and never expected to be installing this project. (We'd always assumed it would be open to bid, and that's not something we pursue.) This liberated us in the meeting to be as blunt and impolitic as we wished, so we recommended eliminating one of the three ponds, building the two others with combinations of real and faux stone, stamping the walkways to make them look like exposed bedrock and reducing their size from the initial plan to maximize the plantings that were to nourish and sustain the conservatory's inhabitants.

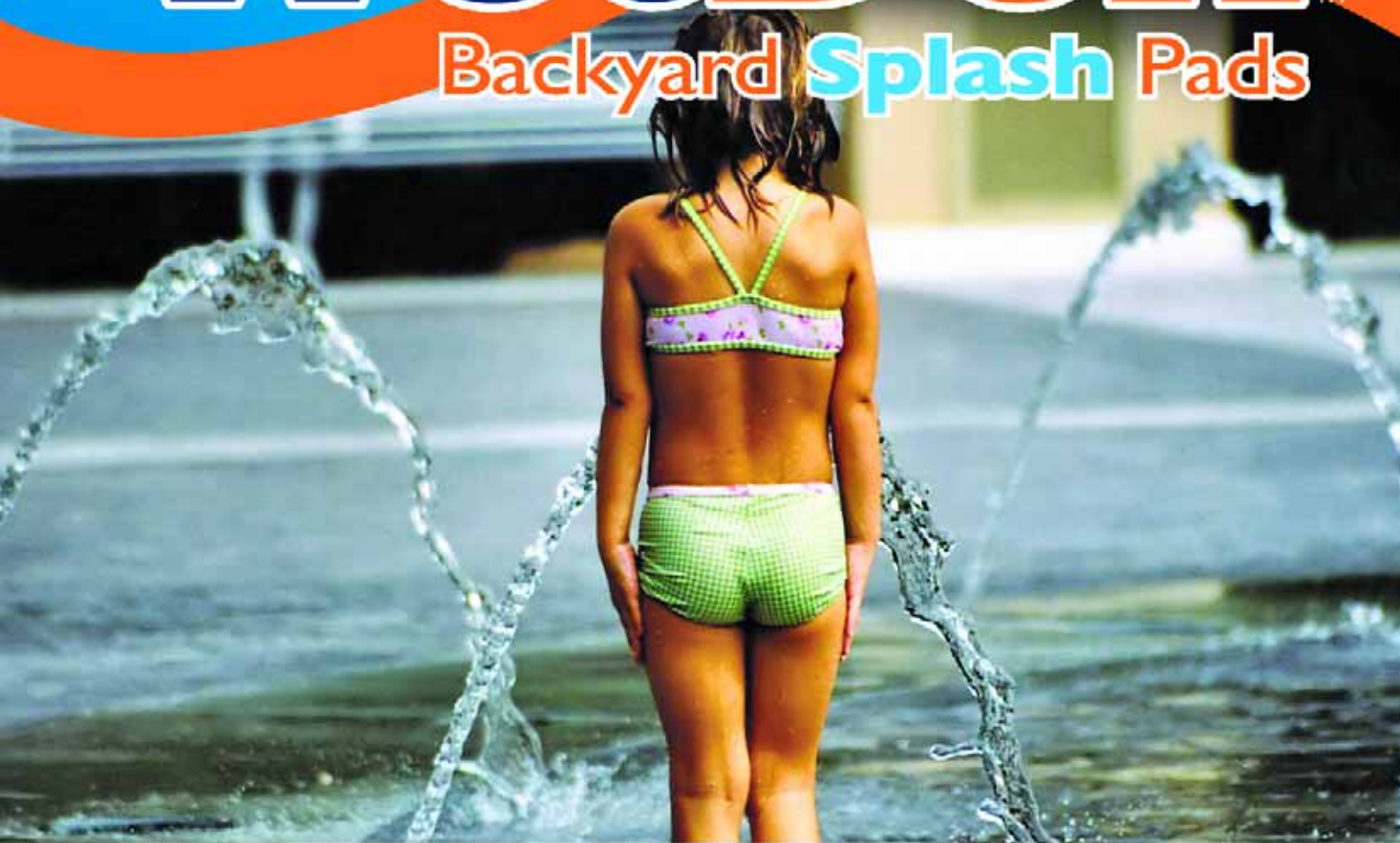
Both of the latter recommendations met

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with opposition from the CEO, who was less concerned about aesthetics than he was about liability and the possibility of people falling into the planting beds or slipping on the concrete paths. In fact, he had made it known to all present that the pathways would be brushed concrete, which he considered to be the least-slippery option. No one called him on that point, nor on his assertion that the wood features should be built using a sustainable (but expensive) tropical hardwood.

We also told those present that, although the concepts laid out in the architectural and museum-provided plans were valid, they did not take into account the scale of the space or the logistics of building such detailed structures in a financially responsible way. Indeed, we told them that the bulk of the plan, including much of what the staff had drawn, needed complete re-evaluation.

Our whole presentation took about 15 minutes, after which we sat back to await questions. No one had any, so we began to pack up, figuring we'd challenged their basic assumptions so thoroughly that they'd never want to see us again. Instead, what we heard just before we could leave the room was the CEO saying, "We'd like you to install the project. Please put together a cost."

go figure

Delighted but a bit dazed, we agreed on the spot and began shifting our thought processes from consultancy to design/build practicalities.

Costing such a project is a bit more complicated than the norm, basically because it is unlike our usual residential work in which we have full control over the site, do all of the work ourselves and build flexibility into the scheduling so we need only work on site when the weather allows. This usual process lets us be as efficient as possible and helps us keep costs in line for the client while we actually make some money on the deal ourselves.

With Dancing Wings, however, we were hemmed in by the scheduled opening of the museum addition – cast in stone and already publicized in the local press. This timetable also took into account recommendations of Dr. Ralph Charlton, a professor of entomology at the University of

Kansas who would ultimately relocate to Rochester to direct the Dancing Wings Butterfly Conservatory.

As he explained things, one of the critical aspects of populating a conservatory with butterflies is to allow time for the off-gassing of building materials. At high concentrations of the sort encountered immediately after construction, those gasses would kill newly emerged butterflies (and, to say the least, would put a real cloud over the grand opening). He calculated that six months would do the trick, so, working back from the announced debut in July 2006, we had to complete all of our work by the end of January 2006.

Winter in upstate New York can be rough when it comes to getting work done outside, and then there were the various facts that we had to acclimate lots of tropical plants, cut and fit lots of concrete waterfall panels and mix mortar in cold temperatures. To make it work, we wanted to be on site well before winter set in, so we began arranging with subcontractors to help us with the watershapes and walkways, setting up a system for scheduling and tracking their work as well as that of electricians, glaziers, roofers and climate-control specialists.

While none of this was entirely foreign to us (we've built incredibly detailed garden displays for the Rochester Flower & Garden Show in less than three days for the past 13 years and, in fact, this experience was of great importance in helping us figure out how to proceed with the conservatory), we kept running up against variables that were beyond our control.

It became, in short, an exciting project, but it also had its share of unnerving details. As we wrapped ourselves around it, we perceived clearly just how little margin there was for error – and under how much scrutiny and public observation we were operating.

setting the scene

The decisive meeting took place in October 2004, so we had about a year to price the project, meet again with the administration, order and receive materials and plan everything accordingly.

The first thing we did once we were fully aboard was meet with the general

contractor in charge of the conservatory end of the project, Frank J. Mariannaci Construction of Bloomfield, N.Y. As luck would have it, we'd also worked with this company before in a project in which we'd designed and overseen the construction of a local pocket park. The experience had been a good one, so we were all quite comfortable.

We set up this one-on-one meeting so that we could fairly and clearly assess the scheduling without the influence or complications that would show up if we'd met with many companies at once. This is not to say we avoided meetings with the others – in fact, we had numerous pre- and in-construction meetings throughout the almost two-year planning and installation process. Up front, however, we simply wanted to know the site parameters and time constraints that had been imposed upon the general contractor; this would help us to determine if the strict timetable presented by the museum was, shall we say, *accurate*.

That schedule didn't have us on site until August 2005. But we learned from the general contractor that once they had begun digging the foundation, they hit unstable subsoil and had to excavate a substantial amount more than anticipated – an eventuality that added almost six weeks to their site work in removing excavated materials and installing and compacting reliable fill.

This time overage was not reflected on the schedule the museum had shared with us, but we now knew that we weren't going to gain access to the site until October 2005 at the earliest. Assuming that there would be other issues (as is always the case on a site so complicated), we didn't really expect to get into the conservatory until winter had arrived.

We weren't thrilled by the prospect of wintertime work, given the potential severity of the local weather, the possibility of anything from ice storms to blizzards and temperatures likely never to exceed the teens or twenties through December and January.

We informed the museum administration and the general contractor that what we were proposing was dependent on us getting onto the site by October 2005 at the latest and plotted our costs ac-

cordingly. As you'll see next month, working around the weather and keeping things on track provided enormous challenges – including several I could never have foreseen. **WS**

Next: a look at the organizational and technical challenges of construction at the conservatory.

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.

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By Dave Peterson

Toward a Standard



I think we can all agree that design communication between architects, engineers, designers and contractors should be clear and concise. If that's the case, it follows that plans and other construction documents should be uniform in their organization and layout – in other words, that they should follow a set of standards to which everyone in the design/construction community can and will adhere.

Why the bother? The plain fact is that any given project involves a cast of characters that will be different – sometimes completely so – from just about any other project. This is why I'm such a strong advocate for standards that set minimum criteria and can also be used to develop a level of uniformity that leads to organization, consistency and repeatability.

From trade to trade and project to project, *everyone* involved in design and construction should be able to anticipate and rely on the organization of any set of plans that might be dropped on the table. Achieving this level of efficiency requires that the sheets are consistently ordered and that the data on those sheets is set forth in repeatable, recognizable and shared patterns.

The goal is quite direct: Not only does uniformity make project coordination easier and more accurate, but it also reduces errors and omissions when

I'm a strong advocate for standards that set minimum criteria and can also be used to develop a level of uniformity that leads to organization, consistency and repeatability.

contractors are bidding and building the project.

In my first article about the National CAD Standard (NCS) in "Playing by Rules" (*WaterShapes*, December 2007, page 48), I outlined the ten modules (or chapters) in the NCS. This time, we'll focus on Module 2 on *Drawing Set Organization* and Module 3 on *Sheet Organization*. (Both of these chapters are part of the Uniform Drawing System established by the Construction Specifications Institute and have been incorporated into NCS versions 3.1 and 4.0.)

As declared in my December article, my intention here is not to address every detail of the NCS or these two modules; rather, I seek to bring greater awareness of the NCS to a watershaping industry that stands to benefit from getting engaged with the standards movement.

set organization

Let's cut right to the heart of the uniformity goal, which is about identifying every sheet in a set of plans with a coordinating sheet number and then organizing all those sheets in a specific sequence.

As we covered in my December article, the NCS standardizes sheet numbering using the scheme *DM-TSS*, where *D* is the Discipline Designator, *M* is the Modifier Character, *T* is the Sheet Type Number, and *SS* is a two-digit sheet numbering sequence starting with 01 and rolling on to a potential limit of 99.

All of this was defined in some detail in that article, where we identified Discipline Designators and suggested that the letter "W" be used to indicate all watershape plans – even if they contain only sheets of interest to specific disciplines (such as structural engineers or electricians).

That proposal came in the context of layer name prefixes we use in designing within CAD

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environments; now what we're doing is extending that concept to the sheet numbering scheme as a way to distinguish our plans from those of landscape architects and others.

The Modifier Character, *M*, may be used to divide the discipline into logical divisions (such as a specific trade). For example, if you have a sheet that is dedicated to plumbing, the modifier character "P" could be used. In practice, however, I find that in organizing our sheets, seldom is one trade so specifically isolated: As a result, we never have occasion to use a Modifier Character.

The Sheet Type Number is separated from the Discipline Designator by a hyphen and organizes the sheets into the following groups: 0 = General (symbols legend, notes and the like); 1 = Plans (horizontal views); 2 = Elevations (vertical views); 3 = Sections (sectional views, wall sections); 4 = Large Scale Views (plans, elevations, stair sections, or sections that are not details); 5 = Details; 6 = Schedules and Diagrams; 7 = User Defined (for items

that do not fall into other categories); 8 = User Defined (for additional items that do not fall into other categories); 9 = Three-Dimensional Representations (isometrics, perspectives, photographs).

The Sheet Sequence Number starts with 01 for each of the Sheet Type Numbers listed above. Additional slicing of the Sheet Sequence Number can be used to organize sheets with additional logic: If, for example, the project has multiple levels, the first-floor plans could be on sheet X-X11, while second-floor plans could be on sheet X-X21.

Putting it all together, a common sheet number will be W-111, which refers to a Watershape Plan/Plan View/First Floor/First Sheet. Where possible, sheet W-111 should align with plans prepared by other trades showing the same area. Thus, if the landscape plans include an L-111 sheet for the front yard with a fountain and an L-112 sheet for the rear yard with a pool, it makes sense that the watershape plans would be logically labeled W-111 for the fountain and W-112 for the pool.

assembling the puzzle

Let's back up just a bit so we can put the example discussed just above into a fuller context.

Table I (on page 30) is a copy of one of our typical Sheet Indexes – an excerpt from our Title Sheet W-001. This is something that can be set up for each project by adding or deleting sheet references as needed, but the overall sequence of the sheets *never* changes, and repeat clients and contractors have let us know they appreciate that consistency from project to project. (The empty boxes on the right, by the way, are reserved "for office use only." We generally use them as check boxes or as small fields for handwritten notes made while we finalize and plot the sheets.)

Helpfully, we didn't have to make this system up. The NCS Drawing Set Organization module includes sections on file naming, file management, archiving, and sheet-number suffixes used for project phasing (and for major revisions where a whole sheet is revised rather than car-

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ried forward as a revision-clouded section). There are good schemes for these items, but in our own practice we rarely use project phasing, and, frankly, our file organization/naming schemes are simpler than NCS models because of the way we structure our plans.

No matter what you do, the key is to keep things simple, organized, reasonably compliant with NCS and consistent. Also please note as well that the sheet numbering scheme is definitely something that can (and should) be implemented by hand drafters as well as CAD users.

Except for small projects, the simple fact is that plans are rarely completed by only one entity. Many of our projects include an architect, a landscape architect, a structural engineer, a geotechnical engineer and representatives of various related trades. If each of us developed his or her plans in a personal vacuum with no set of organizing principles, the resulting pile of plans would be difficult to coordinate – and our projects even more difficult to build in the field.

By contrast, when a watershaper develops a set of plans that are properly organized and labeled according to a common standard, it can readily be merged into a grander set of project plans as developed by the design team.

As you might imagine, the NCS defines the logical sequence in which all the sheets should ultimately be bound. The complete set starts with general sheets that include

SHEET INDEX				Table I
SHEET NUMBER	SHEET X OF Y	TITLE	NOTES	
-	1	COVER SHEET	PROJECT TITLE, RENDERING, PERSPECTIVE DRAWING OR STYLIZED PLAN	
W-001	2	TITLE SHEET	PROJECT TITLE, VICINITY MAP, WATERSHAPE SCHEDULE, DIG ALERT, APPROVALS	
W-002	3	ABBREVIATIONS, SYMBOLS, AND NOTES	CODE COMPLIANCE INCLUDES SAFETY REQUIREMENTS AND TITLE 24 MF-1R FORMS	
W-003	4	CODE COMPLIANCE NOTES	REQUIRED SAFETY AND ENERGY NOTES	
W-004	5	GENERAL NOTES	GENERAL NOTES	
W-101	6	SITE PLAN AND KEY MAP	SITE PLAN AT ENGINEERING SCALE (E.G. 1" = 20')	
W-102	7	DEMOLITION PLANS	DEMOLITION AND MINOR GRADING PLANS	
W-103	8	FOUNDATION PLANS	CAISSONS, GRADE BEAMS, ETC.	
W-111	9	CONSTRUCTION PLANS	FIRST FLOOR CONSTRUCTION PLANS AT 1/4" = 1'-0" MIN SCALE	
W-112	10	CONSTRUCTION PLANS	FIRST FLOOR CONSTRUCTION PLANS AT 1/4" = 1'-0" MIN SCALE	
W-121	11	CONSTRUCTION PLANS	SECOND FLOOR CONSTRUCTION PLANS AT 1/4" = 1'-0" MIN SCALE	
W-201	12	ELEVATIONS	VERTICAL VIEWS AT 1/4" = 1'-0" MIN SCALE	
W-301	13	SECTIONS	SECTIONAL VIEWS, WALL & STAIR SECTIONS AT 1/4" = 1'-0" MIN SCALE	
W-401	14	LARGE SCALE PLANS	PLANS, ELEVATIONS, SECTIONS OVER 1/4" = 1'-0" SCALE	
W-501	15	DETAILS	DETAILS	
W-502	16	DETAILS	DETAILS	
W-601	17	EQUIPMENT SCHEDULES	EQUIPMENT SCHEDULES FOR PUMPS, FILTERS, HEATERS, LIGHTING, CHEMICAL TREATMENT, MISC.	
W-602	18	EQUIPMENT SCHEDULES	EQUIPMENT SCHEDULES FOR CONTROLLERS, FINISHES, STRUCTURAL ENGINEERING	
W-603	19	PROJECT KEYNOTES	KEYNOTES THAT APPLY TO ALL W-XXX SHEETS	
W-611	20	SCHEMATIC DIAGRAMS	SCHEMATIC PLUMBING DIAGRAMS WITH PIPE SIZES/FLOW RATES	
W-612	21	SCHEMATIC DIAGRAMS	SCHEMATIC PLUMBING DIAGRAMS WITH PIPE SIZES/FLOW RATES	

items applicable to all disciplines (safety, for example, or a requirement to schedule work around a specific bird migration).

That's followed by big picture items such as site maps with property boundaries; grading plans, utilities and other items ordered within the set as well. Then come the watershapes and landscaping, which are next because they complete the exterior work. After that you'll find sheets for a sequence of disciplines including architectural, plumbing, mechanical and electrical plans – and others for separate structures.

digging deeper

This sequence of plans is carefully ordered so that big items (such as grading) appear in the beginning of the set, with more and more detail added in subsequent sections.

According to the NCS, the key disciplines should be organized into the following sequence after the Cover Sheet: G = General; H = Hazardous Materials; V = Survey/Mapping; B = Geotechnical; W = Civil Works (or, for our purposes, Watershaping); C = Civil; L = Landscape; S = Structural; A = Architectural; I = Interiors. (This list continues to include other trades as well, but you get the idea.)

As mentioned in the first article and reiterated above, I do not recommend trying to split up a set of watershape plans into the individual disciplines listed above. It would be too confusing for, say, a project electrician to get involved in the elec-

trical work that falls under the purview of the watershape contractor.

Indeed, the only time our sheets do not include the W prefix is when we are designing an integral architectural element (such as an outdoor kitchen/living room) as part of the design. In that case, it usually makes sense to use the Discipline Designator A to isolate the building design from the watershape design. Where we use this approach, it helps as well with permitting and division of the scope of work amongst multiple contractors.

Now that we've run through the basics of sheet numbering and drawing sequencing as keys to uniformity, let's take a look at the sheets themselves and the Sheet Organization Module of the NCS.

As you should know if you work much with plans, there are many sheet sizes available for drawing. If you are not using 24-by-36-inch sheets at least, it's time to step up: Construction plans should be drawn to a minimum scale of one-quarter-inch to a foot. At that scale, it is impossible to show most watershapes on anything but Architectural D-size sheets that measure 24 by 36 inches. (In commercial work, the sheets get even larger: Some require the use of Architectural E-size sheets at 36 by 48 inches – or even Architectural F-size sheets at 30 by 42 inches.)

For quick sketches and study drawings, of course, we'll use 11-by-17- or 18-by-24-inch sheets, but these will be later photocopied, scanned, or redrawn onto larg-

get your copy

The National CAD Standard (NCS) can be purchased from a number of online stores, including those sponsored by the National Institute of Building Sciences (NIBS), the American Institute of Architects (AIA) and the Construction Specifications Institute (CSI).

The price went up with the new Version 4.0 and is now \$410 (with generous discounts for NIBS, AIA or CSI members. Balancing the extra cost is the fact that the new version includes symbols in a CAD format so you don't need to draw them yourself – a considerable time/effort savings.

– D.P.

er sheets before they leave our office.

As a matter of uniformity as well as utility, it's important that all sheets in a full set of plans are the same size, which is why, whenever we're starting on a project, we always ask the team leader (usually the architect) what to use. If it's left up to me to make the call, we'll use Architectural D-size sheets: They're much more manageable than larger sheets, and we wouldn't use *anything* smaller.

paper chase

It should also be mentioned (since nothing is ever quite as simple as it should be) that there are different standards for sheet sizes.

ANSI, for example, also marks their sizes with the letters A through E, with the indicated sizes being multiples of a standard 8-1/2-by-11-inch base (that is, ANSI's D size is 22-by-34 inches – the equivalent of eight sheets of 8-1/2-by-11-inch paper). Although ANSI-compliant paper is readily available in the United States, the additional two-inch gain in length and width of paper has made using the "Architectural D-size" standard a general preference.

And if you work in Europe or Asia, you need to concern yourself with the ISO standard. In those places, the sheets marked A1 are, at 23.4 by 33.1 inches, as close as you'll come to the Architectural D-size sheets found in the United States.

Once the sheet size is selected, it's time to divide the page into two major sections – one for the title block and the other for the drawing area. (The NCS also identifies a "production data area" – basically a time-stamp with a filename and plotting date information – that is usually located beyond the drawing limits on the left side of the sheet. This can be useful but is not required for CAD-based operations – and is never used by hand-drafters.) With that one minor (and optional) intrusion, the drawing area is basically everything outside the title block.

To help organize the drawing information, the NCS defines a grid system in which sheet notes are usually located on the right-most column and drawing blocks are somewhat aligned with the grid to help organize the sheet (as needed). A freeform pool will not usually benefit from this gridwork, but equipment sched-

ules, details and elevations are often helped by the structure whether the grid is visible or not. (We'll get into equipment schedules and details in future articles.)

From an organizational perspective, title blocks are every bit as important as the information in the drawing area. Everyone must look there for important project information and specific sheet-related in-

formation such as the revision history.

In the title block shown in Figure 1 on page 32, for example, the Project Identification Block provides key project information including the project name, owner identification, the address of the project, a legal description and other data. In this case, we inserted a color copy of a rendering by the architects. When an identi-

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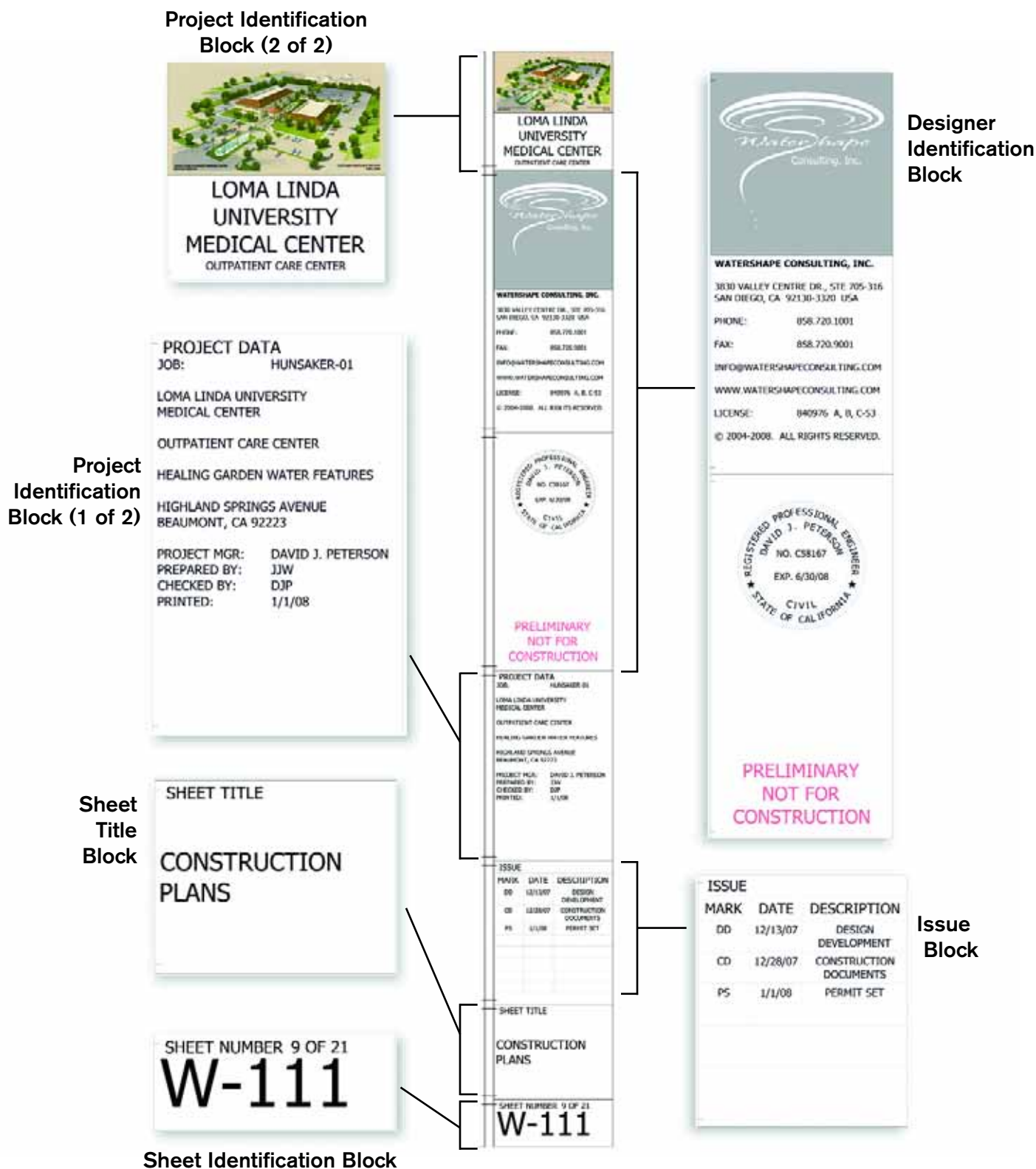
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Figure 1



fiable project image isn't available, we'll supplement a project logo with a very large single character such as S to identify a "Smith Residence" project.

The rationale for including our logo is straightforward: It helps anyone quickly identify our sheets from the hundreds of other sheets floating around an office. We include a project drawing or identifying mark for the same reason: When I reach into the back seat of my truck, I can sort more quickly through a pile of plans if all I need to do is look at that top corner.

The NCS also defines a Management Block to enable the designer to list key information such as the drafter's name, the CAD filename, the project number and more. We usually just include such information in the Project Identification Block (as shown in Figure 1).

making sense

In actuality, the title block is a trove of useful information. Of special value is the Issue Block, which supplies the revision history of the project and each sheet: Indeed, once a project has started construction, this is usually the most important field in the title block.

Tying things together, the last two fields are for the Sheet Title and the Sheet Identification Number. The sheet number in Figure 1 is W-111 – the one described above in our discussion of the Drawing Set Organization module. It should be noted that the sheet identification is *always* at the bottom right corner.

In general, the ordering of the depicted title block matches the setup promoted in the NCS. The exact layout is flexible, because there is no law or other requirement that mandates full compliance with the NCS, but as a matter of practical necessity (and once again in the name of uniformity), I'd strongly recommend orienting the title block vertically on the right side of the sheet so that it is fully visible when the drawings are rolled up.

It's also useful to note that these recommendations may be used whether you are designing in CAD or by hand. The uniformity provided by implementing these standards will improve the clarity of everyone's drawings and make developing and executing them more efficient.

Indeed, for anyone serious about their

construction drawings, I strongly recommend purchasing a copy of the standard: There's much more to it than could ever be covered in an introductory column such as this one. **WS**

Next: Schedules (tables of information) and drafting conventions (symbolology, scale, dimensions and more).

Dave Peterson is president of Watershape Consulting of San Diego, Calif. He's been part of the watershaping industry since 1994, starting his own firm in 2004 after stints with an aquatic-engineering firm and a manufacturer. A registered civil engineer, he now supports other watershape professionals worldwide with design, engineering and construction-management services and may be reached via his web site, www.watershapeconsulting.com.

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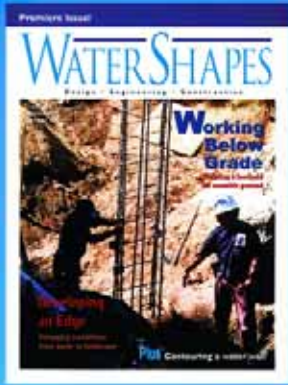
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**By William Bennett
& Walter Williams**

Custom watershape designers and builders William Bennett and Walter Williams have established a reputation for tackling sophisticated projects for upscale clients in the vicinity of our nation's capital. Their skills are definitely on display here, where they profile one of their most challenging projects to date – a backyard composition featuring a 220-foot perimeter overflow and a stylish abundance of right-angle turns.

RIGHT ANGLES

Every once in a while, a project comes along that gives you a chance to step up and demonstrate your company's capabilities.

The construction of the swimming pool seen here was just that kind of exercise for our firm. Located in Potomac, Md., the property is just west of Washington, D.C., in an exclusive neighborhood remarkable for the outstanding caliber and quantity of its watershaping and landscaping projects. We became involved here through a custom homebuilder who was remodeling the property and wanted to do something special in the backyard.

This represents a perfect example of how our firm, Alpine Pool & Design of Annandale, Va., thrives in this market. Through the years, we had already worked not only with the homebuilder, but also with the architect as well as the landscape architect. When it came time to consider watershape construction, all three recommended us for the job – testimony to the fact that ever since we opened shop in 1986, we've done all we can to establish a reputation for high-value collaboration as part of a community of like-minded designers and contractors.

We pride ourselves on being able to execute the most challenging designs and have set ourselves apart from other players in our area by pursuing the highest possible standards in both technical expertise and client service. In this case, we knew everything was on the line, because we'd never installed a project with as complex a water-in-transit design as this before.

It was a steep learning curve, but we knew from experience that if we carefully planned each step, undertook the necessary research, consulted with the right people and adhered to our usual standards of precise construction, we could make it work and leave the client and the rest of the project team happy with the results.

a pretty picture

As part of this community of professionals at the top of the local residential design/build market, we know that referrals fly in all directions. In many cases, we serve as a client's initial contact point and then draw in other designers or contractors as needed, depending on the situation. In this case, however, the flow ran the other way: The remodeling project was ongoing and the basic pool concept had already been established by the time we were called.

The builder and architect brought us in to figure out how to make things work and then to do the installation. The owner's primary residence is in Greece, so we couldn't rely on direct contact with the client; instead, we had to pull all of our cues from what the design principals had done to that point and move forward as a team.

While the basic concept was already in hand, nothing at all had been done by way of specific construction specifications, structural engineering, hydraulic design or materials selections. And while we may have had the inside track with the design team, the owner wanted other firms to be in on the bidding.

It helped, of course, that we'd worked with all of these people in the past and knew something of their tastes and the level of participation and support they expected. There was also the fact that the plan was so underdeveloped that some of the other companies had trouble offering firm bids. We faced the same situation, of course, but we dug in, did the research and developed a complete, detailed technical design. After a process that lasted several months, we were finally awarded the contract.

As for the original plan, it looked as though someone had gone crazy with right angles. The home's architecture is what

might be called "subdued contemporary" and features lots of mostly simple rectilinear forms along with soft, organic colors. It's not a bold statement, in other words, and instead harmonizes with its verdant surroundings rather than standing out in the setting.

It was left to the pool to carry the modernist banner by playing off the home's style and amping things up a bit with lots of long, straight lines accented by multiple right angles. It's also a physically grand statement, with more than 1,500 square feet of surface area, 70,000 gallons in volume and 20 corners in all arrayed over a footprint 68 feet long, 32 feet wide and up to eight-and-a-half-feet deep.

Most of the full-perimeter, deck-level overflow designs we've done haven't been nearly so large – nor did they boast such complex, angular shapes. In doing our homework, we knew right away that the size and linear complexity would make everything more challenging in the design and construction processes.



With this project, the need for on-site precision truly began right away. We took great care in laying out basic forms for the pool, in excavation – and particularly in setting up the unusual armature we needed to support the forms for the gutter system and all of its angles.



on the beam

Before we began, an old, existing pool had been removed along with a series of walls and other hardscape elements in the landscape. Although everything was to harmonize with the new pool, the actual landscape work was to be done by others: Our scope was limited to the pool, the coping system, the surge tank and the equipment area.

The narrow focus probably helped as we boiled our challenge down to a few key factors mostly related to the design of the bond beam that would contain the overflow trough and associated plumbing – and to observation of tolerances within a sixteenth of an inch, which was no small factor given the great length of the edge.

As it developed, the beam grew to be 29 inches wide compared to the 14 inches we specify for more typical pool designs. It had to be that large to accommodate the cantilevered wet coping as well as a six-by-six inch trough (positioned just

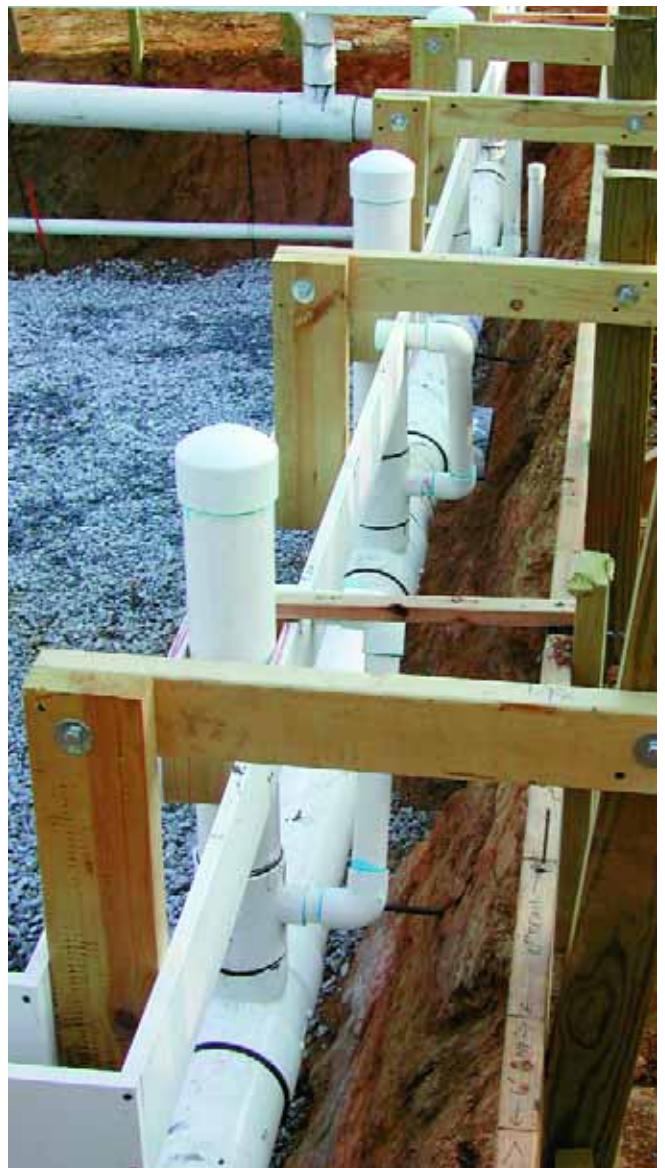
off center within the beam) over a six-inch-diameter trunk line. The trunk line follows the perimeter of the entire pool and uses gravity to feed water to the surge tank. All of this had to be planned with great care not just in terms of structural engineering, but also with respect to practical construction details.

Indeed, forming, plumbing and installing steel in the beam while including the gutter and drain systems and all their associated piping posed far and away the greatest difficulties we faced in the entire project. We considered a variety of approaches, including use of a foam spacer to help us create the gutter, but we dismissed that thought when it became apparent that it would complicate the process of setting up the drop lines between the gutter and the trunk lines: These drops were to occur at four-foot intervals all the way around the pool, and each one came with a vent line needed to reduce noise.

In setting all of this up, we had to make certain the plumber



In combination with the pool's long perimeter, the repeated 90-degree turns in the edge detailing made for unusual challenges in designing and installing the trunk lines for the gravity-fed overflow system. In all, four separate lines feed the surge tank.





Shooting the shell was another challenging process, simply because there was so much going on in the walls of the pool and the bond beam. When the process was complete, we removed the gutter forms and armature and began working on the finish details.



could actually install all of the required pipes; that the steel contractor could install the rebar properly; and that the gunite company's nozzle operator had the access and angles needed to shoot behind the gutter and achieve proper steel coverage and material compaction. To make it work, we ended up fabricating gutter forms using wood and a plastic fascia material that we suspended over the beam using a cantilevered brace system.

It was a huge and (literally) lengthy undertaking, because the "box" that

forms the gutter had to be suspended firmly in place while serving as a functional benchmark from which every subcontractor worked right up through concrete application.

We set up the suspended braces once the pool was excavated, sinking posts just beyond the perimeter of the pool and attaching panels to support a system of two-by-fours that hung over the beam and from which we hung the gutter forms. This preparatory phase alone required tremendous planning and fabrication before we even started working on site.

tile aside

Early in the design team's discussions, it was generally agreed that we should explore the possibility of using an all-glass-tile finish for the pool's interior surfaces. In fact, the client had gone so far as to purchase a beautiful mass of tile – but that was before we decided to move in another direction.

It all boiled down to concerns about freeze/thaw conditions triggered by one of our masons, who expressed strong fears about the pool being closed from sometime in November through April, during which time a crushing, expanding sheet of ice anywhere from two to six inches thick might form on the pool's surface.

We stuck to the original all-glass plan until after we shot the pool shell. In surveying the interior of the pool and its carefully shaped coves and curved offsets around four sets of steps, we began to appreciate just how difficult tiling the interior would be – even with the one-inch tiles that had been selected.

So even though we believed that concerns about tile installation and durability could've been accommodated and that, ultimately, glass tile would've been a fine choice, caution carried the day and the client opted to change materials. So now the pool is finished with a black exposed-aggregate finish from Pebble Technology (Scottsdale, Ariz.) – a rich-looking surface that does a wonderful job of enhancing the reflective qualities of the water. (The client also asked us to seed foal's gold into the finish to create a sparkling effect.)

Best of all and happily for all concerned, the owner is *thrilled* with the look – and of the five homes he currently owns around the world, he says this one is his favorite.

– **W.B. & W.W.**

getting ready

The original plan called for construction to begin in November, which was unrealistic given the severity of our winters. We approached the general contractor and explained that delaying the start of activities until spring would not be time wasted, as we would use it to prepare for the installation in such detail that we could jump on things at full speed when the weather broke on or around March 1.

The original plan had called for installing an all-glass-tile finish in the pool, but concerns over damage from freeze/ thaw conditions caused the owner to move on and select an alternative. (For more on this process, see the sidebar on page 40).

Everything else, however, moved forward without hitch or hesitation. We used the winter months to fabricate the gutter forms and carefully plan, review, revise and finalize the steel and plumbing plans. This also gave the plumber the opportunity to mock up the manifold, drop-plumbing and vent-line

systems – and to secure all of the oversized fittings he'd need before work began on site.

Basically, this preparation meant we showed up on site and tackled the installation with everyone knowing *exactly* what they were to be doing and when, every step of the way.

All that work truly paid off when we started on site, but the challenges weren't rendered any smaller by our preparations. For starters, excavation required unusually precise contouring to accommodate the pool's shape. In addition, the forms for the gutter system all had to be suspended over the beam with virtually no room for error – and the same was true of the installation of the slightly sloping trunk-line plumbing.

As it turned out, meeting these challenges was most difficult on the outside 90-degree angles – spots where our subcontractors had to support the weight of heavy material as each section was carefully installed and secured in place. It was all



In laying out the edge stone, cutting the miters at all those corners and setting up the coping system, we truly came to appreciate the value of the care we'd put into the early stages of the construction process. It was still challenging because of the length of the edge and the number of turns, but everything moved forward smoothly.



back-breaking, precision work, and we did it knowing there was basically no wiggle room.

Consider this: On those outside corners, you couldn't really rig the support at 45-degree angles, so in places where the material hung out over the pool, it had to be supported at right angles from two sides. That all took a great deal of time and care.

balance points

We also knew from the start that getting everything right for the gravity-fed drainage system would be a major hurdle. The edge system for this pool spans more than 200 feet: With a quarter-inch drop required for every linear foot of the trunk line, this meant we couldn't possibly run the entire system as a single line. In fact, if we'd tried it that way, it would have involved an unmanageable vertical transition in the plumbing. Even with two separate loops, we *still* faced a drop that would have amounted to approximately 36 inches for each line! The alternative we developed required use of four separate exit points, each of which ultimately led to the surge tank.

Even working with four loops, however, accommodating the slope meant we had to build a scaffold system for the plumbers to use, simply because of the unforgiving weight of the six-inch lines and all their associated lines and fittings. Just setting up supports along the way was a major task – and a critical one as well.

We decided very early on that the trunk lines should be encased entirely within the beam. To be sure, we could have allowed the lower portions of the trunk lines to extend below the bottom of the beam, but given local freeze/thaw conditions, we decided that would be an unnecessary risk. From the start, in other words, we knew we were going to end up with a bond beam of truly massive proportions.

On paper, this all looked pretty straightforward, but when push came to shove and we had to account for all the weight of the gutter form as well as the plumbing and all of those fittings, drop lines and vents, the work became incredibly challenging in a physical way.

In retrospect, we're incredibly happy we had all that time to plan our course of action. Because we had been able to think through every detail, we ran into few surprises and generally didn't have to worry about "making things work" on site. That was a good thing, and we shudder to think what might have happened had we been forced to come up with solutions for those tricky outside corners on the fly!

What we learned in this process is something everyone who's worked on a complicated water-in-transit design knows only too well: It's apparent right from the start that every single element influences all that follow in a sort of domino effect. In addition, in this case we saw the immediate value of a bias toward care and quality, because we knew the system was to be forever encased in the biggest bond beam we'd ever encountered.

The six-inch line that was so hard to lay out and install began with the fact that we anticipated a flow of three-and-a-half gallons per minute per foot over the edge. Calculating from that starting point influenced the size of the plumbing, which in turn drove the sizing of the gutter and the beam and, ultimately, the sizing of the circulation system and the all-important surge tank.



Photos by Jeff Plusen

making it work

As a general rule, we've found through years of working with water-in-transit systems that one inch of displacement in the pool generally translates to a foot of water in the surge tank. With vanishing-edge pools, we deal with this displacement by setting things up in such a way that if people are in the pool, the system is running – a functionality we cover with a simple high/low leveling system.

With a perimeter-overflow system, however, things aren't quite so simple and there are many more considerations that come into play.

In this case, for example, the tank is set just below grade beneath a lawn area and away from the house. It has a total capacity of 2,500 gallons, which well exceeds the anticipated momentary surge over the full perimeter of the pool – a basic precaution.

In addition, we had to consider the possible influence of freeze/thaw effects. In our area, the frost line reaches to about 24 inches below grade. Here, because of the gravity-imposed slopes, the lines reach the tank at 18 inches below grade, but the tank's main capacity is below the level of concern. This system is completely separate from the main filtration/chemical-treatment system, which is all positioned above grade at an adjacent equipment pad.

The edge and circulation systems are filtered separately – a key consideration in water-in-transit systems generally, but particularly in a system as large as this one. Here, in fact, filtering capacity is oversized relative to both systems, simply because there's a tremendous surface area to deal with – and lots of sur-



No matter the angle or vantage point, this angular watershape perfectly suits the space it occupies – a wonderful example of architectural elements harmonizing with the overall environment and natural surroundings in perfect balance.

most imperceptible slope leading up to the overflow channel. On the dry side, the stone also pitches slightly toward the channel to allow for recovery of any water forced beyond the slot opening.

The surrounding area slopes away from the pool, thereby letting any rain or irrigation water to run away from the pool and its gravity-fed trunk lines.

perfected views

From start to finish, our objective in the studio and on site was to make the pool work as a visual extension of the home and the way its architecture blends into a backdrop filled with towering maples, oaks and poplars – and also accommodate the sculptural statement it made with its multiple angles and the inherent modernity of the perimeter-overflow system.

For all of its technical complexity and construction challenges, we see this project as expressing an idealized balance of architecture and natural surroundings. When combined with sweeping lawn areas and landscaping treatments that were beyond our scope of work, it all conspires to create a scene that is both modern in style while seeming quite contentedly organic and natural.

It was hard work, but in the fall of 2007, we felt proud and privileged to watch the leaves falling on the wetted edge and the beautiful decking, knowing we were in the presence of an amazing watershape that gracefully captured the spirit of a beautiful home.



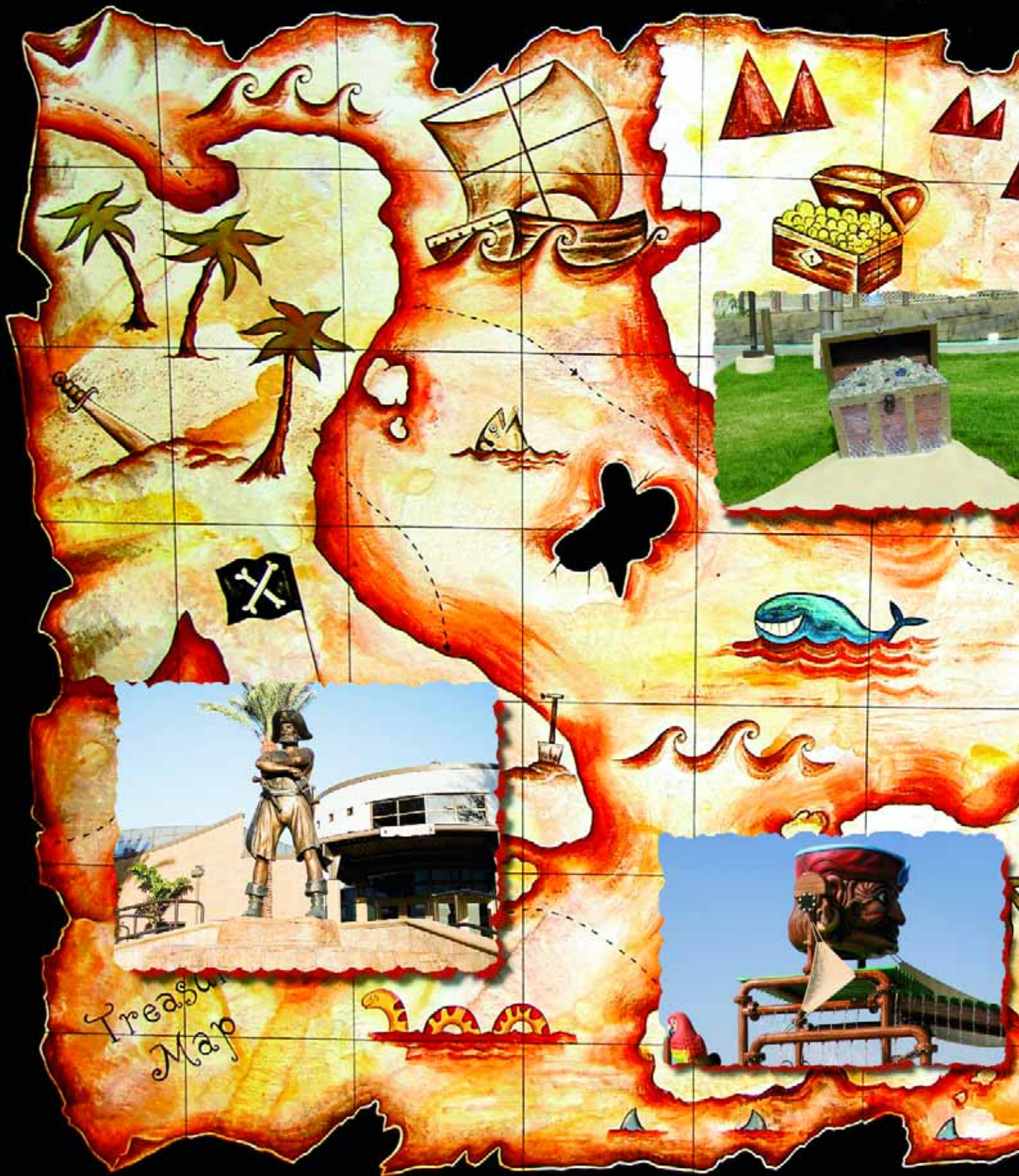
rounding trees to keep them challenged.

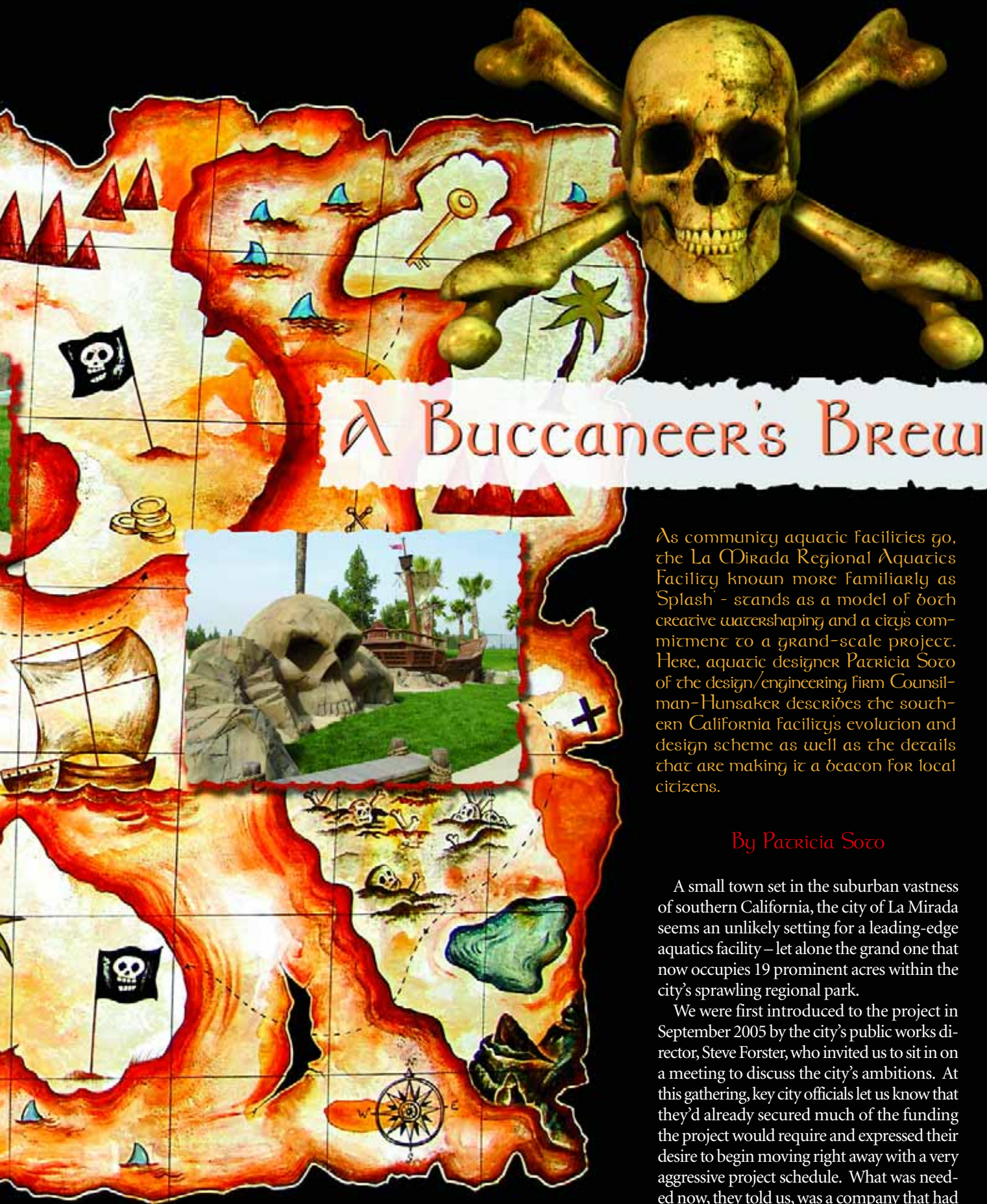
The next key to making everything work was establishing the edge with the submerged coping material. As mentioned above, we weren't responsible for the beautiful Jerusalem Stone decking that surrounds the pool with its variety of light cream and beige colors: Our work focused solely on the blue flagstone material right at the water's edge.

The flagstone arrived precisely as ordered, but we'd asked for each piece to be slightly longer than was necessary so we could cut them to size and accom-

modate all of the miters required to follow the pool's contours. The pieces had all been gauged to two inches and were basically right on – well within reach of our ultimate tolerance of a sixteenth of an inch by simple manipulation of the mortar bed.

Leaving nothing to chance at this late stage, the masons checked each stone's thickness and made stacks of pieces they thought suitable for use as the submerged coping, which is 12 inches wide and pitches slightly toward the pool so the depth of water increases slightly to create an al-





A Buccaneer's Brew

As community aquatic facilities go, the La Mirada Regional Aquatics Facility known more familiarly as 'Splash' - stands as a model of both creative watershaping and a city's commitment to a grand-scale project. Here, aquatic designer Patricia Soto of the design/engineering firm Counsilman-Hunsaker describes the southern California facility's evolution and design scheme as well as the details that are making it a beacon for local citizens.

By Patricia Soto

A small town set in the suburban vastness of southern California, the city of La Mirada seems an unlikely setting for a leading-edge aquatics facility - let alone the grand one that now occupies 19 prominent acres within the city's sprawling regional park.

We were first introduced to the project in September 2005 by the city's public works director, Steve Forster, who invited us to sit in on a meeting to discuss the city's ambitions. At this gathering, key city officials let us know that they'd already secured much of the funding the project would require and expressed their desire to begin moving right away with a very aggressive project schedule. What was needed now, they told us, was a company that had

Beyond making it suitable for matches in a variety of aquatic sports, a key aim in designing the competition pool had to do with giving those who would use it (as well as spectators) plenty of room to maneuver – hence the generous deck areas and ample grandstands seen particularly well in the view across the smaller teaching pool.

the expertise and experience to jump in, take the site plan and develop a design.

It seemed unusual to us that a town with just 50,000 residents would undertake such a large project, but as we became more involved, the intensity of La Mirada's commitment became overwhelmingly apparent. So would its determination to build an environment that would stand as one of the most outstanding aquatics centers in the region – something truly unique in the way it would comfortably accommodate competitive events along with family fun and togetherness.

At that first meeting, civic leaders made it clear that they were after a design firm with extensive experience in *both* competitive and recreational aquatic facilities. Our firm, Counsilman-Hunsaker (with offices in Los Angeles and St. Louis), was a natural candidate for the project, given our decades of experience in developing municipal facilities of both kinds as well as combinations that encompassed competitive swimming along with interactive waterplay.

On the Spot

The city's enthusiasm for the project impressed us from start to finish.

City Manager Andrea Travis and Community Services Director Tom Robinson joined Forster and a number of other key staff members (including Jeff Brown, Anne Haraksin and aquatics director Lori Thompson) at *every* meeting, and we knew that they were doing all they could to keep the process moving along as smoothly as possible.

Along with our firm, the city brought together Westburg+White Architects (San Diego); the civil engineering firm of Willdan (Anaheim, Calif.); and the construction managers at C.W. Driver (Pasadena, Calif.). High levels of mutu-



al support and teamwork were required, because one of the requirements they revealed to us right away was that they wanted an extremely compressed project timeline, with construction to begin in May 2006 in anticipation of a grand opening in Spring 2007.

We informed the city that we could meet the timeline in terms of the design process, but that experience led us to believe that the implementation phase might easily be held up either by the permitting process or by the intrusion of some unexpected challenge. To minimize those factors, we suggested that all key decision-makers needed to commit

to participating in all relevant meetings; again, experience told us that this would eliminate delays in disseminating information and allow the design team to adjourn meetings with the answers we required to keep moving forward.

Without hesitation, the city agreed – and we completed health-department-approved documents on schedule in March 2006 as a result.

During this time, the city of La Mirada and the County of Los Angeles (which had jurisdiction over the regional parkland) were in negotiations over a land transfer – a complex process that led to a number of stipulations that added sev-



The teaching pool stands front and center opposite the facility's main lobby – the first watershape a visitor encounters when he or she gains access to the spacious deck areas. The competition pool stands off to the right, while the banner to the left invites guests to the facility's pirate-themed waterpark.



public to be able to enjoy a separate recreational area. In addition, they wanted the two areas to flow seamlessly and comfortably into one another.

To one side of the facility there was to be a full-scale, 50-meter, eight-lane competition pool – complete with a moveable bulkhead, a gutter-overflow system, one- and three-meter diving platforms, bleachers and two LED scoreboards. Adjacent to this competition pool at the center of the site (indeed, on the axial view from the center's entry lobby) was to be an eight lane, 25-yard "teaching pool."

The central pool is the first thing visitors see in entering the activity areas. It has a deck-level overflow design and an elegant, semi-circular stair entry centered on the side just beyond the lobby doors. As an extension of the competition-pool area, this space presents guests with a zone dedicated to aquatic activities ranging from swimming lessons and free swimming to warm-ups for competitive swimmers.

The racing pool stands in a large area to the right side of the complex relative to the lobby. It complies with U.S. competitive standards and can serve as the site for any level of aquatic competition (other than world championships and the Olympic Games). The idea was to provide a top-notch facility that would serve as a training and competitive venue for local schools and swim clubs as well as for a variety of community aquatics programs.

One of the first groups to take advantage of the new facility was a swim club that had previously been based at a hotel in the nearby City of Industry. When they lost access to their home pool, the team approached the city of La Mirada, collaborated with the city on the project and renamed themselves the La Mirada Armada, a fitting label that plays off the city's proud Hispanic heritage.

eral layers of complexity to the project. One condition, for example, caused a delay in starting work on site: Several species of migrating birds nest in the park's trees each spring, and environmental regulations prohibited work in their vicinity while the birds were present. This hitch delayed excavation until August, and once the digging began, ongoing care was required in monitoring the site to ensure that no historical artifacts would be destroyed.

The unanticipated delay until August, however, actually gave the team the advantage of allowing more time to refine a host of key details and fully orchestrate

the work to be done by various subcontractors. Once construction commenced, California Commercial Pools (Glendora, Calif.) did a masterful job of executing the swimming pool plans and responding to on-site observation as the installation progressed.

A Pirate's Life

Let's back up a bit, because we've yet to discuss the overall concept for the site.

First, it's really two centers in one: The city wanted to be able to stage competitive events and provide programming for community swim programs, while at the same time it wanted the general



That connection to longer-term Spanish history led to the theme adopted for the fun side of the facility: Known as Buccaneer Bay, this park within a park celebrates the days of the Spanish Main and has made “Splash,” as the La Mirada Regional Aquatics Center has become known, a true regional attraction.

One of the defining features of both sides of the facility is the spaciousness of the deck areas. On one side of the competition pool, for example, are concrete bleachers that can hold up to 400 people, while on the other side there’s a large, grassy hillside that can also be used for viewing. (Much of this lawn area, however, will eventually be turned into a second 50-meter pool – already planned and pre-plumbed.)

Combined, the area surrounding the





The pirate décor flows through the entire park, with fully rigged ships' masts, shipwrecks, treasure chests and more on hand both to entertain guests and remind them of the spirit of rollicking adventure in which they've been invited to partake.

competition and teaching pools includes thousands of square feet of decking, all of it finished with a beautiful blue/mother-of-pearl exposed-aggregate material and a beige-colored concrete worked into wave and bubble patterns that appear throughout the facility's interior and exterior spaces.

Room to Maneuver

As a designer, former aquatic athlete, USA age-group coach and parent of a competitive swimmer, I've learned firsthand that deck space is a huge issue when it comes to the staging of large competitive meets.

Many top facilities tend to shortchange swimmers, coaches, officials and spectators by cramming them all into chaotic, uncomfortable spaces – and for major events, it's a crowding that can last an entire weekend. At Splash, however, there are ample expanses of decking as

well as large areas filled with concrete benches, spaces for tables and chairs and a sweeping arc of umbrellas. (It also helps that the facility is outdoors and in southern California.)

In short, there's plenty of room for everyone to enjoy the setting – comfortably and without feeling as though you're always on top of each other. A similar ambition toward spaciousness governed the rest of the design as well. The teaching and racing pools, for example, exist as two different zones, each with its established traffic patterns and sets of activities.

The teaching pool has a deck-level overflow system with the abovementioned semi-circular stair entry located right outside the main entrance. This watershape is extremely inviting and, by virtue of its edge treatment and central location, is an unusually friendly body of water. By design, it's likely to wind up

being the most used and versatile element in the entire project.

By contrast, the racing pool is off to the south side and has its purposes defined by elevated viewing areas that make it an attractive venue for aquatic sports, diving, racing, water polo or synchronized swimming. It has a deep gutter system in which the deck is elevated a foot above the surface of the water to provide an optimal field of competitive play. This configuration had the added benefit of making it easy to design the vessel to accept the moveable bulkhead.

The result is that, although these two pools are on the same grade and are linked by expansive decking that makes it easy to move freely between them, there is also a clear separation in terms of functionality. In sites that don't have this much space, it's more of a challenge to create a comfortable environment with such distinctive zones.



Making It Work

As with any project the size and scope of the La Mirada Regional Aquatics Center, there were a number of suppliers of equipment and other products that were key to the overall success of the process.

Knorr Systems of Santa Ana, Calif., supplied the system's massive pumps, which were manufactured by ITT Marlow H2O Technologies (Alhambra, Calif.). The high-rate sand filters were made by Nemato (Whitby, Ontario, Canada) and the pool heaters by Lochinvar (Lebanon, Tenn.), while the pool covers were supplied by T-Star (Oakland, Calif.). Siemens Water Technologies (Bradley, Ill.) came through with the chemical controllers.

In the competitive pool area, the lane lines and reels were supplied by Antiwave (Sanger, Texas). The scoreboards and timing systems originated with Colorado Time (Loveland, Colo.), while the diving boards and stands came from Duraflex International Corp. (Sparks, Nev.).

The contractor for the pools, California Commercial Pools, directly provided gratings from Grate Technologies (Naples, Fla.); the bulkhead system from Stark Bulkheads (Arlington, Wash.); the waterplay and slide features from Whitewater West (Vancouver, British Columbia, Canada); and the spray features supplied by Aquatic Recreation Co. (Minnetonka, Minn.).

Some of the many additional prime contractors on the project included Sunports/Shade Structures (Dallas), which provided the shade canopies; Trademark Concrete (Anaheim, Calif.), which installed the colored-concrete flatwork; and Shaw & Sons (Costa Mesa, Calif.), which created the custom bubble and wave patterns in the hardscape.

—P.S.



Also, there is an enormous storage area that's walled off from the public. It provides more than ample housing for lane markers, starting platforms, lifeguard stands, water polo cages and other competitive accoutrements.

In Character

Although just one side of the facility is dedicated purely to family fun, the pirate theme reaches throughout the entire facility.

It all starts at the entrance, where visitors are greeted by a bronze statue of a pirate standing proud with arms folded. Inside the facility, the theme is picked up in every direction: Even the scoreboards above the competition pool are mounted in superstructures that recall the masts of pirate ships.

These theme elements were created by Los Angeles-based Scenario Design Group, which was responsible for literally hundreds of details large and small, including various fences, rope bridges, signage frames and a host of masts, piers and docks as well as a ship's wheel and a treasure chest. Even the waste recepta-

cles look like barrels lifted from the set of a pirate movie.

The key here is that some of the visual elements are what you might expect to see in a full-scale theme park – but not necessarily in a community aquatic facility. Consider, for example, the large skull that emerges from a sand pit surrounded by large faux rocks and offer kids a great place to climb and play – or, next to the skull, a wrecked pirate ship.

As visitors enter Buccaneer Bay, they find themselves within a massive aquatic playground that carries a pirate theme to spectacular heights while providing an unexpectedly broad range of interactive systems for kids of all ages. The main waterplay elements occupy a 1,200-square-foot area that includes a large play structure with a tipping-bucket feature in the form of a three-dimensional pirate's head.

This area is flanked by a zero-depth-entry pool; a 600-foot lazy river with a variety of spray and rainfall features; and a core structure that includes a body slide, a speed slide and a tube slide. The



The waterpark area offers interactive play opportunities to guests of all ages and levels of interest and ability. From the large splash pad/play structure and the lazy river to the triple slide tower, the park is designed for active play and family fun – not to mention swash-buckling adventures.



From atop the slide tower, you get a sense of just how expansive the 19-acre complex really is – and how much attention was paid to making everyone comfortable either in relaxing and playing or in training and competing.

many interactive waterfeatures, such as the bridge showers and waterfalls, were designed by our firm. Features on the spray pad were provided by Aquatic Recreation Co. (Minnetonka, Minn.), while the slides and play structure were

provided by Whitewater West (Richmond, British Columbia, Canada) – with everything scaled and designed for applications in specific zones dedicated to the needs of children of different ages.

This entire space is laced with wind-

ing, interconnected paths leading to broad deck areas. The sense of spatial integration we were after led to development of some interesting transitions between areas, including the lazy river and the splash zones. Where such spaces are normally set up with distinct boundaries, in this case the broad decks break down the usual barriers, impose a sense of visual unity – and serve a functional purpose by allowing easy lifeguard access across zones.

Of course, maintaining a sense of visual flow with so much hardscape and so many ramps, bridges and raised pathways was a challenge we had to work out with the construction managers and contractors, but the overall effect says it all: The setting is remarkably spacious, but there are easy transitions between activity areas and plenty of room for parents to watch their kids have a good time. In sum, it's a great place for people of all ages to congregate – a multi-generational marvel.

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More Still

The primary aquatic areas defined above are still only part of the Splash story.

In addition to the pools and water-park features, for instance, the center also has a 20-person therapy spa set in a private area separate from the rest of the facility. This vessel has an unusual three-leaf-clover shape that allows groups of three to five people to sit in separate areas. And there's also enough room in the central core of the spa to allow for vigorous water exercising.

In addition, there's a large, landscaped area on a level just above the main aquatic zones that is beautifully appointed with shade structures and picnic areas. The city plans to lease these spaces to corporations, community groups, churches or families throwing large parties – all in an effort to provide another level of use for the site while creating a reliable revenue source.

The main building features beautifully appointed men's and women's locker rooms and restrooms adorned

with ceramic tile that picks up the exterior color scheme and aquatic motifs. The main building also boasts meeting and food-service facilities, office space and a retail store that sells a range of products related to swimming and aquatic exercise.

Throughout the site, the city invested in landscape and hardscape details crafted by ADL Planning, a landscape architecture firm based in Carlsbad, Calif. The city also did a wonderful job of taking design cues from central project elements and carrying them through to color schemes and the outdoor furnishings and shade structures – many of which suggest the sails of pirate ships. Even the lighting standards harmonize with the overall maritime theme.

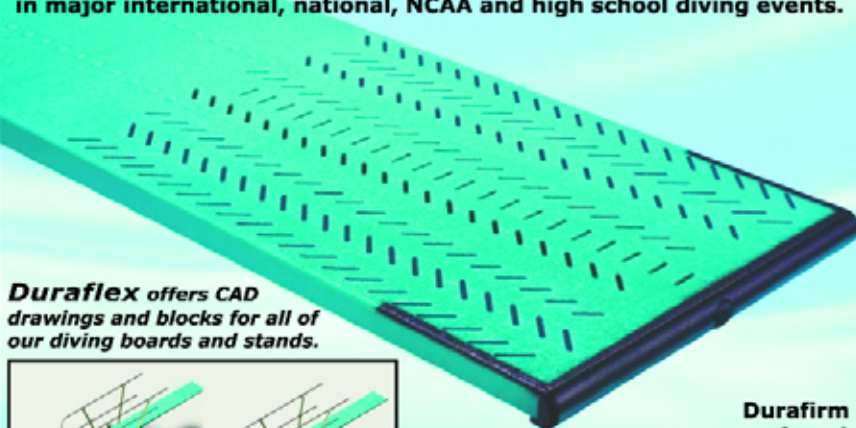
If this facility works as it should, guests may not even realize why they enjoy it so much, other than for the obvious reasons that Splash is a fun place to spend their time.

From our perspective, we could see

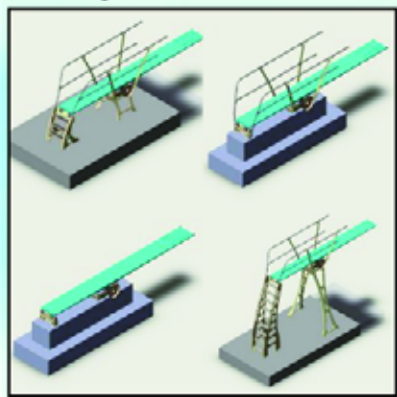
the city's ambition, understand the combination of desired features and pay the requisite attention to detail, flowing spaces, competitive needs and family fun, but we know from experience that La Mirada's determination to make it all come together was the key to the team's overall success of the project. The town set the stage, and everyone who worked on the project was motivated to help realize the dream of creating a place where members of the community could compete, exercise, have fun and enjoy all the varied aspects of aquatic recreation at the same time and in the same place.

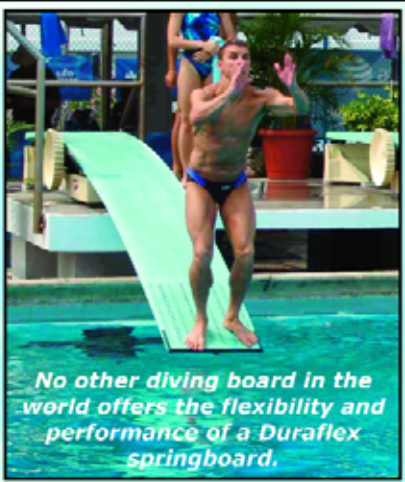
Certainly, these features can be found in facilities in hundreds of other communities, but this project stands out because of the city's unflinching commitment to making everything as fun, functional, safe and beautiful as possible. To my mind, it shows what it takes to turn an aquatics facility into a showcase.

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Eastern Eclectic

By Ben Dozier

More than five years in the making, the project profiled here pushed the landscape architects and watershapers at Root Design Company of Austin, Texas, to explore the limits of their creativity. The result, says Ben Dozier, is a complex set of garden rooms that draw on classic French and Asian styles as well as extensive plantings and numerous sculptures, garden ornaments and fine hardscape treatments. And then, of course, there's the water.



Photo by Paul Bardagy, Paul Bardagy Photography, Austin, Texas

One of the compliments we appreciate most at Root Design Company is when people say that no two of our projects look alike. Indeed, we pride ourselves on being able to work effectively across a broad spectrum of styles and use both time-tested and innovative building methods in ways that let us focus on details and on making certain we're always generating work that speaks directly to our clients' unique tastes and desires.

To maintain our edge, we limit the number of projects we tackle each year and, at the same time, seek out clients whose enthusiasm matches our own when it comes to pursuing something truly special. When everything clicks, we find ourselves in situations in which we have the latitude to stretch the boundaries of exterior design and deliver unique, genuinely artistic and distinctly one-of-a-kind projects.

Echoing throughout our studio as we work is the word *edit*. In fact, this term has become a guiding principle in that we refine the spaces we create with our collective imagination by anchoring them in principles of architectural integrity and historical significance and by operating sensibly beneath the environmental canopy provided by the setting. In other words, as we absorb cues from a home's configuration, prime views and view corridors – or from significant

plantings on or near the property – sometimes it's the details we leave behind or alter or refine in the course of the editing process that lead us to success.

This is a complex, all-consuming approach to the tasks at hand and makes us function conceptually and practically within multiple disciplines. By design, the results embody personalized narratives that enrich our clients' overall sensory experiences, build their confidence in our approaches to structural design and implementation – and instill in them a sense of the value and security of their investment for the long haul.

A Taste of France

The project featured here stands as a prime expression of these values: In this instance, the master plan draws not only on our creative sensibilities, but also on the eclectic set of influences that have shaped the tastes of well-traveled, well-educated art collectors who became our close collaborators.

The story begins on a cliff overlooking Lady Bird Lake (formerly Town Lake) and an acre-and-a-half site high above downtown Austin, Texas. From the start, our senior landscape architect Barry Landy, ASLA, worked directly with the clients, who had always wanted a place where they could display the substantial collections of art and artifacts they'd amassed through years of travel. What they wanted, they told us, was something akin to a personal arboretum.

This is nothing outlandish for Austin, a town marked by well-considered and occasionally unusual use of the full spectrum of architectural styles from the observantly traditional to the daringly contemporary. Included on that long band of design possibilities is a local fondness for the French Provençal, a set of features and motifs that work particularly well because the native limestone in the Austin area resembles a material commonly used in southern French architecture, gardens and watershapes.

Photos by Paul Bardagjy



Using this indigenous, local stone material was certainly easy and let us stay true to the native landscape, but our prime motivation in doing so was that it allowed us to capture a distinctly exotic atmosphere.

The property and its contours helped frame that picture: One of the largest lots in the area, it slopes upwards to a plateau on one side that now hosts the pool terrace and its garden, then flattens out gently across the rest of the site. The existing home we encountered was only about 1,400 square feet in a 1950s-vintage, Mid-Century Modern style – another feature of the site that was to be edited, refurnished, refurbished and renovated.

Interestingly, the clients wanted to start by developing the gardens first, saving home construction for a later date. That way, the future grounds and expressions of water would define the property's character and spirit – all the better, they thought, when it came to inspiring the home's final design.

Elemental Forces

While fire and earth were key design considerations, water played the pivotal role in design development. Landry studied and considered each of those fundamental elements for celebration and display in the master plan from the very start, but water (along with plants) came to the fore in defining zones and creating transitions.

On some level, however, what you see in the photographs is still a work in progress: We have plans for additional work with water and plants that will add congruency and create seamless backdrops for the Provençal-style manor house that will someday be built and ultimately will include several additional water elements. Once complete, in other words, it will be even easier to see just how important water was (and is) to establishing and sustaining the design continuum that permeates the property.

Throughout the long design/construction process, the clients have never been in a hurry and have always seemed to appreciate our attention to quality and detail as well as our adherence to high standards of performance. The project so far has unfolded in phases that have stretched on for nearly five years as the individual garden rooms have emerged – with everything marked by the reflective quality of the pool over which a cabana precariously seems to float.

But there's a wrinkle to the artistic vision: Although the stylistic underpinnings are essentially French, the clients' art collection reflects a wide array of additional, predominately Asian styles, including numerous Balinese, Indonesian, Vietnamese and Chinese objects and artifacts.

That might seem a bit incongruous on a cultural level, but Landry relied on a 19th-century design movement known as *Chinoiserie* to bridge the gap. For a time all the rage in France and England, this movement offered a distinctly naturalistic alternative to traditional European gardens and their highly controlled, rigidly geometric layouts. More important, it gave us legitimate leave to incorporate winding paths, layered views and Asian art and architectural details into what became a remarkably rich and flexible design palette.

The clients already had an extensive store of Asian art collected from their travels, but they also maintained contacts with artisans in several countries who could generate new pieces in various materials as we sought to incorporate the various Asian touches into a basically Provençal milieu. Landry used these resources to blend an incredibly broad range of ideas into a series of distinctive spaces, each with its own design program within the master plan.

Also celebrated in this grand space was the clients' desire for and love of plants capable of telling their own stories in the garden.

Sublime Choreography

The experience of this project was amazing for our team: a monumental effort led by Landry, who combined his skills in planting and hardscape design with an in-depth historical understanding that left no possibility unturned; and by our company's co-owner Duke Cowden, who directed and supervised

much of the installation process.

On a balmy Austin evening in the summer of 2007, the clients hosted a private gala during which we had the opportunity to watch the narratives we'd designed into the gardens come vividly to life for all in attendance. Observing what seemed to be near-choreographed passage through the grounds by guests of all ages, we saw how the design functioned and had come to completion.

As the room-by-room tour of the gardens on the following pages reveals, we became fully engaged as designers and builders on a sensory level that led ultimately to the creation of what we (and, we're proud to say, our clients) see as a thriving, living masterpiece.





OutFront

Approaching the understated home by passing through an elaborate arbor gate, you encounter a quiet area defined by a stand of Japanese temple bamboo – a rare form of giant bamboo that has an elegant, feathery appearance. At its base is a terraced area carpeted with unmown zoysia grass, a species that develops soft, mounded clumps in wave patterns that suggest wind or the ebb and flow of water. (It also has the advantage of being tough and drought-tolerant in the warm climates in which it thrives.)

Large boulders are deployed here as a retaining wall, but they've been heavily planted with native sedums and succulents so they appear to recede into the slope. This area also appears to be the headwaters for a pair of dry creek beds that guide runoff into drain catchments when it rains. This ornamental drainage structure is thematically significant: It introduces the notion of water as a shaping force that will be a key to what's seen beyond this entry space.





The Formal Rose Garden

As one of the most visually entertaining spaces in the garden, the formal rose garden is another area that exhibits the project's core spirit. Landry's design of the central wagon-wheel parterre with the large, chrome obelisk at the hub features borders defined by true dwarf English boxwoods (*Buxus sempervirens suffruticosa*) and by the overwhelming fragrance of heirloom roses. With its intricate detail, the wheel design spins outward from the core of the space, punctuated by matched pairs of specimen spiral topiary 'Julia Jane' boxwoods.

But once again, an Asian spirit intercedes: The client originally wanted all of the roses to be white to represent purity and divinity. Landry augmented that scheme with the slightest blushes of off-white as well as a few light-peach and pink varieties among the more than 200 roses to create subtle contrasts. The heirloom antique roses are neatly framed by clipped boxwood borders, with ground-plane curlicues and vertical spirals in swirling, classical French lines.

When this garden is at its blooming peak in spring, the fragrance of the roses (enhanced by lavender) reaches visitors before they reach the gate. Once inside, they see a space whose design pays homage to the famous rose garden of the *Jardin de Bagatelle* in Paris as well as the rose collection at the grand Brooklyn Botanic Gardens.



Photo by David Strohl, David Strohl Photography, Austin, Texas

The Walled Garden

This is one of the areas where the Provençal influence is most directly on display: At center of the garden stands a classic plaza fountain at which residents of a typical southern French town would fill their buckets with fresh water. This structure features a number of authentic details, right down to the brass spouts and bucket holders.

Landry designed the wall surrounding this garden room to appear as though it exists in a constant state of decay – the intention being to make it seem as though this area had been there and established long before anything else on the property came along. To achieve this look, the wall was built using small boulders that resemble riprap. In support of this illusion, the top of the wall is fully drip-irrigated and planted with succulents that embrace the wall and

make it seem that the structure is being held up by the plants.

We planted the immediate area on top and within the walls mostly with ornamental flowering species to honor the clients' request for a cut-flower garden to supply armloads of fresh flowers for the estate's tables. This space also features a vegetable garden; an ever-changing perennial, herb and bulb garden; a 19th-century-style glass-house conservatory; and, for nighttime indulgence, three wrought-iron canisters that house gas-flame elements and illuminate the gate to draw visitors inside.

This space is also known as the Secret Garden: As in the famous story of the same name, it's a place where people encounter a completely separate place with its own character.

Photo by Paul Bardagjy



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The Ammonite Garden

The focal point of this lush, subtropical corner of the yard is a large sculpture depicting a primordial fossil, the Ammonite. The sandstone piece is set amid plants of exotic and local origin, and the overall intention is to lend a sense of *Tropicalismo* to the space by including various bananas, gingers, palms and fancy elephant ears. At the same time, the space has a certain Japanese air, with handsome specimen *Acer palmatum* trees flanking the art piece.

Native blooming golden columbines (*Aquilegia* x 'Texas Gold') skirt the ground in early spring, but the space more generally features a mixing of indigenous, naturalized and exotic plants selected for their exuberant floral displays, bold foliage textures, striking colors and ever-changing seasonal interest.

The Lotus Garden

The term "Asian Fusion" comes to mind when you look at this room, but that modern culinary reference fails to convey the intricacies of this sophisticated Zen garden. In a 21st-century interpretation of *Chinoiserie* style, various Chinese, Thai, Balinese and Indonesian features and details are integrated into a design in which water serves as the mediating presence.

Originally, the clients had wanted a plastered, nine-foot-tall wall as a backdrop for the rectangular Koi pond, but that simple idea quickly evolved from just adding niches to further embellishing the story with water so that, now, the wall of honeycomb limestone is veiled in a constant trickle of water that nurtures ferns, mosses and aquatic plants.

The composition's reference is to the legend of the serene Buddha levitating above the lotus leaves. To that end, two large, smiling Buddhas face each other from nooks in identical framing walls (representing balance and stability). The smaller icons in the wall niches join the large statues in seeming to float above the mass of lotus leaves – a variety of spiritual symbolism that carries over to the rest of the space as well, with water jets signifying the ascent toward enlightenment and the lifting of one's spirit toward Nirvana.

There's also a living treasure in the form of the Koi that swim easily along the length of the 40-foot pond. At the center of their space is a composition handcrafted in a darkly dyed cement material that has spouts emanating from the mouths of fish set amid representations of lotus blossoms. This feature consists of a series of plaques that spurred the design for the rest of the space.

The special pebble pavers were commissioned by the clients and handmade in Thailand. Each is 18 inches square and is made up of small, flat stones set at angles to create fish-scale patterns. The clients also selected and imported the large, handmade limestone table and bench: These pieces offer a place to relax and take in the setting as well as a striking sculptural element.

Landry's plant selections round out the Asian-inspired scene. Indeed, most of the plants in this area had their origins in China, Japan, Vietnam or Indonesia. Included are weeping, black and timber bamboos along with various palms and cycads as well as a beautiful 'Blood-Good' Japanese maple specimen with large trunks to which slips of weeping cut-leaf Japanese red maple (*Acer palmatum dissectum atropurpureum* 'Crimson Queen') have been grafted at the tips of the main branches.



Photo by Paul Bardagjy



Photo by David Strohl



Photo by Paul Bardagiy



Lessons Learned Well

Construction of the lotus pond was quite a challenge – a combination of traditional swimming pool construction with finishes and water-management strategies that would ensure the health and prosperity of the fish and water plants.

To make it happen, our company's co-owner, Duke Cowden, spent a considerable amount of time researching water-gardens and consulting with members of a local pond society – especially those who had success in raising Koi.

It all worked: After a dozen mature, beautiful, Japanese-bred Koi were released into the pond and held their own through the first few months, we were all delighted to witness the emergence of more than 800 baby Koi.

– B.D.

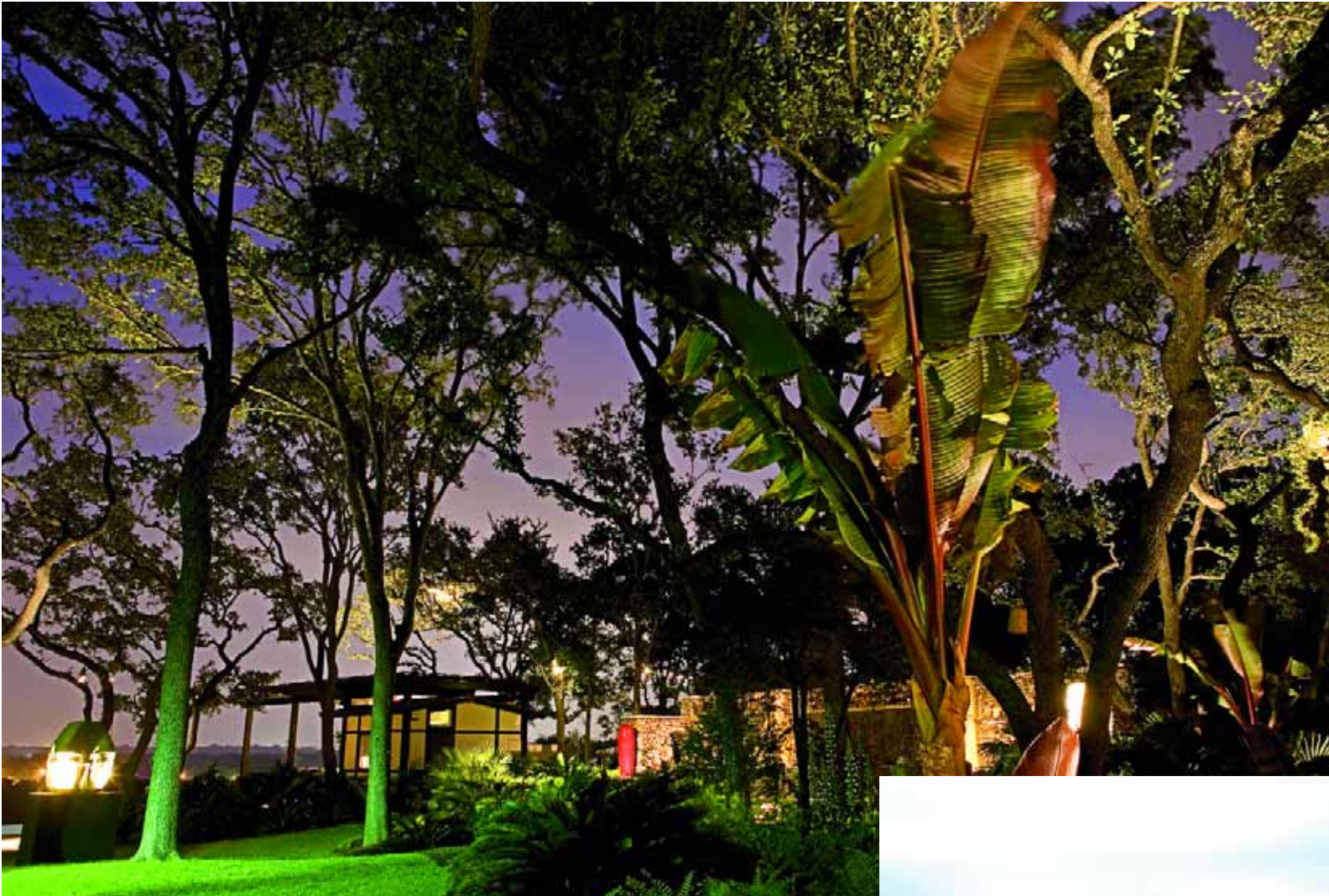


Photo by David Strohl

Pool Terrace & Moon Garden

At this point, the owners' and their guests' favorite place to enjoy distant city views while also appreciating close-up details, the pool terrace was developed to complement a Japanese-style teahouse that includes a bath and small kitchen, a pizza oven, an over-head arbor cloaked in flowering vines, a secluded outdoor shower and a variety of associated plantings.

Hand-hewn stone steps (with chartreuse 'Ogon' stonecrop peeking between the risers) ascend from the smooth terrace's paving. Crevices are dotted with ghost plant (*Graptopetalum*) and chocolate chip dwarf ajuga in shadier spots, while the outdoor shower nestles among subtropical gingers, bananas and palms that allow our clients and their guests to escape as needed to a veritable tropical paradise.

After sundown, when this corner is scented by the alluring sweetness of night-blooming jasmine (*Cestrum nocturnum*) and the heady fragrance of star jasmine (*Trachelospermum jasminoides*) that cover the arbor, the terrace is transformed into a spectacular Moon Garden.

The sensory experience is further enhanced and highlighted (literally) by white and light-colored flowers, including evergreen clematis (*Clematis armandii* 'Snowdrift'), potato vine (*Solanum jasminoides*) and fragrant butterfly ginger (*Hedychium coronarium*) – all of which seem to glow in the reflected evening light. It's a great place to contemplate the illusion of infinite space – not to mention the extraordinary views above the city lights.

In this context, the vanishing-edge watershape works as a sort of architectural reflecting pool, amplifying the beauty of its surroundings. The pool itself is much more than an ornament, however, and boasts a complex, highly functional interior design that includes a broad lounging shelf and intricate step configurations.




Photo by Paul Bardagiy



Photo by David Strohl



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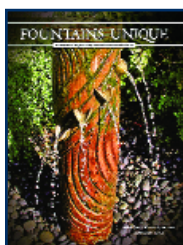
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Water in Transit

(Brian Van Bower, Skip Phillips
& Randy Beard)

FOUNTAIN CATALOG

Circle 135 on Reader Service Card



FOUNTAINS UNIQUE has published a 20-page, full-color catalog covering its line of traditional as well as unique wall, inground, freestanding, pot and wall-mounted fountains as well as masks, escutcheons, scuppers, spouts, bowls and sconces. All products come as turn-key kits for easy installation, with everything included but masonry materials and fill water. **Fountains Unique**, Laguna Hills, CA.

SOFTWARE VIEWER

Circle 137 on Reader Service Card



NEMETSCHEK NORTH AMERICA offers a free viewer for its VectorWorks 2008 software suite. The viewer enables those who do not own the company's software to view and print projects created using its full line

of professional design tools, permitting speedier, simpler consultation and collaboration between designers and clients during the creative process. **Nemetschek North America**, Columbia, MD.

HEAT PUMPS

Circle 136 on Reader Service Card

AQUACAL/AUTOPILOT has introduced the HeatWave SuperQuiet heat pump. Designed to operate with a lower noise level than other heat pumps, the new units come in two models and register at just 55 decibels when in operation – quieter than many pool pumps and about the same sound level as a typical conversation. Both models will heat and cool a swimming pool. **AquaCal/AutoPilot**, St. Petersburg, FL.



POOL-SECURITY SYSTEM

Circle 138 on Reader Service Card

S.R. SMITH introduces PoolOptix, a surveillance-based security system for pool environments. Developed in cooperation with a leading video-analytics software developer, the system combines software, cameras and notification devices to monitor and detect a broad array of threats, including water contamination, trespassing, vandalism and unauthorized use of a swimming pool. **S.R. Smith**, Canby, OR.



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FIBEROPTICS FOR PONDS

Circle 139 on Reader Service Card



EASYPRO POND PRODUCTS offers fiberoptic lighting for pond applications. Designed with compact, easier-to-hide light emitters that feature eight built-in colors and two cooling fans with overheat protection, the systems were developed with economy in mind and also have greater light output through solid-core cables (jacketed or unjacketed) that can be up to 100 feet long. **EasyPro Pond Products**, Grant, MI.

ALUMINUM FENCING

Circle 140 on Reader Service Card



EVOLUTION FENCE has supplemented its line of powder-coated aluminum fencing with an assembly system called Fusion-Loc. This system requires no screws for attaching pickets to rails and is designed without sharp edges or finger-catching details. The locking mechanism keeps pickets from rattling and ensures against dislodging of pickets if children stand on the lower rail. **Evolution Fence**, Hauppauge, NY.

POOL-PRODUCT CATALOG

Circle 141 on Reader Service Card



PENTAIR WATER POOL & SPA has released its 2008 pool-product catalog. The 768-page document is available in both printed form and/or as a compact disk and contains product descriptions and ordering information for the Pentair and Sta-Rite brands of pumps, filters, heaters, cleaners, controls, lighting, white goods and more – both whole goods and replacement parts. **Pentair**

Water Pool & Spa, Sanford, NC.

HOSE PROTECTOR

Circle 142 on Reader Service Card



MULTIQUIP has introduced Hose-O, a lightweight, durable, polyethylene-foam ring designed to protect job sites and concrete-pump hoses from the damage potentially caused by hose weight and movement. Fitting easily over hoses from 2 to 4 inches in diameter via slits cut into the rings, the units protect forms and existing surfaces and can be used to keep clamps from snagging. **Multiquip**, Carson, CA.

Continued on page 70

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HIGH-VOLUME PUMPS

Circle 143 on Reader Service Card



ATLANTIC WATER GARDENS has added a fifth model to its Tidal Wave line of economical, high-volume, commercial-grade pumps for pond, waterfall and stream applications. As the largest-capacity pump in the line, the A315 moves water at a rate of 13,500 gallons per hour (at 5 feet of head) and comes with a 32-foot power cord for maximum flexibility in hard-to-reach areas. **Atlantic Water Gardens**, Mantua, OH.

CONCRETE PUMPS

Circle 145 on Reader Service Card



MAYCO offers the LS-series of four concrete pumps to suit a variety of purposes, from pouring decks and footings to applying shotcrete. All four units, from the light-duty LS-

300 to the heavy-duty LS-600, feature digital control panels and read-outs and diagnostics in English or Spanish as well as hydraulic-surge brakes and true-reverse shuttle-tube pumping for smoother operation. **Mayco**, Carson, CA.

FIBERGLASS SLIDES

Circle 144 on Reader Service Card



SLIDESCAPES offers commercial-grade fiberglass waterslide systems for residential applications. Available in single-piece designs as well as in multi-piece flumes that can be assembled according to any of 15 standard plans or in a custom configuration, the safe, reliable slides are easy to install and come in white, oyster, beige, fawnskin, café, light gray, platinum, blue or dark blue colors. **SlideScapes**, Gainesville, GA.

POND-PRODUCT CATALOG

Circle 146 on Reader Service Card

INNOVATIVE POND PRODUCTS has published a catalog covering its wholesale/distributor offerings. The 52-page, four-color booklet covers pond filters and media, skimmers, pond kits, pumps, ultraviolet systems, construction products, liners, pondless waterfeatures, water treatments, fish products, plants, aerators, fountains, lighting, plumbing and more. **Innovative Pond Products**, Rocklin, CA.



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STONE SEALER

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DECK-O-SEAL offers Deck-O-Shield, a ready-to-use sealer/water repellent designed for use on natural stone, concrete and masonry surfaces installed as parts of waterfalls and in or around swimming pools. Also intended for use on natural

stone decks, walkways or patios located near or around pool areas, the product inhibits salt penetration to reducing whitening or staining. **Deck-O-Seal**, Hampshire, IL.

ENHANCED PLANT LIBRARY

Circle 149 on Reader Service Card



STRUCTURE STUDIOS has announced a substantial expansion of the library of plants and trees available through its Pool Studio 3D design software. Intended to allow for portrayal of more interesting, varied and realistic landscapes, in addition to including more varieties the new library also uses an advanced design technology that gives each plan insertion a unique, distinct appearance. **Structure Studios**, Las Vegas, NV.

POND LINER

Circle 148 on Reader Service Card

HPG INTERNATIONAL has introduced fish-grade vinyl sheeting for use in the lining of ponds and streams. Designed specifically for biological-system applications, the material has high strength and durability, low-temperature flexibility and excellent dimensional stability and puncture resistance. Available in black or white, the liners come in both 20- and 30-mil thicknesses. **HPG International**, Mountaintop, PA.



TIKI-THEMED PRODUCTS

Circle 150 on Reader Service Card

THE TIKI SHOP has published a brochure on its 2008 product offerings. The 4-page, full-color flyer includes tiki-themed flower pots in sizes ranging from 14 to 36 inches tall as well as a range of tropical accessories. Designed to be filled with dirt (for more root room) or to be used with modular drop-in pots, the colorful decorative units are weather-proof, lightweight and unbreakable.

The Tiki Shop, Canyon Lake, CA.



Continued on page 72


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SWIMMING MACHINE

Circle 151 on Reader Service Card



ENDLESS POOLS has introduced the Fastlane wall-mounted swimming machine. Designed for attachment to a wall bracket imbedded in the wall of a pool (with all hoses under the pool deck and underground), the system produces a smooth, adjustable-speed current wider than a body and deeper than a swimming stroke for swimming, training, aquatic exercise, rehabilitation and more. **Endless Pools**, Aston, PA.

POND ANCHORS

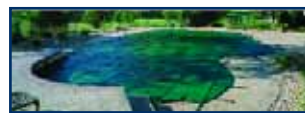
Circle 153 on Reader Service Card



FREEDOM PONDS offers the fish- and plant-friendly SafeAnchor system for pond applications. Designed with a convex shape to fit easily amid pond-bottom contours and made with a thick, fillable rubber material with rounded edges to prevent abrasion and punctures, the 8-1/2-inch-diameter anchors can be used to tether floating islands, heaters or fountains securely in place. **Freedom Ponds**, Albuquerque, NM.

MESH POOL COVERS

Circle 152 on Reader Service Card



VYN-ALL POOL PRODUCTS has added SunGuard Mesh to the list of materials offered for its custom safety covers. The new product is 80-percent thicker than standard mesh material and offers outstanding shade to pool water to retard algae growth while the pool is closed — thus matching a key advantage of solid covers at a much lower weight and with greater tensile strength. **Vyn-All Pool Products**, New Market, NH.

DECK DRAINS

Circle 154 on Reader Service Card



QUAKER PLASTIC has added several new items to its Water Hog line of flush-mounted deck drains. In addition to its original 3-inch drain size, the all-weather PVC product now comes in a 4-inch size suited to the water volumes encountered in commercial applications. Also, the drain heads are now available in tan, gray or white to match a greater variety of decking treatments. **Quaker Plastic**, Mountville, PA.

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POND FILTERS

Circle 155 on Reader Service Card



Danner Mfg., Islandia, NY.

DANNER MFG. has revamped its ProLine low-pressure filters. The P-1000, P-2000 and P-4000 models (with 1,000-, 2,000- and 4,000-gallon capacities, respectively) are all available with or without ultraviolet lamps and now feature the company's maintenance-free Bio-Matrix filtering material, which attracts beneficial bacteria to multiple surfaces and does not clog or reduce flow.

COMMERCIAL PUMP

Circle 157 on Reader Service Card



that simplifies disassembly, the pump can be used in flexibly coupled applications with horizontal or vertical mountings. **Pentair Commercial**, Sanford, NC.

PENTAIR COMMERCIAL has introduced the Aurora 340 pump, a single-stage, end-suction commercial device with a capacity of 2,500 gallons per minute – ideal for water-parks, large pools and waterfeatures. Quiet and smooth-running with a pull-out design

UNDERGROUND DETECTION

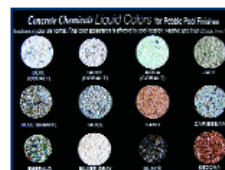
Circle 156 on Reader Service Card



DITCH WITCH introduces Model 250R/T, a locating system designed to help construction crews avoid buried telephone, cable, power, gas and water lines. Consisting of a transmitter and receiver, the simple, lightweight system features intuitive controls and easy-to-read displays; offers depth estimation to 15 feet deep; and works even when signals are either very weak or very strong. **Ditch Witch**, Perry, OK.

PLASTER COLORANTS

Circle 158 on Reader Service Card



CONCRETE CHEMICALS has introduced a new line of mineral-based colorants for smooth plaster and pebble finishes in swimming pools. The water-based, non-hazardous colorants are designed for dependability and ease of use while offering the strength and durability of mineral pigments in a range of blues and sophisticated blue-gray shades as well as French gray and black. **Concrete Chemicals**, Redwood City, CA.

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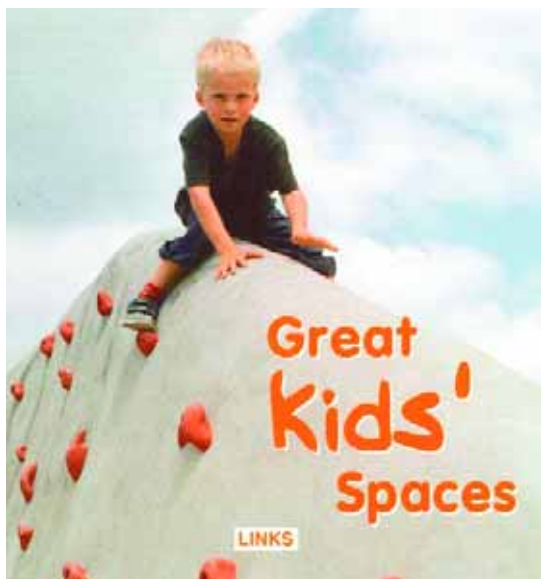
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By Mike Farley

A World at Play



For all the “importance” attached to creating works of art in outdoor environments, there’s no denying the fact that, in the majority of cases, the root of much of the appeal of watershape designs (and exterior designs in general) still has much to do with having a good time.

In my own practice, for example, I’d estimate that somewhere around 85 percent of my clients are inspired by the desire to build watershapes and pool environments as sources of play for their children or grandchildren – or, as some put it, because they’re still big kids at heart and “just want to have fun.”

This is why I couldn’t resist picking up a book called *Great Kids’ Spaces*, an English translation of a book originally written in Spanish by Marta Rojas (Links International, 2006). This 270-page volume is wonderfully illustrated, clearly written and covers an extremely wide range of playground spaces around the world.

For the most part (and not surprisingly, once you get into the book), most of the projects covered are massive public installations that typically flow over several acres. What struck me immediately, however, is that much of the information transfers easily to residential designs because the author did a great job of defining key issues related to how kids use playgrounds and how activities differ at different age levels.

She breaks the text into three main sections: play area design and features; safe play conditions; and case studies.

The first section offers a terrific analysis of a range of issues including use

of topography; layout options; arrangement of pathways and stairs; and myriad options related to play centers ranging from slides and swings to climbing structures and more. The ambition throughout is to define ways to use zones and details to stimulate imaginative play – and even to see things in terms of creating venues for distinct forms of education.

Next, the comprehensive section on safety discusses everything from safety surfaces to the appropriate scaling and sizing of features to accommodate the height ranges of children of various ages – and to avoid such problems as kids’ heads getting stuck between bars.

Mostly, however, it’s the case studies of the third section that stand out. Indeed, what I found here was an almost mind-bending variety and creativity: In simply scanning the sketches, drawings and photographs, I found that play-area design has become an art and science unto itself in much the same way as has watershaping. I was particularly impressed by the clear impulse these designers have to blend visual treatments, elaborate themed elements and structures into easy-going environments – or let them loose to make bold sculptural statements.

Yes, these are large installations in distinctly public environments, but it requires no great leap to see how the ideas and principles described in this book can be applied to our work as watershapers and arrangers of landscapes.

And I’ve taken to heart some advice given in the book’s opening section: Early on, we’re urged to get out and actively observe how children play in public spaces. That would seem an obvious step in the education of any designer, but I know from experience that relatively few of us invest the time required to observe how the spaces and structures we design are actually used. For my part – armed with the principles defined by this book – it’s an exercise I plan on working into my routines. **MS**

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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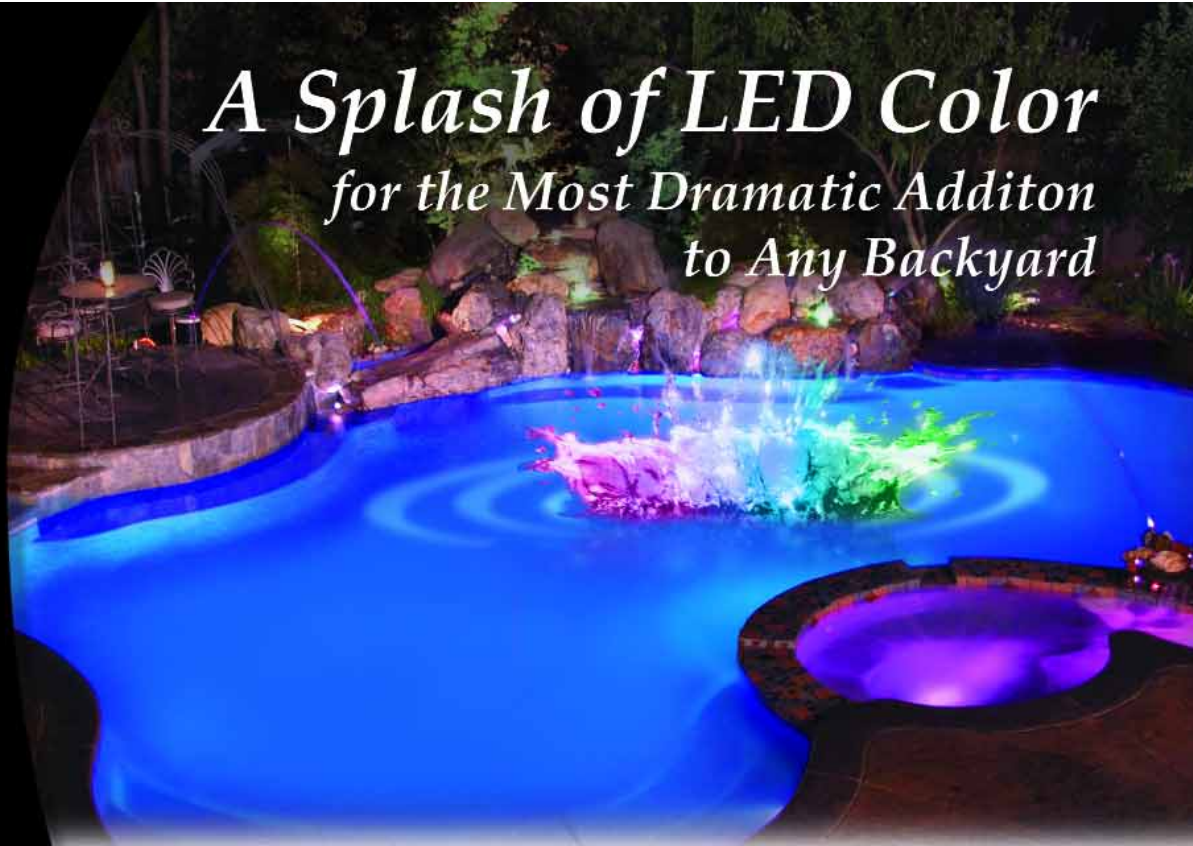
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experience by delivering performance
and reliability through technology.



*Performance
Reliability
Technology*

A Splash of LED Color for the Most Dramatic Additon to Any Backyard



NEW *WaterColors*

LED Color Pool & Spa Lighting by Jandy

- Energy efficient color lighting, less than 50 watts of input power
- More than 50,000 hours of light means no bulb replacement
- 9 vibrant colors and 5 festive color shows to choose from
- Intuitive control from any Jandy Control System
- Easily installs into any new or existing pool or spa niche
- Same 3 wire installation as a standard pool or spa light
- ETL approved and easily installed into all major brands of light niches

Create the dramatic
splash your customers
are looking for by
including WaterColors
pool and spa lights



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