

Inside: Stephanie Rose on Variegated Foliage

WATER SHAPES

Design • Engineering • Construction

Volume 5
Number 8
August 2003
\$5.00

Public Agendas

**Watershapes as reflections
of a community's history**

Reviving a Classic

**Period authenticity
in a modern renovation**

PLUS:

**A primer on pipes
and plumbing connections**



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 # US6,458,418B1

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) 481-1983 • FAX: (805) 481-9905 • Toll Free 1-800-272-6907
www.waterwayplastics.com • E-mail: waterway@waterwayplastics.com





AQUAMATIC COVER SYSTEMS

Exclusive Manufacturer of the **HYDRAMATIC**
Hydraulic Swimming Pool Safety Cover



The HydraMatic Automatic Safety Cover, the industry's leading swimming pool cover



The HydraLux™, our most advanced cover



The EZCover™, the world's easiest manual pool 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 dial 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.

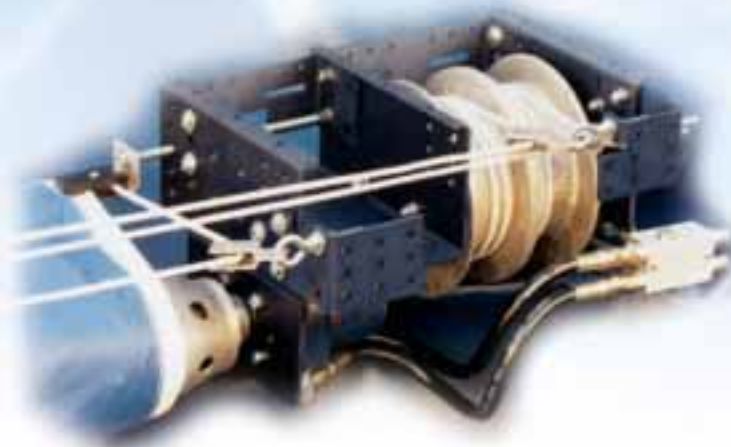
LIMIT SWITCHES

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

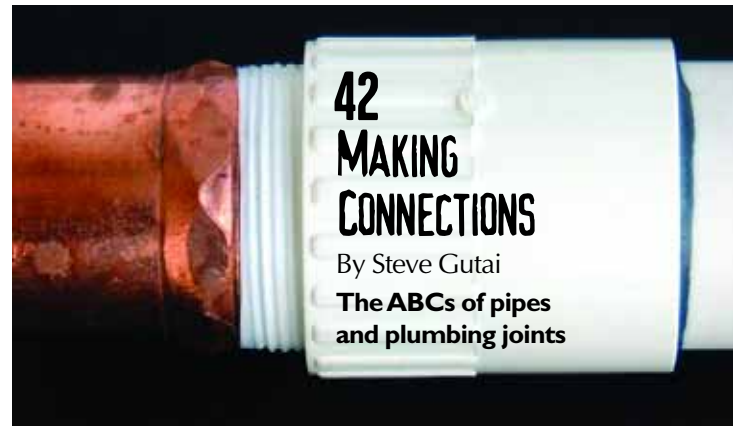


FEATURES



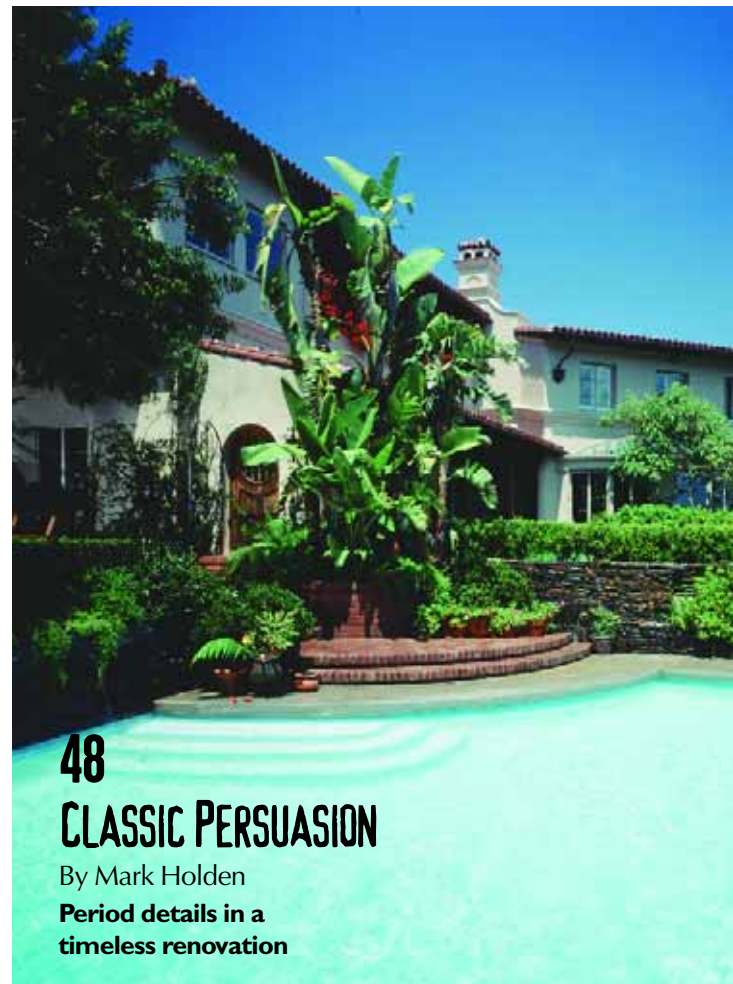
34
PUBLIC INTERESTS

By Ross Miller
**Watershapes as
mirrors for local history**



42
**MAKING
CONNECTIONS**

By Steve Gutai
**The ABCs of pipes
and plumbing joints**



48
CLASSIC PERSUASION

By Mark Holden
**Period details in a
timeless renovation**

COLUMNS

6 STRUCTURES

By Eric Herman

**Common ground
in diverse experiences**

10 AQUA CULTURE

By Brian Van Bower

**Staying on top of
job-site management**

18 NATURAL COMPANIONS

By Stephanie Rose

**All variegations
great and small**

28 DETAIL #30

By David Tisherman

**Treating a classic
with all due respect**

66 BOOK NOTES

By Mike Farley

**Architects and
the great outdoors**

18

variegated *adj.* 1. Having streaks, marks, or patches of a different color or colors. 2. Distinguished or characterized by variety or diversified.



28



66



DEPARTMENTS

8 IN THIS ISSUE

58 ADVERTISER INDEX

58 OF INTEREST INDEX

60 OF INTEREST

On the cover:

Photo courtesy Ross Miller, Cambridge, Mass.

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.

Historic Resonance

Occasionally, we run pairs or sets of articles that seem to have nothing in common at first glance, but that actually, on closer examination, harmonize in unexpected and important ways. To be sure, we quite deliberately revisit key themes throughout the pages of all of our issues, but sometimes, it seems, the most powerful music emerges all on its own.

That's the case in this issue with two of our features, "Classic Persuasions" by Mark Holden (page 48) and "Public Interests" by Ross Miller (page 34).

Beyond the fact that they're both big pictorials, these articles would seem to have little in common: For starters, Holden and Miller don't know each other and live and work on opposite sides of the country. This is Ross' first article in *WaterShapes*; for Mark, it's his ninth. Holden's project is residential, while Miller's are commercial. Holden's work involves the creation of a complete exterior environment for one wealthy client, contrasting sharply with Miller's projects, which are singular works of public art made for mass consumption.

So what's the connection?

Well, in both cases, we see highly innovative watershapers using the influence of history to drive their creative processes. They do so in artfully different ways, but the thought processes they pursue provide us with splendid examples of how a close appreciation and understanding of history can be used to forge important and intimate connections between works of art, their settings and the perceptions of those who visit and absorb impressions of the spaces that have been created.

In Holden's case, he uses his extensive study of the early-20th-century Spanish Colonial architecture found in pockets around southern California to fuel literally hundreds of details in a sprawling Bel Air estate. From the "distressed" finishes on pottery, walls and architectural woodwork of the home's patios, verandas, courtyards and balconies to his keen use of mature plantings and salvaged hardscape materials to convey the appearance of ages gone by, Mark shows over and over again how beautiful and intriguing landscapes and watershapes can be when rendered with period authenticity uppermost in mind.

For his part, Miller uses history to similarly grand effect, but in a wholly different way. As Ross explains in detail, he creates works of public art that draw people in with the literal and attractive use of water, but sets the experience up in the context of symbols and imagery that reflect the specific history and geography of the community and its surroundings to add meaning to his monuments. His watershapes and their "historical theming" connect the present with the past in fascinating ways and reward passersby on multiple levels.

In both cases, we encounter ambitious, thoughtful designers who deliberately and painstakingly add layers of meaning and aesthetic quality to their projects through a sense of history and sensitivity to the environments in which they work. To be sure, they are working in vastly different settings with wildly diverse goals, but they are linked in seeking to use the past to forge connections to the present and the future.

Ultimately, when you take the time to explore the creative processes pursued by innovative watershapers such as Miller and Holden (not to mention dozens of others who've shared their work on our pages), it only stands to reason that the power of the ideas they employ will reveal themselves – and sometimes in surprisingly harmonious ways.

WATERSHAPES

Editor

Eric Herman — 714.449-1996

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

Director, Marketing and Sales

Stephanie Behrens — 818.715-9776

National Sales Manager

Camma Barsily — 310.979-0335

National Sales Representative

Sherry Christiaens — 505.421-3100

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

© Entire contents copyright 2003. No portion of this publication may be reproduced in any form without written permission of the publisher. Views expressed by the bylined contributors should not be construed as reflecting the opinion of this publication. Publication of product/service information should not be deemed as a recommendation by the publisher.

Printed in the U.S.A.





Modular BBQ Islands

From National Pool Tile Group

7am

Pallet arrives on truck. Pieces are hand-carried to backyard.



8am

Unit base fully assembled. By only one person.



12noon

Tiles cut and laid, sides finished with material of customer's choice. You're done.

(Example shown with faux stone finish)

We've made it fast, easy and profitable to expand your business with BBQ Islands. Installation takes less labor and time than "built-from-the-bottom-up" BBQs – one person can complete an island in about five hours, without cranes or forklifts since all pieces can be hand-carried. Pre-fabricated modules are stocked and ready for immediate delivery. Faux or natural stone, faux or natural brick, stucco, or porcelain tile finishes are available.

Just call (888) 411-TILE for more information and a brochure.



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

Circle 4 on Postage Free Card

888-411-TILE

ational
Pool Tile Group
POOL AND SPA TILE IMPORTERS/DISTRIBUTORS
www.nptgonline.com



MILLER

Ross Miller is a Cambridge, Mass.-based visual artist whose work integrates art into public spaces to intensify community memory and create sites for private reflection in public environments. His desire to create water sculpture began at age 6, when he experienced a fountain designed by sculptor George Tsutakawa in Seattle. He is also an instructor for the Graduate Arts Administration program at Boston University, was a Loeb Fellow in the Harvard Graduate School of Design and directs Ross Miller Studio, Inc. Miller's current projects include a fountain for the Boston Park Department known as the Ancient Fishweir Project, a design honoring 5,000-year-old Native American structures buried under I-93 and the streets of Boston. He lives near the Charles River in Cambridge with his wife, Denise, and their daughters, Anna and Eva.

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 ser-

vice 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 water-shapes. He teaches hydraulics at trade shows throughout the United States and is the featured hydraulics instructor for Genesis 3's Level 1 schools.

Mark Holden is a landscape architect, contractor, writer and educator specializing in watershapes and their environments. He has been designing and building watershapes for more than 15 years and currently owns several companies, including Fullerton, Calif.-based Holdenwater, which focuses his passion for water. His own businesses combine his interests in architecture and construction, and he believes firmly that it is important to restore the age of Master Builders and thereby elevate the standards in both trades. One way he furthers that goal is as an instructor for Genesis 3 Design Schools and also as an instructor in landscape architecture at California State Polytechnic University in Pomona and for Cal Poly's Italy Program. He can be reached at holdenwater@sbcglobal.net.

Electronic Water Level Management Systems

Levolor TECHNOLOGY

So Complete You Don't Need To Be There.

System Dynamics
Scottsdale, AZ 85260
800-844-8514 Fax: 480-443-0487
E-Mail: millerxm@primenet.com

Circle 39 on Postage Free Card

Pool Cover Specialists

*The Design
Friendly Company*

THE
SHAPE
OF
THINGS
TO
COME

Known throughout the industry as "the innovators" in pool cover technology, Pool Cover Specialists National, Inc. has developed an impressive reputation for accommodating the unique design requirements of architects and pool designers.

THEN

Pool cover limitations dictated pool designs and shapes.

NOW

We can accommodate your vision. You dream it and we'll design it.

The INFINITY 2000™, expanding the horizons of pool cover technology into the 21st century.

- Automatic Systems for Vanishing Edge Pools
- Designs that completely hide recessed mechanisms and housings
- Invisible tracks for free-form pools
- Water features synchronized to cover activation



www.poolcovers.com

(800) 369-5152



Neat & Clean

Perception is reality: Regardless of whether that's right or wrong, you are judged by appearances. And there's no escaping those judgments because it's basic human nature.

If your own appearances mean ugly-looking vehicles, sloppy-looking employees, shabby offices and job sites that look like disaster areas, you will inevitably be judged with that image by the clients who have hired you and by anyone else exposed to those appearances. Personally, I'd rather have them focus on the quality of my work rather than on superficialities such as these, but that's the way it goes.

So, in wrapping up this series of columns on client-friendly approaches to project management, let's take a look at the challenge of job-site management from the client's point of view—a perspective that makes it easy to understand how important factors such as cleanliness, courtesy and personal appearance can be.

Why is this important? Well, what we as watershapers may regard as a temporary condition in a short-term working relationship on a job site we will inhabit for a period of weeks or months is something our clients see as the current state of their homes and lives. To sympathize, all you need to do is look around and ask yourself, "Would I really want to live here during this process?"

COMPARE AND CONTRAST

In my last two columns, I've gone into some detail about project management while stressing the importance of setting proper client expectations as

you move toward the construction process itself. By the time you reach that stage, the client definitely should have a realistic idea of the time frame and of what to expect in terms of disruption.

You should always work to set a realistic scene, but that doesn't mean it can or should be a horror movie. Too often, however, residential watershaping projects turn out that way.

Ever seen a job sign so dirty and battered that it looks like it's been through a war? Debris strewn all over the place? A partially completed vessel that's being used as a dumpster? A trail of muck and mud leading from backyard to street (giving the neighbors an opportunity to share in the joy)? Debris and dirt up and down the street from digging equipment and work trucks (another all-time neighborhood favorite)?

How about miscellaneous equipment stacked in trashed cardboard boxes? Permits nailed to a tree in a plastic bag? Boards or sheets of plywood scattered around the place with nails sticking out of them? It's no wonder clients forced to live in such an environment get stressed, and I know I'd be upset, too, even if I only happened to live down the street!

Now compare that scene to what I would consider to be the rare and exceptional job site—the one with the new, clear, clean and legible job sign; the one with project plans and permits stashed in a clean, waterproof, weatherproof container; the one with materials neatly stored and stacked in one area; the one with no trash to be seen and with sidewalks and streets washed and swept; and the one where excavated areas and partially completed vessels are temporarily fenced in. The contrasts in experiencing these two workplaces can, from the client's perspective, be quite profound.

Yes, I'm a stickler for things like this, but I've become that way not because I enjoy hassling crews. In fact, I hate bringing up these issues because it means there's a problem that needs addressing. Yet it's ultimately not about me: My personal insistence on orderly job sites comes instead from looking at things from my client's point of view.

Let's face it: Watershaping is an invasive process that takes place behind someone else's home. The fact that the homeowner might not be exactly thrilled to have a portable restroom in the front yard for three months is something you have to understand. Sure, it costs a bit to shape things up and police the job site, but the reality is that the client sees these issues in a dif-

“We Are Roman Fountains, *America’s Fountain Experts!*”

**“America’s Most Trusted Name In
Architectural Fountains for Over 40 Years!”**



Roman Fountains is insured by Lloyds of London for
“Design & Technical Professional Liability Coverage” and we are ISO 9001-2000 Compliant.

“We Deliver the *Products* and the *Expertise* to Make Your Fountain Work!”

**Ask us About
RF/XPRESS!^{S.M.}**

**The
“Quick Quote/Quick Ship”
Advantage!**



1-800-794-1801
www.romanfountains.com

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

ferent way than we do – and the client's the one who's footing the bill.

FINE POINTS

As is the case with other aspects of project management – effective planning, open communication, setting realistic expectations – keeping an orderly job site is not particularly difficult. Rather, it sim-

ply requires awareness of the issue, recognition of the benefit to the client and ultimately to yourself, and willingness to take the simple steps required to keep everything on track and in place.

All you have to do, however, is look at the vast majority of watershape-installation sites to see that this simple connection is not being made. For the most part, I

would say that's so because the people doing the work on site are simply not in the business of keeping the big picture in mind.

In fact, the work of even the best subcontractors is focused on getting the work done, getting paid and moving on to the next project. They have a different set of goals and they consider the chaos that often results on site to be part of the normal pain of the process.

To be sure and as mentioned above, there are certain costs involved in picking up trash and in keeping everything in order, and you could even argue that they slow things down. That's true, which is why I consider this work as part of the cost of the job and build it into the bid. The amount is so small that I don't even set it up as a line item, but the fact that it is part of the package somewhere leads to happier clients – or at least to clients who aren't going crazy.

And if you follow this line of reasoning along its most positive path, I'd even argue that keeping up a neat job site leads to the kind of thinking that *saves* money by making crews and subcontractors aware of a need to protect the property from the vagaries of construction.

Isn't it cheaper to hang panels of plastic sheeting over a nearby structure – the house, a guest house, a cabana, whatever – than it is to clean it up after it's been hit with stray blasts from the gunite rig? Isn't it cheaper, if the design calls for working around existing backyard features, to avoid damage to landscaping and decking rather than having to fix it and make things whole again?

PEOPLE SKILLS

The key to all of these positives is working with good people who share your beliefs about customer service. The truth, however, is that many people in the construction trades do *not* share those beliefs, and it can be challenging to get your point across if they don't. As I see it, there's a fine line between enforcing high standards and being insulting, the latter of which is certainly something you want to avoid with crews you're trusting to execute the work.

How you choose to get your point across is a matter of personal style. In my case, I'm open and honest about it and have never been shy about telling people

It's What
You Can't
See...



That Really
Counts.

When selecting a pond liner, choose Firestone PondGard Rubber Liners for quality and endurance. Others will see the beauty of your water feature, but you'll know that the real beauty is below the surface.



Proven History –

Firestone PondGard Rubber Liners have over 20 years of field installation success without a single failure.

Ease of Installation –

No special tools are required to install PondGard. PondGard comes in a variety of sizes, from 5' to 50' wide and from 50' to 200' long, making it easy to install.

Fish Friendly –

PondGard is specially formulated to be safe for exposure to fish and plant life in decorative ponds.

Warranty –

The PondGard Rubber Liner is covered by a 20-year "Fish Friendly" warranty that is backed by Firestone.

Durable, Flexible and Stable –

PondGard won't crack or split, and can easily fit the unique contours of your pond, allowing for design versatility. It also has outstanding resistance to UV rays.

**Firestone Building Products
Company**

525 Congressional Blvd.

Carmel, IN 46032

800-428-4442 Ext. 7095

<http://www.firestonebpc.com>

Circle 122 on Postage Free Card

The most revolutionary and innovative replacement for your current main drain.

DOMINATE YOUR COMPETITION

New!

Provides multiple layers of anti-entrapment protection

Low profile design, large uneven surface, and smooth edges are friendly to bathers

Available in 8 colors

Large debris passes efficiently through MDX for easy removal outside the pool

Unique funnel-shaped design compresses and directs debris to the outlet port for quicker, more powerful removal



DEBRIS REMOVAL SYSTEM™

Never before has the pool and spa industry seen such a revolutionary device as the MDX Debris Removal System. MDX is the only listed² debris removal system for pools and spas that has passed the "Hair Entrapment Test".

Your customers will be amazed with the MDX Debris Removal System's incredible effectiveness and will appreciate the peace of mind that comes with knowing that the drain in their pool has multiple layers of anti-entrapment protection for the safety of their loved ones.

You'll love how it blows your competition out of the water.

The MDX Debris Removal System is effective in every pool & spa. For maximum impact combine the MDX Debris Removal System with an in-floor cleaning and circulation system that's



The MDX Debris Removal System is available exclusively to Paramount Pool & Spa Systems Authorized Dealers. Discover the innovation today.



"We make pool care automatic."

9025 South Kyrene Road • Suite 107 • Tempe, AZ 85284
800.621.5886 • 480.893.7621 (fax) • paramount@e-ppss.com
www.paramountpoolproducts.com



² The MDX Debris Removal System was designed to exceed the minimum requirements of ASME/ANSI A112.19.5M - 1987, Section Filings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Whirlpool Bathing Appliances - the anti-entrapment standard occasionally referred to as the "Approved Anti-Vortex Cover" standard. All drains and suction fittings must pass this strict safety testing in order to be approved for use in swimming pools, spas, and accessible catch basins such as negative or venting edge basins.

what I expect, and seldom have I had to make a large issue out of it. (Clearly, it helps if you are consistent and hold yourself to high standards: There's nothing more transparent than hypocrisy.)

Through it all, you need to reckon with the fact that we've become a society that places relatively little value on neatness and cleanliness. I won't go so far to say

that we've become a nation of slobs, but there does seem to be a tendency to think that keeping up appearances is somebody else's worry.

I once ran a pool-service company, a business that's all about neatness (or at least it should be). I worked hard to run a quality-based operation, and my rates were higher than those of some of our

competitors. When I was questioned about my rates, I would often tell clients that we charged more to enable us to hire people they wouldn't mind seeing around their backyards every week. I'd tell them we took pride in our employees and made sure they were paid good wages for quality work and thus would feel they were doing something worthwhile.

I found that most people understood exactly what I meant and no longer questioned my rates, and I see the same thing happening now in working with quality contractors and subcontractors in the construction process. There are those who present a professional image in their appearance and in their work habits, and those who don't. I prefer to work with those who do.

Who you choose to work with has a huge influence on the experience your clients will have along the way, as will the standards you set and the consistency of your message that job sites should be clean, not mean.

BUILDING POSITIVES

I mentioned in passing that an attitude promoting care and cleanliness on the job site can actually *save* money by helping you avoid unnecessary repairs of incidental damage. I also see positives here because, when the unexpected strikes, clients will perceive that you've done what you can to maintain a civilized job site and will cut you some slack.

If, for example, you accidentally hit the sewer line and the upshot is that the homeowners can't use their toilets for two days while the plumbers make the fix, they may not be happy about what's happened, but they'll be less apt to hold it against you as carelessness if, in fact, you have *not* been careless with the job site to that point.

If they have seen you actively working to minimize the daily disruptions of construction, they'll be far more likely to give you the benefit of the doubt. By contrast, if you've made them suffer and feel as though they've been living in a war zone, then their tolerance for unexpected problems will run the range from slim to none.

By extension, all of this applies to *foreseeable* repairs and replacements. I'm often surprised by some watershapers' practice of leaving things such as replacing

EXCALIBUR

By Spray Force



Pumps up to 500 feet of material hose, and up to 400 sacks per day!

Excalibur will also handle mixtures for artificial rock formations!

Excalibur PUMP

- 30 HP, V-4 Wisconsin Engine
- Heavy-Duty Centrifugal Clutch With Four Speed Ranges
- Heavy-Duty Pump With 3-3/4" Cylinders Designed Especially To Handle Pool Plaster And Pebble Finishes, Sand And Cement Mixtures
- 12 CFM Compressor atomizes material at nozzle
- Large 65-Gal. Hopper

Left-Hand Dump Hydraulically-Operated MIXER

- 15 HP Kohler Engine
- Large, 13 Cu. Ft. Steel Mixer Bowl
- Cast Steel Paddles That Mix Fast And Splash Less.



S-1 Mobile Rig

Call, Write, or Fax for Details!

Ask about our Lease To Own Program!

Parts and Service Available!



Spray Force Mfg., Inc.

2880 North Larkin - Fresno, CA 93727 - (559) 291-3300

Toll Free: 1-800-824-8490 FAX: (559) 291-3345

WWW.SPRAYFORCE.COM

Circle 35 on Postage Free Card

Our Covers Make A *Lasting Impression*



On The Most **Impressive Pool Designs.**

Since we patented* the safety pool cover back in the 1950s, Meyco has been the choice for the most complex and impressive pool designs. That standard of excellence is evident today with Meyco's unique MEYCODEX™

custom design process, which combines proprietary software with a vast databank of expertise.

For your masterpiece pool, don't settle for imitations. Trust Meyco.

Circle 57 on Postage Free Card



1225 Walt Whitman Road, Melville, NY 11747

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

*Original U.S. Pat. Nos. 2,958,872 3,042,161 4,497,152 5,025,513

damaged sod or sprinkler systems to clients after the watershaping part of the project is complete. I would say that if you don't intend to include such services, you should at a minimum talk with your clients about these issues up front and give them a realistic idea of what will be involved.

It's just not good at the end of a project to leave the space with dust blowing all over from ground that's been laid bare by the construction process. A better way to manage loose ends, I think, is to discuss the inevitability of the damage with the client before the work begins and offer to include replacements or upgrades for landscaping, sprinklers, lighting and hardscape as part of the project.

I do all of this because, whenever possible, I like to see the project completed as close to the client's vision as possible. Why not work with a landscaping professional up front? It's a way to expand the palette of services you offer – and the best way possible to leave your clients with work that looks and feels finished.

Hey, it makes things look good, and you might even make some money off the service. What a concept!

FINISH TO START

There's another point to keep in mind as the construction phase comes to a close: What you see as an ending is, in actuality, just the beginning for your clients. When you leave, they finally get to enjoy the watershape they've waited for and for which they've been paying you.

All too often, however, contractors will vacate the property and essentially abandon the client at what should be the most exciting time of the process for them.

With swimming pools especially, the simple process of filling the vessel is something that requires care and attention. Most anyone who's ever filled a pool or spa knows that tap water can be discolored, cloudy or out of chemical balance and that proper "start-ups," as they're known in the pool-service trade, can involve careful treatment of the water as it's

being added (or shortly thereafter) in the form of filtration and chemical treatment.


Start-ups are too large and complicated a subject to get into here; my point is that what is to happen must be considered ahead of time. The task should be assigned to someone in your organization or to an allied service company that will conduct a proper start-up so your client's first experience with the watershape will be memorable for its clean, sparkling water.


Back when I was directly involved with construction, we saw to the care of the pool for the first two months after we turned it over to our clients. Not only did this help us in terms of managing and controlling how the pool was started, but it also had the added benefit of allowing the client to chill out for a couple of months without worrying about maintaining the system.

Bringing in a service company of your choosing puts someone you trust in the backyard right away, which can be a

- Competitively Priced
- Lightweight Panels
- Limestone
- Granite
- Schist / Shale
- Call for Pricing


CEMROCK GFRC





CemRock manufactures pre-cast artificial rock panels from GFRC, glass fiber reinforced concrete. Lightweight and easily assembled, these panels can be combined to build original and dramatic rock formations. They are the ideal material for professional and non-professional craftsmen in search of a cost-effective and foolproof product to build realistic rock water falls, ponds, walls and landscape formations.

Call us today for a FREE catalog of GFRC Artificial Rock Panels.



CEMROCK™

NATURALISTIC ENVIRONMENTS

4790 S. Julian Ave.
Tucson, AZ 85714
(520) 571-1999
Fax: (520) 571-1888
www.cemrock.com

Circle 21 on Postage Free Card

tremendous help in debugging any problems that might arise in the first few weeks. Rather than contending with someone you don't know calling you with problems – or, worse, telling the client how fouled up the system is – an affiliated service professional can help you solve technical problems before they become significant.

SHOW AND TELL

For me, the final step in project management has always been a meeting with the client (and, at best, the whole family) where we go over everything relating to the system's operation and maintenance. We show them how to turn everything on and off, how to work the remote-control system, how to operate the heater and so forth – whatever it takes to make ownership easy and workable.

This is an important step in the process and one that, despite the fact that it's almost time to move on, should *not* be done carelessly or too quickly. Often, clients will have lots of questions and will need a fair amount of hand-holding as they become accustomed to the presence of the watershapes in their backyards.

At this meeting, I give them a project book/binder that includes company contact information, operating instructions, information on water sanitizing and chemical balance, reference material for products and components used in the project, warranty information (we've already sent in all the cards for them) and all operating booklets and manuals. I use a thank-you letter as a cover note and include a couple of my business cards.

It's always my goal to exit a project the same way I entered it, with open communication and a dash of style and grace. And the final step in this farewell meeting is always a request to the client for a referral letter based on an honest assessment of the entire process.

I'm proud that my clients have, through the years, given me wonderfully positive letters that confirm the effectiveness of our approach to customer service. We've also received letters with constructive advice or criticism, too, and value those just as much because they help us refine our approaches and do better in the future.

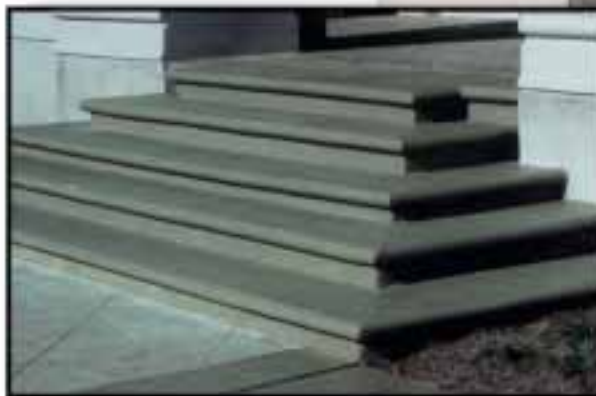
Either way, the referral-requesting

process is immensely informative and useful, and it leaves clients with the clear message that their points of view and opinions really matter and have been important from beginning to end, and not just when we were trying to get them to sign a contract or cut the initial check. Start to finish, that's what good project management is all about. **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.

AWARD WINNING DESIGNS ARE EASY WHEN YOU HAVE THE RIGHT TOOLS... STEGMEIER WALL CAPS & STEP LINERS

- Cast on site
- Flexible
- Versatile
- Economical
- Easy to install



Stegmeier Corporation's Wall Caps and Step Liners transform simple pool decks into an intricate part of the architectural design. These versatile foam forms are available in many profiles and at an affordable cost. Contact us and we will show you how.

STEGMEIER CORPORATION 

1111 W. Harris Rd., Arlington, TX 76001
800-382-5430 • (FAX) 800-356-3602
www.stegmeier.com

var·i·e·gat·ed *adj.* 1. Having streaks, marks, or patches of a different color or colors. 2. Distinguished or characterized by variety; diversified.



Variegated Selections

Out of all the varieties I mentioned in last month's discussion of maples, my favorite was (and still is) the variegated maple. Beyond the simply spectacular nature of that particular tree, what I love most about it is the variegation of the leaves.

This is clearly a personal preference. In fact, I've come across many clients and friends who have a specific disdain for variegated plants – something about them must remind people uncomfortably of the '70s in some way. But by discounting this group of plants as potential selections for a garden palette, these people are missing out on a great opportunity.

I often think of variegated plants as the illusionists of the botanical world. For one thing, they allow me to add colors other than green to a design in unusual ways. For another, most of them have the potential to lighten up dark areas (as is the case with white-variegated shade plants) or, on the other end of the spectrum, to add splashes of color in dramatic ways.

With green as the basic backdrop, variegated leaves can be white, cream, yellow, blue, gray, bronze, red or almost any other color imaginable. I've even found a few just recently that have purple tinges to them, and some don't even have green in them at all.

PUTTING VARIEGATION TO WORK

The point is, variegated plants are quite versatile and can easily be used to add depth and dimension to an otherwise flat plant palette.

For the most part, we think of plants as a means of adding color,

VARIEGATED PLANTS ARE QUITE VERSATILE AND CAN EASILY BE USED TO ADD DEPTH AND DIMENSION TO AN OTHERWISE FLAT PLANT PALETTE.

texture and form to our designs. With variegated plants, however, not only do we hit the mark with all those conventional functions, but we're also able to add light and work with greater detail in our color palette.

Here are a few of the ways they can be used to go above and beyond the usual:

► **Bring light to shady spots.** In my opinion, the greatest value of variegated plants is in bringing light into any shaded area. Using a light variegated plant (one, for example, with white, yellow or cream variegation) can create the illusion, for example, that light is penetrating to that particular spot.

Just as darker leaves will make an area appear shadier and more recessed, the variegation can trick the eye into believing that the area is not quite as canopied or shady and can actually bring it forward. This trick is perfect for an area where few plants will grow and you want to create some variety. These plants are great in shady pond environments, for example, and may enhance or play with reflections of light on the water.

► **Add a streak of color.** Plants such as variegated flax are quite linear (and, as I call them, "strappy"). Using a variegated, strappy-leaved plant can break up a flat or monotonous appearance, particularly in a mass planting. I also recommend using a couple of different varieties together to lend a greater sense of variety and depth.

► **Create more depth and dimension.** If your entire plant palette is green, adding a red, white or any variegated plant will not only break up the monotony, but it also adds another "dimension" because the use of light colors as the variegation will draw that particular plant closer to the eye. (Similarly, a dark variegation, such as red or bronze, will cause that plant to recede into the landscape.)

There's a lot more to color theory and use than I can cover here, but suffice it to say for the moment that these approaches really do work to give a greater and helpful sense of depth to garden spaces. Just one caution: As with any-

PEM IN ACTION



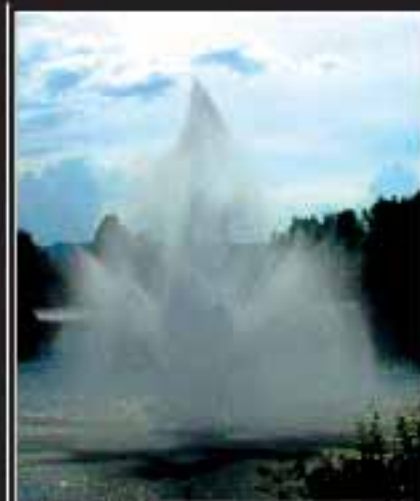
7 - 1 PEM 64's



7 - 3 PEM 64's, PEM 65's & PEM 53A



7 - 2 PEM 876 (16m)



7 - 6 PEM 295

See the full picture collection and PEM Equipment at : www.pemfountain.ca

Water Display created by : Fontene - teknik AS, Oslo, Norway
Fax: 47-22-720752, www.fontene-teknikk.no

Water Display Pictures : courtesy of
Fontene Teknikk, Oslo, Norway

PEM FOUNTAIN CO.

Fax: 905-884-8941 - www.pemfountain.ca - E mail: sales@pemfountain.ca

thing, a dramatic design touch works best when used in moderation and loses its magic when overdone. In other words, a solid mass of variegated plants will *not* show them at their best!

A MULTI-HUED SAMPLER

Let's take a look at some of my favorites

among variegated plants:

► **Acer negundo 'Variegatum.'** As I discussed last month, this is a great part-shade tree with stunning, white-variegated leaves and spectacular weeping seed pods. It can accent an oak tree quite well, for example, or bring light to an otherwise dull, shady



spot. This tree is difficult to find, unfortunately, but the 'Flamingo' variety can be a reasonable substitute.

• **Aspidistra elatior 'Variegata' (Cast Iron Plant).** Aptly named, this stalwart will grow in the darkest, most shaded of areas (within reason, of course). The variegated version has white streaks adorning dark-green leaves, and it's a great choice for areas where little else will grow.



▲ **Arrhenatherum elatius bulbosum 'Variegatum' (Bulbous oat grass).** This is one of my new favorites—a bluish-green grass variegated with white that grows to about a foot high and wide and is suitable for use in either full sun or partial shade.

• **Aucuba japonica.** Distinctive yellow

MOST VARIEGATED PLANTS HAVE THE POTENTIAL TO LIGHTEN UP DARK AREAS (AS IS THE CASE WITH WHITE-VARIEGATED SHADE PLANTS) OR, ON THE OTHER END OF THE SPECTRUM, TO ADD SPLASHES OF COLOR IN DRAMATIC WAYS.

Font'N-Aire® Fountains

Air-O-Lator fountains enhance the water quality and attractiveness of ponds and lakes. Font'N-Aire fountains are ideal for golf courses, parks, playgrounds and landscaping environments.

Font'N-Aire Fountains include:

- Water-cooled submersible motor
- Choice of one nozzle spray pattern
- 100 feet of power cord (longer lengths available)
- Propeller guard and float
- ETL-listed ANSI/UL 508 control panel
- Three-year limited warranty

Available in
1/2 horsepower through
5 horsepower models

AIR-O-LATOR CORPORATION
"THE WATER'S EDGE"

8100-04 Paseo,
Kansas City, Missouri 64131 U.S.A.
1-800-821-3177
www.airolator.com
e-mail: sales@airolator.com

Circle 2 on Postage Free Card

AN OASIS OF OPPORTUNITY

STEP INTO A LUSH TROPICAL PARADISE. QUENCH YOUR THIRST FOR KNOWLEDGE AND FEAST YOUR EYES ON THE LATEST PRODUCTS AT NEXT YEAR'S SPECTACULAR TRADE SHOW.

AQUA SHOW

RETAIL STRATEGIES FOR
THE SPA & POOL INDUSTRY

JANUARY 6-8, 2004
MANDALAY BAY
CONVENTION CENTER, LAS VEGAS

This year was our biggest show ever and next year will be even bigger.

more products
more reasons than ever to attend
more seminars

All this is located in a lush paradise with a state-of-the-art convention center just an elevator ride away from the finest resort accommodations and amenities in Las Vegas.

The industry's fastest growing trade show is getting even better for 2004.

Circle 121 on Postage Free Card

**THE TIME
TO CELEBRATE**

**THE PLACE
TO GROW**



For Exhibit Space Reservation or Attendee Registration, call 800/536-3630 or visit www.aquashow.com

EXPERIENCE THE MAGIC
OF THE
"DISAPPEARING DRAIN"



PEBBLETOP Drain **Standard Drain**

Your customer expects the pool of their dreams...and you've been hired to build it for them. Don't spoil the scenery with an "out of the box" drain. Our exclusive **Pebbletop Drains** easily match any pool finish for a more consistent, more beautiful effect every time. To find out more, call us at (714) 779-5221 or visit our web site at www.poolfittings.com.

NEW NAME! SAME GREAT PRODUCTS! (Formerly Splash Pool Plastics, Inc.)

Color Match POOL FITTINGS, INC. Tel: (714) 779-5221 FAX: (714) 970-5502
www.poolfittings.com

Circle 27 on Postage Free Card

NATURAL COMPANIONS



spots make this a unique shrub – one that looks as though someone accidentally splattered paint on the leaves. It can grow easily to a height of six to ten feet and about that wide and is great for planting in partial or full shade. This variety has worked especially well for me as a background filler against dark-green leaves.

- **Baumea rubiginosa 'Variegata.'** If you want a very upright green grass, this is a great choice. I've looked for but never found an unvariegated variety, but I've also noticed that its subtle, creamy-yellow stripes blend in well. The plant forms tight clumps that grow to about two feet high, and I recommend using it as a gentle accent rather than as a centerpiece or something you'd like to have stand out.

- **Dianella tasmanica 'Variegata.'** This strappy-leaved plant looks quite similar to Agapanthus (or Lily of the Nile) in appearance and growth habit, but its leaves are slightly narrower and are more pointed at the tips. I've just started using this variety and find it makes a great substitute (when your client wants something "different") for the all-too-common Agapanthus. It makes a great accent near a watershape with its small blue flowers, which are followed by blue berries.

- **Lamium maculatum 'Beacon Silver.'** As ground covers go, I see this one as of-

I OFTEN THINK OF VARIEGATED PLANTS
AS THE ILLUSIONISTS OF THE
BOTANICAL WORLD.

Create your environment.

PoolFog™



Complete systems from \$1500.
toll free 866-POOLFOG • www.poolfog.com

Circle 45 on Postage Free Card

Sta-Rite with PoolSpa™ and Share-A-Heater™ Valves

PoolSpa Valve™ (6-Port) Opposite-ports



Motor Operator
Only One(1)
needed



PoolSpa Valve (6-Port) is used for Pool and Spa combinations sharing *one common-set* of equipment, i.e., one Filter Pump, one Filter, and one Heater; Valve changes conveniently *both* the **Returns** and **Suctions** *simultaneously and easily* within *one(1)* 6-Port Valve. **Replaces** the usually confusing, multiple *two(2)* separate 3-Port Valves. **Prevents** accidental draining of Spa into Pool, or worse, Pool into (overflowing) Spa!
Hot Pink=====Warm Water
Light Blue=====Cool Water

Valve Features:

- :All Valves 2", High-Temp CPVC.
- :Internal water flowpaths have *no* 90° abrupt, restricted turns;
- :Large 45° and double 45° flow.
- :Easy Valve operation: Simple 90°, one-quarter turn, rotation.
- :Capacity: Up to 150 GPM.

PoolSpa Valve™ (6-Port) Inline-ports

"Filter Pump missing"



Filter Pump
is "invisible"...
new Stealth
Technology!?



Share-A-Heater Valve (8-Port) (Single Heater System)



Automatic Valve Shown

Share-A-Heater Valve
Pale Violet=====
(Hot Pink || Light Blue)
Warm Water(Combustion)
and Cool Water(Filtering)

Typical Applications:

- :Southwest/Southeast:
Heater used mostly for heating Spa; occasionally used to heat Pool during cool Season.
- :Midwest/Northeast:
Pool is winterized due to freezing conditions; Spa (indoor) use Heater all Winter.
- :Anywhere-Everywhere:
Saves cost of a second Heater.

Share-A-Heater Valve (8-Port) is used for *separate* Pool and *separate* Spa, each having its own Filter Pump/Filter/Timer, yet, sharing just *one* Heater. Both filtration systems can operate *simultaneously*; while one is **heating** the other is **filtering**, and vice versa. **Eliminates** the very expensive requirement of *two(2)* separate Heaters; **Or**, of *three(3)* 3-Port Valves (or worse, multiple gate or ball Valves) and the awful, necessary manifolds of pipes, fittings, and check-valves.

Booster Applications:

Two(2) separate bodies of water each with its own Heater; Either Heater can be **added** to the **other** for additional **"booster"** rapid heating using the versatile Share-A-Heater Valve.

All Valves operate **without** Filter Pump shut-off!
No dead-heading!
No water-hammer!
Totally Safe!

Share-A-Heater Valve (8-Port) (Dual Heater Systems)



Combustion and Solar
Manual Valve Shown

Share-A-Heater Valve
Pale Orange=====
(Hot Pink || Pale Yellow)
Warm Water(Combustion)
and Warm Water(Solar)

Dual Heater Systems:

Enables *two(2)* separate Filtration Systems to share *two(2)* separate Heater Systems. Both Systems can be operated simultaneously or sequentially. As shown above, for typically hot weather areas, Solar Heating of the Pool then the Spa during day...combustion heating at night for either.

Available for Inlets/Outlets:

- :Parts List and Dimensions
- :Inlet/Outlet Kits

800-markUrban/markUSA
(800.627.5872)
Tel: 714.731.3800 Fax: 714.731.4645
www.markUrban.com




 QUALITY BY DESIGN

Flanges & Flanged Fittings



- Sizes from 2" to 12"
- Gasket or O-Ring seal
- Available with slip or spigot connection, or in fully-assembled fittings.

DURA -
 Legendary fittings
 for Legendary
 Watershapes!



LEGENDARY QUALITY
DURA PLASTIC PRODUCTS, INC
 P.O. BOX 2097
 BEAUMONT, CA 92223
 NATIONAL ORDER DESK
 1-(800) 854-2323
 CALIFORNIA ORDER DESK
 1-(800) 472-8584
 FACSIMILE TERMINAL
 (909) 845-7644
www.duraplastics.com

40 YEARS
 1962 - 2002

NATURAL COMPANIONS

fering the most visual bang for the buck. The light-green leaves are splashed with white and produce small pink flowers. Beyond the fact that it brightens up any dark area, it works beautifully when paired with the green leaves and purple flowers of *Campanula muralis*. Another variety, 'White Nancy', has white flowers – perfect for clients who hate pink.

• **Hedera.** The name sounds sophisticated, but it's just plain Ivy. There are so many different varieties of this plant, most of which are dreaded by all sensible people, but if properly *maintained* and *contained*, variegated ivy offers great coverage for large areas and is particularly useful on slopes because of its unequaled soil-binding abilities. On a much smaller scale (and if planted among solid-leaved shrubs and trees that set it off), small patches of variegated Hedera can be the perfect accent and brightener for any garden.

• **Hosta.** I have only been able to use this plant in the mountains of southern California because it's an annual down in Los Angeles. I wish that weren't the case, because this group of plants offers some of the best selections among variegated leaves known to mankind. (To see some great examples, check out some of the catalogs by Wayside Gardens and other growers who supply perennials.)

• **Hydrangea macrophylla 'Variegata' or 'Tricolor.'** Though hydrangeas are spectacular by themselves, sometimes the combination of leaves and flower color gets lost in a darker space. The variegated version of this plant works best when placed among darker-leaved selections.



◀ **Liriope spicata 'Silver Dragon.'** I've used this strappy-leaved "grass" extensively in shade gardens. It grows to about 18 inches high with its flower spikes and accents and

brightens darker areas. This particular variety has white variegation, but others have yellow and gold stripes.



◀ **Miscanthus sinensis 'Morning Light' and 'Zebrinus.'** These striking grasses can grow to six feet tall and about three to four feet in width. 'Morning Light' has white stripes the length of the leaves, while 'Zebrinus' (also known as 'Strictus') is striped horizontally. Both are quite eye-catching and sure to stand out when massed with darker leaves.



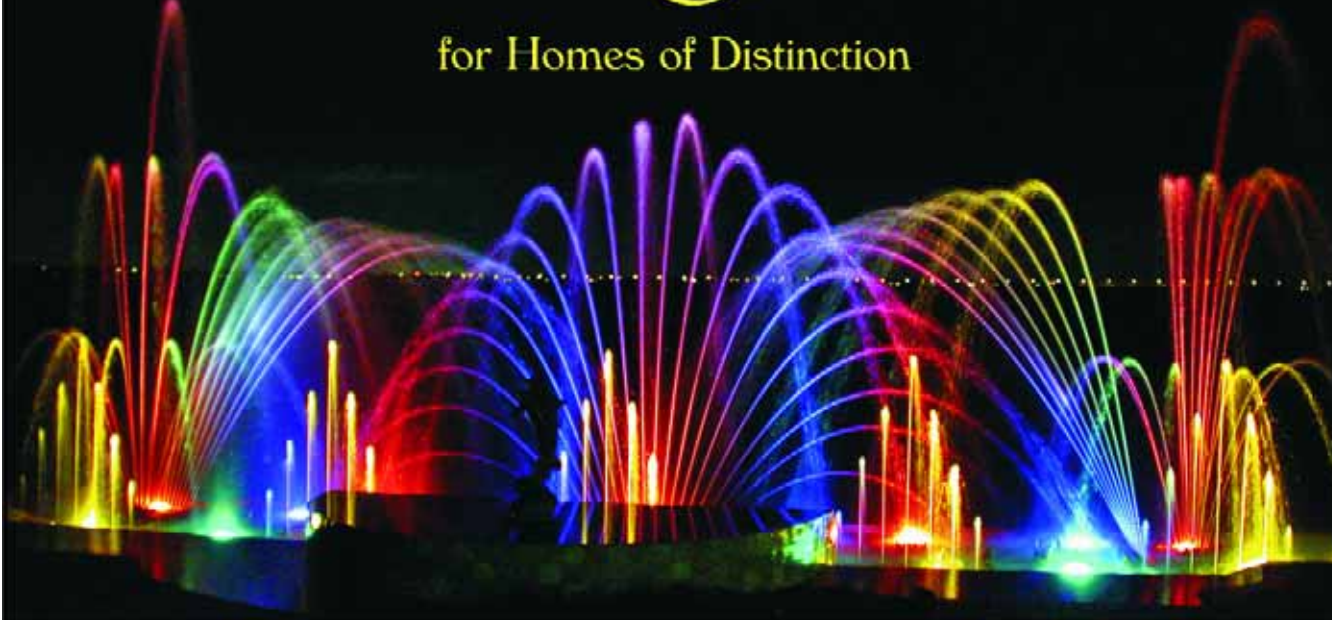
▲ **Pteris quadriaurita 'Argyraea.'** I've found only a few variegated ferns that work well. This one has finger-like fronds, comes in a range of variegated colors (most commonly white) and can grow to four feet tall and wide. It's quite showy, especially when set off against other shade plants. (The Wayside Gardens catalog covers some unusual varieties.)

► **Phormium tenax (Duet, Maori Queen, Sundowner, Guardsman and more).** I grew up hating flax almost as



Musical Fountains

for Homes of Distinction



From the Inventors of Musical Fountains • Over 70 Years Experience

Waltzing Waters,® Inc. • 1410 SE 10th St. • Cape Coral, FL 33990 • Ph: 800-574-5181

Visit us, see our products and download videos at waltzingwaters.com

Circle 102 on Postage Free Card

FOR THE MOST PART, WE THINK OF PLANTS AS A MEANS OF ADDING COLOR, TEXTURE AND FORM TO OUR DESIGNS. WITH VARIEGATED PLANTS, HOWEVER, NOT ONLY DO WE HIT THE MARK WITH ALL THOSE CONVENTIONAL FUNCTIONS, BUT WE'RE ALSO ABLE TO ADD LIGHT AND WORK WITH GREATER DETAIL IN OUR COLOR PALETTE.

much as roses, but I've since learned the value of these striking plants and use them whenever possible. At one time, they were available only in solid green and solid bronze, but the varieties available now range from the cream and green of 'Duet' to the cream/yellow/orange/ green/red of 'Sundowner' (which is sometimes likened to a Tequila Sunrise). There's also the

striking bronze and fire-engine red of 'Guardsman,' and I've even planted one called 'Pink Stripe' that is bronze with pink stripes down the sides. The variegation of flax also makes for a spectacular night-time display with uplighting at its base: The lighter variegations tend to take on a translucency at night that makes them quite special when illuminated.

• **Pittosporum (tobira 'Variegata' and 'Marjorie Channon').** Most of the Pittosporum family is quite familiar to many of us. The "tobira" varieties especially were used throughout the '70s and are still standard in many gardens as filler plants. I've used tobira 'Variegata' where there are too many large, plain-green trees and shrubs. It can grow up to 15 feet tall and probably as wide (although they're usually kept to about six feet wide) and have medium green leaves accented with creamy white variegation. More recently, I've been

using tenuifolium 'Marjorie Channon,' a medium-to-large shrub with thin, dark-brown branches and small leaves that have a lacy appearance. The contrast of the medium-green leaves with their creamy-white variegation against the dark bark is quite unusual – a conversation piece for any garden. **WS**

Next time, we'll explore other ways to lighten up darker planting palettes through use of varieties with gray foliage.

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

StoneCare™ **Water-Based Porous Surface Sealer**

This brand new revolutionary product is designed to reduce the effort it takes to maintain:

• **Swimming Pool Plaster**

• **Masonry**

• **Slate**

• **Natural Rock**

• **Flagstone**

• **False Rocks**

• **Cement Decks & Walkways**

• **Any Other Polished or Porous Material**

StoneCare Sealer:

• **Won't Yellow, Crack or Peel**

• **Won't Discolor Under Water**

• **Is V.O.C. Compliant & Non-Flammable**

• **Lasts up to Five Years**

**100%
Satisfaction
Guaranteed**

StoneCare Water-Based Porous Surface Sealer works by penetrating the surface to protect against oil and water-based stains and fading, while allowing the surface to breathe. It can even be used at the water line for exposed aggregate finishes to help reduce mineral build-up, staining and discoloration caused by calcium, iron, copper and leaves.

For more information call 1-800-238-1142

Please visit us at <http://home.earthlink.net/~stonecareproducts/index.html>

E-mail: Stonecareproducts@Earthlink.net

Circle 105 on Postage Free Card



*fusion of
culture & place*

2003 american society of landscape architects
annual meeting & expo

oct. 30–nov. 3, 2003 • morial convention center, new orleans, louisiana

expo

MARK YOUR CALENDAR NOW! Come to the one trade show designed especially to serve the landscape architecture community! View hundreds of products, design solutions, and technological advancements from over 375 companies with more than 600 exhibit booths. Non-conflicting EXPO hours allow for more productive viewing.

Visit www.asla.org for more information. To discuss exhibiting opportunities, contact Angela Wilson at 202-363-4666.

American Society of Landscape Architects • 636 Eye Street NW, Washington, DC 20001-3736 • Phone: 202-898-2444 • Fax: 202-898-1185 • www.asla.org

Outdoor image compliments of Haddonstone, Bench by BRP Enterprises. Some collage elements supplied by New Orleans Metropolitan Convention & Visitors Bureau: Hot Stuff by C. Purcell, Audubon Park Fountain Close Up and Mardi Gras Jester by R. Nowitz.



ASLA

Circle 119 on Postage Free Card



A California Classic

Take it from someone who has ripped out and replaced more than his share of old and failed swimming pools through the years: Some things are worth keeping!

That's why it's so wonderful to find an old pool – a product of the industry's infancy – that has stood the test of time and has won the right to be left in place. This is the first in a series of columns on one such pool. It's also the start of a story about clients who appreciate art and style and have surrounded themselves with objects and spaces of true value and beauty.

I knew right away that these people were way ahead of the game when they called me about renovating an old pool and adding a spa to complete their backyard. The house, located on a private street in the grand old Los Feliz neighborhood of Los Angeles, had been built in 1923, with the pool added seven years later.

The house is a stunner, an artifact of the Jazz Age straight out of an F. Scott Fitzgerald novel. (Since my first visit, I've been calling it the Gatsby House.) It's basically a Spanish Colonial mansion, but it was outfitted with all sorts of great Victorian touches. Vaulted ceilings, beautiful marble stairways, soaring arches and eclectic details abound, and everything has been carefully restored with period materials, from the kitchen to the elegant floors.

I DO ENJOY A GOOD CHALLENGE, BUT EVEN I WAS SOMEWHAT DAUNTED BY THE NOTION OF TACKLING A MAJOR WATERSHAPE RENOVATION THAT WOULD INVOLVE WORKING AROUND AN EXISTING (AND HIGHLY VALUABLE) DECK.

CONNECTIONS

The couple found me through *The Franklin Report*, a directory of quality designers, contractors and suppliers targeting high-end consumers. By then, they'd already talked with lots of people and were familiar with several top-flight contractors, including Paul Benedetti from northern California and my Genesis 3 partner Skip Phillips from southern California. They'd even managed to get their hands on some copies of *WaterShapes*.

I walked into a space that very easily could have hosted Errol Flynn and Mary Pickford – there was a definite air of Hollywood elegance to the place. I encountered the sort of backyard environment that forces you to think of late-afternoon martinis and strolls around the grounds – lush vegetation highlighted by soaring palm trees and beautiful patios tucked among the plantings. There were multiple fountains, grand fish tanks, a variety of intimate spaces and numerous spots with spectacular views.

It's just the sort of place that would be perfect for a gorgeous limestone deck, which is exactly what these clients had installed about three years ago. It was unfortunate, however, that for all their care in restoring, decorating and maintaining their beautiful home, at some point they had received some truly dreadful advice with respect to the backyard area and those decks.

The problem: By installing the exquisite Beaumaniere limestone decking, the clients had made the task of subsequent-

Silent night quiet night.

Jandy Stealth and PlusHP Series Pumps

Our new line of pumps incorporates "Quiet Technology" into every model. They are ideal for in-floor cleaning applications, waterfalls, spa jets and filtration systems.

- Larger basket increases hydraulic flow and debris holding capacity
 - Available in Full, Up-rated and highly efficient 2-speed models
 - From $\frac{3}{4}$ To 3 horsepower, there is a model for every application
 - Quick connect unions and double drain plugs make service and winterizing a snap



Jandy Stealth Series



Jandy PlusHP Series

USA: 800.227.1442 • CANADA & INTERNATIONAL: 905.844.3400 • www.jandy.com • info@jandy.com • ©2003 Water Pik Technologies, Inc.

Circle 96 on Postage Free Card

ly restoring the pool and adding a spa (their main motivation in addressing the needs of the pool) a virtual impossibility. They had obviously spent tens of thousand of dollars on the incredibly detailed and beautiful deck – a work of art in every respect – and there was just no way that this work should be pulled up or otherwise disrupted.

I *do* enjoy a good challenge, but even I was somewhat daunted by the notion of tackling a major watershape renovation that would involve working around an existing (and highly valuable) deck. The upshot would be an immensely complicated project with almost no access at all.

REALITY CHECK

In most cases, working around this sort of obstacle, and particularly the *costs* associated with executing such a project, puts things out of reach. But these clients are exceptional and have been involved in a highly detailed way with every con-



The original pool was built around 1929 and has all the features of residential pools of that vintage, including a gutter system and an unusually deep hopper.

ceivable aspect of their home.

There was no letting up here: We spent many an hour talking through every aspect of the challenge ahead of time so they could fully appreciate and comprehend the situation, all with a goal of determining what could and should be

done. It was a classic example of “lish thinking” – that is, thinking well outside the box – that was so much a part of the Malibu Colony project covered in this column earlier this year.

As these conversations progressed, we discussed in detail how we could do every-



New Complete Trucks Available

MACALITE EQUIPMENT, INC. 4510 EAST KERBY AVE. • PHOENIX, AZ. 85040 • (480) 967-0770

- Specializing in Pool Plastering Equipment • Plaster Hose • Nozzles
- Easy Flow Nozzles for Pebble Applications • Fittings • Trowels, Etc.
- Manufacturer of Hydra-Flow Plaster Mixers, (Left or Right Dump)
- Distributor For Excalibur and Putzmeister Plaster Pumps
- Parts and Service for All Plaster Pumps and Mixers

Circle 63 on Postage Free Card

Meet The Watershapers

This fall, during both the American Society of Landscape Architect's Expo and the International Pool & Spa Expo in New Orleans, you'll have a unique opportunity to come to our booths on both show floors and speak face to face with some of the country's top watershapers.

Have a question? Need additional information? Curious about resources? Just want to introduce yourself or say hello?

This is your opportunity to stop by and meet some of the magazine's best-known contributors.

Watch our September 2003 issue for information on who will be on hand and when.



These special forums are sponsored by *WaterShapes*, the magazine for designers and builders

WATERSHAPES

thing they wanted. I watched their understanding grow, and I also watched the scope of the project grow beyond adding a spa to include reworking of the lighting scheme and addition of gorgeous glass mosaic tile.

We also discussed the practicalities and the need to replace all of the pool's antiquated copper plumbing, its old scupper and its inefficient equipment set. In fully considering the challenge of executing all of these upgrades without disrupting their gorgeous deck, they came to understand the complexity of the project – and its cost.

What makes this project different from many of my others is the point mentioned up top: For a change, this was a pool worth keeping. All of the major design decisions on this project had been made decades ago: My job was to upgrade the pool in such a way that no one would ever know we'd been there.

The pool itself is a rectangle of about 950 square feet with offset radiuses on the



The challenge of updating and upgrading the pool is complicated by this incredible limestone decking. It was installed at great cost not long ago and features tight joints and details very much worth preserving undisturbed.

ends – simple and classic. The concrete shell appears to have been poured in place, and even after 70 years in a lively seismic environment, everything about it appears to be plumb and square. It was a quality job to begin with; our task would be to

enhance it so it does an even better job of expressing the intent of the original landscape architect or designer.

As we now envision it, we'll be adding a circular spa inside the existing pool using one of the radiuses, keeping the dam

DESIGNING A POND?

Now You Can Do It Right – The **FIRST** Time!

- System design to your requirements
- Residential, commercial and municipal systems
- Innovative, energy efficient designs

POND PROBLEMS?

Ideal Water Quality – Without the Maintenance

- AQUACUBE® Systems for **maintenance free** aeration, circulation and biological filtration
- Perma-Beads™ to **replace sand** in any sand filter for superb water quality without clogging
- UV Sterilizers, Swirl Separators and many other **state-of-the-art components**

Service
Free System Design

Experience
Since 1984

Simplicity
Maintenance Free Systems

ADVANCED AQUACULTURE SYSTEMS, INC.



4509 Hickory Creek Lane • Brandon, FL 33511
Phone (813) 653-2823 • Fax (813) 684-7773
www.advancedaquaculture.com/landscape

Circle 6 on Postage Free Card

wall at or near water level to make the spa essentially disappear. We'll replace the one big light in the deep end with three lights along the side that will illuminate the pool more evenly. Finally, we'll get rid of the traditional white plaster, replacing it with a field of glass tile; a fabulous mosaic treatment at the waterline; and a stylized medallion in the floor of the pool.

STITCHES IN TIME

Behind what is basically a simple renovation program is still the issue of exactly how all of this work is to be done without smashing the existing deck to bits. Not to give away all the details up front, suffice it for now to say that the solution will involve extensive core drilling from inside the pool. Future columns will cover this process as well as other phases of the project as it moves toward completion.

The last point I want to make here has to do with the clients and the importance of giving them realistic expectations about what's in store for them as the project moves forward. To our common advantage, they've already been involved in extensive renovation projects in other parts of their home and know what this is all about.

They understand perfectly well, for example, that changing one detail over here can have a rippling effect over there. They also understand that, as things move forward, we're likely to run into things that couldn't have been anticipated, particularly given the age of the pool.

The point is, their eyes were wide open well before the project started, and I've seen it as my responsibility to make certain they know what's coming – even potentially gruesome possibilities that may never arise. They've asked pointed questions and have demanded clear answers, and in all fairness I've told them all I can.

Frankly, clients such as these are a true delight. They know what they want and they're experienced enough to understand the value of thinking everything through ahead of time. We've been through every contingency, pondered every detail and sweated every possibility. It's been an exhausting process, to be sure, but they were committed and ready to go before the old pool had even been drained.

Our goal has been (and continues to be)

figuring out what might come up ahead of time and considering the possible answers from every angle before those issues arise. So watch the project unfold through the next few issues: It'll be a pleasure to restore such an excellent example of our industry's early work – and an even greater one to take this journey with people who value the beauty of an age gone by. **WS**

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

Does your pool feel naked?

COVERSTAR

POOL COVERS

Coverstar automatic pool covers provide modesty that's safe, reliable, innovative, and easy to put on . . . or take off. It's also easy to install. Choose from a large variety of styles and colors made from our custom fabrics that ship within 48 hours. Plus, we do custom tailoring.

COVERSTAR

ELECTRIC SYSTEMS WITH WATERPROOF MOTORS
HYDRAULIC SYSTEMS | ALL STAINLESS DRIVE

1-800-617-7283

Circle 11 on Postage Free Card

At its most basic, public art creates spaces in which people experience art without paying hard-earned dollars to own it or going to a museum or gallery to see it.

Public art is also about giving everyone within eyeshot new types of experiences amid their daily routines. Perhaps it's an object they'll pass on the way to the subway or an environment they'll spot out of the corner of an eye as they drive to the grocery store. Maybe it's a place where people gather to eat lunch or a landmark for arranging meetings with friends. Whether it's familiar to the viewer or sneaks up unexpectedly, the work becomes a special, identifiable part of the landscape.

Sometimes the sculptures we see in public spaces are abstracted geometric designs or artworks that might as well be located in one public place as another. We also see traditional sculptures or fountains that, while beautiful, don't have much to do with their surroundings. Many of these works are interesting, but I'm far more intrigued by artworks that emotionally connect with or evoke some aspect of a location's history, geography or sense of community.

When public art makes this connec-

tion, it has the effect of turning up the volume on the experience of being in a given place. In addition to having the power to calm and soothe, artwork specifically integrated with a site also serves to resist the growing sameness of our society by expressing a community's unique identity and a place's role in the lives of local citizens. In doing so, public art prompts us to view ourselves as part of our surroundings, while honoring the individuality of a place and of all who happen by.

Caught Up

Before I started down this philosophical path, I studied the sciences, architecture and history – all of which regularly inform my work. Oddly, however, it was a job in commercial fishing that led to my first big break in art. It happened after a summer working at sea.

I'd had it in mind to make some sort of sculpture in a public place, but back then I didn't know how to find places or ways to realize my ideas. While visiting a cultural-affairs office in Boston, I heard by chance that someone who had contracted to do holiday lighting over the street had backed out.

In a flash, I came up with the idea of

suspending large fishing nets over the streets and using them to hang thousands of tiny lights. This gradually became a business in which, to this day, I make large displays with fishnets and lights – not about the holidays, exactly, but more about lighting up the winter sky in a festive way. This seasonal, decorative public art gave me a start, and I've since been able to move forward with more permanent installations.

Through all my work with nets and lights, I kept my focus on a conviction that public art works best when it is site-specific and carries special meaning for members of the community in which it is placed. The lighted fishing nets, for example, speak clearly of Boston's history in commercial fishery.

Through the past eight years, much of my work has involved water and water effects that function in both conceptual and sculptural ways.

I'm drawn to these effects by the inherent power water has to attract attention and captivate viewers. (This is doubtless why fountains are among the most popular forms of public art.) We all share common experiences in and around water, whether it's bathing, washing the dish-

Interests

By Ross Miller

In creating sculptures and watershapes inspired by local history, geography and natural features, public artist Ross Miller aims to delight and soothe all passersby while especially rewarding those who see a deeper meaning. Whether the water in these compositions is vigorous and crashing or gentle and vaporous, he says, his goal is to shape spaces that celebrate local heritage and enrich the spirit of their communities.

es, swimming in a pool or walking along a stream or a river. Because of those associations, the constant change and variety that water lend to a space and a work of art engages us to the extent that most of us can't resist breaking into gleeful smiles when we get close to it.

After I've used water in a project, I make a point of sitting back and watching how it is experienced. I love to see someone in the distance "discover" a water sculpture, then, almost as if a deep instinct takes over, change paths to get near it – and then become even more excited as he or she comes closer and gets to a place where the water can be touched.

I work with all sorts of materials – stone, stainless steel and bronze chief among them – and bring water into the work whenever I can. These can be imposing materials, but my water projects are extremely accessible. I always think in terms of setting them up in such a way that people can get in them, climb on them and get wet.

Interactivity is a tremendous force, something that makes the observers active participants in their own experience. It's amazing to see well-dressed people of all ages decide (often in small tentative steps)

to get closer and closer – and, eventually, to get themselves completely drenched.

Processing Time

Taking the time to know the space I'll be helping to shape is the key to my work. This working to forge connections with the history and geography of a place and the people who occupy it requires a design process that in my case includes extensive conversations with members of the community and others on the design team.

These are often projects created by and with the community, and I use all of the various community meetings – and there are very often a great many of them – as a venue for striking up personal conversations with those involved. I often find very useful information and insights that might otherwise get lost in the course of the usual meeting.

This level of research and conversation is not uncommon, especially in large landscape architecture projects, but my narrower aim is to elicit details and nuances that will enable me to infuse my work with symbolism and meaning that carries the work past the generic. I'm not looking for consensus; what I'm after is fuel for my creative process.

I often start a project seeking a wide range of images and concepts, even if they do not immediately seem practical or useful. I then try to visualize the ideas with simple sketches, quick cardboard models or tabletop scale models made with rocks, metal and wood along with water and light. Only then do I start to research technical solutions and specific materials for the fabrication/installation phases. This can be a cumbersome process, but I find that it also allows for fresh thinking and intriguing discoveries.

There are many trade specialists who have generously helped me along the way, and I like to combine the skills of people who have never worked together before – machinists and stone carvers who make special inserts into granite, for example, or lighting engineers and concrete finishers who work in tandem to get just the right reflectivity off a concrete surface.

I have been fortunate to find wonderful people to work with to develop unlikely solutions to some surprising problems. Ultimately, both the process and result are about discovery. It's a true privilege to have the opportunity to engage this process with the outcome of creating meaningful public art.



The Shoe Fountain

Festival Plaza, Auburn, Maine

The town of Auburn is located an hour inland from the coast of Maine — not a traditional destination spot for tourists, but one with ambition.

The town's mayor, Lee Young, is a forward-looking woman who headed up a \$2.3 million campaign to create a park at the city's center to give the downtown area a sense of place. The Shoe Fountain is part of that effort.

Auburn was once home to numerous shoe factories, and the industry was the city's largest employer. The factories are now gone and the toll on the city's economy has been devastating. The Shoe Fountain pays homage to this history while giving the town a new focus for pride and a more hopeful outlook for the future. It's right in keeping with the town's motto, *Vestigia Nulla Retrorsum* — that is, "no steps backward."

The fountain is part of a large set of stairs leading to an open plaza on the bank of the Androscoggin River. Water flows over a granite weir and cascades over pink granite stepping stones set with gray granite cobbles. Nine cast-bronze shoes "walk" up the stairs on the stepping stones, each shoe equipped with a custom nozzle integrated with fiber-optic lighting that illuminates both the nozzles' spray and the flow of the water over the steps.

John Ryther, a landscape architect with Icon Architecture of Boston, designed the space and brought me in to discuss waterfeatures that might be included. Lead architect John Shields had already designed the stairs; through a series of collaborative discussions, we developed the idea of adding water that would cascade down *another* set of steps that would run alongside the pedestrian stairs and wheelchair ramp.

Once the concept was developed, The Fountain People of San Marcos, Texas, helped achieve the water effects. I ordered several off-the-shelf fan-jet nozzles for a full-scale mock-up, and the shoes were chosen after sizing up many possibilities.

As it happened, we spotted some beautifully worn and patched shoes on the feet of an art student working in my studio. We made rubber molds, poured wax copies of the shoes, then shaped, distressed and distorted them to create individual variations. New England Sculpture Service, an artist's foundry, cast the shoes in silica bronze, an alloy with a warm reddish tone. A chemical patina of ferrous oxide was applied, resulting in an amazingly shoe-like brown.



All Lit Up

Lighting is always an important piece of the experience of any outdoor sculpture — and particularly tricky when it comes to water.

After several months of trials with experienced lighting consultants and numerous tests of everything from narrow-beam, low-voltage spots to submersible fiberoptics and remote floodlights, I was unhappy with all of the options.

As I kept at it, I began hearing about Sandra Liotus, a lighting designer who specializes in custom fabrication of fiber optic lighting systems. After a few phone conversations, her engineer, David Crampton-Bardon, visited my studio. We inserted highly illuminated ends of glass-fiber bundles into holes drilled directly into the nozzle's water stream.

By carefully tuning the angle of water and light, the light beam and the water stream became one, the light internally reflecting within the arched water stream and curving as it descends to light the reservoir/pool below.

— R.M.



The Falls Fountain

Festival Plaza, Auburn, Maine

This fountain is located above The Shoe Fountain on a large plaza. Here the inspiration is the nearby Androscoggin River Falls, now often dry when the river water is diverted to a power plant.

Local history tells of early Native Americans who used caves behind the falls for ceremonial purposes – and of settlers who later hid in the caves to avoid pursuit by those same Native people. The idea of these falls is to create a contemporary sculpture that enables visitors to move in and around sheets of falling water as a metaphor for the lost history of the river's falls.

Large, upright, stainless steel structures contain plumbing, lighting fixtures and a total of 36 feet of sheeting waterfall nozzles that send water cascading over a field of pink granite boulders.

Lighting specialist John Powell suggested a series of narrow-beam low-voltage spotlights (aircraft landing lights) that are positioned within the overhead structure in line with the water flow. At night, light refracts magically through the streaming water and bounces off of the crystalline granite surfaces. Here again, The Fountain People worked closely with me to achieve the desired water effects with sheeting nozzles, fog nozzles and the circulation and control systems.

Beneath the sculptural waterfall, 45 tons of red and gray granite boulders are arranged so people can climb on them and interact with the water. All of the stones are between 16 and 24 inches tall, making them easily accessible by children and adults. In addition, many of the boulders are spaced far enough apart that people in wheelchairs can pass through easily.

To address the obvious safety issues, the rocks were flame-finished with a torch to create a rough surface that can be walked on with sure footing. The granite has its own story: It comes from Jonesboro, Maine, one of the state's two remaining operational quarries. (At the beginning of the 19th Century, there were more than 400 granite quarries here.)

Fabrication of the fountain itself required the engineering of a complicated bulkhead and frame structure to hold the sheet bar nozzles, custom manifolds, fog system and lighting. All of the half-inch-thick, 316 stainless steel parts were shaped with a computer-controlled water-jet cutter using a high pressure water stream carrying an abrasive garnet grit.

Although I like hands-on work, much of the design process involved in assembling these components took place with faxed sketches, e-mailed CAD files and phone calls between my studio and the custom fabricators, Maley Laser Processing of Warwick, R.I. Building the structure to hold these water effects was a collaborative design/build process that required full-scale mock-ups in plywood, then steel prototypes before final assembly by a skilled staff of machinists, welders and technicians.



Finding Inspiration

I love finding ways to manipulate the shape of water, and I find inspiration even in the most mundane of aquatic experiences.

I, for example, look forward to doing the dishes.

Often, I'll be cleaning a spoon or ladle or knife and will find myself turning it different ways under the faucet, watching the water's shapes and then perhaps adjusting the kitchen lights a bit to make the flow more dramatic or beautiful. That may sound a bit odd, but it's a great laboratory, and it's there just waiting for me several times a day.

More conventionally, I also take cues from nature and am an avid observer of rivers, streams and other forms of water, including glaciers. My work is to translate these observations into compositions.

— R.M.



The Fog Fountains

University Park, MIT, Cambridge, Mass.

This waterfeature was designed in collaboration with citizens of the city of Cambridge, Mass., for a new park set among biotech-research buildings on the edge of the campus of the Massachusetts Institute of Technology. In an unlikely twist on more conventional design processes, community protests and neighborhood activism led to plan revisions aimed at adding amenities for residential neighbors *after* park construction had started. One specific and unanimous request was for a waterfeature.

Through this process, I learned that sometimes when political desire is effectively expressed, there are fast-track ways to get things done. In this case, change orders were issued and the park's designers, The Halvorson Co., gracefully completed the extra design detailing.

The park is built on land that was once a tidal salt marsh and later became the site of several 19th-century manufacturing facilities. We wanted to evoke the spirit of those bygone, misty shores.

The water effect here is all fog that rises at various timed intervals within a sculpture made up of stainless steel and granite cubes. A circular seat wall surrounds the entire water sculpture, inviting visitors to sit amid and enjoy the cooling mist. A series of cast-bronze oyster shells are located around the fountain, adding a measure of visual interest and directing the flow of run-off water. (These shells are based on real shells we unearthed on site during foundation excavation.)

The horizontal granite fountain base is sandblasted with patterns that catch and hold the mist. The designs are based on enlargements of electron-microscope images of chromosomes and recombinant DNA – a nod to the biotech laboratories that operate 24 hours a day in the adjacent buildings.

The fog system was developed by Mee Industries of Monrovia, Calif. The misting nozzles consist of small atomizers that work under extremely high water pressure. I find it interesting that the main applications for the company's products include systems designed to prevent citrus groves from freezing in raw weather and systems that clean the air emitted from power-plant stacks.

In all, 24 nozzles are mounted within a stainless steel, woven-mesh cube at the base of the fountain. There's also a small runnel carved into the granite around the perimeter of the fountain to collect the minimal runoff that condenses from the fog. Given all of today's water-conservation concerns, this is a *practical* fountain!

The fog patterns change constantly, creating subtle variations. I did my best to capitalize on the transient quality of the effect. Observers need to pay fairly close attention at different times of the day and in different weather conditions to capture the dynamics of the composition.



Public Purpose

We live in times when public funding for artworks and public-space development is often in question and budgets for public amenities are steadily being cut.

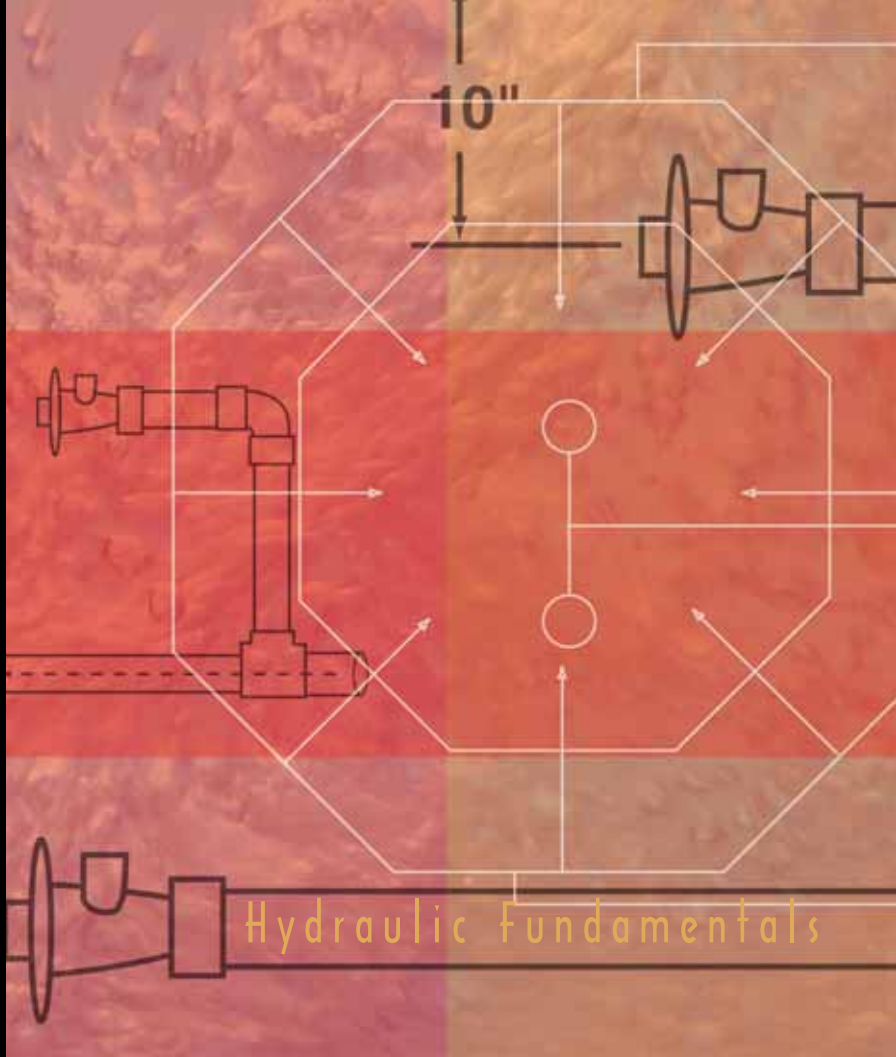
As our society becomes more complex, it is essential that we buck those trends and focus on improving our communal public places. On that level, creating watershapes for public places is an important gift to our culture, a way we honor our shared values and provide absolutely necessary places for gathering and celebration.

– R.M.

Making Connections

By Steve Gutai

From pools, spas and fountains to streams, ponds and waterparks, effective watershaping is largely about the plumbing that makes these systems work. If you see things that way, says hydraulics expert Steve Gutai, there's nothing more fundamental to success than making proper connections in the system's plumbing lines, first time, every time, and piping joints that will bear up under pressure for the long haul.



It seems obvious that all watershapers would have a clear understanding of the materials commonly used in pipes and fittings and would know all about the primers and glues and mechanical approaches used to connect plumbing joints. That's not always the case, however, which is why I'm rarely shocked to see system failures that are the direct and inevitable result of improper plumbing connections.

It's amazing to me that these connections haven't been properly made, of course, but what's even more amazing is that these problems often arise with installations where lots of good work has gone into calculating proper hydraulics and laying things out in efficient ways. None of that matters when the pipes start to leak!

Much of what follows should be familiar territory, but this issue of making proper connections is so important that no series of articles on hydraulic fundamentals would be complete without cov-

ering just what it takes to join Pipe A to Pipe B. In approaching the subject, we'll pare back to essentials, considering only materials commonly used in the residential watershaping market. We'll also focus in on re-circulation systems (rather than gas or other peripheral lines) and thereby narrow the range of materials and techniques down enough that everything will fit comfortably in this one article.

Types of Pipes

For more than three decades, the plumbing of pools and spas and most other watershapes has been dominated by thermoplastic piping materials in the form of different schedules and types of polyvinyl chloride (PVC) and acrylonitrile butadiene styrene (ABS).

These materials (Figure 1) are now so commonplace that it's fair to say that most of us in the trade take their reliable performance completely for granted. Even so, understanding their basics is most help-

ful, especially when it comes time to make good plumbing connections.

For starters, there are five common pipe types used for pools, spas and other residential watershapes:

► **Schedule 40 PVC rigid** is most common among materials used to plumb backyard watershapes. This PVC schedule can handle water temperatures up to 140 degrees Fahrenheit (or 60 degrees Celsius) and pressures between 125 and 200 pounds per square inch. (For specific pressure ratings, be certain to consult the pipe's manufacturer.) Solvent welding or flanging are the primary techniques used to join schedule 40 PVC pipe.

Schedule 40 PVC has a relatively low resistance to ultraviolet light, which can be an issue on some equipment-pad applications, but it also has a relatively high tensile strength and elasticity that make it stronger and more rigid than other thermoplastics.

► **Schedule 80 PVC** is similar in characteristics to schedule 40, but it features

higher pressure ratings and impact strength as a result of having thicker walls. It is also joined by solvent welding as well as by flanging or threading. For transitions to schedule 40 PVC – for example, at pool pumps' suction and discharge ports – threaded schedule 80 PVC nipples are commonly used.

One important point to remember in using schedule 80 PVC is that the pipes have a lower carrying capacity because the pipes' inside diameter is smaller, thus reducing water flow. That in mind, you should always consult a friction flow chart that corresponds to the piping material you are using to determine the material's flow and head requirements.

► **CPVC** (that is, chlorinated PVC) – in schedule 80 for threaded adapters and in schedule 40 for pipe – is also similar in characteristics to PVC, but it's designed to handle moving water at temperatures up to 180 degrees F (82 degrees C), making it useful for hot-water applications. The pressure rating for CPVC piping material is lower than schedule 40 or schedule 80 PVC, topping out at about 100 psi.

As with schedule 80 PVC, CPVC pipe is joined by solvent welding, flanging or threading, and threaded CPVC nipples are commonly used to make transitions from pool pumps' suction and discharge ports to schedule 40 piping. Costs are different, however, with CPVC being considerably more expensive than either schedule 40 or schedule 80 PVC.

► **Schedule 40 PVC Flex** is a non-rigid form of piping that's particularly useful in cramped quarters, which is why it's commonly used in the portable spa industry and has found applications in pools and other watershapes in certain parts of the country. (It's important to note here that all plumbing materials used for the plumbing of inground swimming pools must be approved by your local health or safety and building department.)

Obviously, PVC Flex's flexibility is its main advantage: It can significantly reduce the number of fittings required by

rigid piping in the same application, and it can also take the high water temperatures associated with spas.

But PVC Flex is not always appropriate for underground usage, because it's more susceptible to tearing and termite or rodent damage than are other thermoplastics. Cutting it also takes some care: You must be certain in doing so that you don't cause the outside diameter of

the pipe to flatten or go out of round, because this will significantly reduce the amount of sealing surface of glue joints.

► **ABS** is most commonly used for drain, waste and vent applications and comes into play in watershape re-circulating systems if the project calls for a gutter system with gravity-fed lines that flow to surge tanks. The material is much like PVC – common, easily workable and



Figure 1: The five most common types of pipe used for swimming pool plumbing are, from top to bottom, ABS, schedule 80 PVC, CPVC, PVC Flex and rigid Schedule 40 PVC.

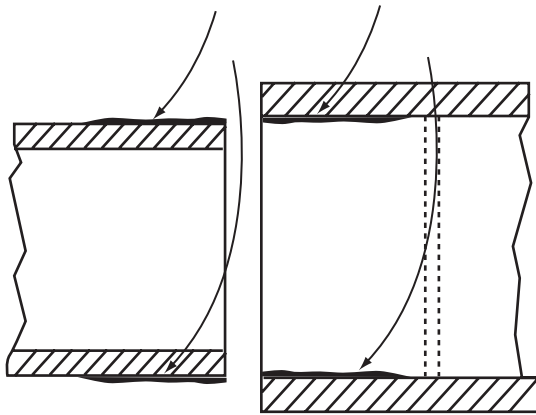


Figure 2: For proper adhesion, cement coatings must be applied at sufficient thickness to both surfaces to be joined.

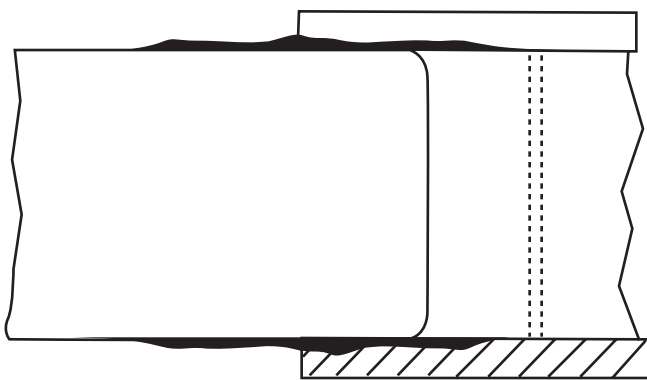


Figure 3: The components must be assembled while the adhesive is wet and the surfaces soft.

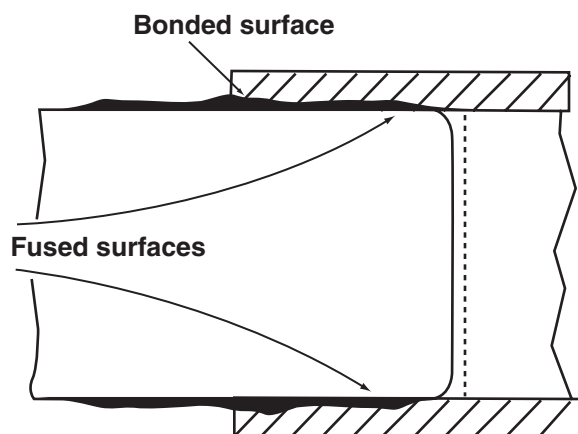


Figure 4: For a good fit, the components must be held together to allow both for proper bonding and for fusing of the materials

readily available – and is commonly used in drainage applications because it works well in low-pressure applications. It's also impact resistant and very durable, even at low or freezing temperatures, and can handle temperatures up to 160 degrees F.

Schedule 40 PVC is by far the most commonly used pool-plumbing material these days: It is lightweight, inexpensive and easy to use and can be purchased in rigid or flexible forms across a wide range of diameters. In addition, its durability, resistance to corrosion and ability to handle heat are all factors that contribute to the expanding popularity of this pipe type in recent years.

One point to consider is that PVC is so adaptable a material that it is also used successfully in setting up such things as electrical conduits, drainage systems and venting. It is important to note that pipes specifically labeled and intended for these other applications are not suited for use in water systems. As an example, schedule 40 electrical pipe or conduit is *not* approved for use on water systems. That may seem an obvious point, but it is surprising how often mistakes are made and the wrong material is used.

Pipe Joinery

With everything laid out and the pipes all trimmed to the right lengths and cleared of any burrs that may have resulted from cutting, it's time to focus on a bit of pipe-joining technique.

For the most part, watershape re-circulating systems are connected through a process known as *solvent cementing*. This is the most common method of joining PVC and ABS pipe to fittings made of the same material as the piping – elbows, tees, manifolds and more. Done properly, this method provides a chemically fused joint that is the key to overall system success.

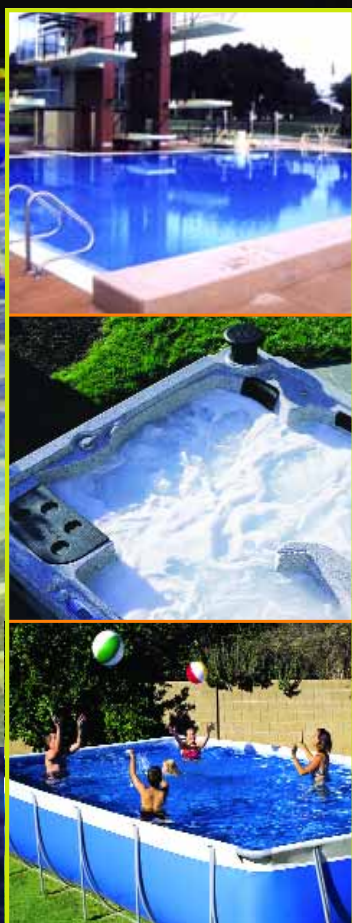
All it takes to ensure good, leak-free glue joints is following a few simple rules:

- The surfaces to be joined must be cleaned
- An appropriate primer must be used to soften the pipe
- Plenty of cement should be used in filling the gap between the pipe and fitting (Figure 2)
- Pipes and fittings should be assembled while the glue is still wet (Figure 3)
- The glued assembly should be held in place until the glue is set (Figure 4).

That last point is particularly important and is the place where most problems will arise. Holding the components in place prevents the pipe from creeping out of the joint as the adhesive completes the fusing process.

Total Immersion

The most comprehensive selection of pool, spa and backyard living resources in the world.



Total Focus. Total Results.

- n The most important show of the year for the backyard living market.
- n All the major pool, spa and hot tub manufacturers in over 200,000 net square feet of exhibit space.
- n 2,000+ booths, more than 600 exhibiting companies.
- n 58 seminars—business-building strategies and technical solutions—featured in the most comprehensive educational program in the industry.
- n 30 all-new sessions, including a new track for the commercial pool professional.

conference: **NOVEMBER 4-7** exhibits: **NOVEMBER 5-7**
NEW ORLEANS n LOUISIANA USA

2003 **POOL & SPA EXPO**
INTERNATIONAL

FEATURING **Backyard Living Showcase™**



POOL & SPA NEWS

Hanley-Wood EXHIBITIONS

REGISTER ONLINE NOW—
www.PoolandSpaExpo.com

Circle 12 on Postage Free Card

Official Truck Sponsor



That fusing process is the source of the joint's strength and should not be compromised by movement among components.

This is also why it is best, whenever possible, to work on one joint at a time. It limits the possibility that any twisting or pulling or creeping will disturb the fusing process.

Good As Glue

Of course, good technique can never make up for the fact that you've chosen the wrong adhesive to make your connections. Even though it seems like a straightforward issue, great care should indeed be taken to obtain and use the proper glue for the given materials and application.

To do so, you must know the pipe material and its schedule, the maximum pipe size and the set time (the larger the

pipe, the longer it will take to set). Depending on where you live and the time of year, you must also think about relative humidity, freeze/thaw conditions and, in some cases, the pressure performance of the adhesive in making your choice. In other words, it's always the application that matters.

As mentioned above, most re-circulating systems are connected entirely with solvent cementing, and that's what we'll focus on here.

In brief, however, flanging and threading are used mainly in making connections between dissimilar materials. For their part, flanges are used most frequently with larger pipe diameters to connect the pipes to commercial pumps, butterfly valves and other large fittings.

The connections known as *unions* are

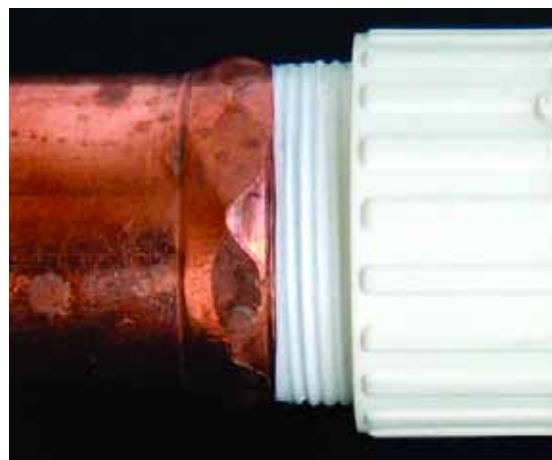


Figure 6: Connections between copper and PVC occur frequently where new plumbing is added

basically the same as flanged joints, except for the fact that they join two pipes using a threaded union and nut, where flanges are typically bolted together. In setting up either flanges or unions, you need to know the materials you'll be gluing and, if you're making connections to a pump or a filter, select the appropriate threaded adapters or nipples to get the job done.

These sorts of connections frequently call for linking dissimilar materials – an issue we'll address briefly below. Far more common is the need to join similar materials together.

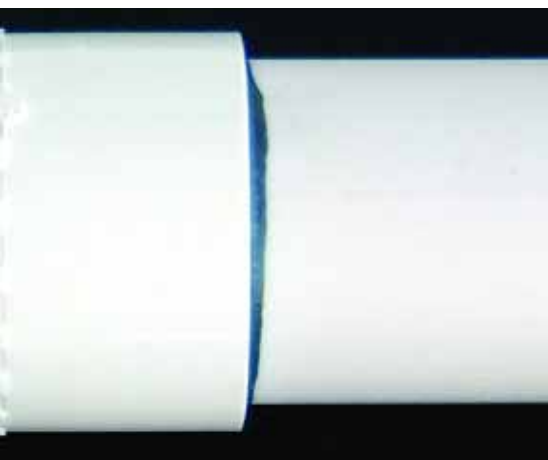
For bonding these like materials, such as PVC pipes to PVC fittings, adhesive suppliers offer a good range of easy-to-use, quick setting glues specially formulated for pool and spa plumbing. I'll use IPS Corp. and its Weld-On line of products to illustrate, but products made by United ElChem (Pool-Tite) and others are comparable and widely available.

- For most general-purpose applications with PVC, Weld-On 711 and 717 are appropriate – 711 being a high-strength, heavy-bodied, fast-setting gray glue and 717 being similar but with a slower, medium set time that makes it easier to use in humid conditions. In both cases, the materials to be glued should be primed with P-70 primer.

- For repair work or on jobs requiring quick pressurization, Weld-On 725 (or the equivalent) is a good choice. It



Figure 5: Connections between dissimilar materials are most often found where pipes tie into equipment or as shown here, where PVC piping is connected to an ABS skimmer.



to older pools as part of a remodeling or upgrading project.

works especially well in wet areas.

- For CPVC pipe, Weld-On 714 (or another, similar product) gets the job done. It's a medium-set glue that can be used for pipe up to 12 inches in diameter.
- For bonding PVC Flex to rigid pipe or fittings, select Weld-On 795 or the

equivalent.

• For ABS connections, use Weld-On 773 or 771. Both glues are semi-viscous, medium-bodied, fast setting glues that can be used in temperatures ranging from 40 to 110 degrees F.

Transition joints between dissimilar materials are perhaps the most difficult when it comes to finding the right solvent. PVC-to-ABS connections are quite common (Figure 5), particularly at the bottom of skimmers. In these cases, go with Weld-On 794 or 793 or the equivalent – and be mindful that these adhesives are *not* recommended for ABS-to-ABS or PVC-to-PVC applications.

PVC-to-copper connections (Figure 6) and PVC-to-galvanized iron connections are common in retrofits where old plumbing is matched up with a new skimmer, for example. There are various ways to properly seal these connections, the most common being a wrapping of

Teflon tape on a threaded joint.

The beauty of making good plumbing connections is that it's not all that difficult, so long as you know your materials, their proper applications and the correct primer and adhesive types. Taking care of business here gives you peace of mind that the hydraulic system won't fail needlessly, freeing you up to worry about the more enjoyable points of watershaping.

Know Your Codes!

It may go without saying, but I must mention again that whenever you are in doubt on any issue related to plumbing requirements in your area, you should *always* consult local plumbing codes (including UPC and IAPMO) to determine approved plumbing materials.

There's nothing more frustrating (or costly) than doing the same work twice!

– S.G.



REGAL



WATER GARDEN LINERS

Wholesale Only

Flexible PVC 20 & 30 Mil

EPDM Liners 45 Mil

Standard & Custom

Sizes Available

9342 W. Reno
Oklahoma City, Ok. 73127

TEL:(800)444-7755
Fax:(405)787-3211

Circle 51 on Postage Free Card

FINALLY!

A FAST & EASY METHOD OF INSTALLING PERIMETER FIBER OPTICS TO YOUR GUNITE POOLS!



aluminum fiber optic receiver track

track is screwed to bedded out tile mud bed is laid on top of track coping is laid, grouted & finished

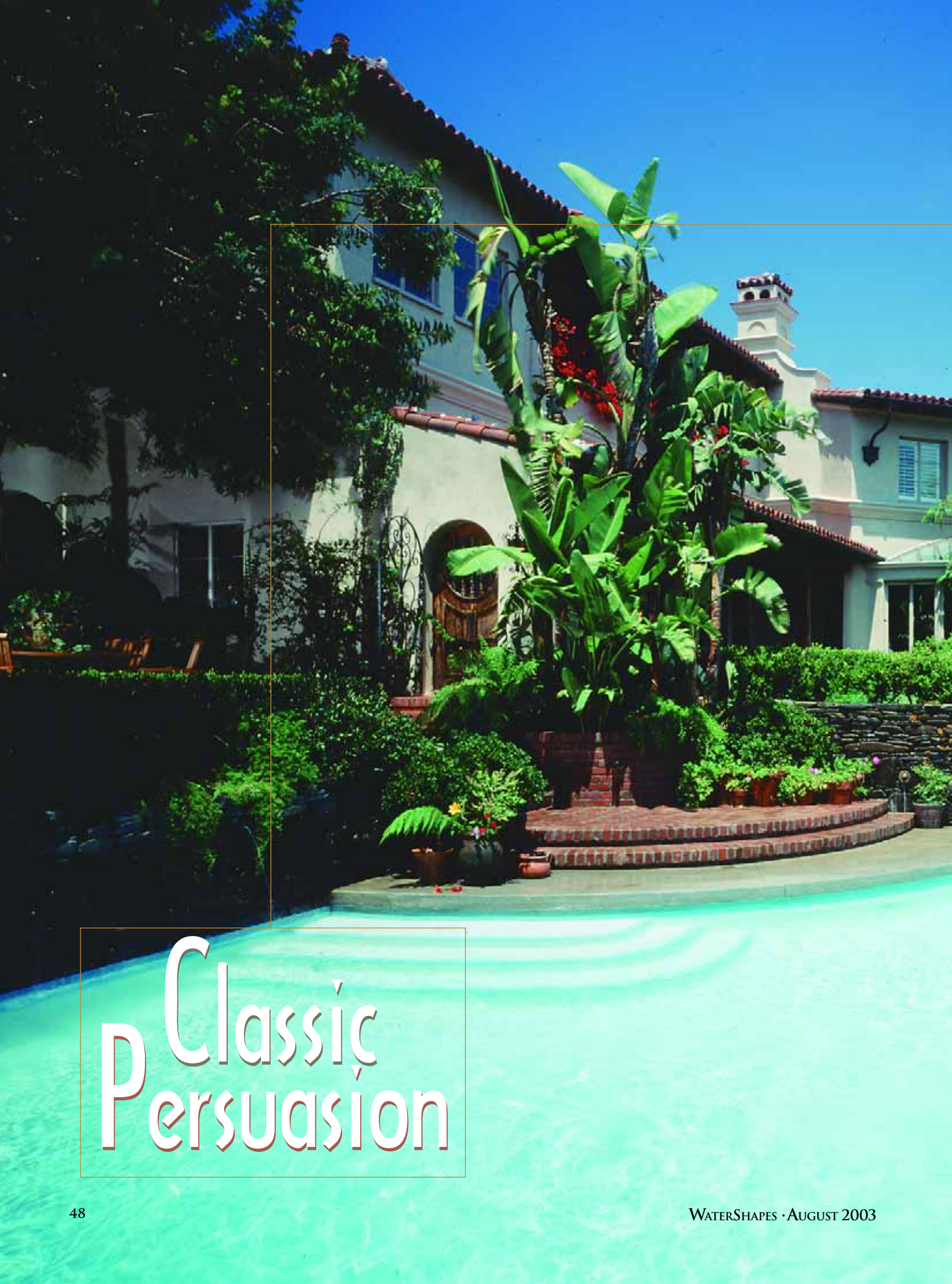
Now you can easily install flat or round fiber optic cable on new Gunite construction!
Call, fax or email for a catalog & samples!



modern pool systems

415 Wilkins Wise Rd • Columbus, MS 39759
662.327.0921 • Fax: 662.327.2221 • mps@ebicom.net

Circle 84 on Postage Free Card



Classic Persuasion

More than two years of paying full-time attention to thousands of tiny details: That's what this project was all about, says landscape architect, contractor and watershaper Mark Holden – not to mention close collaboration with a determined client who inspired Holden to reach for levels of craft, creativity and practical improvisation that have informed his approaches to design, construction and watershaping in every project since.

By Mark Holden

For more than two full years, this project was my personal and professional obsession.

It all started in 1993, when my client, a wealthy recording-industry magnate, called on me to design the landscape for a property he'd just acquired in Bel Air, one of the most exclusive neighborhoods in Los Angeles. The Spanish Colonial-style home had been built in the 1920s and was in a sad state of disrepair. By the time I arrived, it had been gutted to the studs, and very nearly all of the hardscape and plantings around the house had been torn out as well.

What he was offering me was a tantalizingly blank canvas in a most spectacular setting.

In the two years that followed, not only would we set up a variety of walls, terraces and patios as well as a new guest house, a pool and two small fountains – all surrounded and accented by extensive mature plantings – but we also became involved in a bit of alchemy by creating (and aging) 1929-vintage architectural woodwork and decorative pottery and a following through with a range of other period-sensitive touches.

This all took me well beyond my familiar role as landscape architect and watershaper. By project's end, in fact, we were integrally involved in details of the home's interior design and furnishings as well. Through it all, I was a full partner in my client's near-fanatical quest to get everything *just right*.

Careful Continuity

To be sure, my client had distinctive tastes and wanted everything to be very subtle and understated by way of lending his home a "timeless" Old World quality. In that context, *nothing* could look new or ready-made, and it became our goal to

do everything possible to create new spaces that appeared as though they'd had been nurtured, occupied and enjoyed for decades.

The home's two-acre lot sits on a winding road high in the hills and offers spectacular city views from a variety of small-ish spaces draped across many elevation changes. The house itself – 9,000 square feet as purchased and in the process of being remodeled to 10,000 square feet – featured classic, mud-packed red-tile roofing, soaring arches and plastered walls. The slopes all around were dramatic, with a generous array of retaining walls set up to create workable flat spaces.

By way of preparing ourselves for the job, we drew up extensive plans and careful renderings. But we soon found that every aspect of the project was subject to change at the drop of a hat and that none of our construction documents were likely to be carried through from start to finish. Instead, the project “evolved” on a daily basis as a result of constant discussions, conjectures and negotiations.

Every day was its own adventure. I would spend *hours* walking the grounds with the client, considering and reconsidering every possible angle, detail and facet. In this atmosphere of constant change – shifts in direction far too extensive to remember, let alone report here – this project was far more akin to sculpting than it was to architecture in any traditional sense.

In a way, the work we did on this project was closest in nature to set design, as though we were preparing this place for a theatrical production of some kind. The idea – our “scene” – was that someone entering the space would be transported to the late 1920s or early 1930s and experience a distinct sense of another time and place.

This meant that continuity (in a basic theatrical sense) was of prime importance and that we'd need to use “distressed” materials such as used brick or tumbled stone and work with mature and irregular plantings. At every turn and without compromise, we were to make choices consistent with the chosen era.

Deliberate Greenery

The entire experience for guests at the home begins with the entry courtyard – the heart and soul of the environment.

The area is enclosed by the house on three sides and a steep slope on the fourth. We kept the space cool and dark, filling it with lush plantings selected for an ability to thrive in low-sunlight conditions. Indeed, the plantings are so dense and dark that it's almost cave-like – an isolated, staged exploration leading to the point of entry: the front door.

The original courtyard featured a small, wall-mounted fountain that we restored with a variety of pieces of hand-painted tile and other materials. It's tucked off in a side of the area and is not readily visible until you are right by it. But its primary purpose was never visual; instead, it lends the sound of moving water to the entire space, drawing visitors deeper into the sheltering greenery. (We also stocked the fountain with bullfrog tadpoles that grew up to dwell in the courtyard.)

The use of mature/overgrown plantings here was the key





GRAND ENTRANCE: The entry courtyard is the home's heart and soul, a special space we reconstructed from the ground up. We started with a relatively open space (A) and set about making it more contained and intimate, starting with the flagstone paving (B). The central tree was already there with a brick surround. We craned in additional trees (C) and added a large population of mature plants – including the trailing vines that gave what had been a wide-open *porte cochere* a sense of age that sets the tone for everything beyond (D). When finished (E), the courtyard offers just the sort of staged approach we wanted to the home's front door.



to creating an illusion that the environment had been around for a long time – a strategy we used in spots all around the property. Many of these specimens, chosen because we'd done our homework and knew they'd been popular choices at the time the house was built, were so large and overgrown that we had to set them with large cranes.

In stylistic terms, we employed an Asian approach to the planting program – large green areas set off by splashes of color – in carefully placing a variety of Tasmanian tree ferns, Japanese boxwoods, ivy, Birds of Paradise, various Impatiens, Bougainvillea and many other species.

As tempting as it was for practical and/or aesthetic reasons, we stayed away from more contemporary plants such as Flax – very popular today but virtually unused in landscape designs early in the 20th Century. And not only did we search for mature plantings on this project (a process that led me to just about every nursery in southern California), but I also placed a premium on locating “distorted” plants that could be used to wrap around corners or serve as overhangs for certain areas.

As a result of the boundaries we placed on our plant possibilities, what we ended up with is uniformly simple and subtle – a discipline we also observed with the hardscape.

In the courtyard, for example, the flagstone decking is Bucksin, a sandstone that features subtle beiges, golds, browns and creams. In addition to using this material for flat surfaces, we also stacked it as ledger for walls and other vertical elements and milled it into tiles for several porch areas.

The Distresser's Art

Once you move through the house, the backyard offers a variety of spaces, from the main lawn area and the pool area to a variety of small garden areas, decks and verandas. In these more open spaces, the materials and plantings we used were more varied than was the case in the tight visual confines of the entry courtyard.

We used a great deal of used brick and other masonry materials that looked authentically old. In some areas, however, we had to set up areas of poured concrete and then deliberately distressed them. In one spot, for instance, we let the concrete set and then hit it with a sledgehammer to give it some cracks and an obvious appearance of age. In high-traffic areas in particular, we inflicted even more damage for the sake of authenticity.

We matched all the care we put into “aging” the green and hardscape portions of the project with our attention to woodwork and carpentry. Again and again, we made new wood look old using such tricks as scorching the wood with torches and soldering irons or hitting it with motorcycle chains. We also used a range of staining and coloring techniques, or we might paint pieces, sandblast them to remove most of the paint, then place portions of the wood in liquid to create manageable amounts of water damage.

Throughout this period, I spent hours scouring lumber yards, masonry supply houses and architectural salvage companies for old or discarded pieces of architectural woodwork



HIDDEN RESOURCES: A key element in the overall courtyard plan was creative reconstruction of a small wall fountain we found on site. We dressed the original up with some classic hand-painted tile (F), then surrounded it with mature plantings to obscure the source of the gentle noises of the flowing water (G). Those who seek out the source are rewarded by “discovering” this scene.



SET DESIGN: As we worked on this project, we became conscious of the fact that much of what we were doing was not dissimilar from what set designers do for theatrical productions. From the courtyard to this patio (H), which sets up a view of city lights through a proscenium arch, we aimed at controlling moods, establishing distinctive vantage points and finding the drama in each and every space. And where distant views weren't available, we used riots of color to achieve similarly dramatic effects (I).



or stone we might use. This was particularly important with the wood, because it's virtually impossible with new wood to create convincing patterns of wear and the patina that come with years of use.

Even the more decorative elements came in for what might seem some fairly harsh treatment. All told, we brought in more than 500 new terra cotta pots and spent hours with each one to make them all look old and worn. We'd daub areas with white thinset, for example, then put green thinset over that and come back later with chemical stains in various colors.

There was so much to do with these pots that we even set up "assembly lines" where three or four people would apply the various treatments to the pots – and we would change roles on the line at regular intervals to avoid the occurrence of repeated patterns. We'd also chip the pots, always differently.

Some would be badly damaged in the process while others would be touched hardly at all. A few of the pots were completely destroyed, but many of these were repaired with tie-wire buried in cement. Interestingly, these appeared to be the most authentic of all our "aged" pottery.

Then there was the pool, which is a story unto itself.

The Pool Saga

As is often the case with old, high-end properties in places such as southern California, this one had an old swimming pool that had become a true eyesore. It had an odd shape somewhere on the spectrum between geometric and free form, and the owner originally decided to get rid of it.

So we cut off the bond beam, punched huge holes in the shell and filled it with a suitable backfill by way of preparing the space for the addition of a new pool that would be cantilevered out over the hillside and supported by a series of deep structural piles.

The pool we'd envisioned was both dramatic and technically difficult, and at the time I felt I was getting in over my head with this part of the project. As I considered alternatives, I came across a copy of *Architectural Digest* that featured a cover shot of a John Lautner home and its elegant pool. I decided then and there that I wanted the builder of that project to work on mine – and that's how I met David Tisherman.

He reviewed my plans, the structural design and soils report and offered a price and timeline for construction – approximately \$250,000 on a nine-month schedule. The price didn't faze my client, and despite the fact that he was displeased by the proposed project duration, he kept on moving in this direction and I went to pull the permits.

That very day, however, the client called and said that he'd decided to scale back the swimming pool plan for two primary reasons: First, the sort of elaborate pool we were considering was unheard of in the 1930s and would be out of character with the rest of the project; second, he *really* didn't want to wait nine months to go swimming.

Instead, and much to my amazement, he asked me to re-excavate the existing pool and rebuild it in the original shape and location, a process that would take about a third the time





INSTANT ANTIQUITY: This project took us well beyond what would be considered landscape design or watershaping, and that's particularly evident in the work we did to make everything we did seem as though it had been on the property since the 1920s. The pottery, for example, was all worked over in a variety of ways to give it a well-worn patina (J, K, L), and the same was true for garden furnishings (M) as well as woodwork (N).

the hillside pool would've required at far less expense. So we pulled all the dirt out of the old pool and set to the work of rebuilding it.

By the time we started our renovation, all that was useable were portions of the vertical walls and very limited sections of the floor. We tied everything together with a new steel cage and completely re-shot the shell. We also set up a brand-new subterranean equipment vault, all-new hydraulics and a loveseat.

Here as everywhere else, we strove for visual simplicity, using a squared, cantilevered decking as the edge treatment, traditional white plaster and a simple light- and dark-blue glass tessera tile. And in fact, the pool looks like it was built circa 1929, no doubt about it. (A year or so later, the client contacted me about upgrading the plain tile; we eventually did so with some beautiful, custom, hand-painted Catalina tile.)

Playful Solutions

The one significant addition to the original pool was a 30-foot-long, stacked-stone "weeping wall" that rises above the pool on the upslope side. We set up pockets behind the ledgered stone veneer, leaving the back of the stone open so that water could well up behind it. As the stones were mortared into place, I used a small skewer to poke dozens of tiny holes in the mortar that would allow water to weep out over the face of the stones.

This waterfeature was simple to do, and it works like a charm. The flow seems to emerge from nowhere, constantly wetting the stones and lending a gentle auditory element to the area, and it all fits because we used the same stone colors in a retaining wall that surrounds the pool area. To make all this stonework look old, I went to the effort of putting buttermilk in the cracks of the stones to encourage the growth of mold, moss and fungus.

As successful as this project proved to be, however, the story has a sad ending – one that ironically speaks to how well we pulled off the illusion that the place had been appointed with 1929-vintage plants and materials: When the house changed hands in the late 1990s, the actress who bought it immediately began "rehabbing" all the things that looked old and timeworn – including much of our all-new but old-looking hardscape, woodwork and plantings.

I had one occasion to visit the site after she bought it and had begun her campaign of depriving the place of its charm by obliterating period frescos on interior walls, for example, and painting over the carefully distressed gates and exposed beams. It was a devastating visit, because I was familiar with every shred of work that was being destroyed. In fact, the photos you see here are basically all that remains of the work we did.

For all that, I still took away a wealth of knowledge – and an attitude and approach to design and watershaping that has informed almost everything I've done since. In that sense, this project will always live in my heart and memory as a true classic.



The *Cima* Connection

It's no stretch to say that the work I did on this project in Bel Air, Calif., has led me to bigger and better things.

The work I did on this vintage home was perfect preparation – both creatively and with respect to the drive and dedication required to do such all-encompassing, all-consuming work – for the project I completed for this same client at *Cima del Mundo* in Montecito, Calif., a few years later. (For information on that project, see *WaterShapes*, January/February 2001, page 32; March 2002, page 30; and July/August 2002, page 56.)

More than that, however, the awareness this project gave me of the potential of approaching and managing landscapes and watershapes as elements of theatrical design has proved invaluable in all the work I've done since and has deepened my appreciation of how an infinite variety of small details make big projects hang together and work in aesthetic terms.

—M.H.



RETHINKING THE POOL: With our original marching orders, we did an excellent job of robbing the pool of any ability to hold water (Q). But a change in direction saw us dig it back out and prepare it for restoration as a shell (P) and eventual refilling (Q). A key feature of the new pool is a weeping wall we set up on the long side of the vessel (R).



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:

6	Advanced Aquaculture Systems (pg. 32)
2	Air-O-Lator (pg. 20)
121	Aqua Show (pg. 21)
3	Aquamatic Cover Systems (pg. 3)
7	Artistry in Mosaics (pg. 62)
119	ASLA Expo (pg. 27)
21	Cemrock Landscapes (pg. 16)
27	Color Match Pool Fittings (pg. 22)
8	Cover-Pools (pg. 67)
11	Coverstar (pg. 33)
26	Dura Plastic Products (pg. 24)
43	Eco-Matic Salt Water Systems (pg. 63)
122	Firestone Building Products (pg. 12)
108	Florentine Craftsmen (pg. 63)
16	Genesis 3 Schools (pg. 61)
	Gilderfluke & Co. (pg. 64)
109	HVK & Sons (pg. 60)
12	International Pool & Spa Expo (pg. 45)
96	Jandy (Water Pik Technologies) (pg. 29)
63	Macalite Equipment (pg. 30)
31	Manufacturers Marketing Group (pg. 62)
83	markUrban (pg. 23)
57	Meyco Products (pg. 15)
84	Modern Pool Systems (pg. 47)
29	Nathan Kimmel Co. (pg. 64)
4	National Pool Tile (pg. 7)
38	NSPI Region 3 (pg. 59)
85	Paramount Pool & Spa Systems (pg. 13)
58	Pem Fountains (pg. 19)
49	Pentair Pool Products (pg. 68)
30	Pool Cover Specialists (pg. 9)
45	PoolFog (pg. 22)
51	Regal Plastics (pg. 47)
48	Roman Fountains (pg. 11)
67	Roman Fountains (pg. 64)
35	Spray Force Mfg. (pg. 14)
42	Standard Bronze (pg. 65)
52	Stegmeier Corp. (pg. 17)

105	StoneCare (pg. 26)
111	Stone Ventures (pg. 65)
39	System Dynamics (pg. 8)
65	United Elchem Industries (pg. 60)
102	Waltzing Waters (pg. 25)
56	Waterway Plastics (pg. 2)

OF INTEREST INDEX:

125	Surving Studios (pg. 60)
126	Praher (pg. 60)
127	Aqua Ultraviolet (pg. 60)
128	Architectural Area Lighting (pg. 60)
129	Valterra Products (pg. 62)
130	Lumière/Cooper Lighting (pg. 62)
131	TimberTech (pg. 62)
132	Magnum Pumps (pg. 62)
133	Coronado Stone (pg. 63)
134	Prospec Electronics (pg. 63)
135	Seamco Laboratories (pg. 63)
136	Northrock Industries (pg. 63)
137	Ruud Lighting (pg. 64)
138	Aeromix Systems (pg. 64)
139	Feeney Wire Rope (pg. 64)
140	Intermatic (pg. 65)
141	Greenscreen (pg. 65)
142	Napoleon (pg. 65)
143	Haddonstone (pg. 65)

Conference & Exhibition



Hooray for

HOLLYWOOD

REGION III NSPI

FEB. 20 - 21, 2004
HOUSTON, TEXAS

for an invitation to exhibit
call: 800.548.6774
out of region: 505.293.0113
limited space available
www.nspiregion3.org



Pentair
Pool Products™

Jandy

SCP

Circle 38 on Postage Free Card

SUNSET POOLS



KATY, TX

BURTON CONSTRUCTION



FORT SMITH, AR

LAMBERT GARDENS



DALLAS, TX

putting on the ritz
bringing back
the glitz

SANDLER POOLS



PLANO, TX

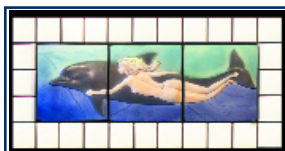
TEXAS POOLS



THE WOODLANDS, TX

HANDMADE TILES

Circle 125 on Reader Service Card



SURVIVING STUDIOS offers handmade, porcelain relief tiles. Designed to accent any location or installation indoors or out, the tiles are ideally suited to applications with pools, spas and other garden watershapes. The tiles are nominally sized in 2-, 4- and 6-inch squares for easy combination with any other tile, glass or stone products or the company's own animals, trims, borders, blanks and fillers. **Surviving Studios**, Middletown, NY.

MECHANICAL/BIOLOGICAL FILTER

Circle 127 on Reader Service Card



AQUA ULTRAVIOLET offers Ultima II, a biological/mechanical filtration system designed for use on ponds from 1,000 up to 200,000 gallons with heavy fish loads. The lightweight media is set up to operate at high flow rates, takes minutes to backwash and is seeded with natural bacteria. The unique media configuration protects bacteria while allowing unwanted debris to be dislodged. **Aqua Ultraviolet**, Temecula, CA.

PVC CHECK VALVES

Circle 126 on Reader Service Card



PRAHER offers single-union-type PVC check valves in 1-1/2 and 2-inch diameters. The valves can be used at pressures up to 145 psi and are designed to provide maintenance-free back-flow prevention with minimum head loss at multiple spring loads (between 1/4 and 5 pounds). They also feature stainless steel springs, EPDM O-rings and seals, a raised-radius valve seat and full serviceability. **Praher**, Barrie, Ontario, Canada.

MULTI-FUNCTION LIGHTING

Circle 128 on Reader Service Card



ARCHITECTURAL AREA LIGHTING has introduced Cypher, a lighting fixture that uses an innovative reflector/refractor optical system to provide smooth, even illumination for floodlighting as well as indirect-lighting applications. The design allows the fixture to be mounted in any orientation while addressing the full range of lighting tasks for interior and exterior applications. **Architectural Area Lighting**, La Mirada, CA.

Continued on page 62

Warm Outdoor Entertainment All Year 'Round

HVK & SONS
Fireplaces & Garden Grills

(A01) Scottsdale (A09) California
(A02) Tahoe (A04) Sedona
(A03) Tahoe (A07) Old Mesita
(A05) Santa Fe

- Can be used as a grill or fireplace • Approx. 48" wide X 30" deep X 78" tall
- Units average weight 1200 lbs • Made of reinforced concrete & quartz
- Excellent for patios & reinforced decks • Comes with grill, grate & ash box
- 8 models available • Easy to assemble • Soon available for gas operation!

For more information please call toll-free:
888-883-5232

or visit our web-site: www.hvkandsonsinc.com
—Dealer inquiries welcome

Circle 109 on Postage Free Card

NEW PRODUCTS

FROM THE MAKERS OF POOL-TITE

MEDIUM BODY, BLUE PROFESSIONAL GRADE CEMENT SUITABLE FOR PVC PIPE AND FITTINGS UP TO 6" DIAMETER

CUTTING OILS, TEFLON TAPE, TEST CAPS AND TEST PLUGS ALSO AVAILABLE

GRIT FREE, HIGH PERFORMANCE THREAD SEALANT FOR ALL PLASTIC AND METAL PIPES

ANTI-BACTERIAL, READY-TO-USE CLEANING TOWELS

HARDENS LIKE STEEL IN MINUTES!

CALL NOW TO FIND OUT ABOUT THESE AND MANY MORE PRODUCTS AND DON'T FORGET TO ASK ABOUT OUR SPECIALS!

United Elchem Industries Division of Oatey®
11535 Reeder Road • Dallas, TX 75229
Phone: 972-241-6601 • Toll Free: 888-671-7886 • FAX: 888-697-1974

Circle 65 on Postage Free Card

HOW GOOD DO YOU WANT TO BE?



GENESIS 3 LEVEL I DESIGN SCHOOL November 12-16, 2003 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 LEVEL II DESIGN SCHOOL November 17-20, 2003 Morro Bay, California

A must for serious watershape designers and builders.

CURRICULUM HIGHLIGHTS:

- Reading Blueprints & Understanding Architectural Nomenclature
- Outdoor Lighting Design - by Janet Lenox Moyer
- Architecture in Watershape Environments, by Helena Arahuete, Lautner Associates - Helena Arahuete Architects
- Concrete Finishes - by L.M. Scofield
- An Introduction to Feng Shui by a Feng Shui Master
- Introduction to Water Gardens & Ponds, by Anthony Archer-Wills

ADVANCED
LEVEL DRAWING
SCHOOL
SCHEDULED FOR
JANUARY 2004!

GENESIS **3** DESIGN GROUP

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

(805) 238-9855 / Toll Free VM: (877) 513-5800 / FAX: (805) 238-9856 / www.genesis3.com / heather@genesis3.com

Genesis 3 is proudly sponsored by Jandy, Pentair, Aquamatic, Pebbletec, Sta-Rite, SonarGuard, AutoPilot/AquaCal, Crystal Fountains and WaterShapes.

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

Circle 16 on Postage Free Card

PIPE EXTENDERS

Circle 129 on Reader Service Card



VALTERRA PRODUCTS offers pipe extenders for use in repairing any glued plumbing joint. Effective and easy to use, the fittings provide permanent, invisible repairs without replacement of long sections of pipe. All you do is cut the defective valve or fitting from the system, remove it and install the extender, which is available in sizes ranging from 1/2 to 2-1/2 inches IPS. **Valterra Products**, Mission Hills, CA.

AREA AND ACCENT LIGHTING

Circle 130 on Reader Service Card

LUMIERE/COOPER LIGHTING introduces the Monaco Series of area and accent fixtures. Using the latest lamp technology, the ultra-small outdoor luminaires offer design flexibility and can easily be hidden from view. The fixtures come in five standard colors, offer fully adjustable beam spreads lockable from narrow spot to wide flood, and are made of a corrosion-resistant aluminum alloy. **Lumière/Cooper Lighting**, Peachtree City, GA.



DECKING HANDBOOK

Circle 131 on Reader Service Card



TIMBERTECH has published a technical handbook on its line of engineered decking products. The 32-page booklet includes information on availability of the company's wood fiber/plastic resin composite material, installation instructions and details on the product's physical properties – from its non-skid, splinter-free, cool-to-the-touch surface to its fade-resistant coloration. **TimberTech**, Wilmington, OH.

CONCRETE PUMPS

Circle 132 on Reader Service Card

MAGNUM PUMPS offers the MightyMag line of concrete pumps. Designed to pump a wider range of materials at higher pressures than other pumps, the three models feature swing-valve design, instant-reverse pumping, remote-control operation and engine choice – gas, diesel, electric or propane. The unit's hydraulics can also be piggybacked for use with mixers and other tools. **Magnum Pumps**, West Chester, OH.



imagine...

our quality handcrafted ceramic mosaic tile designs add character and life to VIRTUALLY any pool... Visit our website or call for an interactive Product CD to layout your customer's virtual dream pool!

Artistry in Mosaics Inc.

Toll Free: 877-777-1393
www.artistryinmosaics.com

28 new designs for 2003

Circle 7 on Postage Free Card

MMG

WHOLESALE DISTRIBUTION FOUNTAIN COMPONENTS
INSTALLATION SERVICES FLOATING FOUNTAINS
DESIGN ENGINEERING WATER SLIDES

SUBTERRANEAN EQUIPMENT ENCLOSURES **NEW**

- Heavy Duty Construction
- Reinforced Fiberglass w/ Sump
- Stainless Steel Hardware
- Gas Springs
- Lockable Lid
- Forced Air Ventilation
- Steel Support Legs
- Sizes from 2'x2'x2' to 6'x8'x6'

AVAILABLE EMPTY OR FULLY EQUIPPED

MMG is a full service company that provides the highest quality products, services, and support to architects, engineers, and contractors in the aquatics industry. With over 26 years experience, MMG will become a valuable asset to your organization. Make MMG part of your team, contact us today.

www.mmgfountainsplus.com
tel: 561.737.1613 • fax: 561.737.1830

Circle 31 on Postage Free Card

PRE-CAST ARCHITECTURAL STONE

Circle 133 on Reader Service Card



Coronado Stone, Fontana, CA.

CORONADO STONE has added Euro Villa Stone to its Villa Stone Series. Designed to reproduce the look of classic European stonework, the lightweight, pre-cast material can be used in a variety of interior and exterior applications for both residential and commercial installations. Durable enough to withstand the tests of time and Mother Nature, the stone installs quickly and easily.

DECKING SYSTEM

Circle 135 on Reader Service Card



SEAMCO LABORATORIES manufactures Stone Bond, an epoxy system designed for use in creating patios, driveways, walkways, pool decks, steps and planters. Combined with seashells or natural pebbles, the epoxy offers surfaces suited to both residential and commercial applications that are tough, durable and stain- and crack-resistant – and that can be customized to suit a client's desires. **Seamco Laboratories**, Tampa, FL.

SEAMCO LABORATORIES manufactures Stone Bond, an epoxy system designed for use in creating patios, driveways, walkways, pool decks, steps and planters. Combined with seashells or natural pebbles, the epoxy offers surfaces suited to both residential and commercial applications that are tough, durable and stain- and crack-resistant – and that can be customized to suit a client's desires. **Seamco Laboratories**, Tampa, FL.

SOUND SYSTEMS FOR POOL AND SPAS

Circle 134 on Reader Service Card



PROSPEG ELECTRONICS supplies AM/FM receivers, CD players, speakers, wired remotes and amplifiers designed, built and marine-tested to provide home-quality sound under harsh, wet conditions. Offered with five-year warranties, the units' key components are encapsulated for resistance to moisture, bromine and chlorine, and all exposed components are UV- and water-resistant. **Prospeg Electronics**, Mt. Pleasant, SC.

POWER SCREED

Circle 136 on Reader Service Card



NORTHROCK INDUSTRIES has introduced a new line of concrete power screeds. Designed for use with new pours or for repair work, the devices provide rapid consolidation of concrete decking while improving both the quality and flatness of the finished surface. Blades come in 4- to 14-foot lengths for one-person and 16- to 22-foot lengths for two-person operation. **Northrock Industries**, Medford, NY.

Continued on page 64

WATER FEATURES

and much, much more. . .





From the elegant to the whimsical, Florentine Craftsmen, Inc. hand-crafts the finest garden ornaments, statuary, fountains, furniture and more. We only use quality materials including lead, bronze, aluminum and stone. Call or write for our 48-page illustrated catalog, or visit our web site, www.florentinecraftsmen.com.



FLORENTINE CRAFTSMEN, Inc.

46-24 28th St., Dept. WS
Long Island City, NY 11101
Phone 718-937-7632 • Fax 718-937-9858

Circle 108 on Postage Free Card

The Natural Solution for PROFITS

- Most Reliable Salt Chlorinator Available
- Superior Dealer Support
- Highest Customer Satisfaction
- 5-Year Limited Warranty
- Special Try-Me Offer

Eco-MATIC offers pool and spa users natural healthy benefits of swimming in crystal clear mild salt water – without the need to add "bottled chlorine", algaecides and "shock" chemicals! Sold worldwide since 1975, Eco-MATIC specializes in in-line salt water systems from spa- to commercial-sized units with easy-clean or self-clean cells.



Eco-MATIC

800.662.4364 • www.ecomatic.com

The "Natural Solution" for Pools and Spas

Circle 43 on Postage Free Card

DIRECTIONAL LIGHTING

Circle 137 on Reader Service Card



RUUD LIGHTING has upgraded its Directional Flood (DF) Series with a new top housing cover and gasketing as well as new lens gasketing, all of which increases the fixtures' resistance to the elements. Featuring a contemporary look, die-cast aluminum construction and flexible light-distribution capabilities, the series' four housing sizes accommodate a variety of lamp types and voltages. **Ruud Lighting**, Racine, WI.



VISIT OUR WEB SITE:
www.gilderfluke.com

Gilderfluke

- MP3 Player
- Show Control Systems
- Sound Systems
- Animation

205 S. Flower Street
Burbank, California 91502
818.840.9484
800.776.5972
Fax: 818.840.9485

East Coast/Florida Office
7041 Grand National Dr., Suite 128d
Orlando, FL 32819
407.354.5954
Fax: 407.354.5955

AERATORS FOR PONDS AND LAKES

Circle 138 on Reader Service Card

AEROMIX SYSTEMS has released the AquaTornado II, a surface aspirating aerator for ponds and lakes. The new version features a larger-diameter stationary draft tube and a larger propeller that combine for more efficient water movement and mixing as well as superior oxygen transfer. The action of the self-contained device occurs just below the surface, reducing odors and preventing ice build-up. **Aeromix Systems**, Minneapolis, MN.



CABLE RAILING SYSTEMS

Circle 139 on Reader Service Card

FEENEY WIRE ROPE has published literature on its Cable-Rail system. The 24-page, full-color brochure covers standard 1/8-inch cable assemblies with information on design requirements, options, hardware, details and instructions for wood and steel construction; custom systems and hardware for railings, trellises, canopies and fences; and ready-to-install aluminum railing systems. **Feeney Wire Rope**, Oakland, CA.



Roman Fountains Trident Nozzle® Three Heads Are Better Than One!



3Tier

Jet Cluster

Crown Jet

The **RTN-075-X3 Trident Nozzle®** is a unique and cost effective precision brass nozzle that produces three classic spray patterns (jet cluster, three tier and crown jet) with just a quick change of the top!

"IN STOCK FOR IMMEDIATE DELIVERY!"

**Affordable Fountain Products Direct From
ROMAN FOUNTAINS CORPORATION
America's Fountain Company!™
1-800-794-1801 www.romanfountains.com**

Circle 67 on Postage Free Card



1213 Santa Fe Avenue • Los Angeles, California • 90021

POOL PLASTERER'S DISCOUNT PLACE

IF WE DON'T HAVE IT,
WE'LL GET IT FOR YOU FAST!!!

800-421-0005

www.nathankimmel.com

- | | |
|-------------------------|-------------------|
| • Machine Parts | • Tan Hoses |
| • New and Used Machines | • Poly Sheeting |
| • Trowels | • Gunite Shoes |
| • Hose Fittings | • Boots |
| • Nozzles | • Gloves |
| • Safety Items | • Custom Supplies |
| • Tapes | • Much, Much More |

**Discount Pricing
Same Day In Stock Shipping!**

Circle 29 on Postage Free Card

CONTROLS FOR TWO-SPEED PUMPS

Circle 140 on Reader Service Card



INTERMATIC offers a control system designed to exploit the full capabilities of two-speed pumps. The device's all-weather, galvanized-steel enclosure contains two heavy-duty time switches that allow for separate timing of motor operations for system efficiency, energy savings, extended equipment life and low maintenance. The flexible enclosure also allows for system expansion. **Intermatic**, Spring Grove, IL.

VERTICAL LANDSCAPING PANELS

Circle 141 on Reader Service Card



GREENSCREEN offers 3-D wire panels in various configurations for a wide range of trellising, fencing and other vertical landscape applications. Designed for use in separating or enclosing spaces, the panels combine with evergreen or flowering vines to form living walls for privacy, security, spatial definition and anti-graffiti treatment. Mobile panels are available for applications where flexibility is desired. **Greenscreen**, Los Angeles, CA.

OUTDOOR GRILLS

Circle 142 on Reader Service Card



NAPOLEON offers literature on the Oasis Series of built-in outdoor grills and entertainment islands. The four-page, full-color brochure covers standard features of the grill heads and a full range of available options, including sinks, side burners, refrigerators, sound systems and waste receptacles. All products are available in cart-mounted configurations but can be permanently installed. **Napoleon**, Barrie, Ontario, Canada.

GARDEN ORNAMENTS

Circle 143 on Reader Service Card



HADDONSTONE has published a catalog covering The Collection, a complete line of garden ornaments as well as interior details and architectural stonework. The 142-page, full-color book offers a comprehensive, illustrated product guide along with technical specifications, information on materials of construction, technical support, the company's custom-fabrication services and much more. **Haddonstone**, Bellmawr, NJ.

THE WORKAHOLICS
Vac heads-65 years old plus
and STILL CLEANING POOLS!

"COLOSSUS" 8900
71 lbs.

COMBINATION TOW OR HAND MODEL

TRITAN 7500 24"

Tow-Model 30" Size

47 lbs.

TUEC

"TOW-MASTER" 7300

CAST BRONZE

"OLYMPIC" Dual-Model 7100

26 lbs.

24" Dual-Model

18" Size

HEAVY DUTY HANDLES FOR THE INSTITUTIONAL POOL

Stainless Steel in 6'-8'-10'-12'-16' Lengths.

Send for our catalog now

STANDARD BRONZE COMPANY
West 5th Street *Atlantic* Bayonne, N.J. 07002
Phone (201) 339-1351-2

Circle 42 on Postage Free Card

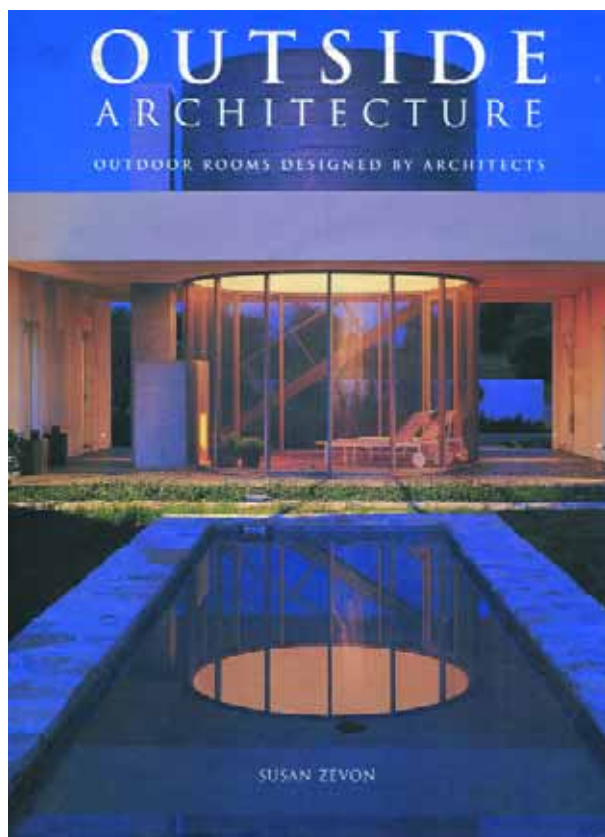
Stone Ventures, Inc.
"The Natural Choice"

For the best in natural stone travertine coping, pool tile and stone decks.

Dallas, Texas
Toll Free (866) 319-5650

Ancient Gris Oro Scabos

Circle 111 on Postage Free Card



Exterior Collaborations

Amazing things can happen when great architects think beyond the walls and tackle exterior design as part of their projects. That's a message that comes through loud and clear and repeatedly in Susan Zevon's *Outside Architecture* (Rockport Publishers, 1999).

Throughout the book's 190 generously illustrated pages, she covers the work of 18 architects – using multiple examples from each while focusing not so much on individual projects but rather on key features, styles and design philosophies that cut across the range of the fine work on display. About 90% of the projects are residential and range stylistically from classic to modern at locations scattered across the United States and Mexico.

Nearly all of the architects were new to me, an exception being Ricardo Legoretta. There's a wonderful passage describing a meeting between Legoretta and fellow architect and collaborator Luis Barragan (who's not featured) during which Barragan challenges Legoretta to think more about exterior space. As explained in the text, Legoretta went on to create fantastically innovative exteriors, almost all of which include some form of water. (I'm particularly intrigued by Legoretta's use of cobble in shallow reflecting pools.)

Of the architects I didn't recognize, I was most inspired by the work of the southern California firm of Moore Ruble & Yudell. If you decide

I FIND A POWERFUL AND PROFOUND POINT HERE ABOUT BREAKING OUT OF CREATIVE ISOLATION AND FINDING OPPORTUNITIES IN COLLABORATION.

to pick up this book, don't miss the firm's extraordinary Pacific Palisades project – one of the most beautiful exercises in classic Spanish Colonial style I've ever seen.

Each of the book's sections begins with introductory text describing the work and the design philosophy of the individual architect or firm being discussed and then proceeds through images and descriptions of various projects. There's always a helpful focus on drawing connections from site to site, and it's worth noting that swimming pools in a variety of styles and settings are prominent in the majority of these projects.

On that level, Zevon's book is a terrific source of ideas for watershapers, especially those in the residential pool market. There are also scores of beautiful details in the form of exterior walls, shade structures, screens, pathways, patios, planted areas and entertainment areas. Many of the projects also include fountains and other small waterfeatures, but it was somewhat disappointing that streams, ponds and cascades are not represented at all.

The most powerful portions of the book were those having to do with collaboration. This is, essentially, a book about architects stepping beyond the walls and designing exteriors, and many of the discussions centered on cooperative efforts between the principle architects and landscape architects, designers or contractors. In seeing such beautiful work and learning that the projects could not have been completed without joint effort, I find a powerful and profound point here about breaking out of creative isolation and finding the opportunities that come through working with other knowledgeable people.

On that front, I found Zevon's profiles inspiring and am now more fully convinced of the value and potential benefits of my working, as a watershaper, with architects, landscape architects and landscape contractors. When you combine that sort of inspiration with a large set of ideas vividly on display, Zevon offers a resource well worth careful reading – and a spot on your bookshelf. **WS**

Mike Farley is a landscape architect with 20 years of experience and is currently a design/project manager working in Texas. He holds a degree in landscape architecture from Texas Tech University and has worked as a watershaper in both California and Texas.



*undertrack freeform
water features
vinyl
concrete
fiberglass
vanishing edge
walk-on lid systems
deck on deck*

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



SAFETY COVERS REDUCE THE RISK OF
DROWNING AND CAN SAVE UP TO 70% ON
WATER, HEAT, AND OPERATING COSTS.

The ultimate pool deserves the ultimate safety pool
cover—a **SAVE-T®** pool cover by Cover-Pools. Our
full range of custom applications
complements whatever design you
create. **Call today or visit our
website and photo gallery for ideas
about how you can protect families and their pools.**



Save-T® Pool Covers

Circle 8 on Postage Free Card

1-800-447-2838

www.coverpools.com

Pentair Pool Products —

*The Commercial Products
to Clean, Pump and Heat
Your Large Water Applications*

Water application architects and engineers prefer Pentair Pool Products. Recognized for efficiency, dependability and environmental awareness, Pentair Pool Products is one of the world's only full-line product manufacturers and suppliers, offering filters, pumps and heaters for any large water project.

Whether you are tasked with designing a spectacular dream pool for a home, or building a large, exterior water environment, Pentair has the products for any sizeable water construction you can envision.

Enjoy the Water



THS Filter



Triton Filter



C Series Pump



MiniMax Heater

Circle 49 on Postage Free Card



Pentair
Pool Products

Because *reliability* matters most

1 - 8 0 0 - 8 3 1 - 7 1 3 3
www.pentairpool.com