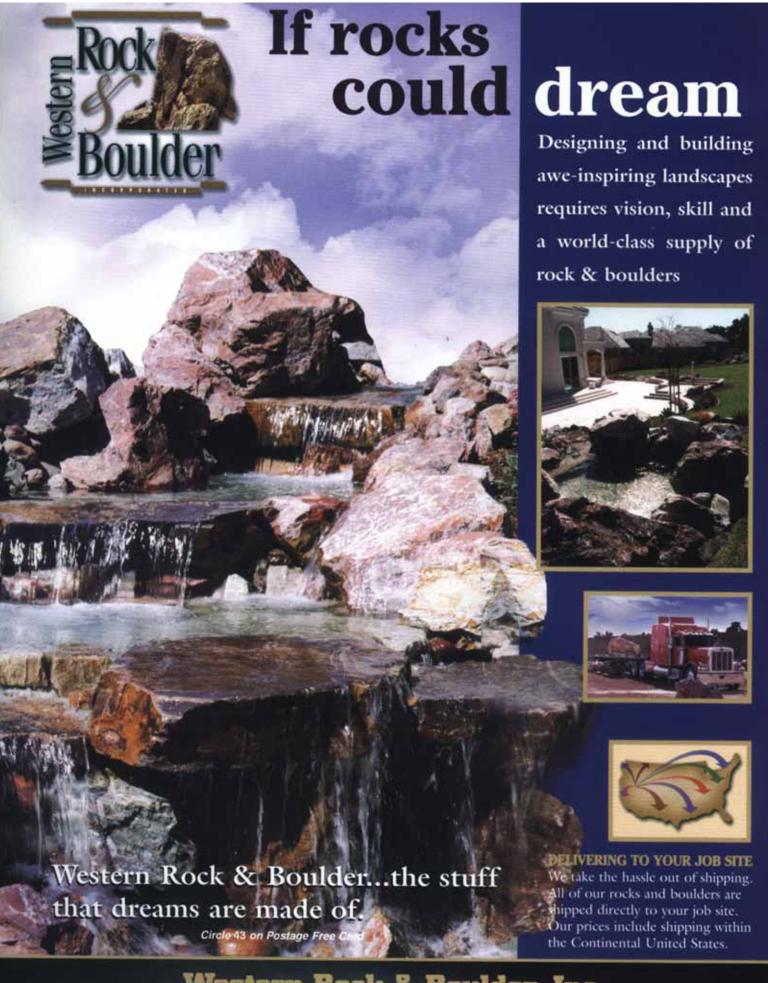
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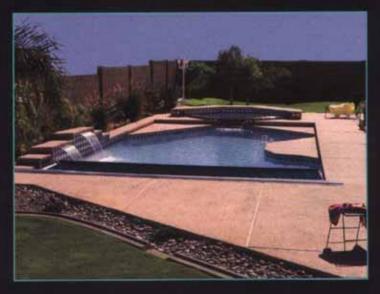
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CONTENTS NOVEMBER/DECEMBER

34

FEATURES



34 Organic Artistry

By Helena Arahuete

John Lautner —

and a role for watershapers

46 Stretching Water

By Paul L'Heureux

Techniques for adding height to laminar flows

54 International Flavors

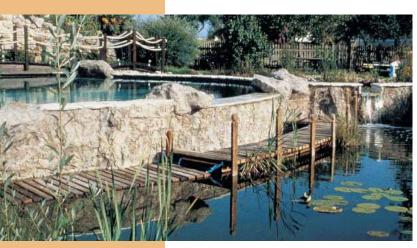
A WaterShapes Pictorial

Checking in on work being done around the world

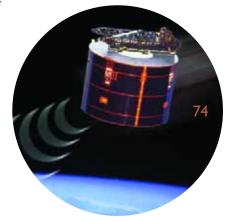
74 An Aerial Assist

By Paul Benedetti

Positioning technology and the mastery of difficult terrain



54



Volume 2 • Number 9 • November/December 2000

Columns

6 Structures

By Eric Herman

The value of looking 'over there'

10 Aqua Culture

By Brian Van Bower

Cultivating a real hunger for knowledge

22 Natural Companions

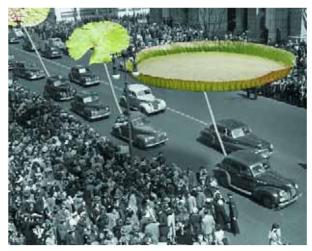
By Stephanie Rose

Working with water lilies on an accessible scale

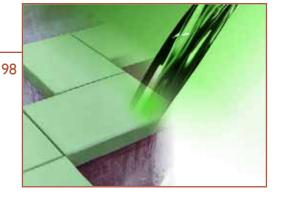
98 Detail #2

By David Tisherman

Soft statements with poured-in-place coping



22



DEPARTMENTS

8 In This Issue

80 Of Interest

90 Advertiser Index

90 Of Interest Index

On the cover:

Project by Antheunis, Westmalle, Belgium Photo courtesy National Spa & Pool Institute

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By Eric Herman

Across The Waters

For all the comments I've heard through the years that there are too many swimming pool trade shows and that the National Spa & Pool Institute's big national show isn't all it should be, I'm among those who believe that NSPI's International Expo is nonetheless an indispensable event. And I say so for one reason: It's the only U.S. watershaping show that can legitimately claim to be *international* in scope and attendance.

Through the years, NSPI has done a fine job of forging connections between U.S. builders and their counterparts abroad, both through its annual Design Awards competition (even though, alas, our builders don't directly compete with those from other countries) and by virtue of the fact that it aggressively markets its Expo worldwide.

When you get right down to it, the Expo is the only chance mainstream U.S. watershapers have to interact with substantial numbers of their colleagues from other parts of the globe. To my way of thinking, this makes the show invaluable.

In that spirit of reaching out to faraway lands, you'll find in this issue a pictorial on residential and commercial swimming pools from across the seas, a sampling that starts on page 54. You may notice that we've momentarily set aside our usual descriptions of design issues and engineering solutions in favor of letting these beautiful images speak for themselves – which I think they do, eloquently. Enjoy!

tt

We quietly introduced a new column in our last issue: "Details" by David Tisherman.

What can I add to introduce our friend and colleague Mr. Tisherman? No more than that he is as talented as he is – well, "opinionated" – and that he has played a formative role in the magazine through its first two years.

I make no bones about this: David has a capacity to squeeze more creativity and value into square inches of his projects than lots of other builders fit into a whole year's worth of work. In fact, he's operating at such a level that we probably could consider profiling one of his projects in each issue.

Short of renaming the whole magazine in his honor, we decided to offer him his own column instead. What you'll find in each is a single detail you can adapt or apply directly in delighting and dazzling your clients.

ш

Finally, you may have noticed in our last issue (and this one) the absence of "Things Electric" by Jim McNicol. Jim's been a bit under the weather the last couple of months and decided to take a break. I'm happy to report that he is on the mend and will be back early next year to continue his insightful discussions of all things electric.

- Eu Herman

Water Shapes

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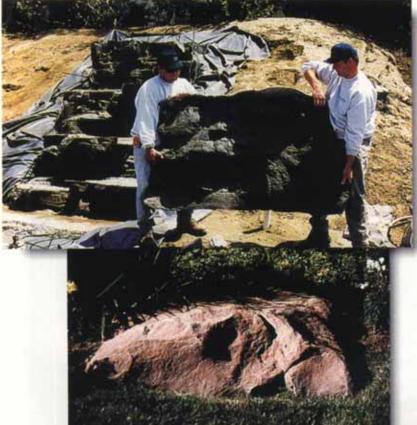




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IN THIS ISSUE NOVEMBER'S WRITERS

Helena Arahuete is the principal architect at John Lautner Associates/Helena Arahuete Architect, an international design firm based in West Hollywood, Calif. Born in Belgium and raised in Argentina, Arahuete graduated from the University of Buenos Aires and began her professional career with architecture, engineering and construction firms in Argentina. She came to the United States and began work with Lautner's world-renowned firm in 1971. She served as project architect for many of the firm's projects and was Lautner's associate architect at the time of his passing in 1994. Arahuete continues to design

custom homes for clients, mostly in the Western United States. Many of her designs have been featured in architectural publications. She is routinely invited to give lectures by universities and institutions, including (among many others) the University of California at Los Angeles, Taliesin, the American Institute of Architects and Genesis 3's Level Two Design School.

Paul L'Heureux is president of Crystal Fountains, a waterfeature design, engineering and construction firm based in Toronto. Working as a team of experienced architec-



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tural waterfeature specialists, the Canadian firm produces high-end commercial fountains and waterfeatures around the world. A "career world traveler," L'Heureux has more than 20 years' experience in business management, export marketing and process improvement.

Paul Benedetti is founder and vice president of Aquatic Technology, a custom swimming pool design/build and service firm based in Morgan Hill, Calif. Benedetti began his work in the industry in 1991 as an independent service technician. He quickly

moved into major repair and remodeling work, eventually transitioning into original designs and construction work. He now builds extremely high-end residential pools for upscale clients in Northern California's Silicon Valley region and offers his design services to architects and landscape architects. Benedetti's firm continues to service pools, including all of those he has built. He is a member of the Independent Pool & Spa Service Association and the National Spa & Pool Institute and is an associate member of the Genesis 3 Design Group.



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Hemispheres of Interest

By Brian Van Bower

've racked up my fair share of professional accolades and honors in the past 20-odd years. I suppose if I paid too much attention to all that stuff, I might be tempted to think that I know almost everything about my industry – but I wouldn't dream of harboring that thought, because the amount of stuff I don't know has always impressed me a lot more than the pile of stuff I do know.

That simple recognition has made me hungry for knowledge and new experiences and has influenced the way I've always approached my life and my work. In fact, I shudder to think of all the things I'd have missed along the way if I had ever decided to stand pat with my stock of knowledge.

WALKING THE TALK

What I'm getting at here is not just the value of education in a trade – an important concept I've written about before and have watched develop through the years. No, what I'm talking about is an idea that precedes all of that: The notion that to become truly educated, to open up fully to the potential for learning, we all must first accept and explore the notion that there are many things we do not know.

That may sound like an absurdly basic idea, but it sure seems to be tough for some people to accept. In my own experience, I've known lots of people in the watershaping business (and in other walks of life as well) who honestly act as though they know it all. Or, at least, they seem to believe they know *enough*.

When it comes to professional knowledge, I guess I can understand why some people might feel that way. When you spend a lifetime working at something, have made good money at it and keep receiving positive reinforcement of your creativity and excellence, you might be tempted to think that you've mastered the game. When you're told that you're an expert over and over and over again, it's tough not to start believing what you're hearing.

But as my brother and I always used to say when I was growing up, "If you're not moving forward,



To become fully educated, we all must first accept and explore the notion that there are many things we do not know.

you're dancing backwards." Even when I was a kid, that made sense to me, but I didn't completely appreciate the power of the statement until I was an adult.

A key moment for me came in the early 1980s, when I had been hired to do an AM-radio talk show called "All About Pools and Spas." It was exciting and a little bit scary: I'd never set out to become a radio personality, but I've never shied away from being the center of attention, so it seemed like a good idea at the time.

Early on in the process, however, I saw that I didn't have enough ready-made topics to carry a weekly radio show. I quickly exhausted my store of knowledge – and I realized that if I wanted to continue talking to an audience, I'd have to find new things

Continued on page 12



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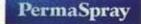
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to discuss. In other words, I had to expand my set of parameters, and learning new things was the only pathway I had that would let me stay in a spotlight I was beginning to enjoy.

So I started learning about things like water exercise, synchronized swimming, entertaining by the pool and outdoor cooking. I met experts from other fields, including Dr. Jane Katz, a physical fitness expert who since has gone on to make several presentations at poolindustry trade shows.

Once I opened up to my own ignorance and began using it as a springboard for areas of inquiry, we started having some real fun on the program. I brought in barbecue experts, authorities on ponds, landscape designers, chefs – and we even talked about ways you could cover your pool to use the space as a dance floor.

I quickly recognized that these forays outside my comfort zone not only saved my bacon on the air; they also fueled a desire to learn even more. All of a sudden, the things that were previously blanks to me became sources of tremendous interest and excitement. In short order, I became hooked on learning.

GREAT ADVENTURES

I ended up doing that radio show for four years. After a time, however, I had the growing sense that I was burning out, so I asked the station manager for a hiatus to let me recharge my batteries.

I stepped away from the microphone and figured I would wait to see if the urge to go back ever hit me. It was only a few months later when the station manager called to ask me to come back —but this time to do something completely different.

He told me that he wanted me to host a program on food and wine. I quickly pointed out that although I love eating good food and drinking good wine, I was by no means an expert. That, he said, was what he was counting on and that the station wanted to do an "everyman's" guide to food and wine. They didn't want some well-known authority on the subject; rather, they wanted someone just like me.

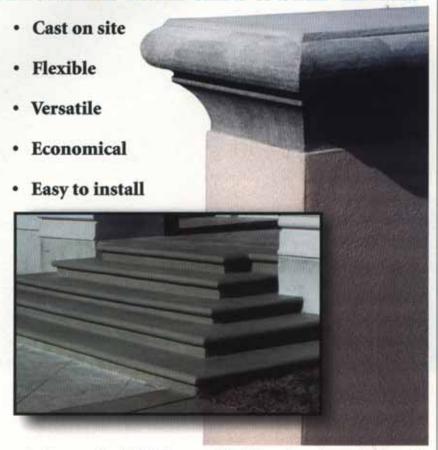
So I teamed up with my brother, and we did "The Good Life," a show that gave us liberty to explore the world of fine dining from the perspective of two guys who didn't know a lot more than the audience.

The show was a success – and a whole lot of fun because we were able to share with the audience our love of great edibles and potables and the joy of discovering the richness of the culinary world. It all worked because we began with the premise that we didn't know everything (or, in some cases, anything), and that the journey itself was fun and interesting.

This was exactly the spirit that drove David Tisherman, Skip Phillips and me to form Genesis 3, by the way. We came together with the realization that we all

Continued on page 14

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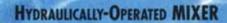
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Continued from page 12

were ready to go on a voyage of discovery. It wasn't so much that we wanted to teach what we knew as it was that we wanted to learn ourselves and share that experience with other people in the watershaping business. So we formed an organization and stage schools where we bring in all sorts of experts and dive into the richness of thought and information

that's out there just waiting for us all.

Not without some bias, I think our schools are a great place to learn – but they're just one example of the resources you can tap into. In fact, I'll go so far as to say that if your receptors are open, the pathways to knowledge are both infinite in number and limitless in scope.

HOOKED ON EXPLORATION

Everything I'm talking about here certainly applies to professional education, but it's much more than that. In fact, what I'm discussing is really a way of life.

In that respect, curiosity and exploration are sort of like exercise: It can be tough to get started, but once you do, you *want* more, can *do* more and will *strive* for more. And it builds, so it's always gaining momentum. I hesitate to say so, but it's like an addiction – just let me add quickly that this is a fix that's safe to experience over and over and over again.

The desire to learn and have new experiences *does* mean that you have to become comfortable with being in uncomfortable situations. That is, new experiences are often very unsettled and unsettling, and adventures require you to put yourself in situations in which the outcome is not entirely predictable.

There is no better place to find this kind of stimulation than in a foreign country.

My first big taste of this came two years ago, when I went to Lyon, France, to give a presentation to builders and designers of swimming pools. My good friend Bill Kent of Horner Equipment had arranged for me to lead the seminar, and I must admit that I was a bit intimidated. I'd always heard that the French could be cool toward and even dismissive of Americans, and I thought I had legitimate reasons to be anxious about standing up in front of a bunch of people from a different culture on their home turf.

I've mentioned this trip before in this column, and I bring it up again here because it's a perfect example of what I'm talking about. For starters, I learned a ton by being exposed to European ideas about hydraulics and equipment-set layout and design. I reciprocated by sharing what I knew, and, judging by the response, I managed to expose the audience to some new ideas.

For example, the French use sand filters almost exclusively, which seemed somehow behind the times to me. By the same token, they were way ahead of the curve when it came to details such as vanishing edges,

Continued on page 16



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Continued on page 14

perimeter overflows and integrating water into hilltop settings.

I also found out that many people over there would rather let a pool turn slightly green than fill it full of chemicals. That was news to me, this French notion that a little algae is a lot better than too much chlorine. I can't endorse the approach, but I must say that being exposed to their perspective has certainly helped me moderate some of my views on water treatment.

Overall, it was a highly positive experience, and I was happy to find that my preconceptions about the French were misplaced. To be sure, I didn't agree with everything I observed or heard, and I'm sure I left a few French builders shaking their heads at my quaint American ideas as well. But there can be no question that my experience in Lyon and, indeed, the temporary discomfort that came with the uncertainty of the situation, served to broaden my horizons. (It also helped Continued on page 18

You Never Know

Allow me to share a brief story about one of our Genesis 3 students as an illustration of some key points I make in the accompanying column.

In this issue on page 74, you'll find an article by Paul Benedetti. Paul is a graduate of Genesis 3's Level One and Level Two Design Schools and has always been tremendously generous in letting us know that his experiences at the schools have changed forever the way he approaches watershape design and construction.

At the Level Two school Paul attended earlier this year, we featured a presentation by a Feng Shui master knowing full well that this was going to be way off the beaten path for many participants. We were anxious to see and hear their reactions to the discussion.

Paul was definitely one of the skeptics – not rude or anything like that, but he certainly let us know that he didn't see the relevance of this ancient Asian art of spatial relationships, shapes and spiritual forces as it applied to building pools and spas.

Fair enough, we thought. One of the things you look for in staging educational opportunities is this sort of honest feedback.

Recently, however, Paul seems to have had a change of heart: He sent me an e-mail describing an experience he'd had with a client who'd recently relocated from Asia to Northern California, reporting that while they were discussing various design details of a big residential project, something clicked: The discussions evoked memories of the Feng Shui master's presentation, and Paul offered the thought that one of the features being discussed strengthened the Feng Shui of the project.

The client was impressed – but probably not as much as I was by Paul's change in thinking. It's important to point out that he did not present himself as a Feng Shui expert, but it's certain that his acquaintance with the subject had an impact on the clients and elevated Paul and the value of his ideas in their minds.

As he put it in his e-mail, "You never know when something you learn will be put to use in the future."

-B.V.B.





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Continued from page 16 that I was able to enjoy the great cuisine of France while I was there.)

UP ON DOWN UNDER

Just recently, I had the pleasure of attending another pool and spa show overseas, this one in Australia. It took place just before the Olympics – an amazingly exciting time to be in the great land down under.

I made the trip with David
Tisherman and Skip Phillips at the invitation of Splash, a magazine linked to an Australian trade association and its show. Again, I made the trip not knowing what to expect.

The show was held outside of Brisbane in an area called the Gold Coast, and just getting there was a revelation. I'd never given much thought to the physical size of Australia. In fact, when we were planning our trip and considering some of the places we'd like to visit, it was obvious we were thinking of it as being about the size of Texas,

maybe, and relatively easy for travelers. Well, we were wrong: The place is truly massive, and just planning our itinerary became a lesson in the vastness of the Southern Hemisphere's geography.

When we finally arrived, we were greeted warmly. On our first day, my cohorts and I attended a cocktail party where we were immediately welcomed by several conferees who told us that their main reason for attending the event was to see our presentation. This made the organizers extremely happy, of course, but it definitely pushed up the pressure as far as our seminars were concerned.

Again, the discomfort led to learning. The Australian watershaping trade is similar to what we have in the United States, but there are lots of distinctions, too. As it turns out, the market that led the way with pebble finishes and saltwater chlorine generation also seems behind the times in other technological areas, and these were points we discussed at length.

In that way, it was a very different experience from the one I had in Lyon. Over in France, there was a definite reluctance on the part of some conferees to ask questions, interact and risk revealing any gaps in their knowledge. In Australia, however, those who came to the conference just couldn't get enough: They asked question after question without end.

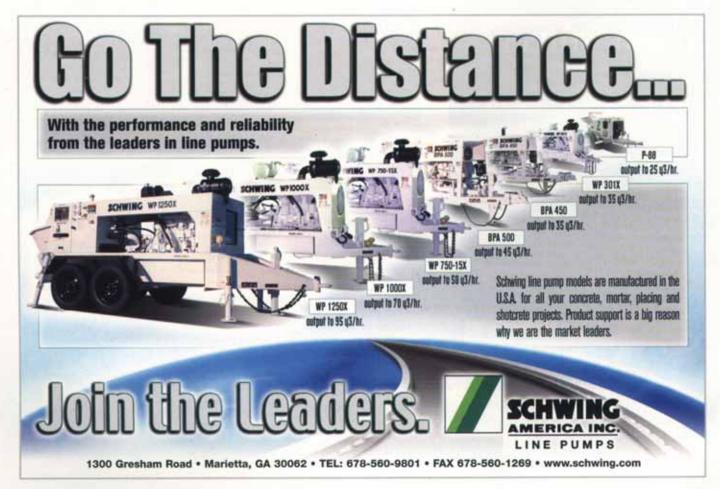
In fact, it was as though we had walked into a convention of fellow curiosity junkies: I've never seen a group so eager to learn.

Suffice it to say that our sessions were a smashing success and we're already planning a return engagement. I'm not sure when that'll happen, but I know that when I go again, I'll be traveling to a place where the appetite to learn is as big as the continent itself.

OPEN EYES, OPEN MIND

The point of this travelogue is not to urge you to book a flight to France or

Continued on page 20



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Australia, but to point out that the world we live in is full of people, places, knowledge and ideas to which we seldom think about exposing ourselves.

Yes, opening yourself to what you don't know will help make a trade show or professional seminar more valuable. (In fact, I'd say that if you're not open, you might as well not bother to show up.) But far beyond anything to do with your job, accepting all things unknown as golden opportunities to learn makes the experience of being alive more satisfying.

Back in the '60s, there was lots of talk about "turning on" and the concept of a "greater awareness." Those ideas probably get shortchanged these days because of their association with people not engaged in practical pursuits. The fact is, however, that awareness is tangible. It can yield income, it can yield satisfaction, it can yield fun — and it can yield a desire for even greater awareness.

And you don't have to travel halfway or all the way around the world or tour the country in a magic bus to find this kind of awareness. When I think of the information that's available in libraries, museums and on the Internet, it's just mind-boggling. We truly do live in an Information Age, and I believe we are among the luckiest people who've ever lived.

Ultimately, it doesn't matter where you indulge this curiosity about the world around you: Just go out and exercise it. It doesn't really matter where or how you feed that curiosity: Just feed it! New avenues of discovery and unanticipated paths of inquiry both professional and private will reveal themselves to you as you move forward.

The first step, however, is up to you.

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Water Lilies on Parade

By Stephanie Rose

o you read my last article and were so excited about Amazonian Water Lilies that you'd decided to talk some clients into going for it. But alas, after measuring their yard, you recognize that you won't have enough room to accommodate the gargantuan watershape you'll need to host such an immense plant.

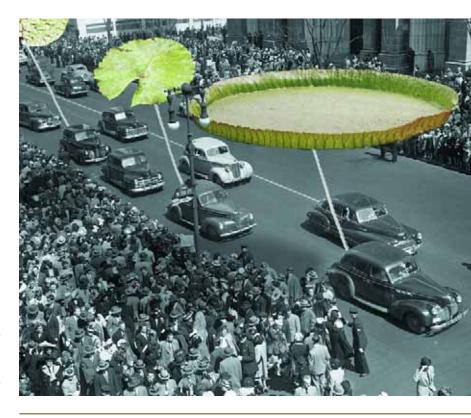
But your clients are still hot to trot with something unusual, even after you've accepted the fact that the giant lilies won't work for them unless they're willing to settle for plants with significantly stunted growth.

What do you do? I'd suggest steering them toward the nearest relatives of the Giant Water Lily – otherwise known as (surprise) water lilies. This is in fact the largest category of water plants, and probably the best known when you ask people to think about ponds and their greenery.

The Basics

Water lilies have an unusual past. Sacred in ancient Egyptian, Chinese, and Indian cultures, they were widely seen as symbolizing virtue. (The botanical name *Nymphaeceae* is derived from the Latin word *nymph*, which was derived from the Greek word *numph*, meaning virgin.) To this day, in fact, water lilies are considered to be an antiaphrodisiac in many regions of the world.

Through the years, these plants have been hybridized to yield a wide range of sizes, colors, foliage patterns and climate tolerances. They are generally seen in nature with their round-to-oval-shaped leaves floating on the surface of calm waters and can be found almost everywhere in the world. The rhizomes and tubers (that is, the roots) of these plants are sometimes found buried as deep as six feet under the surface of the water at



Through the years, water lilies have been hybridized to yield a wide range of sizes, colors, foliage patterns and climate tolerances.

the bottom of muddy ponds.

Water lilies have a wide variety of characteristics:

- Some are deciduous, while others are evergreen
- Some have smooth edges, while others have crinkled or serrated edges
- Leaf colors can be any shade of green, or they may be variegated with brown, pink, purple, gold, or green
- Some have flowers as big as 12 inches across; others have blooms just 2 inches across
 - Some are fragrant, others are not
- Flower colors can vary from white, yellow, pink or red to salmon, apricot, blue, lavender or purple

Continued on page 24

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Continued from page 22

• Some bloom only at night.

The most familiar genera will be the *Nymphaea*, which are divided into two distinct subcategories – the *hardy* water lilies and the *tropical* water lilies.

Plants in the two subcategories have different characteristics and need to be understood separately in order to plant, place, and cultivate them properly.

Hardy Varieties

The hardy water lilies are best known for growing wild in natural lakes and ponds and can be grown in a wider range of zones than can tropical water lilies. In fact, there is a least one variety that can be grown in every corner of the United States, including Alaska.

If you live in a colder climate area

and stock your watershape with these water lilies, expect to see mostly water during the winter, because they are deciduous and the leaves will die off during the winter. (In milder climates, however, the leaves may stay through the colder months.)

Hardy water lilies come in all sorts of sizes and colors, but the leaves almost always have a rounded heart shape. Their blooms are their greatest appeal, typically lasting three to four days. The flowers are partial to mornings, opening early and closing up for the afternoon and come in almost every color imaginable except for blue – and it's probably only a matter of time before someone hybridizes a blue one. Some varieties even open up in one color and then change to other colors.

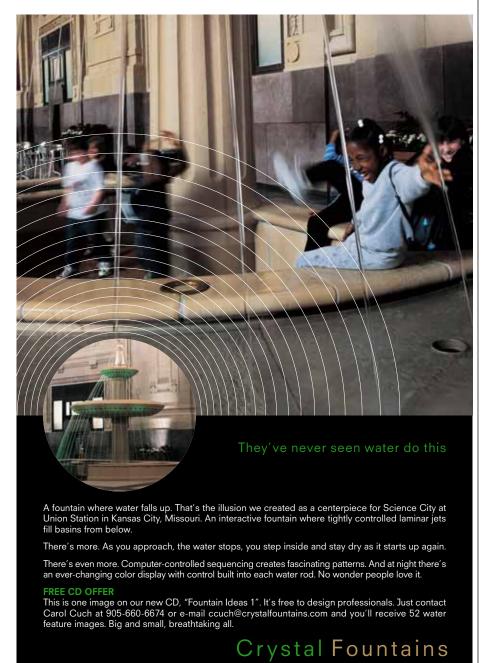
Hardy water lilies come in all sorts of sizes and colors, but the leaves almost always have a heart shape.

Most of the hardy water lilies are odorless, but there are some varieties that have distinctive fragrances to them. They thrive in calm water and need plenty of sun – generally five to six hours of sun per day with most varieties to produce good blooms. As I have mentioned before, however, guidelines aren't rules: Experimenting with a shadier area may yield success for you where others have failed.

For best results, each water lily should be planted in its own container. Bearing in mind that the size of the container will determine the mature size of the plant, if you want to keep the plants small (maybe because you have a small watershape), keep them in smaller containers. If you want them to grow larger, gradually transplant each one into a slightly larger container as it outgrows the last one.

It's important to note that a water lily

Continued on page 26



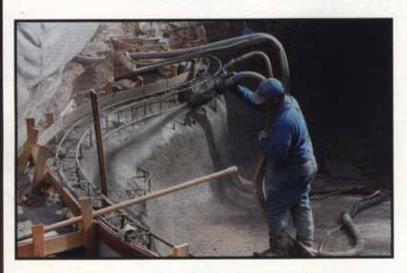
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Continued from page 24

has very strong roots. In fact, they are fully capable of breaking through a plastic container, so check with a knowledgeable nurseryman to find a container strong enough for the job.

Hardy water lilies require little other care. You only need to remove dead leaves and fertilize. Some people advocate feeding as often as every two weeks, while others feel that about once a month is perfectly adequate. Again, as with any other plants, opinions vary. You need to learn what works best in your specific climate area (and your particular watershape) over time. For best results, you also will need to familiarize yourself with the growth habits of hardy water lilies in your zone.

I won't make any specific suggestions about varieties here, both because there are so many hardy water lily varieties to choose from and because each one has advantages related to specific climates. But do check with several local nurseries to find out what they carry. If you discover that many of them stock the same one(s), it's probably because that variety grows well in your zone.

There's another good, practical reason for following the crowd. If you're trying hardy water lilies out for the first time, it's best to choose one that others have had success with because these plants tend to be expensive. You don't want to "experiment" with a plant costing \$50 or more!

Tropical Varieties

As their name implies, tropical water lilies do better in tropical climates. For those of you familiar with the USDA zone system, that means growing these plants south of (or in) Zone 10. (For perspective, the coastal region of Southern California is mostly Zone 10.) But don't fret: You can grow these plants as annuals anywhere.

Having said this, why would you want to spend so much money on a plant that's going to die off when cold temperatures set in? The usual reason is appearance. The flowers of the tropical water lilies are typically far more spectacular than those of hardy water lilies (although there are, as always, exceptions to this rule, too).

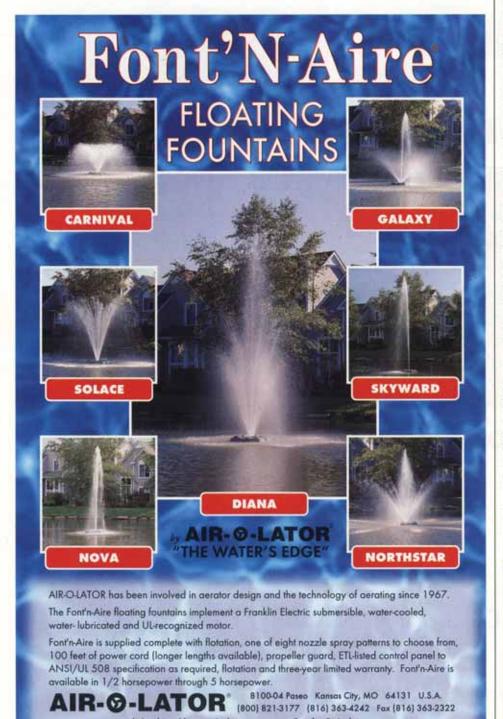
The tropical varieties are also usually quite fragrant and come in more colors than hardy water lilies, including the

Continued on page 28

Keeping Pests at Bay

As was the case with the Giant Water Lilies (see my column in the October 2000 issue), I do recommend filling your natural watershapes with mosquito fish. They'll consume their fair share of mosquito larvae - and keep down populations of other pests as well.

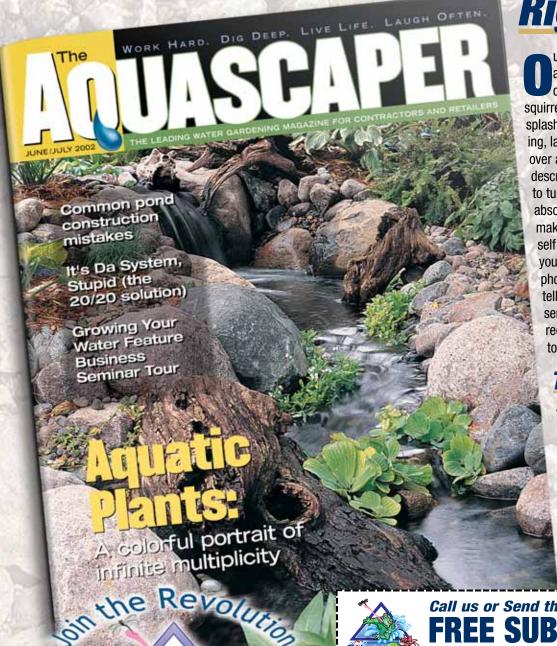
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Continued from page 26

elusive blue. They may bloom during the day or even at night with flowers lasting three to five days.

They have similar habits to hardy water lilies when it comes to growing conditions. They like full sun, and still waters are best for producing the greatest flowers. They also prefer air and water temperatures of at least 70 degrees F. They also require the same basic fertilizing and day-to-day care as their hardy cousins.

Even though most of your clients will need to grow their tropical water lilies as annuals, with the room and some tenacity the plants can be brought indoors and kept in aquariums (or some other warm-water vessel) through the winter. Unless it's an unusual and valuable variety, however, this may not be worth it. In fact, your clients may end up spending more to keep the plant alive through the winter than they would in buying new plants in the spring.

Continued on page 30





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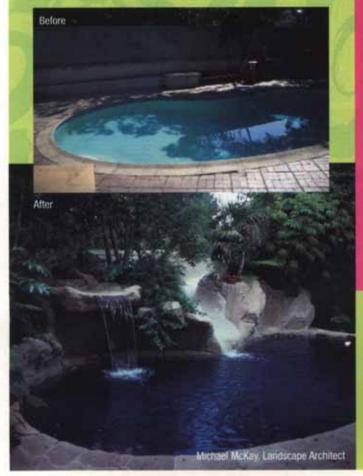
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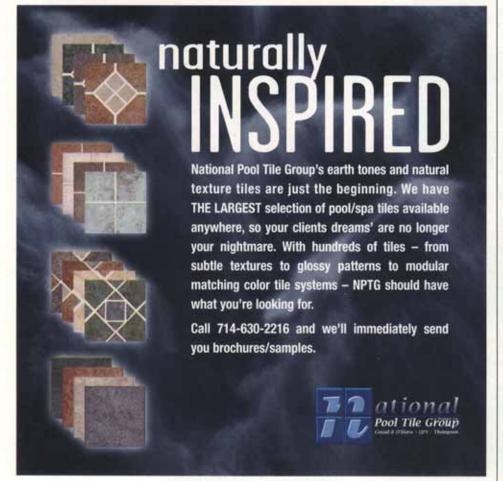




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Achieving The 'Look'

Water lilies can find their way into watershapes anywhere in the world and should definitely be considered in your design mix. If you have a small pond or container, you may only have enough room for one lily, perhaps with smaller grass-like water plants or dwarf plants to complement it. With larger watershapes, the sky's the limit.

When you design with water plants, the same principles apply as with any other design. You need to consider the size of the watershape, the scale of the surrounding area, the colors of leaves and flowers, the function of the watershape, the textures of the water plants and the views from which all of these elements will be seen.

Just remember one important difference between planting in a watershape and planting in soil: You can't contour the grade!

Next time: more on interesting water plant categories.

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

Resources:

For more information on water lilies, I recommend the following books:

- ☐ American Garden Guides: Water Gardening (Pantheon Books, Knopf Publishing Group, New York, 1996)
- ☐ The Complete Guide to Water Gardening by Peter Robinson (Dorling Kindersley, London, 1997)
- ☐ Aquatic Plants & Their Cultivation by Helen Nash with Steve Stroupe (Sterling Publishing Co., New York, 1998)

The Internet also has many sites dedicated to information about water lilies and other aquatic plants.

-S.R.

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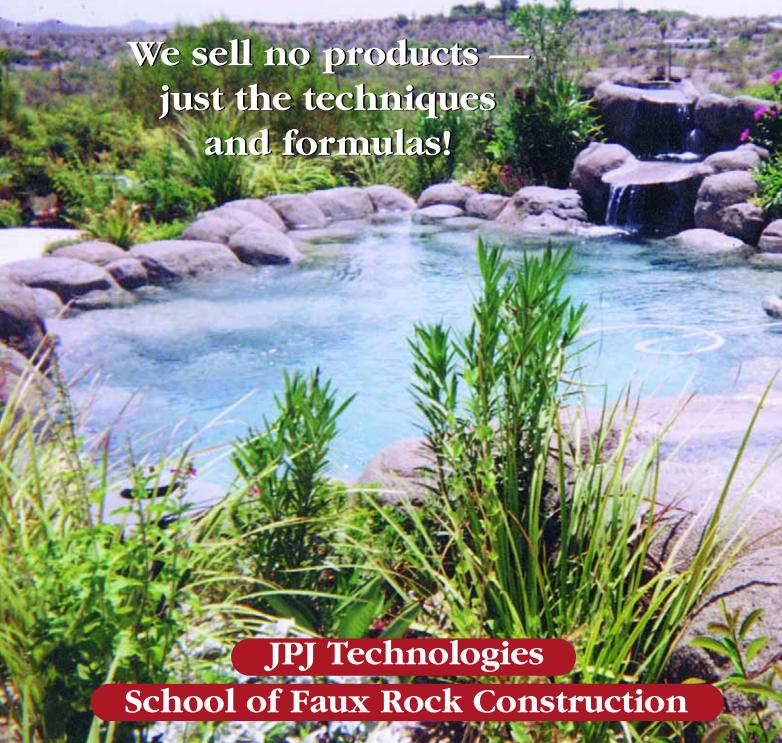
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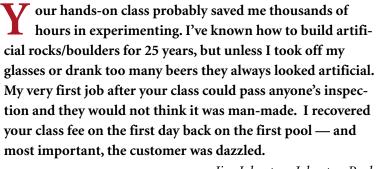
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Bill Pelletier, Custom Fountain & Pool Inc. Naples, Fl.

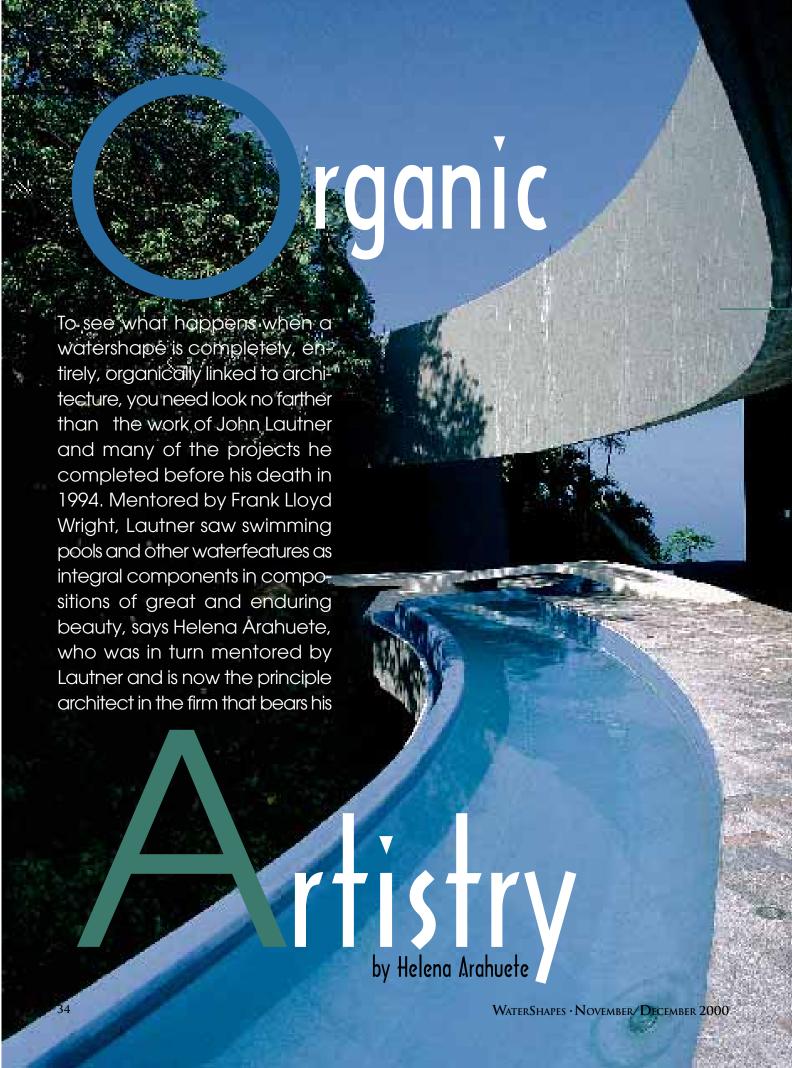
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The moment what you're doing looks fake, you've lost it. It's really much better to use forms and shapes and spaces that complement natural forms rather than imitate them. Yes, it's wonderful to find your inspiration in nature, but it's useless to try to copy nature. It will never work.'

elena Arahuete joined the staff of John Lautner's architectural firm in the early 1960s, at a point where he was turning out some of his most spectacular work. Indeed, Lautner can indisputably be said to have designed some of the most beautiful and unusual homes built in the second half of the 20th Century.

An apprentice of Frank Lloyd Wright's who studied with the master at Taliesen, Lautner was an exponent of the philosophy and discipline known as "Organic Architecture," an approach Arahuete, now an eminent architect in her own right, has continued to use and refine while running the firm that still bears Lautner's name.

She is now one of the world's leading practitioners of Wright's and Lautner's approach to creating unique structures that are intricately and intimately tied to their surroundings. She is also so firm a proponent of the integration of watershapes into those architectural forms that in April 2000, she carried her message to the first Genesis 3 Level II Design School, held in Islamorada, Fla. — and welcomed an opportunity to present some of Lautner's work here by way of defining the place watershapers have at the design table with the world's great architects.

John Lautner always said, "Use nature as a source."

That was his starting point. His designs were then inspired by the sites on which he worked, so each is unique and cannot fit anywhere else. That's part of what organic architecture is all about: designing structures uniquely suited to their surroundings. It's the far opposite extreme from a one-size-fits-all mentality.

And just as much of the individuality comes from clients as it does from the sites: In each case, Lautner interviewed



them, uncovered their personal likes and dislikes and took all of this into account during all phases of the project. I do the same, and find it to be inspiring because every person is different, with different sensitivities, and you find endless sources of creativity and ideas by talking to them.

In the process, you'll find some people who are more comfortable with elegant designs and lightweight, angular, cantilevered shapes. Or you'll find clients who are interested in curved, sheltering spaces. In time, what you learn is that what might work for one client might not work so well for somebody else – and learn to celebrate the differences rather than perceive them as obstacles to be overcome.

These clues you get from your clients direct you to do things that are totally individualized. It forces you not to copy, not even from yourself, and to do things that are totally fresh. Just as each client is one of a kind, so is each site with its unique setting and views.

Using Views

One of the primary things the site gives you is the view.

This was always a major factor in John Lautner's work, and it's certainly something I consider in my own. We take the best the site has to offer in terms of views, be they distant views or nearby, then we choose the areas we want to be seen from inside the home – and also select what should *not* be seen.

If you frame the view a certain way, it becomes a work of art – but a work of art that is never the same and constantly changes with the light of day, the seasons, the clouds, the position of the sun and light filtering through trees or casting shadows over ground and rocks. Within each site itself there is constant variety.

When you consider the view from inside the house, even a relatively ordinary view can be made to be far more interesting – and can benefit from appropriate placement of a watershape, for example. The key for the architect is to approach the design of the home or the space from the inside out. And I believe that this approach will work as well for watershapers who take an interest in orchestrating views and lines of sight.

This is something I constantly try to explain in lectures and classes, this idea that architecture is taken from the space surrounding a person who stands within a space and is something that develops *outward*.

In fact, this special perspective is what architecture is about and what separates it from other art forms. With a painting, for example, you stand in front of it and view the image in two dimensions. Sculpture offers a third dimension: You can walk around it, but you are still outside the work. In all forms of architecture, be they interior or exterior, you are *inside* the work, *inside* the sculpture.

To form a space around someone, you need to be aware of the experience that someone will have while inside this environment. To be effective in creating spaces for people to enjoy, you need to be aware of things such as scale and the relationship between differently shaped spaces.

If, for example, you move through a corridor with a low ceiling, this makes you feel a certain way. Then if you move from

Roots

The philosophy that drove the work of architect John Lautner, called *organic architecture*, is the philosophy of Frank Lloyd Wright and other great modern architects who have followed in Wright's footsteps.

Organic architecture is not an easy thing to summarize, because it means different things to different people. My own interpretation is that it is an expression of what happens in nature, where everything that's living is designed for a purpose. Animals, for example, have skeletons, skin and coloration; they are beautiful and they make sense. The same is true of other natural forms, such as trees or even geological features such as rock outcropping and rivers. They also have specific forms that serve a purpose and make sense.

In our architecture, we strive for forms that similarly serve purposes and make sense and revel in the fact that the ideas never get stale or become commonplace. Styles and trends will come and go, but philosophy endures. You can't say you've seen a "Victorian" mountain or a "Chippendale" tree: Their designs and purposes are timeless and enduring in their beauty and purpose. They are beautiful because of the way they are.

In that sense, organic architecture is a genre that *transcends* genre. That's the ambition of great architects including Wright and Lautner – and can apply just as surely to the work of watershape designers and builders.

- H.A.

that corridor into a much larger space, the way you feel is transformed. You will physically feel the space and how it is affecting you in a certain way.

If you are able to capture that influence in the way you shape an environment, I believe you've really achieved something.

Perfect Companions

This designing from the inside out –

that is, from the perspective of the person in the space – encourages the designer to use natural forms and complementary forms inspired by nature to create the experience of the person inside the environment.

In this respect, water is a very important element in design.

I've designed a project, scheduled to break ground soon, that has a long body of water with long benches right behind

Inspiration and Influence

John Lautner had a tremendous amount of respect and admiration for Frank Lloyd Wright and apprenticed under him in the 1930s at Taliesen, one of the great incubators for 20th-century architects and designers.

While there, Lautner learned by doing, but he possessed sufficient vision on his own to understand the concepts *behind* the Wright philosophy and apply them in new and personal ways.

Lots of people who apprenticed with Wright ended up following the shapes and contours of his designs – ornamental but deprived of spirit. Not Lautner: He took on the philosophy and Wright's influence and found that with it, you could create totally original projects each and every time. In working with him and since his death, I try to do the same.

You are unique, your influences are unique, the site is always unique and so is the client. The combination of these four factors is what leads to original forms of expression in processes that apply across all creative fields – including the design of watershapes.

-H.A.

it. The idea here is simple: We want people to be able to sit next to the swimming pool while experiencing a spectacular view off into the distance.

By creating a place for someone to sit next to the pool with an unobstructed line of sight to the distant view, we are able in a very simple and straightforward way to bring the immediacy of the water together with the vista. In other projects, we've used structures with pools adjacent to sloped areas to block the view of objects at lower sight lines while framing the distant view along the far edge of the water.

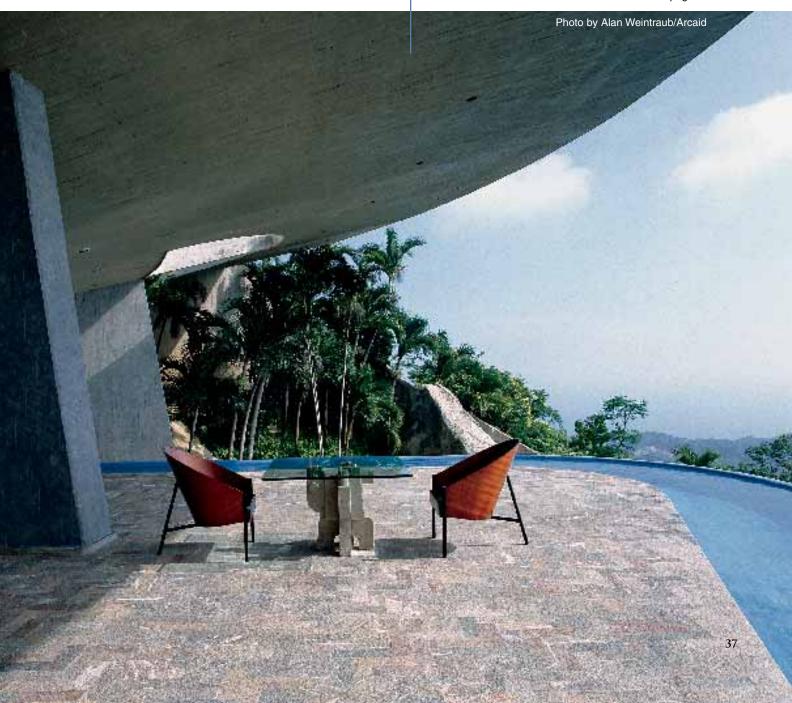
There are countless other ways to integrate water into architectural programs, and Lautner used many of them in his long career. Using the photographs on these pages, let's consider the use of water in three of Lautner's projects. I'll also offer some insights into his philosophical roots. Perhaps most important, I'll offer my own perspective on a role for the watershaping consultant in the future of architectural design.

The Arango House (1969)

In the design of unlimited space, you have the opportunity to continue the inside to the outside and vice versa. The Arango House is an example of what can be done when the horizon is literally the limit – and of how the water plays an important role in creating and capturing this experience.

The site offers a beautiful view of the Acapulco Bay; and Mr. Lautner wanted to find a natural way to integrate the home's exterior with this fantastic view. The moat, a truly unique feature at that time, wraps all the way around the home's second floor with a vanishing edge overflowing into a gutter. All you see at deck level is the water disappearing into the water of the bay beyond.

Continued on page 39



There's a way of putting things together that just looks 'right.' For the space to have a great feeling, it has to have a soul, and you must accept that there are intuitive processes that contribute to the final result. Yes, you need to have a lot of knowledge and an open mind, but it's not a completely intellectual process.'

Photos by Alan Weintraub/Arcaid



Continued from page 37

At the same time, the moat is a safety device. Rather than having a railing, which would have disrupted the view rather than connect the home to it, you have this expanse of water that prevents people from falling off the cantilevered deck while still bringing the outside and the inside together. The pool is six feet wide and fourand-a-half feet deep, and the effect is breathtaking. You can literally swim around the house.

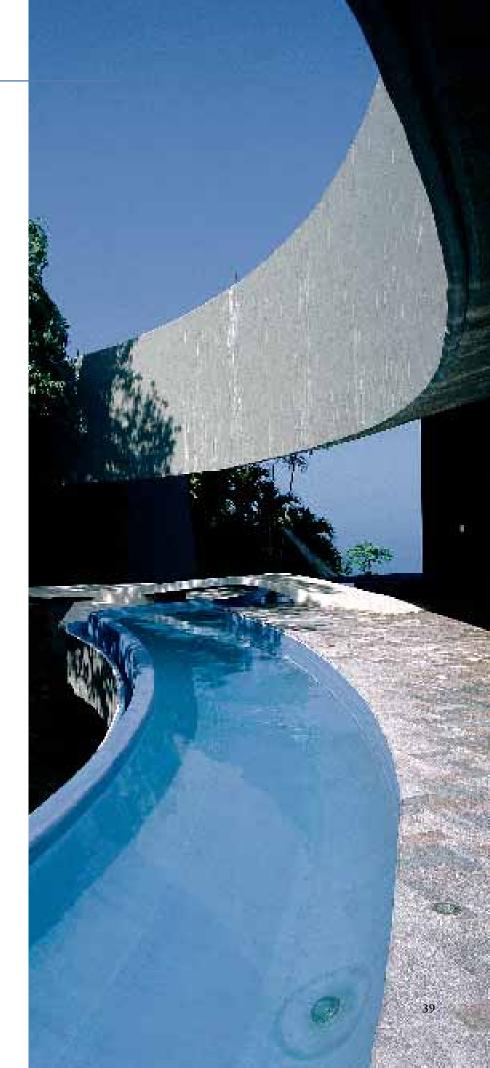
We had another client who had visited the Arango house and wanted the same thing for his house in Malibu, Calif. We didn't like the thought of repeating a design we'd done in the past, but we consented to do so given the ocean-front view and the client's desire.

I bring up this U.S. project because the moat concept proved acceptable to the local building department: Officials there did not want to appear as though they were resisting creative design, and they accepted our contention that the moat was actually *safer* as a barrier than a 42-inch high railing would be.

Nowhere in the code does it accept using a pool in place of a railing; in this case, however, the common-sense position was that you would have to jump into the pool – which could happen accidentally – but then you'd have to climb out the other side and jump down again – which could not.

The main point to be taken away from Arango House (and most other Lautner designs) is that there must be a unified approach to the construction of the entire project from the start. This is not a waterfeature that you could even dream of adding on later!

Rather, the key to the feasibility of this design is that the structure of the pool surrounding the house is *part of* the house. To include such a watershape, it must be there at the concept stage. In most cases, that kind of nascent integration can result only from close cooperation with an imaginative watershaper.





`This is a field where you can learn all your life and you find there are still many things to learn. The more you know about lighting, plumbing, mechanical, hydraulics, materials, landscaping — all kinds of things — the more you will be able to create and do better designs.'

The Goldstein Residence (1973)

When originally built in 1963, this house in Beverly Hills was designed with a swimming pool that had a typical circulation system. The current owner wanted to upgrade the look and the impression made by the pool by bringing the water up to the level of the deck. Of course, it's much harder to do this sort of remodeling of a pool in an existing deck, because the surface won't be perfectly level.

To satisfy the client's desires, we worked with pool designer and builder David Tisherman and often thought how much better off we would have been had a watershaping consultant been involved in the project the first time around. (I discuss the need for profes-

sionals in these consulting roles in the sidebar on page 43.)

The retrofitted pool is spectacular and has appeared as a focal point in movies and countless advertisements through the years, but it's not the only watershape in the home. In fact, the pond that you have to cross to enter the house, with glass bridges spanning over stepping stones, is at least as significant as the pool because of the way Lautner used it to create drama and continuity.

He filled the pond with koi. The color and movement they lend to the setting are important to the overall effect.



WaterShapes · November/December 2000

Both watershapes fit perfectly into the overall geometry of the residence. The triangles and triangular patterns seem lightweight, almost floating – a product of the owner's desire to capture the sensation of floating and of what Lautner saw in the site. The result is a soaring set of beautiful shapes.

With all of these things, you always have in mind how they are going to work *structurally*. The most beautiful design in the world isn't worth anything if you don't know how to create the shapes and spaces you want on a permanent basis. We use concrete in our projects as a result, because it's good for curved shapes. You can build a very thin structure that is very rigid; it is also a durable, maintenance-free material.

Those structural factors are clearly important – and present another case in which active, early participation by a watershaping consultant would be invaluable: With the participation of such a professional, the feasibility of the design can be considered from the start by someone with expertise in constructing systems that contain, move and treat water.



Photos by David Tisherman



Defining an Opportunity

As far as architects and their clients are concerned, there is as yet no clearly defined role in the design process for a watershaping consultant.

We have access to professionals who advise us on landscape and lighting design, for example, but we're left to our own resources when it comes to finding assistance in implementing the design of swimming pools, ponds and other waterfeatures. In fact, only the fountain segment of the watershaping business offers these kinds of services.

As a result, we usually end up working directly with contractors. That can be awkward, because a great deal of time often passes between the initial design work and the completion of the job – and many contractors do not see it as being in their interest to participate from the beginning in a project that may or may not even happen or in which it is possible someone else will get the job.

I believe this situation has become a barrier to watershapers who want to attain a status and a role that should be theirs in the greater design community.

The same way architects have access to electrical and mechanical engineers, we should be able to call on consultants for our watershapes. Believe me, as one who has spent a career working as the coordinator of design teams that encompass a range of disciplines, I would love to bring in watershapers to contribute their expertise to the process.

They could contribute great ideas to great projects and be compensated at a fair rate for their time or designs on the same basis as other design-team participants. Just as architects are not always the builders, design consultants may not turn out to be the contractors. Nonetheless, they would have the opportunity and honor of having their names forever associated with fantastic projects and receive full credit for their ideas.

This new breed of consultant would have to know his or her stuff and be able to put plans on paper, ready for bid. This calls for a high level of technical expertise, because the designer isn't necessarily the one who will execute the plan.

Speaking for myself, I'm thrilled by the potential this consulting concept has. The overall project can gain from the sophistication of the ideas and refinement of designs coming from this sector. And in receiving a fair fee for the work, the consultant can spend the time required to research ways of making new ideas work – energy-saving ideas, aesthetic enhancements, technical advancements and more. To get this kind of support from someone who has spent a career developing ideas and exploring technical questions would be wonderful.

To those of you out there who are heading in this direction, I urge you to keep at it: There is much we might do together!

-H.A.

I begin any design with a trip to the site. I'll walk around and try to understand the individual beauty of the setting as I envision ways the views can be framed and the person's experience determined within that environment. There's really no other way to begin.'

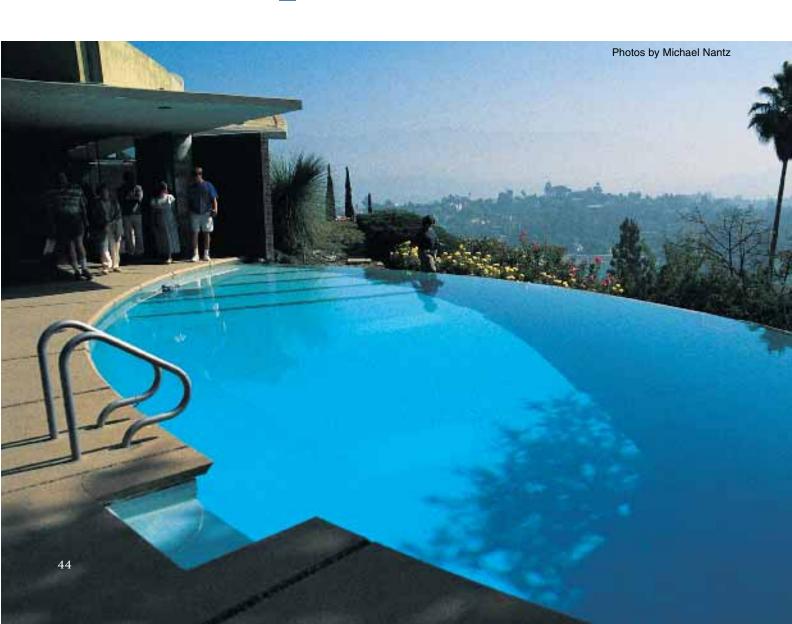
Silver Top (1958)

The design here is a perfect melding of site and view. The lot overlooks Silverlake Reservoir, just north of downtown Los Angeles. The presence of that body of water prompted John Lautner to create a pool that offers a sense of unlimited connection between site and space, just as vanishing edges are used today. This connects the curved house – through the similarly curved pool – to the view of the reservoir beyond.

As you walk through the house, you see almost immediately that there's water at the other end, and it acts like a magnet: Everybody is driven to go out onto the deck, where they turn and see the reservoir and then take advantage of seating built in at just the right location.

The pool is the earliest vanishing-edge design of which I'm aware. It was a very distinctive detail and certainly the topic of conversation among people who visited there for many years. Now, of course, vanishing-edge details are fairly common, but that was far from the case when Silver Top was built.

This home is an example of a space where you really have to walk through the environment to get the feeling provided by the whole design. To be sure, this is true with all thoughtful architecture, but is used to great effect in this home, where you are drawn through the environment by the presence of the water and meet a surprise at every turn. It lends glamour, beauty and intrigue to the composition.



Controlling access to views with walls and greenery and water let you maintain this sense of surprise. Every changing element, including the reflective qualities of the water and available light at different times of day, all work to make the overall impression of constant change and a process of discovery.

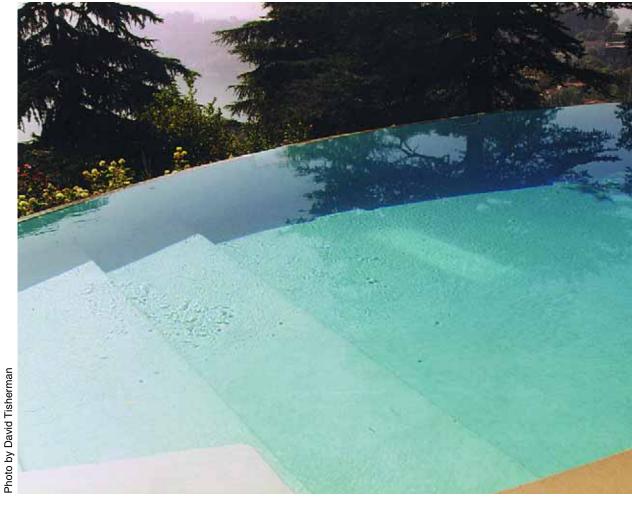
I've heard from many of the clients who worked with John Lautner that the nature of the environment he created for them has contributed to their lives. Many of these homes have been occupied by creative people – artists and writers and film makers – and they have told me that Lautner's work and mine have inspired them. There could be no greater compliment to a proponent of organic architecture, and no greater affirmation that the approach works time and again in designs unique to each site and client.

I can only imagine how different and more effective our work might have been had we been given access to knowledgeable, creative, innovative watershaping consultants who were skilled in hydraulics and waterfall weir design and who kept up to date on the best equipment and water treatment, waterproofing and finish materials. (In addition to creative design, this is also about quality products.)

Such consultants could have led us to weigh new possibilities and options we would never have considered on our own – and helped us apply our creativity in a host of new ways.







WaterShapes · November/December 2000

Stretching

Water doesn't typically fly through the air with the greatest of ease. Indeed, multitudes of environmental factors influence it along the way, making its behavior unpredictable and offering real challenges to engineers who want to create consistent visual and aesthetic effects. But when it comes to extending laminar flows, says fountain designer Paul L'Heureux, things that couldn't be accomplished a few years back are now within reach - even in backyards.

By Paul L'Heureux

Ater

Through all the centuries of watershape design, the laws of physics have imposed restrictions on the watershaper's ability to extend a laminar flow of sheeting water beyond a drop of five or six feet. Go much beyond that limit and the sheet breaks up, thus impairing the aesthetic effect, causing an annoying degree of splashing and generating an abundance of undesirable, monotonous noise.

Those physical laws have been seriously bent in public spaces in recent times. Indeed, special weirs and nozzles have made it possible to achieve laminar flows of 12 feet or more. Up until now, the solutions employed to achieve these effects have usually been beyond the budget of smaller commercial projects or residential clients – but that's changing.

At my firm, Crystal Fountains, we've long been studying the phenomenon of falling water with an eye toward maximizing the surface tension of water and thereby extending the "laminar" effect without breaking the bank. We've had the luxury of working on some high-end projects that enabled us to perform the research and development necessary to do that stretching.

By adapting some of the design ideas we used in those commercial applications, we've been able to translate the technology to a scale and price point that makes sense for designers of residential waterfeatures.

Falling Through History

Waterfalls and cascades have been used as a decorative water effect since people first began channeling water through aqueducts. They celebrated the places where the water arrived, usually in the center of the village, town or city and understood the role water played as a life-giving resource.

Thousands of years later, contemporary watershapers continue to bring water to the people and still use falling water to create beautiful effects in a huge variety of settings. But water

Continued from page 48



Continued from page 46

descending more than five or six feet breaks up, producing radical aesthetic changes along with loud noise and unwanted splash.

In commercial settings especially, splash is a major issue with respect to owner liability for wet floors. Combine that with a monotonous roar of an incoherent stream of water breaking the surface of a catch basin and you run into what Doug Duff, our director of design, calls "fountains of doom."

The reason that water resists stretching beyond the five-to-six-foot limit is that it likes to be a sphere because of its surface tension. Given enough air resistance – simply from the motion of falling – a sheet of water will break up into its natural, globular forms.

The typical falling-water feature will drop from heights of two to ten feet. The spill thickness – that is, the thickness of the laminar sheet as it passes just beyond the weir or nozzle and begins its descent – will range from 0.2 inches at a flow rate of 10 gallons per minute per linear foot to 0.8 inches at 40 gpm per foot.

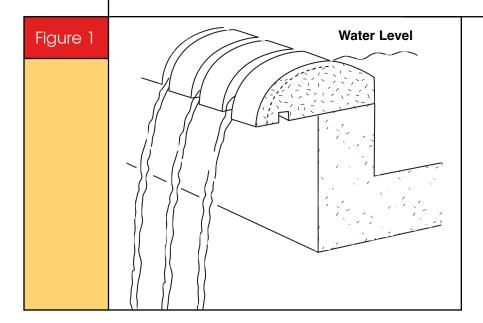
At some point between three and seven feet, the 'look' of the falling water will change from a solid unbroken sheet into a random, broken mass of droplets and sheets. This results from the air resistance caused by the increasing velocity of the falling water droplets. You may be able to stretch another foot or two out of the fall by increasing the volume of the flow, but experience has taught us that it's not worth the extra flow and energy costs.

It's better instead, we believe, to control a smaller flow than it is to force continuity onto a torrent. After years of trial and error, experimentation, testing and re-testing, we've hit upon a number of practical watershaping techniques that can be used to stretch water to maximum lengths.

The fact of the matter is that achieving greater continuity in falling water is not, as many people assume, a matter of pushing more water off a flat weir; rather, it calls for a careful balance of flow, nozzle position and weir configuration.

Cut To Ribbons

One solution for achieving laminar fall heights of seven feet or more (with-



out increasing volume) involves designing a different weir shape so the flow is broken up into segments from the beginning of the fall. In other words, this approach calls for "going with the flow" and using water's tendency to separate to your own advantage.

This technique will produce aesthetic continuity in the form of sheer ribbons from the top of the fall to the bottom (Figure 1). Creating these densely packed ribbons of water is a visually interesting

way of controlling falling water, even outdoors, from heights of up to 15 feet.

There are two basic techniques used for creating these ribbons: *comb weirs* and *ejector jets*.

A watershape we installed at the John Hancock Center in Chicago offers an example of comb-weir design (Figure 2). The installation includes 28 feet of arching comb weir with water falling as far as 10 feet at a flow rate of only 720 gpm.

The comb weir is designed like the tines Continued on page 50





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Continued from page 48

of a comb or fork attached to a weir plate (Figure 3). The openings between the tines produce individual ribbons of water 3/4 inches apart with flow rates of 20 to 25 gpm per linear foot. The individual ribbons of water stay together over a greater distance (up to 15 feet) than water sheets and can flow at half the rate of a typical weir.

Achieving greater continuity in falling water is not, as many people assume, a matter of pushing more water off a flat weir.

A further benefit of this weir design is greater resistance to wind in outdoor locations. The spaces between the tines of water allow air to pass through the falling water. This creates a sturdier falling-water form – one able to resist lateral wind forces and therefore creating less splashing.

The water wall at Heritage Mall in Edmonton illustrates the stretching effects of ejector jets (Figure 4). Here, individual nozzles are grouped into two rows to achieve a powerful effect in a massive falling-water design. The jets are gravity fed and produce impressive effects with small splash footprints.

The brass nozzles were press-fitted into a stainless steel trough 1-1/2 inches on center. The second row

Continued on page 52

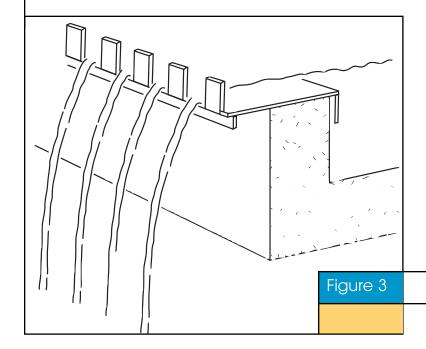
Laminar Water

By definition, laminar water is water that appears to be clear and turbulence-free as it flows. This can occur in a variety of ways, from the sheets and ribbons described in the accompanying article to laminar arcs that fascinate observers because they appear to be solid rather than liquid when they are actually wet – and moving very quickly.

Because laminar flow appears nearly or completely still, it has a mysteriously tactile quality to it. It's also very calming because the effect is so quiet. In fact, we've found that many people don't believe that laminar water is really water!

These are impressions that can best be gained up close, in relatively intimate settings where the minimized noise and splash are most appreciated and where the sheer visual pleasure is most thoroughly enjoyed.

- P.L.





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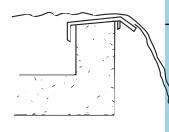
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Α



Continued from page 50

was offset to produce visual spacing of 3/4 inches – and a *massive* show of falling water, with 700 gpm falling across 15 feet of trough from 20 feet in height. A 36-inch wide receptor with no splash (and no start-up or shut-down flapping) was achieved.

Plantings could be brought up next to the pools because the threat of burning by water-treatment chemicals was eliminated. And the sound produced is a gentle rip rather than the thunderous roar you might expect of water falling from such height at so high a volume.

Stretching Out

Watershapers are always seeking new ways to face down the physical challenges offered by water. The great thing is that technologies developed for specialized commercial use can often be translated, at reasonable cost, for use in residential settings.

These technologies can (and should) be used to dramatic effect in residential watershapes. They can dress up average installations or make strong, eloquent statements with projects at the high end. Instead of working with water, look at it as *playing* with water – and using it as a dynamic feature that captivates interest and entertains the child in all of us.

Sound Effects

Observers strongly associate sounds with water. When properly designed, however, a laminar fall makes very little noise – a sort of low, "hushing" sound that is unfamiliar to most people.

This unusual sound is produced only when the laminar flow strikes the water in the trough (or any hard surface) while it is still coherent. Once it's broken down into drops, the noise level increases dramatically.

-P.L.

Flat, not Flapping

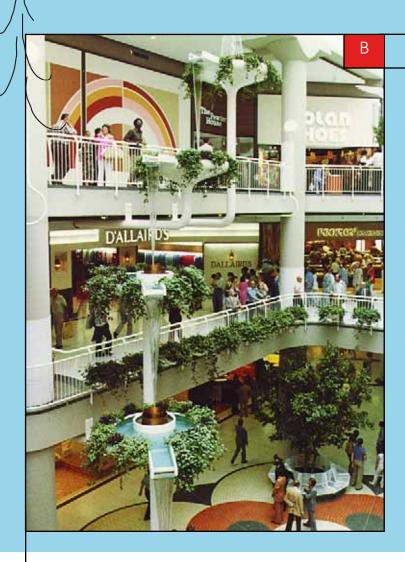
Stretching laminar effects to greater heights and greater drama is a challenge in full-flow operation – but designers also need to consider what happens during start-up and shut-down, when a waving or flapping effect takes over.

During these two moments of daily operation, the falling water sheet increases or decreases in thickness. It only lasts five or ten seconds: A, thin, temporary sheet of water flaps or waves forward and backward (A), creating a splash footprint that can be as large as the length of the falling water itself.

The flapping is preventable, however, and the fall length can be stretched to 12 feet by modifying the weir detail and squeezing the water through two weir plates. The squeeze creates thicker edges on the falling sheet of water that help to hold the laminar effect together (B).

Turbulence in water is the main enemy of laminar effects, sheets and ribbons. To keep water as turbulence-free as possible when it enters the nozzle or trough, you must be sure to limit elbows near the weir or nozzle; limit flow to one foot per second; and use components with turbulence-suppression devices built into the nozzle/weir assembly.

-P.L.





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Perhaps because of the overwhelming size of our market, watershaping in the United States marches on in relative isolation from work being done in the rest of the world. But we certainly are not alone: Residences and commercial properties across the globe are graced with gorgeous landscaping, tailored hardscapes and refined watershapes — as you'll learn in this well-traveled pictorial.

ood design isn't the sole province of any one country: It's something that happens around the world in response to local flavors and textures and the needs and desires of people who live there.

Most of these watershape markets are absolutely minuscule by comparison to the U.S. market – but in each location you'll find clients who are just as interested as their American counterparts in commissioning watershapes that reflect high aspirations, suitable affluence and refined, elegant tastes.

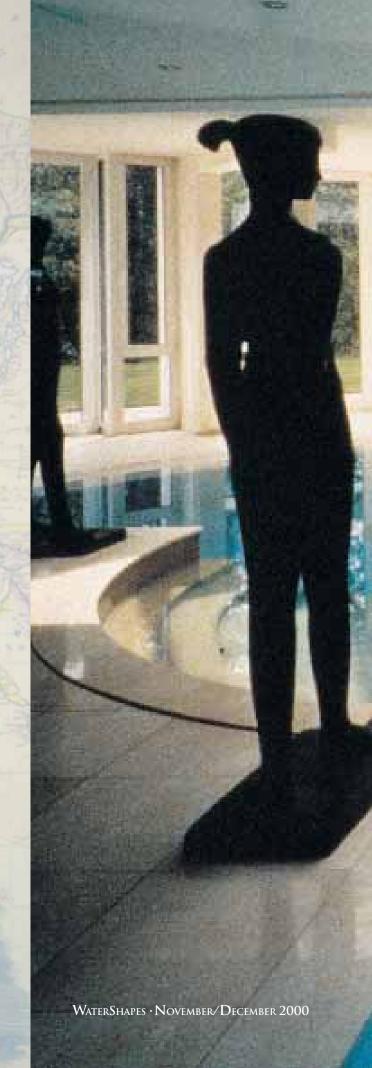
From Australia to Guatemala, from Belgium to Dubai, watershape designers and builders weave tapestries that start with the water and incorporate local textures, traditions, shapes, finishes, spatial perceptions and lines. As is the case here, it's all calculated to please a client's eye and bring smiles to the faces of observers.

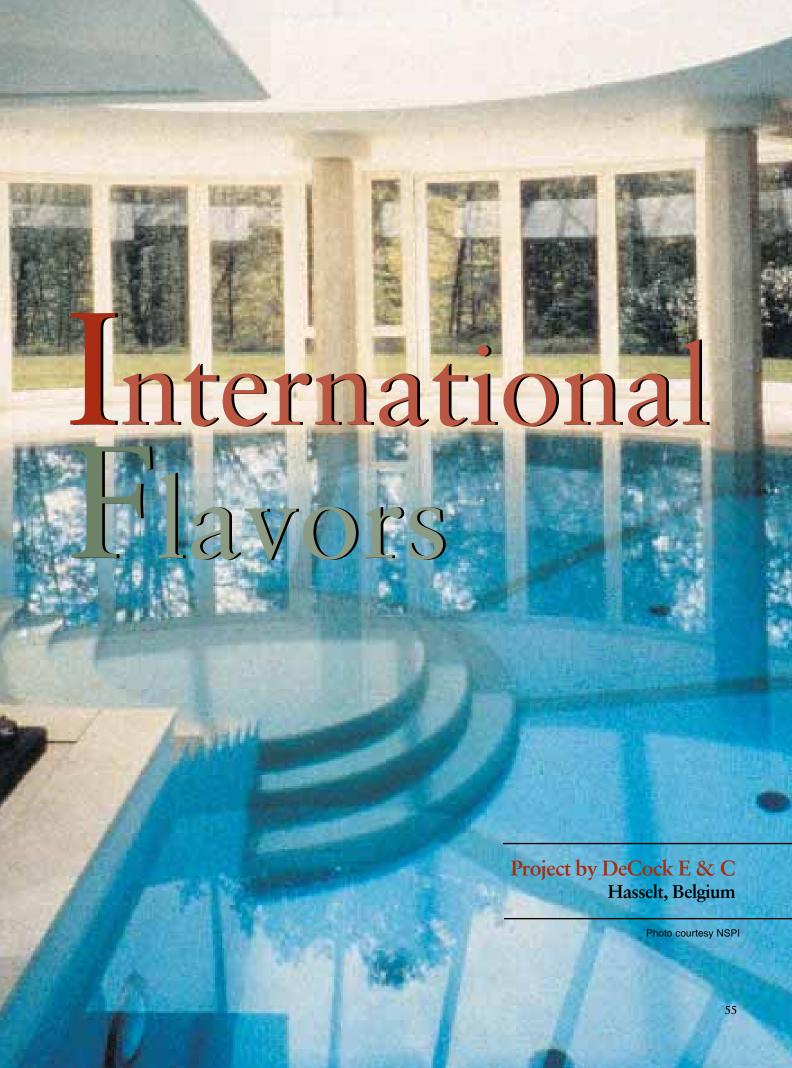
On the pages that follow, *WaterShapes* offers an international showcase, a sampling of projects designed and built beyond our shores. Some of the pools, spas and waterfeatures may have a familiar look, and it's possible the designers have been influenced by what they've seen of our work in the United States. (By the same token, it can be argued, as in the case of vanishing-edge designs, that *we're* the ones who have been doing the borrowing.)

And some of the looks you'll find here aren't all that familiar. Indeed, several of these projects are clearly the expressions of local tastes, local materials, local geography and geology – and these are the ones from which we stand to learn the most. The integration into these individualistic watershapes of plants and trees can in some cases be called original and innovative, for example, and will deliver value to those in the United Sates who take a long, open-minded look.

It's a big world out there. Some of the work being done in other countries is truly outstanding by all rights, while other projects testify to a need for growth and development. In all cases, however, the projects are offered by designers and builders who know their work is about more than dropping a watershape on the ground. *Vive la difference!*

WaterShapes gratefully acknowledges the assistance of Bill and Gera Kent of Horner Equipment, Fort Lauderdale, Fla., in helping us make contact with many of the companies featured on these pages. Additional thanks go to the National Spa & Pool Institute: Several of these firms participated in its 1999 Design Awards competition.







Belgium





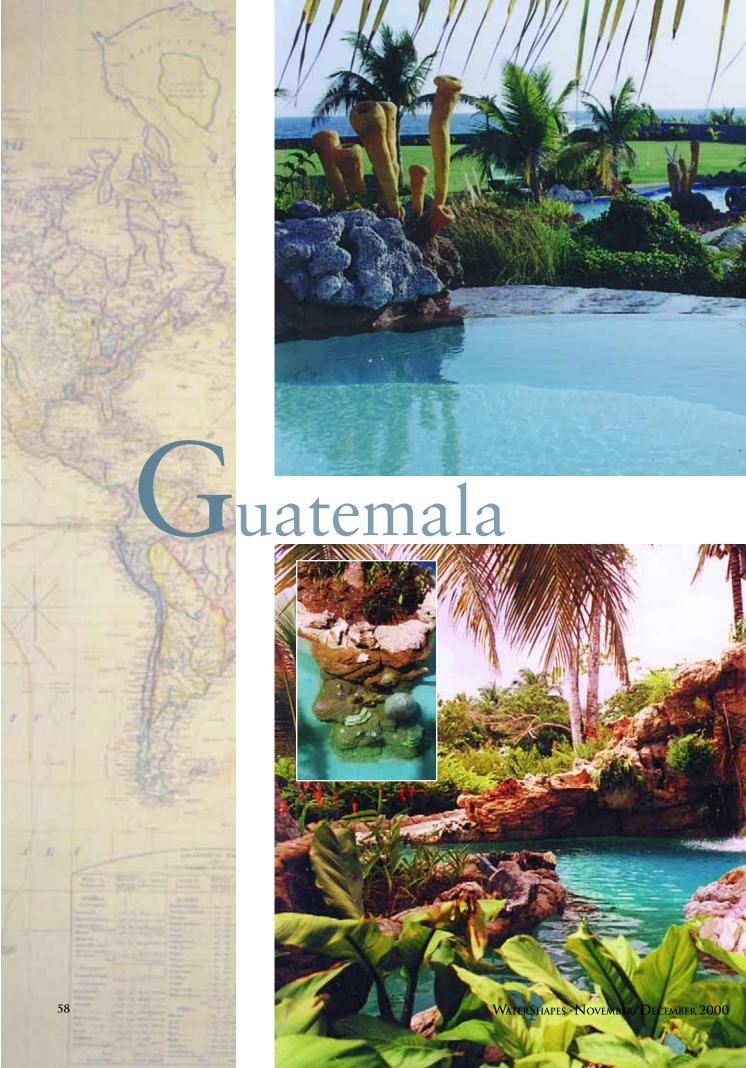




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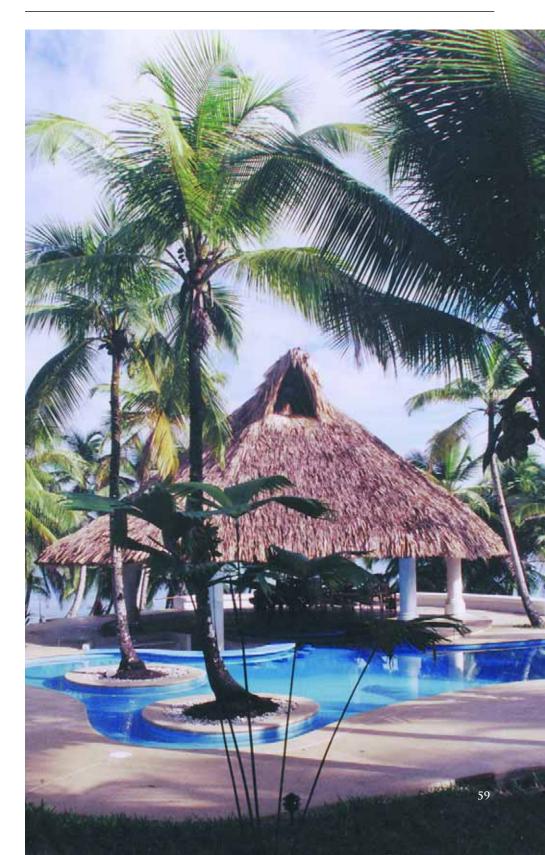


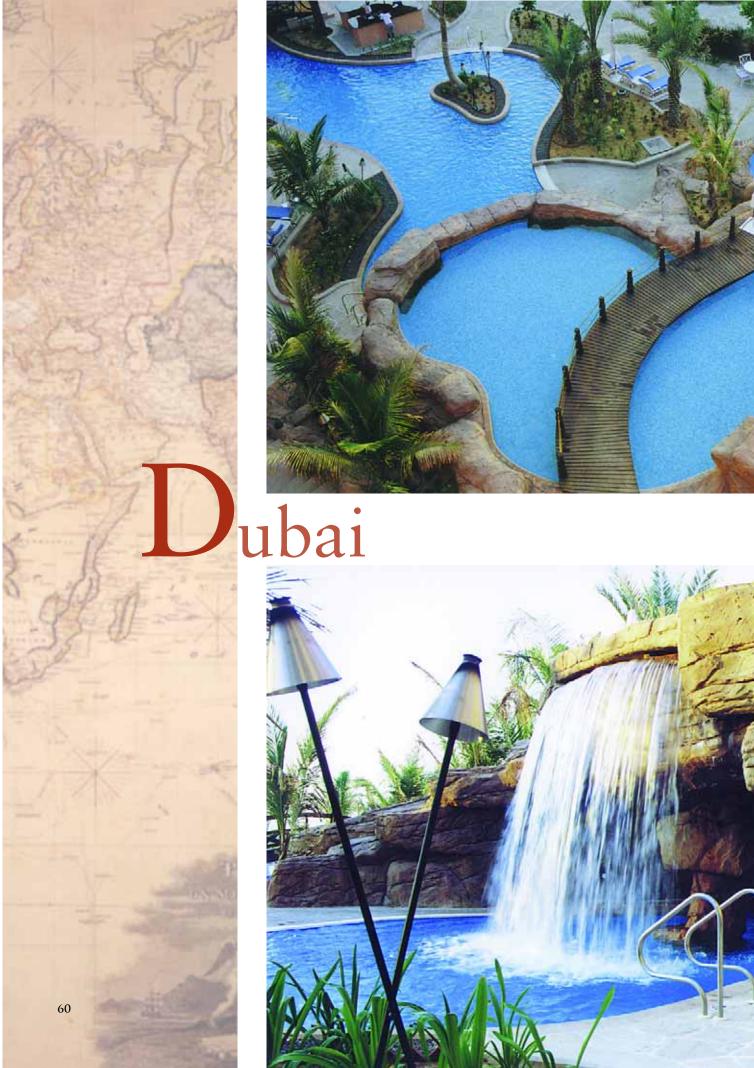




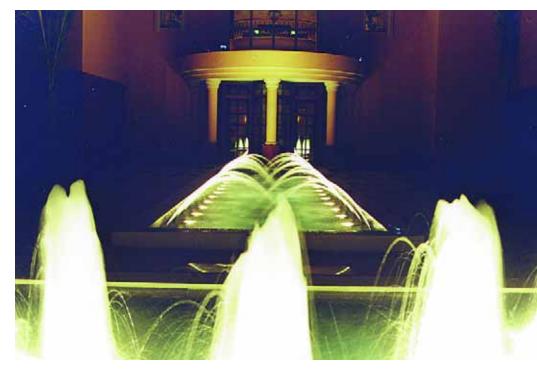
Watermania
Guatemala City, Guatemala





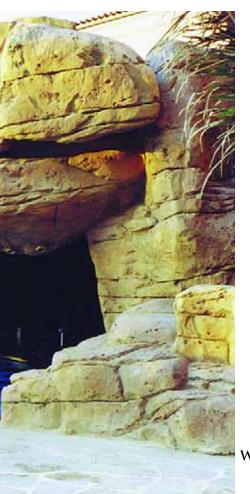




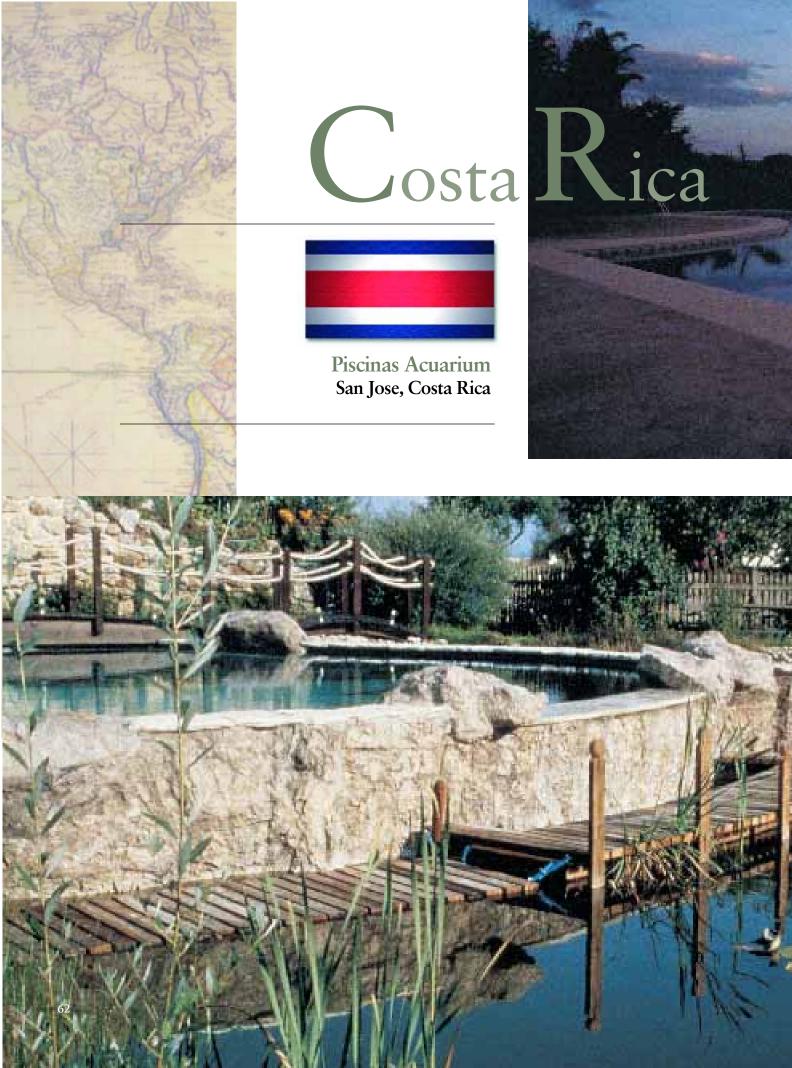


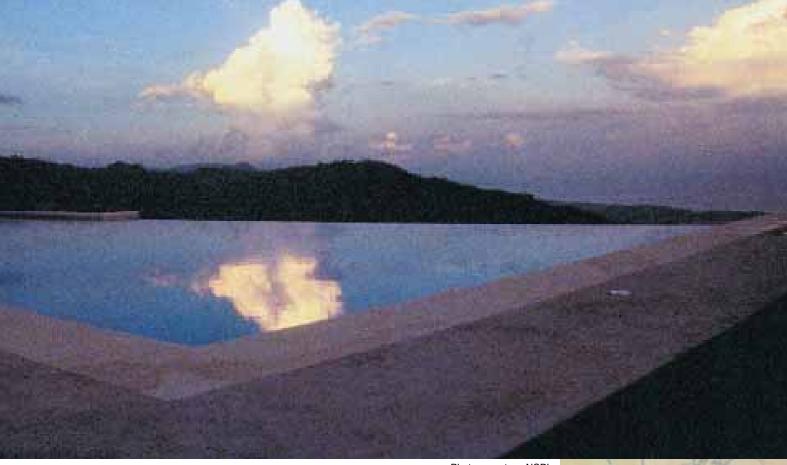


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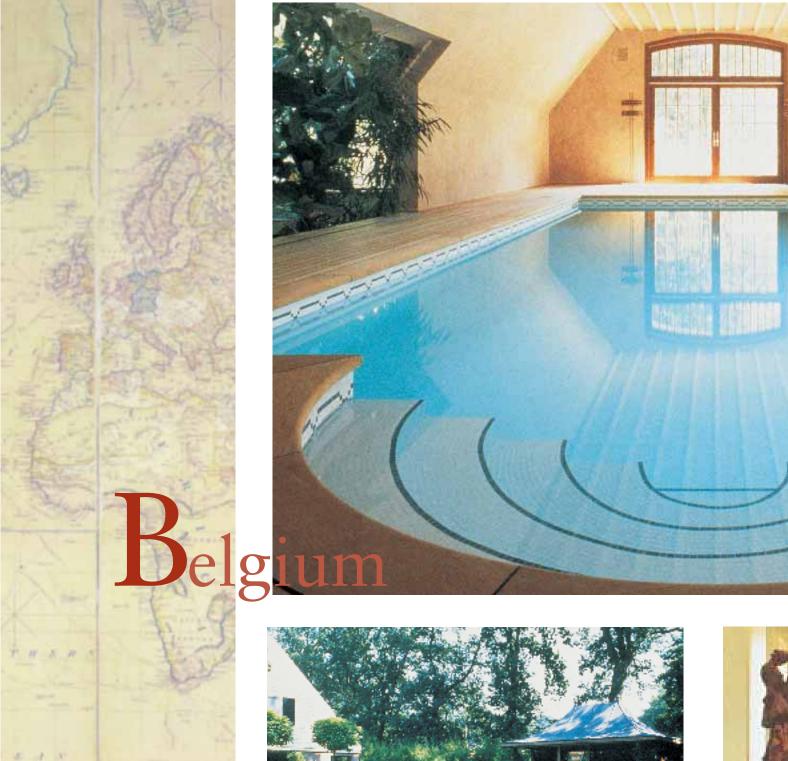
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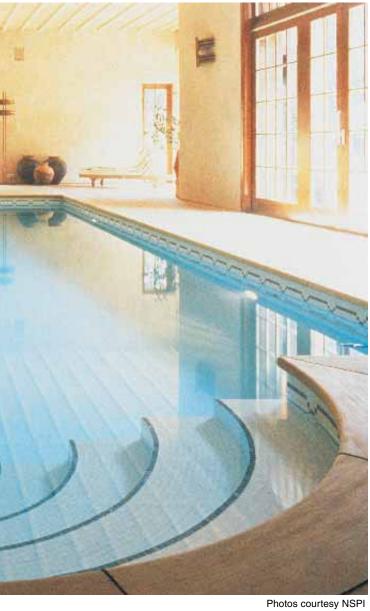
ustria



Happy-Pool Ried im Traunkreis, Austria





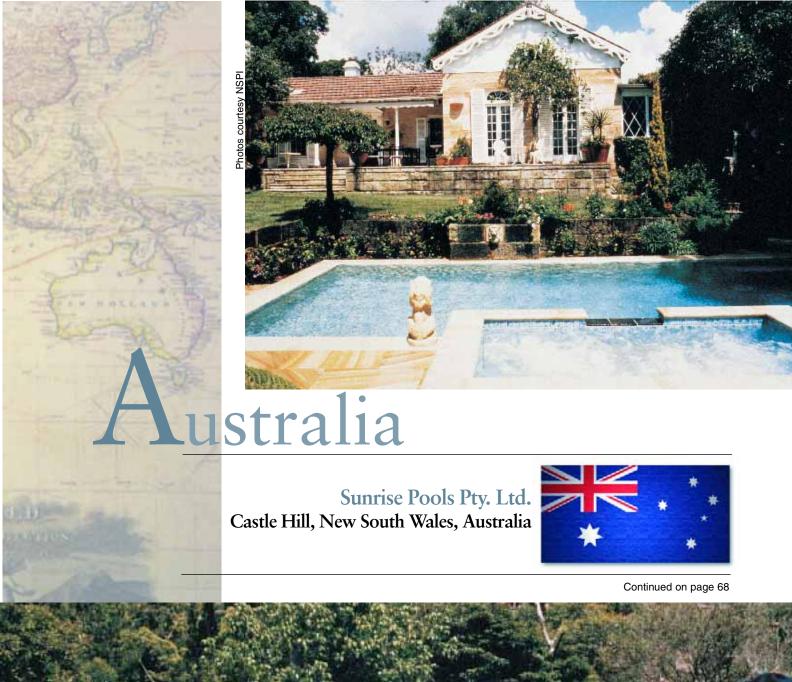






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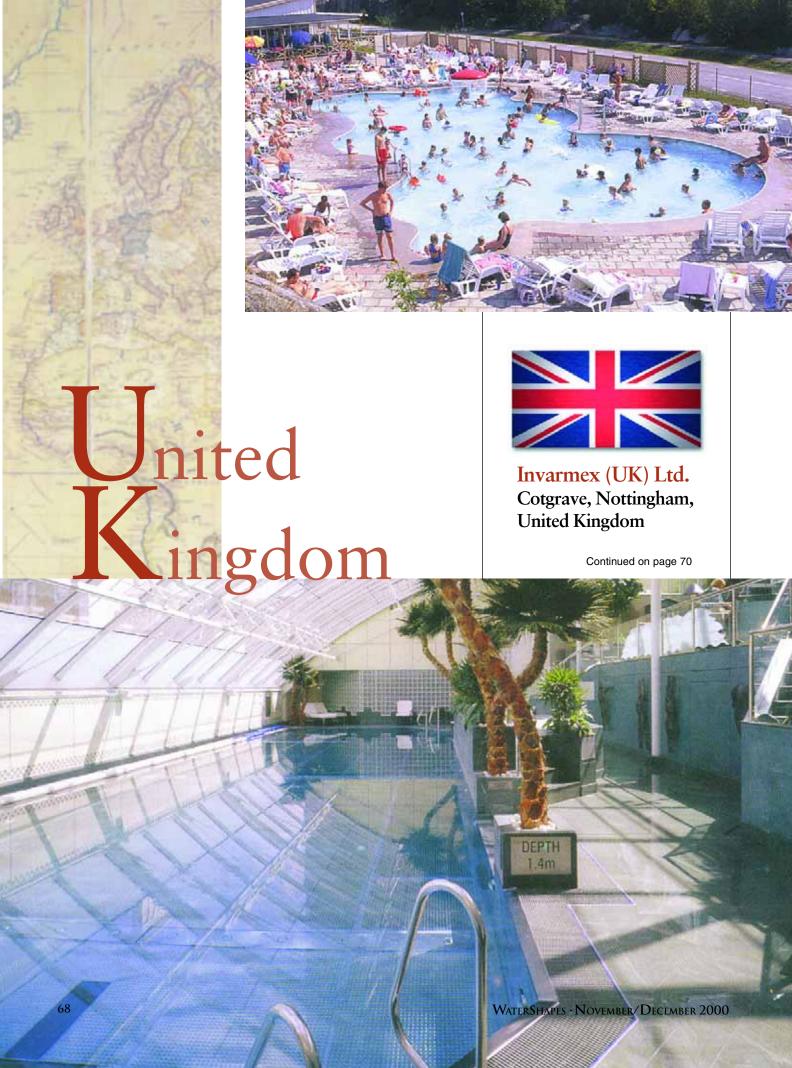




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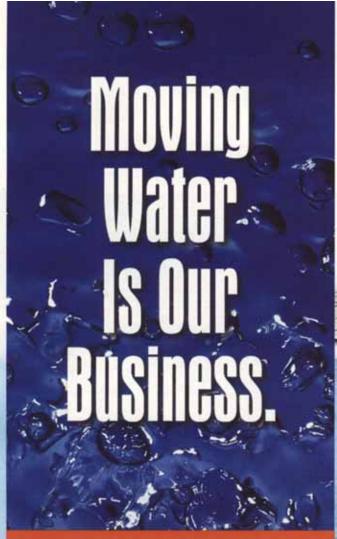
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Continued on page 72





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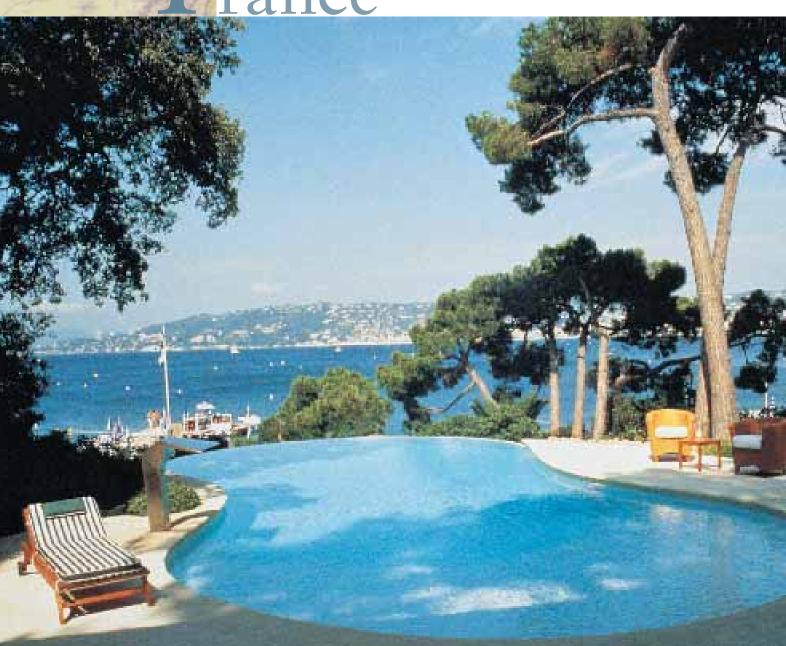
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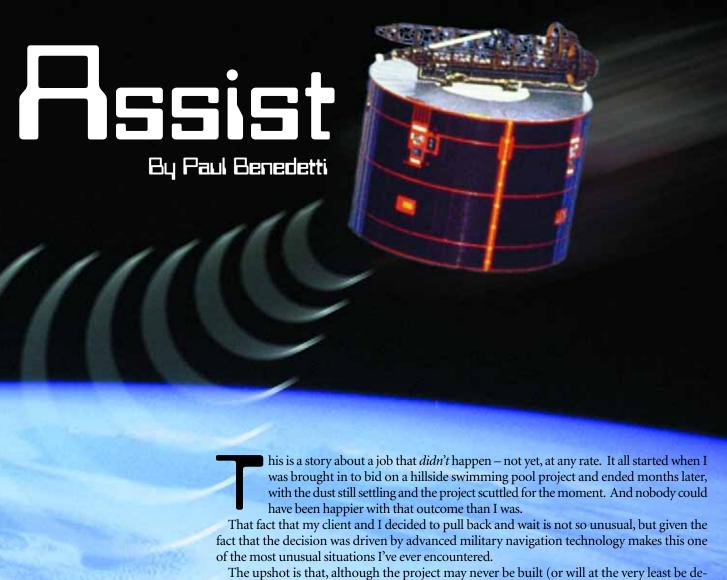






An Aerial

The technology known as the Global Positioning System (GPS) originally was assembled to guide missiles in military operations, but watershaper Paul Benedetti sees civilian use of this satellite-based navigation system as one of the next technological frontiers for high-end designers and contractors. Here, he tells how he's already put it to use - and how it helped him stave off an earth-bound disaster that was just waiting to occur.



The upshot is that, although the project may never be built (or will at the very least be delayed for a while), I'm certain that our firm has come away with a new tool that will, when it's appropriate, play an important role in our business and in those of other watershapers from

this point forward. Here's what happened.

THE VIEW FROM ABOVE

I was brought in to look at the site, a single-family residence on 8.5 acres atop a hill in Palo Alto, Calif., with spectacular views of Silicon Valley to the south and the southern reaches of San Francisco Bay to the east. We're talking a drop-dead-gorgeous location on some extremely steep and rugged terrain.

The owner had called in a variety of firms to visit his home and offer bids. Those who went in before me suggested that all it would take to support the pool was a key cut into the hillside. That's not what I observed. In fact, as I walked around the site, warning lights and alarm bells kept going off inside my head.

For starters, there were cracks in the foundation of the home. Looking for a reason, I spotted some grading that had been done downslope in creating a fire road. What I saw down there simply could not have been done with any kind of building code in mind, and my immediate suspicion was that cutting the path for the road had effectively undermined the house and destabilized the entire slope.

I let the client know what I was thinking and let him know that, while I was willing to help, nothing should happen without complete soils and geology reports.

To my way of thinking, it's utter insanity to build a watershape *anywhere* without knowing what's going on geologically, and it's particularly insane to dive into a hillside job without knowing exactly what's going on beneath the surface. And anyone who shifts responsibility for knowing those conditions to the client is, to me, dodging a basic professional duty.

In this case, the extreme topography of the site also meant that getting a true and accurate picture of ground conditions also would require getting a detailed surveyfore would have involved shooting dozens of extreme composite angles and taken weeks if not months to execute.

EYES IN THE SHY

Recognizing the difficulties presented by the site, the geologist referred me to a surveyor who includes GPS-based readings among his services.

I had heard of GPS technology, but I really didn't know anything about it or its capabilities. So I did a bit of research and found out that the system had been de-

special ground-based GPS receivers.

Because the satellites are in known, fixed positions, the receiver can use the signals from three or more satellites to pinpoint locations on the ground with respect to longitude, latitude and elevation. The more sources the receiver can "find," the more accurate the reading.

Even on a tough site like ours, getting good readings is almost never a problem because the satellites are hundreds of miles above the surface of the earth and allow for easy triangulation and remark-

GPS readings can be taken with relative ease on even the most demanding sites. And the fact of the matter is that the sites most difficult to survey using traditional methods are those that probably need it most.

Scale: 1'= 60
Date: 4/24/2000 24 CONTOURS

or's report in combination with the soils testing. The client may (and probably will) balk at the added costs that come with these reports, but in a case such as this one, there really was no alternative. The client agreed with me here, and we started by contacting a soils engineer who came in and started a standard array of soils tests.

The situation with surveying, however, was not nearly so simple: Because of the topography and massive trees on the site, there were no clear lines of sight to visual monuments on the nearby road or adjacent structures. To shoot the site using standard surveying methods there-

veloped for military applications and saw its first major use during the Gulf War, where it guided "smart bombs" to within centimeters of their targets. Once the war ended, the technology rapidly shifted to various other military and civilian applications, mainly for navigation of aircraft and ships at sea – and more recently of automobiles.

It's simple in concept: Orbiting the earth are 24 satellites in what are known as *geosynchronous orbits*, which means each satellite maintains a constant position relative to the earth. These satellites send out precise radio signals that can be picked up by

ably accurate readings. The surveyor need only move around the site, receiver in hand, to take the necessary readings.

On our job, the surveyor took readings at more than 1,200 reference points spread across four acres of the site. The data points were entered into a computer that generated a 3-D topographical map of the hillside.

WHAT WE LEARNED

The information gathered by combining the survey results with the soils report was startling, especially to the homeowner. As I suspected, the downslope grading had not only been completely out of compliance with any known code but also was contributing to the undermining of the house and the destabilizing of the hillside.

The soils report revealed that the immediate culprit was run-off from the decking and the roof. Combined with the expansive clay soil, this uncontrolled flow of moisture had resulted in differential settlement – and a dropping of one side of the house by more than two inches.

The details were forwarded to a structural engineer, who offered suggestions

house is once again both level and, we all hope, stable again.

The upshot: My client's house will be saved, and he assures me that someday I'll be called in to build a pool – perhaps as soon as next year if all goes well. And when it goes in, he already knows it will need the support of a system of piles and grade beams rather than a couple of keys.

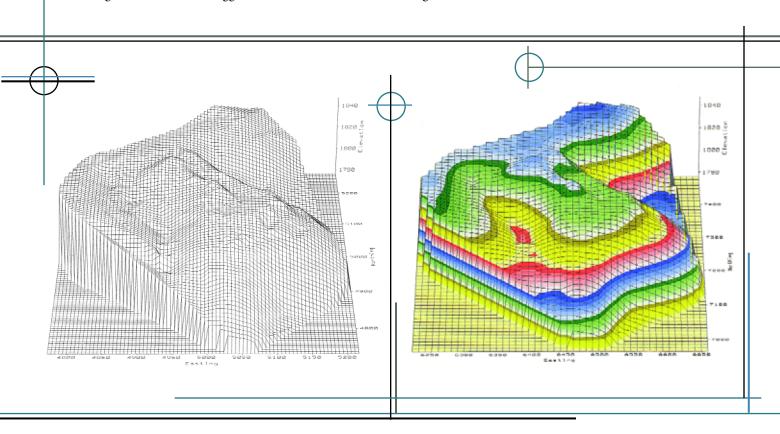
As we've gone through this process, I've learned a few things about GPS technology that are both interesting and promising. For starters, I am encouraged to know that

graphical maps don't have them – even though these are situations where that kind of information is most important.

In this case, the information helped a grateful client save his home from disaster.

DOWN THE ROAD

My first experience with GPS readings was impressive, and the information proved most useful. But what has me more excited about the technology is its potential in helping me in other ways than those described above.



toward remediation. Specifically, the slope adjacent to the fire road needed to be stabilized with either concrete surface materials or a retaining wall, while a portion of the house needed re-leveling – and the installation of concrete underpinnings to a depth of 20 feet.

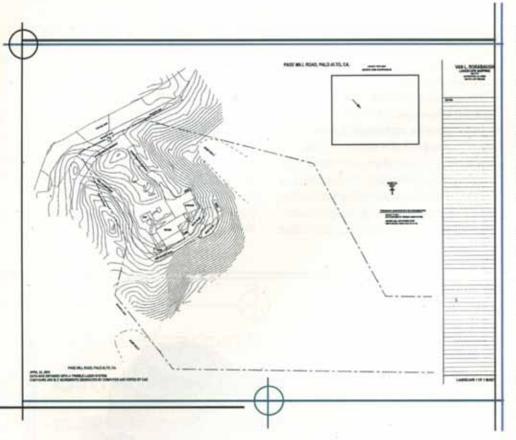
The ticket for all of this work will come to about \$200,000, so it was no surprise when the homeowner decided to put the swimming pool on hold until it was clear that the house wouldn't be sliding down the hill on top of it. Once the remediation work is done, the surveyor will come back, reshoot the site and certify that the

technology exists that can yield *extremely* accurate topographical information. The system we used on this job, for instance, has an accuracy to within 20 centimeters over distances of more than 20 miles. Given the dimensions of most sites and pool structures, this means that when I need to, I can work with *extremely* tight tolerances.

I also learned that GPS readings can be taken with relative ease on even the most demanding sites. And the fact of the matter is that the sites most difficult to survey using traditional methods are those that probably need it most. As a result, many jobs that should have detailed topo-

Once you know the exact elevations and pitch of a given slope, for example, it's possible to generate extremely precise pile and grade-beam designs. It won't be a matter of giving or taking a critical inch. Best of all, levels can easily be re-checked after the forms are set – and *before* the concrete trucks arrive.

I also see great potential in the system's ability to pinpoint property lines and establish proper setbacks in jobs where I know the tolerances will be tight. So if I need a setback of 10 feet, I can nail it down to the centimeter and firmly verify the location with city and building officials. I won't have



to set things up with a 10-foot setback and tack on an extra six inches as a fudge factor.

Of course, the equipment and the service are still very expensive, and it's obvious I won't be calling in a GPS-savvy surveyor on every job. As is the case with almost everything else in our high-tech world, however, the prices of the systems are already falling, and I'd be willing to bet we'll start seeing more and more of this technology on job sites.

It's all reminiscent of the arrival of laserleveling systems: At first, they seemed so exotic, high-tech — and extravagant. But today, I'm one of many builders who can't imagine working without them. Similarly, I think the advantages afforded by GPS eventually will result in its widespread use in the watershaping industry.

For my part, I know that any time I'm confronted with a challenging site, I'll be advising my clients to avail themselves of a GPS survey. It's already saved one house that I'm aware of. Who knows what benefits will emerge down the line?

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EASY-MAINTENANCE SAND FILTERS

Circle 100 on Reader Service Card



LAARS AND JANDY POOL PRODUCTS offers Jandy sand filters in a choice of filament-wound tanks for use with large pools or molded-thermoplastic tanks for use with spas or small pools. All models feature the HBL (hydraulically balanced lateral) Flow System to create even flow throughout the system; air-release systems; durable tanks; and easy plumbing connections with underdrains for easier maintenance. Laars and Jandy Pool Products, Petaluma, CA.

SLIDES FOR SWIMMING POOLS

Circle 101 on Reader Service Card

INTER-FAB manufactures a line of slides for swimming pools, including three models: the freestanding White Water and Wild Ride Slides as well as Slide Rock, which includes a support system hidden by faux sandstone. Each of the slides features high-volume splash jets built into the flume as well as Jet-Set flow-control valves and stainless steel rails and legs. Inter-Fab, Tucson, AZ.



DIGITAL ORP/PH CONTROLLER

Circle 102 on Reader Service Card



SANTA BARBARA CONTROL SYSTEMS offers information on Chemtrol 250, a digital ORP/pH controller for use in the full range of commercial applications. Easy to install, simple to use, fully adjustable using the front panel, the device also includes an acid/base selector, proportional feed, overfeed safety timers and a waterproof cabinet. System benefits and specifications are covered. Carries a 5-year warranty. Santa

Barbara Control Systems, Santa Barbara, CA.

HIGHLY TEXTURED RETAINING WALL SYSTEM

Circle 103 on Reader Service Card

ICD/INNOVATIVE CONCRETE DESIGN offers StoneWall Select, a retaining-wall system that simulates the rugged, rough-hewn beauty of stone. Scaled to look good in walls of any size or height, it easily accommodates steps, comers, radiuses and serpentine contours as well as landscape lighting and more. Light and easy to install, the system works without mortar using interlock clips. ICD/Innovative Concrete Design, Milwaukee, WI.





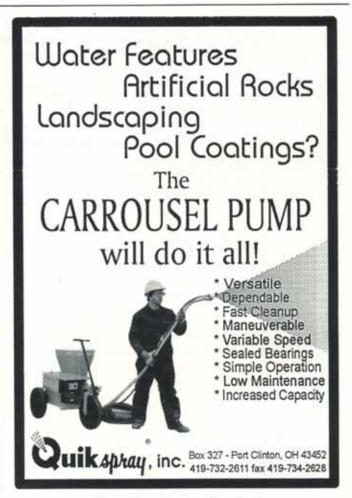
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NEW MODELS FOR OUTDOOR ENCLOSURES

Circle 104 on Reader Service Card



APPLIED GEODESICS introduces Radiance, the latest addition to the Clarity Domes line of out-door-living enclosures. The new model combines a clear geodesic canopy with a durable aluminum frame to create an affordable, all-seasons patio cover. Strong, stable and easy to maintain, the model comes in three sizes (9 by 9 ft., 9 by 11 ft. and 11 by 11 ft.) and each can be fitted

with insect screens or privacy curtains. Applied Geodesics, Vancouver, WA.

JETS FOR JEWEL-LIKE EFFECTS

Circle 105 on Reader Service Card

CRYSTAL FOUNTAINS has introduced Spray Jewel Jets. Designed to create graceful effects as the centerpieces of large and small fountains, the nozzles produce jewel-like, effervescent streams – especially when illuminated at night – that range from heights of 5 to 15 feet with spreads up to 22 feet. Made of cast bronze and machined, extruded brass, the units have 24, 36 or 48 nozzles permanently set at 80-degree angles. Crystal Fountains, Concord, Ontario, Canada.



LOW-VOLTAGE LIGHTING SYSTEMS

Circle 106 on Reader Service Card



VISTA PROFESSIONAL OUTDOOR LIGHTING offers literature on its line of 12-volt lighting systems. The six-panel brochure covers dozens of styles of up, accent, path, spread, inground, well, step, specialty and underwater lights as well as bollards and beacons. Specifications on the company's transformers are included as well. Vista Professional Outdoor Lighting, Simi Valley, CA.

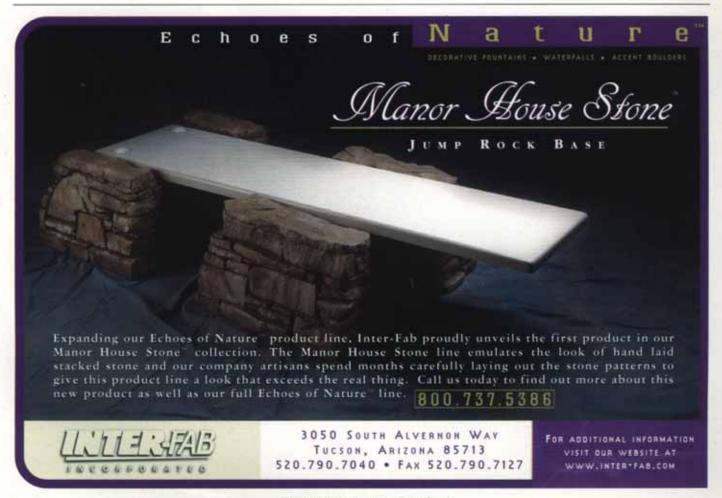
NEW SHOTCRETE PUMP

Circle 107 on Reader Service Card

REED MFG.Introduces the B50 Shotcrete Pump, designed to output up to 50 yards with a concrete pressure of 1,361 psi—a high pressure and high output that make the machine ideal for applying shotcrete. Powered by an 84-hp, liquid-cooled, turbo-charged diesel engine, the machines incorporate the company's



proven technologies for smooth, fast, reliable pump cycling. The frame features an integrated, locking toolbox. Reed Mfg., Chino, CA.



GLASS BEADS FOR POOL FINISHES

Circle 108 on Reader Service Card



CONTOUR/TXI offers Beadcrete — tiny, smooth glass beads that, mixed into plaster, result in a sparkling effect as sunlight passes through the beads and reflects back into the water. The beads themselves are white; when applied using the company's colored pool cements, the beads take on and intensify the background color. The bead mixes are available in a choice of bead concentrations. Contour/TXI, Dallas, TX.

POLYURETHANE ROCK SYSTEMS

Circle 109 on Reader Service Card

FUTURA COATINGS has introduced Futura-Rock, a system that uses fast-setting polyurethane materials sprayed into molds of natural formations to produce realistic waterfeatures. The lightweight material – up to 80% lighter than natural materials – is colored using polymer stains and is then sealed with an automotive-quality clear coat



for a finish that resists fading, water stains and chlorine. Futura Coatings, St. Louis, MO.

FLYER ON D.E. FILTERS

Circle I I 0 on Reader Service Card



JACUZZI BROS. offers literature on the EarthWorks line of diatomaceous-earth filters. Features include 2-in. ground-level plumbing for easy installation, quick-regeneration systems to extend filter cycles, straight grids to reduce bridging and allow for more uniform flow, easy access to the grid system, engineered thermoplastic tanks and more, with filter areas ranging from 35 to 70 sq. ft. Jacuzzi Bros., Little Rock, AR.

WIRE FENCING WON'T IMPEDE VIEWS

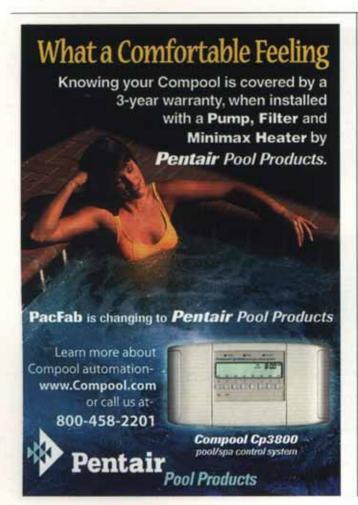
Circle III on Reader Service Card

FEENEY WIRE ROPE introduces CableRail, a system for fences and trellises that offers an ideal solution for homes with a view. The 1/8-in.-diameter, high-strength stainless steel cable installs quickly and easily and readily follows contours and bends on tricky hillside slopes. May be installed on



new or existing frames of wood or steel and comes with complete, stepby-step instructions. Feeney Wire Rope, Oakland, CA.

Continued on page 84







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CONCRETE COPING, WALL CAPS AND PAVERS

Circle 112 on Reader Service Card



AQUASTONE offers a line of concrete coping, wall caps and pavers at affordable prices. Available in three colors — travertine white for a classic look, pewter gray and terracotta tan to blend with pop-

ular materials including Bouquet Canyon and Arizona flagstone – the product features a unique stone-like texture. The bullnose coping and caps are 11-7/8 by 7-5/8 in. The pavers are 12-in. squares. **Aquastone**, Laguna Hills, CA.

LANDSCAPE-DESIGN SOFTWARE

Circle 113 on Reader Service Card

EAGLE POINT SOFTWARE has released Visual Landscaping 2000, a package that allows users to create working plans as well as materials lists while designing in 2-D or 3-D views. System users can now scan a



bitmap image and design on top of that scanned base. Other features allow for creating raised planter beds, mounding, freeform decks and steps. The package also includes an extensive plant database, complete with zone information. Eagle Point Software, Dubuque, IA.

LEAFLET ON OVERFLOW GUTTER GRATING

Circle 114 on Reader Service Card



ASTRAL PRODUCTS has a four-page brochure on its line of grates, including straight runs, radius gratings, corner tiles and support systems. The products are designed to meet the full range of application needs and are made of strong, white polypropylene with an anti-slip finish. The material is resistant to chemicals and UV deterioration. Astral Products, Jacksonville, FL

LONG BOOM FOR CONCRETE PUMPING

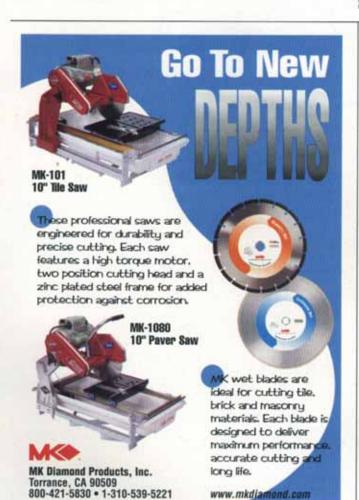
Circle 115 on Reader Service Card

SCHWING AMERICA has introduced a concrete pump with the longest boom on a three-axle truck. With a vertical reach of 127 feet and a horizontal reach of 144 feet, the new 39-meter unit operates with a relatively small outrigger spread of just under 26 feet. The outriggers deploy telescopically for easy avoidance of jobsite obsta-



cles, and controls are on both sides for easy access and visibility.

Schwing America, White Bear, MN.





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Circle 17 on Postage Free Card

NEW FOUNTAINS SCALE THE HEIGHTS

Circle 116 on Reader Service Card



AQUA MASTER announces the availability of Celestial Fountains. Capable of producing fountain spray patterns up to 100 ft. high, they include four spray patterns in sizes ranging from 10 to 25 hp and feature stainless-steel construction, precision-leveling flotation systems, HDPE floats, easy launching and nozzle interchangeability as well as an optional 500W lighting system and a two-year warranty. Aqua Master, Kiel, WI.

DETAILS ON HANDMADE CERAMIC TILES

Circle 117 on Reader Service Card

CRAIG BRAGDY DESIGN has released a brochure on its capabilities with handmade, ceramic-tile murals for aquatic settings. Employing a variety of trompe l'oeil techniques using high-relief, textured and non-slip tiles, the company has been designing and installing murals for 40 years. The possibilities range from Persian-carpet effects and aquatic scenes



to beautiful abstractions. Craig Bragdy Design, Tamarac, FL.

RETAINING WALL SYSTEMS FLYER

Circle 118 on Reader Service Card



VERSA-LOK has unveiled its Mosaic Retaining Wall, a mortarless, interlocking system that combines aesthetics with performance in a randomized, stone-like geometry that mimics natural stone walls. The concrete units install easily without mortar, require no concrete footings and are ideal for shoreline applications. Versa-Lok, Oakdale, MN.

BROCHURE ON STAMPED CONCRETE

Circle 119 on Reader Service Card

INCRETE SYSTEMS offers "Second Only to Nature," a brochure highlighting its line of decorative stamped-concrete treatments. Available in a rich variety of textures, patterns and colors, stamped concrete gives a quality look at a fraction of the cost of the real thing — and offers watershapers a non-skid, stain-resistant, easy-to-clean finish for use in their work. Increto Systems, Tampa, FL.





Quaker Plastic Corporation Presents It's New

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- Wall Heights The 90° 3-Tread Corner Twin Seat Cantilever Stair will be available in stair wall heights of 42" and 48" and is designed to replace (2) 6" wall panels.
- Shipping The 90° 3-Tread Corner Twin Seat
 Cantilever Stair will be initially shipped (4) stairs to a skid. (all stair wall heights on a skid must be the same, no mixing of 42° or 48")



Circle 49 on Postage Free Card

POND-QUALITY REFERENCE MANUAL

Circle 120 on Reader Service Card



AEROMIX has published "Pond Water Quality Manual," a guide to water management for ponds and lakes. The booklet describes various quality-management techniques; offers a full glossary of common water-quality terms; provides details on limnology, algae control and water improvement; and includes guidelines for aeration-system sizing and more. In one source, it offers advice on selecting the best maintenance practices for any pond or lake. Aeromix, Minneapolis, MN.

COMMERCIAL SAND FILTERS

Circle 121 on Reader Service Card

USFILTER/STRANCO PRODUCTS has introduced a new sand-filtration system designed specifically for use on commercial recreational-water facilities. The tanks are made of non-corroding fiberglass with Kevlar reinforcement and are available in single-tank through eight-tank configurations. They come



in 34-, 43- and 60-inch diameters and feature internal distribution systems that eliminate turbulence and filter-media-bed migration. **USFilter/Stranco Products**, Bradley, IL.

EROSION CONTROL/RETAINING WALLS

Circle 122 on Reader Service Card



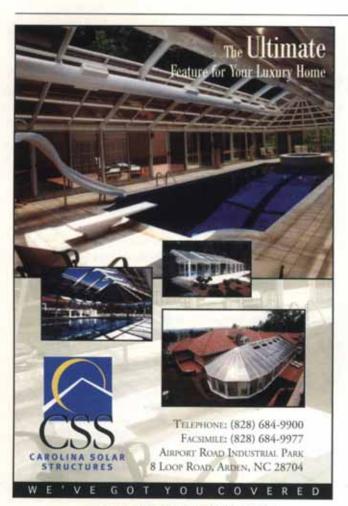
PAVESTONE CALIFORNIA offers EarthStone, an erosion control/retaining wall system that works without the need for pins, mortar or geogrid. The walls are fully plantable and self-supporting and have been built to heights as high as 43 ft. without any tiebacks. Pavestone California, Sacramento, CA.

HIGH-VOLUME PLASTER EQUIPMENT

Circle 123 on Reader Service Card

PUTZMEISTER offers Tommy Gun A3, the latest in a line of products introduced more than 40 years ago that has evolved to meet current market needs for application of plaster, decking, exposed aggregates, grouting and more. Rugged, reliable and versatile, the units are designed for tag or mobile use; are driven by gas, diesel or electricity; come with or without a mixer; and offer a full range of options. Available literature covers specifications. Putzmeister, Anaheim, CA.





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GLOSSARY OF DEHUMIDICATION TERMS

Circle 124 on Reader Service Card



AIR TECHNOLOGY SYSTEMS has published a glossary of terms used to describe dessicant-dehumidification air-drying systems suited to applications with indoor pools and waterfeatures. The glossary offers definitions of more than 50 common terms used with these systems, which dry moist air by exposing it to dessicant materials. The booklet is intended to ease com-

munication about this emerging technology. Air Technology Systems, Frederick, MD.

STONE SERVICES HIGHLIGHTED

Circle 125 on Reader Service Card



KRC ROCK has published literature on its landscape and building stone as well as its boulder-placement services. The company offers a full line of boulders along with a wide selection of flag, build-

ing and dimensional stone and aggregates, gravel and more. In addition, it developed the KR 2500 boulder-placement crane for precise, efficient on-site work with large boulders. KRC Rock, San Marcos, CA.

TECHNICAL DETAILS ON PUMP MOTORS

Circle 126 on Reader Service Card



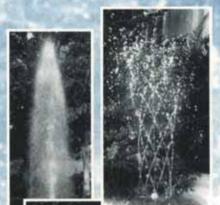
MAGNETEK offers
"Bulletin 1081" on
its line of pump
motors for application with leisure
water systems.
The literature includes a squareflange and C-face
replacement

guide, a thru-bolt replacement guide and specifications for its Centurion, Neptune, Century and Commander motors. It also gives information on obtaining additional educational and technical-support materials. MagneTek, St. Louis, MO.



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TOUGH, RECYCLED-WOOD DECKING

Circle 127 on Reader Service Card



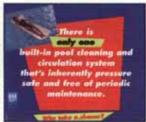
TREX offers Easy Care Decking, a recycledwood product that provides splinter-free comfort, requires no stains or sealers, stands up to harsh conditions and will not rot or crack from contact with moisture, insects or sunlight. Designed for use in decks and landscape structures set up near water, the decking is

widely used around pools, ponds and spas and offers excellent traction, wet or dry. Available in three colors. Trex, Winchester, VA.

FILTERING POOL CLEANERS HIGHLIGHTED

Circle 128 on Reader Service Card

A&A MFG. offers a brochure highlighting features of its built-in pool cleaning and circulation systems. Designed with safety in mind, the system allows no buildup of excess pressure or pressure spikes as valves change ports. In addition, the system requires no routine maintenance, needs no extra filters or



screens – and comes with a plain-language warranty that customers understand. **A&A Mfg.**, Phoenix, AZ.

POOL AND SPA CONTROL CATALOG

Circle 129 on Reader Service Card



INTERMATIC has published a full-color, 16-page guide to its pool and spa timing controls. Coverage includes enclosures in three different sizes, a selection of time switches, air switches, freeze-protection units, electronic switches and mechanical timers as well as an array of accessories for use in complete control of watershape systems. Also includes details on radio remote controls. Intermatic, Spring Grove, IL.

NEW SHOTCRETE/CONCRETE PUMP

Circle 130 on Reader Service Card

AIRPLACO introduces its new and improved model P-280 shotcrete and concrete pump. Powered by a 30-hp Wisconsin gas engine or a Duetz diesel engine, this pump delivers up to 28 cu. yd. per hour. When used as a shotcrete pump, the proper mix design will give pulse-free nozzle response. New features



such as the central lubrication panel provide for uncomplicated maintenance and service. **Airplaco**, Cincinnati, OH.

qp

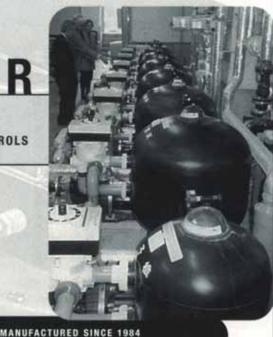
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POURED-IN-PLACE SAFETY SURFACES

Circle 131 on Reader Service Card



SAFE GUARD SURFACING offers a specifications sheet on its poured play-area safety surfaces. The seamless, synthetic-rubber system complies with CPSC, ASTM and ADA standards and comes with a three-year warranty. The company offers a CAD-based consulting service aimed at producing designs that reduce both injuries and maintenance costs. Safe Guard Surfacing, St. James, NY.

CAST-STONE GARDEN FURNISHINGS

Circle 132 on Reader Service Card

DURA ART STONE has introduced an extensive new collection of cast-stone garden and outdoor furnishings, including classical urns, planters and bowls as well as column details, outdoor benches, statuary and animal sculptures. The company also offers custom



services: Working from drawings, staff will sculpt, model, mold and cast a finished piece. All products are available in a choice among 18 colors and a range of finishes. **Dura Art Stone**, Fontana, CA.

SOLAR HEATING FOR POOLS

Circle 133 on Reader Service Card



HARTER INDUSTRIES provides literature on its roof-mounted and in-deck solar pool-heating systems. The roof-mounted Hi-Tec system combines tube-on-fin solar absorbers with injection-molded headers to provide high levels of heating and low maintenance. For sites with decking areas at least twice as large as a pool's surface area, the company also offers its Pool Deck heating system — a completely concealed solar heater. Harter Industries, Holmdel, NJ.

PUMPS FOR POOLS, FOUNTAINS, WATER GARDENS

Circle 134 on Reader Service Card

LITTLE GIANT PUMP CO. has published a brochure with capsule descriptions of its main lines of pumps and accessories, including submersible models for use in pools and fountains and units designed specifically for use in water gardens and ponds. The literature also describes the company's history stretching back to 1941 and outlines its customer-service philosophy. Little Giant Pump Co., Oklahoma City, OK.



89

Continued on page 93



PRODUCT INFORMATION CARD

For more information on advertisers and/or products featured in this issue's Of Interest section, circle the corresponding Product Information Number on the postage-free card opposite this page.

ADVERTISER INDEX:

4	3M (pg. 28)	19	Laars and Jandy Pool Products (pg. 100)
6	Advanced Aquaculture Systems (pg. 96)	27	Macalite Equipment (pg. 8)
3	Air-O-Lator (pg. 26)	32	Master Supply (pg. 20)
10	Aquamatic Cover Systems (pg. 53)	40	MK Diamond (pg. 84)
5	Aquascape Designs (pg. 27)	29	National Pool Tile (pg. 30)
7	Aquatech Corp. (pg. 31)	33	NESPA (pg. 83)
9	Aquavations (pg. 21)	38	NSPI Region 3 (pg. 91)
14	Artistry in Mosaics (pg. 87)	17	Pond Supplies of America (pg. 84)
61	Assn. of Professional Landscape Designers (pg. 79)	11	Pool Cover Specialists (pg. 23)
15	Atomizing Systems (pg. 80)	56	Praher Valves (pg. 88)
64	Bio-Lab (pg. 67)	41	Pure & Clear (pg. 14)
28	Carolina Solar Structures (pg. 86)	49	Quaker Plastic (pg. 85)
13	CL Industries (pg. 11)	68	Quikspray (pg. 80)
	Colorado Lining Co. (pg. 94)	2	Reed Mfg. (pg. 25)
51	Compool (pg. 82)	21	Rock & Water Creations (pg. 7)
1	Concrete Restoration Systems (pg. 17)	34	Rock Formations (pg. 29)
30	Contour/TXI (pg. 99)	44	Santa Barbara Control Systems (pg. 86)
8	Cover-Pools (pg. 3)	45	Schwing America (pg. 18)
18	Coverstar of Utah (pg. 94)	53	Speck Pumps (pg. 71)
24	Crystal Fountains (pg. 24)	37	Spectrum Pool Products (pg. 89)
12	Engelhard (pg. 49)	58	Spray Force Mfg. (pg. 13)
	Fountains & Ornamental Stone (pg. 94)	63	Sta-Rite (pg. 51)
20	Fountains for Pools (pg. 30)	35	Standard Bronze (pg. 82)
16	Genesis 3 (pg. 69)	36	Stegmeier Corp. (pg. 12)
22	Grate Technologies (pg. 16)	62	Strong Co. (pg. 78)
25	Inter-Fab (pg. 81)	42	System Dynamics (pg.93)
26	Intermatic (pg. 95)	52	United Elchem (pg. 95)
23	Jack's Magic Products (pg. 9)	60	Waterway Plastics (pg. 19)
31	Jacuzzi Bros. (pg. 15)	39	Waterworks Intl. (pg. 87)
55	JPJ Technologies (pg. 32, 33)	43	Western Rock & Boulder (pg. 2)

OF INTEREST INDEX:

Schwing America (pg. 84)

100	Laars and Jandy Pool Products (pg.80)	116	Aqua Master (pg. 85)	132	Dura Art Stone (pg. 89)
101	Inter-Fab (pg. 80)	117	Craig Bragdy Design (pg. 85)	133	Harter Industries (pg. 89)
102	Santa Barbara Control Systems (pg. 80)	118	Versa-Lok (pg. 85)	134	Little Giant Pump Co. (pg. 89)
103	ICD/Innovative Concrete Design (pg. 80)	119	Increte Systems (pg. 85)	135	Hadco (pg. 93)
104	Applied Geodesics (pg. 81)	120	Aeromix (pg. 86)	136	Engelhard (pg. 93)
105	Crystal Fountains (pg. 81)	121	US Filter/Stranco (pg. 86)	137	Waterco USA (pg. 93)
106	Vista Professional Outdoor Lighting (pg. 81)	122	Pavestone California (pg. 86)	138	Aquamatic Cover Systems (pg. 93)
107	Reed Mfg. (pg. 81)	123	Putzmeister (pg. 86)	139	Advanced Aquaculture Systems (pg. 94)
108	Contour/TXI (pg. 82)	124	Air Technology Systems (pg. 87)	140	Praher Canada Products (pg. 94)
109	Futura Coatings (pg. 82)	125	KRC Rock (pg. 87)	141	United Elchem (pg. 94)
110	Jacuzzi Bros. (pg. 82)	126	MagneTek (pg. 87)	142	A.O. Smith (pg. 94)
111	Feeney Wire Rope (pg. 82)	127	Trex (pg. 88)	143	G.H. Stenner (pg. 95)
112	Aquastone (pg. 84)	128	A & A Mfg. (pg. 88)	144	Martin Pump (pg. 95)
113	Eagle Point Software (pg. 84)	129	Intermatic (pg. 88)	145	Environmental Test Systems (pg. 95)
114	Astral Products (pg. 84)	130	Airplaco (pg. 88)		

Safe Guard Surfacing (pg. 89)

131

115

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Correction

In the September 2000 issue of WaterShapes (Vol. 2, No. 7), photo credits were reversed in the feature article "Good Aerations," by Erich Altvater (beginning on page 32) and in the sidebar "Aerator or Fountain?" by Lisa A. Berosh (pages 38 and 39).

The photo credits on pages 33, 34 and 39 should read "Photo courtesy Otterbine-Barebo, Emmaus, Pa." The credit on page 36 should read "Photos courtesy of Oase Pumps, Irvine, Calif."

Photo courtesy Otterbine-Barebo, Emmaus, Pa.





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LANDSCAPE LIGHTING COVERED IN CATALOG

Circle 135 on Reader Service Card



HADCO has published a 92-page catalog — "Nightlife" — on its landscape-lighting products. An introductory text offers guidance in system selection, lighting techniques and installation. The main section of the catalog then covers the company's garden-art collection, accent lighting, step and deck lighting, inground lighting and path lighting. Details on power systems and accessories also are included. Hadco, Littlestown, PA.

DETAILS ON POZZOLONIC PLASTER ADDITIVE

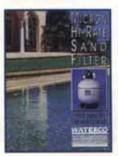
Circle 136 on Reader Service Card

ENGELHARD offers information on MetaMax PA, a high-quality pozzolonic additive for plaster. The product works by reacting with lime in plaster mixes to form additional cementitious products. This results in a more durable surface by limiting lime's ability to leach from hardened plaster to cause discoloration and areas of weakness. The flyer also includes guidelines for product mixing and use. Engelhard, Iselin, NJ.



SAND FILTERS HIGHLIGHTED

Circle 137 on Reader Service Card



WATERCO USA has published a flyer on its Micron Hi-Rate sand filters. Designed to provide ultra-pure filtration in a compact package, the filters feature corrosion-resistant, abrasion-proof materials in housings made to be maintenance-free — even in the face of environmental extremes. The filters come in seven sizes ranging from 24 to 48 in. diameters with filter areas from 3.12 to 11.6 sq. ft. Waterco USA, Scottsdale, AZ.

BROCHURE ON POOL SAFETY COVERS

Circle 138 on Reader Service Card

AQUAMATIC COVER SYSTEMS has published a six-page brochure on its line of pool safety covers. The literature highlights features of the Hydramatic automatic system and its unique fluid-drive system as well as EZ Cover, an easy-to-use manual system. The brochure includes strips indicating available fabric colors, suggests applications for both rectangular and non-rectangular pools and details the range of available track systems. Aquamatic Cover Systems, Gilroy, CA.



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POND-MAINTENANCE SYSTEM

Circle 139 on Reader Service Card



ADVANCED AQUACULTURE SYSTEMS offers the Aguacube, a complete, maintenance-free aeration, degassing, biological filtration, circulation and foam fractionation system for any size pond. The system needs no pump, submerged wiring, chemicals or replacement parts. All units are backed by the company's free system-design services and

technical support staff, with the emphasis on delivering turnkey systems to contractors. Advanced Aquaculture Systems, Brandon, FL.

GATE VALVES HIGHLIGHTED

Circle 140 on Reader Service Card

PRAHER CANADA PRODUCTS has an eightpage guide to its Knifegate Valves. Available for use on diameters from 1 to 4 in., these valves are ideal for quick shutoff in low-pressure or vacuum lines and feature PVC or ABS construction with stainless-steel shaft and hardware. Designed to provide unrestricted flow and to function at pressures up to 50 psi. Praher Canada Products, Barrie, Ontario.



SOLVENT CEMENTS AND SPECIALTY PRODUCTS

Circle 141 on Reader Service Card



UNITED ELCHEM offers a brochure on its Uni-Weld line of solvent cements, cleaners, primers, applicators and specialty products for use with plastic parts made of PVC, ABS and CPVC. Includes information on intended uses, color, curing speeds, maximum pipe diameters and temperature ranges as well as product performance and benefits. Also offers a troubleshooting guide. United Elchem, Dallas, TX.

PUMP MOTORS FOR POOLS AND SPAS

Circle 142 on Reader Service Card

A.O. SMITH has issued a 14-page guide to its pump motors for pools and spas. The booklet includes information on mounting dimensions and electrical connections as well as complete specifications on its one- and two-speed motors for circulation systems, its pool sweep motors and its jet pump motors. Coverage also includes guidelines for selecting replacement motors. A.O. Smith, Tipp City, OH.



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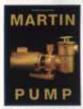
Circle 143 on Reader Service Card



G.H. STENNER has announced the availability of models 45MHP22 and 85MHP40, capable of injecting 22 gal. per day and 40 gpd, respectively, against pressures up to 100 psi with a single pumping head. The new feeders complement the company's line of lower-pressure feeders, which pump capacities from .2 to 170 gpd against pressures up to 25 psi. G.H. Stenner, Jacksonville, FL.

BRONZE-ALLOY POOL PUMP

Circle 144 on Reader Service Card



MARTIN PUMP introduces its 100 Series of pumps, made using a special bronze alloy offering high quality at low cost. Self-priming, durable, resistant to chemicals and corrosion, the pumps come in four models ranging from .75 to 2 hp and feature 56-frame, industrial-quality motors, bronze impellers and drip-proof seals. Literature includes performance curves and specifications. Martin Pump, Torrance, CA.

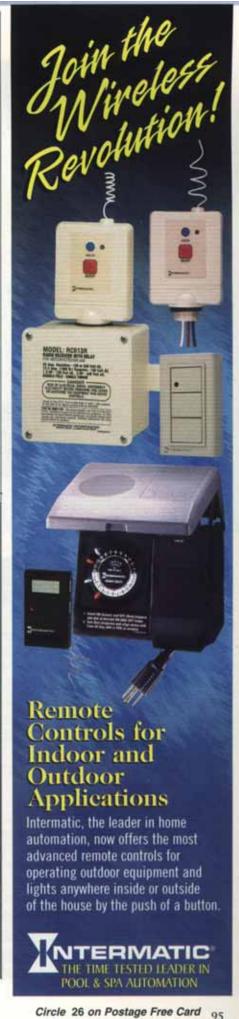
TEST STRIPS CHECK MONOPERSULFATE LEVELS

Circle 145 on Reader Service Card

ENVIRONMENTAL TEST SYSTEMS introduces Aquachek 3-Way Monopersulfate Test Strips to simplify maintenance of vessels using monopersulfate to supplement low-halogen or halogenfree systems. With a single dip, the versatile strips also check for pH and total alkalinity levels while measuring for monopersulfates, delivering results in less than a minute. Environmental Test Systems, Elkhart, IN.



Circle 52 on Postage Free Card





Continued from page 98

forms, small wood or "standard" pool-construction techniques, you have another thing coming.

Two to three days before we pour, the mason and I get together and determine each and every deep score mark. (Corners and angles are complicated and need to be just right.) Once the pattern is marked, we set nails in the forms and string nylon twine across the beam to check the layout of the scorings for visual balance. These breaks serve two purposes: They give the coping the look of separate, pre-cast stones and also help to prevent and control cracking.

Before we pour the coping, I want to make sure that I can control the temperature to some extent. If it's hot (as it was in this case, for example), we'll erect shade tents to protect the work. This allows the concrete to dry slowly and evenly, giving it greater



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structural strength and a more uniform appearance. (It's also a kindness to the crew.)

I order an extremely stiff concrete from my ready-mix supplier, instructing them in this instance to add three pounds of oxide per yard to the batch. The colorant I used on this job was Davis Oxide (Willow Green, #5376). Once the truck arrives on site, we wheel-barrow the concrete in — no pump, because we don't want to add any extra water. The cost of doing things this way is substantially higher, but it shows in the quality of the work.

The day the coping is poured, the site becomes an orderly hive of activity: Once the poured concrete has been leveled, an abundance of finishers go over every square centimeter and apply a soft, broom finish.

As the concrete dries and its shade lightens, the final green color slowly emerges. On this job, the coping will blend beautifully with green glass tile on the vertical faces of the pool exterior, a waterline detail and the adjoining tiled spa. In some sections, the coping abuts a blond stone decking for a gorgeous contrast.

The finished product tells the tale: It's a great look, and one every capable builder should consider.

David Tisherman operates David Tisherman's Visuals, a design and construction firm based in Manhattan Beach, Calif., with offices in Marlton, N.J. He is co-founder and principle instructor for Genesis 3, A Design Group, which offers education aimed at top-of-the-line performance in aquatic design and construction.





The Pouring of the Green

By David Tisherman

dge treatments are important to me.
They can lead the eye into the water, set up a barrier, break down a barrier.
They're simply too critical to the overall impression made by a watershape to be left to chance.

For the past ten years, I've found myself using one edge treatment more and more: a poured-inplace coping that uses colored concrete. I've now done it dozens of times, and my clients have always been thrilled by the results.

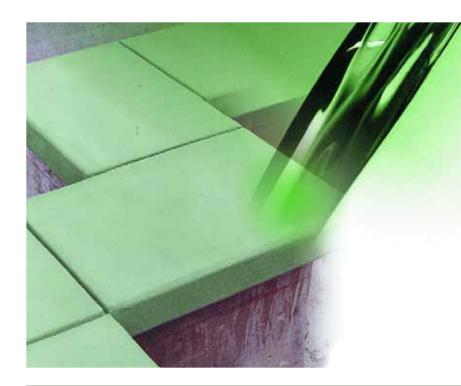
In effect, I use the concrete to create soft and subtly colored rectangular coping "stones" that cantilever two inches off both the interior and exterior sides of a raised bond beam (or off the interior side only when the coping abuts the deck). The hue is important: By using colored oxides – pale green being one of my own personal favorites – we can blend the coping with tiles and numerous types of the interior finishes.

DOWN TO DETAILS

For the project illustrated here, I set up a rectilinear slab 16 inches wide by 3-5/8 inches thick around the pool's perimeter. The coping rests atop a raised bond beam around much of the pool, providing a perfect place to sit or even lay down. Yes, this approach takes substantially more work and costs more than most other edges (approximately \$50 to \$55 per linear foot, depending in part on the color), but when you want to give your customers something elegant, it's well worth the effort and expense.

After the shell has been gunited evenly and has had time to cure, I drill #3 rebar into the top of the beam, bond it to steel in the beam left open at guniting time and bend it over into L shapes. In this case, I laid in wire mesh and tied it to the steel; in other cases, I'll weave a mesh of black annealed wire and secure it using concrete nails.

Now I prepare the beam for its coping by banding the pool with forms. There's nothing particularly tricky about this kind of forming for detailed concrete work, but it does require very tight toler-



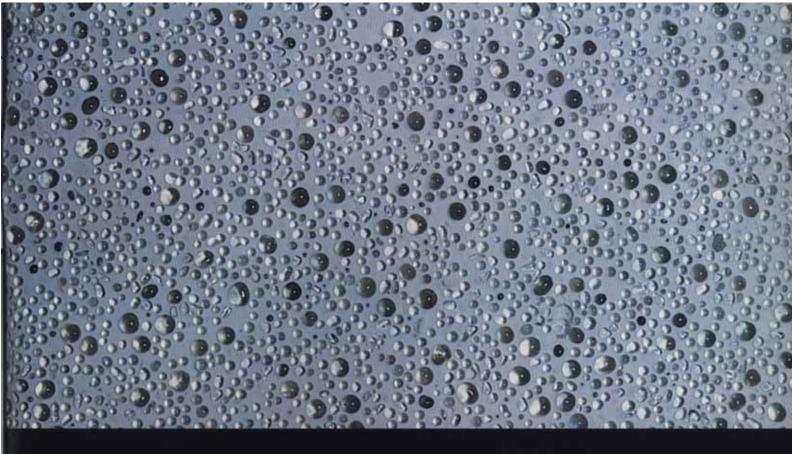
Yes, this approach takes substantially more work and costs more than most other edges, but when you want to give your customers something elegant, it's well worth the effort and expense.

ances and truly solid form construction.

When you're going for ultra-clean lines like this, any imperfection is immediately apparent. As I've stated repeatedly in past *WaterShapes* articles and when teaching at the Genesis 3 Design Schools, I insist on using real carpenters rather than pool people who "do everything." To achieve the effect I'm after, I absolutely need secure forms of two-by-fours and two-by-sixes and sometimes two-by-eights – perfectly square, level and plumb with the pool.

And if you think you can pull this look off with bender board, styrene

Continued on page 96



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Beadcrete™ opens up a new world of choices in color, texture and brilliance for pools.

Beadcrete™ is a pool plaster made with thousands of tiny glass beads enhancing both color and water. Mixed with other aggregates, the creative combinations for the shell are virtually endless. Water and light combine with Beadcrete™ to create a cascading sparkle effect that is even more appealing. Call for a Beadcrete™ sample today and be dazzled yourself.

Beadcrete™ - just one more way for Contour™ to become the market leader for superior construction materials in the pool and spa industry. We're committed to providing you with the widest variety of products and creating new and improved materials for the shell and deck. Now you have choices. Simple.

Contour™ - we're pooling all our resources.





A pool, a spa and a Jandy AquaLink® RS OneTouch:

The Essential Elements of a Backyard Paradise.



Introducing the new Jandy AquaLink® RS OneTouch Electronic Control Panel. The industry leader, it sells itself!

- ■The powerful OneTouch gives your customer indoor control of up to 32 pool and spa features with just ONE button.
- Sleek, compact design with a faceplate that is only 41/2" x 41/2". Plus, the OneTouch can be flush or surface mounted.
- Available in a variety of designer finishes to suit the pool and spa owner's individual needs.







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