Inside: Stephanie Rose on Barriers

WaterShapes

Design • Engineering • Construction

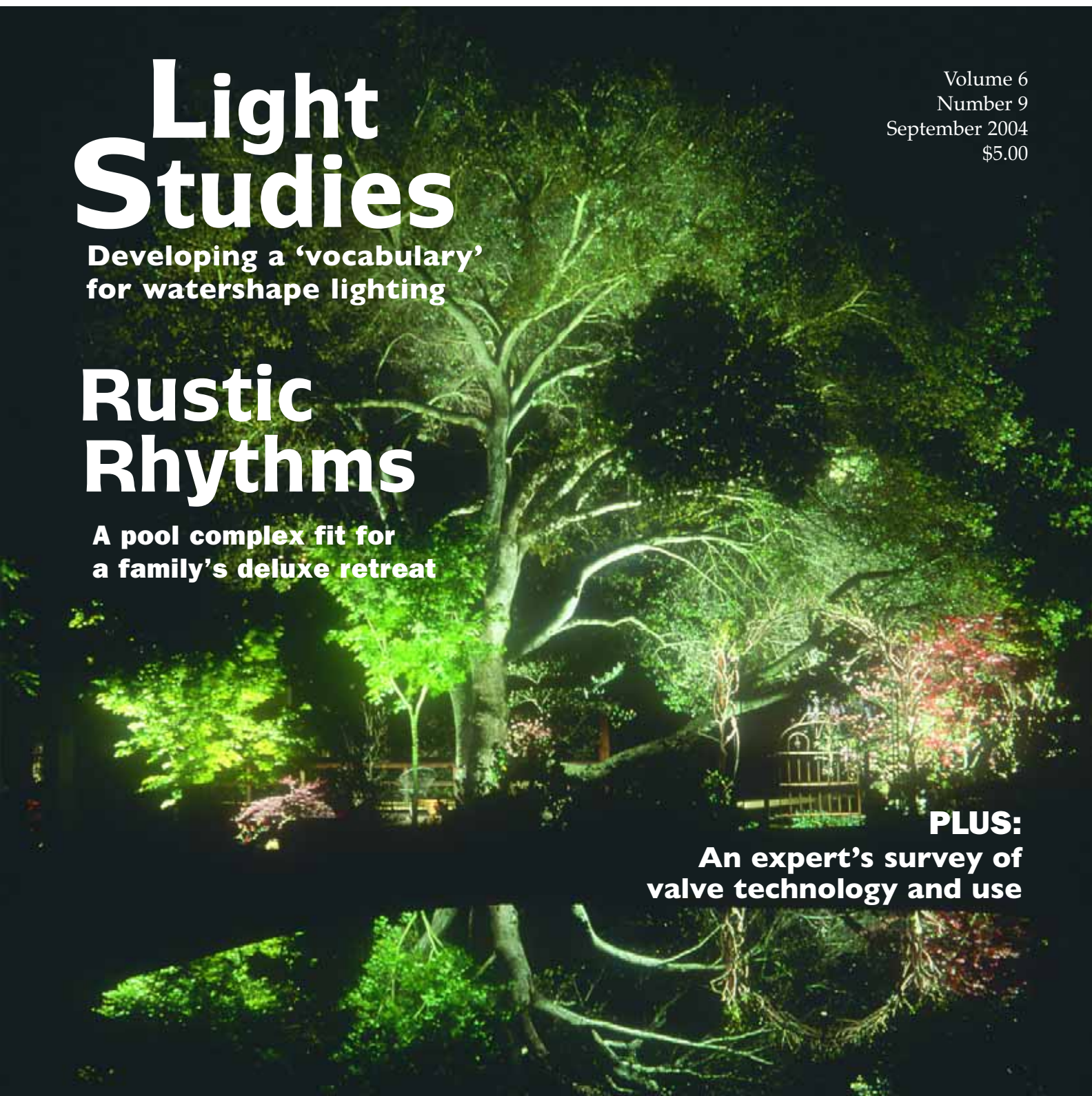
Volume 6
Number 9
September 2004
$5.00

Light Studies

Developing a 'vocabulary' for watershape lighting

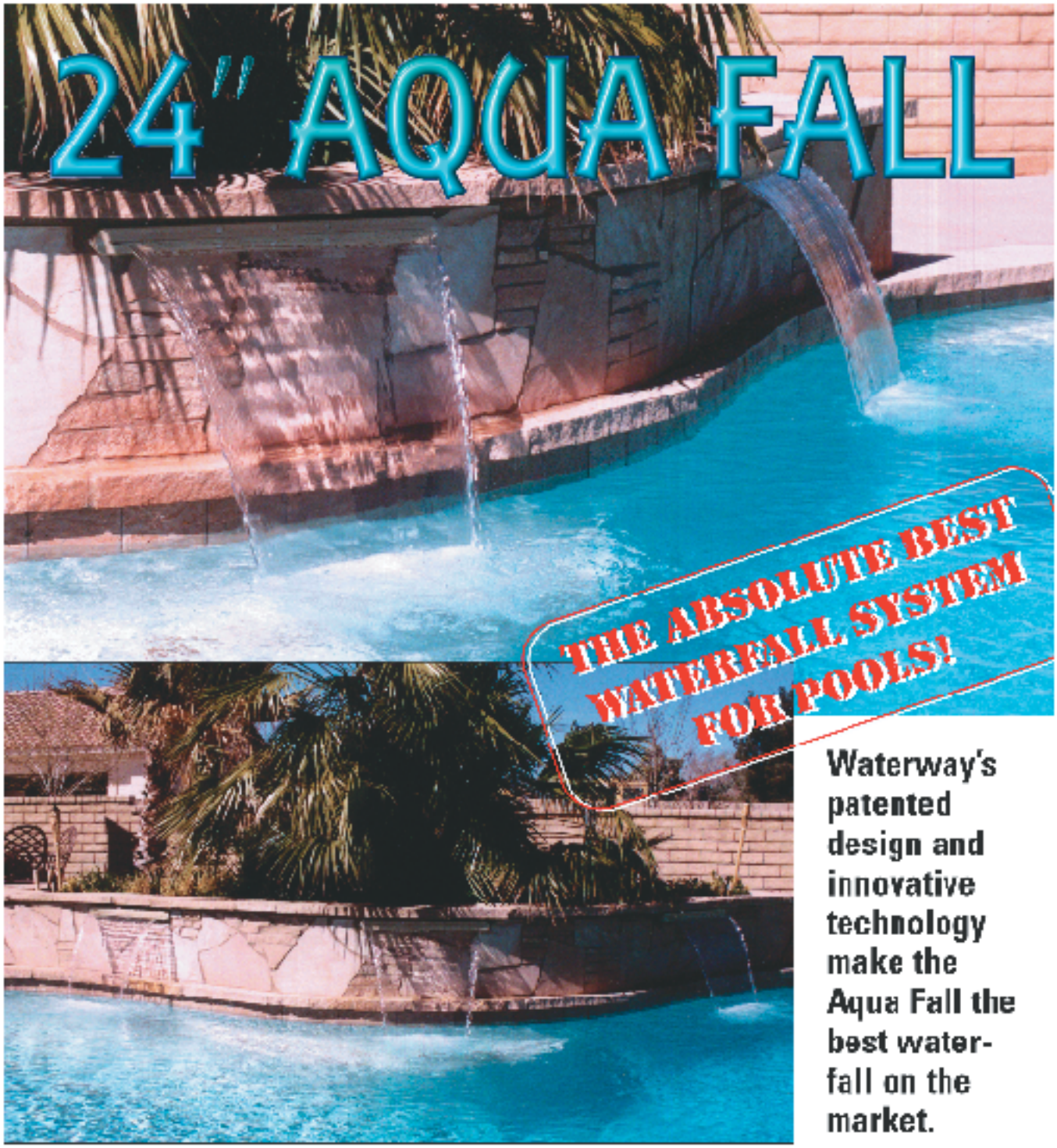
Rustic Rhythms

A pool complex fit for a family's deluxe retreat



PLUS:
An expert's survey of valve technology and use

24" AQUA FALL



THE ABSOLUTE BEST WATERFALL SYSTEM FOR POOLS!

Waterway's patented design and innovative technology make the Aqua Fall the best water-fall on the market.

Patent # US6,451,418B1

FEATURES:

- SERVICEABLE: The Aqua Fall is the only serviceable waterfall available.
- COLORS: The Aqua Fall face comes in a variety of colors.
- MORE FLOW: The Aqua Fall system has a flow rate of 24 to 50 GPM (Gallons Per Minute).

2200 East Sturgis Road, Oxnard, CA 93030
(805) 981-0263 • FAX: 805/981-9405 • Toll Free FAX: 800/772-6707
www.waterwayplastics.com • E-mail: waterway@waterwayplastics.com

Waterway

Made In The USA

Circle **56** *on Postage Free Card*

AQUAMATIC COVER SYSTEMS

Exclusive Manufacturer of the HydraMatic Hydraulic Swimming Pool Safety Cover

ADVANTAGES AND BENEFITS

WATERPROOF

Drive mechanism is fully submersible, no longer are drains a problem nor does recess flooding mean an expensive electric motor replacement.

SAFETY

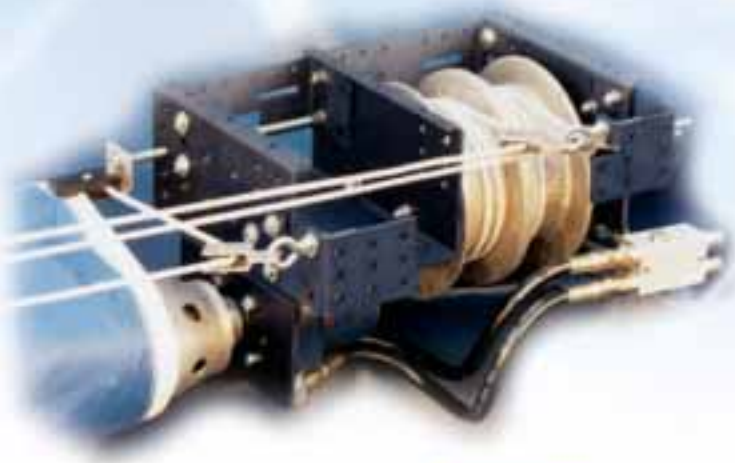
No electrics near the pool for greater safety. All electric power and switches are remote at the equipment pad, also means fewer problems with inspections.

POWER

Hydraulics deliver more power, yet dials in only as much as needed to operate the cover. Virtually all pool configurations can now be covered; what before was a limitation is now the norm.

FAILSAFE

Pressure relief valves gently stop the cover if it meets an obstruction, instead of breaking a mechanical shear pin linkage that needs to be replaced before the operation.



DURABILITY

Hydraulics are widely used in heavy equipment. The unique patented duo-motor HydraMatic System eliminates mechanical linkage and clutches to change cover direction and motion of the cover. It has the least number of parts of any other automatic pool cover system, yet has the full range of safety and convenience features. Originally designed for Commercial Application.

LIMIT SWITCHES

Elegant in its simplicity, the end of travel of the cover at each end of the pool is controlled by pressure relief valves.

WARRANTY

The HydraMatic cover system comes with a twenty year limited warranty on the mechanism and a seven-year limited warranty on the fabric. For additional warranty information, call your Aquamatic representative.

HydraMatic and EZCover™ exceed ASTM F1346-91 standards.
HydraLux™ is not a safety cover.

200 Mayock Road, Gilroy, CA 95020
800.262.4044 • Fax: 800.600.7087
408.846.9274 • Fax: 408.846.1060
www.aquamatic.com

NATIONAL SPA & POOL INSTITUTE

UL LISTED ASTM CE

Circle 3 on Postage Free Card

contents

September

features

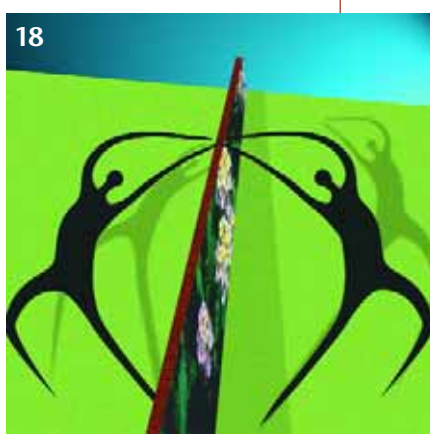
WATERSHAPES

Volume 6 • Number 9 • September 2004

columns

10


20


18

departments

On the cover:
Photo courtesy Janet Lennox Moyer, MSH Visual Planners, Brunswick, N.Y.

WATERSHAPES (ISSN 1522-6581) is published monthly by McCloskey Communications, Inc. 6119 Lockhurst Dr., Woodland Hills, CA 91367. A controlled circulation publication, *WaterShapes* is distributed without charge to qualified subscribers. Non-qualified subscription rates in the U.S., $30 per year; Canada and Mexico $48 per year; all other countries $64 per year, payable in U.S. funds. Single copies $10 per issue in the U.S. and Canada. All other countries $15 per issue. Subscription requests must include name, job title, business location, address information and a signature and date.

POSTMASTER: Send address changes to *WaterShapes*, P.O. Box 1216, Lowell, MA 01853-9930.
Periodicals postage rates paid at Woodland Hills, CA 91365 and additional mailing offices.

By Eric Herman

Lessons On the Home Front

A number of you have asked me, with varying degrees of urgency, to lighten up on what you see as the magazine's criticism of the mainstream pool and spa industry. We all know about the 'poor reputation' that has dogged 'pool guys' for years now, you say, then urge me to look at the bright side and the progress made by those who design and build all those beautiful residential pools and spas we publish.

Yes, things have gotten better, and there are indeed more people doing good work on sophisticated projects – and lots more who are paying attention and doing what they can to overcome a regrettable industry reputation. That said, every once in a while I run into something that makes me question just how far away from the pool-guy mentality we've managed to get.

Most of the time, I'll run into small things that stand out and can no longer be excused – white plastic skimmer lids in beautiful stone decks, for example, or pumps so oversized that equipment pads screech like airplanes. In one recent case, however, I ran into something that is so offensive with respect to basic aesthetics that I simply can't figure out what the builder could possibly have been thinking.

On my daily walk, I passed a spec home perched on a hilltop. I could tell there was a pool up there, but it wasn't because of the usual tell-tales – no slide, no trough for a vanishing edge. No, I knew there was a pool up there because just above the street, on the main line of sight leading up the hill to the home, sat a huge equipment pad and an array of pumps, filters, pipes, valves and fittings that was absolutely the first thing I (and everyone else) saw in approaching a multi-million-dollar estate.

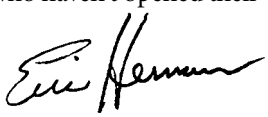
As luck would have it, there was an open house that day, so I walked up the hill. The home was delightful – Spanish Colonial architecture, attractive landscaping, sweeping views and top-drawer materials and products inside and outside the home. The swimming pool was nice, too, at least up on top of the hill: generous faux rockwork, beautiful stone decking, a rich pebble finish and a nice beach entry.

As I looked around, the developer stepped my way. He seemed pleased that I was studying the pool and said, "Really makes a statement, don't you think?" I politely agreed but couldn't help mentioning the downslope eyesore. His response, I kid you not, was, "You know, I talked with the pool contractor about that, and he told me it was a great way to let people know there's a swimming pool up here."

I'm as impressed by a tight equipment set as any civilian can be, but I must say I was rendered speechless. Placing equipment at the most visible street-level point within the property lines struck me as either an exercise in bad taste or a grievous mistake, but dismissing the developer's concern in this way (and with apparent success) seemed to epitomize the pool industry's negative public image.

If I'd been the one laying out the long green to build a dream house, *especially* on spec, I wouldn't have stood for that pad placement, and perhaps that's where the problem lies: Are expectations so low that pool contractors can get away with this sort of poor performance?

As one who cares deeply about the reputation and quality of work in the watershaping trades, I left the home in a blue funk. For all the beautiful work published in this and other magazines, are there still those who haven't opened their eyes and started figuring these things out?



WATERSHAPES

Editor
Eric Herman — 714.449-1905

Associate Editor
Melissa Anderson Burress— 818.715-9776

Contributing Editors
Brian Van Bower David Tisherman
Stephanie Rose Rick Anderson

Art Director
Rick Leddy

Production Manager
Robin Wilzbach — 818.783-3821

Circulation Manager
Simone Sanoian — 818.715-9776

National Sales Manager
Camma Barsily — 310.979-0335

Publisher
James McCloskey — 818.715-9776

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

Printed in the U.S.A.

Choosing tile is as easy as point, click, preview

Use a computer and our new interactive CD*, and show "installed" pool tile to your customers.

We've built virtual pools with every single tile and color we carry, including decking tile. You and your customers can preview them on the web at www.**nptg**online.com, with our interactive CD*, or in any of our 15 showrooms.

Now your customers can actually see how a pool will look in any style and color, instead of using their imagination and a few tile samples. And they can look at as many pools as they want, as often as they want – on their own. It's an easier and less time-consuming way to help your customers select tile.

Of course you still may want samples and catalogs, and we'll ship them immediately upon your request – but now you won't need as many.

** Call 888-411-TILE and we'll be happy to send interactive CDs to you or your customers. No access to a computer? No problem – use one of our display computers in a showroom nearest you.*

npt POOL TILE™ and STONE

• Anaheim, CA • Sacramento, CA •Livermore, CA • San Diego, CA • Tempe, AZ • Tucson, AZ • Las Vegas, NV • Dallas, TX • Houston, TX • Longwood, FL • Naples, FL • Pompano Beach, FL • Sarasota, FL • Norcross, GA • Hatfield, PA

www.nptgonline.com

888-411-TILE

Circle 4 on Postage Free Card

September's Writers

Mario Abaldo is founder and president of Abaldo Enterprises, a Union, Maine-based design/build firm specializing in extremely high-end, water-centered "total environments" for clients around the world. Abaldo has been involved in hands-on custom work for more than 25 years, having started a successful business as a stonemason at age 15 and declaring that he still "loves the smell of concrete in the morning." He strives to bring the latest in products and technical expertise to his clients and projects, incorporating such elements as high-tech security systems and fire-on-water effects. He also brings a diverse range of life experiences to bear in his work, from his strong academic background to his love for art and outdoor and underwater exploration.

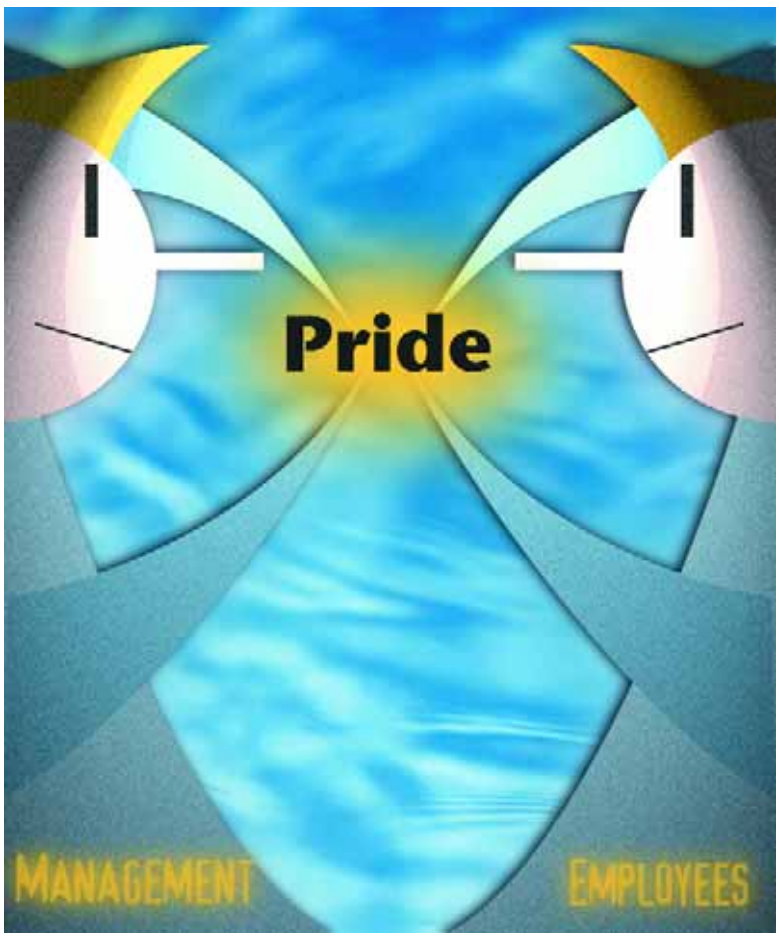
Steve Gutai is product manager for pumps, filters and valves with Jandy/Laars Products, a division of WaterPik Technologies of Petaluma, Calif. Gutai is a veteran of the swimming pool industry, having spent more than 13 years as an independent service and repair technician and subcontractor in the Los

Angeles area. He spent three more years as a technical service manager and outside sales representative for Waterway Plastics in Oxnard, Calif. Gutai joined Laars & Jandy in 2000 and now works directly with contractors and engineers in designing circulation systems for pools, spas and other watershapes. He teaches hydraulics at trade shows throughout the United States and is the featured hydraulics instructor for Genesis 3's Level 1 schools.

Janet Lennox Moyer is founder and principle designer for MSH Visual Planners, a landscape-lighting-design firm in Brunswick, N.Y. She started her career as an interior designer for commercial and residential clients before shifting her focus exclusively to landscape lighting in 1983. Since then, she has designed a broad array of highly prestigious projects worldwide. In 1991, she wrote *The Landscape Lighting Book* (John Wiley & Sons, Inc.), the second edition of which will be published in 2005. Moyer has lectured extensively and is widely considered one of the world's foremost experts in the field of landscape lighting.

By Brian Van Bower

Standing Proud



No doubt about it: More and more quality projects are being designed and built by the various segments of the watershaping trades these days.

That pleases me for a number of reasons, not the least of which is that it tends to reinforce my observation and belief that great work is done mostly by people who take genuine pride in what they do. Indeed, I see such a consistent correlation between pride and quality that I've come to see the former characteristic as a prerequisite for performance at the highest level.

That may seem an obvious point, but when you scratch the surface of the subject as it relates to the watershaping industry, it takes on surprising levels of subtlety, nuance and complexity: Just how does someone get to a point where pride is based on results and consistent performance? Just how do designers and project managers transfer their pride to those who work with them? Most significant, just how do we structure our businesses so that a feeling of pride permeates the entire operation, top to bottom, and is naturally reflected in the end product?

Those are big questions with answers that are definitely worth exploring.

One of the most evident characteristics when it comes to pride is that it is infectious on both the personal and professional levels.

contagious spirit

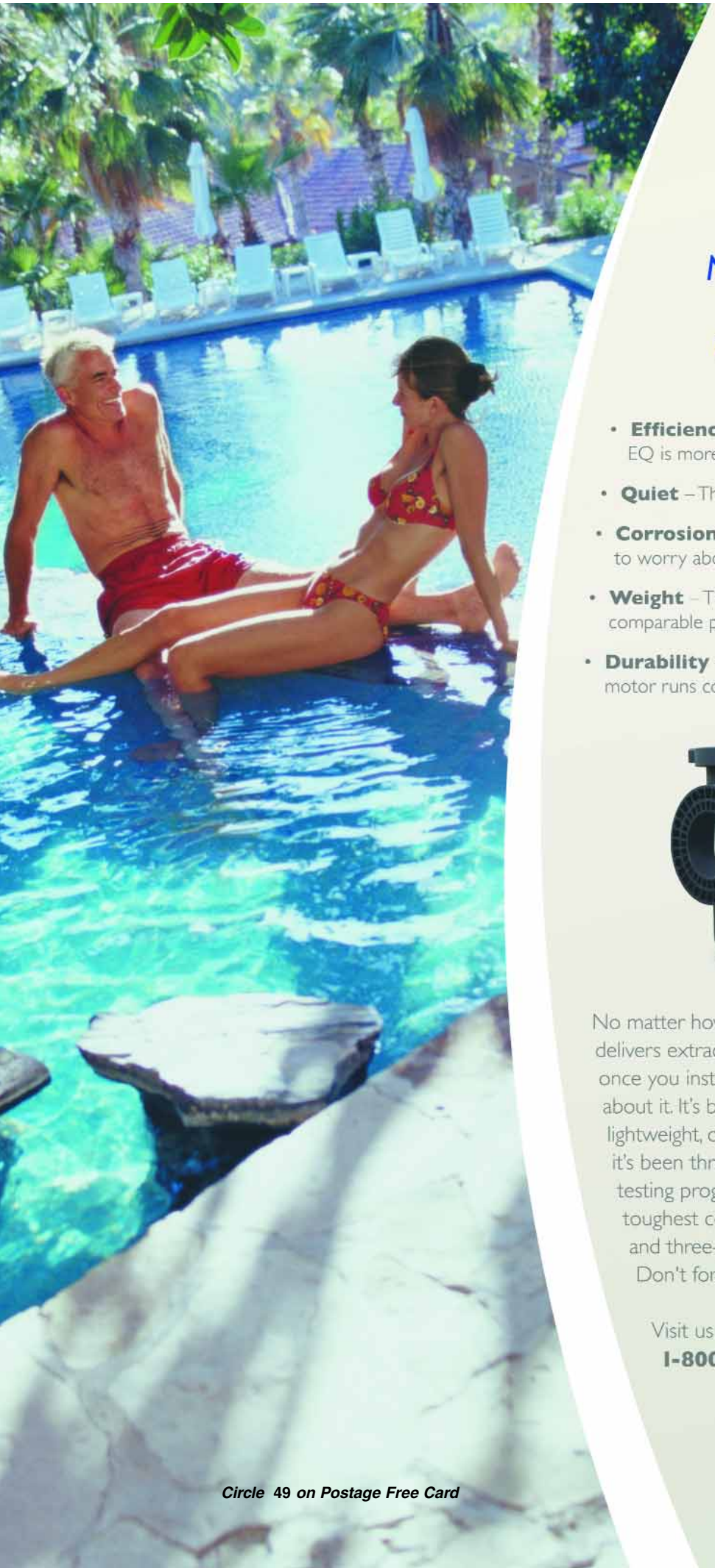
One of the most evident characteristics when it comes to pride is that it is infectious on both the personal and professional levels. We should all carry this particular contagion and work toward infecting others with it daily. To be able to do so, of course, we need to embody pride in what we do and radiate a positive mental attitude.

The foundations for pride and a positive attitude will differ from person to person. Some are lucky enough to have been raised by parents who instill positive values about work and education; others achieve great things almost despite their upbringings. Some reach a high level of achievement by constantly challenging themselves; others have a native talent and learn as they go – and grow.

I, for one, had great parents who taught me the value of being proud of what I do. I can also speak from experience about the pride that comes from having extended my capabilities through learning and a willingness to try new things. That willingness is something I see as a habit of success that enables me to overcome specific challenges on given projects (or sets of projects) and ultimately achieve beautiful results. This gives me a feeling of accomplishment that can be far more satisfying than simple financial rewards.

But those are highly personal issues, and what specifically drives each of us will differ from person to person. Where the subject of pride becomes far more objective and practical (and valuable) is when you consider the challenge of spreading your own pride and positive attitude to other people in a way that drives a project to success.

Fact is, watershaping is almost always a group effort. It's expected that the designer or the owner of the contacting company will take pride in what they do, but there's far less certainty that installation crews will share in that same feeling. I often hear designers or owners complain about the difficulty of finding "good people." When I step back and take a look at the situation, it's painfully obvious to me that many of the indi-



Presenting the new

EQ™ Series Pump

Now you have one less thing to worry about. Wait, make that five things.

- **Efficiency** – With its proprietary hydraulic design, the EQ is more efficient than any comparable commercial pump.
- **Quiet** – The new industry standard for quiet operation.
- **Corrosion** – Because the EQ is all plastic, you don't have to worry about failure from corrosion anymore.
- **Weight** – The EQ weighs at least 40% less than other comparable pumps.
- **Durability** – Thanks to its remarkable efficiency, the EQ's motor runs cooler and lasts much longer.

No matter how you look at it, the new Pentair EQ™ Pump delivers extraordinary performance. Extraordinary because once you install it you can pretty much stop worrying about it. It's built to last. It's also built to be incredibly quiet, lightweight, corrosion-resistant and efficient. What's more, it's been through a rigorous design, development and testing program so you know it's built to handle the toughest commercial applications. Available in single and three-phase models, the EQ sets the new standard. Don't forget to find out more.

Visit us at **www.pentairpool.com** or call **1-800-374-4300** for complete information.

Pentair Pool Products®

Because reliability matters most

Circle **49** *on Postage Free Card*

viduals we hire to work in the trenches (literally and figuratively) lack any strong conviction that what they do for a living is important or a source of real pride.

Those who work in creative or managerial capacities often have the advantage of formal education and awareness of information that gives them a sense of control and of the importance of their roles. These are their foundations for pride.

The challenge for these people is to transfer their own values, pride and devotion to quality down through the ranks. In other words, a big part of creating designs and guiding complex installations to good conclusions involves infecting everyone at every level of a project with a sense of the significance of the work at hand.

artful artisans

One of the big obstacles to the process of transferring pride is, I believe, the fact that in this great nation we have demeaned the status of those who get dirty and work with their hands. There's so much emphasis on financial success and social status in our culture that we have, as a society, walked away from the idea that quality manual labor is not only honorable, but its own wellspring of pride and prestige.

Just consider the traditions of craftsmanship that have existed in European and Asian cultures for centuries. There's a striking contrast to the way we look at things today: Where we tend to assume that people who work with their hands do so because they lack the qualifications or gumption to work in white-collar occupations or intellectual pursuits, those other cultures place value in craftsmanship – and people enter trades with the idea that they have a talent that should and must be nurtured through apprenticeship, ongoing education and practical experience.

As far as I can see, that's a completely different outlook from the one we have in this country, and I believe the way we regard our workers has in general done everyone a disservice. More important in the context of this column, it does nothing to build pride in the work.

That's a big issue, because the folks who lay the plumbing, install the steel, set the tile and plant the trees often spend lots of time in direct contact with our clients. If those workers take pride in what they do and our clients have the opportunity to interact with people who recognize the importance of their work, those clients get a strong message about the quality of the project. They will gain confidence that the outcome will be good. What's more, the process of getting there will unfold in a controlled, disciplined way.

By contrast, if a worker goes on site with a downtrodden or even resentful attitude about the nature of what he or she does, then even your best efforts as a designer or project manager can be completely undercut. In that sense, investing in your employees' pride becomes a profoundly objective, practical matter – something you need to consider not just as a personal quality, but also as a key business necessity and one of your highest priorities.

Continued on page 14

Best performance in a feature role.

There's a new star in the water features market: the Sta-Rite Dyna-Wave™ pump. This versatile performer can play the part perfectly in waterfall, fountain and garden pond applications. Dramatically quiet, the Dyna-Wave promises to put on a show like no other. Here's a list of credits:

- Created specifically for high-flow, low-resistance applications.
- Hydraulically-balanced design and low-speed motor produce the quietest rating in its class.
- Energy-efficient operation – up to 30 GPM per amp at 230V.
- More plumbing options – 2" ports with internal and external threads (unions sold separately).
- Low head, self-priming up to 5' above water level.

For more information about the Sta-Rite Dyna-Wave, call 800-752-0183.

Dyna-Wave Pumps

www.starite.com

STA-RITE®

Simply Smarter.

Circle 47 on Postage Free Card

That's much easier said than done, however, because we now live and work in a culture that in many respects makes sub-professional work "acceptable" and rewards excuse-making in a variety of direct and indirect ways.

top down

To combat this ongoing and regrettable trend, we all need to act in small ways within our own operations. As I mentioned above, pride starts within each and every designer and manager. We all need to reflect pride in what we say and do, otherwise there's no way we can convey it to others.

Once you have the right mindset, the next step is figuring out ways to make your own values a daily part of the workplace. Some of these are quite straightforward: When I ran a pool service company, for example, it was my mission to put people in the field whom I'd trust in my mother's backyard. I set clear, workable standards for work attire, courtesy on the job site and what constituted a quality service call. These were not vague recommendations; rather, they were clear, specific requirements.

I had a sign over the door that read, "Through this door walk the world's finest service technicians." I believed that sentiment, and I paid my troops a wage that was higher than my competitors. But I truly believe that their income had much less to do with the quality of our service than the fact that they were backed up by a company that emphasized pride and had clear definitions of quality work.

One of the people I most admire on this front is my long-time friend Bill Kent, president of Horner Xpress, a pool-product distributor based in Fort Lauderdale, Fla., as well as three manufacturing companies. He refers to his 350-plus employees as "Team Horner" – a concept he supports with a bottom-up business philosophy that lets everyone on staff know they have a daily stake in setting their firm apart from the competition. Their opinions and input are sought and considered on a variety of levels, and Bill does an excellent job of describing expectations in specific terms.

Company culture, however, is only one part of the picture: He starts with good people who are receptive to working in such an environment – a quality he shares with others I've known who have been successful in creating proud organizations and one he perpetuates by challenging his people to grow both personally and professionally.

I know from my own experience that taking care in the hiring process and refusing to hire those who don't seem prepared to take pride in their work will produce the best results: In doing so, you increase your chances of success in fostering a positive work environment and in building true team spirit.

industry attitude

It's no secret that the watershaping trades – and especially the pool/spa segment I call home – have long been saddled with an odious reputation when it comes to product quality and job-site performance.

NOW WITH A 12 YEAR WARRANTY

The Innovative Leader in Safety Pool Covers

3 MORE REASONS TO MAKE MEYCO YOUR #1 CHOICE.

MeycoLite-Mesh

The Mesh material that set the standard for an industry, MeycoLite provides exceptional strength, while allowing water to drain through and leaves to dry up and blow away. Weighing just 5 lbs/100 sq.ft., this extremely strong and durable cover material resists fading, and carries the Meyco 12 year warranty.

RUGGED-Mesh

Newly engineered for ultimate pool protection, the Rugged Mesh Safety Cover System uses a specially woven mesh for maximum UV blockage, superior strength, water draining and debris filtering. Lightweight and heavy on performance, Rugged Mesh carries Meyco's new 12 year warranty.

PermaGuard-lite

A product of innovative, high tech design, this super strong, incredibly lightweight solid vinyl material has been tested by an independent lab against the typical solid cover materials and the results are astounding: 40% more seam strength; 20% more puncture resistant, 35% higher tear strength; and about 1/3 the weight. PermaGuard Solid Safety Covers carry a new 12 Year warranty.

Quality Products Since 1898

meyco PRODUCTS INC.

"The Original... and STILL the best."

All Parts made in the USA

1225 Walt Whitman Road, Melville, NY 11747

Toll Free: (800) 446-3926 · www.meycoproducts.com · Fax: (631) 421-8621

Circle 57 on Postage Free Card

Unfortunately, that reputation has been earned over many years, and the process of turning things around under those circumstances is a long and daunting road.

I take heart in the parallel story of an altogether different industry – the restaurant business – and the way things have changed for their principal creative talents, the chefs.

Although there have always been great chefs working at famous restaurants, rank-and-file chefs and cooks were once widely considered to be little more than unskilled labor. All of that has changed in the current generation because the food and wine industry has made a huge point of educating ordinary workers. As a result, clear hierarchies have emerged, and chefs working across a wide range of establishments – big and small, famous and virtually unknown – are now respected as artists of food preparation.

Can we mirror that evolution in our own industry and, in a generation, develop a cadre of skilled designers and builders who will lead the watershaping industry to unimagined heights? Without dipping into one of my familiar diatribes about the importance of education, I don't see how we'll ever be able to elevate our collective pride and performance until we embrace the idea of training a new generation of hands-on designers, managers and craftspeople with great seriousness.

Perhaps I'm spinning a fanciful yarn here, but I'd love to see some sort of apprentice program take root in our industry. Think how much good it would do everyone if those who installed tile, lighting systems, interior surfaces or rockwork were trained to a set of specific educational standards. Think of the benefit of having trained designers and lead contractors who, like the chefs in good restaurants, really know their stuff.

Short of that, we're all left with the challenge I outlined in the first sections of this column and with finding ways to infect our lives and our businesses with the pride that comes from doing the best we possibly can. That's a task none of us will ever be able to set aside, and I suspect it wouldn't disappear even if every one of us needed the equivalent of a doctorate in order to do what we do.

As a starting point, it's important to recognize a simple fact: The honor and nobility of labor at any level is not conveyed by the size of the paycheck or the prestige of the project, but rather by the knowledge that no matter the task at hand, the work represents the best possible effort. Once we know and embrace that concept, we open the door to letting pride become as integral to our work as the water itself. WS

Brian Van Bower runs Aquatic Consultants and is a partner in Van Bower & Wiren, a pool-construction firm in Miami. He is also a co-founder of Genesis 3, A Design Group; dedicated to top-of-the-line performance in aquatic design and construction, this organization conducts schools for like-minded pool designers and builders. He can be reached at bvanbower@aol.com.

BakerHydro Filtrations

OFFERS - "READY TO INSTALL"

Assembled Tandem Systems

BakerHydro Filtrations, a leading manufacturer of fiberglass filters of over 60 years, will design, fabricate and pre-plumb a tandem filtration system to meet your specific requirements. Baker systems are available in a variety of configurations, (two to six filters), and sizes and can be fabricated using manual or automatic valves, (butterfly or multiport). Manifold systems are complete with all components including gauges, fittings, pipe, valves and hardware. Baker can also supply and pre-plumb pumps and strainers, both self-priming or full-flooded models.

Tank sizes available are vertical 30", 36", 42" and 48" and will deliver up to 250 GPM per filter. All tandem systems incorporate BakerHydro Commercial tanks with a 24 or 36 lateral under-drain system and manifolds can be fabricated using schedule 40 or schedule 80 PVC.

"STOP THE BURDEN"

Of running around for fittings and components and let BakerHydro design and supply you with a complete system ready to install. Let us know your water volume, number of turns required and space restrictions and we will do the rest. Call our technical support at 800-247-7291 with your requirements and we will supply a system design and a very competitive quotation.

There is no better fiberglass filter available!

BAKERHYDRO FILTRATIONS INC. 1864 TOBACCO RD. AUGUSTA, GA. 30906
PH: 706-793-7291 FAX: 706-790-5688 www.bakerhydro.com e-mail: info@bakerhydro.com

By Stephanie Rose

Friendly Barriers

We're all aware of local codes and other requirements regarding the fences we use to surround watershapes: Many of the solutions we are forced to adopt can be quite unsightly and often detract significantly from the overall visual beauty we're trying to create with our watershapes and planting plans.

Unfortunately, many designers and contractors seem to see all fences as being grossly equivalent, meaning that they're taking the rules that apply around watershapes and translating them into non-watershape settings, probably because it's the path of least resistance at a time when the public seems to be leaning quite heavily toward twin desires for security and privacy.

Although I understand the need for those rigid qualities, I would like to propose that no fence, wall, hedge or other barrier between your client and the rest of the world needs to be so imposing or so explicit in sending the message, "Stay out!" I do so in the belief that there are many aesthetically pleasing ways of establishing barriers that serve whatever purpose your client is trying to achieve.

No fence, wall, hedge or other non-watershape barrier between your client and the rest of the world needs to be so imposing or so explicit in sending the message, 'Stay out!'

artful boundaries

As a case in point, I was brought in to design the landscape for a corner property in the Pacific Palisades area of southern California. When I first arrived on the scene, the property was covered with dead or dying sod interspersed with a few random clumps of Agapanthus. This was obviously a landscape that hadn't been touched in years.

The property was shaped like an elongated rectangle, with the L-shaped house positioned relatively close to the southeast corner. There was a very small stretch on the east side of the property (enclosed by the shape of the house) that functioned as a private entertainment/backyard/play area.

What remained was a large, L-shaped area facing the street that was basically an all-purpose frontyard/sideyard/play area. The space was defined by the home and the curb; otherwise, it was completely open to the street and neighborhood.

The homeowners had two young children at the time and wanted to enclose the open portion of the property in some way that didn't involve creating an imposing barrier. The idea was to maintain the open appearance while setting up some sort of formal boundary that would keep the children in and dogs and neighbors out. In other words, they weren't looking to put up a six-foot-tall masonry wall.

They also enjoyed working in their garden and wanted to fill the newly defined space with cutting flowers and enough plants so that they'd be able to teach their children about gardening. They also saw it as a way to entice themselves out into the yard every weekend.

At that point, we started talking about multi-

PEM W116-1 WATER SWITCH

12 /24VAC, 50/60Hz, 24 VDC - 2" NPT

PEM W116- 1 with
PEM 846C 1 1/2" Stream Jet, 10m / 33' high

PEM 116-1 with
PEM 02-6 , 1 1/2" Fan Jet

PEM 116-1 with
PEM 626, 1 1/2" Filigran Jet

PEM 116-1 with
PEM 954, 2" AeratedJet

PEM 116-1with
PEM 953, 1 1/2" Aerated Jet

See us at
I.A.A.P.A. Orlando
November 17 - 20. 2004

PEM W116-1

Horizontal,submerged
in 0.6m / 2 Feet deep pool
PEM W116-1 with PEM 846C
on -2 Stainless Steel. Stand

PEM W116-1
with
PEM 847C
Stream Jet

For smaller Water Switches:
PEM W114-1, 1" x 3/4"
PEM W115-1, 1 1/2" x 1 1/2"

PEM FOUNTAIN CO.

Richmond Hill, ON., Canada, L4C 0A2 - Tel: 905-737-7264 or 800-387-3600
Fax: 905-884-8941 - E-mail: sales@pemfountain.ca - www.pemfountain.ca

Circle **58** *on Postage Free Card*

ple options with respect to "open fencing."

a lighter touch

What I mean by *open fencing* is a barrier that stands well this side of a solid cinder-block wall or even a tightly paneled wood fence – that is, something in chain link, wrought iron or open wood framing.

In this instance, my suggestions were about fence choices that would also become functional with respect to their planting scheme, and before long we settled on a split-rail fence.

The rustic nature of this type of fence immediately gives off a friendly, neighborly feeling. It is visually open; blends with and will become one with border plants; allows the homeowners to see beyond their property; and allows neighbors to glimpse in. At the same time, it creates enough of a barrier to discourage dogs while separating their children from traffic and the street.

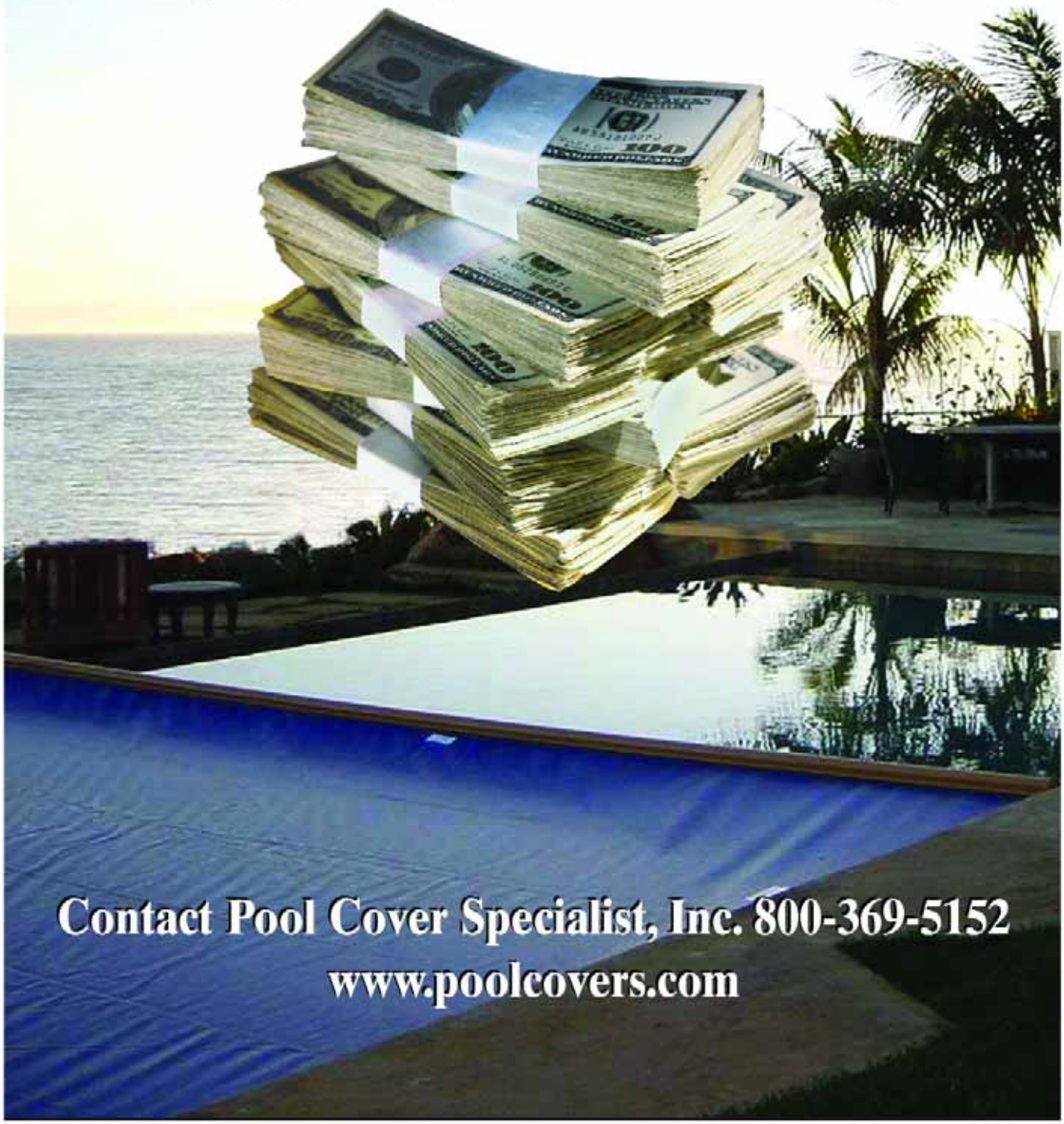
I set the fence in about four feet from the curb on the west and north sides of

The split-rail fence offers enough of a boundary that it creates a sense of privacy and security – but doesn't establish a heavy barrier that will cut the family off from views of the neighborhood.

PCS shows you the money!

The *Infinity 2000* automatic safety cover returns high margins, practically sells itself and is easy to install.

- **The *Infinity 2000* will generate more profit than any other optional pool equipment.**
- **30 *Infinity 2000* systems sold = $60,000 + profit.**



Contact Pool Cover Specialist, Inc. 800-369-5152
www.poolcovers.com

Circle **30** *on Postage Free Card*

the property, leaving an opening for the path to their door. I then created a meandering border on either side of the fence that was no wider than 18 inches at any given point. This left room on the street side for sod, which gives visitors who park alongside the property the opportunity to open their car doors and step onto something other than flower beds.

The street-side border strip was planted mostly with low-slung perennials so as not to create maintenance nightmares as the plants grow. (It's always and obviously important to consider the anticipated mature size of the plants and decide whether you want them to grow into the space or stay smaller so they won't interfere with the function of the surrounding space.)

On the inside of the fence, I anchored the border with Birch and Ficus trees. (As I've mentioned elsewhere, I'm not a big fan of planting Ficus, but in this case I knew they'd be far enough away

The mirrored use of plants along the fence and the home's foundation softens the overall impression of the space, while the vines that flank the entry will welcome guests with springtime fragrance.

from the house and underground services that their invasiveness wouldn't be an issue.) We also planted a variety of perennials, roses and shrubs and included a sprinkling of annuals for some splashes of instant color.

Next, I established a mirroring border along the home's foundation (excluding Ficus, of course) to tie the yard together visually. This left a large, open area for a lawn suitable for playing, entertaining or whatever else might come up.

By having plants that hugged the fence and the foundation, we produced an environment lush with plants that was open enough in the middle to support the need of the family for a space that was anything but claustrophobic.

other options

Beyond being rustic and appropriate to the home and neighborhood, the split-rail fence has worked marvelously with the plants we selected. This was especially true at the break we created for the entry pathway: We planted Pink Jasmine vines that completely cover the fence on either side, so visitors in the spring will be treated to exquisite fragrance and beautiful flowers without ever noticing a barrier of any kind.

Depending upon the style of the home and characteristics of the neighborhood, there are lots of options for open fencing beyond split rails. Here are a few of the possibilities:

w **Chain-link fence.** I know, I know. But don't instantly reject this candidate, because great open-work barriers can be created with this cheapest of materials. A good, sturdy chain link fence is the perfect support for vines – which is part of the point, because I would never recommend using this material unless you plan on covering it completely.

Where I live and work, vigorous growers such as Blood Red Trumpet Vine mature into perfect complements to chain link, forming green walls that just don't seem imposing. When planted with Creeping Fig, such green walls also serve as great backdrops for other plantings.

w **Wrought iron.** I've never been a big fan of enclosing properties with wrought iron fencing, but like chain link, this material is a wonderful host for vines and creeping plants and can help preserve an open feel. When surrounded by perennials and shrubs, boundary effects similar to those I achieved with the split-rail fence can be developed.

w **Wire fences.** These open-work barriers offer a highly architectural, slightly industrial but extraordinarily crisp option in the fencing realm. The stainless-steel "ropes" are under some tension, which makes them durable barriers as well and efficient support systems for plants. In contemporary or modernist settings, this approach has considerable appeal.

w **Natural branches.** Using bamboo or willow is a particularly rustic way to create a barrier. There's some expertise involved in using these plants and getting them to "behave" as needed, so I would recommend consulting with someone who has experience before embarking on a fence project with them. One thing I do know is that these fences are typically not quite as sturdy as those made of other materials I've mentioned, but the aesthetic and creative possibilities are more than sufficient to make this option worth considering.

w **Hedges.** This is an option that takes time to develop and so may not be ideal in all cases, but low- or medium-height hedges can set up a green border that discourages intrusion without cutting off views. The list of candidate plants is extensive, from boxwood to a range of evergreens. It's largely a matter of deciding whether the border needs to function right away – or can take its time to develop.

There are many more choices for good, neighborly fences, so long as you and your clients consider that there are ways to balance a basic need for privacy and security with a desire to keep an open, beautiful view. WS

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

By David Tisherman

Rules of Engagement

What my collaborators and I have in common, deep down, is a passion for creativity and quality – not to mention an awareness of the importance of constant job-site supervision.

On several occasions during the past few years, I've had the privilege of working with talented professionals who have made it possible for me to operate comfortably far from my home base on what have often been extremely ambitious projects. In fact, I've found some of my most exciting and rewarding recent jobs have been the result of these collaborations with other watershapers.

Although working with them is different from my usual way of doing business and running projects – and the relationships I've built with each of my collaborators differs from person to person – I've found that there are points of commonality that are crucial to making things work: trust, control, knowledge and friendship (not necessarily in that order).

In my case, my colleagues and I are not figuring out how to build watershapes; instead, what we're exploring is a shared desire to tackle challenging jobs and take what we do to higher levels and in exciting new directions. We each bring what we know and what we do to the table, and when things click, the whole truly is greater than the sum of the parts.

by training

My experience with collaboration began in college, when I was working on my master's in industrial design at California State University, Northridge. I had a wonderful instructor, Gil Rios, who divided a class into three groups of four. Each group was given a project with a two-day deadline, and even though the results were disastrous in some ways, the experience was invaluable: I learned a lot about the fun and challenge of working with strong-willed, talented people each of whom had definite ideas about how things should be done.

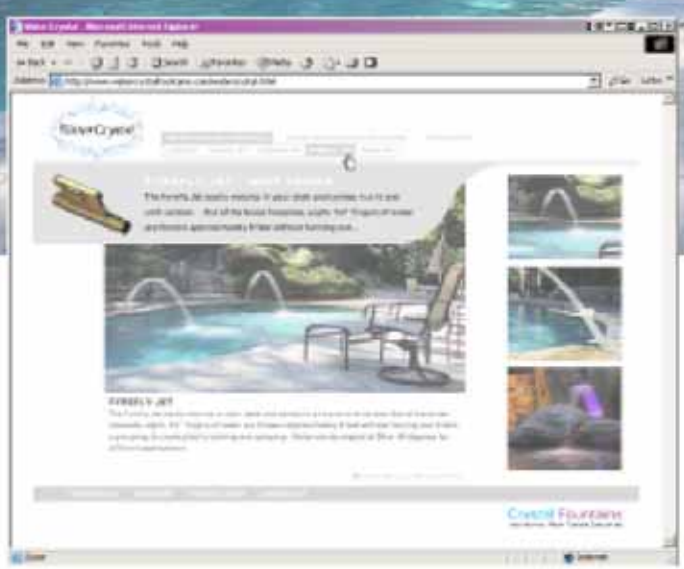
First, I learned that when you go into a creative situation with a group of egos and outsized personalities of any number, you all have to be on the same page right from the start about issues of control, areas of responsibility and the structure of the process. I also learned that every design project needs a leader and that he or she must understand both design and how things actually come together. As Gil told us, someone who sits in an office all day and does nothing but draw does a disservice to a project and everyone involved.

(He also taught us – and I believe it profoundly – that design by committee is death. But that thought is probably fuel for another whole column, so I'll set it aside for now.)

As watershapers, we encounter strong personalities all the time: architects, landscape architects, interior designers, general contractors – even homeowners. To get the most from the collaboration with them, we must know who on the team makes the final decisions and will be following through as questions and challenges unfold during the design and installation processes.

This isn't about control of the project or of being controlled; rather, it's about defining a pecking order in the decision-making process, setting up areas of responsibility, establishing time frames and fortifying lines of communication.

Certainly, this doesn't mean much if you and your collaborators aren't operating on a high level. These days, I don't take people at their word when they call themselves "designers" or even "architects" in some cases, because there are simply too many charlatans out there who abuse



CHECK OUT OUR BRAND NEW SITE @

www.watercrystalfountains.com

FOR THE MOST UP-TO-DATE INFORMATION

TAKE YOUR POOL TO THE NEXT LEVEL WITH WATERCRYSTAL®

WaterCrystal effects add exciting visuals and sounds to pools and backyard features. They're created by one of the world's most accomplished water effects companies. **Crystal Fountains** also offers a full line of commercial fountain products.

Check us out online for a full catalogue.

Crystal Fountains

International Water Feature Specialists

www.crystalfountains.com

Circle* 18 *on Postage Free Card

those terms. I am extremely careful to work only with people (watershapers included) who are demonstrably capable and professional and who also have won my trust and often my friendship. What we have in common, deep down, is a passion for creativity and quality – not to mention an awareness of the importance of constant job-site supervision.

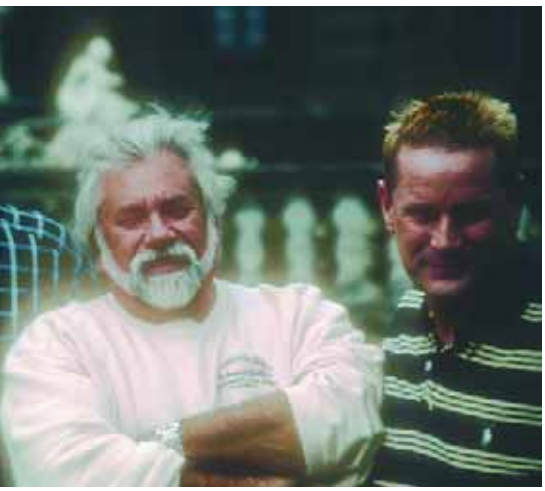
This last item is a big one for me, because if there's one paramount factor on every custom watershaping job I've ever tackled, it has to do with changes and adjustments that must be made on the fly. Frankly, I cannot understand how anyone can create a plan, maybe visit the site a time or two during construction and then just let things go without further input. As much as I value beautiful renderings and presentations, there is no escaping the fact that these documents are only the barest beginning of a process that unfolds throughout the course of a project.

The point is, every one of the people I'm about to discuss intuitively understands the need for close supervision. They may have differing levels of knowledge and expertise and idiosyncratic management styles, but the fact that we mesh on this important philosophical foundation is a key to our working relationships. Even more important, they want to work with me, and I want to work with them.

Barging in southern France: Randy and Martha Beard (at left) join me and Lisa for an *al fresco* meal.

my man in jersey

For the past 18 months, my closest collaborator has been my New Jersey partner, Kevin Fleming. We started our company,



On the road in Italy: Kevin Ruddy (left), Paul Benedetti (right) and I pause in front of a courtyard fountain.

Liquid Designs of Cherry Hill, N.J., to bring a new potential for high-end custom work to clients in the northeastern United States.

I don't want to overgeneralize, because there are good people doing good work in that market area, but what I've found is that local watershapers – and people in the northeast's swimming pool industry especially – are very, very reluctant to cooperate with one another or share any information. In all my 25 years in the pool business, I've never encountered such a level or sense of competitiveness, and it has been eye-opening (and disappointing) to say the least.

Unlike so many northeastern watershapers, Kevin is open to cooperation and collaboration, and we've developed a nicely complementary working relationship: I take care of design and the up-front negotiations, while he manages operations and takes care of our clients as projects unfold. I travel to New Jersey twice a month for stretches of four to six days each time. Whether I'm there or elsewhere, Kevin and I talk five to ten times a day, six days a week, and the discussions are wide open.

For his part, Kevin respects the fact that I do not compromise on quality and will walk onto a job site and point out problems and imperfections that must be addressed. For mine, I appreciate his suggestions, value the fact that they are based on personal observations on site and couldn't be happier that our conversations, which sometimes get tense or even heated, enable us to deal with specific issues way before they become problems.

Many of our projects are large and

complex. In some cases, simply securing the materials we need is a huge challenge, and without Kevin being on the spot and aware of what's happening, none of what we're doing together would be possible.

In sum, Kevin is an east-coast guy who understands the nature of the business in his area. By combining his experience, savvy and skills as a project manager with my design skills and extensive background in construction, we've been able to perform at the highest professional level even when I'm not on site daily.

Sure, getting to this point has been difficult and filled with risk, especially since we were introducing an ultra-high-end product to a marketplace where someone is always telling our clients that they don't need what we have to offer or that they can do things cheaper – and often get in over their heads because they don't know enough about construction to see why we do things the way we do.

So far, our gamble is paying off and there's more demand than we can cover. Best of all, Kevin and I have forged a close and rewarding professional and personal relationship based on trust and a common understanding of our roles in the process.

the other coast

A good collaboration doesn't necessarily entail starting up a business venture. In fact, one of my current "partners" has a business of his own that builds high-end, custom watershapes for affluent clients in the well-heeled communities of Orange County, Calif.

Randy Beard is indeed an extraordinary contractor who has shaped a dynamic niche for his firm, Pure Water Pools of Costa Mesa, Calif., by working with top-flight designers and architects in creating beautiful swimming pools and backyard environments.

He's never claimed to be a designer, but he's about as construction-savvy as they come and does fantastically sensitive work for an extremely demanding clientele. He understands what it is to use quality materials, build in challenging settings, deal with difficult clients and, best of all (and like Kevin Fleming), manage a project on site with the highest possible standard for quality.

Continued on page 30

"Before You Start Burning the Midnight Oil Over Your Next Fountain Crisis..."

Just Pick Up the ***Hot Line*** and Call

America's Fountain Experts!

"We Deliver the *Products* and the *Expertise* to Make Your Next *Fountain* Campaign a Success!"

Ask us About *RF/XPRESS!*S.M.

The "Quick Quote/Quick Ship" Advantage!

roman fountains® S.M.

The Fountain Experts!

AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS · CORPORATE MEMBER ·

1-800-794-1801

(Hot Line)

www.romanfountains.com

P.O. Drawer 10190 • Albuquerque, New Mexico 87184 • USA

Circle 48 on Postage Free Card

We came together recently when I jumped into a radically complex project on the bay next to the Newport Yacht Club in Newport Beach, Calif. The existing home was to be knocked down and rebuilt, but the owner had wanted to salvage an old pool in the front yard. With my input, the old pool is history and will be replaced by a new one that will be tucked up under the home. The result will be a spectacular entryway with large stepping pads leading to the front door over a shallow portion of the watershape.

I knew right away that this was a project that had captured my interest, but I also knew its location in south Orange County would make it advantageous for me to find a local collaborator with local contacts.

As I mentioned above, I see no good to come of throwing a set of plans at a project and walking away, particularly given one of this complexity and difficulty and the ongoing requirement there would be for on-site analysis and adjustment. So I contacted Randy, a Genesis 3 participant who became such a good friend that he and his wife, Martha, joined me and my fiancée on a trip to France not long ago.

Working vacation: When I'm on the road, I encourage my companions to join me in seeking out watershapes and concepts we can translate to our own projects.

Our friendship gave me the opportunity to learn how he thinks and works, and I applied what I knew in suggesting a working relationship. Ultimately, we decided that this project would involve some of his crews and some of mine and that we would work very closely together in executing the complex design.

At this point, we're dealing with myriad structural issues, but we're also discussing aesthetics and the kind of palette we need to develop to complement the home's proposed variety of pinks, yellows and beiges. Among other things, we're looking at an interior pool finish in a vivid, blood-red plaster. (As this one progresses, it's likely to be the subject of future "Details.")

broader horizons

I'm currently working in a similar relationship in northern California with Paul Benedetti of Aquatic Technologies in Morgan Hill. In this case, I was asked to design and – just as important in this case – *build* a pool for a winery in Calistoga, Calif., owned by a San Francisco-based art collector. (I'd been referred to the client by three other builders.)

The project couldn't be much grander. It includes two parallel, 70-meter vanishing edges that terminate in a third edge that stretches 30 meters – that's about 180 feet of vanishing edge – as well as a slot-overflow detail on another edge. The whole composition rises substantially above grade, and a large, luminous sculpture by a well-known artist will be

travel time

It's not a prerequisite for working with me, but it's probably not too much of a coincidence that all of the people mentioned in this column have at one time or another been my traveling companions on trips to Italy, France, Spain and various other spots around the globe.

In Randy Beard's case, the fact that he and his wife Martha joined my fiancée Lisa and me on a barging trip through southern France gave us an opportunity to get to know each other in ways that just aren't possible in the workaday world. The relaxed time we all spent together watching the French countryside go by deepened our friendship and built a foundation for trust that will pay dividends for years to come.

I've had similarly positive experiences with Gerald Hermanson in Alaska and David Schneider in Spain: Travel creates a special environment in which all sorts of good, productive things happen.

It was a trip to Venice and Florence with another Genesis 3 participant, Kevin Ruddy of Omega Pool Structures in Toms River, N.J. (along with Paul Benedetti and both their wives), that I had a chance to listen to Kevin and learn in detail about the art and science of dehumidification. As a result, I knew to call him in on an exquisite, grand-scale, all-glass-tile indoor pool project Kevin Fleming and I are preparing to build.

What their willingness to travel tells me is that these are my kind of people: passionate about learning, interested in seeing historic or significant places with their own eyes and capable of having a good time on the road. This kind of travel doesn't happen only with me tagging along. Indeed, you can rest assured that, even without me, you can get out and see the world, absorb ideas and let them inspire your work as a watershaper.

Just pack a bag and go: It'll do you a world of good.

– D.T.

Pentair Pool Products®

STA-RITE®

Done Deal!

It's official. Pentair Pool Products and Sta-Rite are now one great team. On August 1st, 2004, Sta-Rite became part of the Pentair family.

Pentair's mission has always been to bring you the best of everything from a single source. With the addition of Sta-Rite's talented employees and quality products, we are now more than ever your best resource for pool equipment, training, and service.

In the coming months, your Pentair and Sta-Rite sales representatives will be telling you more about our plans for product innovation and even better sales and customer support. For now, the deal is done...but we're just getting started!

Your Pentair Pool Products / Sta-Rite Team

Pentair Pool Products, Inc.
1620 Hawkins Avenue, Sanford, NC 27330 • Tel 800-831-7133 • Fax 919-774-4841
10951 West Los Angeles Avenue, Moorpark, CA 93021 • Tel 800-831-7133 • Fax 805-530-0183

Sta-Rite
293 Wright Street, Delavan, WI 53115 • 262-728-551 • 800-752-0183 Customer Service • Fax 800-582-2217

mounted on four pilasters to stand at one end of the pool.

At a minimum, the project will require close collaboration of the owner, sculptor, general contractor, structural engineer, mechanical engineer and two watershapers, a cause toward which Paul and I have formed a joint venture. He's a Genesis 3 participant, I know his work, he's become a friend and, as anyone who has talked with him for more than 30 seconds knows, he has amazing passion, great intensity and a total commitment to quality.

Over in Santa Fe, N.M., I was asked to consult on and build a 24,000-square-foot pool (designed by the world-renowned architect Tadao Ando) for a wealthy client. I called Gerald Hermanson of Hermanson Construction in Albuquerque and David Schneider of Nature's Creations in Santa Fe (another pair of Genesis 3 participants) to lend their expertise to the project. Again, I looked for accomplished professionals in the local area, and in this case, we're working our way toward forming a three-way project partnership.

The entire plan is now back with the architect for review and revision and few details have been settled, but I'm delighted to have made these contacts in such a promising market because there will always be future opportunities we can discuss and pursue as a team.

I'm also doing a project in Fort Worth, Texas, that includes a 4,000-square-foot swimming pool in a setting that features, among other elements, a pair of all-glass-tile changing rooms in a Gothic ruin set partly in, on and around the pool (basically to exploit great reflections), a long vanishing edge, a slide incorporated into a tree house, a diving well and platform, thermal ledges and a massive set of stepping pads. The plan also includes a volleyball area and a separate spa.

In this case, my construction supervisor will be my friend of more than 15 years, Michael Nantz of Elite Concepts in Denton, Texas. We've worked together several times before on projects in Mexico and on a huge job in Dallas. This time, I'll handle the design and call the aesthetic shots while Mike will manage things on site with a crew made up of some of my California subcontractors and his local contacts.

a firm handshake

As I mentioned above, all of the individuals with whom I've formed these relationships and partnerships are very different from one another, each with his own management style and distinctive personality. What they have in common is what's important: reliable knowledge of watershape construction and specific familiarity with the difference between quality and junk.

In addition, they are all people who keep their word, which brings me to a final and critically important point: Trust is everything in these sorts of working relationships, whatever the inner workings.

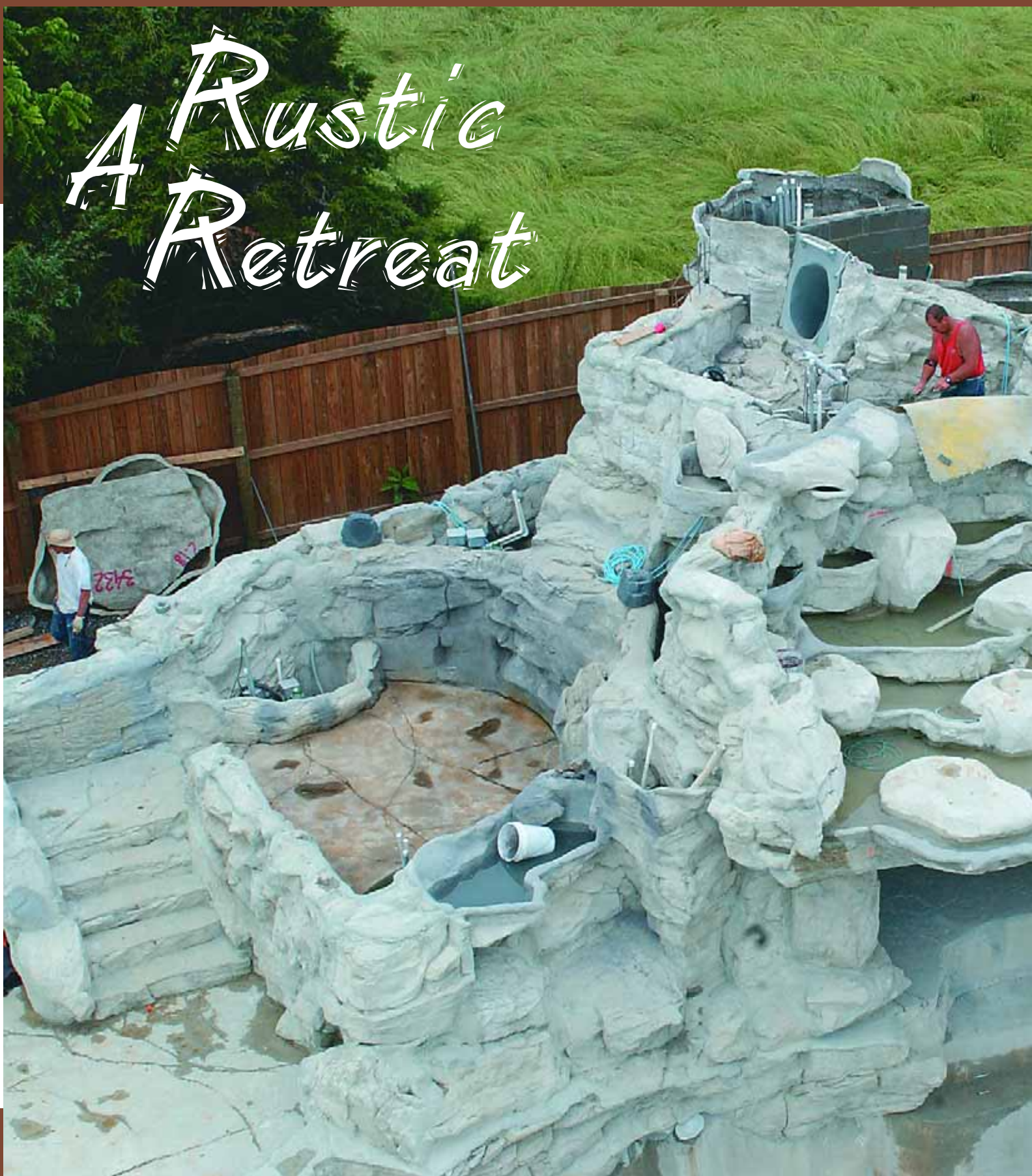
Every one of these professionals – Kevin, Randy, Paul, Gerald, David and Mike – is someone with whom I feel comfortable in a working relationship. No matter how skilled or creative someone might be, there would be no possibility of doing anything together without that level of trust.

There have been occasions in the past where I've run into someone who has betrayed my professional trust in one way or another, and that is simply not acceptable. High-end watershape projects are so challenging and complex that you have to be able to rely unconditionally on what a collaborator tells you. And when it works, the results are satisfying on every level, personal and professional. WS

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

Fun at sea: The sense of camaraderie experienced in fishing trips has forged friendships that have carried over to watershaping projects. In this case, Steve Dallons (left) and Kevin Fleming (second from right) were among those who joined me on one of my many visits to Alaska.

A Rustic Retreat



Aesthetic thrills and technical perfection: Those are the twin goals watershaper Mario Abaldo always pursues in developing his high-end custom environments – and the project covered here is a case in point with a twist: In this instance, he came in on a complex project that had gone miserably off course in a remote location in western Virginia and introduced a systematic, collaborative approach that set things back up for a grand conclusion.

By Mario Abaldo

The Shenandoah Valley of western Virginia is one of the most beautiful places I've ever been. The site to which we were summoned in January 2004 – a 220-acre estate set amidst its rolling hills – confirmed that opinion in every possible way by offering incredible views of nearby valleys, forests, farmland and mountains.

We'd been called to take over a grand-scale swimming-pool project, one as outsized as the property with respect to scope and complexity – and one that required constant, detailed interaction with the clients, whose family includes four boys ranging in ages from six to 14. The desire was to create an environment that would provide their kids and their friends with safe, stimulating recreation.

Before we were through, the program featured a waterfall and grotto, a beach entry, a rocky island, multiple waterfalls and brooks, a customized spa, a "jumping jewel" waterfeature, a waterslide, a pool house, a playground area, expansive decking, fiberoptic lighting, misting systems, water cannons and an advanced outdoor sound system. The free-form pool contains 142,000 gallons of water and is surrounded by tons of highly detailed, startlingly realistic faux-rock formations.

All told, the pool and surrounding area cost around $2 million – just about right for such a breathtaking setting.

Up the Drive

The residential compound is an upscale, rustic retreat with a 14,000-square-foot main house, a pool house and a substantial guest house, all lavishly decorated with art. Bringing a watershape to

fruition amid these elevated surroundings was a massive undertaking for which our project manager, Mike Smith, deserves a lion's share of the credit.

When we first made our way up the long, winding drive that leads to the main house, we found a disaster of a pool project already under way. Without going into great detail about the situation or the problems, it was immediately clear that the original contractors had gotten in way over their heads.

All that had been completed to that point was a shell and a basic concept. The vessel had a sort of distorted kidney shape, and we could see how the fundamental placement and shape of the structure could work with the site and the contours of the existing landscape. We could also see the potential for a variety of additional features that would work comfortably with what was at that point little more than an oddly shaped bowl.

We had photos of the original excavation and the soils report and knew that the pool shell had been set directly into shale and bedrock. That was fine, but an inadequate drainage system coupled with a lack of percolation through the shallow rock pointed to a potential problem with hydrostatic pressure and the possibility that the shell might, with too much pressure build-up, pop right out of the ground. As a result, our first step was to excavate the entire area around the shell and install a gravel system and subsurface drains.

Another big problem with the original approach had to do with the plumbing, which was little more than what you'd expect to find with an average backyard pool. So we brought in drills and jackhammers and installed all-new plumbing as well as a variety of new suction and return lines.

While the perimeter was excavated for the work described just above, we completely re-plumbed the shell with all-new skimmer and main drain lines, suctions, returns and lines supplying hidden valves that would electronically divert water in a variety of ways. Included in the new plumbing were supply lines for the "jumping jewels," overflow lines, slide boosters and an array of waterfalls – not

When we arrived on site, we found the shell and grotto that had been left behind by the original contractor. Both structures required an immense amount of rethinking and reworking, but we were able to use them as points of departure in our new plans.

Much of our initial work had to do with establishing adequate drainage systems to avoid anticipated problems with hydrostatic pressure. In doing so, we trenched around the outside of the shell, inserted drain lines and filled the space with gravel. There was still much to do, however, before any backfilling could be done.

While the trenches behind the shell were still open, we upgraded much of the pool's plumbing, using bigger pipes, adding skimmers, suction and return lines and inserting a variety of special-effects lines. All of these new runs snaked their ways back *en masse* to the basement of the pool house.

to mention six main suction lines just from the spa.

Within the trenches, we also installed thousands of feet of conduit for low- and high-voltage lines, communications and speaker cables, security-system connections and remote-control systems as well as conduits and lines for fiberoptics, landscape lighting, irrigation and the water cannons. To make a long story short, the trenches became home to all of the conduits and lines needs to meet the requirements of the overall program.

On its own, the filtration system turns over all of the pool's 142,000 gallons in less than six hours. With the whole pool up and running (including pumps for circulation as well as the slide, waterfalls and all the other waterfeatures), the water flow approaches 1,800 gallons per minute, and it's all been set up to stay operational year 'round. Although there's little likelihood the pool will see much use through the cold months, we saw to off-season interest by installing the waterfeatures with the idea that ice will form in certain areas (especially with the various waterfalls) to lend drama to wintertime viewing.

Scaling Up

From the start, the homeowners made it clear that they wanted an environment that provided activities of interest to a variety of people in several different age groups. As we progressed through the early stages of the project, the punch list of bells and whistles grew dramatically – a process that succeeded because the clients were willing to work hand-in-glove with us to fit various elements into the program and reach agreements that everything was still making sense.

In my design work, I'm a big fan of the element of surprise. I'll never forget first studying and later experiencing the incredible "forced perspective" of ancient Greek temples, in which one typically ascends a dark narrow passageway then finally emerges to behold a breathtaking vista featuring a body of water. It *feels* like a surprise, yet everything has all been engineered to give us this unique and specific pleasure. That is the kind of effect

that was our goal throughout this project: controlled, yet utterly spontaneous – just like nature.

Much of our design work from the beginning also involved working with the initial steps the original crews had taken with the grotto. The first design included a simple, mostly square grotto with a large sheeting water effect pouring over the front. Unfortunately, little thought had been given to blending this vertical structure in with the surrounding area.

We worked around that concept by seriously extending the size and complexity of the entire structure. Not only does the structure now include the grotto and a slide, it also encompasses a broad rockscape that features a variety of formations and various smaller waterfalls that break off in several locations and cascade over and around the mouth of the grotto. We fashioned rough, vigorous water flows in some places, balanced by smaller cascades in others. There are no clear, sheeting effects anywhere, the thought being that they'd seem less than natural with rockwork such as this.

The large waterfall falling over the grotto is controlled by three pumps that manipulate the flow from robust all the way down to a trickle. The rockwork features a variety of plateaus and safely accessible "destinations" that encourage climbing on all sides. There are also diving pads set up at several locations.

On one side of the rock structure is a flat area that includes a fog generator and a sophisticated "jumping jewel" system with nine low-voltage illuminated jets. Operating under their own independent control system, the jets and lights offer several entertainment options: random-generated, pre-programmed shows or leaping in time to music or firing in patterns triggered by motion sensors that effectively make the system "play" with anyone who steps into the area.

This system was fabricated by Waterworks International (Kankakee, Ill.), which lent all the technical support we needed to design, install and program the system. (Waterworks also provided four water cannons located at strategic positions around the pool for play of a more aggressive sort.)

The primary rock structure includes a 35-foot waterslide that has specially designed booster feeds that alter the flow within the slide from gentle to gushing. The slide also has a rain-curtain effect and misters both inside and in the splash-down zone, which offers the intriguing effect of concealing the surface of the water to which the slider emerges.

Half the slide is a tube covered in rock – a tribute to my quest for the element of surprise. From outside, the slide is hidden, but inside it feels like shooting through a tunnel (lit with colored fiberop-

The project includes a grotto structure and its various cascades, pools and falls; the wide range of visual effects over a broad and complex terrain with numerous focal poi

Once the plumbing issues had been dealt with and all our lines stubbed out, we began the process of making the square profile of the grotto blend gracefully into its setting, mostly by extending the surrounding structure and putting the grotto's gaping entrance into a properly scaled context. The plumbing was all in place; what we did next was prepare the steel and concrete underpinnings for the faux rock that would give the structure its fuller dimensions.

tic lights, of course). The slide also loops over the walkway, creating a suspended area and also giving the walkway its own arch (and underpass).

Adjacent to the "jumping jewel" area is a spa, custom-made using measurements taken from the clients for both hydrotherapy and relaxation. Its 32 jets provide a range of massaging effects from necks and backs down to calves and feet. The spa overflows into a small stream that flows over some rockwork, across a small section of deck and into the pool.

'jumping jewel' area; the spa and its stream; and the fog and misting systems — a nts as well as a spectrum of sounds from the delicate to the (almost) overwhelming.

Precise Detail

So far, we've covered the grotto structure and its various cascades, pools and falls; the slide and its falls; the "jumping jewel" area; the spa and its stream; and the fog and misting systems – a wide range of visual effects over a broad and complex terrain with numerous focal points as well as a spectrum of sounds from the delicate to the (almost) overwhelming.

In addition, there's an island within the pool that relates to three key areas and different sets of recreational activities. The island separates the deep end of the pool on one side (in front of the main grotto, slide and waterfall structure) from a shallow play area on another – a space dedicated to volleyball and other games – and a broad beach entry on a third where small children can play at a safe distance from rowdier activities.

To add interest to the island area, we installed a waterfall in the railing of the nine-foot access bridge that rains a curtain of water down on swimmers passing beneath the span. We also built the island with lighting, misters and rockwork as well as one of the water cannons, all for relaxation as well as play.

In addition, we created a babbling brook that is visible and audible from the main house and extends under the second bridge from the pool (the first bridge being to the island). The brook and the pool are actually completely separate, with the pool ending and the stream beginning halfway under the bridge to give the illusion of a continuous, uninterrupted flow of water.

As suggested above, we set up many misting systems throughout the backyard environment, both to knock down the often-sweltering heat of local summers as well as to provide a range of striking visual effects – especially in combination with the soft, multi-colored glow of many runs of fiberoptic lighting.

The multi-zoned sound system uses custom rock speakers that blend in with the rockwork. Music or other sound effects can be played in various areas, and there's also an intercom/public-address system. All of this is run from the pool house, where a CD jukebox holds thousands of tunes. The sound system is also

linked to a weather station on the property: When lightning alerts are raised, the sound system issues a polite warning designed to chase everyone from the water.

The faux rockwork was made using preformed panels from Rock & Water Creations (Fillmore, Calif.). Their precast GFRC rock looks great, and their staff is always helpful. We used hundreds of different panels, cut and recombined in a range of configurations throughout the pool and deck area. In all, there are approximately 14,000 square feet of this rockwork.

The rugged cragginess we established was directly inspired by beautiful formations found all over the Shenandoah Valley. Even the misbegotten grotto, which originally threatened to become an eyesore, now emerges in perfect scale from rockwork that surrounds the pool and that mirrors the look of many of the exposed outcroppings seen on hillsides in the area.

Deck Details

The space isn't all about climbing and vigorous water play: There's also 8,000 square feet of stamped and hand-carved concrete decking around the pool. The look we were after is not easily achieved, and we are fortunate that our "Colorado Joe" is a master artisan in concrete.

The stamping is in a natural pattern with complex scores and textures and was done using layers of colors made up with acid stains supplied by L.M. Scofield (Evergreen, Colo.). Again, local rock formations inspired the palette with the hues of blue and gray limestone accented by rust and mineral deposits. Our idea was to blend the decking as seamlessly as possible with the faux rockwork, the thought being to make it all look like parts of the same formation.

The coloring and texturing process for the deck involves several steps of color application along with grinding using a diamond brush. It takes time, but we're able to mix tones and create a depth and richness of color that looks extremely natural. We're also able to create a texture that's comfortable to walk on, yet slip-resistant.

Our use of faux rockwork gave us an ability to think about the grotto and surrounding structures in massive visual terms, but the lightweight nature of the material also let us plan in extremely flexible ways for voids, interesting spaces, pathways and compelling waterfalls. In all, we installed more than 14,000 square feet of faux rockwork on this project

Of all the steps in our process of installing faux rockwork, coloring and texturing is the most creatively challenging, because it is basically idiosyncratic to every job and the nature of the locale's indigenous formations. There's a lot of trial and error as we mix colors and add layers, and that can be troublesome because of the effect a step of unpredictable length can have on scheduling.

We prefer to use penetrating acid stains that integrate with the surface of the concrete and will not change dramatically through the years as the surface is exposed to the elements and wear and tear. The finish will age slowly, of course, but it will also retain its "natural" appearance. We also seal all of our decks and rockwork with penetrating sealers and a final topical sealer that controls sheen and lends dimension to the color.

The interior of the pool is finished in Tahoe Blue Pebble Tec (Pebble Technology, Scottsdale, Ariz.) that harmonizes with the rockwork and gives the water a deep, rich, highly reflective appearance. Its exposed aggregate harmonizes with the natural rock look better than a typical pool plaster finish, and it can come up out of the water to provide beach entrances. At the waterline, there's a deep-blue, matte-finished ceramic tile that picks up some very subtle rust deposits as part of the package.

The 2,000-square-foot pool house sits next to the pool and is built in the form of a log cabin – quite appropriate to the history of the Shenandoah Valley. The building includes televisions, a bar, video games and, of course, changing rooms.

The equipment room is situated in the pool house's basement. With the exception

The quantities of pipes and fittings used for this project put a severe strain on local suppliers in this remote expanse of western Virginia – and also challenged our creativity when it came to bringing everything together in the equipment room (actually the basement of the log-cabin-style pool house). Keeping exact track of what was what proved a minor challenge compared to working out the geometries and sequences of runs once they penetrated the basement's outer walls and actually had to reach various pieces of equipment.

AQUA SHOW
CONFERENCE & EXPO

NOVEMBER 9-11, 2004

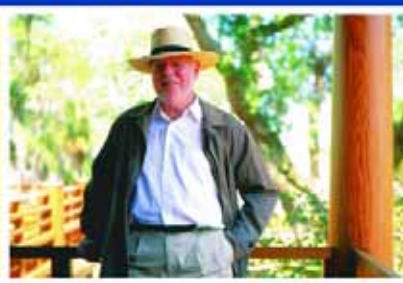
MANDALAY BAY CONVENTION CENTER
LAS VEGAS, NEVADA

ONE CONFERENCE YOU WON'T WANT TO MISS!

GARDENING WITH WATER: WATER IN THE LANDSCAPE ENVIRONMENT

Presented by James van Sweden

Take this rare opportunity to learn from one of the world's most celebrated landscape architects—James van Sweden. A founding partner in the prestigious landscape design firm Oehme, van Sweden & Associates, he will share his philosophies on water in the landscape environment. Presenting historical and international examples, van Sweden will discuss the essential aesthetic role of water in the landscape and how proper placement, type and scale of water features satisfy the requirements of the space and personal preferences of the owners.



James van Sweden

POND AND WATER GARDEN DESIGN

Presented by Anthony Archer-Wills

Join one of the world's top authorities on ponds and water gardens as he shares his spectacular projects and inspiring design ideas. Archer-Wills has been instrumental in developing many of the new techniques used in the construction of ponds with both concrete and flexible liners, and is author of the two leading books on pond and water garden design. Taking principles and ideas from garden design and landscape architecture, he will provide a fascinating look at the many possibilities for bringing the changing face of water into the landscape environment.

Anthony Archer-Wills

ILLUMINATING THE NIGHTTIME LANDSCAPE

Presented by Janet Lennox Moyer

Often underutilized by designers and builders, landscape lighting is an important facet of the outdoor environment that can bring your clients added appreciation of their projects while providing you with a new profit center. You'll have the opportunity to learn about the growing niche market for landscape lighting from one of the world's foremost authorities on the subject. This informative session will include dramatic project examples that illustrate beautiful and unique illumination effects that you can apply to your own projects.

Janet Lennox Moyer

GENESIS 3 DESIGN GROUP

Come to the AQUA Show this November and learn from these three industry icons, plus other hand-picked experts such as Feng Shui master Ileana Davis, Ph.D. and computer graphics/digital imaging legend Chris Quilsch. The Genesis 3 Design Group, in partnership with AQUA, has assembled a multi-faceted educational program targeted to pool, spa, pond and landscape designers and builders. The four-day program offers classroom instruction as well as new product introductions, seminars, demonstrations and one-on-one consultations. Call today for a complete conference schedule and registration details.

For More Information or Registration, Call 800/536-3630 or Visit www.aquashow.com

Circle **36** *on Postage Free Card*

of the heaters, which were purchased by the owner prior to our arrival, the equipment set consists entirely of components made by Pentair Pool Products (Sanford, N.C.).

The system features four Triton 140C filters selected for durability and low maintenance and equipped with automatic backflow valves; 15 WhisperFlo pumps chosen for their quiet operation and compact size in the limited basement space; 11 SAm and four SAl lights; and a daisy-chained set of Compool automated controllers with remote controls, keypads and spa-side remotes chosen for expandability as well as ease of use. There are also five photon generators arrayed around the site for the fiberoptic lights – and an array of valves too numerous to list.

The technical assistance the supplier offered us in working on this complex, multifaceted system was critical to our success.

Tough Going

Given the home's remote location and the project's vast scope, logistics were a challenge right from the start. To make things work, we moved crews into the area for four or five months of six- or seven-day workweeks. To make the time as productive as possible, we had to do a great deal of pre-production work, setting up relationships with local vendors to ensure timely deliveries and in many cases monopolizing supplies of such staples as schedule 40 pipes and fittings.

Much to their credit, the homeowners pitched in and helped in a variety of wonderful ways. They spent hours at the site most days, collaborating with us on large and small decisions at every step and helping in unexpected ways to enhance productivity.

As the project got under way, for example, we couldn't help noticing that lunch breaks took an inordinate amount of time because there weren't any food establishments close by. Wanting to see the project move forward at a rapid pace, the homeowners set up a catering operation in the pool house at their own expense, both to keep the workers on site and express their appreciation for the extreme effort that went into the project.

That may seem a small thing, but on a project as big as this one, it was just the sort of care and involvement that led us to success.

Next time: A pictorial look at the completed project.

The island is the most prominent addition we made to the pool itself and effectively divides the vessel into three parts for three sorts of activities. When finished, the island itself will feature extensive faux rockwork, a waterfall (from the access bridge), fiberoptic lighting, misters and a water cannon.

Half closed, half open atop the grotto structure, the waterslide sweeps around the backside before dropping down to the main pool. Breaking from a dark, enclosed space into the light of day is one of the many elements of surprise and constant visual discovery we brought to the entire project in our attempt to appeal to users of all ages.

Heavy Loads

To accomplish the level of visual integration described in the accompanying article, the substructures for the rockwork included a variety of gently graded berms and terracing walls that all gently flow with the contours and planes of the rocky vertical structure that serves as the main visual backdrop for the pool.

Support for this immense amalgam of concrete and steel consists of 12-inch-thick poured-concrete walls and a series of large, spread footings. Because of the size of the rock structure and all of the concrete used to fill in behind the rock panels, there's a *tremendous* amount of weight that effectively cantilevers off the side of the swimming pool.

Even with the solid soil conditions, we were concerned about differential settlement, so we did what was needed to transfer all the surcharge to the support structure instead of the pool and then did all we could to make certain the whole setting was visually integrated.

This we accomplished with scores of planting pockets amid the rockwork. These integral planters are designed to encourage vines to climb over the rocks for a natural ledge-type effect and foster growth of native weeping vegetation that will further soften edges and blend in with the rockwork. All of the planters include lighting and have irrigation systems as well.

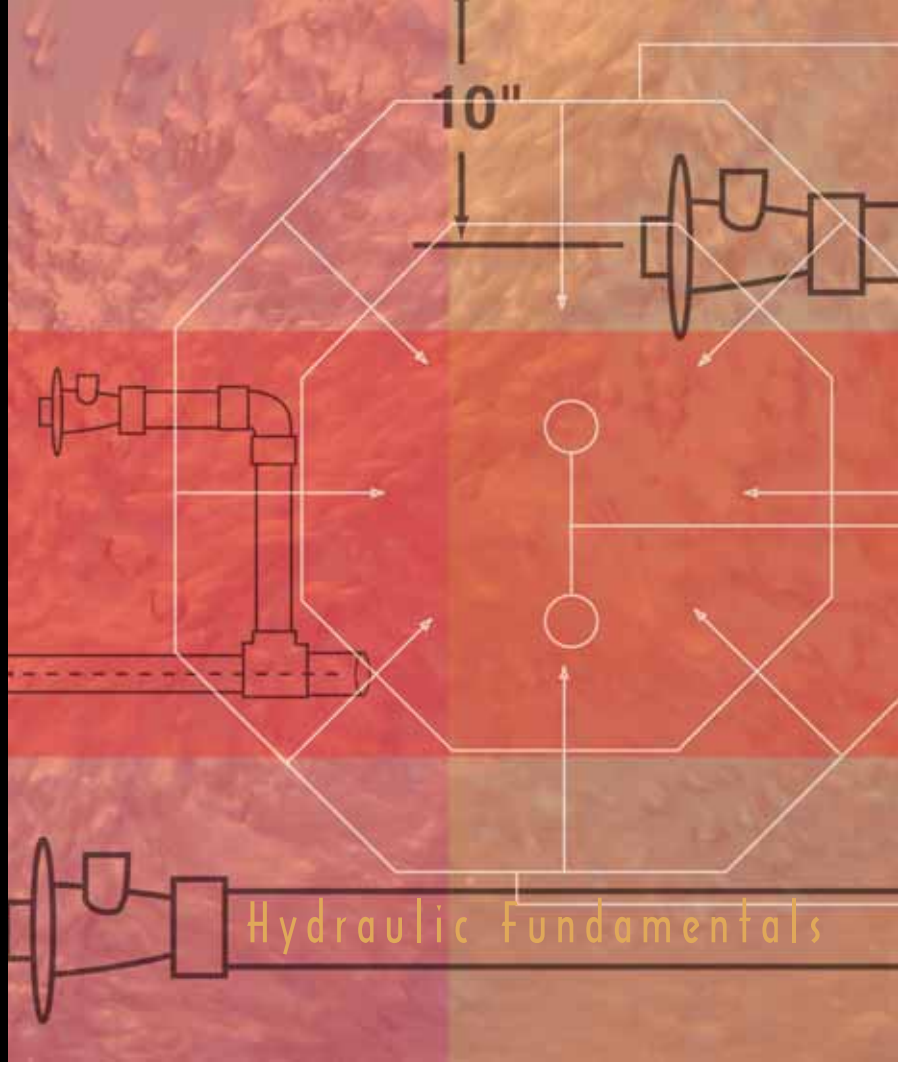
The structure in a project as large as this becomes a piece of architecture to which the adage "form follows function" applies at every turn in setting up a space for play, recreation and relaxation. The challenge of achieving all of this, which I consider the multi-purpose ideal of aquatic design, is what draws me to these projects – part of a philosophical continuum that stretches back to Late Romantic pleasure gardens and to Roman baths before that.

– M.A.

Valve Values

By Steve Gutai

Valves are so common and integral a part of watershape construction that it's easy to take them for granted and not think about exactly what each specific type is designed to do. In fact, observes hydraulics expert Steve Gutai, the efficiency and serviceability of a great many installations could be improved if system designers and builders took fuller advantage of the range of valve choices and their characteristics – an information gap he addresses here.



Watershape construction is far more sophisticated now than at any time in history.

Swimming pools, for instance, are commonly designed to include spas with complex jet manifolds and a wide variety of controllable effects, while vanishing edges, perimeter-overflow details, multiple water levels and various water-in-transit designs are also increasing in popularity.

Fountains and waterfalls and the full range of other waterfeatures also are more elaborate, and what *all* of them require are well-planned systems of valves to control and divert water to all the necessary components, effects and details. These are situations in which valve choice is, in fact, critical to hydraulic-system design.

The many types of valves can be separated into three specific categories, roughly according to application. There are some that divert water, others that isolate water and still others that prevent flow reversal – and there are several choices within each category with a variety of potential plumbing connections (sockets, threads, unions, flanges and more), again depending upon the specifics of the application.

Diversion Tactic

Let's begin our closer examination of this range of possibilities with the most basic, common valve type – that is, those used to divert water from one plumbing run to another, as from a pool to a spa or from a pool to a waterfeature of some type.

Diverter valves are typically made with three ports and have a valve body that looks like a "T." One port serves as the inlet (usually the branch side of the tee); the other two are possible return paths for the water as it heads back, for example, to a pool or spa. The active part of the diverter rotates on an axis in the central portion of the valve body and can swing up to 180 degrees, thereby allowing the user to send or pull water to both downstream ports or isolate one port at a time (Figure 1).

This valve type is extremely popular because it effectively replaces multiple isolation valves and makes plumbing schemes much simpler for the contractor. This type of valve also can be automated: Most of these valves have a spleen shaft that will accept common motorizing systems, which opens them to use in automating pool/spa combinations, water effects and in-floor cleaning systems. In addition, these valves serve to divert suction-side flows to cleaners, main drains and skimmers.

In Isolation

A second common type of flow control is performed by *isolation valves*, which commonly are used in systems where equipment sets are placed below the water line. These valves allow the flow of water to be shut down at key spots along the line and, as the name implies, isolate a

Figure 1: *Common diverter valves in single- and multi-port configurations.*

component and prevent water from flowing back to it (Figure 2).

This is a practical necessity in servicing a subgrade pump, filter or heater: Otherwise, the vessel would empty to the level of the pump every time a component was pulled off the line.

The second common use for this valve is in adjusting or throttling water flow. In fountain-style waterfeatures, for instance, many times the flow will need to be adjusted and throttled up or down to optimize system performance. In this sort of application, choices are critical and the system designer or installer needs to select among four distinct possibilities:

- **Ball valves:** Ball valves offer simple operation – basically a quarter turn that starts or cuts off the flow. Typically made of CPVC or PVC (and a range of other materials), they all feature a ball with a hole through its center inside the valve body. When the hole is aligned with the flow, water moves freely from the inlet port to the outlet port. When the ball is rotated 90 degrees, the flow is cut off by the ball's solid wall. Partial flows result when the ball isn't turned fully one way or the other.

This type of valve is used frequently to throttle flow or isolate flow to a specific portion of a plumbing network. In the open position, the flow is straight through with minimal pressure drop as long as the porting through the ball is the same size as the inside diameter of the pipe – which makes it helpful that these valves are available in just about any size. Because of the design of internal portion of a ball valve, however, they aren't particularly well suited to systems that require true fine tuning, such as laminar-flow jets.

- **Butterfly valves:** The butterfly gets its name from the wing-like action of the flow-controlling disc inside the valve body. This disc operates at a right angle to the flow of the water as it travels through the valve and generally has about the same diameter as the connecting pipe, so it results in limited pressure drop.

These valves, which also come in a wide range of sizes and materials of construction (typically PVC and CPVC), can be

Figure 2: *Typical isolation valves in a range of materials of construction.*

used either as on/off isolation valves or as flow-adjusting/modulating devices. Generally, they are used in manual applications, but many can be automated. In addition, some manufacturers offer "swimming pool grade" valves designed for the range of flow rates, pipe sizes and water chemistries found in pools and spas.

The most common application for these devices is in isolating equipment on larger-sized plumbing – generally three-inch diameters and above. They can also be used for flow adjustment but, like ball valves, aren't particularly suited where fine flow tuning is required.

w **Gate valves:** The gate valve is the most common member of the isolation-valve family. These devices are used in many of the same applications as ball valves and have the advantage of wide and easy availability from a variety of wholesale and retail sources, with the most obvious drawback being a somewhat higher cost.

As is the case with ball and butterfly valves, when gate valves are fully open, they allow the straight, undisturbed passage of water through an opening that is the same size as the inside diameter of the connecting pipe, so pressure drop is virtually eliminated.

Made of materials ranging from brass to PVC or CPVC, the valve operates when the handle or hand-wheel and stem screw move a cylindrical plug (the *gate*) up and down at a right angle to the water flow. Gate valves are primarily used for on/off isolation service and do not work as well at throttling flow as do ball or butterfly valves.

w **Globe valves:** Of the isolation valves discussed here, the globe valve is the least used and understood basically because of the complex of things that happen inside the valve body. As the water flows through one of these devices, it follows a path with two near-90-degree changes in direction and operates when the handle or hand-wheel and stem move a plunger that aligns parallel to the water flow.

These valves are available in a wide range of materials from brass and polypropylene to PVC and CPVC and can be used to isolate components or throttle flow to any degree required, making them an excellent choice for fine flow adjustments. But the inter-

As watershaping projects have gotten more and more complex, the more important it has become for designers and contractors to be aware of the full range of valves available to them – and to recognize, in an equipment room such as this one, that just about every valve type will legitimately come into play.

Figure 3: Check valves come with various profiles – but all have the same basic function.

nal configuration entails a large pressure drop across the valve, so globe valves aren't suited to applications in which pressure loss is an issue. In addition, these valves cannot currently be automated.

Holding Fast

The third main class of valves – *check valves* – is used with watershapes mainly to prevent the undesirable reversal of flow in a line. Take the suction side of a pump, for example, where the pump is raised in relation to the body of water or where there are multiple elevations of water (as with a raised spa) and you don't want water to flow away from the pump and cause a loss of prime when the system is off: In these cases, a check valve is all that is needed. The same principle applies with an air blower line, where a check valve will keep the water from flowing back into the blower.

When you dig into valve technology, you're likely to be surprised by the number of choices you have.

Check valves are simple devices. When open and under flow, the checking mechanism moves freely and there will be little resistance and minimal pressure drop. When the flow of water stops, however, the checking mechanism closes and the water is held in the pipe.

Check valves differ in design and configuration and are available in the usual wide range of materials (Figure 3), but the most common variety for watershape applications is the swing type, which uses a swinging disc or gate that closes with a minimal amount of back pressure. Many of these valves have an additional lever or spring to promote faster and more secure seating. They also come with different internal configurations, but their functional role is always the same.

A Little Bit Savvy

As with all aspects of hydraulics, the watershaper needs a good, basic understanding of the three different valve types and their applications and should carefully consider options when laying out systems.

As I mentioned at the start of this article, there's often a best choice for an application that is overlooked because the designer or installer is stuck in something of a rut and will use one type of isolation valve, say, to the exclusion of all others – even when a simple change in gears would mean greatly enhanced system performance and efficiency.

When you dig into valve technology, you're likely to be surprised by the number of choices you have. I recommend weighing all of those possibilities – or at least *more* of them – as you make your decisions about how you divert, isolate or prevent the water's flow.

The illumination of watershapes is a true specialty even among the experts, observes lighting designer Janet Lennox Moyer, because it requires not only mastery of available lighting technologies and techniques but also an understanding of the physical properties of light as it interacts with air and water. The key, she says, is supporting a clear set of objectives with careful planning and a persistent desire to make the most of watershapes after dark.

Shining Through

By Janet Lennox Moyer

Maximizing the potential of landscape lighting is always about thinking ahead – a philosophy that absolutely applies when it comes to planning and designing the lighting for a watershape.

The process begins with a set of questions that should be considered at the outset of any project: Is the watershape to be the focal point of the composition, or is it to be one among equally important features such as plantings, sculptures or hardscape details? Is the feature to be visually prominent at night, or is it to blend in with the darkness? Will the water you are lighting be in motion, or are you working with a still surface?

Observers and chief vantage points also come into play. If the feature will mostly be viewed from passing automobiles rather than by pedestrians, for example, the issue of glare must be directly considered for safety reasons. If the watershape is to be seen from a lit interior space, then we know that its lighting level must be equal to or greater than that of the interior lighting. Likewise, relative brightness is an issue in making the illuminated watershape work with the rest of an illuminated landscape.

The most important need in all of this is for recognition of the fact that the lighting of watershapes is different from (and often more difficult than) the lighting of other parts of a landscape. Here's some background in what it takes to increase your opportunities for success.

Bright Properties

It has often occurred to me in my work as a lighting designer that lots of problems are avoided when the designer or contractor takes the time to consider the physical properties of light and the way it "behaves" in specific conjunction with water.

Those properties can be broken down into four distinct concepts:

- Light acts differently in water than it does in air, basically because water has far greater density than does air and

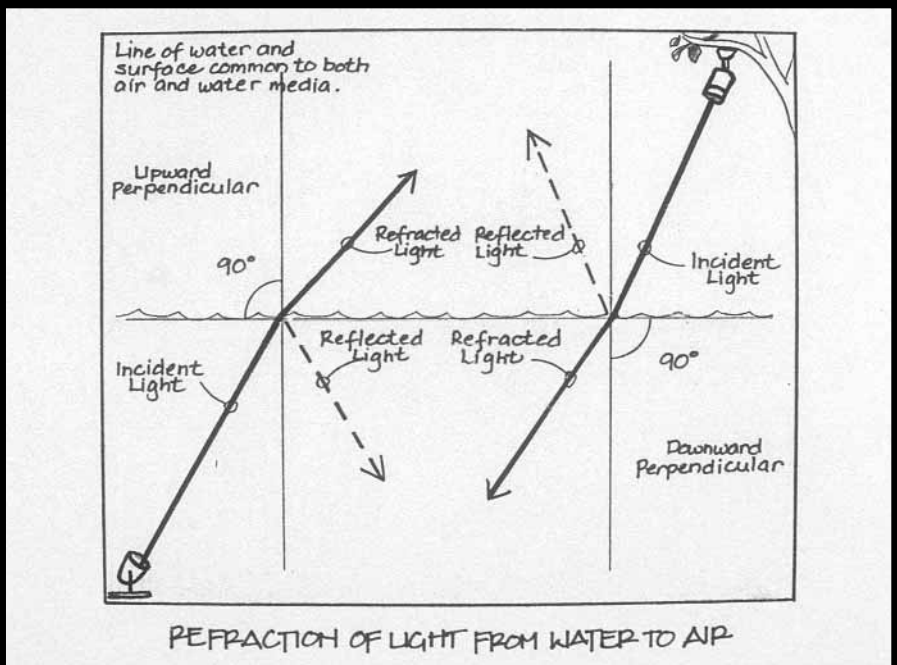
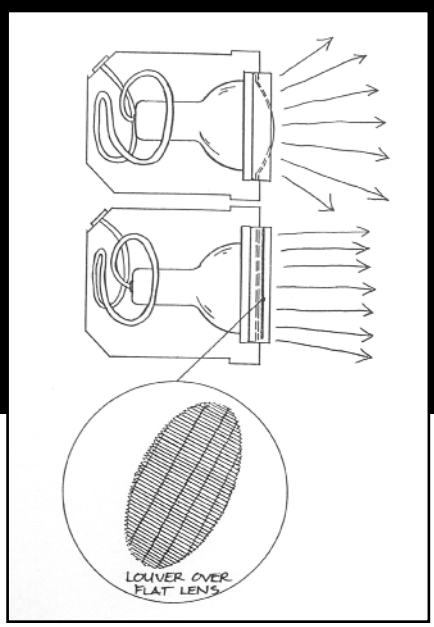


Figure 1: Whether the light source is inside or outside a pool of water, light 'refracts' when it hits the surface (A). You can use this phenomenon to good effect, in one case by hiding the brightness of a subsurface light source by using a flat lens rather than a convex one. And you can control the effect even further by using a louver.



fore affects the velocity of the light and the angle at which it travels from one medium to the other.

You can use this phenomenon, known as *refraction* among lighting engineers, to great advantage in certain situations. When seeking to hide the brightness of a fixture in the wall of a pool in a situation where you can't effectively hide the light source, for example, you can select a flat lens instead of the usual convex lens (Figure 1). The flat lens will send more of the light toward the "horizon" directly ahead, meaning there's less light to shine up into the eyes of someone standing at poolside.

w Light is affected by the presence of aerated or turbulent water. When filled with air bubbles, water directly interacts with the light, taking on a dramatic glow and even assuming the color of the light if you use a colored lens. Light placement is the key to this effect: The fixture must be located below the source of the bubbles – at the base of a waterfall, for example, or directly beneath a vertical-plume nozzle (Figure 2).

w Light is opened to another set of effects in the presence of flat or smooth water. Take a clear sheet of water falling from a weir as an example: In the absence of air bubbles and depending on the angle of the light source relative to the plane of the water, the light will either pass right through or reflect off the water's surface (Figure 3).

As a rule, smooth waterfalls are lit from the front with fixtures located either inside or outside of the water. What I see as the best available effect – a beautiful shimmering on the surface that becomes a compelling focal point in any space – is achieved on a flat water surface lit from outside the water.

w As light travels through water, it tends to become scattered by waterborne particulates – an effect that may enable you to wash the bottom of a pool with a soft light but that also can dramatically reduce the intensity of light if you are trying to accent a particular feature through the water, such as a plume, waterfall, rock detail or sculpture.

In addition to these four principles, anyone trying to light water effects needs to know that perceived brightness is reduced by 10% for every two inches of sub-

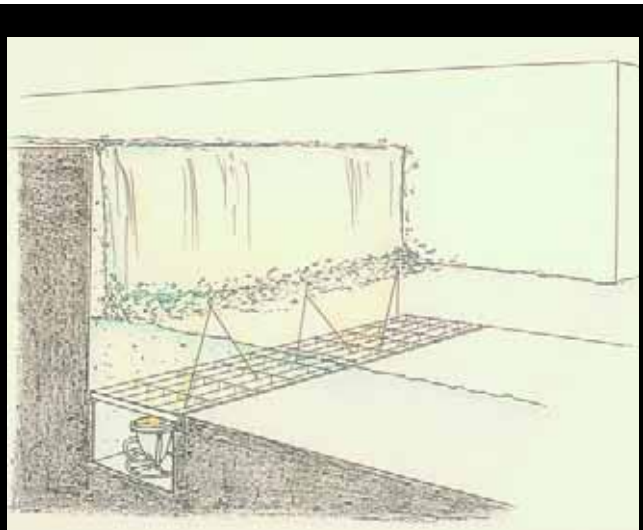


Figure 2: When planning for the uplighting of waterfalls, it's important to build a trough wide enough and deep enough to give yourself some room for later maneuvering as you adjust and 'tune' the lighting to the specific conditions you encounter when the water starts flowing.

mersion. This is why lighting a submerged space requires a far greater number of fixtures relative to a dry space. In fact, I've found that a given underwater area will require upwards of *seven times* the number of fixtures relative to a similar-sized area of adjacent landscaping.

Exploring Surfaces

This need for more fixtures (and more light) indicates at a minimum that there's a difference between the lighting of water and the lighting of areas on land. If you know what you're doing in a dry landscape, you might be able to create wonderfully appealing effects with a small number of fixtures – but that's not possible with underwater lighting, basically because even simple effects require a great deal more candlepower (Table I).

All of this translates into a dramatic difference in wattage required: 700 to 1,000 watts in water for every 20 to 50 watts on dry land. This makes a huge difference in system cost and complexity and is one of the big reasons why clear (and early) communication with the client is so important. Obviously, that need is there with *any* landscape lighting project, but I've found that it is especially true with those involving water.

I've also found that underwater lighting involves a lot more effort than dryland lighting, but I see it as an investment more than matched by effects that can be so dramatic when done well that they often become the most attractive features of a space. Think of sprays of water glowing against a night sky, or the radiance of turbulent water as it accentuates its own power and vigor while flowing over rockwork or some other hardscape feature. These and other effects are well worth the thought, planning and extra work involved in achieving them.

Figure 3: Depending on the position and angle of the light source, a sheet of clear water will either reflect light (as seen at right) or let it pass through the surface (as seen at left) to give us a glimpse of what's behind it.

The fixtures used to develop such effects can be placed either directly on or recessed within the bottom of a vessel, or they can be set or recessed in a nearby architectural feature of some kind. The "where" of this placement is crucial: Whether lighting a watershape's waterfalls or jets or nearby plants or sculptures, you must consider *all* of the influences on the effect you aim to achieve, including refraction, light dispersion and the effects of bubble-filled or smooth water, in

Table 1: Underwater Lighting Wattages

Height of Fountain Effect

Light Distribution	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'
Wide Flood	250	500	1000	2000	3000					
Flood	150	300	500	900	1000	1500	2000			
Spot	150	150	250	300	500	600	1000	1200	2000	2000

Minimum Beam Candlepower Requirements*

Water Effect Height (ft.)	5	10	15	20	25	30	35	40	45	50
Candlepower Required (x1000)	4	11	21	24	50	69	91	115	144	170

*Candlepower shown is initial average in central 5" cone for spots, control 10" for floods.

deciding where the lights will be placed.

Distance between the light source and the illuminated object is a factor, too. Not only must you consider and be able to adjust the angle of the fixture, but you must also think about basic location, because light from a fixture placed too far in front of or too close to a waterfall (for example) will not be absorbed because the light won't transfer from the horizontal surface of the water to the vertical surface of the falls.

And of course, these kinds of specific, highlighting effects are not always going to be what you're after. In swimming pools, for instance, recessed fixtures are well used in washing the walls with light to accent the shape and contours of a body of water or to call attention to exceptional textures and materials, such as exposed-aggregate finishes or tile. It all depends on what your pre-planned objectives are – and what your clients want.

Working Under Water

Certainly, equipment selection is all-important in watershape lighting, as it is in any lighting project. High on the list of considerations is the type of lamp with respect to candlepower and beamspread. Furthermore, the type of fixtures you choose must be intended for use *beneath*

Properly done, the underwater lighting of watershapes involves much more planning and effort than does dry-land illumination of the same feature. But it's an investment that more than pays off in the level of visual drama that can be achieved when everything comes together.

The Maintenance Imperative

Perhaps more than any elements in an overall landscape lighting program, those related to a watershape require the clearest and most committed plans for maintenance.

No matter whether it's a residential or commercial application, it is critical that clients understand from the outset that lamps will need to be replaced when they burn out, which in the case of watershapes can involve working with submerged lighting fixtures. This is such a key issue largely because when one lamp goes dark, it inevitably leaves a "hole" in the composition that can in many situations ruin the visual effect.

Maintenance in these cases requires either the ability to remove the fixture from the water or the ability to access it in place, which means in the latter case that you either have to drain the body of water or get wet to change the lamp.

In large bodies of water with multiple underwater fixtures, it's not unusual for maintenance to require two people and a small boat: One person will steady the boat while the other pulls a fixture to the surface and changes the lamp. In other cases, maintenance requires wading or swimming to the feature – which in extreme cases can involve the use of scuba gear.

Given the significance of good maintenance routines, clear communication about lamp replacement and setting up expectations about exactly what will be involved (and how often) is of critical importance – certainly something that should be discussed *very* early in the design process.

– J.L.M.

The coherent 'look' of this waterfeature is more than a little compromised by the fact that one of the lamps on the lower tier needs replacing.

the water's surface.

It may be an obvious point, but equipment you intend for use below the waterline should be designed for the application. Fixtures, for example, must be made to withstand water's corrosiveness and also need to be completely and reliably water-tight throughout the service life of the fixture. (This is all set forth in Article 680 of the National Electric Code, a document worthy of an article all its own.)

Because underwater features are necessarily of heavier-duty construction than dry-application fixtures – and use more expensive materials while requiring more involved design, engineering and product testing – they are much more costly than their out-of-the-water counterparts. Indeed, submersible fixtures will set clients back roughly three to five times the amount of dry-land fixtures.

Submersible fixtures are typically made of copper, brass or stainless steel and must be entirely sealed to prevent water from entering the lamp housing. They also must have strong locking mechanisms (such as yoke locks) in order to hold the desired aiming angle in the face of turbulence over time.

These fixtures are definitely not designed for use above the water level; in fact, they rely on the presence of water to dissipate the heat generated by the lamp, which explains why most have low-water cut-off switches that shut them down when they're not completely submerged. This doesn't mean they need to be in *deep* water. In fact, the recommended minimum depth for most underwater fixtures is only two or four inches below the waterline.

For the most part, *incandescent* lights still dominate in aquatic applications, and it is the lamps themselves that create the effects. It's no small advantage that they offer controllability and the wide range of wattages needed to match the requirements of a broad range of applications – a spectrum that stretches from 75 to 1,000 watts.

The height and width of a watershape will determine the wattage and beamspread of the selected lamp. Tall falls and fountains require high wattages and *spot distribution*, while a *floodlight* approach using somewhat lesser wattages will work well with single-jet effects or groupings of small multiple effects for which there's basically a one-to-one height-to-width ratio in coverage. A third option is *wide beamspreads*, which work well with large, multi-jet configurations using two-to-one height-to-width ratios.

Lest anyone forget, maintenance is always an issue in designing systems that use incandescent underwater lights. (For more information, see the sidebar on this page.)

As an alternative, *fiberoptic* lighting has become far more popular for underwater applications in recent years. I still prefer incandescent lights for their flexibility and the warm appearance of the light itself, but there's no question that many projects benefit from the use of fiberoptic technology.

For starters, the myriad safety issues and restrictions that attend the underwater use of incandescent fixtures are not factors when it comes to using fiberop-

tics, mainly because none of the electrical components are located in the water. Furthermore, fiberoptic lighting is quite wonderful at creating subtle pinpoints of light or for banding pool perimeters – but less wonderful in shaping drama of the kind usually desired for waterfalls or sculptures.

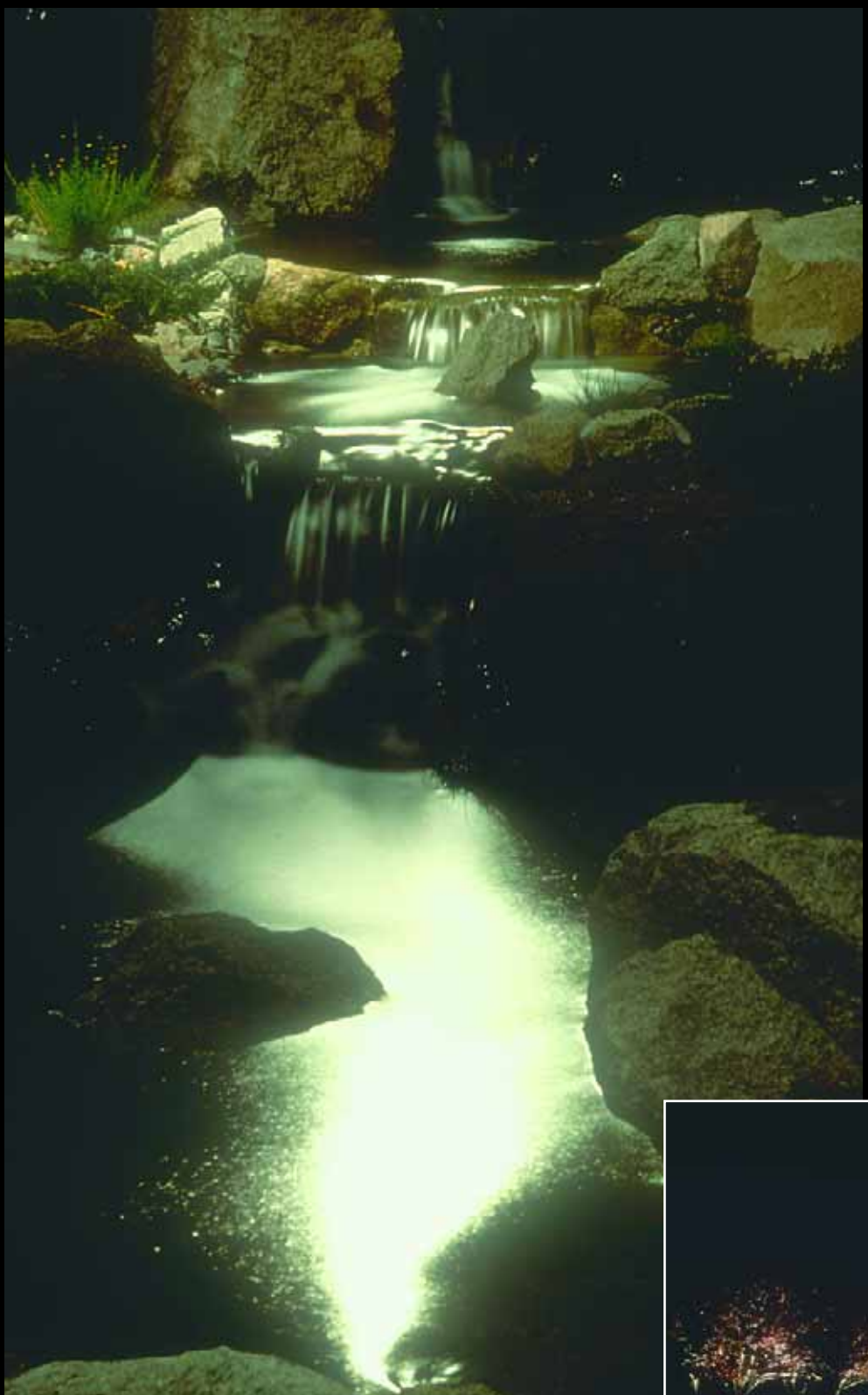
Above and Beyond

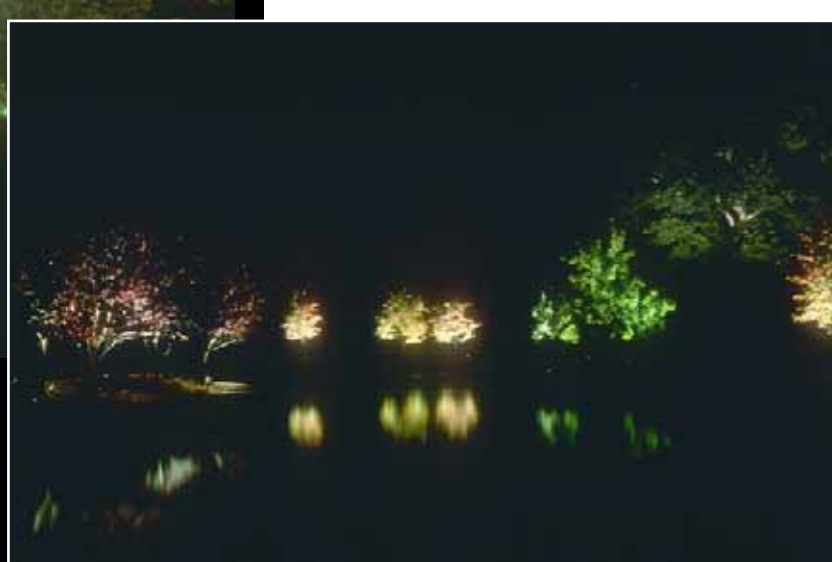
Lighting a watershape from beyond the water is generally easier than working under the water. For one thing, it has the advantage of giving you the opportunity of avoiding high-cost, heavy-duty fixtures. It also usually involves a less-complex installation process and ultimately requires simpler maintenance.

The effects to be created are generally quite effective, but it's my view that they are often less dramatic (or subtle) than those that can be developed by fixtures placed in the water itself.

Agitated or aerated water will capture more of the light you shine into it than will still surfaces or clear sheets of falling water. Indeed, aerated water will glow even as it reflects some of the light, displaying what can be a beautiful, sparkling surface. And don't forget that flat surfaces offer great reflections of lit objects arrayed around a pool!

For the most part, water illumination is achieved through use of *down-lighting* with fixtures mounted on nearby architectural structures or trees. There





Lighting watershapes from outside the water opens the visual palette to amazing reflections, as can be seen in the relatively still waters downstream from a waterfall illuminated from above or in mirror images of plants lit up beyond the water. These effects may be more subtle than those to be achieved with underwater lighting, but they have a visual appeal all their own.

Tired of the same old look?

Mix or match. Change the hood without changing the fixture.

Kim Traditional Series Offers Ultimate Flexibility

3 Hoods

3 Stems (8", 13", 20")

Copper or Aluminum Construction

5 Finishes:

- Copper with natural or acid etched verde patina
- Aluminum with black, dark bronze or verde green paint

Low voltage (12 volt) and line voltage (120 volt)

Tool-less entry and hood change out

KIM LIGHTING

16555 East Gale Avenue
City of Industry, CA 91745
626/968-5666
www.kimlighting.com

For more information: Contact your local Kim Lighting Representative, Electrical Distributor, Lighting Showroom, Irrigation Supply, or visit www.kimlighting.com

Hubbell Lighting, Inc.

Circle **55** *on Postage Free Card*

are, however, situations in which fixtures are best mounted at ground level and aimed up at a waterfeature – an approach often used to good effect with waterfalls or multi-tiered fountains, for example.

One of the common mistakes made in lighting water from outside has to do with *glare*. This phenomenon can be terribly distracting and can greatly diminish the appreciation of lighting effects in watershapes. What's needed is careful control of aiming angles to no more than 35 degrees above the horizontal axis or use of louvers to shade the lamp and minimize direct light transmission.

Another great effect of stepping outside the water to work on lighting effects is budgetary: When lighting from beyond a watershape, any outdoor lighting fixture can be used – typically good news for clients' bank accounts.

Whether done inside or outside the water, however, it's important to note that the lighting of watershapes is far more challenging than general landscape lighting. Truth be told, the achievement of sophisticated and truly dramatic effects can require practiced expertise that goes far beyond any discussion of the fundamentals contained in an article such as this one or even in an entire book.

You can nonetheless design appealing effects by stepping back, taking your time and fully considering the range of options you have right from the outset. It can also pay to know when to seek help from lighting suppliers or professional lighting designers. No matter how it comes together, the most important point to consider is that lighting cannot be an afterthought!

When you weigh the possibilities and align them with the desires and objectives of your clients as well as the needs and potential of the setting – and fully discuss those possibilities and potentialities during the planning stages of the project – you can build a systematic lighting approach based on clear objectives. When that happens, you will be far likelier to find that your best watershapes take on their greatest character and beauty main-

Lights and Fish

Underwater lights can have significant effect on the health of fish.

There are two key issues here: First, fish need to be able to escape the light and are no different from humans in needing dark refuges. (Just imagine living in an environment where it was never dark – what torture!)

This is not much of a problem in pond systems where, for example, a waterfall is lit from within a body of water that is otherwise mostly dark. In a situation where the surface of the water is lit from outside, however, the designer needs to be aware of the fact that darkened areas must be provided to accommodate the fish.

Second, consideration must be given to temperature and the heat generated by lighting fixtures – incandescent ones in particular. In areas with heavy concentrations of fixtures, the increase in water temperature can adversely affect the fish.

To be sure, neither issue is of much concern in truly large bodies of water, but it is something to consider where fish are asked to share a small space with numerous lighting fixtures.

– J.L.M.

Gin Clarity

The lighting of cloudy water from beneath the surface simply does not work. The more particulate haze there is in the water, the more diffused, cloudy and muddled the lighting effects will become.

This is why many of the attempts at lighting ponds or other living waterfeatures from below the water's surface meet with failure. This is also why any watershape in which underwater lighting will be used should be designed for crystalline clarity.

While it's no surprise that underwater lighting is primarily a feature of swimming pools or architectural fountains that are filtered and chemically treated, this still doesn't rule out lighting for pond systems that contain fish and/or plants so long as the client wants it and the designer aims to achieve a suitably high degree of water clarity.

– J.L.M.

What's a pretty picture during daylight hours can become even livelier and richer when the sun goes down – and the nighttime effects in particular will invariably work best where planning for them occurs in the earliest phases of the design process.

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.*

Reader Service Number

Advertiser Index:

44	A & B Aluminum and Brass Foundry (pg. 64)	
	(800) 733-4995	www.abfoundryonline.com
6	Advanced Aquaculture Systems (pg. 20)	
	(813) 653-2823	www.advancedaquaculture.com/landscape
36	Aqua Conference & Expo (pg. 43)	
	(800) 536-3630	www.aquashow.com
80	Aqua Control (pg. 68)	
	(800) 377-0019	www.aquacontrol.com
7	Aqua Shield (pg. 28)	
	(800) 613-3339	www.aquashieldonline.info
3	Aquamatic Cover Systems (pg. 3)	
	(800) 262-4044	www.aquamatic.com
121	BakerHydro Filtrations (pg. 17)	
	(800) 247-7291	www.bakerhydro.com
99	Balboa Direct (pg. 14)	
	(800) 645-3201	www.ecomatic.com
114	Beachside Lighting (pg. 64)	
	(800) 405-6732	www.beachsidelighting.com
21	Cemrock Landscapes (pg. 33)	
	(520) 571-1999	www.cemrock.com
27	Color Match Pool Fittings (pg. 9)	
	(714) 779-5221	www.poolfittings.com
8	Cover-Pools (pg. 71)	
	(800) 447-2838	www.coverpools.com
11	Coverstar (pg. 8)	
	(800) 617-7283	www.coverstar.com
18	Crystal Fountains (pg. 25)	
	(800) 539-8858	www.crystalfountains.com
26	Delta Ultraviolet (pg. 27)	
	(866) 889-8765	www.deltauv.com
16	Genesis 3 Schools (pg. 65)	
	(877) 513-5800	www.genesis3.com
	Gilderfluke & Co. (pg. 27)	
	(800) 776-5972	www.gilderfluke.com
12	International Pool and Spa Expo (pg. 63)	
	(888) 869-8522	www.poolandspaexpo.com
96	Jandy (Water Pik Technologies) (pg. 72)	
	(800) 227-1442	www.jandy.com
55	Kim Lighting (pg. 57)	
	(626) 968-5666	www.kimlighting.com
82	Kruger & Eckels (pg. 32)	
	(800) 355-7663	
63	Macalite Equipment (pg. 22)	
	(877) 622-2548	www.macaliteequipment.com
57	Meyco Products (pg. 15)	
	(800) 446-3926	www.meycoproducts.com
110	Millionaire Pool Builder Program (pg. 66)	
	(888) 883-9979	www.halslater.com
4	National Pool Tile (pg. 7)	
	(888) 411-8453	www.nptgonline.com
38	NSPI Region 3 (pg. 61)	
	(800) 548-6774	www.nspiregion3.org
75	Oceanside Glasstile (pg. 49)	
	(866) 648-7665	www.glasstile.com
122	Peacock Pavers (pg. 26)	
	(800) 264-2072	www.peacockpavers.com
107	Pebble Technology (pg. 23)	
	(800) 937-5058	www.pebbletec.com
58	Pem Fountains (pg. 19)	
	(800) 387-3600	www.pemfountain.ca
49	Pentair Pool Products (pg. 11)	
	(800) 374-4300	www.pentairpool.com
101	Pentair Pool Products (pg. 31)	
	(800) 843-5628	www.pentairpool.com
30	Pool Cover Specialists National (pg. 21)	
	(800) 369-5152	www.poolcovers.com
45	PoolFog (pg. 28)	
	(866) 766-5364	www.poolfog.com
54	Rain Drop Products (pg. 67)	
	(800) 343-6063	www.rain-drop.com
51	Regal Plastics (pg. 67)	
	(800) 444-7755	www.regalplastics.com
48	Roman Fountains (pg. 29)	
	(800) 794-1801	www.romanfountains.com
67	Roman Fountains (pg. 66)	
	(800) 794-1801	www.romanfountains.com
35	Spray Force Mfg. (pg. 12)	
	(800) 752-0183	www.sprayforce.com
42	Standard Bronze (pg. 68)	
	(201) 339-1351	
47	Sta-Rite Industries (pg. 13)	
	(800) 854-2515	www.starite.com
52	Stegmeier Corp. (pg. 16)	
	(800) 382-5430	www.stegmeier.com
56	Waterway Plastics (pg. 2)	
	(805) 981-0262	www.waterwayplastics.com
68	Waterworks International (pg. 32)	
	(800) 932-3123	www.waterworks-fountains.com

Of Interest Index:

135	Fiberstars (pg. 62)
136	Most Dependable Fountains (pg. 62)
137	Emperor Aquatics (pg. 62)
138	Suntrek (pg. 62)
139	Sta-Rite Industries (pg. 62)
140	Rafco Products (pg. 62)
141	Imperial Pools (pg. 62)
142	Aqua Products (pg. 62)
143	Acu-Trol (pg. 64)
144	Agape Tile (pg. 64)
145	Plastimayd (pg. 64)
146	Emecole (pg. 64)
147	Otterbine (pg. 66)
148	Paverart (pg. 66)
149	E-Z Products (pg. 66)
150	Images in Tile (pg. 66)
151	Griswold Pump (pg. 67)
152	Bradford Products (pg. 67)
153	Garden Prairie (pg. 67)
154	Deck-O-Seal (pg. 67)
155	E-Valve (pg. 68)
156	Nightscaping (pg. 68)
157	Raypak (pg. 68)
158	Icon Shelter Systems (pg. 68)

Hamilton-Steele Outdoor Accents, Houston, TX

Indigo Custom Pools, Houston, TX

Southernwind Pools, Dallas, TX

SEE STREAMS IN THE DESERT

MARCH 4 & 5 2005

Region III NSPI

Shape the Mirage

houston, tx

Houston

For an invitation to exhibit call:

800-548-6774

505-293-0113 (out of region)

Limited Space Available

www.nspiregion3.org

Wise Pool Company Conroe, TX

SCP

Pentair Pool Products™

Jandy

HAYWARD

PCS POOL COVER SPECIALISTS

Shagri-La Design, The Woodlands, TX

Circle **38** *on Postage Free Card*

Conference & Exhibition

Region III NSPI

MEMBER

NATIONAL SPA & POOL INSTITUTE

Of Interest

The following information has been provided to WaterShapes by product suppliers. To find out how to contact these companies, look for the Product Information Card located on page 60.

Lighted Laminar Jets

Circle 135 on Reader Service Card

FIBERSTARS introduces the Lighted Laminar, a laminar-flow fountain jet that comes with a pre-attached fiberoptic light. The system uses the company's light-enhancement device to increase the multi-colored light output in the water flow and works with all of the company's illuminators. The lighted jets come with either 20 or 40 feet of fiber, and complete, ready-to-install kits are available. **Fiberstars,** Fremont, CA.

Safe Waterplay

Circle 136 on Reader Service Card

MOST DEPENDABLE FOUNTAINS offers three Play Tower water elements. Designed for applications in which the safety of young children is of paramount importance, the towers are made of 304 stainless steel and are available in nine finish colors. The water is actuated by a soft-touch push button, and the flow can be set to run for up to two minutes in each cycle. **Most Dependable Fountains**, Arlington, TN.

Pond Filtration

Circle 137 on Reader Service Card

EMPEROR AQUATICS has combined basic sand-filtration technology with its PSP (Plastic Sinking Pellet) filter medium to offer enhanced filter-bed fluidization and solids capture in its line of pond filters. The pellets are sized to maximize debris capture, and the filter tanks are designed for minimal maintenance and increased water circulation in ponds holding up to 60,000 gallons. **Emperor Aquatics**, Pottstown, PA.

Solar Pool Heating

Circle 138 on Reader Service Card

SUNTREK makes solar-powered pool-heating systems that feature collectors custom-configured for each individual application. The collectors pull in substantial amounts of solar heat while remaining compact, sleek and unobtrusive on a roof, hillside or patio cover and work in partnership with the pool's pump, piggybacking on the normal filtration cycle for maximum energy efficiency. **Suntrek**, Laguna Hills, CA.

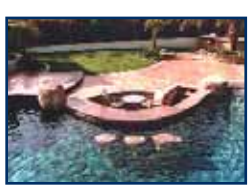
Waterfeature Pump

Circle 139 on Reader Service Card

STA-RITE INDUSTRIES introduces the DynaWave pump for waterfeatures. Designed for quiet operation and energy efficiency, the 1/3-hp motor runs at 1,750 rpm – half the speed of standard pool/spa motors – and is ideal for low-head, high-flow applications with small fountains or in serene pond environments. The unit also features an extra-large trap basket for reduced maintenance. **Sta-Rite Industries**, Delavan, WI.

Concrete Resurfing

Circle 140 on Reader Service Card



RAFCO PRODUCTS offers Brickform components as an economical, easy-to-use resurfacing system for structurally sound outdoor concrete flatwork. The components – repair mortar for crack-filling and leveling and micro-topping for building a profile atop the repaired surface – are compatible with the company's stampable overlay materials and blush-tone acid stains. **Rafco Products**, Rancho Cucamonga, CA.

Spillover Spa

Circle 141 on Reader Service Card

IMPERIAL POOLS announces a new Whitewave Spillover Spa for installation with inground swimming pools. Offered in gray or white, the spa is designed to sit flush with the deck at the edge of the pool with its water spilling over into the pool. The thermoplastic spa measures 78 inches in diameter, seats four to six people and features six hydrotherapy jets and two air controls and suctions. **Imperial Pools**, Latham, NY.

Automatic Pool Cleaner

Circle 142 on Reader Service Card

AQUA PRODUCTS offers the Aquabot Turbo T2, a robotic pool cleaner equipped with all-terrain wheels and a water-powered propulsion system. Designed for low-cost and energy-efficiency as well as one-button operation, the cleaner climbs 90-degree angles to scrub, scour, vacuum and filter pools from the floor to the waterline – including steps – without any attached hoses or pumps. **Aqua Products**, Cedar Grove, NJ.

Continued on page 64

products
are launched here

knowledge
is shared here

connections
are made here

it all happens here

THIS IS HUGE. The most comprehensive selection of pool, spa and backyard living resources in the world. The only place to find the newest trends, technologies and ways to do business and add profits. Because this isn't just another show. This is the BIGGEST WATER SHOW OF THEM ALL™.

- MORE SELECTION—650 exhibiting companies in 2,400 idea-filled booths of products, resources and information.
- ACCREDITED CONFERENCE PROGRAM—73 sessions in a multi-track educational program, including 40 technical seminars and 33 business seminars.
- NEW! EXPANDED HOT TUB EDUCATION—dedicated tracks exclusively for hot tub retailers and technicians.
- NSPI RETAILER OF EXCELLENCE CONCEPT STORE—a state-of-the-art idea center featuring innovative products and ideas for the pool, spa and backyard living market.
- KEYNOTE ADDRESS BY RUDY RUETTIGER—subject of the film, "*Rudy*." His unique story about overcoming obstacles and fulfilling dreams is both powerful and entertaining.
- NSPI CERTIFICATION PROGRAM—designed to help you win more jobs, do more business and advance your career—only at the International Pool & Spa Expo.

REGISTER ONLINE NOW
www.PoolandSpaExpo.com
or call 888.869.8522 or 972.536.6350

conference: November 30-December 3, 2004
exhibits: December 1-3, 2004

LAS VEGAS CONVENTION CENTER • LAS VEGAS, NV USA

2004 INTERNATIONAL POOL & SPA EXPO
FEATURING Backyard Living Showcase®

hanley wood

NATIONAL SPA & POOL INSTITUTE

POOL & SPA NEWS

Circle 12 on Postage Free Card

Controller Flow Cells

Circle 143 on Reader Service Card

ACU-TROL has introduced a molded flow cell for its AK400 controller, so installers no longer need to worry about assembly. The new flow cell has a sampling port and chemical-injection ports as well as a switch that disables feeding in no-flow conditions. The device controls chemicals, filtration, temperature, lighting, water level, conductivity, pressure and even cleaners at the touch of a button. **Acu-Trol**, Auburn, CA.

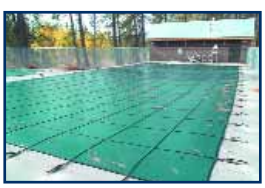
Photographic Mural Tiles

Circle 144 on Reader Service Card

AGAPE TILE offers kiln-fired photographic murals for installation on pool floors or walls. Available in standard and custom designs, the artwork fired onto the tile is permanent, easy to clean, fade proof, scratch resistant and frost proof. The system uses 400 dpi imagery for sharp detail, the tiles are available in sizes ranging up to 10 by 10 inches and all are numbered and graphed for easy installation. **Agape Tile**, Albemarle, NC

Mesh Safety Covers

Circle 145 on Reader Service Card



PLASTIMAYD has introduced Ultra-Mayd Mesh, a new fabric for safety covers. Designed with a tighter weave that typical mesh covers, the material offers the advantages of a solid safety cover without a solid cover's weight while blocking out more sunlight (93% compared to 84%) and filtering out more dirt (for easier spring openings and less maintenance) than conventional mesh covers. **Plastimayd**, Clackamas, OR.

Concrete Crack Repair

Circle 146 on Reader Service Card

EMECOLE offers a complete kit for on-site use in waterproofing cracks in swimming pools. Packaged with everything needed to fix up to 30 feet of cracked concrete, the kit includes an instructional videotape as well as cartridges of injectable urethane and surface sealer, hole-repair adhesive, surface ports and caps, corner ports, hose assemblies, dispensers, gloves, trowels and brushes. **Emecole**, Romeoville, IL.

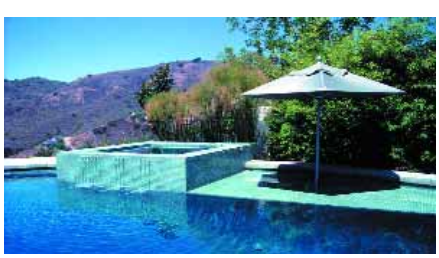
Continued on page 66

HOW GOOD DO YOU WANT TO BE?

GENESIS 3
LEVEL I DESIGN SCHOOL
October 27-31, 2004
Morro Bay, California

CURRICULUM HIGHLIGHTS

- Limited number of participants to ensure the highest level of instruction
- Each class is taught by industry professionals
- Special focus on design, engineering, vanishing edge details, construction, drawing and presentation techniques, hydraulics, the history of swimming pools and fountains, plus much more!
- Tuition includes classroom time, supplies, first-class accommodations and food. Airfare is not included.
- Participants are encouraged to bring a guest or spouse. Please call for more information and prices.



Genesis 3 Lifestyle Program
October 7-10, 2004
Villagio Inn & Spa, Napa Valley, California

Spend three nights in the heart of the Napa Valley with your Genesis 3 friends and associates, learning to relate to high-end clients while experiencing food, wine and the good life. Private winery tours, barrel samplings with winemakers, guided wine tastings and an interactive cooking class are all part of the plan, along with deluxe resort accommodations with full-service spa facilities on the premises.

Genesis 3 at the Aqua Show
November 8-11, 2004
Mandalay Bay Hotel, Las Vegas, Nevada

Genesis 3 returns to the Aqua Show to bring the design/build segment of the pool industry to Las Vegas starting with a full-day perspective-drawing class taught by David Tisherman and followed by three days of seminars included within the show's educational program. Genesis 3 will also have a prominent role on the show floor, with our own educational/exhibit space. And don't forget the Genesis Family Reunion!

Now Open to Membership:
The Association of Professional Watershape Designers

Those who have attended our Genesis 3 schools, seminars and programs and have accumulated sufficient credits are encouraged to contact us about the Association of Professional Watershape Designers (APWD) — an organization filled with professionals who share a common goal of advancing the quality of our work through education.

For more information on events or APWD, contact Lisa Haberkorn toll-free at (877) 513-5800.

Association of Professional apwd Watershape Designers

GENESIS 3 DESIGN GROUP

Founded by: David Tisherman, Skip Phillips and Brian Van Bower

(615) 907-1274 / Toll Free: (877) 513-5800 / FAX: (615) 907-7338 / www.genesis3.com / lisa@genesis3.com

Genesis 3 is proudly sponsored by Jandy, Pentair, Aquamatic, Pebbletec, Sta-Rite, SonarGuard, Aqua Magazine, AutoPilot/AquaCal, Oceanside Glasstile and WaterShapes.

GENESIS 3 - THE INTERNATIONAL FORUM FOR CONTINUING EDUCATION FOR WATERSHAPE DESIGNERS

Fractional Aerators

Circle 147 on Reader Service Card

OTTERBINE has introduced the Aqua Series Fractional Aerators for ponds of less than an acre in size. Designed for cost-effectiveness and energy efficiency, the multi-purpose 1/4- and 1/2-horsepower aerators come with two spray patterns and recessed snap-in light pockets. The units install easily, can withstand brackish water, have air-cooled motors and operate in water that is only 14 inches deep. **Otterbine**, Emmaus, PA.

Classic Paving Stones

Circle 148 on Reader Service Card

PAVERART has introduced a new collection of designs inspired by Old World architectural elements. Designed to lend a rich, classic look to outdoor surfaces, the pavers come in pre-assembled, palletized kits in a wide variety of shapes, sizes and color combinations. There are also two-piece, full-depth inlaid units that are ideal in border treatments for driveways, walkways, pool decks and patios. **Paverart**, Swedesboro, NJ.

Pool and Deck Repair

Circle 149 on Reader Service Card

E-Z PRODUCTS offers a variety of supplies for repairing pool plaster, decks, tile details, coping stones and more. Designed for easy use, the cement-repair materials can be custom colored with any standard masonry dye. The line also includes flexible, silicone-based repair materials for applications in which movement is an issue as well as expansion-joint sealants and foam strips. **E-Z Products**, Cave Creek, AZ.

Photo Tiles

Circle 150 on Reader Service Card

IMAGES IN TILE offers custom, photo-quality reproduction of any image onto glass-tile murals of any size, from single tiles to large-scale installations. Designed for durability, aesthetics and compliance with ANSI and ASTM standards for commercial wall and floor applications, the tiles are freeze/thaw-, slip- and chemical-resistant (including pool chemicals) and have a high breaking strength. **Images in Tile**, Denver, CO.

Commercial Pumps

Circle 151 on Reader Service Card

GRISWOLD PUMP offers circulating pumps for aquatic facilities and waterpark attractions. Made with cast-iron casings, single-piece impellers, carbon-steel shafts, leakless shaft seals and bronze shaft sleeves, the line of 24 pumps is designed for dependability and heavy-duty performance in a range from 2 to 75 hp and feature upsized flange connections and tri-voltage motors. **Griswold Pump,** Thomasville, GA.

Stainless Steel Vessels

Circle 152 on Reader Service Card

BRADFORD PRODUCTS offers stainless steel pools, spas and swim spas in standard and custom configurations. The laser-cut vessels come with full structural-support systems, can be fabricated in the factory or on site and come with either finished stainless steel interiors (smooth, brushed or polished) or with grouted ceramic tile. Design and technical support services are available. **Bradford Products**, Wilmington, NC.

Residential Pool Enclosures

Circle 153 on Reader Service Card

GARDEN PRAIRIE manufactures swimming pool enclosures designed with safety in mind. Locking entry doors prevent intrusion by unsupervised children or pets or adults who lack swimming skills. The roof glazing can be either tinted or clear, and structural members come in a range of designer colors – all powder-coated for durability. Roof-opening systems are also available. **Garden Prairie**, Garden Prairie, IL.

Expansion Joint Filter

Circle 154 on Reader Service Card

DECK-O-SEAL offers Deck-O-Foam expansion-joint filler, a tough, flexible, lightweight, durable product designed for use in pool decks and other flatwork to replace brittle asphalt-impregnated fillers. The product is available in 1/4 and 1/2-inch widths and comes with a removable portion that ensures a uniform, sealable void in the joint when it is pulled away before sealing or caulking. **Deck-O-Seal**, Hampshire, IL.

Continued on page 68

DISCHARGE STRAINER

Circle 155 on Reader Service Card

E-VALVE introduces the Ejector, a unit that manually or automatically discharges debris from strainer elements. Made with a schedule 80 PVC housing, the system features two strainers separated by dual butterfly flow diverters. When a strainer is off-line, it can be flushed clean in the filter's backwash stream or by a momentary pulse of the pump discharge or any external, pressurized water source. **E-Valve**, Aurora, CO.

UNDERWATER LIGHT

Circle 156 on Reader Service Card

NIGHTSCAPING offers the Lilypad Liter, and underwater lighting fixture that blends into a pond setting with a six-inch, polished reflector covered with a green polystyrene "shade" made to resemble a large water-lily leaf. Designed for unobtrusive night viewing of aquatic plants and fish, the fixture provides a warm, indirect glow and comes with a standard six-foot wire lead. **Nightscaping**, Redlands, CA.

LOW-NOX HEATER

Circle 157 on Reader Service Card

RAYPAK manufactures the RP2100 Digital Low-NOx pool and spa heater in four models at levels ranging from 181,000 to 399,999 Btus. Designed to perform in almost any environment, the heaters have stackless, wind-resistant tops, on-board diagnostics and microprocessor-controlled thermostats as well as condensation-free operation, rust-free waterways and fan-assisted combustion. **Raypak**, Oxnard, CA.

STEEL SHELTERS

Circle 158 on Reader Service Card

ICON SHELTER SYSTEMS offers steel-frame shelters in a range of frame and roof colors. Hexagons and octagons are available in diameters from 16 to 72 feet, squares from 12 to 60 feet and gable, hip and barrel-vault designs in lengths up to 52 feet, with optional upsizing available in 12-inch increments for all configurations. Clock towers are also offered, as are custom designs. **Icon Shelter Systems**, Zeeland, MI.

MISSING ANY?

r **February 1999** (Vol. 1, No. 1)
Tisherman on working in difficult soils; **White** on edge treatments; **Lacher** on expansive soils.
r **June 1999** (Vol. 1, No. 3)
Phillips on water and decks; **Parmelee** & **Schick** on soils and geology; **Anderson** on water sounds.
r **August 1999** (Vol. 1, No. 4)
Anderson on stream design; **Adams** on community waterparks; **Gutai** on spa hydraulics.
r **October 1999** (Vol. 1, No. 5)
Holden on aquatic-design history; **Mitovich** on dry-deck fountains; **Tisherman** on site geometry.
r **December 1999** (Vol. 1, No, 6)
Finley on Japanese gardens; a roundtable on pools and landscape design; **West** on color rendering.
r **February 2000** (Vol. 2, No. 2)
Hersman on lighting design; **Macaire** on faux-rock installations; **Andrews** on glass mosaics.
r **March 2000** (Vol. 2, No. 3)
L'Heureux on project management; **Long** on steel cages; **Forni** on installing and maintaining lakes.
r **April/May 2000** (Vol. 2, No. 4)
Schwartz on garden access; **Anderson** on streambeds; **Nantz** on watershapes and architecture.
r **June/July 2000** (Vol, 2, No. 5)
Holden on fountain-design history; **Bibbero** on large stones; **Anderson** on making streams work.
r **September 2000** (Vol. 2, No. 7)
Davitt on designing for small spaces; **Altvater** on the importance of aeration; **Hetzner** on sheet falls.
r **Nov./December 2000** (Vol. 2, No. 9)
Arahuete on John Lautner; **L'Heureux** on stretching laminar flows; **Benedetti** on satellite surveying.
r **January/February 2001** (Vol. 3, No. 1)
Holden on a retro-look design (I); **Fleming** on upscale approaches; **Gutai** on pump technology.
r **March 2001** (Vol. 3, No. 2)
Moneta & **Farley** on site-specific design; **Benedetti** on fiberoptics; **Alperstein** on golf-course water.
r **April 2001** (Vol. 3, No. 3)
Jauregui on inspired clients; **Dirsmith** on frosty fountains; **Tisherman** on deluxe finishing.
r **May 2001** (Vol. 3, No. 4)
Reed on sculpture gardens; **L'Heureux** on sequenced water; **Brandes** on restoring riverfronts.
r **June 2001** (Vol. 3, No. 5)
Winget on fun-inspired waterforms; **Holden** on survey formats; **Schwartz** on classic stonework (I).
r **July/August 2001** (Vol. 3, No. 6)
Rugg on pond basics (I); **Ruthenberg** on perimeter overflow; **Schwartz** on classic stonework (II).
r **September 2001** (Vol. 3, No. 7)
Rugg on pond basics (II); **Urban** on energy savings; **Pasotti** on interactive waterplay.
r **October 2001** (Vol. 3, No. 8)
Tisherman on hilltop views; **Hagen** on natural stream work; **Schwartz** on classic stonework (III).
r **Nov/December 2001** (Vol. 3, No. 9)
Straub on Kansas City's fountains; **McCloskey** on the Getty Center; **Tisherman** on Fallingwater.
r **January 2002** (Vol. 4, No. 1)
Phillips on Hearst Castle's watershapes; **Bower** on the Raleigh Hotel pool**; Roth** on Katsura Rikyu.
r **February 2002** (Vol. 4, No. 2)
Marosz on project integration; **Moneta** on spa-edge details; **Affleck** on scupture and water.
r **May 2002** (Vol. 4, No. 5)
Anderson on pond essentials; **Pasotti** on interactive waterplay; **Gibbons** on 'stellar' fiberoptics.
r **June 2002** (Vol. 4, No. 6)
Altorio on civic fountains; **Gutai** on skimmers; **Beard** on working with landscape architects.
r **September 2002** (Vol. 4, No. 8)
Rosenberg & Herman on site-sensitive design; **Dirsmith** on long-term design; **Gutai** on filters.
r **October 2002** (Vol. 4, No. 9)
Copley & Wolff on modernizing fountains; **Bethune** on imitating nature; **Tisherman** on edgy colors.
r **Nov/December 2002** (Vol. 4, No. 10)
Holden on Villa d'Este; **Hobbs** on Maya Lin's watershapes; **Phillips** on water in transit.
r **January 2003** (Vol. 5, No. 1)
Fleming on high-end ambitions; **Harris** on decorative interior finishes; **Gutai** on surge tanks.
r **February 2003** (Vol. 5, No. 2)
The **Beards** on collaboration; **Yavis** on custom vinyl-liner pools; **Mitovich** on Microsoft's campus.
r **March 2003** (Vol. 5, No. 3)
Fowler on habitats for marine mammals; **Benedetti** on outdoor kitchens; **Dews** on planting pockets.
r **April 2003** (Vol. 5, No. 4)
Shoplick on watershapes as teaching tools; **Gutai** on water flow; **Schwartz** on Maya rockwork.
r **May 2003** (Vol. 5, No. 5)
Zaretsky on sensory gardens; **Freeman** on hydraulic retrofitting; **Hanson** on water/stone sculpture.
r **June 2003** (Vol. 5, No. 6)
Gunn on fountain whimsy; **Tisherman** on watershaping for an art collector; **Holden** on tile.
r **July 2003** (Vol. 5, No. 7)
Fintel on attracting birds; **Lacher** on structural engineering; **Alperstein** on golf course design.
r **August 2003** (Vol. 5, No. 8)
Miller on site-specific fountains; **Gutai** on plumbing joints; **Holden** on period-sensitive restoration.
r **September 2003** (Vol. 5, No. 9)
Hebdon on borrowing naturalism; **Ruddy** on indoor designs; **So** on modernist sculpture.
r **October 2003** (Vol. 5, No. 10)
Mitovich on dry-deck fountains; **Roth** on liner issues; **Marckx & Fleming** on glass tile.
r **November 2003** (Vol. 5, No. 11)
Holden on carved stone; **Shaw** on roles of consultants; **Forni** on period-sensitive renovation.
r **December 2003** (Vol. 5, No. 12)
Five-year article and topic indexes; five-year index for all columns, 1999-2003.
r **January 2004** (Vol. 6, No. 1)
Ruddy on enclosures; **Lacher** on steel and concrete; **Forni** on water quality for natural watershapes.
r **February 2004** (Vol. 6, No. 2)
Varick on nature and architecture; **Benedetti** on protecting stone; **Kaiser** on grand-scale watershapes.
r **March 2004** (Vol. 6, No. 3)
Morris on kinetic sculpture; **Cattano** on collaboration; **Hebdon** on water and settings for healing.
r **April 2004** (Vol. 6, No. 4)
Hayes on water, art and spirituality; **Gutai** on concrete-spa jets; **Gregory** on water and high art.
r **May 2004** (Vol. 6, No. 5)
Rowley on main-drain safety; **Ewen** on purposeful restoration; **Dallons** on high-wire watershaping.
r **June 2004** (Vol. 6, No. 6)
Dallons on a hilltop treasure; **Mitovich** on the D-Day Memorial; **Slawson** on Japanese inspiration.
r **July 2004** (Vol. 6, No. 7)
Benedetti on fortifying concrete; **Shaw** on fountain 'standards'; **Holden** on Italy's watershapes.
r **August 2004** (Vol. 6, No. 8)
Bravo on Olympic-scale restoration; **Martin & Tester** on water and music**; Jauregui** on clients and styles.

Please note: These listings cover only

Yes! Please send me copies of the issues I've checked in the list above! **(Issues are available for $6 each)**

r Enclosed is a check for $ _____ , payable to WaterShapes.

r Here is my credit card information, with authorization to cover my order total of $ _____.

Please note: VISA or MasterCard ONLY!

Card Number _____ Expiration date _____

Name on Card (please print)_____Signature (required)_____

Ship to:

Name _____ Tel: _____

Company Name _____

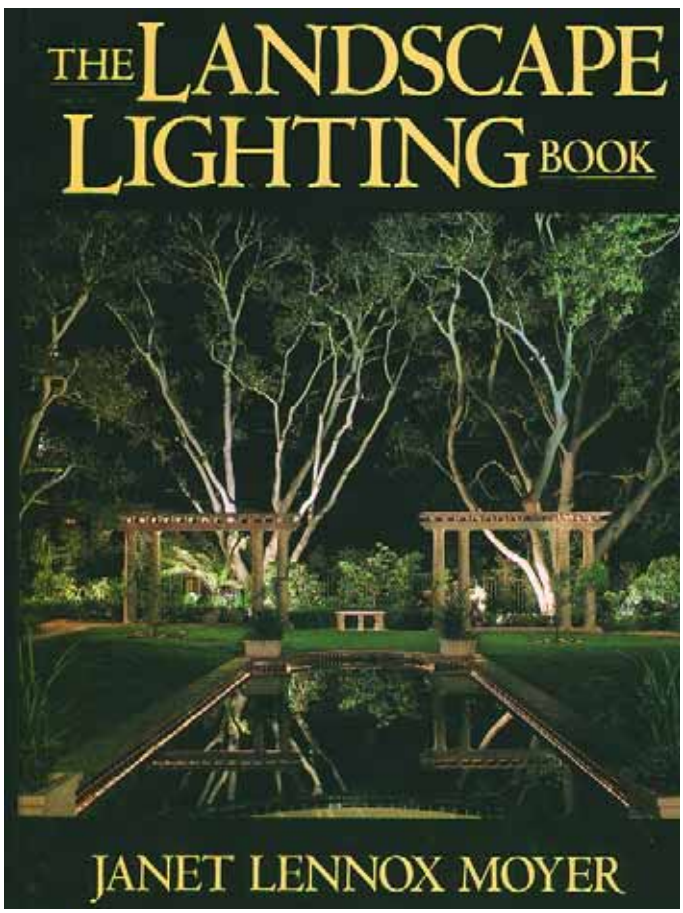
Address _____

City _____ State _____ ZIP _____

Mail your completed form to WaterShapes, P.O. Box 306, Woodland Hills, CA 91365 – or fax it to (818) 715-9059

By Mike Farley

Bright Ideas



Janet Lennox Moyer's *The Landscape Lighting Book* (John Wiley & Sons, 1992) is quite simply one of the finest textbooks I've ever read. Indeed, when it comes to resources on the often-elusive topic of landscape lighting, it's hard to imagine a more comprehensive resource.

Moyer is a lighting designer and instructor who has made a career of lighting the night with a flair that has earned her a tremendous reputation in the United Sates and abroad. (Her first contribution to *WaterShapes*, coincidentally, appears on page 50 of this issue.) In reading her 282-page, richly illustrated book, it's easy to see why she's become so successful: There is so much detail about design and such a wealth of specific technical information included in her treatment of landscape lighting that one could re-read the information several times without absorbing it all.

As is true of many watershapers – and especially those from the pool and spa industry – I have been slow to latch onto lighting as a major element of my design work. This is despite the fact, as Moyer justly observes, that a great many people experience their watershapes and outdoor spaces mainly at night. Thus, she argues, it only makes sense to consider the full and vast array of possibilities for lighting with almost any project.

Even if, like me, you have tended to make lighting an afterthought (if we've thought about it at all!), it is possible through this book to elevate our lighting designs to a far more sophisticated level. Moyer ensures this by systematically breaking down the topic and providing strong guidelines for making the most out of any lighting plan.

The text is organized in four main sections, beginning with an extended set of chapters on project development that goes into great depth about working with clients, assessing the needs of a space and developing a lighting concept. There's wonderful information here about optical science and how our eyes perceive light – all balanced by tremendously practical information on installation, adjustment and documentation.

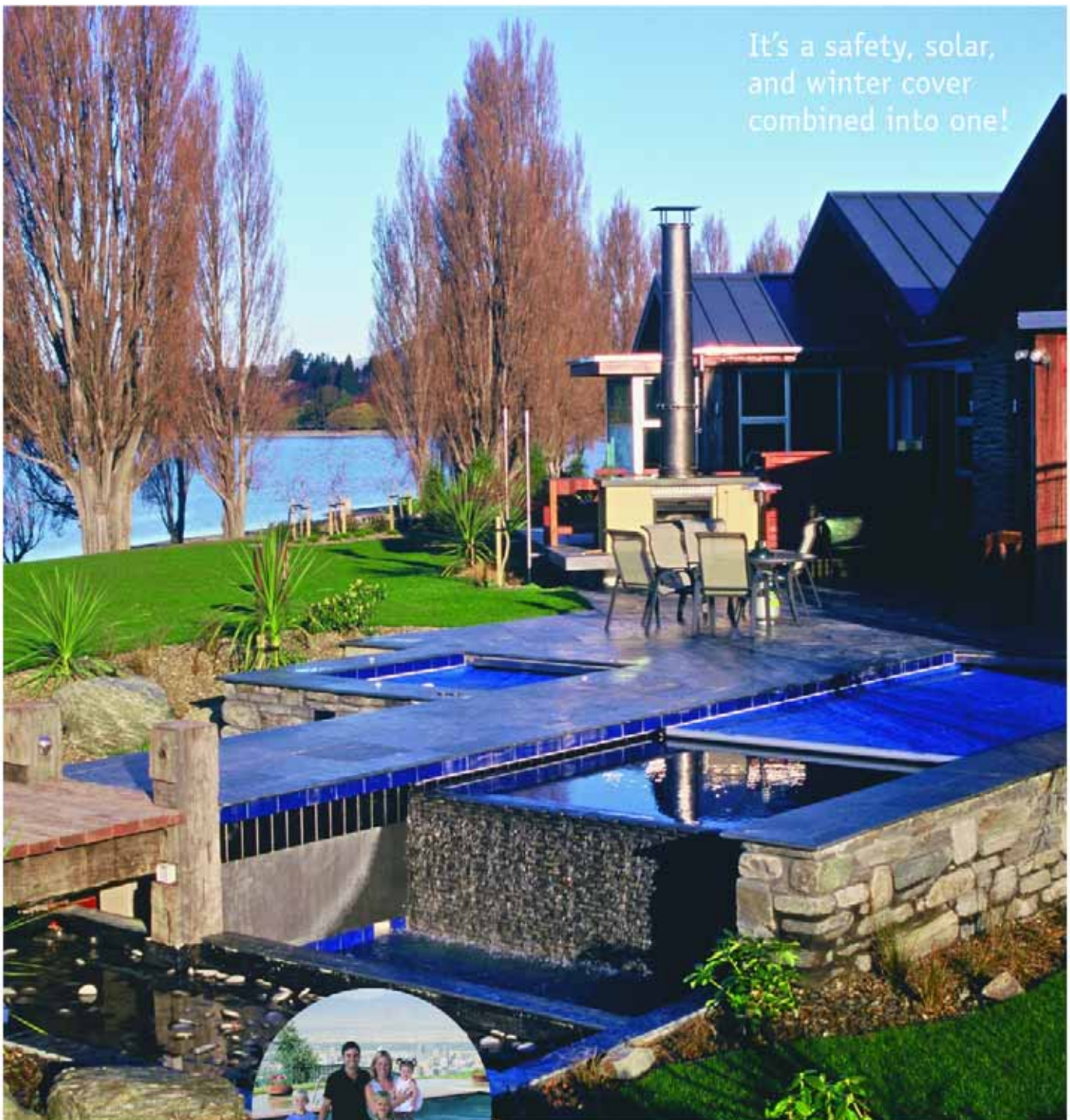
The second section covers materials and technology. Although her information is somewhat dated by the fact that things have come a long way in the past dozen years, her approach is still comprehensive in its treatment of types of light sources, fixtures, control systems and wiring requirements. I am looking forward to the second edition, which I hear is due out early in 2005.

The third section deals with specific applications in public and residential settings, while the final section, which tackles the elements of lighting design, goes into great detail about the lighting of plant material, sculptural and architectural features, walkways and stairs, façades and, finally, waterfeatures.

As I was reading Moyer's wonderful work, it struck me that this is information you simply will not find at trade-show seminars or even through manufacturer-sponsored lighting classes. I can say without reservation that if the watershaping trades were blessed with this level of information on other topics, we would be far better off as an industry. WS

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

For any pool style, shape, or design you create, Cover-Pools covers the best.



The Save-T Cover II® automatic pool cover by Cover-Pools protects against unwanted entry into the pool.

Reduce drowning risk and save up to 70% on water, heat, and operating costs with the turn of a key.

Freeform? Water feature? Rectangular? Vanishing edge? You'll find an option to complement whatever design you create.

Visit our website or call for details about customized pool cover options for concrete, vinyl, and fiberglass pools.

COVER POOLS

Automatic and Manual Save-T® Pool Covers

1-800-447-2838

www.coverpools.com

Circle **8** *on Postage Free Card*

Jandy

- Pumps
- Filters
- Laars Heaters
- Air Energy Heat Pumps
- Control Systems
- Lights
- Water Purification Systems
- Valves
- Water Features
- Cleaners
- Accessories

Now Including ClorMatic® Salt Chlorine Generators — Managed by the Jandy AquaLink® RS Control System

The Jandy System

Delivering Performance, Reliability and Technology

Jandy offers a complete line of pool and spa products to meet all of your equipment needs. Pumps, Filters, Laars Heaters, Air Energy Heat Pumps, Controls and Valves are all part of the Jandy System. Each component of the Jandy System is designed to work at its maximum operating efficiency when partnered with other Jandy products.

Choose Jandy for all of your equipment needs!

ALL JANDY PRODUCTS WORK SEAMLESSLY TOGETHER

The Jandy AquaLink® RS Control System manages our complete line of technologically advanced products. The Jandy system is designed to create a carefree backyard paradise — enhancing the overall pool and spa experience by delivering performance and reliability through technology.

Performance
Reliability
Technology

Circle 96 on Postage Free Card

USA: 707.776.8200 • OUTSIDE USA: 905.844.3400

www.jandy.com • info@jandy.com •