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WATER SHAPES

Design • Engineering • Construction

Volume 7
Number 2
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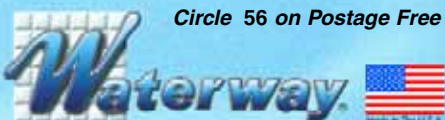
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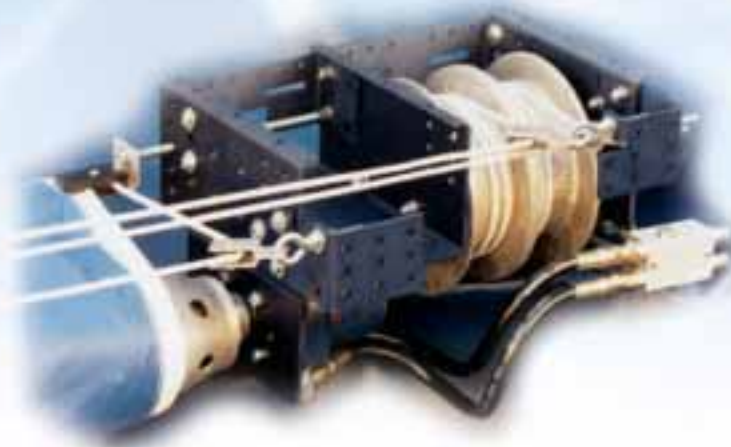
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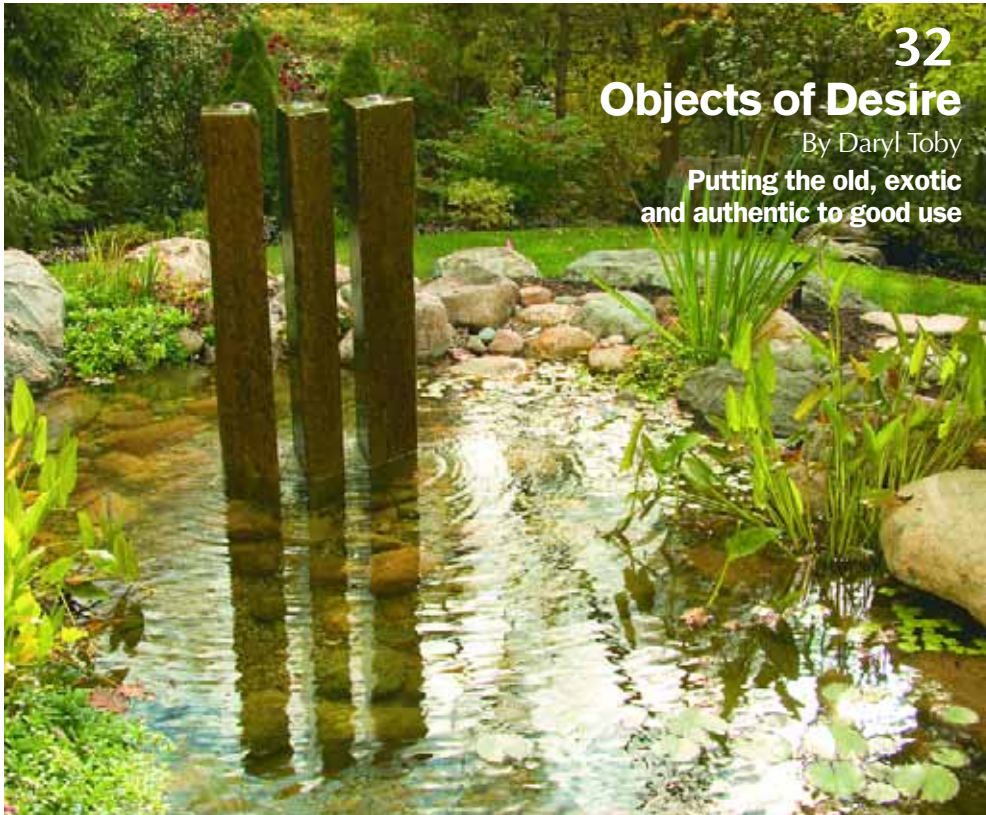


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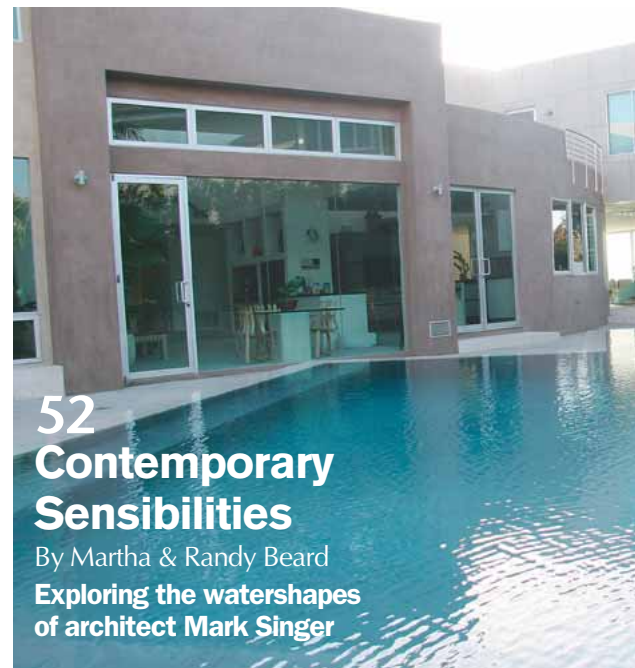
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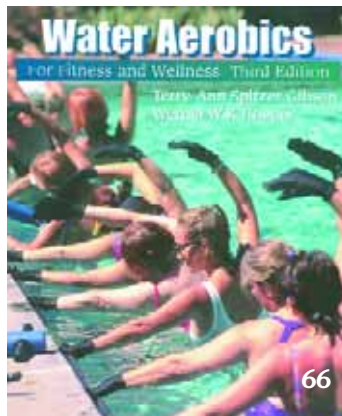
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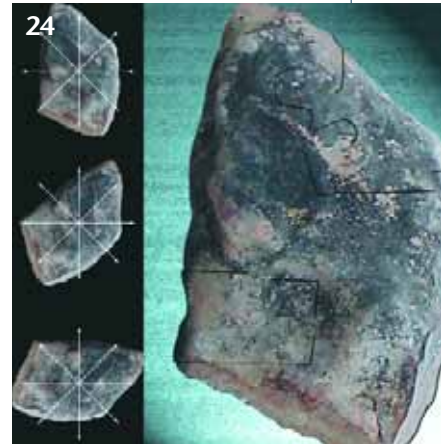
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On the cover:

Photo courtesy Jon Mitovich, Roman Fountains, Albuquerque, N.M.

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By Eric Herman

Old and New

Watershaping is one of the few art forms possessed of the ability to bridge the gaps between the very old and the very new.

From the classic looks of Roman baths and the reflecting pools of ancient Islam to the brisk modernity of slot-over-flow details and fountains that dance to music, watershaping is fully capable of embracing cultural artifacts and design precedent as well as the most dazzling elements of modern design and technology.

Perhaps the most significant unifying factor between old and new (beyond the water itself) is that many of today's clients want it both ways in their projects, whether commercial or residential, public or private. Working with that theme, we're serving up a pair of articles that explore not only the extremes of antiquity and modernity, but the accessibility of both as well.

Beginning on page 32 – in "Objects of Desire" by Daryl Toby – you'll find a unique discussion and dazzling set of images offered by an equally unique designer. Toby is founder and president of AguaFina, a landscape-design firm that has built its reputation on including elements of the past in its work, mostly in the form of rescued building materials and art objects from Asia as well as modern reproductions of antique originals.

In using pieces that are sometimes hundreds of years old, Toby gives his clients designs that embody and express a character of artistry and craftsmanship that cannot be replicated by contemporary means. In many cases, these are small touches that lend focal points to otherwise contemporary spaces; in others, the use of antique materials defines almost every square inch of the work.

In sharp contrast, on page 52 you'll find "Contemporary Sensibilities" by Martha and Randy Beard. This piece is a continuation of a series of articles about their ongoing work in executing the designs of top architects, landscape architects and designers in Southern California and adapting and molding their construction skills to suit a broad range of styles and design philosophies. In this case, they guide us through two projects by Mark Singer, a well-known Orange County architect.

This is contemporary residential exterior design at its finest, and the combination of the Beards' expert installation and Singer's transcendent skill with clean, rectilinear designs yields contemporary spaces filled with beautiful materials, clever use of elevations and razor-sharp lines that are at once accessible and visually compelling.

To be sure, the two approaches celebrated in these beautiful articles are not mutually exclusive. It's easy, for example, to think of modern designs that incorporate old garden ornaments or statues as well as Asian-influenced designs that feature modern sculpture or dramatic linear forms. Fact is, the design sensibilities applied to watershaping are as fluid, flexible and dynamic as can be, and the possibilities are limited only by the imagination – and your clients' willingness to try something new and different.

ttt

Please note: In our December issue's Platinum Standard coverage, page 62, we misidentified George Forni's firm. He operates Aquatic Environments in Alamo, Calif.

Eric Herman

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Daryl Toby is president and principal of AquaFina Gardens & Imports, a landscape/architectural design and construction firm in Sylvan Lake, Mich. He first entered the landscape trades while in high school in 1987, when he established AFM Landscape to focus on construction and maintenance. He studied environmental management and natural resources at Michigan State University, earning his bachelor of science degree in 1992. Adopting the name AquaFina in 1997, Toby's firm moved in the direction of Asian-style gardens and water-features. Now a passionate world traveler, he first toured Asia in 1998 and became interested in importing and using authentic art objects and architectural materials. This became a business function of its own in 1998, and the firm now supplies materials to watershaping and landscape firms throughout the country.

Jon Mitovich is president and general manager of Roman Fountains, a designer and manufacturer of fountain-system packages and components based in Albuquerque, N.M. He graduated in 1976 from Southern Methodist University's Cox School of Business in Dallas and has participated in seminars on fountain and pool design at UCLA and Harvard's Graduate School of Design. Mitovich is a member of the American Society of Landscape Architects, the Construction Specifications Institute and the National Spa & Pool Institute. He has conducted classes and seminars on the fountain business and fountain design for various ASLA and NSPI chapters to help watershapers understand the origin, history and application of water in architectural environments. He also has written for a variety of trade publications, including *WaterShapes*.

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Steve Gutai is product manager for pumps, filters and valves with Jandy/Laars Products, a division of WaterPik Technologies of Petaluma, Calif. Gutai is a veteran of the swimming pool industry, having spent more than 13 years as an independent service and repair technician and subcontractor in the Los Angeles area. He spent three more years as a technical service manager and outside sales representative for Waterway Plastics in Oxnard, Calif. Gutai joined Laars & Jandy in 2000 and now works directly with contractors and engineers in designing circulation systems for pools, spas and other watershapes. He teaches hydraulics at trade shows throughout the United States and is the featured hydraulics instructor for Genesis 3's Level 1 schools.

Martha and **Randy Beard** own Pure Water

Pools, a construction/service firm in Costa Mesa, Calif. They met in 1981 while both were working behind the scenes in the entertainment unit at Knott's Berry Farm. At the time, Randy also had a small pool-service business and convinced Martha (Marti) to invest in expanding the route. They purchased Pure Water Pools from another technician and have operated in the Costa Mesa/Newport Beach area ever since. As the route grew, both dropped their other jobs and focused entirely on the pool business as small repairs led to big repairs, big repairs to remodels, and remodels to new construction. Each year, they've seen their projects become more creative and technically challenging. Today, the firm works with many of the area's leading architects and landscape architects to create a range of custom watershapes for up-scale commercial and residential clients.

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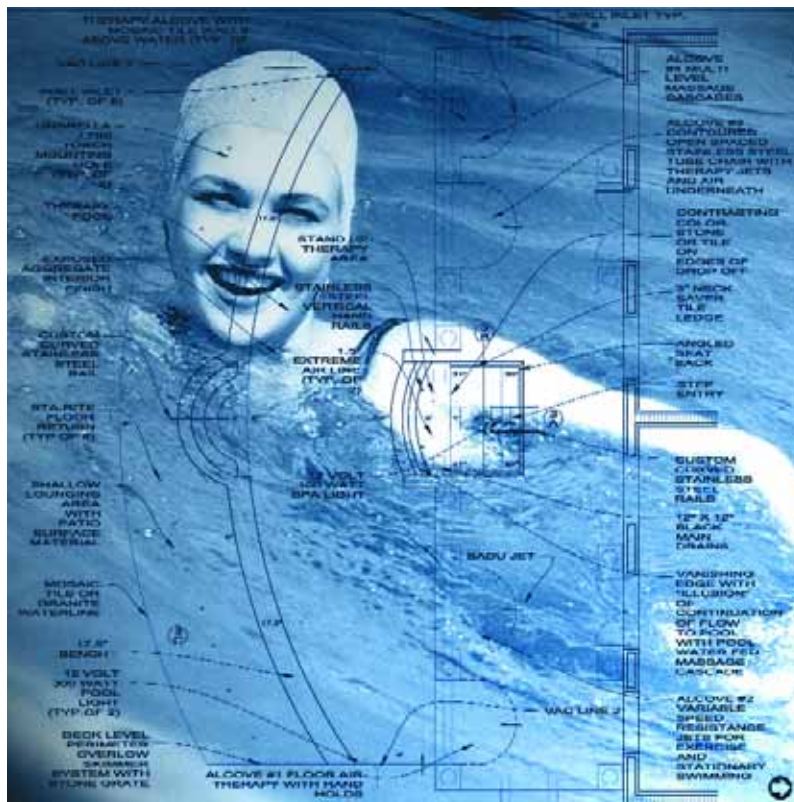


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By Brian Van Bower

Comfortable Adjustments



Wonderful projects often proceed at their own paces. More often than not, high-end clients on either the commercial or residential side will require us to spend a great deal of time and effort in developing, adjusting and revisiting designs so they wind up with exactly the watershapes and spaces that best suit their needs and desires.

Sometimes that process is tremendously involved, as has been the case with a project I discussed in a previous “Aqua Culture” installment (May 2004, page 10). The clients are creating what they’re calling a “world-class pampering spa” as a major expansion of an existing facility in Jacksonville, Fla.

Our work on the project includes a broad range of decorative and recreational watershapes, all aimed at providing the firm’s customers with the highest possible levels of relaxation and enjoyment. As we’ve moved through the initial design phase and into the plan/document stage in preparation for construction bids, the clients and their project team have made a cluster of key adjustments that in most cases have improved the overall design.

High-end clients on the commercial or residential side often require us to spend a great deal of time and effort in developing, adjusting and revisiting designs so they wind up with exactly the watershapes and spaces that best suit their needs and desires.

at the entry

In one small instance, however, I think they’ve compromised the overall watershape program.

We had originally designed an entry feature in the driveway that would have included a beautiful absolute-granite finish with a perimeter overflow and a fire feature at its center. Ultimately, however, the owners decided to go in a more conservative, traditional direction, and we’re now working on a basic circular fountain with a high-plume jet in the center and a circle of smaller spray jets surrounding it along with some tasteful lighting and a small landscaped area. The material will now be simple cast stone around the outside, with tile on the inside.

I’ve told the project team what I think, because I thought the original scheme would have gone further in grabbing attention and setting the mood for visitors accessing the facility. And frankly, I’m still puzzled by the decision, because the owners had made a big push about wanting to draw attention to the facility from all major exterior focal points. Ultimately, however, it’s their facility – and this is one of those concessions designers are sometimes forced to make.

Inside, by contrast, the design is much more in keeping with our original thinking. Once visitors enter the building, they pass through the lobby and move into a short corridor that leads to the main sections of the spa. On either side of this space – which we know people will be passing through quickly – we’ve set up an interesting (yet subtle) mood-setting feature.

What they see are two narrow, seat-level vessels ten feet long by 18 inches wide that are finished on three sides by glass tile and on the fourth by



PEM 107A's in Orlando - Florida

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an annealed acrylic material. Bench seats have been placed atop these transparent walls. Inside each of the vessels, five small bubbler jets create water movement – and there are lights on both ends of each bench to accent the disrupted surface.

The idea was for a simple, dancing glow to emanate from beneath the benches and wash the surrounding floor with light deflected by the movement of the water. The glass-tile further influences the path of the light and enhances the overall effect. There's nothing bold or forceful or noisy here – just a rippling surface transferred by the lighting to the floor between the benches.

One minor adjustment we made here was at the waterline on the non-tiled sides: There were concerns that scale might build up on the acrylic and become a maintenance issue, so we added a narrow band of tile at the waterline.

once inside

Moving from the corridor into an area

known as the “Great Room,” visitors encounter a much more significant feature that includes dual-sided glass cabinets that contain rows of gas-operated, electronic-ignition candles.

Two identical cabinets essentially frame a fountain area in the center – an ornate watershape with contoured edges and benches. The ceiling has been lowered a bit above the fountain and eventually (we hope) will have rain jets that will drop a curtain of water between the cabinets – a heavy flow in the middle with gradually diminishing flows toward the edges.

The idea here is to establish a unique visual and aural barrier to separate a dining area on one side from the area where guests prepare themselves for various massage and therapy services on the other. As I discussed last May, there are concerns about the noise level in this space, and the current plan is to mock up the entire setting so the owners can see and hear for themselves just how strong the

effect will be once installed.

Our original plan had called for a glass water wall with the name of the facility etched into it with a two-sided fireplace on one end. In this case, the owners liked the idea of the water and the fire but pushed us to develop the design further. The creative give and take here has led to a truly unique design that will make an extremely strong statement while serving as an effective barrier.

Our work continues at the back of the building, with a pair of couples' massage areas with four-foot-diameter, five-foot-deep, Japanese-style soak tubs in stainless steel. These vessels are to be filled with water set at a desired temperature and then drained at the completion of each massage session. Small, wall-mounted drip effects will lend a sense of water in motion as well as a soft, soothing sound.


The idea here is that after couples have enjoyed their massages, they can rinse off in a nearby shower and then con-

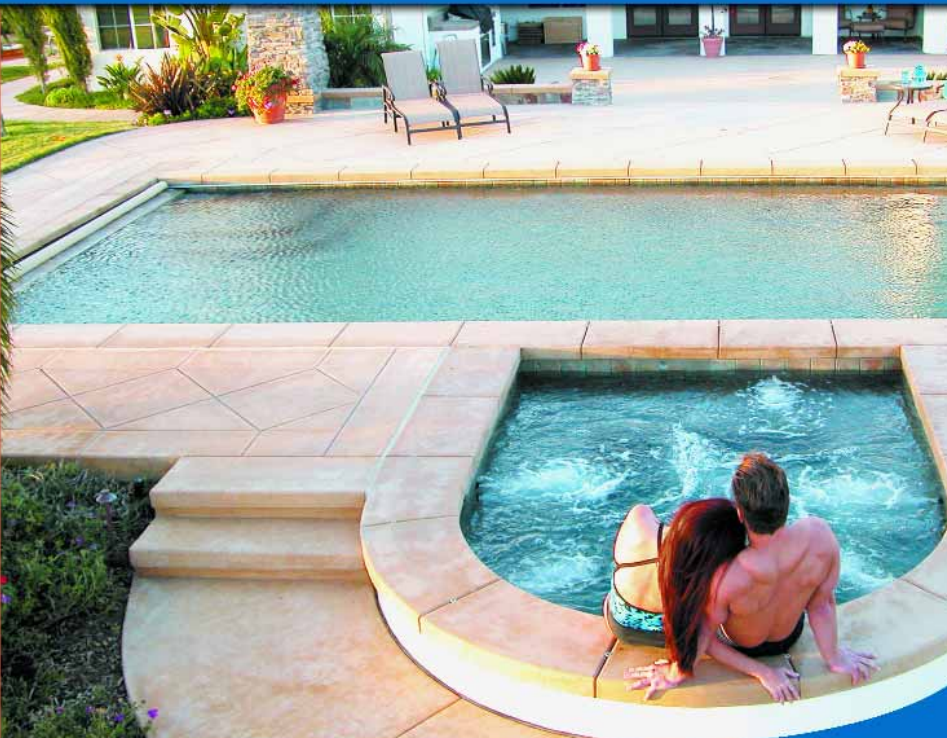
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clude their treatment with a warm dip in these tubs. To me as a huge proponent of massages, this seems a particularly brilliant plan.

Moving into the men's and women's locker rooms, we had originally designed an angled wall feature with water and tile that would separate the two areas – an-

other space calling for a subtle, mood-setting effect. This space is a current focus of discussion and refinement, and we're now thinking of increasing the visual appeal of this feature by recessing a decorative, hammered-metal panel to be backlit with water running over it.

This will be much more artistic than



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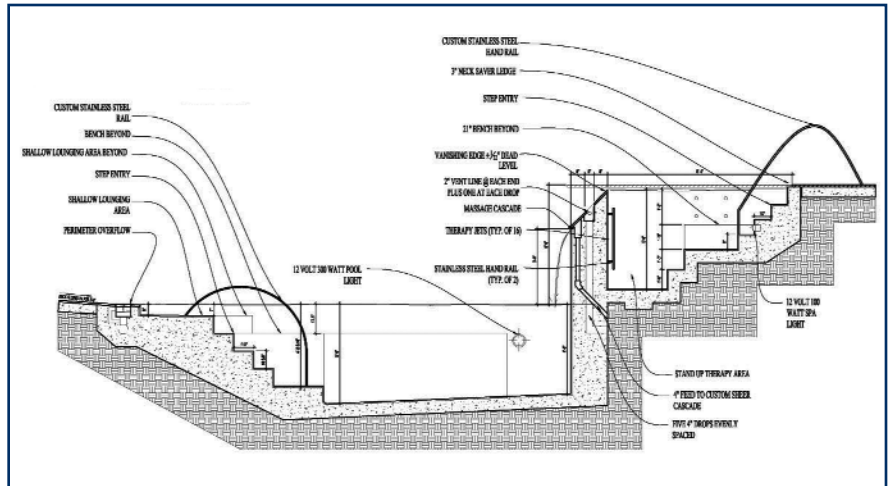
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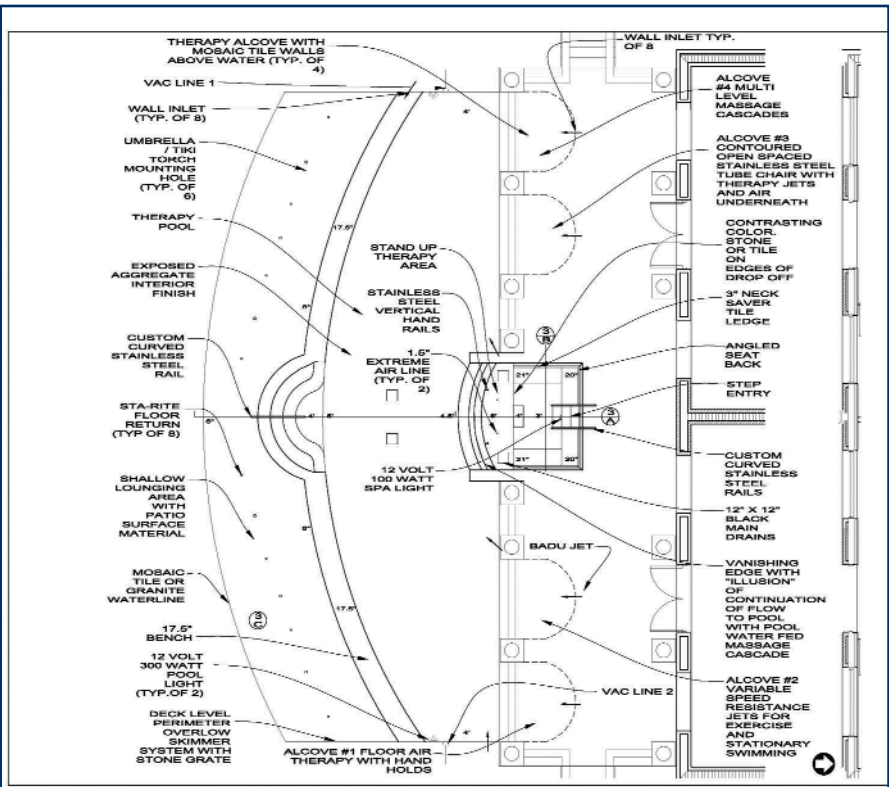
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This section shows the relationship of the exterior spa and the pool below along with some other key details, including the custom handrails leading into both vessels, the vanishing edge flowing from spa to pool and the shallow lounging area in the pool.



This view shows the array of hydrotherapy features organized into the pool and spa, including the four alcoves (each with a distinct purpose), the stand-up area in the spa and, again, the shallow lounging area in the pool.

the simple water wall we'd proposed, and I really like the idea. Here's hoping the owners will buy into it.

hot and cold

Inside the locker rooms' "wet areas," we went through several revisions on sets of hot-spa/cold-plunge vessels. The original concept was for floor-flush perimeter-overflow vessels – great visually and perfect with respect to easy entry and egress.

The facility's staff, however, was concerned that in cleaning the floors around the tubs, rinse water would slosh into the vessels and cause problems. To meet that concern, we've slightly amended the perimeter overflow so the stone grates we'd been considering will present a slightly raised bullnose edge as a barrier to water flowing in from outside the vessels. (We worked through this detail with Harris Brothers of Marina, Calif. – the U.S. distributors for Sofikitis, a Greek stone supplier.)

We also adjusted the size of the hot spas slightly so that the women's is larger than the men's: Experience has taught the facility's managers that more women use the locker-room spas than do men. Each of these vessels has its own circulation system.

Right next to the spas in the same rooms are small cold-plunge vessels that hold no more than one or two people. In order to conserve space for equipment and knowing that these systems will receive far less use than the hot-water spas, we combined the circulation systems for the two chilled vessels.

Outside the locker rooms is a large exterior spa that includes a broad vanishing edge that spills into a large swimming pool below. This design was modified to include a stand-up area with arrays of jets that massage guests from their upper bodies to their lower legs. We've configured the vessel so the people in the stand-up area will have a view over the vanishing edge to the pool below. On either side are two benches at different levels and decking with lounge chairs – also offering views of the vanishing edge.

The big pool has expanded through the design phase and now includes a large,

shallow area that will accommodate 16 lounges set up in pairs with umbrellas between each pair. Originally, the design called for small platforms that would serve as small tables between paired lounges, but that was abandoned to maximize the possible number of lounges and give more flexibility to the space.

We used the same limestone grate sys-

tem here that was designed for the locker-room spas, but in this case the stonework will be flush with the deck. The surrounding deck and the shallow lounging area will be finished with limestone material that will match the grates.

The pool also includes a stainless steel rail that leads down a broad set of steps to the central deep area of the

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pool. It has a sculptural quality and lends a graceful sweep to the composition that complements the arched vanishing edge above.

completing the scene

In another neat twist, the pool also includes four therapy alcoves recessed into the wall of the pool opposite the prime-

ter-overflow edge. The alcoves are contoured like small, semi-circular band shells, each offering a different type of hydrotherapy treatment.

One alcove, for example, will be outfitted with a swim jet that can be used for swimming in place or resistance exercise. Another will be set up with a submerged lounge constructed with stain-



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The clients may come up with additional alterations and new wrinkles, but at this point I'm reasonably confident that the vast majority of the design decisions have been made.

less steel tubing. This will enable a guest to recline in the lounge above streams of water and air from jets below. (An important adjustment was made here to allay the clients' concern that someone could trap a hand or foot under the tubing. We added solid sides to the lounge to prevent such an accident.) Another alcove will include a multiple-impact waterfall-therapy feature for neck, shoulder and upper-back massage action.

The clients may (and probably will) come up with additional alterations and new wrinkles as we move forward, but at this point I'm reasonably confident that the vast majority of the design decisions have been made. Even though the clients haven't accepted all of the ideas we've presented during the long process, they've let us know how much they appreciate the range of ideas we've presented and seem satisfied that they're going to get just the world-class pampering spa they've been seeking.

Ultimately, providing comfort and enjoyment is what watershaping is all about, and I remain excited by this design because, eventually, that is exactly what this project will offer anyone who visits for a day of pampering and relaxation. **WS**

Brian Van Bower runs Aquatic Consultants, a design firm based in Miami, Fla., and is a co-founder of Genesis 3, A 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 Stephanie Rose

Integrated Perspectives



I've never been big on trade shows and conferences. For years I have resisted them in the belief that they were mostly for those who had time to attend them and craved the camaraderie and social opportunities they offered.

I've always looked at the programs and have seen that there's usually been something to learn during these events, but I brushed off the possibility of attending because I always thought I could get most of what I needed by working and paying attention to books and magazines. Also, there was always the issue that, as the sole provider in a one-person operation, spending so many days away from my clients and prospects would prove costly.

I know now that it's time to change my tune.

For a variety of reasons, I broke down and decided to attend the Aqua Show in Las Vegas last November. The main attraction for me was the fact that I could get a day-long dose of David Tisherman's drawing course at a fraction of the cost of Genesis 3's week-long school.

on the road

Ever since I was a kid, one of my passions has always been drawing. I thought Tisherman's course would give me a push toward integrating more of my artistic skill into my everyday work. This, I thought, would make the work more enjoyable for me while at the same time it might improve my presentations.

Forget about the fear of spending the time and money: Finding a good course in perspective drawing and presentation skills *will* pay off.

What I didn't anticipate is the wealth of knowledge, networking, information exchange and other peripheral benefits I'd gain by being a landscape designer in the midst of a bunch of "pool guys."

Writing for *WaterShapes* for six years has given me some insight into the world of watershaping, but my sense now is that I hadn't truly integrated what I'd learned or fully comprehended how much my familiarity with the magazine had influenced my work as a landscape designer. It surprised me, but that's the strong effect the show had on the way I now think about what I do.

I came to the show and the drawing class with some relevant background: For the past few years, in fact, I have been honing my skills in botanical illustration. But running my own design business, supervising jobs and dealing with the multitude of other activities of daily living has made it difficult to explore my capabilities in this arena – and I have always been slightly frustrated that I haven't had time to paint or draw as much as I would like and instead do little more than draft blueprints that don't fully engage my artistic impulses.

I've incorporated color into my drawings for some time, but I'll concede that I haven't been confident enough to develop fully detailed perspective drawings or elevations for my clients and tend to stick to quick sketches. What I learned at the show and have been applying since is the real value of developing (and *using*) these skills as part of my presentations.

So I get to use my artistic skills to elevate my business. What more could I ask?

As Tisherman says, he doesn't sell projects; rather, and as anyone who has seen his drawings and designs knows, they sell themselves. Before the long day was through, I saw that the same principle applies to the landscape realm and that the bottom line is that we cannot snap a picture of how a finished design will look. With some training and practice and a little talent, however, a good designer can draw pictures for clients

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that will enable them to visualize the basic look of the finished product.

Tisherman has said this very thing countless times in his columns and articles in *WaterShapes*, but in his classroom he brought the thought home in a most compelling way.

applying knowledge

In thinking about the course since I came back home, I've come to see the role of presentation drawings in a new light.

I know that changes will occur from that initial drawing, but I also see how the first impression a drawing makes will work in my favor on several levels at once. First, clients see what they will be getting and can either buy into the design as is or suggest changes; no matter what specifically happens, this process reveals and/or generates a design direction. Second, clients see that you have artistic talent and can express and communicate your ideas effectively—a big confidence booster for them. Third, if the first two points work in your

favor, clients will be inclined to hire you.

As a result of all this, I have a stronger view of how art can work for me—and I'll also rid my life of at least one source of frustration by working on my drawing and coloring skills while doing what I love in designing landscapes.

Even if your passion for the work doesn't extend to drawing, I would highly recommend to *any* landscape professional (or pool professional, for that matter) who doesn't already have drawing skills finding a good course in perspective drawing and presentation skills. Forget about that fear of spending the time and money: It *will* pay off.


I was so impressed by the drawing class that I developed a keener interest in attending the other seminars staged during the Aqua Show by the Genesis 3 team. In addition to talks by Messrs. Brian Van Bower, Skip Phillips and David Tisherman, I also sat in on Janet Lennox Moyer's presentation on landscape lighting, Anthony Archer-Wills' discussion of pond design and James van Sweden's

talk on the use of water in landscape.

I went to these seminars believing I was familiar enough for my purposes with the subject matter and, in James van Sweden's case, with the specifics of his approaches that I could have stayed away from any or all of them, but what I found in attending and listening to audience questions and discussing specifics with colleagues afterwards is that I picked up much more than I'd expected—particularly from my perspective as a landscape designer.

One of the most interesting points that came up in the presentations and discussions is that landscape designers and architects have a distinct advantage over pool professionals because we come to clients' tables with defined levels of design expertise.


That's not to say a "pool guy" can't design just as beautiful a watershape as can a talented landscape designer or architect. It's just that by integrating our years of design experience with the technical aspects of watershaping, we have some-



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thing of an edge in developing a more integrated final product – if, of course, we've taken the time before embarking on these projects to learn about and work with others in the watershaping trades to the betterment of our efforts.

back in the field

As in all things, it's how you use your knowledge (new or old) that makes the difference. I wouldn't even begin to approach a project that included a water-shape, for instance, without first consulting with a qualified installer to discover just what will be involved in taking the project to completion.

For a project in which I'm currently engaged, I'm working with two pool builders, a general contractor, a landscape contractor, an arborist, an artist, a lighting designer and various other peripheral tradespeople. My job at this point is project management – that is, facilitating communication and solving problems on the job site and making certain that everyone, including the clients, knows exactly how the project is progressing.

We're working with my design, but I recognized even before putting pen to paper that this would be a collaborative effort and that all of these trades and efforts would have to be coordinated to complete the project successfully.

What surprised me is the enhanced appreciation I have of my role in the aftermath of my experience at the trade show. In talking with watershapers and hearing the kinds of things they think about through the questions they asked, I have since found it easier to communicate with them in the field. To be sure, attending a conference is a bit like speed reading, but it gave me a clear understanding of some things I'd never really considered and showed me a whole range of things I still need to learn.

The most profound insight I picked up at the show is that, after six years of writing for watershapers and repeatedly discussing the importance of integrated design, collaborative effort, clear construction planning and all the other elements of good watershaping, I've been pretty much on the right track all along. What seems funny to me, however, is how much more strongly I feel that way now than I did before I went to Las Vegas.



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I think it's because we all tend to operate in isolated arenas, coming out as needed to work with others in completing an installation. We'll design and then watch our designs being built. Whether it's landscaping, watershaping or construction, however, I now believe as never before that there's more to it than that.

Through recent experience at the show

and back in the field, I see that what has been missing from my projects is the full understanding that, although we're engaged in designing and building something, there's a bigger process involved that includes changes and dealing with the unexpected and managing client expectations in ways I'd never understood so clearly before.

working the process

These steps were all part of what I've been doing for all these years, of course, but I'm now conscious of the process in a way that enables me to communicate more clearly, effectively, and right up front with my clients and collaborators about what's coming.

I'm more comfortable now meeting with clients to let them know that blueprints and technical and perspective drawings are tools that get a project moving but that the project may evolve and develop as the process unfolds and that flexibility may be required to create a quality result. Any client who does not understand or accept this point, I now know, is probably a client to avoid.

By contrast, clients who comprehend the overall process are likely to be those you'll enjoy working with and will end up with great watershapes and landscapes. It's our job to educate them and to provide them with enough information (written, expressed or drawn) to make good decisions about their projects as they develop.

That's a lot of insight flowing from a quick, four-day experience at a trade show that seemed on its surface to be completely out of my line as a landscape designer, but there you have it. My advice to others in the design trades is to look for these opportunities: A trade show's focus may seem peripheral to your skills or scope of work, but I found that this one worked for me on a number of levels. And I suspect there are other events out there that may be similarly useful.

I guess you could view this as a way of "thinking outside the box" and stepping out of our pigeon-holes. In my case, the Aqua Show was a jolt – and a breath of fresh air that helped me see the opportunities open to design professionals who work skillfully with water. **WS**

Stephanie Rose runs Stephanie Rose Landscape Design in Encino, Calif. A specialist in residential garden design, her projects often include collaboration with custom pool builders. If you have a specific question about landscaping (or simply want to exchange ideas), e-mail her at sroseld@earthlink.net. She also can be seen on episodes of "The Surprise Gardener" on HGTV.

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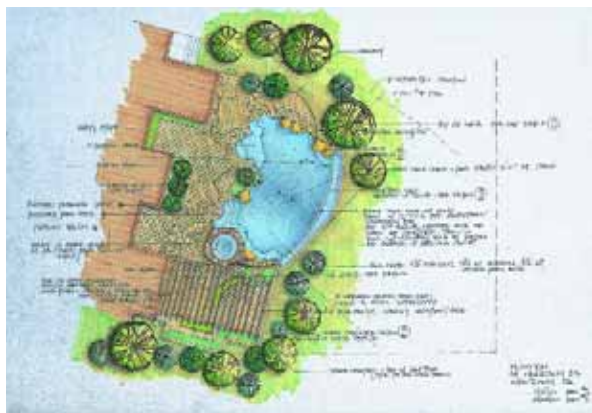
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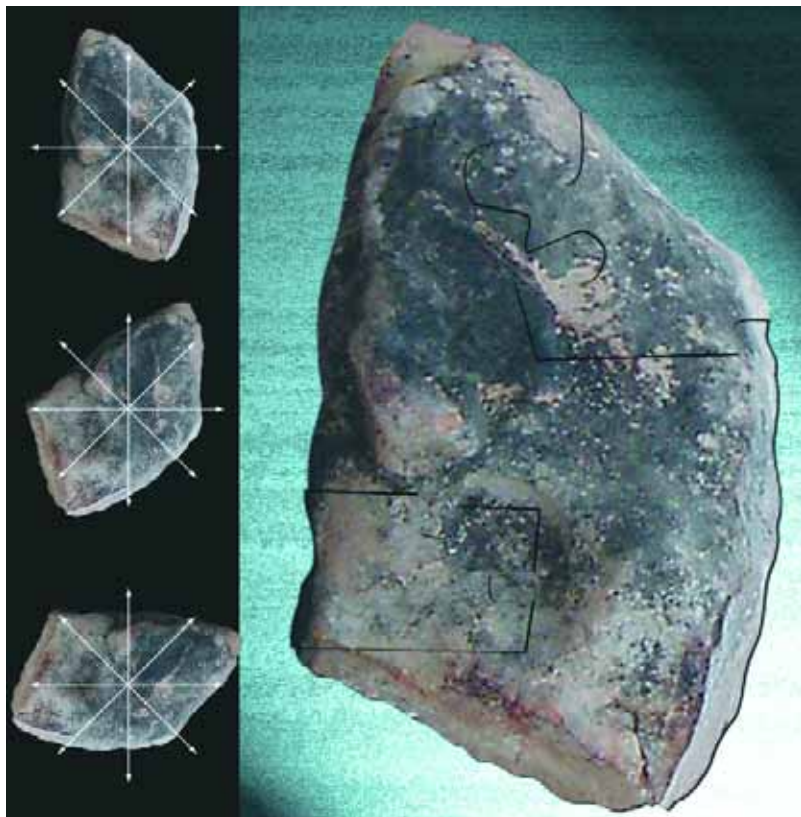
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By David Tisherman

The Perfect Fit



To me, setting natural stone has always seemed something like assembling a very large jigsaw puzzle: All the pieces have to fit together, and there's definitely a right way and a wrong way to make it happen.

I start the process systematically by laying stones out in an adequately large area and then just looking at them. As I go, I visualize how each will work as part of the overall composition and identify stones with either convex or concave contours that might fit together in some visual way. I'm constantly asking myself, "If I put this stone here and this other one right next to it, how will it work? Should I pick another stone and use a different combination?"

Nature helps me in coming up with the answers, because the boulders pulled from the ground have broken off larger formations. I don't try to match things up and reassemble them the way they were before they were "harvested," but stones of certain types tend to break up in similar ways, making it much easier to find workable pairs in creating naturalistic arrangements. Working with these contours and fractures makes it possible to assemble them in ways that avoid having one big stone next to another with

I'm constantly asking myself, 'If I put this stone here and this other one right next to it, how will it work? Should I pick another stone and use a different combination?'

a foot and a half of grout between them.

It's a big job, but not a huge challenge: It's really just a matter of seeing how it all fits together.

careful moves

We faced this sort of puzzle-piecing task in the project in Hanover, Pa., we started covering again in the January issue (page 34) after a long hiatus. The distinction, of course, is that the immense scale of this project had boulders arrayed across a huge field rather than in a compact area.

This is the first project in which Kevin Fleming and I have selected and set stones together on such a large scale, and we were keenly aware of the fact that this was a setting in which the rockwork was to play a central visual role. In this case, in fact, the stonework was to be one of the absolute defining features of the overall project.

Kevin graduated from college with a degree in landscape architecture and understands the issues of balance, proportion and scale involved in selecting and placing big stones. Even though this was his first huge project, he came up to speed quickly – and that was critical, because he's our on-site supervisor and sees things develop on a day-to-day basis in ways my own travel schedule doesn't permit.

As I've pointed out in previous columns on this and other projects, reliable supervision is absolutely essential in projects on this level. Kevin's daily passion and dedication to the work have kept things rolling and are what makes our unique partnership work so well.

One of our first rock-related decisions on this project had to do with deciding how big a crane we'd need. Cranes come in many sizes, obviously,

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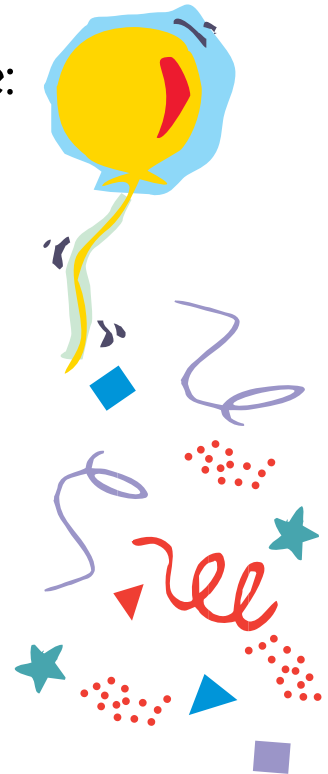
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and the choice is made based on access, boulder size and the span of the working placement area.

In this case, we needed to set the crane in a space just beyond the top of the large waterfall structure. From there, we'd set boulders as big as eight or nine feet across at distances up to 30 feet away from the cab, which led us to settle on a 120-ton monster crane with huge outriggers and an enormous boom.

Once the crane was on site, we were ready to go.

on the ground

Knowing which stones we wanted to place in which positions, we had to prepare each spot to support its boulder so the stone would be seen in the way and at the angle we wanted it to be seen. This means having shims at the ready to fix the stones in place, which in this case entailed making solid concrete modules measuring anywhere from six to 12 inch-



Once each boulder has been selected and picked up by the crane, it is vigorously washed to clear away any debris that might interfere with subsequent bonding to the mortar bed. In lifting, we use nylon straps to avoid scarring the rocks' surfaces.

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es square (mostly sixes and eights).

We poured our own blocks and let them cure for as long as two weeks to get them way up there with respect to psi level. With stones this heavy, the *last* thing you want is to set the stone in place only to have the shims collapse from the weight, which in this case could be in excess of six tons.

With the shims at hand, we'd crane in the boulder and ease it into place, making small adjustments to get the angles and exposures just right – and also considering the grossly practical matter of how to get the straps off once the rock was maneuvered into position.

I don't mean to give the impression that this is an automatic process once stones are selected. In fact, stone-setting is a remarkably intuitive process based on an appreciation of visual weight, scale, proportion, dimensionality and the dynamics of line – all of which come into play as each and every stone moves into

place among all the others.

In thinking all of this through, we decide which side is going to be the top and which is to be mortared into place, how each is going to lay, how each will relate to those around it, and how each additional stone is going to be slung and knotted so that it will be lowered into just the right place with the correct physical orientation. At this point, the formerly static jigsaw puzzle becomes an outsized juggling act.

With stones this large, the process of simply getting them off the ground is an issue. Sometimes you have to sling one side of the stone, lift it partially off the ground, then slide another strap in underneath. It's not unusual to take 20 or 30 minutes just to make ready for lifting.

We always use nylon-strap rigging to sling the stones: I've never liked cables, because the weight of the stone pressing against cabling will leave marks that are

both obvious and unattractive.

Occasionally, you'll run into what happens when a rock drops. Fortunately, that happened just once on this project: We'd set the rock on a ledge in a precarious way and it fell, shattering a bunch of plumbing lines and forcing us to stop, make repairs, conduct new pressure tests and clean up the mess. Suffice it to say we were not happy campers when it happened.

into place

Once a stone has been lifted, we use a power washer to clean the entire stone – particularly the "bottom" surface that will be placed in contact with the mortar that will hold it in place.

After we get the boulder cleaned up and are satisfied that it's absorbing some moisture, the stone is swung slowly to the area in which it will be placed. Once in the vicinity, it is carefully lowered, twisted, nudged and basically finessed into final

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In supervising the work, you need to watch, think, consider, re-consider and in the end stand back and ask yourself, 'Does it really look good?'

position. We might put it down then lift the whole thing back up to place additional shims. We might raise just one side and insert yet another shim to adjust its position just a bit.

All of this finessing has to be coupled with consideration of the position of the straps on the stones, always making sure they can be removed once the stone is finally in the desired position. Every stone's selection and placement is a little bit different, which forces us to think several steps ahead in each case, starting with selection of the stone itself.

Most of the big boulders in this project will be set in and around the big waterfall structure that rises above the swimming pool. With this placement, they need to show well from two key viewpoints.

First, there's the view from below on the pool deck, then there's the view from the large, cantilevered footbridge that will span the bottom of the waterfall over the edge of the pool. From below, we had to be conscious of the way that stones looked and how the water would be moving over and around them in the cascade. The view is entirely different from above: In addition to the rushing water, those on the footbridge will see planters and a set of ponds flowing into the falls.

Working around the planters and within the ponds was a critical element for *both* major focal points. In creating the concrete substructure, we set up the basic scheme of the feature, but it wasn't until the stones were actually placed that the true aesthetics of the design emerged.

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Clear communication between the crane operator and the placement crew is essential to the success of this three-dimensional, multi-ton juggling act. In all, it took us four weeks to finesse all the boulders into place for the waterfall and surrounding structures.

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We shim the boulders to balance them and gain just the right visual exposures. As the work progresses and more and more pieces of the puzzle are placed, we can all see how the overall composition is taking shape and visualize how the water will flow.

Technology of Scottsdale, Ariz.) and accented by larger stones. In placing the larger stones, we were making final decisions about how the water would flow up to and break over the various weirs. From beginning to end, it was a matter of planning, on-site visualizing and extended crane sessions in which we fine-tuned and adjusted stone placements.

bottom up

As the work proceeded, we set stones in the waterfall as well as on several key points on ledges, on the pool's bond beam, alongside the beach entry, at the base of the grotto area and on the spa island. From start to finish, it took about four long weeks – and Kevin's constant supervision was the key to success.

The masons were on hand through the entire process and had learned what we were after by way of aesthetics from jobs they'd done with us in the past. They knew how we wanted the rocks to look

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with respect to the mortar and the finish material we applied between the stones and shot gunite behind the stones to fill in the voids or, in other places, put cut ledger stone in gaps between larger pieces.

A big point here is that we chose not to rely on steel dowels to hold the stones in place. These pieces were so big that gravity and the way they fit together was the primary means of locking them where we wanted. Yes, the mortar and gunite will offer some support, but if you've got physics working against you, no steel or masonry will keep multi-ton boulders from shifting or even falling completely out of place.

It was very important from the time we selected the stone at the quarry to final positioning on site that we had a background in this kind of work and could couple it with our knowledge of principles of naturalistic design – the abovementioned issues of balance, visual weight, scale, proportion, dimensionality and the dynamics of line – as well as a clear sense of what we

were pursuing aesthetically. Working in natural stone on such a large scale can't be said to be a precise or even predictable process, but it is anything but random.

Variations in color of the stone, for example, came into play as a guiding principle throughout the selection and placement processes. For this project, we used material that was multi-colored with creams, greens, grays and blacks. Keeping that palette in balance as we worked was a subtext for all we did in selecting and placing stones based on their sizes and shapes.

Ultimately, this all folds back to the issue of supervision. I've seen projects where a field supervisor walks onto a job site, spends an hour or so consulting with the masons and then takes off, leaving it to the craftspeople to make key design decisions. That's not fair to anyone, as the masons and other laborers have their hands and minds full enough with simply doing the work correctly. I respect what they do, but to leave aesthetic deci-

sions about stone selection and placement up to them is to compromise the integrity of the project at exactly the worst time.

In supervising the work, you need to watch, think, consider, re-consider and in the end stand back and ask yourself, "Does it really look good?" If it doesn't, you have to have the strength of will to back up and try something different – something that simply isn't possible once the stones are set and mortared into place. If it does look good, however, it's time to pick up and move the project forward to a new stage, as we'll see next time. **WS**

David Tisherman is the principal in two design/construction firms: David Tisherman's Visuals of Manhattan Beach, Calif., and Liquid Design of Cherry Hill, N.J. He is also co-founder and principal instructor for Genesis 3, A Design Group, which offers education aimed at top-of-the-line performance in aquatic design and construction.

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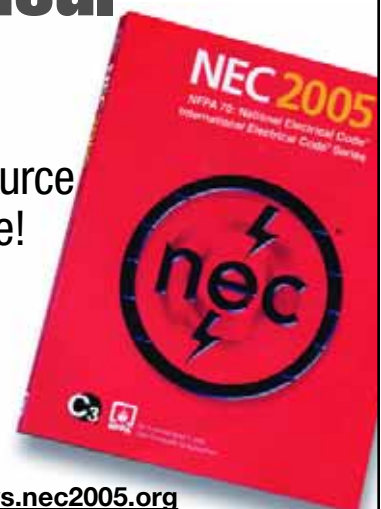
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Objects of *Desire*

By Daryl Toby

When you execute complex projects for sophisticated clients, your ability to satisfy them and their tastes by bringing something different or interesting or unique to the table can make all the difference. As our firm has evolved, we've increasingly come to focus on identifying these compelling touches, which for us most often center on old-world influences that resonate, sometimes deeply, with our clients.

I've always loved to travel and have spent extended periods in Asia, Latin America and Europe. At some point, it occurred to me that by working not only with the principles of classical European and Asian garden design, but also with authentic, imported materials and art objects, the work would take on greater meaning and interest for me – and for my clients as well.

To that point, our firm had followed a path of influence that still reflects itself in our replication of ancient stone-setting techniques. While traveling in China and Japan, I began spotting stone pieces and other objects we could use directly in our watershapes and gardens and started acquiring pieces for that purpose.

This step beyond evoking not only the style but actually *using* elements of authentic design quickly turned into a powerful element in our work. As we moved further in this direction, the channels opened wider, the creative possibilities blossomed and we soon began incorporating more and more of the materials and ideas that I'd encountered in my travels.

Passion Plays

Getting involved in the importation of architectural elements, ancient materials and artifacts quickly became more than a diversion and in fact takes a tremendous amount of patience and persistence. On balance, however, it's been worth the effort simply because it has enabled us to meet our clients' needs and desires more fully – and, selfishly, has allowed us to take our art to another level.

At this point, we bring in vast quantities and varieties of objects – everything from antique stone pavers, sculptured stone and other masonry materials to metal and wooden art objects – so much, in fact, that warehousing, keeping track of and selling what we have is now a big part of our business.

Very quickly, in fact, our business effectively had two parts: On the one hand, we continued to design and install projects of our own

Daryl Toby has built his career on two passions – one for world travel, the other for landscape design. Indeed, he spends months at a time overseas, seeking out fresh sources for antique construction materials and art objects for use in his firm's own designs while importing them for others. Here, he shares in words and images the appeal of turning to the past to stoke the creative fires of contemporary watershape and landscape projects.







around pieces of artwork or other interesting “specimens” we’d imported; on the other, we’d consult on other designers’ projects and assist them in finding pieces to fit into their plans.

On both sides, the key is listening well and using the resources we have at hand to deliver results that clients really love.

In doing so, we’ve learned never to force the issue – meaning not all of our projects include imported antiquities or architectural elements. In some cases, cost is an object in that importing stone

Continued on page 36

These granite pavers originated in an area of China inundated not long ago by the construction of the Three Gorges Dam. As seen reinstalled in this U.S. project, the material is still truly beautiful centuries after being quarried.

Balinese Visuals

I discovered *belongs* on my first trip to Indonesia – wonderful architectural pieces that are found in various forms throughout Asia and other cultures. We often use these pieces for a symbolic connection to the importance of water in Asian gardening traditions. These objects can be generations old and are often passed down through families for water or food storage, but the advent of modern plumbing in parts of

Indonesia in particular has led families to stop using these pieces as originally intended.

For several years, *belongs* were client favorites, but that has changed lately – a prime example of how designs trends come and go for no apparent reason.

But there’s something intangible about these pieces that keeps me interested. They work brilliantly, for example, as ac-

cents along secluded pathways, in conjunction with other stone pieces or sculptures or as focal points in serenity gardens when surrounded by fragrant plants or ornamental grasses that rustle in the slightest breeze.

A Key Point

Not all of the materials and objects we cultivate in our travels are ancient or antique. As we’ve emphasized at several points, often the simple fact that a material or object comes from far away is enough to give it the cachet and mystique our clients crave.

Where old objects and materials are not available, we commission the crafting of new versions.

The antiquities we collect are purchased on the open market, and many of the oldest materials are salvaged from areas under new development – as is the case in that part of China where the flooding of the valley behind the Three Gorges Dam made a spectacular volume of old materials and objects available to us.

– D.T.





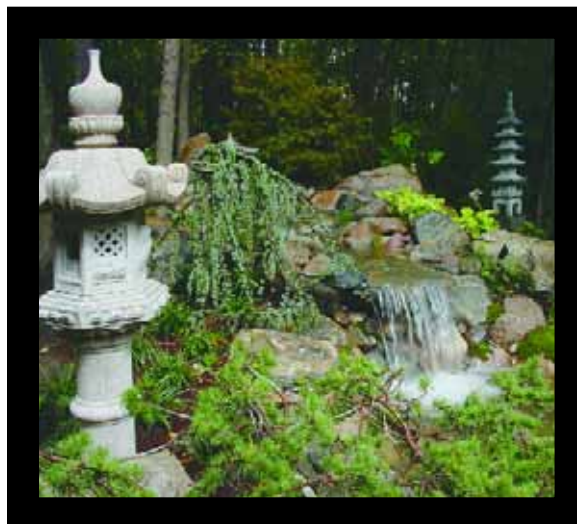
I mported Accents

In this Asian-influenced water garden, one of the key pieces is a granite mortar that once was used to grind rice and other grains. We used it to evoke the spirit of the basins and ladles found in traditional Asian gardens – in this case as a sculptural

element that makes a specific cultural statement.

The project also includes a Kasuga-style Japanese lantern located near a small waterfall as well as a white-granite pagoda. (Not all of our pieces are antique, this pagoda being an example.)

These lantern and pagodas are certainly familiar to us here in the “New World,” but the authenticity and, many times, the age of these pieces takes them beyond the status of cliché and turns them into powerful visual and cultural statements for our clients.





We installed lots of very old granite pavers on this driveway and were surprised to find a single stone that had been carved with marvelous natural imagery. It's now a conversation point for the owners – and a focal point in their love for the work we did.

materials from Asia to the United States may be prohibitively expensive.

Even more important, however, is the fact that not every design calls for such touches, nor is every client “right” for them. Instead, we let our clients know that imported authentic pieces are available and discuss the possibilities if they’re interested. The most essential aspect is that the piece must naturally fit and neither be imposed upon the client nor the site. In

other words, any piece we use has to *work*.

Fortunately for us, it’s amazing how many do gravitate toward the idea: A great many become quite passionate about the concept and see our pieces as defining characteristics of their gardens.

In most situations, clients will see something we’ve already imported and decide to use it. There are also times when clients have distinct ideas about what they want and we’ll take the time to go hunting for

them. That’s an expensive proposition, of course, and typically happens with larger-scale projects.

Reaching for Authenticity

Despite the tremendous variety of materials we can (and do) make available on the supply side of the equation and a multifarious supply of clients and projects on the demand side, we’ve found a couple of unifying themes that work



T ranslated Influence

Even in projects where we aren't using ancient or imported materials, we see that the influence of those objects inevitably extends into everything we do. We've also learned that pieces don't have to be old to be special and can instead get the job done simply by evoking the classics.

In traditional Asian stonework, you'll often see artists sculpt and place stones in ways that make architectural statements while retaining the timeless quality of the stone material itself. In this case, our gifted designer Jeff White designed this set of basalt stones to accent a quiescent reflecting pond. The material is from China and was produced there from our design.

Reminiscent of the works of the great sculptor/designer Isamu Noguchi, the three pieces are imbued with a modernistic sense of asymmetrical balance yet still retain the essence of the original stone forms. The material has been polished to an almost mirror finish to reflect the water and surrounding greenery in complex, ever-changing and quite dramatic ways.



across the spectrum.

First, antique pieces have qualities that cannot be reproduced at will. Most materials age and develop subtle patinas over time and clearly show signs of wear and weathering. As talented as capable producers of faux materials may be these days, it is simply impossible to reproduce the random and subtle effects visible with natural materials as a result of the passage of time.

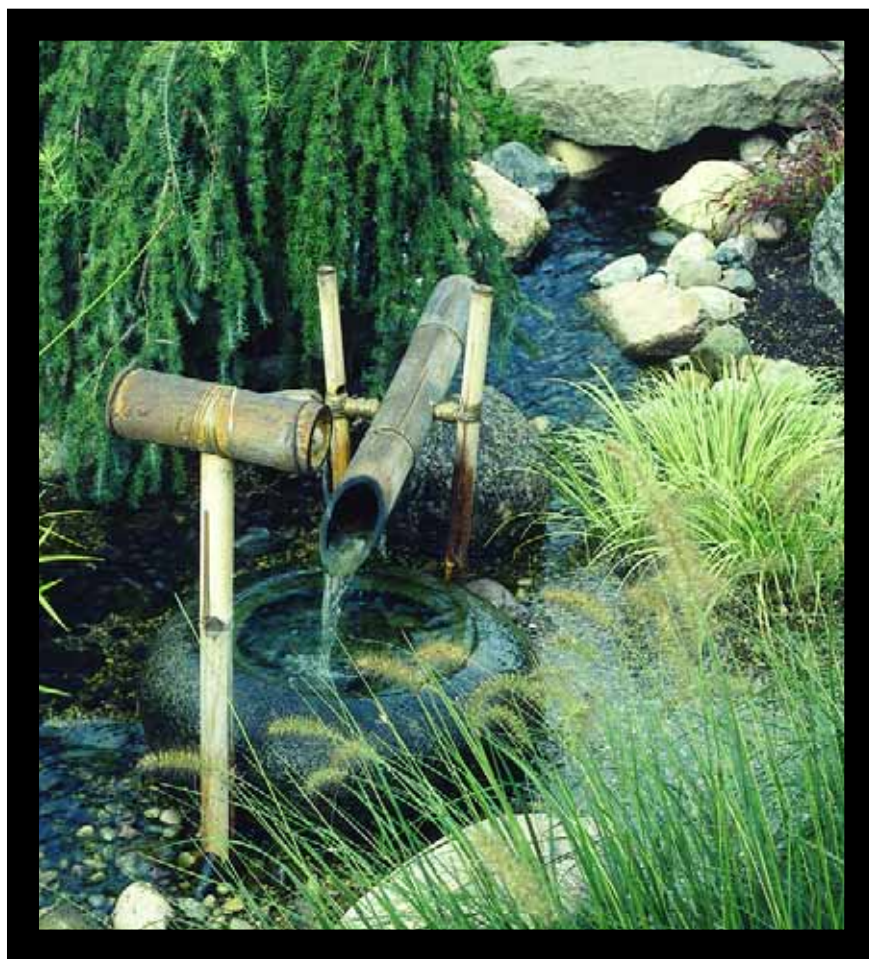
Second and perhaps more significant, there's something intangible yet compelling that comes with owning something from a foreign land, particularly if it has history to it or a story to tell. Each object we import, new or old, has its own provenance and tends to become a source of conversation and ongoing interest.

Thus, it's not surprising that many of our clients are already art and antique collectors. What we do is give them the opportunity to extend their interest to exterior spaces – a fact that brings them to design meetings with extraordinary interest and passion.

Sometimes, both we and our clients run into real surprises. This past year, for example, we completed a major project that included large quantities of antique pavers from China. After installing the driveway we discovered a single paver that had been placed in the drive and had been etched centuries ago with images of waves, serpents and other animals. It's now a centerpiece for the clients, who regale visitors with tales of an anonymous craftsman of an era long gone and a place far away.

A third component in the mix is the fact that, with their timelessness and often antiquity, these objects inspire an irresistible sense of serenity and relaxation. Especially among clients with spiritual inclinations, this presence of authentic materials and objects in the garden triggers deep feelings of comfort and satisfaction that no reproduction ever could.

When combined with watershapes and their ability to lend aural delicacy and refinement to a serene setting, the effects of these materials and objects are only magnified and deepened – as the projects highlighted on these pages demonstrate.



In the Chase

This Michigan garden was developed for Gilda's Club, an organization named for comedian Gilda Radner and dedicated to assisting cancer patients and their families.

We were asked to create a serenity garden and used a *belong* as a source for the water and a stream that features jet-black river stone from Indonesia. Below the small fall is a bamboo "deer chaser" and a granite tetsubachi basin – a small waterfeature found in many Japanese gardens that provides the soothing sound of moving water in addition to intriguing visuals as the bamboo spout fills and empties.

In this case, the use of antique materials, the sounds of running water and calming presence of the plantings creates a beautiful space for healing, relaxation and reflection.



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Shaping the Rain

Ideal for tall spaces with precious little floor space, rain curtains offer watershapers a striking design option perfectly suited to a variety of retail, office and assorted other commercial spaces. As with any specialized effect, says fountain designer and supplier Jon Mitovich, working with rain curtains calls for a good understanding of just what makes the systems tick – and what it takes to set them up to achieve the best possible results.

By Jon Mitovich

For many of us in the watershaping business, the design and creation of fountains and water displays follows a predictable set of functional patterns. Given the traditional tools of the trade and our repertoire of nozzles and spray apparatus, for example, we tend to fashion effects and shapes from the ground up, literally throwing water in the air in a more or less uncontrolled manner.

From a design standpoint, the problem with this tradition is that it eats up space like nobody's business: The pools needed to catch free-falling flows of any noteworthy height must be large enough to capture water subject to the effects of splash, wind-drift and overspray. The higher the spray, the larger must be the footprint of the pool to contain it adequately.

As a rule, these pools need to have diameters of twice the height of the spray – by any measure a significant contribution of expensive commercial real estate to the creative effort at a time when property owners are motivated to make every available square foot an income producer.

As an alternative in this space race, watershapers have found dry-deck or curbless fountains to be a great way to bring water effects into smaller settings with footprints that can serve multiple purposes. Another option that bears consideration is the rain curtain – a great addition to the watershaper's creative arsenal and a system that flows from the top down rather than from the ground up.



Foot Printing

Rain curtains are a unique manipulation of water based on the ancient Asian practice of capturing falling rainwater by using surface tension to run the water down chains, ropes and bamboo slits into small collecting pools, holding vessels or cisterns below.

Beyond being a great and convenient way for moving water from an uncontrolled to a controlled state, perhaps the greatest asset of the rain-curtain effect is the minimal amount of space it takes up on a floor. Indeed, the traditional rules of sizing fountain pools in proportion to spray height do not apply here: Curtains in excess of 50 feet tall can be contained within a pool six feet wide or even less, leaving much more floor space available to generate revenue.

In today's commercial-property markets, having this option available can be invaluable. In just a small space, rain curtains offer all the aesthetic and psychological benefits of water in motion, increase pedestrian and tenant interest, establish a facility's visual identity and lend the property a competitive edge that space constraints might not otherwise permit.

Rain curtains are particularly striking where ceiling heights are substantial – as in the entryways of most office buildings and a great many hotel/resort lobbies, shopping malls and open stairwells. They are also best suited to indoor applications, where wind currents aren't able to distort the delicate effect.

That delicacy is conjured with a range of products and hardware starting with the material along which the water flows. This can be laced or stranded nylon or Mylar – the former a heavy-gauge monofilament “fishing line,” the latter a thin, flat “shoelace” material. As the water flows onto the material, surface tension forms it into beads that appear to travel – as if in slow motion as a result of friction – down the length of the material to the collection pool below.

The key to the effect is introducing the water onto the material in a controlled manner. This requires a precision distribution manifold, usually fabricated of brass or stainless steel tube or pipe and outfitted with a series of emitter nozzles



SMALL FOOTPRINTS:
Although they can attain spectacular heights, the physical spaces required to contain rain curtains can actually be quite small – a fact that makes them a welcome design option in commercial spaces where every square foot is precious.



(also in brass or stainless steel) fitted with grippers that hold onto the strands. Emitter precision is of paramount importance: The orifice controls the amount of water flowing onto the strand while “guiding” it into position.

Down Below

The other critical component of the distribution system is the counterweight attached to the pool end of the strand. It must be heavy enough to pull the strand taut and keep it from moving and possibly twisting or tangling with its neighbors; at the same time, it can't be so massive that it puts a strain on either the strand itself or on the grippers in the manifold.

Typically, these tensioning weights are tied or fastened together in series after installation and strand adjustment to keep the strands from becoming twisted. The emitters themselves are generally spaced on 1- to 1-1/2-inch centers: Any closer and static electricity will make the strands tend to stick together when they're dry, while surface tension will impart the same clumping urge when they're wet.

Beyond those basic performance requirements, rain curtains are a model of flexibility: Heights, shapes and spans are limited only by available space, while the manifolds can take on virtually any geometry, from circles, arcs or ovals to squares, rectangles, crosses, tees or triangles. Multiple manifolds can be used as



SCULPTURAL SENSE: The fact that rain-curtain manifolds can be fabricated into just about any imaginable shape with just about any sort of support structure can make them a compelling, contemporary design accent all on their own – all ready for enhancement by a sly trickle of water.





OUTDOORS, TOO: Although outdoor applications for rain curtains are less common than are indoor installations, they can be used with wonderful results under the right conditions – as in this sheltered entryway, where the short rain curtain lends a sense of motion and sound to its setting.

Variations on a Theme

The use of nylon or Mylar line or lace to run water from the top to the bottom of a water curtain is just one option available to watershapers working in tight spaces. Other options include panes or sheets of glass, acrylic or plexiglass, either smooth or textured, to handle the water flow from top-mounted emitters.

As water flows down these sheets, the influences of surface tension and friction tend to cause the water to gather or “scallop” on its way to the collection pool. Combined with submersible lighting (placed to backlight the sheet), the design possibilities are limited only by the watershaper’s imagination.

– J.M.



Acrylic and glass panels can be used to set up variations on the rain-curtain effect – as seen here, where surface tension and friction make the water scallop and flow irregularly down surfaces that show well by day and, backlit, by night.

well, and emitter placements can be staggered to add depth and dimension to the curtain effect. In addition, strand angles can be set up to 20 degrees off the vertical before gravity overcomes surface tension and the water beads will begin dropping off the strands.

Modern strand emitters are also more efficient than were those available in the past. In fact, there were so many problems with early emitters that the first rain curtains were set up to use glycerin, a sweet, syrupy hygroscopic tri-hydroxy alcohol used as a solvent and plasticizer, as the liquid medium in motion.

This high-viscosity material flowed more slowly than water and had the visual advantage of forming larger droplets, but it also had a nasty tendency to stain surrounding surfaces, was slightly toxic and had mild corrosive properties. Furthermore, liquid traveling through the atmosphere is something of a magnet for airborne particles, and glycerin tended to become a sticky mess after a while as well as a maintenance headache.

Pure, clean water poses none of these drawbacks and has therefore claimed its rightful place as the medium of choice for rain curtains. The main treatment necessity is a high-quality filtration system, which helps by minimizing the risk of clogging the emitters and preventing hit-or-miss operation of the rain curtain.

The actual water flow is relatively slight, depending upon the number of strands. The rule of thumb is allowance of a flow rate of 0.33 gallons per minute per strand via an appropriately sized pump and filter – thus, a rain curtain with 100 strands will require a flow rate of 33 gpm. The height of the rain curtain (that is, the length of the strands) does *not* change the flow requirement, although it does increase the total volume of water in the system.

Going with the Flow

The sight of water flowing down a rain curtain is remarkably compelling on its own, but the effect can be enhanced still further through use of submersible fountain lighting aimed up from the collection pool.

The light reflects off the water beads and wet strand material to create a shimmering effect and multiplies the observ-

er's ability to enjoy the kinetics of the watershape. A combination of spot and flood lights spaced at three-foot intervals works best in most applications, with the mix and wattage depending upon the height of the curtain.

Beyond aesthetics and installation, of course, operation and maintenance are important to the impression the system makes, particularly with its owners. The usual rules apply: Before start-up, the pool must be clean and filled with fresh water, with all pipelines flushed clean of

any construction debris. Water quality needs to be monitored and managed to maintain that cleanliness.

The main challenge to rain-curtain systems comes in the form of hard-water scaling that can take its toll on emitters and strands over time. As a result, mineral de-scaling devices may need to be incorporated into the system or, in extreme cases, water softeners or reverse-osmosis purifiers. To promote long strand life, the use of sanitizing chemicals should be avoided; instead, ozone or ultra-violet

light systems should be used.

Modern technology and precision fabrication have made an ancient and eminently practical design idea accessible in today's design marketplace and allow the designer to bring a strikingly contemporary feel to any setting. The greatest post-installation pleasure comes in watching visitors as they experience the grace and beauty of the effect from vantage points just a few feet removed from the effect – a reaction appreciated by watershapers and property owners alike.

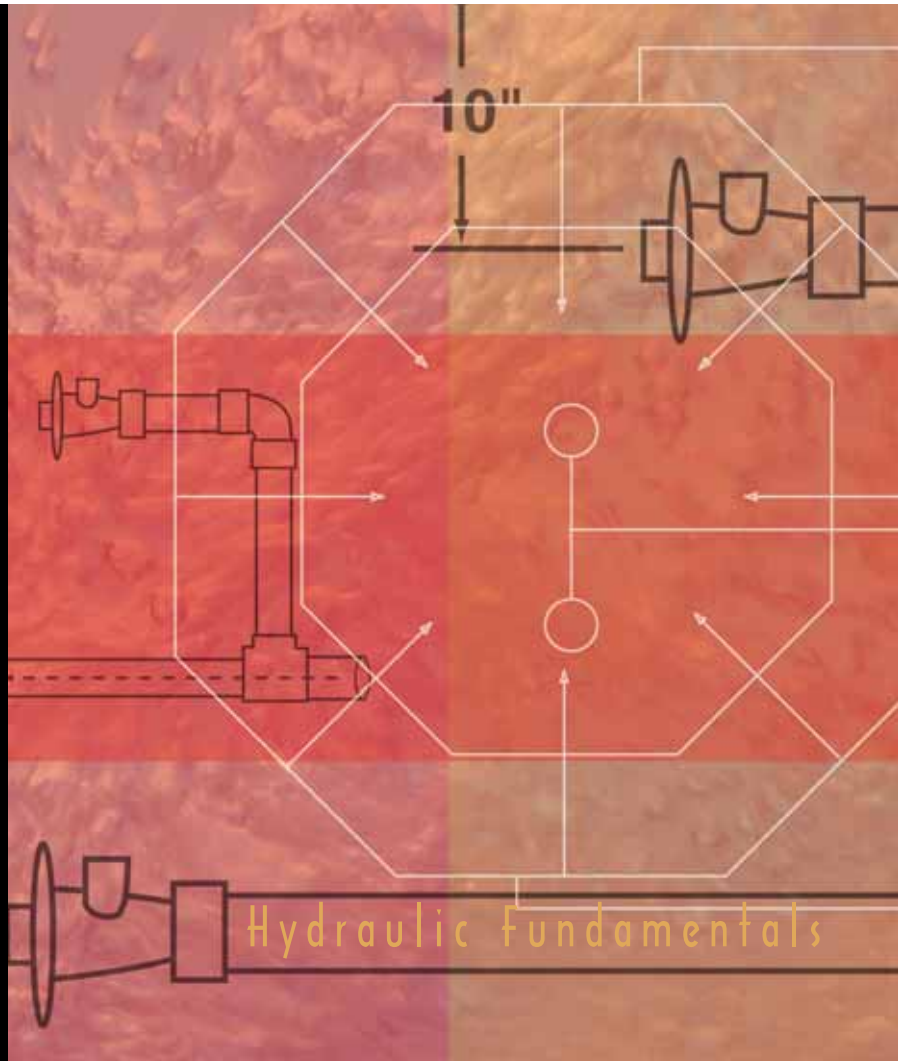


SUBLIME ELEGANCE:
There's a definite visual appeal to rain curtains of all heights, shapes and configurations – a different sort of drama from that of a bottom-up fountain, but certainly a source of pleasing sounds and an arresting sense of motion.

Backwashing Basics

By Steve Gutai

Backwash valves are the unsung heroes of many a fine hydraulic system. Seldom considered other than when in use, these handy devices simplify filter maintenance, significantly extend filter cycles and even serve to stretch the service lives of a filter's internal components. Ensuring that level of reliable performance, says hydraulics expert Steve Gutai, is a matter of understanding the role these valves play and selecting the right one for the given application.



Backwash valves are simple in concept: They reverse the flow of water through a filter and, in so doing, dislodge dirt and debris that has built up on the surface of and in the filter medium.

This procedure has a couple of key benefits in both sand and diatomaceous-earth filters: First, it improves filter performance by breaking up and flushing out the near-solid cakes of dirt and oil particles that build up in the media over time. Second, it prolongs filter cycles and extends the time between major (and messy) cleanings. Third, because they minimize those invasive cleanings, backwashing helps to extend the service lives of a filter's internal components.

For all that, I keep seeing systems in the field in which backwash valves are not properly specified or no provisions have been made for routine backwashing – that is, systems in which there's no backwash valve to divert the flow and initiate the cleaning process. And these devices aren't particularly complex or expensive, which leads me to believe there's a lack of infor-

mation about the value of these valves, a gap we'll begin to fill here.

REVERSING THE FLOW

Some watershape systems are set up with cartridge filters that don't require backwashing, but a good portion of filtration systems – especially those for swimming pools, spas, and waterfeatures – use either sand or diatomaceous earth (D.E.) to rid the water of particulates.

Setting up these systems for proper backwashing isn't the most complicated procedure or the sexiest topic going, but it really does cut to the heart of proper filtration and water quality. In fact, I'd say the presence of backwashing capability is crucial to the long-term enjoyment and sustainability of any watershape system.

As is the case with most simple-seeming topics, there is, of course, more to backwashing and backwash valves than meets the eye.

Consider what happens inside a filter when the system is in backwash mode.

In a D.E. filter, the water flows backwards through the filter grids, thereby blowing the caked filter medium and all the debris imbedded in it from the polyester-fiber/nylon-mesh grids. The water containing all the dirt particles, oil, debris, and caked diatomaceous earth flows to waste via a P-trap, a drain system or a reclamation/backwash tank.

In a sand filter, the flow is similarly reversed: Instead of the water flowing downward through the sand bed, it comes up from the bottom of the filter and effectively churns the top few inches of the sand bed up into solution. Dirt is removed when the water flows up and out of the filter body through the diffuser at the top of the tank. The water is disposed of via the options described just above for a D.E. filter.

Again, that's elegant and simple, but there are a couple of key points that bear consideration in greater detail.

For starters, backwashing lengthens filter cycles, that is, the time between serious cleanings. As we all should know, emp-

tying and recharging D.E. filters is a laborious and dirty job that involves opening the tank, removing and cleaning the grids – then reassembling and recharging the system with D.E. Removing sand from a sand filter is even worse, a nasty task that requires not only disassembling the filter but also scooping out the muck and sand by hand in most cases.

In addition, backwashing not only enables the media in a D.E. filter to last longer, it also lengthens the service life of the grids and internal components simply by reducing handling and allowing the filter to operate at lower pressures. For sand filters, backwashing also helps prevent the solidification of the surface of the sand bed and can thereby lengthen the span between major cleanings by several years.

The ultimate benefit in both cases is proper filtration and proper flow throughout the system, which can have a huge impact on a range of other issues such as the proper functioning of heaters and sanitization systems as well as the overall performance of spa jets, fountains, waterfalls or interactive waterfeatures.

NAMING NAMES

There are several types of backwash valves on the market these days, and each has its own set of characteristics, advantages, disadvantages and proper applications. For all of their differences, however, all backwash valves have at a minimum the same five-port setup: filter inlet and outlet; pump discharge to valve inlet; valve outlet port to return circulation; and port to waste.

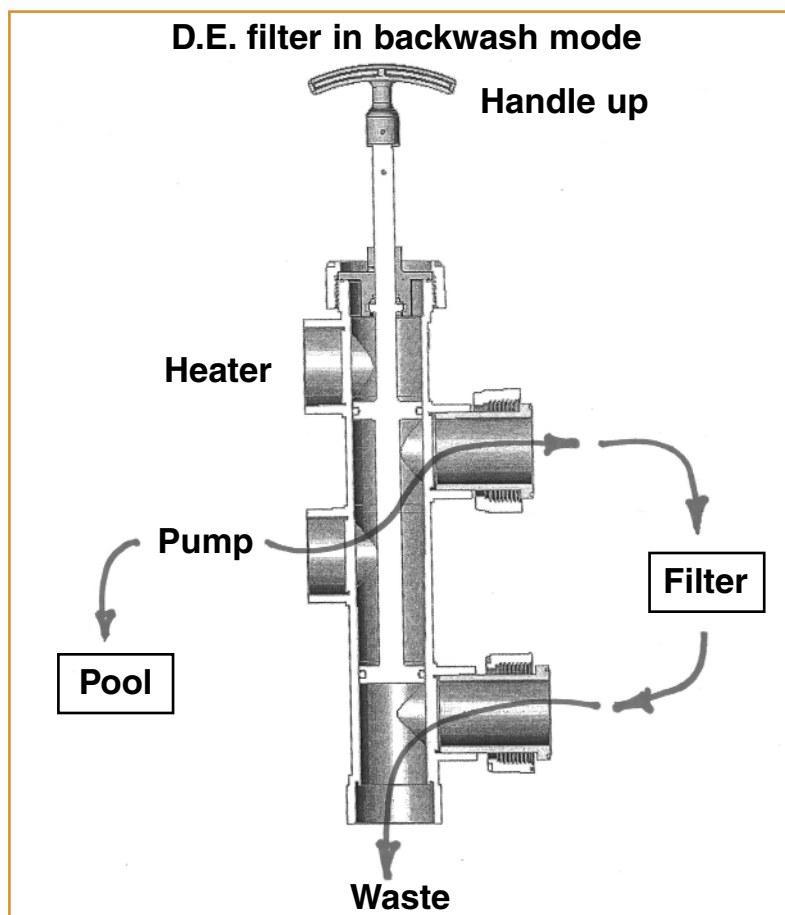
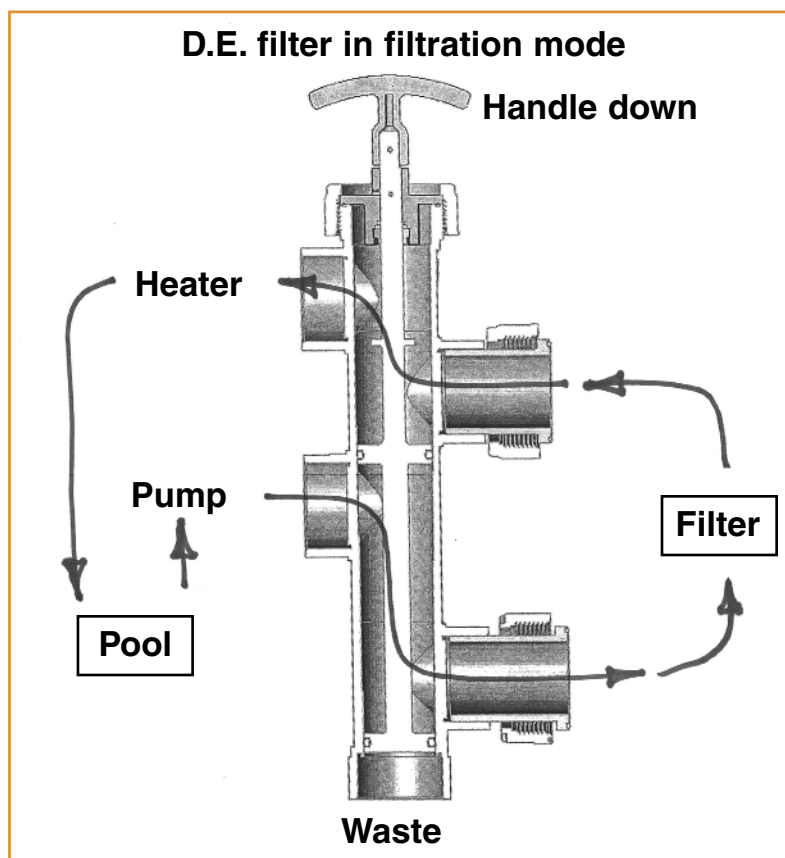
As you'll see in the summary of options below, the way those five connections are accommodated differs widely from valve to valve.

w Slide or push-pull valves: These are the least expensive and most often used backwash valves on the market. Sometimes referred to as piston-style valves, they are essentially two-position devices that run in either filtration mode or backwash mode.

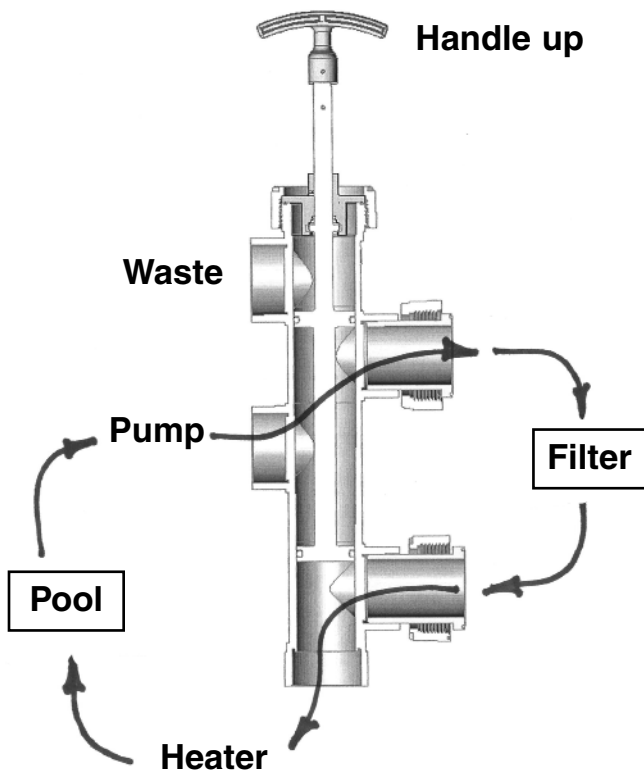
Slide valves feature a simple cylinder – a shaft with two plungers that move through the internal part of the valve body. The plumbing ports in and out of the valve are positioned so that sliding the shaft will redirect the flow of the water.

In a typical D.E. system application, pushing the shaft all the way down makes the water flow in filtration mode. Pulling it back shifts the flow into backwash mode, sending the water coming out of the filter to waste. In a sand filter, where the flow pattern is the exact opposite of a D.E. filter's, the positions are reversed. (Helpfully, most slide valves are marked to indicate which positions work for which filter type.)

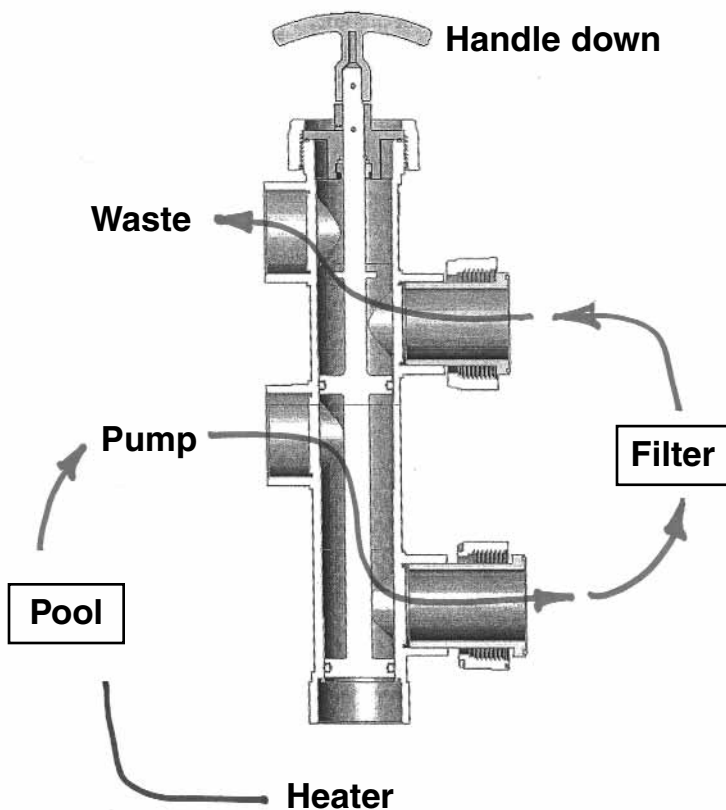
Slide backwash valves are typically made of PVC or ABS plastic material. Most are glued to a set



Sand filter in filtration mode



Sand filter in backwash mode



of unions that are ultimately mounted onto the side of the filter tank, which makes them easy to service and replace as needed. They cannot be automated.

These valves are in common use in the Sunbelt (other than Florida, where cartridge filters dominate), but they are seldom used in regions where watershapes must be winterized. In these places, multi-port backwash valves are generally used because of the additional benefits they can provide.

w Multi-port valves: These valves offer a range of functions and configurations that go well beyond backwashing, offering a versatility that is highly desirable for many applications. In addition, multi-port valves are self-draining, which makes them suited for use in cold climates.

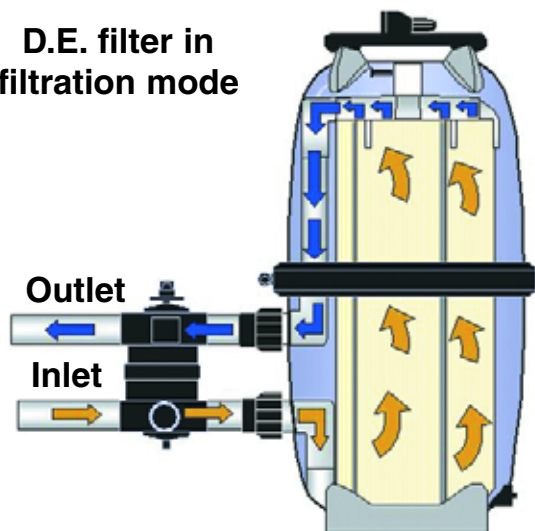
Typically made of ABS plastic and fitted with threaded socket connections that make installation, removal, repair and replacement convenient, multi-port valves are also commonly referred to as dial valves because they look like sundials on the inside, with compartments divided into six or seven wedge-shaped slices. Water is sent in various, distinct directions through these compartments by a rotating diverter assembly that moves into different positions over a spider gasket.

Multi-port valves offer more possible valve positions than do slide valves, including positions for filtration and backwashing; a waste mode that enables water to be pumped directly to waste without passing through the filter; a closed mode that cuts off all flow through the valve; and a rinse mode, which allows water to flow to waste while the system is in the filtration mode – thereby keeping cloudy water inside the filter from re-entering a watershape after backwashing.

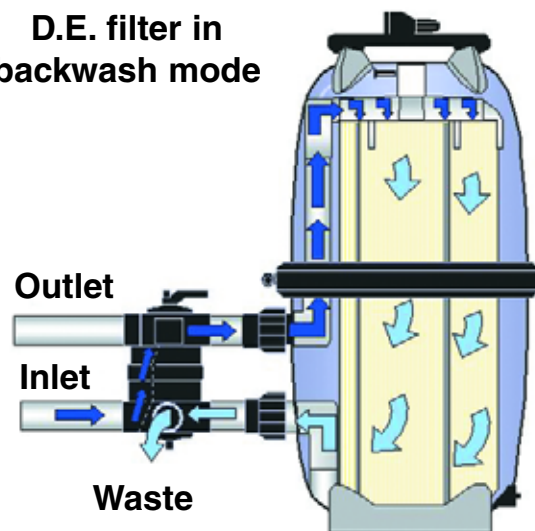
Multi-port valves also have a re-circulation mode, which is basically a bypass that allows for water circulation without any flow through the filter. In addition, some have a winterization mode that allows the valve to drain itself.

These valves come in two basic types: The first is a top-mounted style most often seen on smaller sand filters (30 inches or less). The second is a side-mounted style used on larger systems (30 inches and up). The key difference between the two is the way the filter's internal plumbing interfaces with the backwash valve connections.

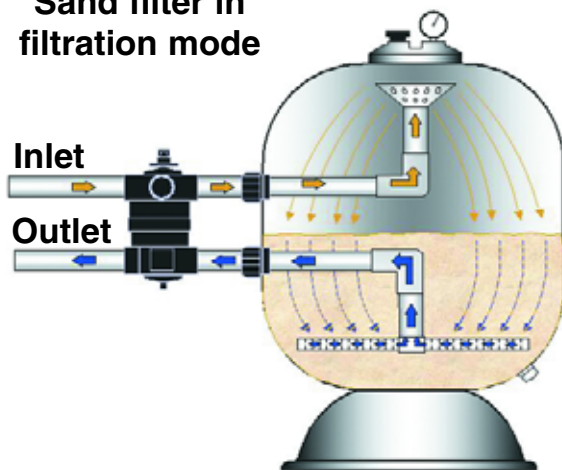
D.E. filter in filtration mode



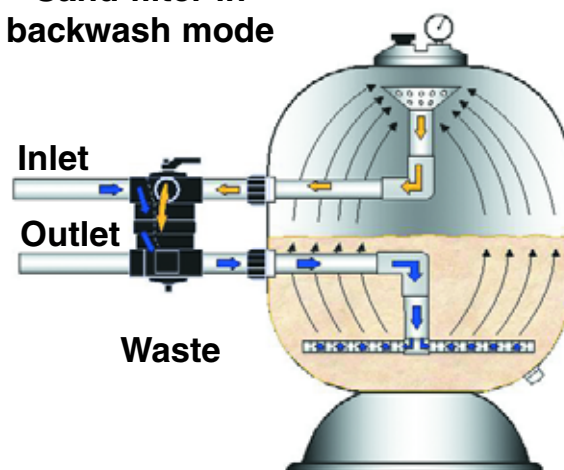
D.E. filter in backwash mode



Sand filter in filtration mode



Sand filter in backwash mode



With a top-mounted valve the filter diffuser is part of the valve and the water enters the valve and is distributed from the valve itself. By contrast, with a side-mounted multi-port valve, the valve sends water to a diffuser that is integrated into the sand filter's tank. Despite these physical differences, water flows to the sand bed in exactly the same way with both valve types.

For the most part, side-mounted multi-port valves provide a second option to slide valves because the former are more versatile and have the benefit of being side mounted. Moreover, multi-port valves—especially of the side-mounted variety—are easily automated using specialized valve-actuator mechanisms.

w Full-flow valves: These valves have completely different designs than multi-port and slide valves. They have two diverter gates that are attached to one common shaft. When the shaft is rotated, both diverter gates are rotated. They direct water through the same sets of ports as do other backwash valves, but with much less pressure drop as the water flows through the valve.

When water flows through a slide or multi-port valve, it must make at least two 90-degree turns or travel through different chambers, resulting in additional friction loss within the system. By contrast, full-flow valves divert the water flow while adding virtually no extra resistance—something they accomplish because the

water flows straight through the valve and there are no bends or turns to contend with in the filtration mode of operation.

This makes these valves particularly valuable in systems that require precise flows and higher pressures, such as is the case with in-floor cleaning systems. These valves are always side-mounted on filter tanks and may be used with either sand or D.E. systems. They can be automated, but only one company currently offers full-flow valves with this capability.

w Rotary valves: Valves in this fourth category are used only with D.E. filters and, unlike the valves discussed above, are mounted on the bottoms of the tanks and can be used for the purpose of backwashing.

Large sand filters piped in series.



These two-position valves are integrated into the body of the filter tank (usually in older stainless steel models) and are operated by a handle that moves an internal rotor assembly. They cannot be automated.

These valves have been in reliable service for many, many years and are still in use in some areas, particularly southern California. Their biggest drawback is the fact that you have to take apart the entire filter to access the valve for service and repairs. With a big tank, that means crawling into the filter itself to reach the valve.

w Tandem-filter piping kits: These are basically series of pipes

and butterfly valves that form manifold structures used to connect large sand filters in series. These arrays are typically found on large commercial projects that require special backwash valve systems designed for the specific types and numbers of filters.

These systems enable operators to take individual filters off-line for backwashing or service while the others are still running, thus preventing facility downtime. There are a variety of permutations and possibilities with these complex manifold systems that are specific to each project. Many of these systems are automated.

DOWN TO CHOICES

In evaluating what sort of backwash valve system should be used for a specific application, a watershaper needs to weigh all sorts of details, including filter type, pressure drop, whether the system will be automated or not, physical access to the valve and whether one or more filters will be used.

From a systems standpoint, however, the largest design consideration has to do with pressure drop. You need to know what degree of pressure drop you will experience with each possible backwash valve and come up with an overall system that works with the greatest efficiency and optimal performance.

There are a few helpful rules of thumb. You know, for

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WATER SHAPES

example, that most multi-port backwash valves experience the highest level of pressure drop, so you won't spend much time considering them for a pool with an in-floor cleaning system. In that sort of application, slide valves or full-flow valves are the best choices.

The other big question has to do with which operational modes are needed for the given project. In the northeast, where pools are winterized and all sorts of leaves and debris can accumulate in the water, valves that have bypass positions and enable water to be directed to waste without flowing through the filter are a big plus. In warm weather areas, you generally won't need winterizing or bypass modes.

Cost can be a factor as well. Simple slide valves are far less expensive than multi-port or full-flow valves – perfect for straightforward backyard pools or spas, but generally less advisable for complicated projects where multi-port or full-flow valves may be the answer.

The final consideration is serviceability. If you look at all of these valves, the slide valve is by far the easiest to service, with removal of just one nut allowing removal of the plunger and most repairs involving little more than replacement of a few O-rings. Multi-port valves are equally accessible, but they are much harder to work on because there are usually eight to ten bolts to remove on the top plate of the valve, and the spider gaskets can be tricky to reinstall because of their complex web shapes. Full-flow valves are easy to access and repair, so much so that some come with lifetime warranties, while rotary valves, as mentioned above, can be a service challenge.

In the short run, the type of backwash valve you choose may not be the most critical or thought-provoking of all the decisions you'll make about a hydraulic system. But if you make the effort, do some homework and settle on just the right system, it'll be one decision that won't require any second-guessing down the line.

Clear Sight

In addition to backwash valves, there are a couple of other components that can be crucial to the backwashing process.

The first is a simple sight glass – nothing more than a small window that allows the operator to look at the water flowing within the filter tank to see when it's clear and backwashing can be stopped. These are found on many multi-port and tandem filter piping kits.

Reclamation or separation tanks offer another clear-water assist. They look like small filters, but they have a polyester-cloth sack on the inside that captures debris from the backwash effluent and sends the water back into the circulation system rather than to waste. These systems are used most often in conjunction with D.E. filters in drought-prone areas where water conservation is a key issue.

– S.G.

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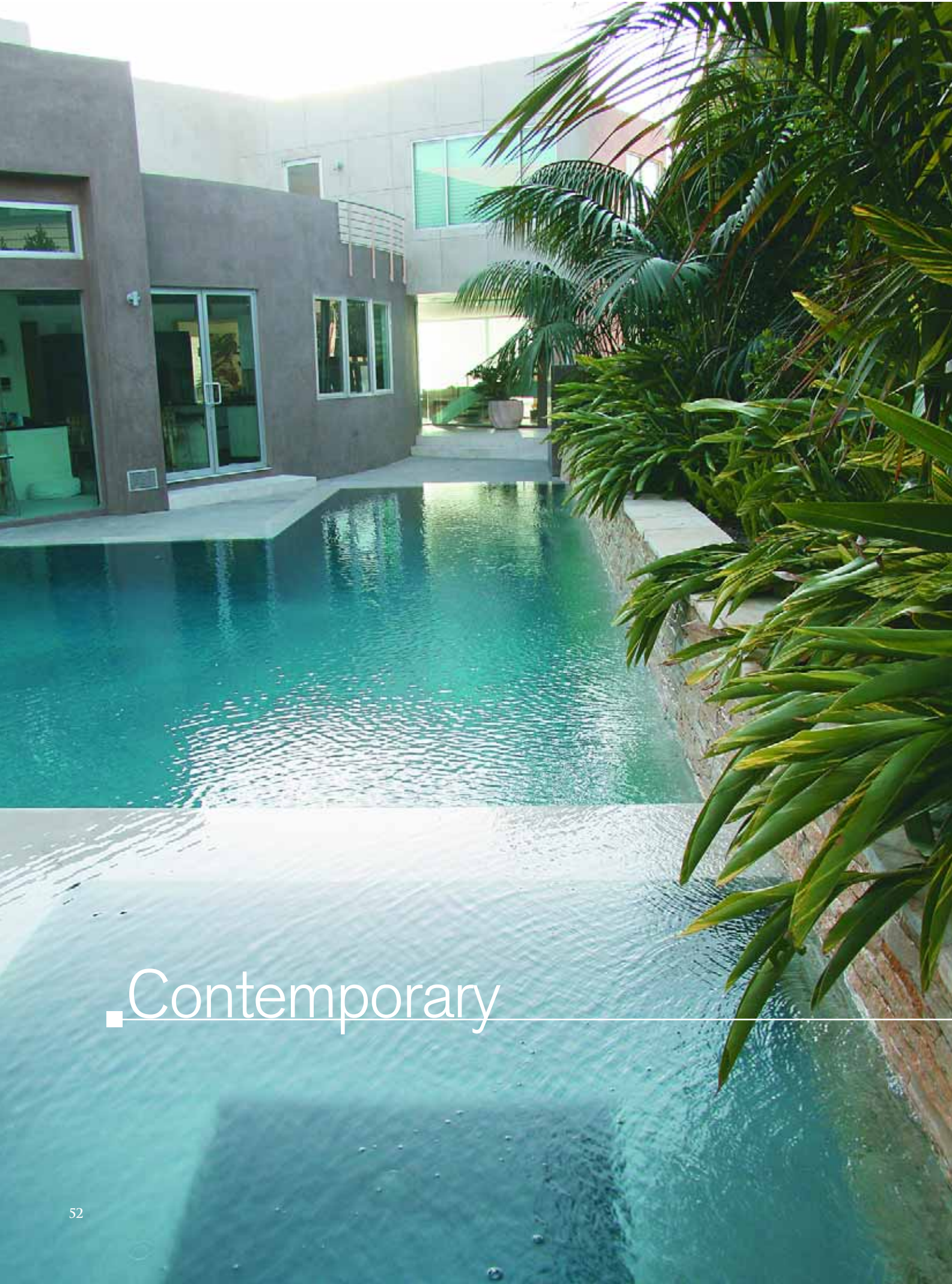
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■ Contemporary

Known as specialists when it comes to executing the designs of top-flight architects and landscape architects throughout Southern California, pool builders Martha and Randy Beard get involved in a wide range of fascinating projects in some of the region's most exclusive enclaves. Here, they discuss their work on the watershapes of architect Mark Singer, who's built a sterling reputation by creating contemporary homes with stark, dramatic geometries.

Sensibilities

By Martha & Randy Beard



One of the great things about working with different architects and designers the way we do is that, as builders of pools, spas and other watershapes, we enjoy opportunities to work across a broad range of design styles and sensibilities.

In this instance, we're focusing on one of our favorite Southern California architects, Mark Singer. He's known regionally for crisp, clean, minimalist designs and is well regarded for his work on breathtaking lots along the coast in Laguna Beach, Newport Beach and other well-heeled cities overlooking the Pacific Ocean. To our good fortune, most of his projects include pools, spas, courtyard waterfeatures, outdoor sculptures and other amenities that enhance and extend his contemporary designs.

Our most recent project with Singer was completed in the summer of 2004 at an older home in the beautiful beach community of Corona del Mar. The house itself was not originally designed by Singer, but it had been remodeled by him several times in the years since. In fact, so much has been done at this point that it's practically impossible to distinguish this residence from projects he has pursued from the ground up.

Completing a Scene

The homeowner is a wealthy land developer, a self-made man and a major fan of Singer's who has collaborated with the architect on three major renovations that have completely transformed his home.

As with all of Singer's work, the house now features a great deal of glass, metal and poured-in-place concrete characterized by tremendous sensitivity to line, space and light throughout. The last vestige of the original construction was the pool – a drab, uninspiring lazy-dogleg-shaped vessel that really didn't go very well with the remodeled home.

It was located in a courtyard that opened over a sweeping ocean view and occupied a space that is now a focal point from several key areas inside

the home. Singer knew exactly what he wanted to do with the courtyard, and the homeowner was extremely enthusiastic when it came to allowing him to complete the scene with a brand new pool and spa.

We were fortunate enough to be referred to the homeowner as the recommended contractor. As is true of many of the designers whose work we've had the pleasure of executing, Singer has a wonderful way of maintaining control over the work while simultaneously hearing what we have to say and allowing us the freedom to build watershapes based on our experience. He's extremely energetic about discussing details and weighing alternative approaches – truly a nice guy and always accessible, responsive and someone who makes collaboration a real pleasure.

Of all the projects we've done with Singer, this one is certainly among our favorites – absolutely spectacular and more than worthy of its stunning setting. The rectilinear pool has a large notch at one end that was included to expand the deck by a few critical square feet and has a square, raised spa at one end as well as a fantastic stone wall running the length of one entire side.

The wall rises 30 inches above the surface of the water and is topped by a 24-inch-wide planter. The entire span is finished in a stacked Irish Linen stone with a beautiful, ultra-white coloring and a chunky, meaty texture. The stone extends down past the waterline, reaching all the way to the floor of the pool. The idea was to create a sense that one side of the pool was an artifact of a quarry, setting up an intriguing juxtaposition of its rugged look with the stark, crisp modernity that defines the rest of the environment.

The other three sides of the pool's perimeter are edged with a razor-sharp perimeter overflow system that drops over a low, raised bond beam capped in limestone and flows into a narrow gap at the base. The raised part of the wall starts where the spa leaves off on one side and is integrated into a wall that extends from the front of the house. There's also a floating pad that enables bathers to step up into the spa.

The raised wall and the perimeter overflow are all integrated into a complex bond beam detail engineered for the pro-



The old pool might have been appropriate for the house as originally built, but by the time Mark Singer was through with the home's renovation, the curved edges and soft overall appearance cried out for attention. Two key features of the new design include a stacked ledger wall extending all the way to the floor of the pool along the back wall and repositioning the spa, which was moved from one end of the vessel to the other.





Singer's renovation included the gateway allowing direct access to the pool from the front yard. The offset glass panels are a visual delight, and those who approach are treated to a gorgeous waterfeature just to the right of the frosted opening. The stone materials used in the waterfall are picked up in the pool and spa and the house itself, integrating the looks on both sides of the gate.



ject by Ron Lacher of Pool Engineering (Anaheim, Calif.). He also handled the overall structural design.

A New Start

We began our work by demolishing the old pool and hauling it away like a bad memory. We over-excavated the site by a fair measure to enable us to form the pool with freestanding-panel construction.

The installation itself was all very straightforward in most respects, including the slot-overflow system that pours into a small gutter concealed by cantilevered concrete decking. The two-inch drop gives the impression that the water mysteriously disappears right into the deck. The main challenge we had here was with the hydraulics, as there was no room at all for surge capacity in the overflow system – an issue resolved by installing a big surge tank just below the equipment area.

We formed the gutter as part of the bond beam, which meant that our forming work was crucial to hydraulic performance. We plumbed the trough with a six-inch equalization line that flows via gravity into a six-inch trunk line that flows at an easy two-percent grade into the surge tank.

The edges for the overflow had to be dead on, of course, to ensure an even flow over the edge, but the limestone caps also had to line up with a decorative grid pattern that extends into the concrete decking beyond. This required some precise preplanning and careful execution, and the result is that the pool's top-side structure aligns perfectly with and is fully integrated into the surrounding hardscape. The decking is in a Sedona buff color that blends nicely with both the limestone coping and the stone ledger on the back wall.

Settling on the pool's interior finish was a lengthy process that involved Singer and the homeowner in several rounds of discussion. What finally emerged is a light, smoky-gray plaster with Colorquartz aggregate provided by 3M (St. Paul, Minn.). It lends a tranquil, light-blue tone to the water that makes it easy to see that the stacked-stone detail extends all the way to the pool's floor.

The stone wall itself is rigged with a subtle water effect that bleeds out of a series of hidden Custom Cascades weirs

(supplied by Oreq Corp. of Temecula, Calif.) that send small flows of water down the entire face of the wall. The system runs off of a four-inch feed line that connects to multiple manifolds hidden beneath the wall's capstones, which not only hides the water source, but also gives the impression that entire wall is made of the ledger stone. When the water wall is not operating, the well-sheltered pool is glassy and reflective; with the flow activated, the surface becomes articulated and textured.

Atop the wall is the abovementioned planter, which contains a wide variety of beautiful plants including a number of spectacular bromeliads. The wall runs the entire 35-foot length of the pool and extends beyond it, terminating at the wall that conceals the equipment pad. It's all part of the bond-beam detail and emerges from the pool at a slight angle to accentuate the quarry effect.

The pool has a depth extending from three-and-a-half to eight feet. It is 25 feet wide at one end, narrowing to 15 feet wide

at the other to accommodate some extra decking. The width at the deep end was intended for vigorous activity by the homeowner's teenage children.

A Tight Set

While the pool itself laid out nicely in the available space, the equipment pad was another matter. Confined to a six-by-six-foot space, it made us unusually conscious of layout and equipment selection.

In all, there are five WhisperFlo pumps (Pentair Pool Products, Sanford, N.C.) and dual diatomaceous-earth filters (Hayward Pool Products, Elizabeth, N.J.) – one for the edge effect, the other for the main circulation/heating system. All of the pumps are plumbed with dual suction lines to prevent any chance of suction entrapment.

The main circulation system is designed for a six-hour turnover. Everything runs on two-inch (or larger) plumbing sizes to maximize hydraulic efficiency. We actually downsized the perimeter-overflow pump because the leveling is so tight that

Text continues on page 60



The view from the repositioned spa and adjacent deck allows those enjoying a good soak or just relaxing by the spa a perfect perspective on the rising planes of the home's architecture. The water sheeting over all those stone edges lends a sparkling quality to the surfaces while adding gentle sounds to the overall environment.

Monolithic Reflections

Another of our favorite Mark Singer projects is an extreme-high-end residence in the Emerald Bay neighborhood of Laguna Beach, Calif. This project offers testimony to the power of visual simplicity, and its simple, three-sided perimeter-overflow pool – along with a pedestal for the sculpture set on one end – is part and parcel of a fully integrated scene.

The pool is finished with jet-black Pebble Tec (Pebble Technology, Scottsdale, Ariz.) with an Italian porcelain tile laid over the eight-inch raised bond beam. The overflow system spills into a grated trough filled with smooth, black river rocks and pebbles.

Unlike the pool described in the accompanying article, this spectacularly inky pool was designed as an integral part of the home's overall design. Massive glass-panel walls surround the pool on two sides, providing vistas of the water from towering interior rooms – something you might expect to see with an art museum rather than with a private residence.

Although it is fairly large at 36 feet long by 18 feet wide (with a maximum depth of six feet), the dark watershape looks much more like a reflecting pond than a swimming pool. Indeed, the homeowners have told us that many of their guests are surprised to find out that it is actually a swimming pool.

The architecture of the home is signature Mark Singer, with a stark, rectilinear design and lots of glass, metal and poured-in-place concrete. The monolithic pool serves as its perfect complement, providing dramatic reflections from a range of focal points around the pool's perimeter.

– M. & R.B



The breathtaking simplicity of this Mark Singer design is what makes it so powerful. It also demonstrates an advantage he had in this case compared to the project discussed in the accompanying feature: Here, he designed the entire composition from the ground up instead of working through a series of renovations and it shows in the complete integration of line and detail.



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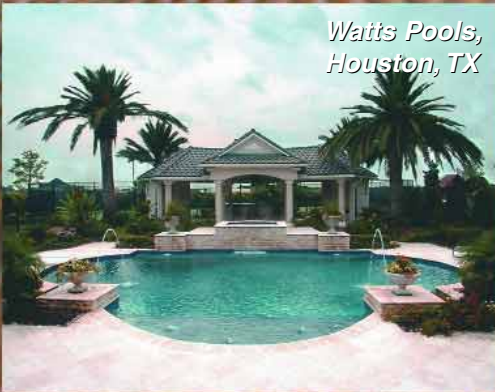
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Continued from page 56

the entire effect runs on less than 100 gallons per minute.

The square spa measures seven by seven feet and also features a perimeter overflow on two sides – one flowing to the trough, the other into the pool. It has 17 jets in all, placed in accordance with the homeowner's preferences. We avoided specialty therapy jets to avoid disrupting the appearance of the interior finish.

With contemporary designs such as this one, the key to success is paying attention to the elegant simplicity of the details. This project (and the one described in the sidebar on page 57) demonstrate how basic, rectilinear pools with carefully selected design elements have a power and beauty you don't often see, even in more elaborate projects.

When a designer with Singer's deft touch and flair for visual drama is on the case, the results are truly memorable – and a builder's delight.



The greenery reaching over the weeping wall toward the pool lends a special quality to the composition, working with the texture of the stonework to soften hard edges and surfaces without impinging on the overall system of lines at work in the design. It's a great space, and working with Mark Singer's design was a satisfying pleasure.



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r **February 2002** (Vol. 4, No. 2)
Marosz on project integration; **Moneta** on spa-edge details; **Affleck** on sculpture and water.
r **May 2002** (Vol. 4, No. 5)
Anderson on pond essentials; **Pasotti** on interactive waterplay; **Gibbons** on 'stellar' fiberoptics.
r **June 2002** (Vol. 4, No. 6)
Altorio on civic fountains; **Gutai** on skimmers; **Beard** on working with landscape architects.
r **September 2002** (Vol. 4, No. 8)
Rosenberg & Herman on site-sensitive design; **Dirsmith** on long-term design; **Gutai** on filters.
r **October 2002** (Vol. 4, No. 9)
Copley & Wolff on modernizing fountains; **Bethune** on imitating nature; **Tisherman** on edgy colors.
r **Nov./December 2002** (Vol. 4, No. 10)
Holden on Villa d'Este; **Hobbs** on Maya Lin's watershapes; **Phillips** on water in transit.
r **January 2003** (Vol. 5, No. 1)
Fleming on high-end ambitions; **Harris** on decorative interior finishes; **Gutai** on surge tanks.
r **February 2003** (Vol. 5, No. 2)
The Beards on collaboration; **Yavis** on custom vinyl-liner pools; **Mitovich** on Microsoft's campus.
r **March 2003** (Vol. 5, No. 3)
Fowler on habitats for marine mammals; **Benedetti** on outdoor kitchens; **Dews** on planting pockets.
r **April 2003** (Vol. 5, No. 4)
Shoplick on watershapes as teaching tools; **Gutai** on water flow; **Schwartz** on Maya rockwork.
r **May 2003** (Vol. 5, No. 5)
Zaretsky on sensory gardens; **Freeman** on hydraulic retrofitting; **Hanson** on water/stone sculpture.
r **June 2003** (Vol. 5, No. 6)
Gunn on fountain whimsy; **Tisherman** on water-shaping for an art collector; **Holden** on tile.
r **July 2003** (Vol. 5, No. 7)
Fintel on attracting birds; **Lacher** on structural en-

gineering; **Alperstein** on golf course design.
r **August 2003** (Vol. 5, No. 8)
Miller on site-specific fountains; **Gutai** on plumbing joints; **Holden** on period-sensitive restoration.
r **September 2003** (Vol. 5, No. 9)
Hebdon on borrowing naturalism; **Ruddy** on indoor designs; **So** on modernist sculpture.
r **October 2003** (Vol. 5, No. 10)
Mitovich on dry-deck fountains; **Roth** on liner issues; **Marckx & Fleming** on glass tile.
r **November 2003** (Vol. 5, No. 11)
Holden on carved stone; **Shaw** on roles of consultants; **Forni** on period-sensitive renovation.
r **December 2003** (Vol. 5, No. 12)
Five-year article and topic indexes; five-year index for all columns, 1999-2003.
r **January 2004** (Vol. 6, No. 1)
Ruddy on enclosures; **Lacher** on steel and concrete; **Forni** on water quality for natural watershapes.
r **February 2004** (Vol. 6, No. 2)
Varick on nature and architecture; **Benedetti** on protecting stone; **Kaiser** on grand-scale watershapes.
r **March 2004** (Vol. 6, No. 3)
Morris on kinetic sculpture; **Cattano** on collaboration; **Hebdon** on water and settings for healing.
r **April 2004** (Vol. 6, No. 4)
Hayes on water, art and spirituality; **Gutai** on concrete-spa jets; **Gregory** on water and high art.
r **May 2004** (Vol. 6, No. 5)
Rowley on main-drain safety; **Ewen** on purposeful restoration; **Dallons** on high-wire watershaping.
r **June 2004** (Vol. 6, No. 6)
Dallons on a hilltop treasure; **Mitovich** on the D-Day Memorial; **Slawson** on Japanese inspiration.
r **July 2004** (Vol. 6, No. 7)
Benedetti on fortifying concrete; **Shaw** on fountain 'standards'; **Holden** on Italy's watershapes.
r **August 2004** (Vol. 6, No. 8)
Bravo on Olympic-scale restoration; **Martin & Tester** on water and music; **Jauregui** on clients and styles.
r **September 2004** (Vol. 6, No. 9)
Abaldo on a grand-scale vision; **Gutai** on valves; **Lennox Moyer** on principles of lighting water.
r **October 2004** (Vol. 6, No. 10)
diGiacomo & Holden on watershaping's role; **Allen** on integrated spaces; **Grusheski** on a river's history.
r **November 2004** (Vol. 6, No. 11)
Abaldo on grand-scale detailing; **Freeman** on water-chemistry ABCs; **Hughes** on naturalistic design.
r **December 2004** (Vol. 6, No. 12)
Revisiting 25 projects that define **The Platinum**

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TRAVERTINE PAVERS

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GOTHICSTONE TILE GALLERY imports Travertine marble pavers quarried, cut and tumbled in Turkey. Offered in a range of sizes with a standard 1-1/3-inch thickness, the pavers stay cool underfoot, are slip-resistant, do not require sealing and will not scuff or degrade. They come in light- and dark-cream colors in sizes up to 16 by 24 inches, and coping stones are available. **Gothicstone Tile Gallery**, Wayne, PA.

SALT CHLORINE/OZONE SANITIZER

Circle 136 on Reader Service Card

DEL OZONE offers TrioPure, a combination salt chlorine/ozone sanitizing system for use in residential swimming pools. The device comes in two models, one for pools up to 25,000 gallons, the other for vessels up to 50,000 gallons. The system runs 24 hours a day independent of the pool pump with ozone as the primary sanitizer and the salt system providing a 0.5 ppm chlorine residual. **DEL Ozone**, San Luis Obispo, CA.



FIRE AND WATER EFFECTS

Circle 137 on Reader Service Card



AUTOMATED FIRE & WATER EFFECTS develops architectural fire and water effects for residential and commercial clients. Standard products include natural-gas-fueled tiki torches, firepits and fire containers, all equipped with automatic, switch-operated ignition systems. The company also designs and either installs or provides specifications for custom fire/water effects. **Automated Fire & Water Effects**, Las Vegas, NV.

HAND-PAINTED TILE

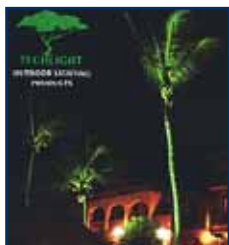
Circle 138 on Reader Service Card

SERGIO FURNARI COLLECTION offers hand-painted, custom ceramic tiles for use in swimming pools, spas and fountains as well as outdoor furnishings (including benches and tabletops), interior floors and wall murals. All tile patterns are custom designed by the artist, whose output includes decorative, colorful pool floors, medallions, architectural details and more. **Sergio Furnari Collection**, New York, NY.



OUTDOOR LIGHTING CATALOG

Circle 139 on Reader Service Card



TECHLIGHT has published a 20-page, full-color booklet (with an accompanying compact disk) on its line of outdoor lighting products. Bullet, flood and burial fixtures are highlighted along with court lighting and round or square poles for a variety of functions. The aluminum housings are available in the full spectrum of powder-coat colors to match any commercial or residential design need. **Techlight**, Dallas, TX.

CURRENT PUMP

Circle 140 on Reader Service Card

CURRENT SYSTEMS offers Riverflow, a silent, efficient pump designed to create the ideal current for swimming and aquatic exercise. Producing no bubbles or high-pressure turbulence, the pump works with a propeller system that generates a broad, smooth, river-like flow that challenges swimmers at all levels. A user-friendly control enables the swimmer to select just the desired resistance. **Current Systems**, Calabasas, CA.



RETAINING WALLS

Circle 141 on Reader Service Card



TENSAR EARTH TECHNOLOGIES offers the Mesa retaining wall system in a range of colors and textures. The standard masonry units, fiberglass connectors and wall caps allow for the construction of stairs, 90-degree corners and convex or concave curves and feature a positive mechanical connection to their geo-grid reinforcement for a high level of structural integrity. **Tensar Earth Technologies**, Atlanta, GA.

RUBBER LINERS

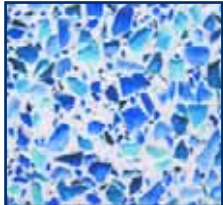
Circle 142 on Reader Service Card

FIRESTONE BUILDING PRODUCTS offers liners for ponds, watergardens and decorative waterfeatures. Made from EPDM synthetic rubber, the fish-friendly material is highly flexible, stable, long-lasting and easy to install. In addition, the company offers geotextile mats to protect and cushion the liners as well as patch kits and seaming panels for use in larger projects. **Firestone Building Products**, Carmel, IN.



GLASS AGGREGATE

Circle 143 on Reader Service Card



AMERICAN SPECIALTY GLASS offers aggregates made from recycled glass for use in terrazzo and decorative-concrete installations. The material comes in 25 colors in sizes ranging from fine sand to 1/2-inch gravel (and larger in some colors). The product is acid- and scratch-resistant, its color never fades, and it may be used in almost any application in place of standard aggregates. **American Specialty Glass**, Salt Lake City, UT.

SOLAR POOL HEATING

Circle 144 on Reader Service Card

SUN SYSTEMS offers the SwimSaver solar pool-heating system to stretch the swim season and reduce heating costs. The heater uses the pool's own pump to circulate water through the solar collector, where it warms up before moving back into the vessel. Certified by independent laboratories and agencies, the collectors are rated above 1,000 Btus per square foot and come with a 15-year warranty. **Sun Systems**, Brea, CA.



NON-LIQUID WATER EFFECTS

Circle 145 on Reader Service Card



DESIGN CONCEPTS MFG. introduces EFX light columns and towers. The acrylic lights create Aquallusion – the impression of moving water without any presence of water – through use of airflow, LED color changers and special optics. The illusion ranges from tranquil, serene motion to an electrifying rush of color suitable for either residential or commercial applications. **Design Concepts Mfg.**, Orlando, FL.

ANTIQUE MARBLE

Circle 146 on Reader Service Card

RAVINI USA offers a complete line of antique marble products for use in exterior and interior settings. Quarried in Turkey, the old material is stable and durable and comes in an array of colors in tile sizes ranging from 4 by 4 to 24 by 24 inches. Numerous trim pieces are available, as are mosaic pieces as well as a wide range of complete art mosaics, borders and tile compositions. **Ravini USA**, Pembroke Park, FL.



Continued on page 64



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HIGH FLOW PUMPS

Circle 147 on Reader Service Card



PENTAIR POOL PRODUCTS offers Challenger high-flow pumps for energy-efficient performance across a wide range of flow rates. Rugged and dependable, the pumps are available in sizes from 1/2 to 5 hp, feature a power end that can easily be removed for service or winterizing and are made with thermoplastic pump components for enduring corrosion resistance. **Pentair Pool Products**, Sanford, NC.

WATERPARK PRODUCTS

Circle 148 on Reader Service Card

WHITEWATER WEST has published "The Waterpark Guide," a catalog on its lines of body slides, inner-tube rides, rafting systems, thrill rides, wave equipment and spray parks – including highlights of the company's custom "signature" rides. The 28-page, full-color booklet shows completed projects and defines the company's dedication to quality, entertainment value and safety. **Whitewater West**, Richmond, British Columbia, Canada.



OZONE WATER PURIFICATION

Circle 149 on Reader Service Card



CLEARWATER TECH offers ozone water purification and disinfection systems for swimming pools. The ozone destroys bacteria and fungi, oxidizes oil and other contaminants, eliminates spores and cysts and enhances filtration while leaving no undesirable chemical by-products. Support services from system design and start ups to education and in-field consultation are provided. **ClearWater Tech**, San Luis Obispo, CA.

FIREFLY LIGHTS

Circle 150 on Reader Service Card

SIGMA TWO INDUSTRIES offers Firefly Magic Lights, a system that uses microchip technology to mimic the flickering, flashing, fading glow of real fireflies. Available with solar, low-voltage or battery power and in three light colors (green, yellow or amber), the product comes in two models, one with 7 lights and a 20-inch span, the other with 12 lights and a 24-inch span. **Sigma Two Industries**, Apple Valley, CA.



COLORADO SANDSTONE

Circle 151 on Reader Service Card



SILAM STONE offers natural sandstone products for watershaping and landscaping applications. The company's 640-acre property yields layered sedimentary sandstone, field stone, canyon stone, moss rock and irregularly shaped boulders ideally suited for use in waterfeatures and ponds. Pieces are available with thicknesses to 24 inches, widths to 8 feet and lengths to 20 feet. **Silam Stone**, Canon City, CO.

ANTIQUED POTTERY

Circle 152 on Reader Service Card

TUSCAN IMPORTS offers the Antiqued Siena Collection of imported Italian pottery. Designed to give the clear impression of centuries of age, the new pots, urns and medallions retain all the advantages of modern Siena-clay craftsmanship. The material is frost-proof to 14 degrees F, making it suitable for exterior use in warm climates and for interior or sheltered use in colder regions. **Tuscan Imports**, Florence, SC.



ULTRAVIOLET STERILIZING

Circle 153 on Reader Service Card



EMPEROR AQUATICS has published a four-page, color brochure designed to inform watershapers about appropriate use of ultraviolet (UV) sterilization for ponds and other living water systems. It describes the technology's ability to control planktonic algae and other harmful pathogens in everything from small, fish-sustaining ponds to giant mammal and reptile bathing pools. **Emperor Aquatics**, Pottstown, PA.

CONCRETE TEXTURING MATS

Circle 154 on Reader Service Card

RAFCO PRODUCTS offers Brickform texture mats to impart three-dimensional impressions to partially set concrete. Designed to recreate the texture and feel of natural stone, brick and tile, the mats are molded from polyurethane and produce surfaces that resemble a range of materials from coarse, wire-cut common brick to fieldstones and cobbles of great surface complexity. **Rafco Products**, Rancho Cucamonga, CA.



FLOATING ISLANDS

Circle 155 on Reader Service Card



FLOATING ISLAND INT'L has introduced BioHaven floating islands. Made from polymer materials, the islands are designed to be planted with riparian and other water-loving plants and placed in ponds, where they enhance water quality, improve fish habitat and attract nesting birds and frogs. Plants'

roots grow through to water circulating within the island's body. **Floating Island Int'l**, Livingston, MT.

ARTIFICIAL ROCKWORK

Circle 157 on Reader Service Card



ENVIROROCK offers artificial rockwork – boulders, waterfall structures and pool/pond coping boulders – for use in and around residential watershapes. The lightweight material is molded to mimic real rock in texture and appearance and comes in three colors: granite, sandstone and redrock. The waterfall systems are self-contained, with some fabricated with

their own pools. **Envirorock**, Riverside, CA.

GARDEN FOUNTAINS AND PANELS

Circle 159 on Reader Service Card



ECOSPHERE ASSOCIATES offers Oracle Fountains in a variety of configurations and colors. Made of a strong, lightweight faux-stone material consisting primarily of fiberglass, the fountains have the look of carved stone (or even weathered bronze in some

designs) and hold up under the harshest weather conditions. Decorative wall panels with a range of naturalistic details are also available. **Ecosphere Associates**, Tucson, AZ.

POOLSIDE FURNISHINGS

Circle 161 on Reader Service Card



ASINDO CALIFORNIA offers a wide array of outdoor-living products, including a range of furnishings ideal for poolside settings. Among available products are canvas shade structures, teak tables and

chairs, umbrellas and an array of *chaise longues* to enhance any sunbather's good time. The fabric, metal and wood materials are selected and styled for durability and enduring beauty. **Asindo California**, Los Angeles, CA.

CONSTRUCTION-PRODUCT CATALOG

Circle 156 on Reader Service Card

STEGMEIER has published its 2005 catalog, a 78-page guide to its complete line of regular and specialty cantilever forms for gunite watershapes; forming and finishing products (including trowels, concrete vibrators and more); deck-fabrication accessories (drains, joints and sealers); and renovation materials. A gatefold at the back summarizes form and drain profiles for ready reference. **Stegmeier**, Henderson, NV.



POOL UMBRELLAS

Circle 158 on Reader Service Card

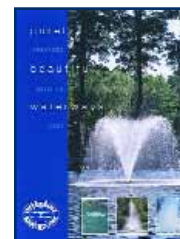
SHADESCAPES USA offers a complete line of umbrellas designed for poolside applications, including Isla, a side-post mounted, top-supported model featuring 360-degree rotation, two tilt levels and the ability to fold down to the mast. Available in five sizes ranging from 7 feet, 8 inches to 12 feet, 5 inches, the umbrellas come in a number of colors to suit an array of design needs. **ShadeScapes USA**, Paonia, CO.



AERATING FOUNTAIN CATALOG

Circle 160 on Reader Service Card

OTTERBINE BAREBO has published a catalog covering its line of aerators for water-quality management in lakes and ponds. Designed to maximize circulation and oxygen transfer, the devices inhibit growth of weeds and algae and keep self-contained bodies of water from turning into marshland. The fountains are available in a variety of jet configurations, patterns and heights. **Otterbine Barebo**, Emmaus, PA.



TREE GRATES

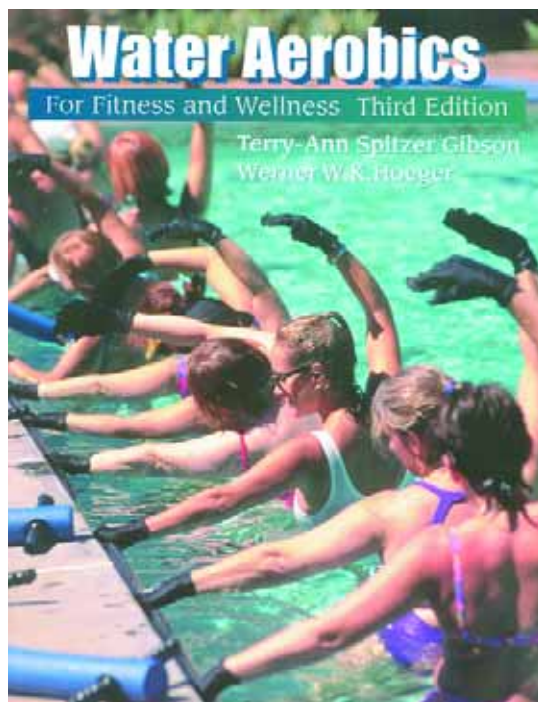
Circle 162 on Reader Service Card

EAST JORDAN IRON WORKS has released a catalog on its comprehensive line of cast-iron tree grates. Drawing on motifs from nature, urban settings and cultural icons, the grates comply with ADA specifications, are designed for durability, functionality and architectural appeal and serve to provide more pedestrian space while protecting developing trees and their root systems. East Jordan Iron Works, **East Jordan**, MI.



By Mike Farley

Exercising Sense



If there's one thing we all know without any question, it's that nobody is getting any younger. In fact, if you read any of the demographic information available these days about the "graying" of the Baby Boom generation, it's clear that our entire country is becoming older *en masse*.

During the past year, I've experienced for myself what this means to us in the watershaping trades in the form of a dramatic upswing in the number of clients, most of them elderly, who have approached our firm looking for swimming pools primarily for the purpose of aquatic aerobics and other forms of water exercise.

For the most part, these prospects and clients have made it clear they would not otherwise be interested in purchasing a pool: They need it, they say, to pursue therapy for a range of physical conditions and ailments.

With that trend in mind (and anticipating the needs of my own aging frame as well), I decided to learn more about the world of water exercise and came across a terrific book, *Water Aerobics for Fitness and Wellness* by Terry-Ann Spitzer Gibson and Werner W.K. Hoeger (third edition, published by the Wadsworth division of Thompson Learning in 2003).

If you've ever had any doubt about the potency of the water-exercise movement, these authors, both PhDs in health and fitness fields, use statistics, trend analysis and commonsense discussions to make their case in the strongest possible terms. They write at length about obesity and a surprising array of associated diseases and conditions. They also discuss how growing older makes

it increasingly important for all of us to take our physical condition seriously.

One of the most effective treatments for all of these aches, pains and ailments, they say, is exercise in swimming pools. Along the way to that conclusion, they lead the reader through a compelling, eye-opening set of arguments, discussions and recommendations.

You don't have to be a physical therapist to know that high-impact, land-based activities such as running, aerobic training or weight-lifting can lead to a range of injuries that will either aggravate an existing condition or even lead to new problems. When submerged in the forgiving, near-weightless environment of the water, those concerns are greatly diminished if not completely eliminated.

Fact is, there are a great many people for whom the only effective way to exercise is in water, simply because they don't risk hurting themselves. Furthermore, the even resistance provided by water yields a form of exercise that can greatly accelerate healing processes.

One of the things that really impresses me about this book is that, while it's basically about water exercise, it's also about wellness in a broader sense. There's wonderful information on fitness assessment and nutrition, for example, alongside exercise-specific information relating to issues such as the differences between deep- and shallow-water exercise routines.

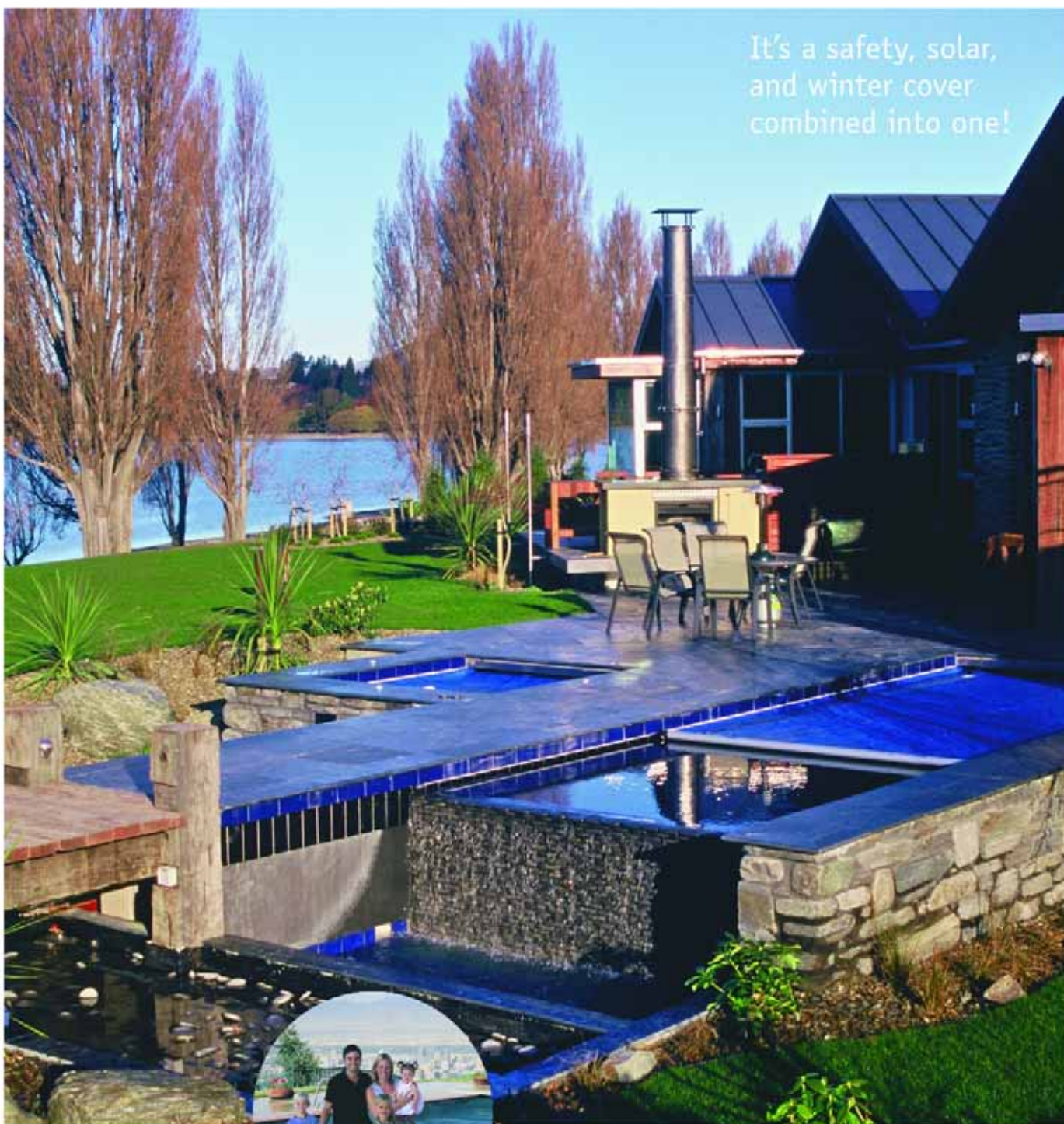
From the design perspective, I've learned that pools built for exercise need to have flat, larger-than-usual shallow areas and that it's important to consider the texture of the surface material. I also found good information on various products and apparatus that can assist users in maximizing the benefits they experience.

As a watershaper, I believe it's important to understand the full range of benefits our products can yield, and I can personally think of nothing more powerful than the ability we have to contribute to the physical, mental and even spiritual well-being of the people we serve. **WS**

Mike Farley is a landscape architect with more than 20 years of experience and is currently a designer/project manager for Gohlke Pools in Denton, 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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