

**Inside: Brian Van Bower on Plants and Planters**

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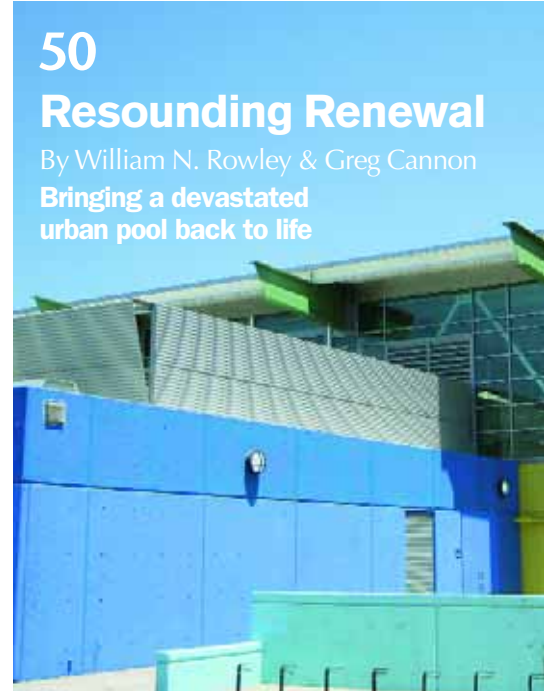
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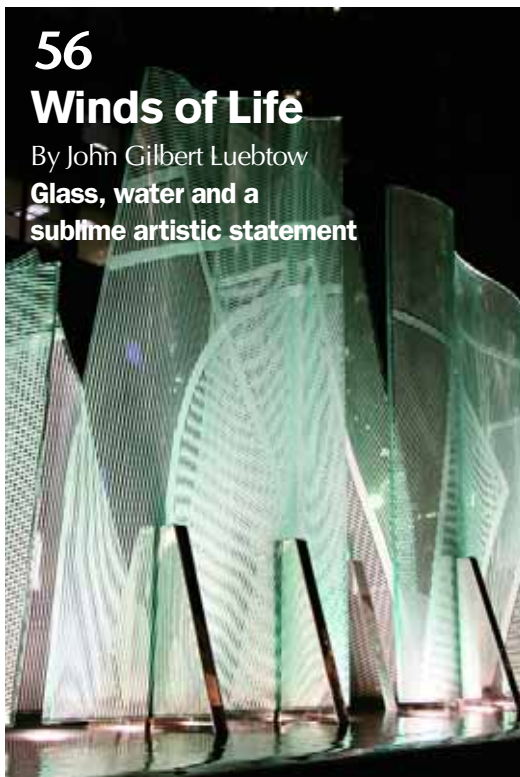
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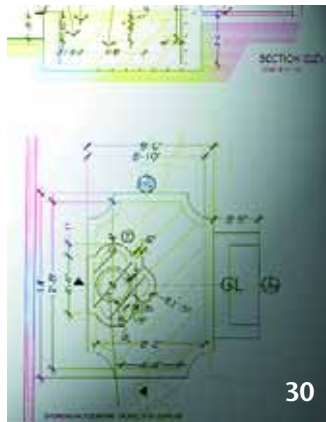
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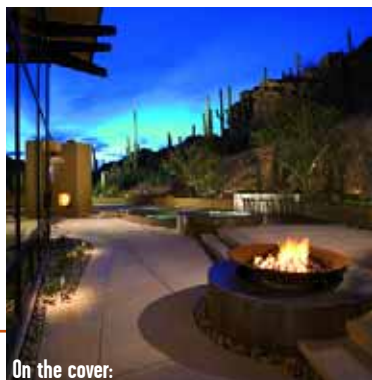
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On the cover:

Photo by Michael Woodall, Phoenix, Ariz., courtesy WaterScapes by Bianchi Design, Phoenix.

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By Eric Herman

## Digging the Scene

You never know where and when a good time will unfold.

That thought certainly crossed my mind late in July, when I attended “The World’s Most Extreme Pond Build” at Aquascape’s headquarters in St. Charles, Ill. That company, which manufactures a variety of pond, stream and waterfall systems, has been remarkably successful through the past decade: In that span, it’s built a nationwide network of pond installers and has won praise for its extensive dealer training and support programs and the bold ways in which it markets its wares.

The company’s founder, Greg Wittstock (also known as “The Pond Guy”), is definitely one of watershaping’s more dynamic characters. His personal style is based on unbridled enthusiasm amped up by a dose of *machismo* that’s hard to miss if you’ve ever encountered him personally or gotten involved with any of his company’s programs.

Greg personally asked me to attend the July event, promising that I would not be disappointed. I didn’t quite know what to expect, but I was intrigued by the audacity of the notion of witnessing a pond-construction project billed as the world’s most extreme – and, frankly, was more than a bit skeptical at the same time.

My doubts soon disappeared: What I encountered was a gathering of more than 600 of Aquascape’s registered dealers bent on completion of a watershape that definitely qualified as extreme – basically a pond on steroids. Within three days, these volunteers installed a composition complete with a rock grotto, various cascades and streams, a simulated wetland area, stone ledger work, diving rocks, an underwater swimming cave, a series of circular decks, one of the company’s new rain-water-harvesting systems and much, much more.

As this all came together, what impressed me most was the energy that permeated the muggy summer air. Day and night, the construction site resembled nothing so much as a giant ant hill, with teams of pond people working feverishly to complete their assigned tasks. And as though that wasn’t enough, there were also educational seminars running for the duration, with vendor displays, great food, local pond tours and music to keep the event from seeming too much like a day at work back home.

It was, in a word, *fun* – a riotous display of how much people can, under the right circumstances, enjoy the physical effort of digging in the dirt and moving boulders.

To me, the story has a simple moral: Watershaping has always been about generating fun and enjoyment for clients, but as an industry we’ve never been all that successful in articulating or embracing that underlying spirit for ourselves. Over and over again during this event, however, I spoke with people who simply love what they do and are delighted by the ability it gives them to bring joy to their clients’ lives.

It’s a bold, enthusiastic approach – and it’s infectious: I had a great time, met scores of terrific people and, perhaps most important, came away with a renewed appreciation for just how powerful the pleasures of watershaping can be.

### for the record

“Moving Experiences” in our August 2008 issue (page 28) incorrectly identified the manufacturer of the spiral slide seen in photos on pages 31, 32 and 36 and called out in the text on page 36. The credit should have gone to Summit-USA of Kelso, Wash.

*Eric Herman*

## WATER SHAPES

### Editor

Eric Herman — 949.494-4533

### Associate Editor

Melissa Anderson Burress — 818.715-9776

### Contributing Editors

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

### Art Director

Rick Leddy

### Production Manager

Robin Wilzbach — 818.783-3821

### Circulation Manager

Simone Sanoian — 818.715-9776

### National Sales Manager

Camma Barsily — 310.979-0335

### Web & Marketing Consultant

Lenny Giteck — lennyg123@sbcglobal.net

### Publisher

James McCloskey — 818.715-9776

### Publishing Office

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

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**Kirk Bianchi** is principle and founder of WaterScapes by Bianchi Design in Phoenix, Ariz. An award-winning student of architecture and the visual arts both as hobbyist and as a professional, Bianchi credits an interest in film and photography and a month-long visit to Japan with influencing and developing his design sensibilities. After leaving the Midwest to attend Arizona State University's College of Architecture, his entrepreneurial ambitions led him to the pool industry. After six years of working in the trenches as a designer, salesperson and project superintendent, he ventured out on his own as a freelance pool/landscape designer to serve the needs of clients and other design and contracting professionals who were seeking the extraordinary. Bianchi's company now serves as a design and project-management firm for those who seek him out in Phoenix and around the world.

**William N. Rowley, PhD**, is founder of Rowley International, an aquatic consulting, design and engineering firm based in Palos Verdes Estates, Calif. One of the world's leading designers of large commercial and competition pools, his most notable projects include partial designs for the competition pools used in the Olympic Games in Munich (1968) and Montreal (1972), and he acted as aquatic consultant for the design of the Olympic Pool Complex in Los Angeles (1984). His projects also have included a wide range of non-competition pools, including the White House pool in Washington, the Navy Basic Underwater Demolition Training Tank in Coronado, Calif., and the resort pool at the Hyatt Regency at Kaanapali Beach on Maui. Rowley is involved in a range of local, state and federal entities, consulting on construction and safety-code requirements. He is also a fellow of the American Society of Mechanical Engineers as well as the



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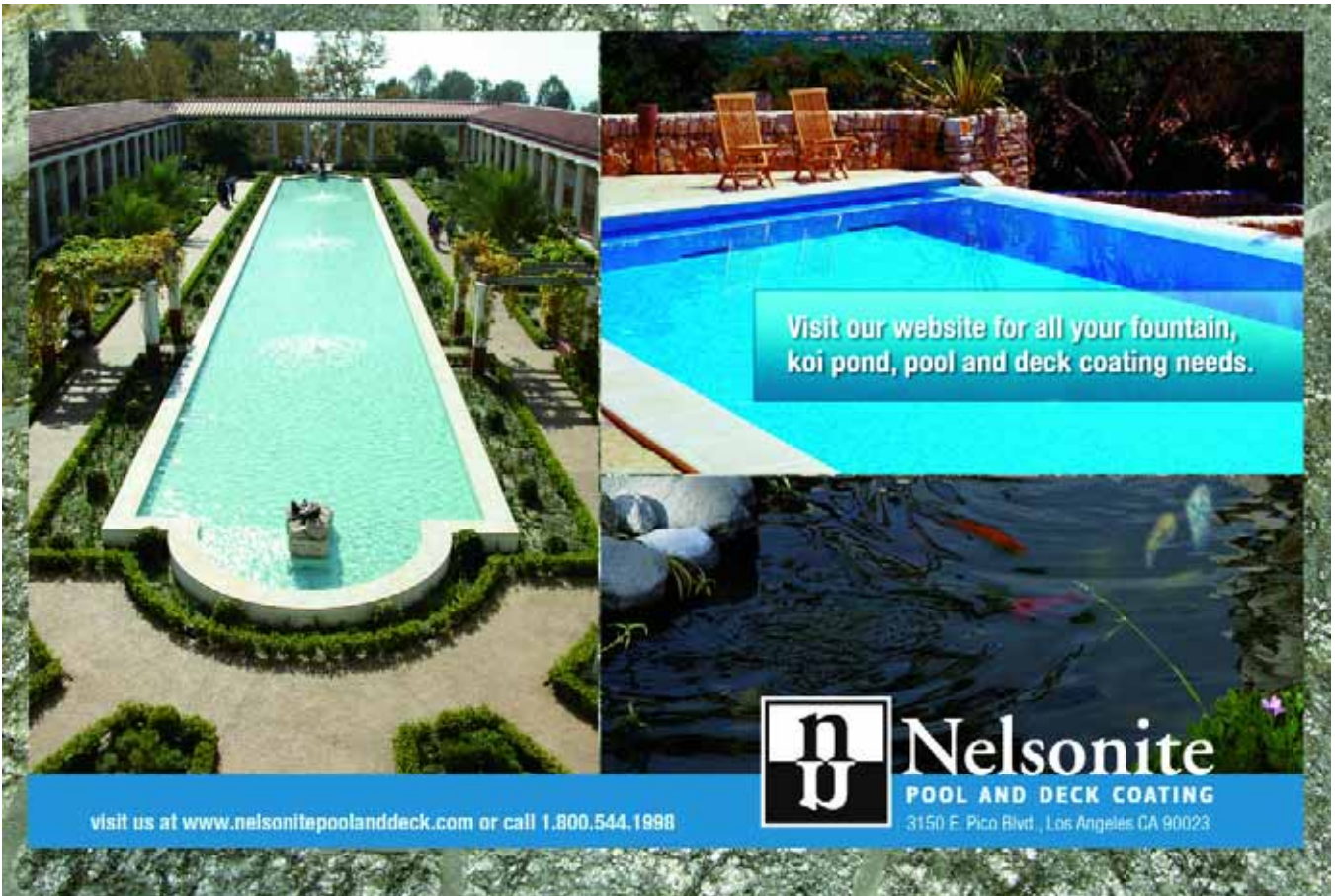
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recipient of The Joseph McCloskey Prize for Outstanding Achievement in the Art & Craft of Watershaping. **Greg Cannon** is a project manager for Rowley International. He has a degree in business management, numerous technical certifications and 20 years' experience in project management he brings to many of Rowley International's complex commercial watershaping projects in the United States and abroad.

**John Gilbert Luebtow** is a glass sculptor based in Chatsworth, Calif., and has designed and constructed large-scale pieces in architectural settings for more than 30 years. He holds advanced degrees in ceramics, glass and fine arts from the University of California at Los Angeles and California Lutheran University. His portfolio includes elaborate commissions for commercial clients including Atlantic Richfield, MCI, the Supreme Court of Nevada and the Yokohama Royal Park Hotel in Nikko,

Japan, among many others. Among his most striking works are those that include the use of water as a design component.

**Robert Nonemaker** is co-owner of Outerspaces, Inc., a business he started with his brother David at the age of 12. After a college career during which he studied construction management, communications, engineering and business, he decided to resume his work in the landscaping business. Shortly thereafter, he added watershaping to their array of services, and it now dominates the brothers' business, which now employs 27 people and specializes in large, ultra-high-end, technically complex residential pool, fountain and landscape construction projects. He is also owner of Robert Nonemaker Exterior Design, a firm that offers design and construction consulting to architects and landscape architects throughout the country.



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By Brian Van Bower

## Planting Places



**G**rowing as a designer is often a matter of seeing things from fresh perspectives.

As one with roots in the pool industry, for example, I once thought first about water and about plants and softscape later (if at all). That bias isn't uncommon, of course: I know plenty of landscape architects and designers who think about plants first and only later consider water. It all has to do with our backgrounds, educations, perspectives and priorities.

But now that I (and others on similar paths) have developed the skills, knowledge base and powers of observation needed to create ever-better exterior environments, the combination of water with plants and the planters that contain them is something approached all at once, with every design element given equal weight and attention.

In my own practice, I saw a need to jump to an even higher level and, some years back, hired Andrew Kaner – a gifted designer with a master's degree in landscape architecture and now an invaluable team member. I've learned a great deal from him and appreciate (more than even he probably knows) the way he helps us integrate plant selections and planters with water in our designs.

Coming from the pool industry, I value the schooling he's given me in what plants need to thrive. As I see it, by teaching me about these basic practical and technical issues, he's opened my eyes to a new realm of aesthetic poten-

As I've become more comfortable discussing planters and their intricacies, I've made them a much more prominent part of my early discussions with clients – and that has been a revelation.

tial – one that is becoming increasingly important to our business as we move forward.

### key players

Planters in particular have been a revelation to me. Whether included as structures or as containers, these elements can soften views, direct attention, define spatial boundaries, articulate grade transitions, work as edge treatments, create reflections in water, provide seating areas, offer privacy, buffer sounds, create shade, lend color, attract birds, draw butterflies or just plain smell good.

That's quite a list, and the way you use them has everything to do with a number of factors including the setting, the watershape design, climate, budget and the clients' ideas and wishes. As I've become more comfortable discussing planters and their intricacies, I've made them a much more prominent part of my early discussions with clients – and that, too, has been a revelation.

In simply broaching a subject that never came up when I worked strictly in pools and spas, I've discovered that many of my clients have distinct, even refined ideas about planted areas. In some cases, those notions are extremely helpful; in others, they can be unrealistic – but the important point is that, for these clients, the bias toward plants is there to be addressed. And even in cases where it's clear they haven't given plants much thought, I've found that simply offering ideas about using greenery creatively tends to open their eyes to a whole, new range of aesthetic possibilities.

It's all part of being as comprehensive as possible with clients. In my case, in fact, I discuss using plants and planters in designs at the same level as other key design elements including shade structures, landscape lighting, outdoor dining





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areas and fire features.

Working with Andy and as a member of project teams that often include landscape architects other than Andy, I've seen some incredibly creative planter treatments including some that are the most appealing and interesting parts of a given project.

I've recently seen planters, for example, that have been recessed inside a body of water in such a way that a water-in-transit system flows over edges and down into a planter from which trees and other tall plants seem to emerge from the surface of the water. I've also been involved in a project in which planters installed with rooftop pools have been made to serve as key architectural accents.

In less extreme cases, I've also been involved in projects where planters are used to define and complement a variety of watershapes by softening hardscape, articulating the boundaries of vanishing edges or providing terraced backdrops on otherwise unusable slopes. In many de-



Charles Hess Landscape Architects (Lansdale, Pa.) designed this courtyard fountain and used a slightly raised circular planter to soften the visual impression it makes.

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signs, we've taken small areas that would in the past have served little or no design function and have turned them into planters that make statements where there would otherwise have been voids.

I am particularly fascinated by the way planters can be used in defining grade changes while also providing seating areas – and by how they can be used to articu-

late retaining walls or a pool's raised bond beam and create either focal points or visual transitions. Selections of shapes and materials are factors here as well and can be used to establish harmonies with the architecture or, on a completely different tack, provide transitions from built spaces to purely natural areas of a property.

What I've learned, in a nutshell, is that


the possibilities here are truly limitless if you think about them creatively.

## integral structures

I've also come to the obvious recognition that plants and planters fit best in a design program when they are considered right from the start.

Just setting aside areas for plants isn't enough: If you do so without considering how the structures and plants contained within them will affect the design, you'll leave yourself with only a limited set of options when it comes to



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## topsoil and beyond

One of the keys with planters has to do with the surface of the planted area.

Some landscape installers mistakenly fill these structures almost to the top of the structure, which leads to problems with runoff over the edges of the planter in the course of watering or in the event of drenching rainfall. As bad, this can result in soil being washed out of the planter and into a watershape – a true maintenance nightmare.

In our plans, we call for recessing the soil surface a good three to four inches below the edge of a planter: This alleviates maintenance problems and also allows views of the edges of capstones or other presentable top treatments.

Recessing the surface also allows for treating the soil surface itself in aesthetic terms. Mulch, for example, isn't a bad idea: It can look good and helps the soil below retain moisture. These days, however, we've been tending toward stronger, more visual approaches – using various pebbles or smooth rocks, for example, or even glass materials to add a strong, aesthetic element.

In one recent project, we used a (costly!) green stone to pick up colors from other materials we'd used elsewhere in the design. We've also used the same rock material in planters that we've used to fill troughs for perimeter overflow systems, for example.

These may seem smallish details, but with some thought these elements can be used to nice effect.

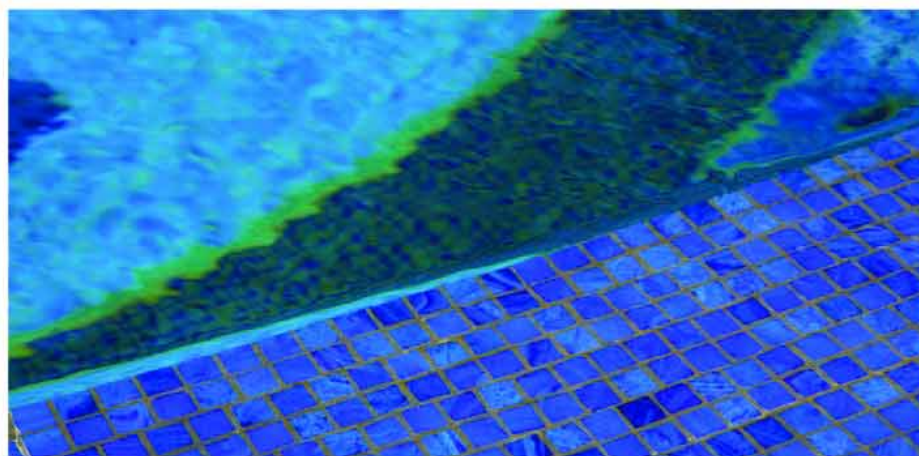
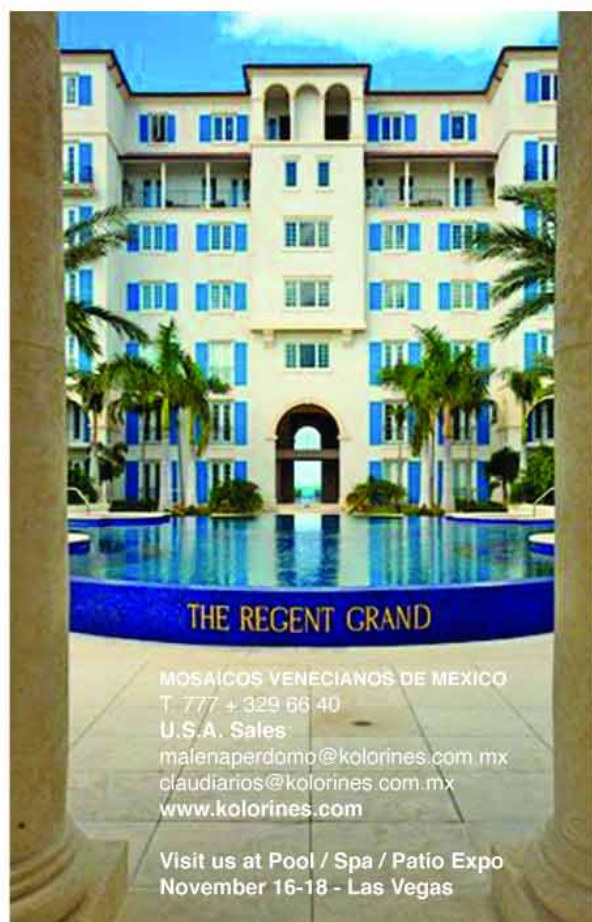
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a design element that can have a major influence on the way a space is seen and experienced.

In some situations, for example, raised or terraced planters can define the boundaries of a space while softening the vertical transitions. Conversely, planters flush with the surface can expand the appearance of a deck or walkway or break

up large expanses of hardscape. It all depends on the needs of the design. In a few cases, in fact, these planters need to be downplayed because they can make a small space seem even smaller.

To my mind, this is where the work of watershapers, who are often more accustomed to thinking about hardscape treatments, comes together with the expertise

of landscape professionals, who know plants and their needs. What good does it do to create a space for plants without knowing what sort of plant will be enclosed by the structure? Without that information, you can't anticipate the growth of root systems or plan for irrigation, lighting or proper drainage.

This is all too important to leave anything to chance, which is one of the reasons I've spent a lot of time getting myself up to speed on the plant side of things and yet another reason why I'm glad Andy Kaner is on our team.

In our practice, we often work in tropical or arid climes and use date palms in our landscapes, largely because this majestic species looks amazing when illuminated at night with a grazing up-light. In many other cases with other trees, we take advantage of the sculptural qualities of trunks and branches day and night in creating wonderful shadows and silhouettes.

The point is, we think about these possibilities at the start and use this aesthet-

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## an ode to urns

When talking about planters, it bears mentioning that they don't always have to be permanent structures. Indeed, we've been involved in many situations where the best design solution involves creating pedestals or deck areas that will become homes for urns, pots, vases or other movable units.

These containers can't handle anything particularly big – no date palms, for instance – but they do have the advantage of being portable and the plants they carry can easily be replaced.

Even here, however, we consider these containers from the get-go in the design process. The main issue is drainage: Water used to irrigate the pot or urn has to go somewhere. If the container is to stand in a garden area, a simple hole in the bottom might suffice. But if you're putting that same pot or urn on a pilaster at the side of a pool, say, you may need to stub up drainage and irrigation lines through the container's base as well as a conduit for lighting – all of which requires early planning.

– B.V.B



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ic impulse to unlock a host of other design possibilities and visual relationships.

We always dwell on the details, including the proximity of plants to the water (and their resulting effect on maintenance); proximity to pathways; obstruction of views (desired or otherwise); general site maintenance and the effect falling plant material might have on decking; and, certainly, the weight of the planter and the plants within it and the effects they'll have on nearby structures. (The last point can be extremely critical for rooftop planters and other above-grade structures as well as features that are related to bond beams or vanishing-edge walls.)

It's also critical to consider the width of planter structures, their height relative to their intended purpose and whether or not walls of planters or their footings are to be integral components of decks or pool/spa walls, footings for overhead shade structures or even parts of exterior walls of buildings.

Continued on page 20



This raised planter is faced in rough Jamaican stone that continues all the way down to the pool floor. In this case, the feature serves both practical and aesthetic functions, housing the palms and lending great reflections to the overall scene.

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## open and closed

In considering planters in our own projects, Andy and I look at them as being from two distinct categories: *open-bottom* planters and *closed-bottom* planters. In both cases, we always consider irrigation and drainage needs as well as conduits for lighting and sound systems – all items that are best planned and specified

at the beginning of a project.

Open planters can be either raised or flush with the deck or other on-grade surfaces and work well with larger plants, trees, palms or other specimens that have big root balls and substantial potential for growth. Indeed, mature size is a key factor in designing these planters: We give larger plants plenty of room to maneu-

ver, knowing that overly confining their root systems can result in plants that don't grow to full size and may appear unhealthy or stunted.

Closed planters are more complicated because, as the term suggests, they have solid, integral bottoms of some kind. We use this approach mainly when we have no alternative, as with rooftop and some other above-grade structures, simply because they present more than their share of complexities. Unless the planter is quite large, these closed structures are often limited to smaller flowering plants, shrubs or ground covers – and, of course, irrigation and drainage become major issues.

Another big consideration is waterproofing. This is extremely important for all above-grade planters – open or closed – to prevent wicking of water through the walls and the potential that migration has to damage the structure or the finish or both. Waterproofing is also extremely important if the project involves use of reclaimed or gray water to irrigate the plants: Quite simply, you don't want non-potable water escaping to other areas and especially not into watershapes meant for bathing or supporting populations of fish.

The other obvious factor here is plant selection. That's a huge topic that reaches well beyond the confines of this discussion, but I will get into it here briefly to make a key point about how we approach this stage of the process.

As our design practice has expanded to include more and more locales and climates, we've learned that selecting indigenous plants almost always offers significant advantages. Plants that are native to a given place tend to be fully adapted to the weather, temperatures and precipitation levels they'll encounter.

Not only do these plants generally require less water, but they also need less fertilizer, pesticides and general maintenance – and tend to look right at home in a given environment because they mirror plants seen in the natural landscape.

Certainly, experienced landscape architects and designers can select plants that are *not* native to a given area if, as Stephanie Rose advised time and again in her columns, they've done their homework and determined that exotic plants

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Here, we used black Mexican beach pebbles as mulch to add color and drama to the planters while minimizing maintenance. Also note that the planters in the foreground are balanced on the other end of the pool by a planter filled with hardy indigenous grasses.

are suited to the purpose. But with these plants typically comes a heightened need to pay close attention to both irrigation and drainage as well as maintenance – a trio of complications that tends to make us feel better and better about using indigenous species.

## keeping up appearances

If there's a half-ton gorilla in the room when you make decisions about plants, it has to be maintenance.

Thinking back to my days in pool service, I recall being dumbfounded by the plant selections some people made. In particular, I recall the nightmare of cleaning pools overhung by asparagus ferns: Those beasts would drop bazillions of rice-like pods into the pool that were almost impossible to clear away completely.

All plants will shed leaves, seeds and various types of fruit, of course, but when they're placed near water – and especially when they hang over a watershape – it's important to anticipate the mess they'll make. Also, when using a popular material such as Travertine for decking, it pays to be aware that some plants will stain and mar the appearance.

And we've all seen situations where the root systems of certain types of plants will rise up and cause major headaches, even

destroying nearby hardscape structures. You need to know to avoid many types of bamboo – often an incredibly invasive plant (however beautiful when located appropriately) – and ficus trees, which can rip decks and plumbing apart and can even assault foundations.

As for the broader and ultimate issue of selecting plants for aesthetics, that's where the true art of softscaping comes into play.

I've learned that it can be great fun, especially when I work with experts who understand the plant kingdom and make creative suggestions. From the most modest grasses to the most majestic trees, I now know from experience that the work of the watershaper can be tremendously enhanced when plants and planters are used carefully and creatively. **WS**

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



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By Bruce Zaretsky

## Off the Shelf



I recently began work on a design for clients who live in a historic home just south of Rochester, N.Y. They've asked me to incorporate a pool, entertainment areas, a fireplace and a combined pool house/garage into the available space and make certain it all complements the architecture of the home and its only current outbuilding – a 150-year-old storage shed.

Sitting at my drafting table, I was thinking how easy this one would be, conceptually at least. All I needed was there, from the home's architecture and an existing (and much beloved) 100-year-old pergola to the old shed, so the main challenge would come in drawing the details rather than in deciding what to do.

Usually, of course, it's the other way around and the *concept* is the thing that sometimes doesn't come too easily. As I was thinking about this reversal of the ordinary pattern, my eyes drifted to shelves of books that live near my drafting table and my mind to thoughts of all the times I've used them to find inspiration, ideas and the spark I need to get my design work on track and keep it that way.

I didn't need them on this occasion, but it's such a rare situation that it inspired me to share a dozen titles I see as being a designer's best friends.

### list of stars

For years now, my fellow *WaterShapes* contributing editor Mike Farley has provided commentaries on books he finds interesting and/or useful in his "Book Notes" column at the end of each issue. He's covered some of my Big 12 but not all of them, which is one of the reasons why I wanted to join Mike

I've often used books to find inspiration, ideas and the spark I need to get my design work on track and keep it that way.

in his campaign of directing you to resources I think can be hugely helpful.

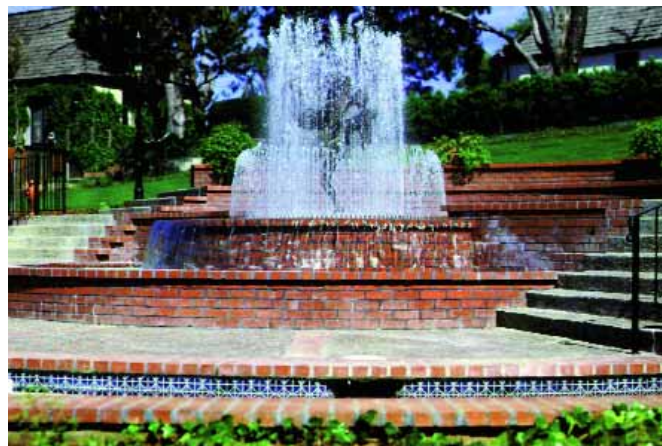
► *Gardens by Design: Expert Advice from the World's Leading Garden Designers* (by Noel Kingsbury, Timber Press, 2005). This book offers a smorgasbord of projects from some of the best garden designers in the world, including Julie Moir Messervy, Piet Oudolf, Steve Martino, James van Sweden, Isabelle Green, Ted Smyth and more. The featured projects cover a wide variety of styles, climates and geographies in the United States and abroad, and I dare say that there's not a design genre that isn't covered to some degree. I love just flipping through this book, marveling at projects and lamenting, "Why didn't I think of that?"

► *Architecture in the Garden* (by James van Sweden, Francis Lincoln Publishers, 2003). A personal hero of mine, James van Sweden single-handedly redefined garden design in collaboration with his partner, Wolfgang Oehme. We can all thank him, for example, for the sweeping, now-familiar vistas of grasses intermingled with masses of perennials; for his mastery of large-scale meadows; and for work on scales as grand as Evening Island at the Chicago Botanic Garden and as intimate as all those pocket gardens he's placed behind historic townhomes in Georgetown. This book covers a sampling of his projects and offers encouraging words about proper scale in architecturally driven designs.

► *Ten Landscapes* (by Topher Delaney, Rockport Books, 2001). Topher Delaney's work runs far beyond just about anything you'll find in standard landscape design. Indeed, she thinks so far "outside the box" that her work is unparalleled. She doesn't stop at designing a garden, for example; instead, she *becomes* the garden, incorporating the characters of her clients into the design and developing details that stir the soul. Through the years, her use of colored walls, minimalist plantings, sculptures and perfect, subdued lighting has put Delaney head and shoulders



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above just about every other designer out there – and I see bits of her work in just about every project I've been designing lately as I play with colors and delve more deeply into my clients' psyches. I never tire of looking through this book and rely on it to encourage me to join her somewhere beyond the box.

► *Designing With Plants* (by Piet Oudolf,


Timber Press, 1990). The Dutch designer Piet Oudolf specializes in using perennials in the landscape. His philosophy is that plants should contribute to a garden at all times, not just when they are in bloom, and admonishes us to consider the post-flowering perennial as an ornament, not an eyesore. In addition, his method of combining plants demon-

strates ways gardens can look stunning in all seasons, including winter. I keep this book right next to me when designing with perennials, constantly seeking to expand my repertoire. Most helpful is the list of perennials at the back of the book: It also lists companion plants for those perennials, giving all of us the keys to magical design combinations.

► *Influential Gardeners: The Designers Who Shaped 20th Century Garden Style* (by Andrew Wilson, Octopus Publishing, 2002). This wonderful book is yet another treasure trove featuring a range of designers and their projects. The roster includes just about every well-known practitioner from the last century along with a fascinating array of the not-so-well-known, and what I like most about this book is the way it ranges through all styles, from the most formal to the most naturalistic. As such, it suits my every mood – and is so full of projects that you can look through it monthly and notice something you didn't ever spot before.

► *The Landscape Lighting Book* (by Janet Lennox Moyer, Wiley, 2005). This book is a worthy candidate for being called the bible of landscape lighting. If you design and install lighting – or even if you just spec lights into your projects – you really should own this book, because Moyer details everything there is to know about the lighting of landscapes, from placement of fixtures and their types to the all-important voltage-drop calculations. There are also numerous photos of projects along with detailed explanations of how and why she placed fixtures where she did. There is no book on lighting more detailed or more "enlightening" than this one.

► *Designing Water Gardens: A Unique Approach* (by Anthony Archer Wills, Conran Octopus, 1999). All readers of *WaterShapes* should know this man's work fairly well by now: His name is synonymous with the magnificent ponds, waterfalls and formal waterfeatures he's designed and installed all over the United States and Great Britain. This book is a rich compendium of Archer Wills' work and includes details, advice and inspiration no matter how big the feature. Reading this book will inspire you to place that rock just so, put those plants right



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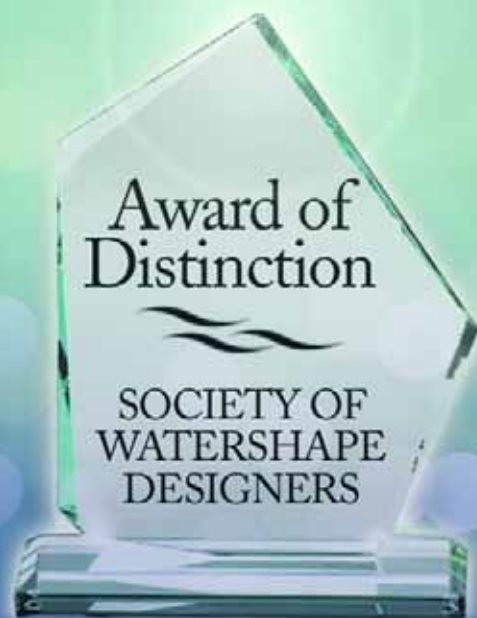
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there and ever so carefully *tweak* that waterfall to aesthetic perfection.

► *The New Tech Garden* (by Paul Cooper, Conran Octopus, 2001). Although my love of matching exterior designs to the architecture of the home is well documented, I thank pioneers including Topher Delaney and England's Christopher Bradley-Hole for making me a fan and (when allowed)

a practitioner of so-called "modern" design. My own work in recent years has, for example, occasionally followed their leads in featuring such details as Chinese-red privacy walls, glass wall panels and intermingled paving materials. This book profiles those two design icons along with many others who engage in high-tech detailing, showcasing the use of glass, stain-

less steel, concrete and more as design keys.

► *Building within Nature: A Guide for Home Owners, Contractors and Architects* (by Andy Wasowski and Sally Wasowski, University of Minnesota Press, 2000). Frank Lloyd Wright did it with Fallingwater, as did Philip Johnson with his Glass House—both making the building fit the site rather than changing the site to conform to the building. The era of slash-and-burn development is over largely because of the approach described in this wonderful book, a crash course in the pursuit of nature-driven design. It's all about preserving trees, controlling water runoff and erosion, designing for energy efficiency and using common sense in site planning—a book every architect, developer, landscape designer, landscape architect and watershaper should have near his or her drafting table.

► *Why Buildings Fall Down: How Structures Fail* (by Mario Salvadori and Matthys Levy, W.W. Norton, 1994). This is a fascinating book on actual architectural failures and is complete validation of my contention that we learn much more from failures than successes. By documenting catastrophic failures and their causes, the authors do one thing very well: They've made me want to make damned certain I always build things right!

► *A Field Guide to American Houses* (by Virginia and Lee McAlester, Knopf, 1984). Actually, this book lives in my car rather than near my drafting table, but it's one I must include on this list of essential titles. Before I meet clients, I study this guide so I can speak intelligently about their home's style with them. Even in an age when most new homes are "mutts," this book is in-



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valuable in helping me figure out what an architect or builder has done (or tried to do) – and empowers me at times to sound really smart by observing that a home is a “wonderful example of Second Empire Italianate combined with subtle traces of Greek Revival” or make some other relevant reference.

► *Outdoor Stonework: The Timeless, Practical and Aesthetic Value of Stone* (by Laurel Saville, Quarry Books, 2007). I like this book for the obvious reason that one of my company’s projects is covered from beginning to end on four of its most glorious pages. But beyond that, I value it for the fact that it’s a no-holds-barred sampler of projects and ideas revolving around stone. There are lots of books of this sort available on bookstore shelves, and what I like about all of them is that I always find at least an idea or two every time I pick one up and leaf through it – well worth keeping near the drafting table.

This list of a dozen titles is just a smattering of the literature of landscape design, construction, engineering and architecture that I surround myself with. They inspire me daily to stretch my boundaries, to consider and reconsider nature and (above all else) to build things right.


The project I mentioned at the outset of this column won’t test my design abilities or lead me to these books early in the process, because I can rely on the home itself to guide my basic approach. There is, however, the distinct possibility that as the design evolves, I may decide to throw a wrench into the works by including a detail that has nothing to

do with the home’s style – maybe a bit of colored glass worked into the pool house’s façade? As with all my designs at this stage, it’s on some level a matter of standing back from time to time and seeing what happens.

If I get to that point and need a little inspiration, I know just which books I’ll be picking up and exploring. **WS**

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


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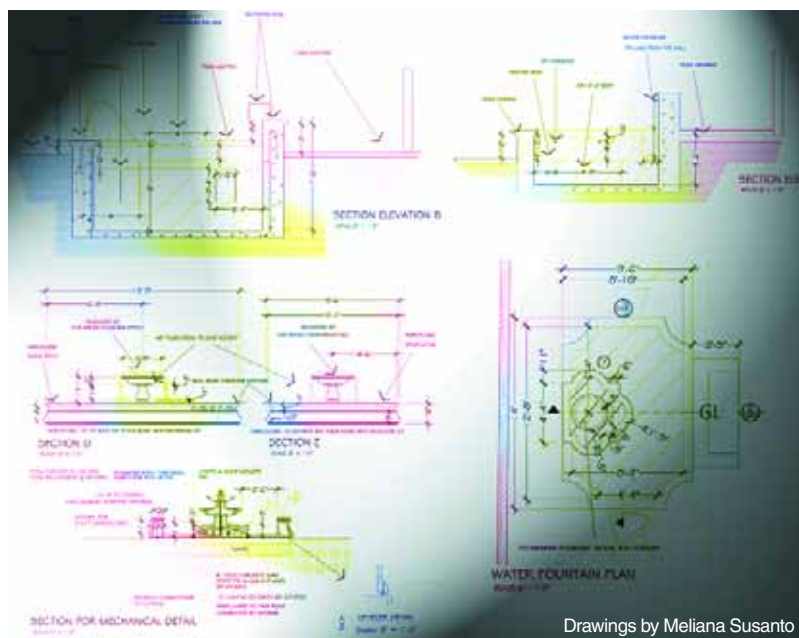
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By Mark Holden

# Making Headway



**W**hat happens when you take a large group of landscape architecture students and, for a solid week, rigorously school them in the fundamentals of watershaping? You might be surprised: Even though that seems like a short span, my charges took to watershaping like fish to water when I introduced them to the subject this past spring – and the results were both remarkable and inspiring.

As their instructor, I witnessed not only their keen interest but also saw ample evidence that they were applying highly refined design processes and quality design productions in their watershape-related coursework. So despite what some skeptics have been telling me for years, you actually can teach landscape architects to design watershapes accurately and effectively.

When I began my contributions to “Currents” last year, I led off with a discussion of how ignorance of watershaping on the part of otherwise well-educated designers had created a self-perpetuating information vacuum in our school system. In summarizing my ongoing efforts to challenge that status quo, I reported on the progress I was making with the landscape architecture department at California State Polytechnic University in Pomona, which had allowed me to take a group of university students from all class levels (including some candidates for master’s degrees) through what amounted

I’ve found that when I give students just a bit of information on watershaping, they clamor for more – something I’ve never, ever witnessed while teaching them drainage or soil erosion.

to a watershaping boot camp.

This “Water Module,” as we’ve come to call it, was intended from the start to bring students’ level of knowledge of watershaping up to par with what they were learning about, say, planting or irrigation. As it has unfolded, I have become more resolute than ever in my belief that this mission of educating landscape architects about water while they’re in college carries a potential for future development that’s far greater than most of the grownups in our industry would care (or dare) to believe.

## big ideas

I’m constantly reminded through my efforts that students desperately want watershaping knowledge but have nowhere to get it unless they happen to be enrolled at Cal Poly Pomona.

I’ve found that when I give them just a bit of information, they clamor for more – something I’ve never, ever witnessed while teaching them drainage or soil erosion. And that makes sense, because watershaping is a romantic pursuit that carries excitement and opportunities to make amazingly positive impressions on clients and anyone else who might come in contact with the output. That’s strongly appealing to young people who have not yet fallen into the well of mediocrity.

And it’s become crystal clear to me that, given the right tools, students learn very quickly and quite effectively.

It has gone so well that my current dream is to take the Water Module on the road and travel from university to university like a latter-day Johnny Appleseed, awakening more of those young minds to the world of watershaping. This traveling “School of Water Architecture” wouldn’t teach anyone how to build a better pool. Instead, it’s about giving students the tools and thought processes they need to be better designers who can





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turn buildable ideas over to contractors in place of the all-too-typical, meaningless blue squiggles that haunt so many plans.

In other words, I'm after an idealized world in which designers actually design complete systems and builders are allowed to build instead of being left to improvise and compromise. The only ones who might be threatened in such an environ-

ment are those who thrive by taking advantage of the current lack of thoroughness in designers' plans.

Cal Poly has been gracious in allowing me to develop this prototype water-architecture program, and I hope news of the success we've had in Pomona starts reaching into other landscape architecture departments across the nation. All

I can say at this point is that my students have consistently exceeded my expectations in applying what they've learned even in this brief module, and I'm deeply gratified knowing that many of these students will carry this experience with them for the rest of their careers and will doubtless improve on the base of information they've gained.

It only takes a small dose of truth to spur inquiring minds to want to know more. I am sure that most of my students can now recognize watershaping for what it really is and will use what they've learned to their professional benefit.

The level of class success last spring was best revealed several weeks after the water module was over as I saw the way the information kept feeding back into my regular class of junior-level students. As part of a larger project, I had them design a simple residential pool – and the results simply blew me away.

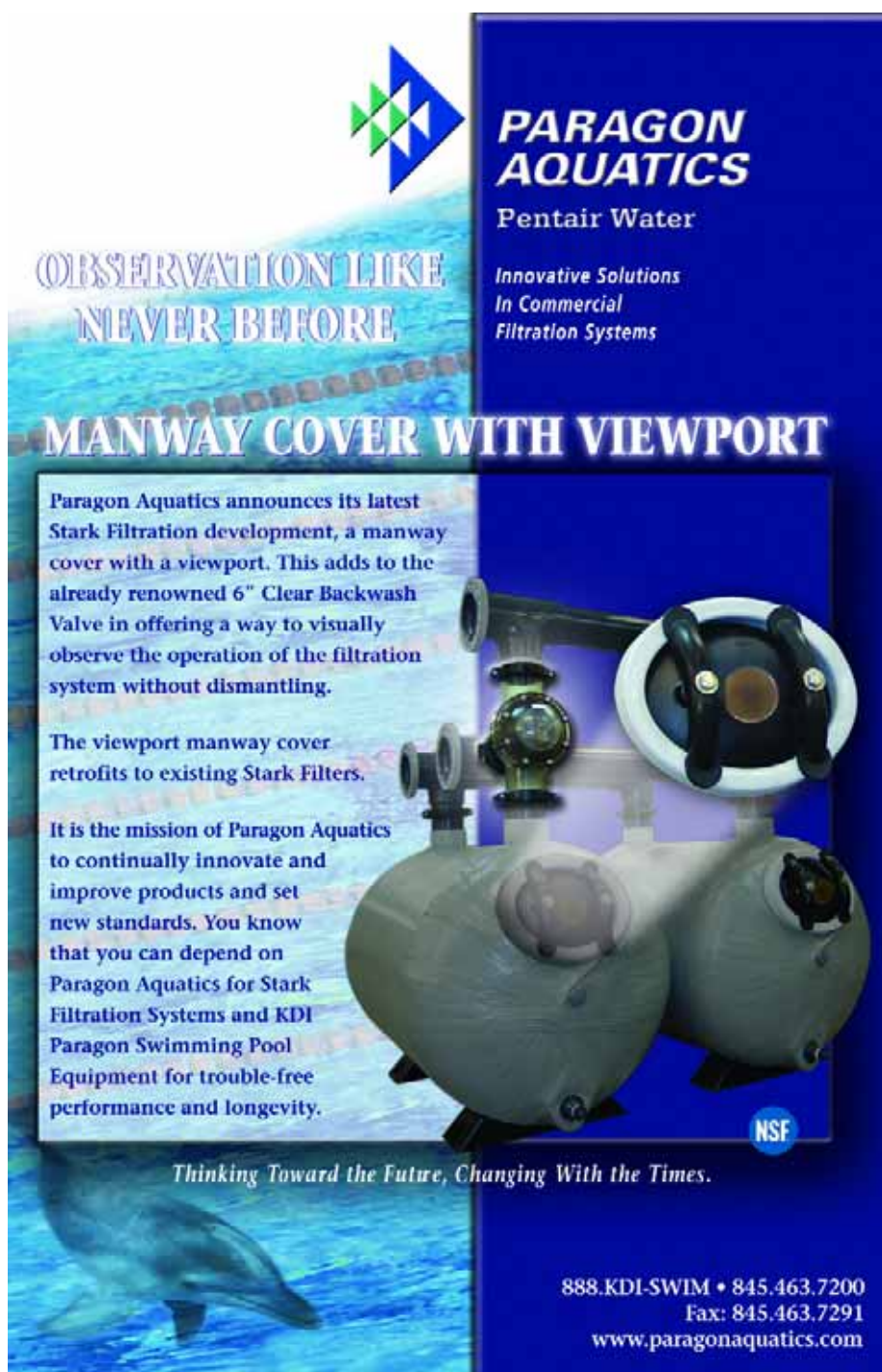
## the payoff

This class was a mix of students, some of whom had participated in the Water Module, some who had not. The students who had attended the module produced design plans of greater quality than many of those generated by licensed professionals who submit them to my own firm, Holdenwater in Fullerton, Calif., for review and revision.

One student even managed to devise a perimeter-overflow design that was remarkably close to workable – a level of skill that often eludes experienced pool builders and is certainly beyond the reach of most landscape architects.

As I have stated many times before, you cannot bid, obtain permits for or build from most landscape architects' watershape plans. Though the design concepts may be sound and even outstanding, they come with little or no graphical/textual support. How different would things be if that situation turned around and we were an industry filled with designers who came up with good water-based ideas that came with documentation that made them buildable?

That's a mind-boggling notion, to say the least – and wouldn't it create an environment in which designers could command higher fees for their plans and construction processes would be more streamlined, effi-



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cient and cost-effective?

If the answer to that question is yes (which is, I believe, correct beyond doubt), then the financial implications alone should be enough to drive this evolution through its next phases.

Look at it this way: With our deflating economy and real-estate development approaching stagnation, it's time for all of us to expand our horizons. For landscape architects, that means raising our skill levels, becoming more competitive in areas that really matter and charging more for our work – and one big way to do so is to tackle the water part of every job.

For builders (and I'm one of those, too), it means elevating technical skills, learning to do the hard stuff proficiently and opening ourselves to working with designers who generate more elaborate, more comprehensive watershape designs: These projects typically have higher profit margins, and everything becomes optimized when a project moves forward with less guesswork and better sets of plans.

## unclouded thinking

So what happened in this Water Module? What did it cover? As mentioned previously, parts of the class had to do with history and art history, hydraulics, engineering, conceptual design,

materials, construction, industry structure and costs – a starting place that gave the class the background information and tools they needed to design their own watershapes in the final class project.

Along the way, I pointed them to manufacturers' websites, helping them see what products/services were appropriate for water applications and how to initiate the specification process. That seems basic, but this was essential "stuff" for a group that basically didn't know where to begin with water beyond swimming in it or drinking it.

I also ran the class through slideshows, lectures, laboratory sessions, a field trip, project work and, finally, a test. Within the module itself, their final project had to do with a water-themed resort property for which there was to be no stated budget.

In addition to a conceptual design, I expected them to figure out how the watershape worked and how best to communicate it graphically. I also added that the design had to be revolutionary and provocative or I would, as the client, immediately reject it. By that point, it basically went without saying (although I did bring it up) that I did not want to see any three-tiered fountains or kidney-shaped pools!

To spur them along, we took a field trip to an aquatic facility that includes com-

petition pools, waterslides and a lazy river. While there, we visited a state-of-the-art equipment room – a bit mind-bending for students who'd never seen anything more than backyard equipment sets and an experience that let them know there were few practical or technical limits to what they might do.

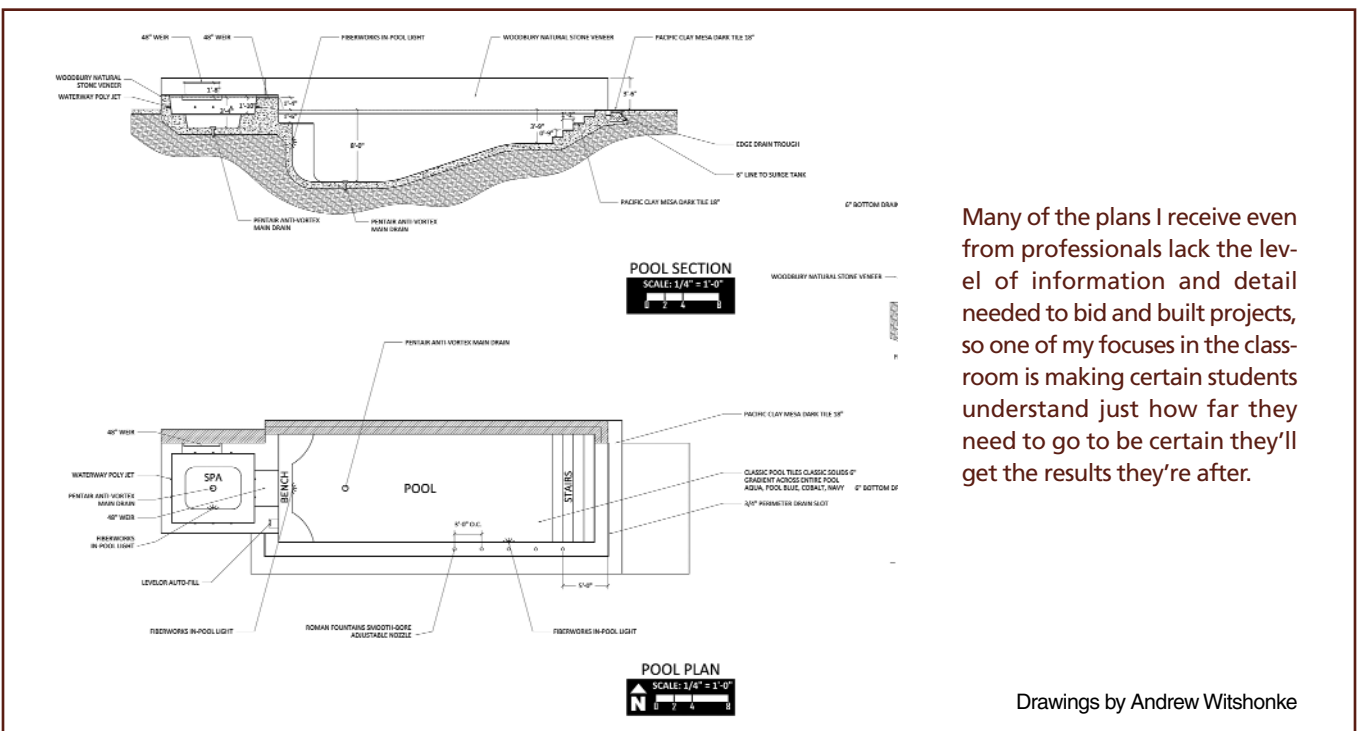
I knew it was all working when one of them asked, "How do you backwash these large horizontal sand filters?" and another asked, "How much horsepower does this lazy river need to flow right?" That was deep stuff for a bunch of students who've never been expected to learn anything more than how to ask a contractor to figure things out for them.

The resulting designs covered an incredibly wide creative spectrum, with at least a dozen highly creative concepts and a couple that struck me as visionary.

One of the most creative came from a design team that took inspiration from the Hopi Indians. Devising a spa resort on a reservation in Monument Valley, they captured the spiritual importance of water to the Hopi by drawing up cliffside dwelling suites and Hopi-inspired spas that defined connections between ancient and modern times – and along the way addressed myriad technical issues as well.

And that was just the start.

Continued on page 36



Many of the plans I receive even from professionals lack the level of information and detail needed to bid and built projects, so one of my focuses in the classroom is making certain students understand just how far they need to go to be certain they'll get the results they're after.

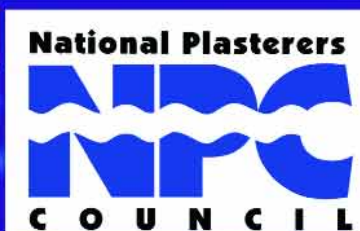
Drawings by Andrew Witshonke



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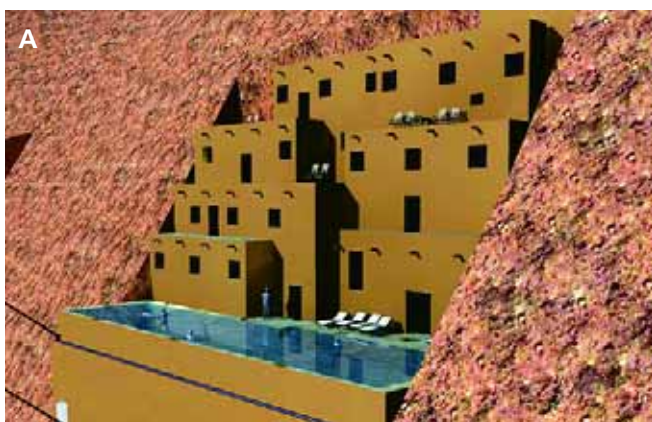
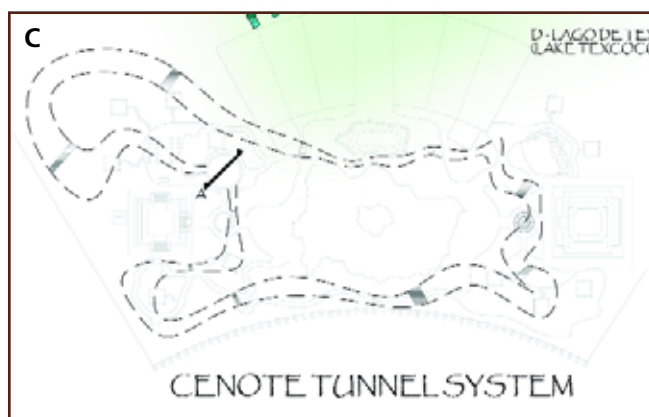


Illustration by Lee Krusa & David Fowler



Illustration by Pavel Petrov & Ben Tamuno-Koko



Drawing by Vladimir Berunza, Gabriel Gutierrez & Celio Ruvalcaba

The ingenuity of these students is demonstrated by their sophisticated treatment of watershapes and their apparent understanding of what it takes to make them work. Whether it's a hotel and vanishing-edge pool hung off a cliff in Monument Valley (A) or a subterranean river system inspired by the *cenotes* of the Yucatan peninsula (B & C) and intended for installation in Dubai or a rooftop, watershape-defined nightclub meant for franchising around the world (D), there's no lack of imagination — and what I as their instructor would call a highly encouraging level of technical understanding.

## high-flying

Just thinking back on these projects yields a proud, awestruck smile.

Another project was based on an appreciation of the pre-Columbian Maya, Aztec, Olmec and Chichimeca cultures. The team's aquatic facility design used cenotes — the sinkholes found in the Yucatan peninsula — as their point of departure. These huge holes fill seasonally with fresh water and sometimes connect to form underground rivers. This team of water architects used that phenomenon as a springboard for developing a resort with a subterranean lazy river system accessed via naturalistically rendered cenotes that would serve not only for recreation but also as a means of transportation throughout the resort's extensive, park-like grounds — truly ingenious!

Other projects took a more urban approach, including the one in which a wa-

ter nightclub floated atop a high-rise building and another that featured a large wave pool. Then there was the one that dealt with the way our five senses interact with water in the confines of a Zen therapy/education facility.

All in all, these students took a defined set of process-oriented design principals and focused them on water — and what they came up with were amazingly creative ideas they were able to translate into technically sound design plans. Isn't this the way the design side of watershaping really should be?

At a time when it's easy to get discouraged by the way things are going in the economy, I can't help thinking that breaking away from convention and mediocrity offers a forward-leading path and that educating a new generation of water architects is the key.

When I look at the output of the unclouded minds of students and see what

they can do armed with only a basic information framework, I am hopeful about the future of watershaping. Indeed, if we can get this done and come to a day when watershaping is a standard module in every landscape architecture and architecture program in the country, then it is clear to me that the very best our industry will ever produce is still to come. **WS**

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





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# DESERT RHYTHMS

BY KIRK BIANCHI

*Working in the arid beauty of the Sonoran Desert, watershaper and landscape artist Kirk Bianchi designed this set of water-shapes and hardscape treatments to provide visual transitions between a custom home and its surroundings. He achieved this feat using crisp geometry, striking landscape details, a rich materials palette, sleek perimeter overflows and subtle water and fire features that deftly tie interiors to exteriors and the vastness of the desert beyond.*

One of the things I love about working in the southwest is the way the openness and rugged, sculptural appearance of the natural landscape opens the door to those who want to make bold architectural statements in concrete, stone, steel and glass. Even the *plants* here have an overtly sculpted quality.

I appreciate this all the more by virtue of having worked in more tradition-bound places: Here in the southwest, I feel free to use a strong, contemporary design vocabulary in forging unique connections between built spaces and their dramatic surroundings.

Although I'm perfectly comfortable working in those traditional styles, I'll admit to being heavily influenced by the masters of Modernism – particularly Frank Lloyd Wright and the German-born American architect Ludwig Mies van der Rohe – and love the way those amazing mid-20th-century designers used clear, sculptural geometries to direct the eye and define intricate spatial relationships.

The project depicted here is a direct channeling of their influence, aided and abetted by the client, Paul Ranheim (a former professional hockey player turned equally professional spec-home builder), who shared my appreciation for modern architecture.

Everything about this project was dramatic, starting with the setting. Located just north of Tucson, Ariz., in a development known as Saguaro Ranch, the property is part of an upscale enclave spread over a set of canyons in which spectacular geology is on display at every turn.

To provide access to the area, the developer bored a tunnel through a mountain: When you arrive, you emerge from a portal and flow into a magical landscape of chiseled topography dotted with five-acre lots and their custom homes. It's truly an amazing place: There seem to be

more Saguaro cacti and big boulders per acre here than I've seen anywhere else in the Sonoran Desert.

## Temporal Experience

The development has a resort-style feel, with everything organized around equestrian activities. All of the homes are custom, and all are to be designed to complement and make the most of the setting.

I came on board at a point when my client had only just started building the home, which gave me the wonderful opportunity to interact with the architect – Michael Franks of Tucson-based Seaver Franks Architects – and other members of the project team. What I saw on paper was a masterful design that succeeded both in contrasting with and accentuating the nature of the desert setting.

I became involved in the project as a result of some great local press coverage: In 2005, several of my projects were featured in a spe-





**The setting we were working with was truly magnificent, and the ambition throughout was to create structures and spaces that harmonized flawlessly with the surroundings. In addition, this was one of the first homes built in the development, so the design team had the additional mission of establishing a standard we hoped others would meet.**

cial annual edition of *Phoenix Home & Garden Magazine* in which local artists are showcased as “Masters of the Southwest” – an honorific I proudly accepted. My client, who had already begun pool construction based on what he had been offered to date, saw the article, halted construction and contacted me in the hope that I could come up with something more architecturally cunning than the natural-istic vessel then under way.

As he explained to me, his parcel was to be one of the first to be built in the development and he wanted to set a high standard for others to follow. At that point, I was given *carte blanche* to organize the exteriors based on what I saw as being appropriate to both the home and the setting.

Joining the design team at this early stage gave me the chance to develop the exterior design as the home itself arose before our eyes. This timing enabled me to integrate everything I was doing into a single design program. That’s not a door that

opens to watershapers every day, so I was determined to walk right on through it.

In this case, I built the anticipation right away, developing the design around the experience a visitor would have in arriving on the property, approaching the front door, moving through the house and then passing into the backyard. This led to an immediate enhancement of the preliminary concept, which had placed guest parking right at the front gate: This struck me as a missed opportunity, especially given the five-acre extent of the property, so I moved the parking away from the entrance and established a pedestrian introduction to the home that would generate a sense of anticipation and discovery and allow guests to stop, reflect and take in the breadth and beauty of the home from one of the best of all available vantage points.

To amplify the initial impression of the home, I introduced a sensual, feminine form by using a pair of low (but as-

cending) 30-inch-thick walls. The resulting visual tension and interplay energizes the entry experience as the curving walls juxtapose with the distinctly masculine, ascending planes of the home’s façade.

Visitors are greeted by the open embrace of these walls and led along a path past a trio of rusted steel panels that lend a lyrical quality to the pathway with their alternating folds, sequential spacing and ascending heights – and echo of both the pitch and material of the roofline beyond. As the path narrows in the curvature of the walls, there’s a sense of compression followed by expansion as the path turns and opens up again as it nears a front gate that offers access to the forecourt leading to the front door. The notes of this song continue in the shadowy recesses of the cantilevered stair-tread detail; in the repetition of the organic geometry; and with the striking interjection of tree forms that cast twisting shadows on the planar backdrop.





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## Moving Along

The approach to the courtyard is meant to elicit feelings of curiosity and exploration.

First, the broad, pivoting gate (conceived by Franks) orients the scene by masking views of the inner architecture while defining a path to the front door. But before visitors get to that point, anticipation for what's beyond the gate is augmented by the strategic use of firelight: Working with an aperture the architect placed in the forecourt's wall, I set up a fire feature that emanates its light through the opening and out into the desert foreground, thereby enticing visitors with a dancing glow well before they ever see the source. This soft light also illuminates a Joshua Tree that rises above the courtyard's wall, further escalating the anticipation.

When visitors pass through the gate into the forecourt, they see another array of cantilevered steps that "float" up to the front door. I set this rhythmic path to echo the lines and ascending forms of Franks' dramatic rusted-steel entry pergola. Once in the space, however, visitors gain access to a wider view beyond the path and now see a lounging/entertainment area to the left.

This large space features a trapezoidal reflection pool that doubles as a divider, channeling visitors for several paces along

the entry path by reaching out from the courtyard wall near the gate before allowing them access to the forecourt's lounging area. An Ironwood tree serves as the sculptural focal point from this perspective, making a serene first impression with its form mirrored in the shimmering water.

This watershape starts out at a level 30 inches from the deck: As that surface rises toward the steps, the vessel stays level and has a final elevation just 12 inches above grade. Shallow (at just two inches deep) and filled with pebbles suspended by a grate, it is approximately 12 feet long and nine feet wide.

Water flows over the rusted-steel edges of this feature and down into a small channel also filled with pebbles. This whole structure was set to finish flush with only a half-inch gap between the water surface and a cast-concrete seat wall that extends along the courtyard's perimeter. The pool's form is mirrored by a trapezoidal fire pit that, now visible, sits in a snug corner of the space with the aforementioned window aperture just above that allows visitors to peer out at the desert scene beyond.

Everything in this front area is a direct response to the shape of the space and the geometry of the home. The concrete deck-





ing, for example, is laid out in a grid pattern that extends directly from the concrete floor treatment inside the house – a pattern I picked up and repeated throughout the exterior design.

The decking has an exposed-aggregate finish made with highly refined sand of an earthy color chosen to blend in visually with the surrounding desert terrain. This is a key design detail: From the ground up, the home's architecture is interwoven with the exterior experience, providing the entire space with an underlying sense of order and a direct connection to the natural landscape.

Indeed, just about everything in this design flows from that sort of unifying perspective. In the case of the step system that leads to the front door, for example, there's a rep-

**The path from the parking area introduces visitors to the colors and textures they'll encounter beyond, but the wall and the pivoting gate conceal spaces that can only be fully appreciated upon entering the forecourt, perceiving the front door and turning to the left to drink in the overflowing reflecting pool, bench system and fire feature that make up a large entertainment space.**





etition of geometry I used in the form of using two risers separated by three concrete pads that lead to two more risers and another set of three pads and a final set of three risers. There's a certain rising rhythm to all of this – a visual music built into the design as it leads visitors to the front door.

### *Clear Perspective*

As guests pass through the door to enter the home, they are greeted by a broad, open space with views that

stretch through to the backyard area. Again, the guiding concept is one of exploration and of moving through the space to destinations beyond. To enhance that sense, the backyard area is organized at an angle that skews away from the back of the house: To see everything, in other words, visitors have to keep moving.

Once they reach the backyard, they find the pool and spa tucked up against a slope cut into the canyon wall. The spa, which has a raised, seating-height

profile and a circular shape eight feet across, was the first element I placed in the backyard and essentially functions as its visual hub. I used this as the primary anchoring element because I believe that nothing says “you’ve arrived” in a space better than a spa: Among all watershapes, it’s the ultimate in comfort and luxury.

Everything else in the backyard swings away from the spa like encompassing arms – a sense reinforced by the fact that the limits of the built space are marked





by low walls (also cantilevered as are the steps out front to “hover” over the surface) above which the natural landscape rises. Indeed, the whole design plays off the rising terrain in a set of terraces organized around the grid pattern established inside the house and flowing out as six-by-six-foot pads of smooth concrete to match the interior finish.

Visitors can step up to raised levels on both sides of the spa and pool: To the right is an outdoor seating area with a circular fire feature mounted in the



Passing through the home, visitors emerge into a backyard highlighted by expansive deck areas, a finely detailed perimeter-overflow pool, a gem-like raised spa and a spillway system that seems to flow from the rugged slope behind the pool.



steps. This feature mimics the form of the spa and has a sculptural fire element created by Brooklyn, N.Y.-based artist Elena Colombo. To the left is a deck with a fireplace – this one square and also embedded in the continuing line of the steps.

As guests move from level to level, the surface changes slightly from smooth concrete to the sand exposed-aggregate finish in a three-by-three-foot grid (a half module of the base plane) that echoes the approach used over in the forecourt. Throughout the design, I lent visual interest and a sense of openness to these concrete slabs by separating them with narrow, pebble-filled channels: I liken this visual relief to undoing the top button of a shirt: It provides everyone with some room to breathe.

The 25-by-15-foot pool echoes the trapezoidal shape of the waterfeature in the courtyard, but the leading-edge overflow reinforces the feminine curve introduced out front and imparts a sensuous line to the otherwise masculine, angular framework. It, too, has perimeter overflows on three sides, rising 12 inches above grade at the front curve but set flush with the upper deck in the same way the courtyard pool's water level is flush with the adjacent benches.

For the grand finale, I used a series of small spillways to accentuate the central planter wall behind the pool. The wall embraces a Palo Verde tree selected to serve as a focal point because of its sculptural perfection. For their part, the spillways are clustered in three sets of three to reinforce the musical themes found elsewhere around the property. These were inspired by the work of Mexican architect Ricardo Legorreta, but I owe a more direct debt here to David Tisherman, who introduced me to Legorreta's work and

**This 'morning patio' stands on the east side of the house and continues visual themes and motifs found throughout the project, including the decking grid, the use of rusted-steel details and the selection of plants and planters. And of course, there's water – here in the form of a trickling fountain set within the arc of the steel walls.**





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whose own work with spillways drove my further development and interpretation of this beautiful fountain detail.

Again, the idea throughout was to use repetitions of shapes and a clear, modular hardscape treatment. As we were staying with concrete throughout, this led to a tricky slot detail where the edge of the pool interfaces with the deck and steps. The concrete subcontractor, Carson Concrete of Tucson, did a wonderful job of forming this detail as part of the pool. (They also did the amazing flatwork and the cast-concrete seat walls in the surrounding hardscape.)

Throughout the design, we used varying earth tones to add visual depth and contrast and play off of the natural landscape and the colors used in the architecture. The spa and outer edge of the pool are finished with an unusual ceramic tile named Corten, a tile from Spain I obtained through Ceramica, a boutique tile shop in Scottsdale, Ariz. This material has a baked-on finish that has the appearance of rusted metal and takes its name from corten steel. The interior of the pool – a PebbleSheen finish called Bordeaux that works beautifully with the tile – was furnished by Pebble Technology of Scottsdale, Ariz.

### Outdoor Delight

Visible from the kitchen and guest bedrooms, the third primary exterior space is a “morning patio” located on the east side of the house. Broad and finished in the ubiquitous concrete grid pattern, this private area repeats the motif seen throughout the exterior of large bowls placed on trapezoidal pedestals and planted with agaves. It’s another space in which the landscape rises above a series of low walls, but in this case, the sweep of those walls offers a curvilinear geometry that contrasts with the deck’s grid pattern.

The star of this space is a curved and ascending rusted-steel wall in the form of a half spiral. Its presence intentionally divides the space, making the guest patio private. On the guest patio side, the steel wall encompasses a small waterfeature in which a delicate plume of water rises just a couple of inches above the water’s surface to provide a tranquil, trickling sound that conjures feelings of

serenity in the calm, quiet space.

The sweeping wall also has a continuous, six-inch-wide vertical cleft that allows an axial glimpse of the plume from the public side and, from the opposite angle, a sliver view of the public space. A cantilevered steel sluice spills from the cleft into a pebble-filled reflecting bowl that overflows yet again into a final pebble-filled basin set an inch below deck level.

At night, the plume, the lower basin and the “impact zone” of the sluiceway are all lit from beneath the water’s surface, projecting a dancing light onto the graceful arch of the rust-colored steel.

When we all finished our work, the client put the property up for sale and, even in a tough market, sold it in 80 days to an ecstatic, discerning couple from Toronto – thus making believers out of the naysayers along the way who’d told our client to cut corners “because it’s just a spec house.” Indeed, the property set a record for the most expensive MLS-listed home sold in Tucson, raising the bar for the new neighborhood and establishing a pattern for quality and architectural excellence to be emulated throughout the development.

For my part, it was a thrill to work with a fantastic, talented team that inspired me to create exterior spaces that fully embraced the rhythms of the beautiful desert surroundings.



**Benefitting from the thoughtful arrangement of lighting fixtures and rich in firelight, the property takes on a special luminosity at night marked by a subtle, flickering illumination that harmonizes beautifully with the special qualities of the desert after dark.**

## NOTES OF APPRECIATION

The project described in the accompanying text was the product of many skilled minds and hands.

Special thanks go to Donna Winters of Enchanted Garden Landscape (Scottsdale, Ariz.), who helped in refining the plant palate and lighting concepts; to T.A. Caid & Sons (Tucson, Ariz.) for their perfectionist work in steel; to Ted Miller of Sapphire Pools (Gold Canyon, Ariz.) for his tenacious detailing in pool construction and for first introducing me to this wonderful industry; and to Butch and Brent at ArtCraft Granite, Marble & Tile Co. (Mesa, Ariz.) for their exquisite work.

Ultimately, we all owe debts of gratitude to the client, Paul Ranheim, for having the courage and vision to put the team together and persist through adversity while maintaining his gentle, humble disposition. Above all, we have him to thank for believing that if you build it *right*, they will come.

–K.B.









# Resounding Renewal

By  
**William N. Rowley  
& Greg Cannon**

Located in an urban district near downtown Los Angeles, the Echo Park Deep Pool reopened recently after undergoing a \$6-million renovation. Rowley International and Frank R. Webb Architects engineered and oversaw much of the swimming pool's restoration while the city refurbished the surrounding facility. The result is a complex that's been fully embraced by locals who now enjoy all the benefits of aquatic recreation and exercise.





Echo Park is one of those places that has come to be defined by an all-too-familiar litany of urban woes: gangs, crime, violence, graffiti and drugs set amid aging buildings and a crumbling infrastructure. Fortunately, the community also has leadership that's working hard to change things for the better.

One of the recent and most significant efforts to improve the lives of its citizenry involved renovating Echo Park Deep Pool, the area's only public swimming facility. The \$6-million program involved enclosing the big pool with a new roof structure as well as rebuilding the pool's equipment pad and support facilities and attending to a host of mostly cosmetic details.

Before we dive into some of the project specifics, it must be noted that the key to the project's success was cooperation on the part of the City of Los Angeles (in which Echo Park is a district), the County of Los Angeles and Frank R. Webb Architects (Los Angeles) – the best such collaboration we've ever encountered on a project of this type. From start to finish, everyone was fully and tirelessly com-

mitted mainly because we all saw that giving the youths of this community a place to swim offered a healthy alternative to the temptations that exist on the streets surrounding the refurbished pool.

It's the kind of job where everyone involved knows there's much more at stake than simply creating a quality aquatic facility. Here at Rowley International, a design/engineering firm based in Palos Verdes Estates, Calif., we view this type of project as the highest possible calling to service in the name of watershaping.

### from the depths

The project itself was not terribly complex: The facility has just the one pool and no other recreational elements.

Originally, the city had tried to tackle the pool-renovation part of the project in-house, but realized largely because of a tight schedule that they needed some outside consulting help, especially to interface between the city and the county Health Department. By the time Mike Clouse (who manages aquatics programs for the city's recreational facilities) called us, construction of the fa-

cility's new roof was already under way and the project team had been brought up short by what needed to be done with the pool and its equipment.

We came on site as consultants at first, just going in to have a look and tell the project team what we thought.

We drove to the site and found a facility that faced significant challenges. The pool had been derelict for a number of years, and the 12-foot block wall that surrounded it had obviously done nothing to keep out vandals and the homeless. In fact, because the space was surrounded by walls and hidden from view, it's likely the place had become a preferred haven for a variety of ruinous activities.

At that point, the pool held a couple of feet of standing water and a nasty accumulation of debris. The walls were fully intact, but they were covered with graffiti. Indeed, everywhere we stepped, there was evidence of not only years of neglect but also of abuse of the most pernicious sort. What we couldn't see at the time, however, was that the bones of the pool were in surprisingly sound condi-





When we first encountered the pool, its depths were filled with indescribable muck and its walls and exposed floors marred by graffiti and stains. The roof structure and its twisted, deteriorated beams had already been removed by that time – a step that actually accelerated the decline of the pool and decks.

tion – a blessing that extended from sturdy initial construction.

The pool itself measures 75 by 120 feet with a surface area of 9,000 square feet – about three-quarters of the size of an Olympic-scale pool. It had depths of three feet at both ends sloping down to a central depth of 12 feet and included a poured-in-place concrete shell, reliable plumbing and a formed gutter system. The pool sits amid a concrete deck that reaches back about two dozen feet in all directions, and there's a concrete bleacher section made to accommodate about 200 spectators.

Once the city cut through the considerable layers of grime, we found that the pool shell and deck were in surprisingly good shape and would require only cosmetic attention. Of course, the interior surface was completely shot, the lighting niches in the pool were beyond repair and the equipment pad's components had been cannibalized for use on other city pools. Beyond the water-shape, the office facilities, locker rooms and bathroom facilities all needed complete renovation.

### hooked in

We weren't quite certain what we were getting ourselves into, but we agreed to move forward and eventually signed a contract with the architect. Our main tasks included engineering a new equipment set; finding and making use of existing deck equipment long held in storage; and generally acting as the liaison between various city departments and

anyone having anything to do with refurbishing the pool.

The lion's share of our work involved squeezing a modern, code-compliant equipment package into a pad area that measured 75 by 18 feet – plenty long but quite narrow by today's standards. Everything had to be replaced, so working closely with Clouse – a master at keeping a number of the city's pools operational despite budgetary challenges and aging facilities – we brought in four Stark high-rate sand filters (Paragon Aquatics, LaGrangeville, N.Y.), a manual backwash system and a Chemtrol ORP/pH-control system from Santa Barbara Controls (Santa Barbara, Calif.) that automatically feeds sodium hypochlorite and muriatic acid as needed.

We did what we had to do to match up the new equipment with the ten-inch PVC plumbing lines that existed on the pad, and perhaps the toughest issue we faced had to do with configuring connections and making everything fit. Given the linear orientation of the pad and the existing pipe locations, we devised an unusual plumbing scheme that flows down and back starting from the surge tank located at one end of the equipment area.

Through every step of the project, we worked with the city to use previously procured equipment to keep costs down and expedite the acquisition process to maintain their schedule. For the most part that was easily done, but one pump we were given was unusual: a 30-horse-

power, self-priming, belt-driven pump. It hadn't been intended for this sort of application, but we hooked it up and ran some tests and found that it had what it took to drive the system.

The suction side of the system flows through main drains and the gutter system, which is plumbed into the concrete surge tank mentioned above. The gutter is large, with 1.375 cubic feet of capture area per linear foot, and does such a great job of accepting surge over its edge that we were confident that this would qualify as a "fast pool" by virtue of having minimal wave action during recreational or competitive swimming.

The return side features a series of existing wall-mounted inlets. We didn't renovate the pool's plumbing system, as we didn't want to incur the expense of ripping up the decks. In our investigations, we determined that the hidden plumbing is probably ferrous (despite the PVC fittings we found at the pad) and also that it didn't leak. Ultimately, we achieved a five-hour turnover rate for the pool's 385,000 gallons – well within local health-department standards.

All in all, this went much more smoothly than any of us had hoped when we first walked onto the site and saw what we were tackling.

### scrambling on deck

Following along with the city's desire to use equipment that was on hand or in storage, the city pulled out a mix of new and old lifeguard stands and starting blocks, a diving board, water polo



goals, lane markers and whatever we needed by way of rail goods.

Along the way, of course, we ran into a few situations that called for some improvisation. The ladders, for example, had to be fitted with special plastic panels to keep anyone from getting stuck between the rails and the gutter.

On a grander scale, the city decided to patch and paint the pool shell using materials supplied by Los Angeles-based Nelsonite. (This involved painting over the original tile lane lines with a sky-blue epoxy paint.) The thought was that the pool could be affordably resurfaced with paint every couple of years and that pool operators wouldn't have to worry about damage to the plaster when the pool needed to be drained.

As mentioned previously, the light niches were no longer usable. Rather than tear up the decks to run new conduits and refurbish them, we decided to



Once we cleared away all the debris, it turned out that the pool and decks were actually in pretty good shape and needed mostly cosmetic attention. The roof, of course, had to be completely redone – this time with an ingenious system in which large sections of glass were mounted on garage-door rollers at opposite ends of the structure to provide generous cross-ventilation.



seal them up and abandon them. Again, it was a practical decision: The new roof design features large window treatments all the way around the pool as well as modern lighting fixtures that illuminate the space about as well as any scheme I've ever seen in a natatorium. As a result, foregoing a bit of in-pool lighting wasn't a problem.

Indeed, the facility performs quite well at all times of day. It's now being used for a variety of purposes, including public swimming and swimming lessons as well as water polo and swimming competitions. Since reopening in May 2008, it has been in use from 7 a.m. to 9 p.m. seven days a week and often accommodates capacity crowds of 450 guests. Anticipating that sort of usage, we worked with the city to make the systems as flexible as possible.

For all the work we did with the pool,

I must concede that the most prominent feature of the renovation is the roof. I've always believed that *real* architecture (in the applied sense) starts when the designer is pressed to the wall in terms of budget but has to make a structure function regardless. In this case, Frank R. Webb Architects did a masterful job of creating a dazzling roof structure that rises from the facility's original block walls – and managed to do so with scant resources.

The original roof structure had suffered through the years because it had not been built properly in the first place and was declared unsalvageable when the city started looking into restoring the facility. Ironically, pulling it down to the tops of the block walls was what exposed the facility to intruders and their abuse in the time it took the city to find funding to start its restoration work in earnest.

## points of pride

The architect's project manager, Ken Stein, oversaw both design and construction of the roof, and it is truly a thing of beauty. Spanning 185 feet and built with tapered steel girders, it's a spectacle of exposed structural elements, lighting arrays and HVAC runs with a post-modern style all its own.

The windows run around the entire perimeter, set just above the original walls and running all the way up to the roof. At each end are specialty window panels that retract into the roof's support system via systems of garage-door rollers. This allows the staff to open the space to outside air and creates a natural circulation pattern that augments the heating, ventilation and air-conditioning system – a wonderful design solution because chlorine off-gassing could have been an issue given the size of the pool and its level of use.



At the city's request, most of the equipment and pool accessories were collected from various warehouses and storage rooms. This included a pump and other materials for the equipment room as well as rail goods, lane markers, guard towers and more. With the ladders, however, we had to modify them with plastic panels to make them safe for use with the old gutter system.



As it has turned out, the windows stay open much of the time, providing wonderful levels of natural light and air that is always fresh as a result of cross-ventilation. And unlike other enclosed pools that rely strictly on forced-air ventilation, the air inside this facility doesn't get uncomfortably warm.

As a side benefit, the open windows have reduced the need for shock treatments or other chemical-maintenance measures aimed at maintaining safe, acceptable levels of indoor air quality – an absolutely brilliant design solution oth-

er facilities should employ, especially in areas with warm climates.

For all its fine qualities and details, however, the real beauty of this project resides in its purpose. From our perspective, this is the best we can do as watershapers – that is, delivering a recreational facility to a community that desperately needs just this sort of resource.

Best of all, the community seems to have adopted the pool and have taken a distinct, proprietary interest in keeping it in top form. So far, its walls are remarkably free of the graffiti that stains

most other surfaces in the neighborhood, and the facility already seems to have woven itself into the fabric of Echo Park's daily life.

As designers, engineers and builders, we might do grander work in other settings, but for those of us who worked on this modest facility, it's unlikely anything will ever be more gratifying.

*We gratefully acknowledge the help of Ken Stein, project manager for Frank R. Webb Architects of Los Angeles, for his assistance in preparing this article.*



The Echo Park Deep Pool was once both an eyesore and a neighborhood hazard, but now it's a beautiful example of what happens when community needs intersect with civic determination. The result in this case is a facility that has been adopted by local citizens who take to the water in amazing numbers, day and night.



# Winds of Life

**Successful public art serves many purposes, observes glass sculptor John Gilbert Luebtow: Through form, location, materials and aesthetics, these works can inspire, soothe, excite, guide and enrich the day-to-day experiences of those who see them. True to this vision, he pursued all of those qualities in a recent project – one in which he graced a busy plaza with a sublime sculpture that will elevate the spirits of passersby for generations to come.**

*By John Gilbert Luebtow*

As a sculptor, I always seek ways to use my work to create positive (and sometimes intellectually challenging) experiences for those who have the opportunity to see what I've done.

In my case, most of the time I'm not trying to make direct, narrative or literal statements. Instead, I seek to conjure feelings of fascination that lead to appreciation and enjoyment: You don't necessarily have to *understand* the forms I create to walk away from them with good feelings.

When I have the opportunity to work in public settings (as was the case in the project featured on these pages), I'm stimulated by the idea that large numbers of people will be exposed to my sculpture and that, in many cases, those people will be exposed to what I've done over and over again because they'll be passing by at least twice each day as they go to and from their jobs in adjacent buildings.

In this case, I was working next to an office tower in Century City – a famous business and entertainment district near downtown Los Angeles – which meant that *thousands* would repeatedly be walking right past my work and would come to accept it as part of their daily lives. In that light, I see art set amid architecture as a permanent commitment, as a cultural reference that has the potential to resound for generations.

This recognition fills me with a heightened sense of responsibility and makes me approach such projects with a great deal of sensitivity, care and caution: To be successful,

I know that such a sculpture needs to offer an ever-changing set of aesthetic experiences that will enable it to be interesting for the long haul. That's a big challenge – and great fun to see when everything clicks.

## *Inviting Forms*

I was one of five artists asked to submit designs for a piece to be located near the main entrance of a skyscraper owned by Held Properties, a leading developer of commercial real estate in southern California. The competition was handled through Xiliary Twil, director of Jonathan Novak Contemporary Art.

The plaza piece was intended to celebrate the renovation of the building, which is about 40 years old and was in need of a fresh look. I was one of an original group of 12 artists selected by Ms. Twil for the design competition. From that dozen, the property owners selected five and commissioned us to create models of our proposed designs.

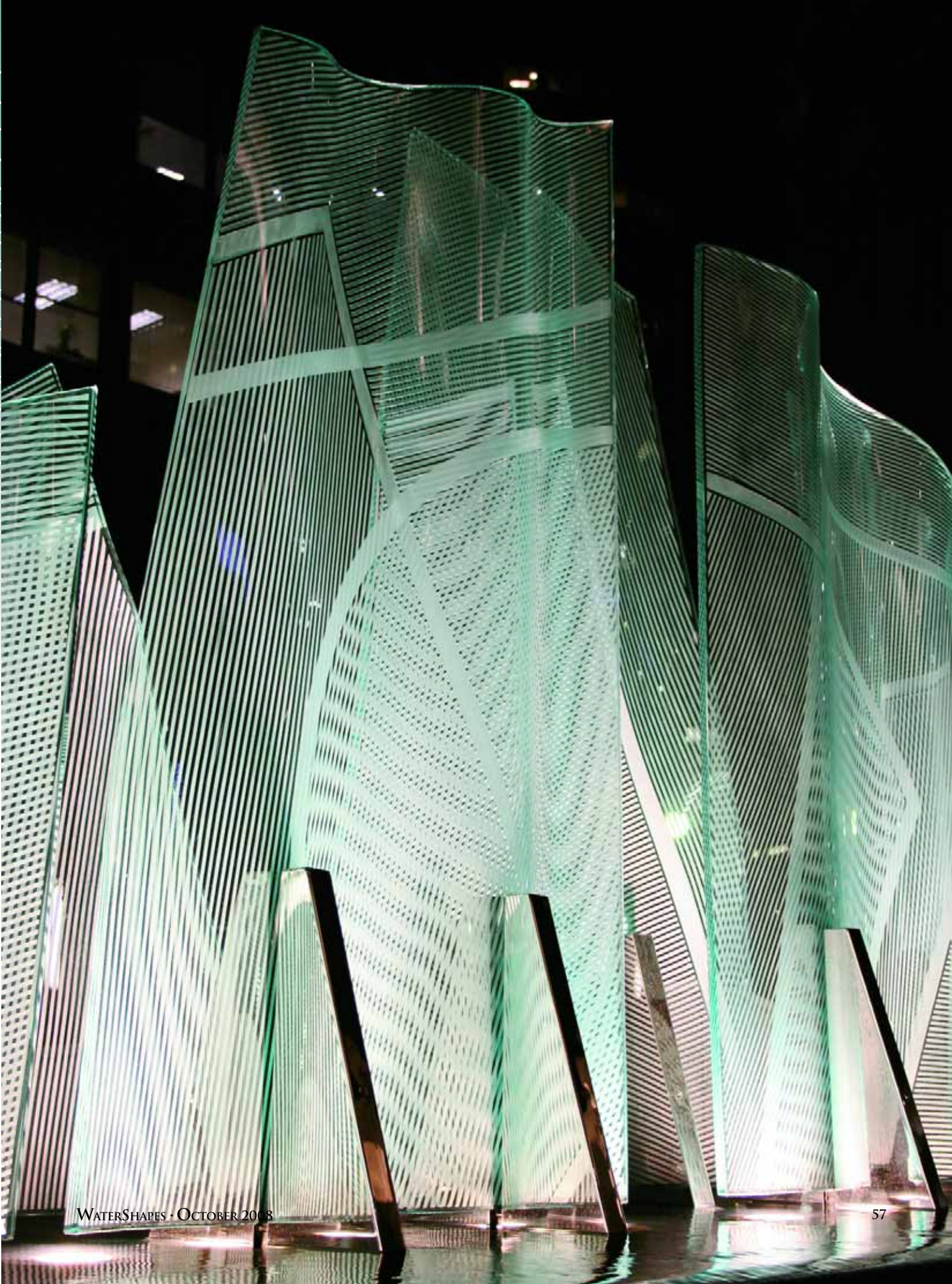
That was in February 2007 – the beginning of a process that culminated in June 2008 with the dedication of the remodeled building and the “unveiling” of my sculpture. It was an honor simply to be one of those selected from among such a respected group of artists. I know all of them and am familiar with their work, and I was impressed by the range of styles and approaches we represented.

The models were prepared and presented to the owners and their representatives, and I was delighted to be the one they selected.

My design concept was based on five aesthetic elements:

► **Movement:** The linear patterns within the glass panels that comprise the piece generate moiré patterns to create an internal geometry that moves and shimmers as people pass by. This means the work constantly changes as viewers' positions change.









Models are everything in this sort of design competition, but for a composition of the sort we were submitting, words and descriptions mattered a great deal because the small scale definitely left a lot of detailing to the imaginations of members of the selection committee.

► **Sound:** The subtle sound of moving water creates a peaceful and continuous feeling of tranquility that contrasts with urban noise and the nearby sounds of traffic.

► **Water:** The constant movement and rippled reflections of water in transit interact with the composition's static elements as it flows over a weir and back into itself.

► **Glass:** The internal and external visual qualities of glass offer transparency, reflection and refraction.

► **Light:** The visual interaction between glass and sunlight will change constantly with the position of the sun in the sky, with the seasons and with clouds. At night, the piece takes on an entirely different quality as it rises above sources of artificial light.

In the presentation, I explained that my work is about line, form, space and light, about the tension of expressing movement in static forms and about using that tension to produce rhythms and energy. These elements conspire to create optical depths that result in interplay and interaction, depth within depth, space within space, visual space along with physical

space and the illusion of far grander spaces. And it all works because light invades the glass – entering, passing through, reflecting multiply and altering the appearance of the glass as viewers pass by and perceive change.

If my work is successful, it's because a piece is interesting, fun to examine and enjoyable to be around. That's really all anybody needs to know: If it works, none of the conspiracy of interactions really matters.

### *Working in Place*

During the design phase, I had access to every bit of architectural information I needed and supplemented those documents with multiple site visits and scores of photographs I took from all sorts of angles at various times of day.

The space I was given was a 15-by-55-foot spot in the middle of the plaza between two tall office buildings, and I spent a considerable amount of time discussing everything with structural engineers to make absolutely certain my work would pass muster with the building department and conform to all applicable codes.

Beyond that, I had tremendous free-

dom to do what I wanted to do, but there was one stipulation: Right in the middle of the space where the piece was to go was an exhaust vent for the building's underground parking garage: It couldn't be moved and somehow had to be incorporated into the piece's design. Other than that, I was given free rein – a wonderful situation from an artist's perspective.

As I examined the existing space and studied plans for the remodeling of the building's entrance, I thought about the experiences I wanted people to have as they came and went and applied everything I observed and learned as the process moved along. I was pleased by the fact that, by nature, my work changes with different light and with movement of the observer and would therefore never become a monotonous mass that people would take for granted.

I was also pleased because the client wanted water to be incorporated into the work. This was perfect because its flow would provide an aural and visual feeling of tranquility to contrast with the noisy activity that occurs in busy spaces such as this one. At the same time, I didn't want the water itself to become monotonous





Many steps are involved in the process of preparing glass panels for these sculptures. We start by placing cut-glass panels in the furnace over a set of baffles selected to allow the glass to “slump” in the desired way. Once the glass cools, the surface is taped with intricate patterns in advance of sandblasting, then the tape is peeled away to reveal the final etched surface of the glass.

and add to the daily grind with vertical plumes or other effects that suggested activity rather than tranquility.

The time I spent on site also demonstrated that gusting winds would be a factor. Channeled through the deep canyon formed by the two tall buildings that encompassed the plaza, these breezes not only made sense of the sculpture’s title – *Ventus Vitae*, Latin for “Winds of Life” – but also let me know that I needed to consider splash-out in my design. (Also, as a purely practical consideration, I’ve learned through the years that water interacts with glass surfaces in such a way that scale can become a significant maintenance issue.)

As all of these ideas coalesced for me, I saw water as an indispensable means of creating a composition that would draw people right up close and make them feel comfortable. The result is a sculpture

that obviously can be enjoyed from a distance, but by using water as an attractive medium, I also established a link that draws passersby closer to appreciate the sound and reflections – and deeper into the complexities of the overlapping glass panels, their graceful contours and the interactive dance of their etched surfaces.

### *Purposeful Blends*

The interaction between light, glass and water never ceases to fascinate me and has become a recurring theme in almost all of my work.

In this case, I started with 12 slumped-glass panels held upright by stainless steel braces. These panels vary in height, with the central one rising to a peak of 11-1/2 feet.

(My original proposal was taller across the work’s full span, but there were concerns that it might interfere with the view

of the remodeled entrance, so I was asked to scale things down. I did so willingly, because an installation of this sort must work on a variety of levels within its setting and I wanted the piece to integrate with the ideas of the architects and the developers. Besides, I saw right away that the revised scale still worked well from all primary vantage points.)

The concept behind the peaked form had to do with the staging of perceptions for someone walking toward the building’s entrance: First they would see the water and the edges of the lowest glass panels – a sort of introductory glimpse. As that same person moves up into the plaza, the panels rise and guide the eyes upward, leading to views of the sky and the looming architecture of the buildings before tapering back down on the far side as the building’s entrance swings into view.



With this arrangement, I was thinking in metaphorical terms of lifting that person's spirits to the sky just before focusing his or her thoughts on the destination and tasks at hand.

The glass structure rises above a black-granite pedestal over which a very fine sheet of water flows, rippling and spilling into a lower basin. The movement of the water adds a measure of visual complexity to the overall composition as the panels and braces are captured in shimmering reflections and light bounces off the water's surface to dance among the panels.

The panels themselves were shaped in a furnace at my studio, where I take what starts as a very flat, rigid material and give it a variety of sensuous, undulating shapes. This process enables me to create harmonies and contrasts between the solidity of the material and the fluidity of its new forms – and play endlessly with the ephemeral nature of light.

At night, the piece is lit by 15 adjustable fixtures set beneath the water's surface. My goal here is to make the panels glow like strange, luminescent jewels that become a strong visual focus after dark. It's all part of my program of contrasts and changes,

Once all of the panels were ready, we set them up in the studio to finalize the arrangement and spacing. Once everything was aligned as desired, we started playing with positions for lighting, looking for spots and angles that amplified visual effects and the optical interactions between panels.





As we were completing our work in the studio, a crew was finishing its preliminary work on site. The coordination between shop and plaza was on the very highest level as we made certain all of the pipes and conduits and anchors matched perfectly so we could move our sculpture bases into place with relative ease. Next came the careful work of moving each of the heavy panels into place and securing them to the base system.







by day with ambient light infusing the piece from without, by night with a light from within emerging to do battle with darkness.

### *Based on Instinct*

I've been an artist for most of my life and take great pride and pleasure in teaching students about the possibilities of lives in the arts at Harvard Westlake School in North Hollywood, Calif. They often ask me how they should think about and approach the creative process, and although I can talk for hours about what I do, ultimately I have a hard time describing how my design ideas take shape.

Certainly, that process is different for every artist. I'm now 64 and I've been working with slumped glass for almost 40 of those years, and all I can say after giving it a lot of thought is that it's basically an intuitive phenomenon. I see and fully understand the materials I use, their capabilities and their limitations; I also know a lot about the forms I use and how far toward the limit I can press things and still get desired results. Beyond that, however, I follow my feelings.

This piece is a perfect example: Yes, it responds to the setting and the architecture and the needs of my clients, but when all is said and done, what you see is the product of my willingness to follow my creative instincts.

As I watched people respond to *Ventus Vitae* at the dedication ceremonies this past June, I found that some were capable of going to great lengths to impose some sort of narrative meaning on the piece. For people who simply must look at art in that way, I'm happy to oblige by providing the sort of complexity that rewards differing levels of appreciation and understanding.

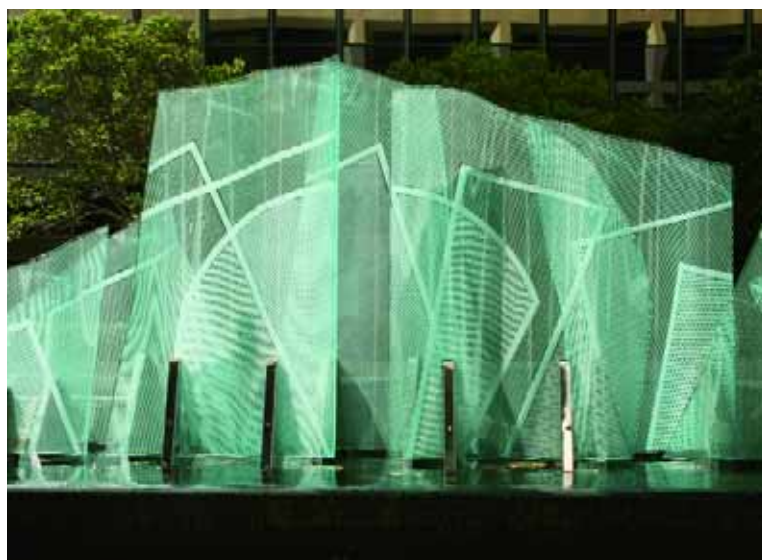
My belief, however, is that relatively few of the people who will walk by this sculpture daily will ever think of it in such probing, intellectual terms. Instead, they'll be thinking about what's going on at work as they arrive in the morning and about what's going on at home at the end of the day and will experience the aesthetics tangentially. That doesn't bother me at all, and I enjoy the additional stray thought that people in the building will start saying, "Meet me by the sculpture" in making lunch plans.

To me, that's enough, and I'll be content if they simply register the composition as something nice to look at as they pass by for a few brief seconds. If any of them happen to stare at it for a moment in sorting out a problem or planning a course of action, all's the better. On that level, it doesn't matter to me if they don't even recognize its presence in any sort of direct, immediate way.

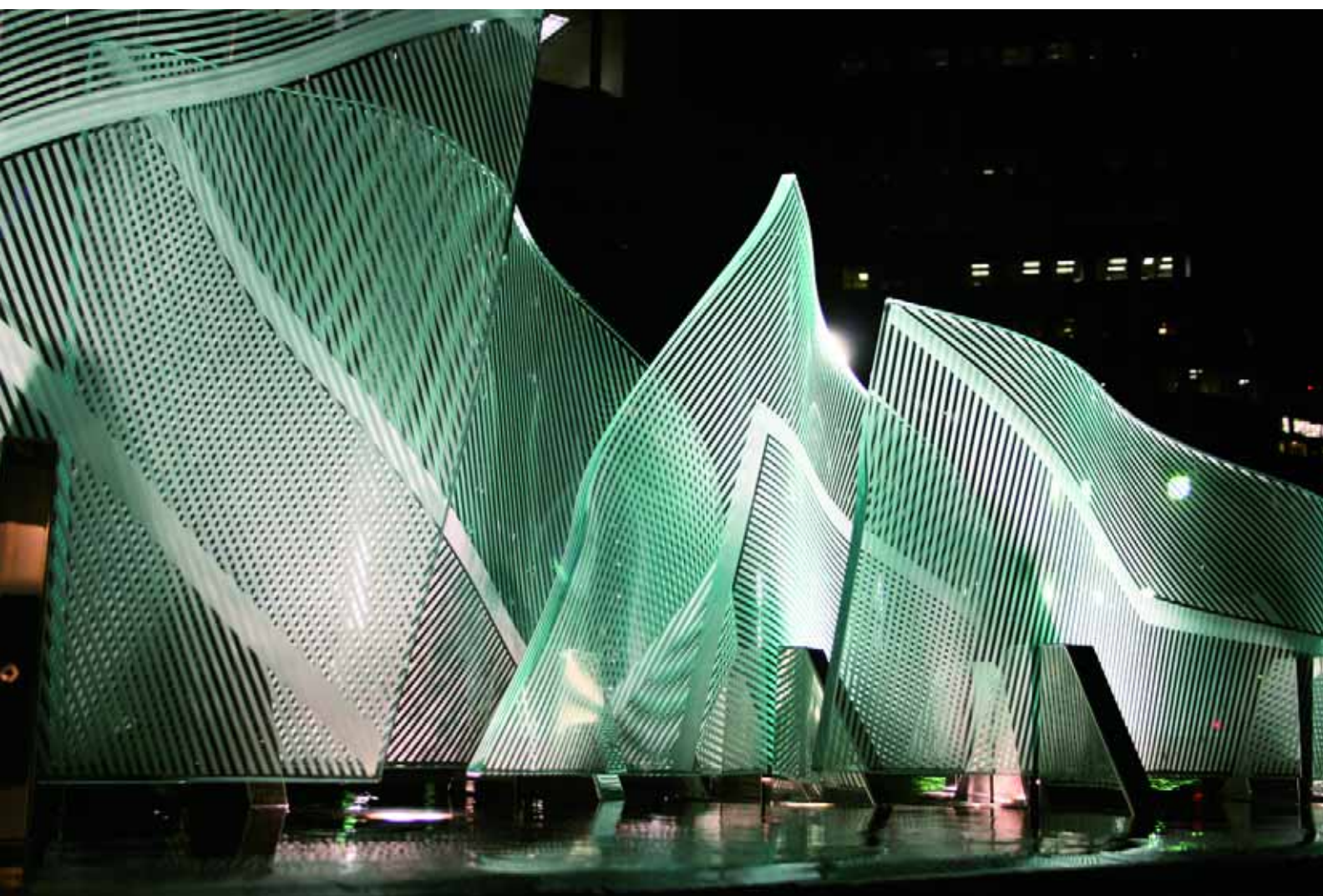
The point is, whether you're an art critic or someone who moves through the day somewhat oblivious to the immediate details of his or her surroundings, a work such as this will invariably become a defining component of its environment. Just as it speaks to people on multiple aesthetic levels, so, too, does it resonate in different ways that harmonize with and complement human behavior.

It's this context that was behind naming this work *Ventus Vitae*: It honors a great Los Angeles businessman, Harold Held, as being akin to the Winds of Life – always engaging and, depending on where one happens to be, the time of day and the season of the year, ever changing.





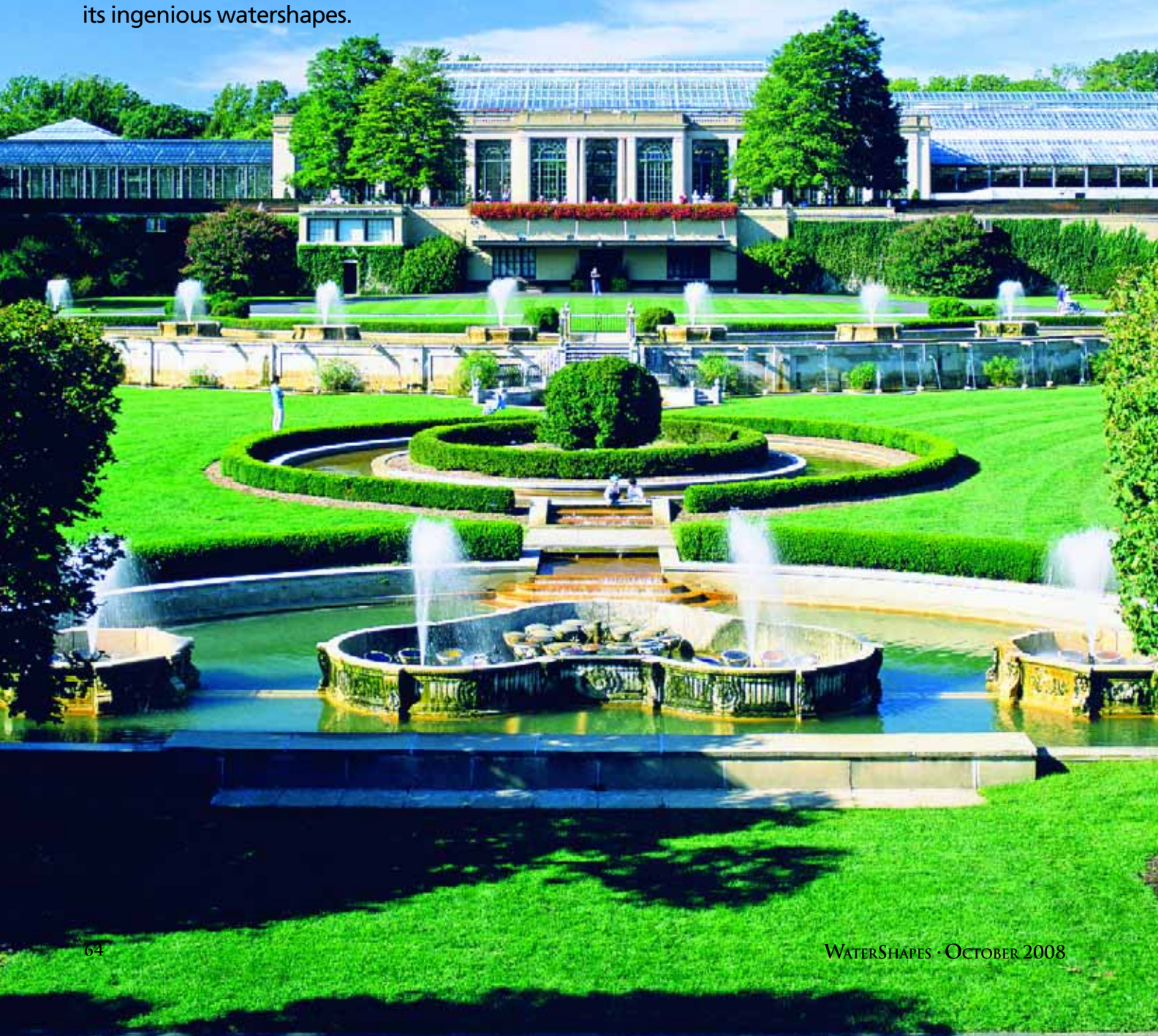
Once installed, the composition immediately made itself at home in the plaza, working its magic internally with rich moiré patterns and interactive reflections but also taking on and mirroring the character of the surrounding sky, structures, lines, lights and colors. And the show after dark is simply wonderful, with the well-placed lights giving *Ventus Vitae* a nocturnal life all its own.





# Garden Grandeur

Recognized far and wide as one of the world's greatest horticultural achievements, the 1,050 acres of Longwood Gardens offer a showcase for a dizzying array of plants, trees, architectures, themed garden spaces and elaborate fountains. In this special feature, watershaper, landscape artist and local resident Robert Nonemaker traces the history of this extraordinary property – with a special focus on its ingenious watershapes.





By Robert Nonemaker

*In* pre-Colonial days, the neck of the woods now known as Longwood Gardens was a hunting ground for the Lenni Lenape tribe, who prized the area for the richness of its game and timber.

Once the British arrived, the land moved under the control of William Penn, founder (and namesake) of Pennsylvania, who sold it to a Quaker family by the name of Pierce in the year 1700. The family farmed the property until 1798, when Joshua and Samuel Pierce began planting an arboretum and the space that would one day become Longwood Gardens was born.

Those of us living in the Philadelphia area have long enjoyed the privilege of having this resource in nearby Kennett Square, Pa. It's an amazing place, and I find my way there often because it seems that each time I go, there's something new to discover and fresh inspiration I can apply to my work as a watershaper and landscape designer.

Across its 1,050 acres, Longwood Gardens is spacious and open, but within its boundaries are a number of specific, well-defined garden spaces, attractions and utterly amazing fountains. Among many other things, for example, the property features a four-acre indoor conservatory, a 10,000-pipe organ, a total of 11,000 plant species – and dozens of wonderful watershapes seen at almost every turn.

Longwood Gardens may indeed be the finest display garden in the United States (if not the world), and the 825,000 annual visitors who make it the nation's most-visited garden complex certainly seem to agree.

### An Eye to History

Through the years, I've spent many pleasurable days tramping through Longwood Gardens, enjoying time with my children and exploring its diverse spaces. As a designer interested in expanding my own creative palette, I see the property as a living gallery – a workshop of ideas and an example of just how spectacular exterior design can be.

As it stands today, Longwood Gardens is largely the personal creation of industrialist and financier Pierre S. du Pont, who ran a family firm (DuPont Chemical Co.) that his great-grandfather started early in the 19th Century.

Pierre du Pont purchased the property in 1906 and took full advantage of the fact that the Pierces had already established the space as a horticultural treasure. By 1850, the estate was known to house one of the country's finest collections of trees.

At that time, it was also run as a public park – one of the first in the nation and a model that prepared the way for many future public gardens.

Once he took control, du Pont immediately began transforming the property into a realm of boundless creativity in landscape design. Drawing inspiration from the great pleasure gardens of





Europe, he also applied an uncannily progressive, nearly modern approach in combining old-world craftsmanship with state-of-the-art engineering practices and construction technology.

His hand is seen everywhere throughout the estate. In fact, the gardens and the fountains were all designed by du Pont himself: In addition to being a world-class horticulturalist, he was also one of the finest and most technically capable watershapers of his era.

His love affair with fountains had started when, at age 23, he traveled to the 1893 World Columbian Exposition in Chicago and was awestruck by its grand water displays. He fed the obsession further with a visit to Italy's Villa d'Este in 1910 – after which he reportedly said, "It would be nice to have something like this at home."

After another trip to Europe, du Pont returned to Longwood and began work on an outdoor theater fountain. Another trip, this one to Florence, inspired the Italian Water Garden. Both are fully operational to this day – and still use much of the original equipment and plumbing as well as the water-effect fixtures du Pont himself designed and installed during his lifetime.

All of this was accomplished by a man who had no relevant professional training: He taught himself what he needed to know about horticulture, landscape design and watershaping – and did so at the same time he also happened to be running one of the largest companies in the world and managing the family's vast philanthropic programs.

Most of du Pont's worksheets survive in the garden archives and have been studied by professional aquatic engineers who've determined that his design calculations were nearly flawless – an exactitude evidenced by the fact that systems he designed and installed work almost perfectly today, after 70 and more years of service.

These pages offer nothing more than a brief visual introduction to Longwood Gardens – enough, I hope, to build your appetite to come to Philadelphia and see them for yourself.



## The Theater Fountain

The theater fountain first took shape in 1914, but it has been considerably upgraded in the years since to serve as an even more admirable backdrop for theatrical performances, garden parties, concerts and other events designed to amuse du Pont's extended family, friends and business associates.

While he was alive, the theater was a showcase for du Pont's love of the performing arts and serves that purpose to this day. There are several choreographed fountain displays daily (the last time I visited, I caught a ten-minute performance set to a rousing rendition of "Stars and Stripes Forever"), and the current season includes full performances of the classic Broadway play "Oklahoma!" several nights each week.

During these spectacles, the fountains and colored lights (many of them originally installed by du Pont himself) are all running as performers move through their scenes and musical performances. The stage is encompassed by hedges to create a seating area for about 1,000 guests, and there's a full orchestra pit down front.

These fountains were revolutionary in their day. Indeed, the way they used compressed air to blast water to greater heights is the same technology that designers of the Bellagio's fountain displays applied to that spectacular Las Vegas fountain complex.







## Italian Water Garden

Inspired by his European travels in general and by Florence's Villa Gamberaia specifically, Pierre du Pont started construction of his own Italian Water Garden in 1925. At first, the fountains had only a few effects, but over time it came to boast more than 600 jets and nine separate displays shooting from six blue-tiled pools and 12 pedestal basins along their sides.

Du Pont's hydraulic calculations filled a good 50 pages, and even by today's standards he had a masterful understanding of the dynamics of watershaping. As designed, the system recirculates a maximum capacity of 4,500 gallons per minute and is able to shoot water 40 feet into the air.

Du Pont also employed visual foreshortening in this space, using this type of forced perspective to make the composition appear more perfectly proportional when viewed from the observation area. He did this by making the distant pools 14 feet longer than the near-by pools.

The result has an enduring beauty befitting the European masterworks that inspired it. The beautifully curving water staircase and the arched niches with their sculpted fountains and terracotta jars are particularly noteworthy, and the carved limestone details add a distinctly Italian flavor.



Photo courtesy Longwood Gardens



## The Indoor Children's Garden

More than a decade in the making, Longwood Gardens' new 4,000-square-foot Indoor Children's Garden triples the size of its predecessor and is designed to provide a safe, engaging area in which children can discover the joys of being in a garden.

Intricate waterfeatures are at hand to attract and maintain children's interest at almost every turn. A shooting jet rings a bell, for example, and is joined by spitting fish, a pond with rising steam, a cave with dripping walls and a gigantic, drooling dragon. In all, young visitors will encounter more than 17 waterfeatures, most of which are interactive.

This array includes the Central Cove, a tree-covered seating area with a pool and flower-shaped water jets, jewel-like mosaics and three animal sculptures that shoot streams of water into the pool. There's also a Rain Pavilion with water curtains on two sides that embrace kids with their gently falling water. (Up above is a glass ceiling covered by a thin sheet of flowing water.) A separate feature known as the Ramp also has a rain curtain, but in this case the space is augmented by a "glow-worm" leaping jet.

The drooling dragon is part of the Secret Room, which has a balcony overlooking the Central Cove. Nearby is the Square Maze, which has an obelisk at its center and walls accented by story tiles and jets of water. This is distinct from the Bamboo Maze, which offers a jungle of tree-size bamboo for children to explore and includes five visitor-activated waterfeatures accented by ornate bird sculptures.

Last but not least, kids will encounter the Grotto Cave and Tunnel, an area rigged with a shallow, fog-covered pool activated by water dripping from sculpted snakes coiled overhead.

Photos courtesy Longwood Gardens







## Special Thanks

I am extraordinarily grateful to the staff at Longwood Gardens for their help in preparation of this article. They provided me with all the information and photographs I could have wished for, and I particularly appreciate the time Colvin Randall, Longwood Gardens' historian and fountain choreographer, spent with me in a recent visit. He's a true gentleman and an invaluable resource.

—R.N.







## Tasteful Bites

The grounds at Longwood Gardens include a number of water-related displays described in brief here.

**Water Lilies:** Tucked into a protected courtyard is a set of pools filled with aquatic plants from all over the world, including more than 100 types of day- and night-blooming water lilies, lotuses, giant water-platters and various other aquatic and bog plants. The water in the 30-inch-deep pools is mixed with an organic black dye to slow algae growth and accentuate the appearance of the plants.

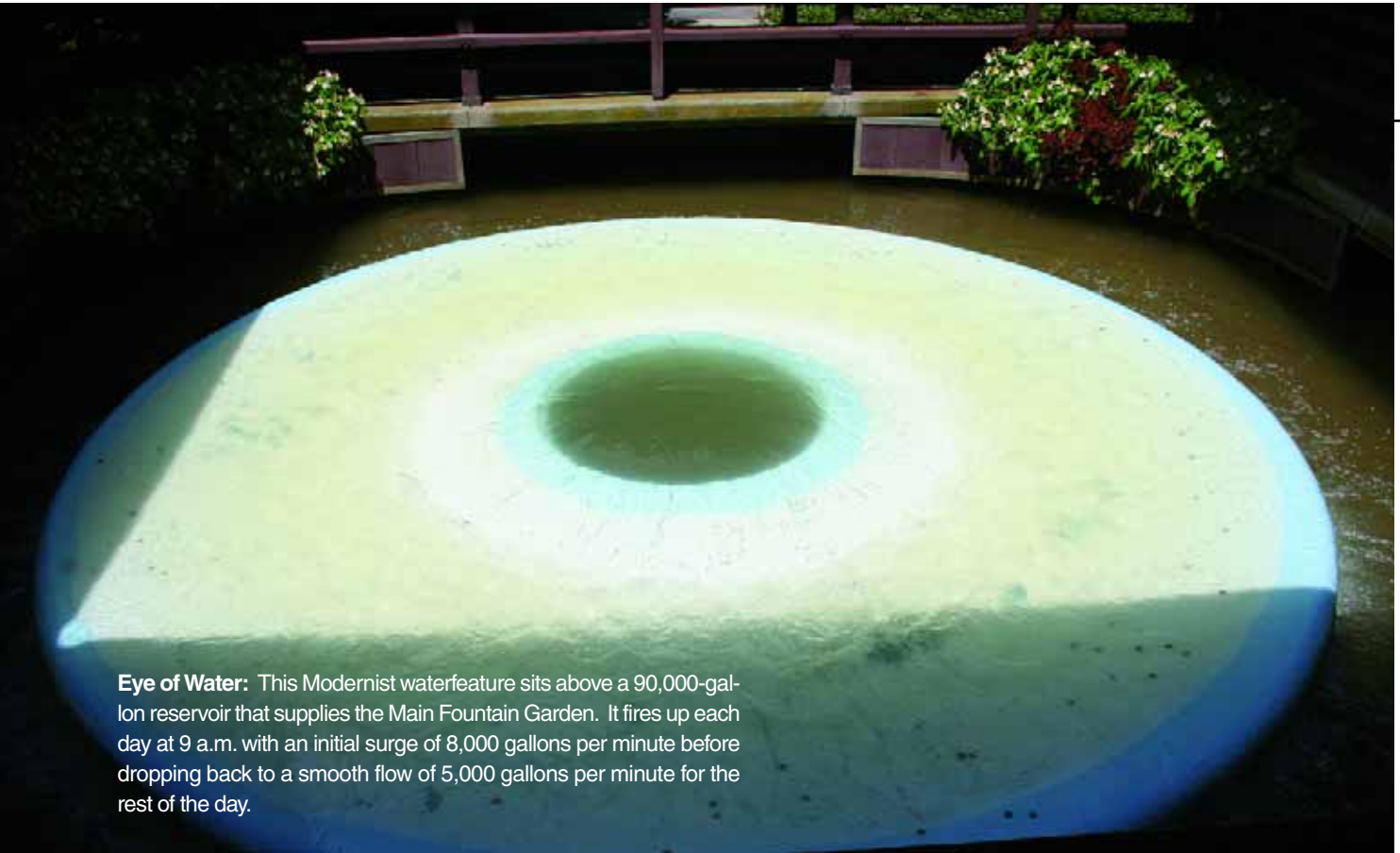


Photo courtesy Longwood Gardens

**East Conservatory:** Originally built in 1927 and 1928, this facility was the subject of a three-year renovation project and reopened in 2005. It was once known as the Azalea House and featured an outstanding collection of azaleas and rhododendrons. The new design draws on Moorish, French and Modernist styles in a way that is uniquely "Longwood" and features a waterfall and stream that bring sound and motion to the space.







**Eye of Water:** This Modernist waterfeature sits above a 90,000-gallon reservoir that supplies the Main Fountain Garden. It fires up each day at 9 a.m. with an initial surge of 8,000 gallons per minute before dropping back to a smooth flow of 5,000 gallons per minute for the rest of the day.



**The Cascade Garden:** Redesigned in 1992 by Brazilian landscape artist Roberto Burle Marx, the Cascade Garden takes full advantage of the vertical feeling of the adjacent greenhouse. Water splashes into clear pools here, while rich-textured plants cling to the walls and carpet the ground.



**Chimes Tower & Waterfall:** Stone unearthed during construction of the Main Fountain Garden was a partial source for the Chimes Tower & Waterfall, which was built in 1929. The tower has a 62-bell carillon, and water for its 50-foot cascade comes from a reservoir hidden beneath the Eye of Water.



## The Main Fountain Garden

It was in 1928 that du Pont began construction of his true masterpiece – a fountain display intended to rival the one he had seen in Chicago 35 years earlier. The 675,000-gallon-capacity pools and basins feature 380 fountain heads and spouts backed up by 18 pumps.

The original 1930 Worthington pumps and compressors are still in use today – a matched set of three 100-horsepower units that drive the daytime static displays at a rate of 4,000 gallons per minute. There are also 14 display pumps ranging from 20 to 75 horsepower: These are used to power the shows and move as much as 10,000 gallons per minute in combination with a pair of 40-horsepower air compressors that kick the water up to heights of 130 feet. (The last of the original compressor belts were replaced in 1999, having been in service for nearly 50 years.)

In total, there are 40 pneumatically controlled valves in the system, with 36 of them directly controlling the different show displays.

The Main Fountain Garden Fountain was first turned on in 1931, but it wasn't until several years later that the five-acre space was actually completed with the addition of tons of carved limestone architectural and sculptural elements imported from Italy. Rising above the architecture and hardscape, du Pont created an instant forest where a cornfield had stood, bringing in several hundred mature trees and shrubs to provide a green backdrop for the limestone detailing.

Late each fall, the fountain system is completely winterized: All pumps and display valves are disassembled in a painstaking process that takes several months. And great care is required: No parts are available for the pumps, so when any breakage occurs, replacements must be custom made by the facility's top-flight team of fountain technicians.

The first fountain displays were manually provided by an oper-



Photos courtesy Longwood Gardens

ator flipping as many as 200 toggle switches and 100 levers to actuate pumps and lights. The original control system is long gone, having been updated in 1965 and again in 1984 with computerized control systems that manage the fountains, the 674 colored lights and the occasional fireworks show with everything choreographed to flow along with classical music. More upgrades are coming: In years to come, these fountains will be the subject of a \$60-million restoration project.




Making these water displays come to life is a task handled to this day by systems devised and even installed by Pierre du Pont himself. Keeping the vintage equipment in top working order is a substantial job for the staff charged with fountain maintenance.







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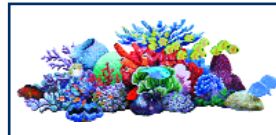
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**CAT CONTROLLERS** offers the CAT 1000, a digital controller that constantly monitors and automatically corrects pH. Suited for use with a salt chlorine generator and packaged with either a CO<sub>2</sub> kit or a peristaltic acid pump/tank system, the unit's ability to adjust pH automatically helps protect plaster and aggregate finishes while reducing the time involved in chemical maintenance. **CAT Controllers**, Rockville, MD.

## GLASS MOSAIC LINE

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**ARTISTRY IN MOSAICS** has introduced AIMglass, a line of glass-tile mosaics. Designed to complement the company's established ceramic-tile lines, the mosaics are made using high-quality, Venetian-style glass and are available in 13 standard designs as well as custom configurations. Each includes a wide range of colors in translucent glass, with highlights and accents in iridescent glass. **Artistry in Mosaics**, Fort Pierce, FL.

## RAIN CURTAINS

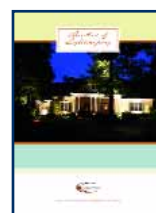
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**GREAT AMERICAN WATERFALL CO.** offers the Aqua Rain rain-curtain system. Made in lengths from 1 to 8 feet with 48 or 64 streams per foot, the housings come in different profiles suited to specific applications and are supplied in white, black, gray or tan. Several stream-pattern and flow-rate options are available, and the nozzle inserts are removable for easy debris removal. **Great American Waterfall Co.**, Hudson, FL.

## LANDSCAPE LIGHTING

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**COPPERMOON** has published a catalog on its line of copper and brass landscape lighting fixtures. The 12-page, full-color brochure covers bullet and accent lights; inground, underwater and deck lights; path and area lights; and transformers and accessories. All fixtures are available with polished finishes, but the copper models are also available in Antique Rust and Verde finish options. **CopperMoon**, West Point, GA.



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## PLASTIC FORMS

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**FRANK WALL ENTERPRISES** announces the availability of BendyForm, a flexible concrete-forming system. Designed for forming curves and tight radii on swimming pool decks and hardscape details, the product is made of a 3/8-inch-thick recycled plastic that is both lightweight and waterproof and can, like wood, be cut, shaped, attached, detached and reused many times.

**Frank Wall Enterprises**, Columbus, MS.

## VARIABLE-SPEED PUMP

### Circle 140 on Reader Service Card

**PENTAIR WATER COMMERCIAL POOL & AQUATICS** has introduced AcuDrive XS, a variable-frequency-drive pump for commercial aquatic facilities. Designed for increased, efficient performance in all applications, the pump saves energy, space, costs and time and features a built-in system that reduces harmonic noise and protects the drive. **Pentair Water Commercial Pool & Aquatics**, Sanford, NC.



## WALL FOUNTAIN

### Circle 141 on Reader Service Card



**HADDONSTONE USA** has introduced a wall-mounted version of its Bayeux Fountain. Inspired by Romanesque architecture and meant to serve as a focal point in a garden or conservatory, the self-circulating, cast-stone unit is 60 inches tall, stands out 19 inches from a wall, features leaf molding around the fountain bowls and has a surface texture similar to Portland stone. **Haddonstone USA**, Bellmawr, NJ.

## WATERFEATURE LEDs

### Circle 142 on Reader Service Card

**EASYPRO POND PRODUCTS** offers Super Bright Mini-LED Lights. Designed for use in waterfeatures, the rock-shaped fixtures are smaller than golf balls and easy to hide – but provide a remarkably bright output. They come in two-packs in red, yellow or clear colors with 15-foot power cables for no-tool connections. Up to 16 lights can be run off the system's 20-watt transformer. **EasyPro Pond Products**, Grant, MI.



Continued on page 78



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## DECK SUPPORTS

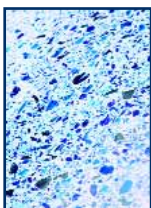
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**BISON DECK SUPPORTS** offers Vers-adjust adjustable deck supports. Made of durable, high-density polypropylene, the devices are impervious to water, mold and most chemicals and have a simple-to-use, fully adjustable pedestal design that saves installation time and labor when there's a need to lift decking, planters, benches or grating materials up within or around waterfeatures. **Bison Deck Supports**, Denver, CO.

## GLASS AGGREGATES

### Circle 145 on Reader Service Card



**AMERICAN SPECIALTY GLASS** offers glass aggregates for use in pool finishes. Intended to lend sparkle and depth to pool interiors, the faceted glass chips pick up and reflect sunlight in both terrazzo-style or exposed-aggregate finishes. Installation is identical to traditional exposed-aggregate materials with the added step of gently polishing the surface to remove any rough edges. **American Specialty Glass**, Salt Lake City, UT.

## SALTWATER CHLORINATORS

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**ZODIAC POOL CARE** offers the LM3 series of Clearwater Technology saltwater pool chlorinators. Designed to generate the right level of chlorine required to keep pools free of bacteria and algae, the units eliminate the need to purchase, store, add or handle chlorine; save clients time and money; reduce the need for water testing; and feature self-cleaning electrodes and chlorine-boost modes. **Zodiac Pool Care**, Vista, CA.

## COMMERCIAL FILTRATION

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**NEPTUNE BENSON** offers the Defender, a heavy-duty filter for waterparks and large aquatic attractions. The tank is welded inside and out with boss-type, flanged connections, includes lots of filter area in a compact space and can handle a flow of 3,000 gallons per minute in a single tank. The unit also has an automatic media-regeneration system and removes particulates to one micron. **Neptune Benson**, Coventry, RI.

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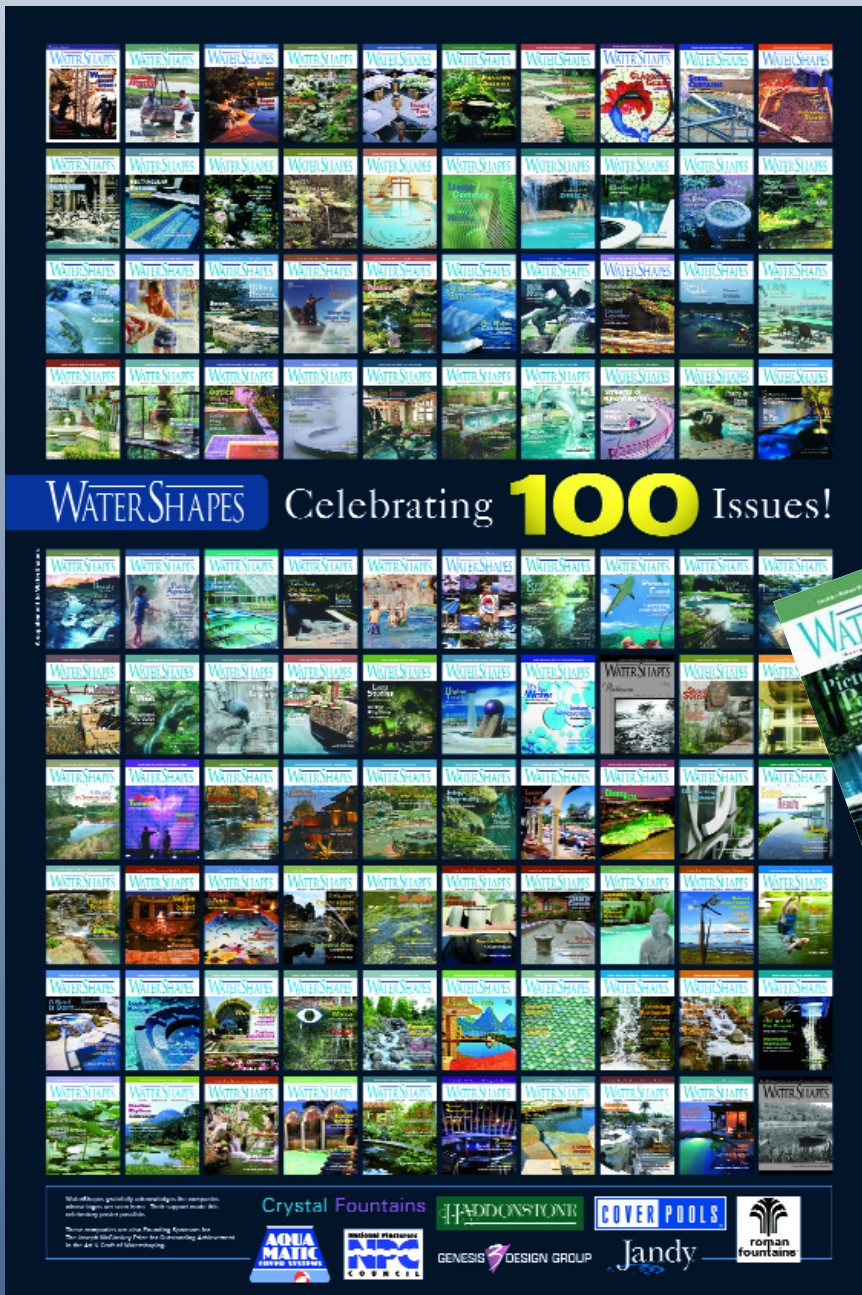
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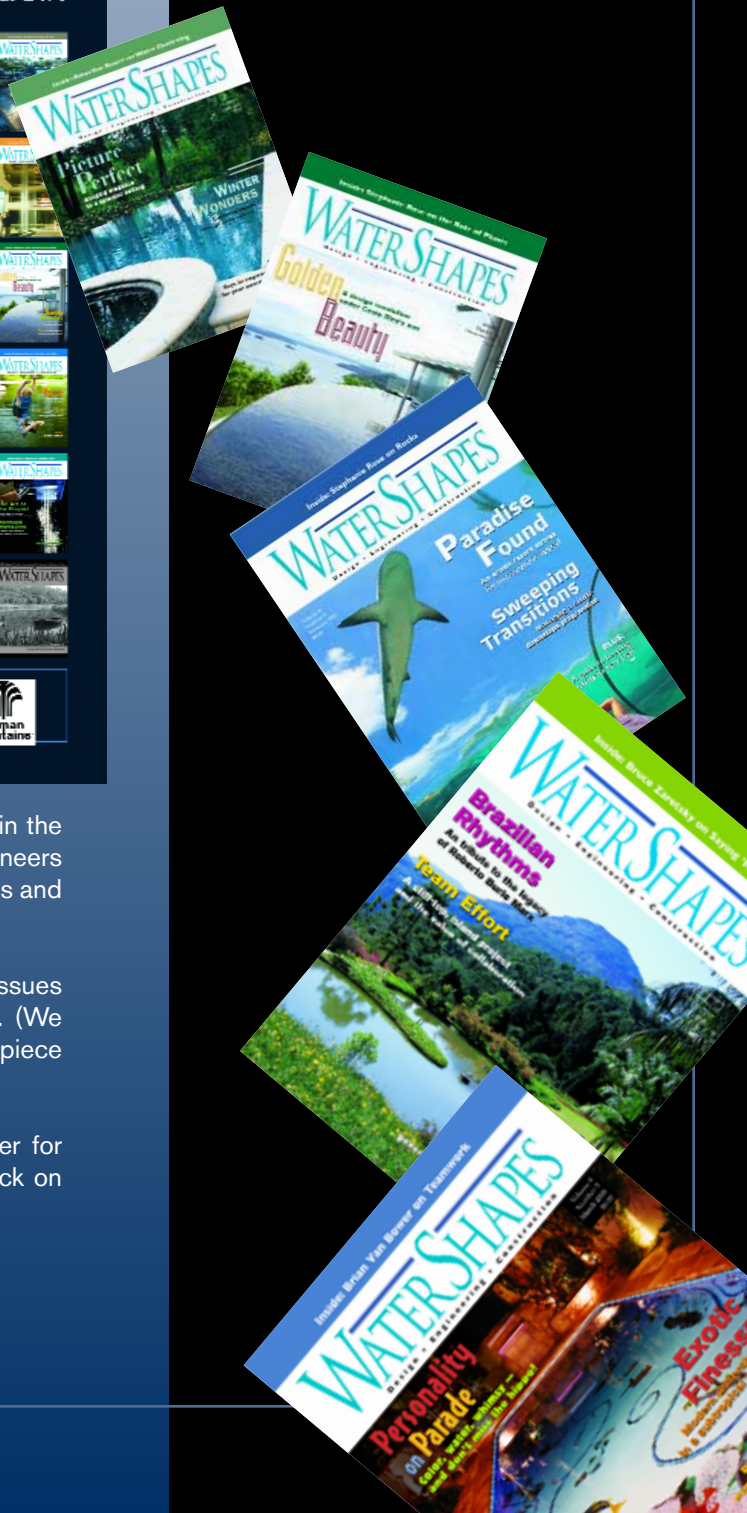


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A.O. SMITH has introduced an enhanced version of its eMod pool/spa motor technology that is safety vacuum-release system (SVRS) compliant without add-on devices. The maintenance-free unit features load sensors that detect any changes in the operating conditions of the pool (including clogged drains as well as suction entrapments) and shut off the pump motor in less than three seconds. **A.O. Smith**, Tipp City, OH.

## BLOCK WATERFALLS

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VERSA-LOK RETAINING WALL SYSTEMS has added water features to the list of capabilities for its concrete blocks. Made using a unique pinning system that allows for maximum design flexibility and available with traditional split-face or weathered textures, the blocks can be arranged to form waterfalls complete with curves, corners, step details and more. **Versa-Lok Retaining Wall Systems**, Oakdale, MN.

## PORTABLE UMBRELLAS

Circle 148 on Reader Service Card



SHADE SYSTEMS has added Café Umbrellas to its line of shade products. Intended for use around pools or in waterparks and other commercial or residential gathering places, the devices shade 10-by-10-foot areas and are portable, so they can be moved where they're needed or packed up for storage with ease. They come in a variety of colors, and there's an optional water-repellent fabric. **Shade Systems**, Ocala, FL.

## FIBEROPTIC POND LIGHTING

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ILLUMINFX offers complete fiber optic lighting kits for ponds and water features. Designed to deliver ample illumination using fixtures as small as a pen cap, the kits cast bright, brilliant light on waterfalls, streams, rockwork and aquatic plants and include fixtures as well as illuminators with four-color wheels, pre-assembled fiber optic cable harnesses and installation and maintenance manuals. **IlluminFX**, Rochester, NY.

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## ELECTRONIC-IGNITION HEATER

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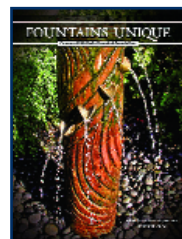


RAYPAK offers the Digital heater for pools and spas. Featuring a microprocessor-based thermostat and a digital display with push-button control and a constant temperature readout, the unit also has an onboard diagnostic system that shows the location of any problems for easy service; is compatible with most remote-control systems; and comes standard with an intermittent-spark ignition. **Raypak**, Oxnard, CA.

## FOUNTAINS KIT CATALOG

### Circle 152 on Reader Service Card

FOUNTAINS UNIQUE has published a catalog on its line of fountain kits and parts. The 20-page, full-color booklet covers freestanding and wall-mounted kits that contain all components needed to complete a fountain – everything but masonry materials and fill-up water. The parts and accessories include masks, scuppers and bowls that can be used in the construction of custom fountains. **Fountains Unique**, Laguna Hills, CA.



## GROTTO/SLIDE STRUCTURE

### Circle 153 on Reader Service Card



REPLICATIONS UNLIMITED has introduced a lightweight grotto/slide combination. Made from a durable structural polyurethane composite of the sort long used at leading theme parks, the engineered system components can be installed without special footings, are cast using molds taken from authentic rock formations and have finishes designed to last through decades of use. **Replications Unlimited**, St. Louis, MO.

## HEAT PUMPS

### Circle 154 on Reader Service Card

AQUACOMFORT TECHNOLOGIES now offers Turboguard heat exchangers in its line of pool heaters. Designed for more efficient heating with greater corrosion resistance, the devices feature twisted tubes instead of the typical round tubes – meaning greater surface area for better heat transfer in a more compact space and more turbulence to help eliminate scale and corrosion. **AquaComfort Technologies**, Sykesville, MD.





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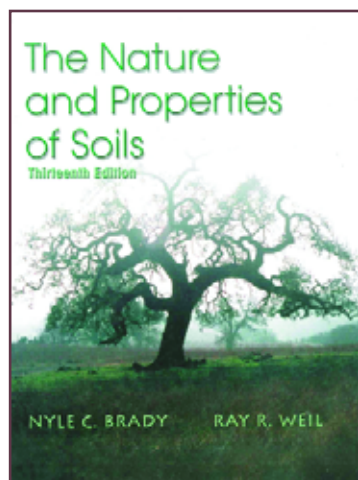
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By Mike Farley

## Into the Ground



Given the fact that swimming pools and most other watershapes are placed in the ground, I've long been of the opinion that it's incumbent upon all of us who design and build them to have a basic understanding of soils science and geology. As has been stated in this magazine and elsewhere more times than I can count, the nature of the ground we build in (or on) has *everything* to do with the structures we design.

Indeed, the composition and structure of the soils we encounter may well be the most fundamental of all the technical issues we ever face. Simply put, a watershape that's properly engineered in light of prevailing soil conditions will endure, while one that isn't runs a significant and often inevitable risk of structural failure.

Relatively few of us who read *WaterShapes* are civil engineers, soils scientists or geologists, but all of us in the watershaping trades should at least have a conversational knowledge of the language those professionals speak and be keenly aware of the issues they weigh as they evaluate our job sites.

Knowing this, I have for several years been seeking a resource that addresses the fundamentals of soils. That search was satisfied recently when a friend of mine passed along a recommendation he'd received from a landscape architecture professor at Oklahoma State University to pick up a book called *The Nature and Property of Soils* by Nyle C. Brady and Ray R. Weil (13th edition, Prentice Hall, 2002).

True, it's a college-level textbook, and volumes like this one seldom (if ever) make for scintillating reading, but its 950 pages encompass an immense body of knowledge on all aspects of soils and its 20 chapters offer an extraordinarily detailed, painstakingly comprehensive look at what can only be considered an all-important set of topics.

The utility of this book cuts in several valuable directions depending on the focus of your work. It does an excellent job of defining soil formation and types,

for instance, and discusses regional distinctions with authority – including the fact that soil conditions can change radically within very short geographic spans. It's truly a cautionary note for anyone who proceeds without soils studies simply because they "know what everything is like in this part of town."

There's great information about soils mapping and descriptions of general regional tendencies. In grassland areas such as the plains of Texas (where I work), there are mostly sandy soils that are often extremely alkaline. In forested areas such as Tennessee, by contrast, the soils are generally acidic and contain large amounts of organic compounds, while over in California builders often encounter fiercely expansive clay soils. Each of these generalizations has a huge influence on the way projects come together in these areas.

The book also carries terrific information about the structural qualities of soils, including their expansive qualities, moisture-bearing characteristics and a broad range of other key factors such as soil layering, movement and compaction. There's also wonderful insight into identifying soil types by touch and feel.

Unsurprisingly, one of the primary focuses of the book is on using soil as a growth medium, but I find it hard to believe that anyone would find much more value in this book than watershapers. And if you happen to be a landscape architect or designer, the book supports your needs on all levels, particularly if you are interested in learning all you can about developing sustainable softscapes.

One critical point: As wonderful as this resource is, just reading a book doesn't offer a complete education and in no way replaces the need for calling in the experts to conduct proper soils tests or engineer structures accordingly. If your goal is to converse fluently with those experts, however, I suggest that this book may well be the key to cracking the code. **WS**

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





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