

Inside: Brian Van Bower on Costs and Prices

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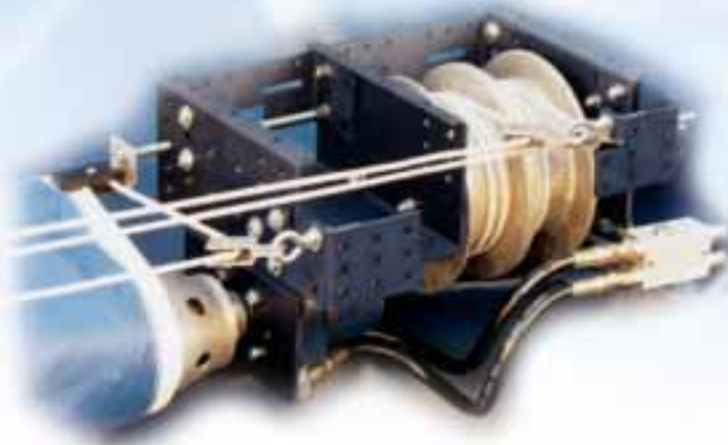
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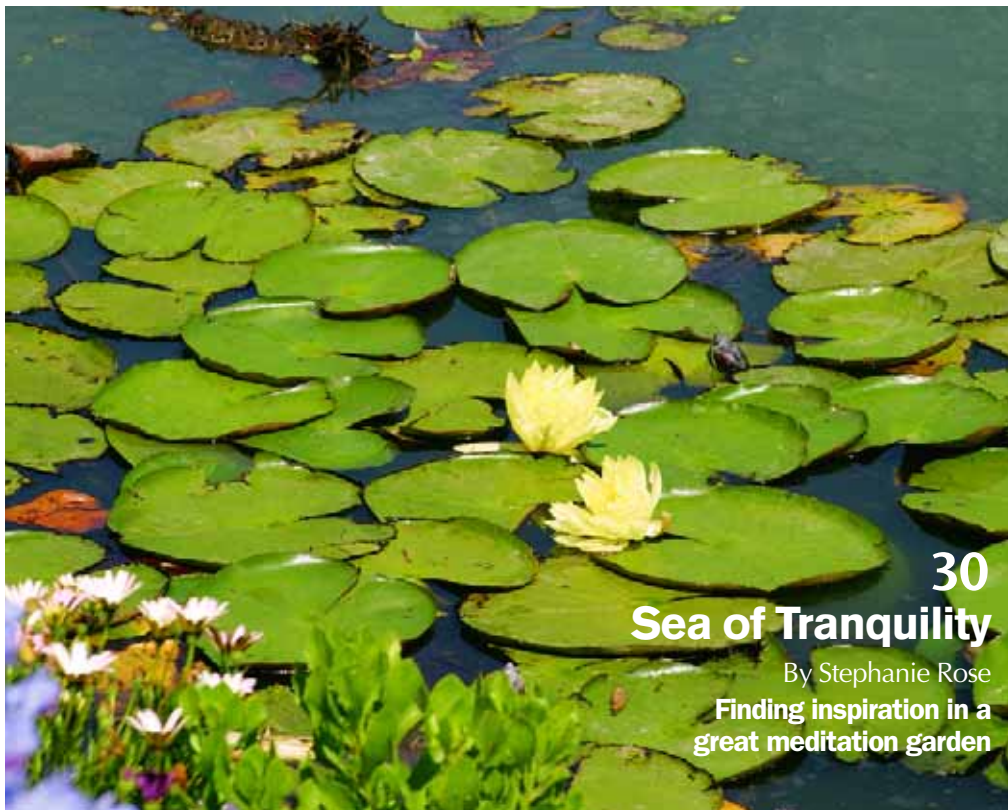
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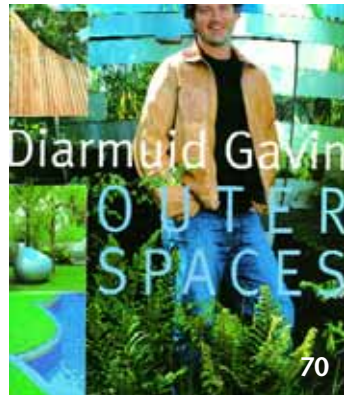
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On the cover:

Photo by Eric Figge, Eric Figge Photography, Irvine, Calif.

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Seeing and Believing

One of the most interesting things about running *WaterShapes* has been the opportunities I've had to get out and see projects, both in process and finished.

Through the years, I've been treated to tours by watershapers including David Tisherman, William Rowley, Skip Phillips, George Forni, Ken Alperstein, Randy Beard, Mark Holden, Ron Lacher, Melanie Jauregui, Mario Abaldo and Ron and Suzanne Dirsmith, among many, many others.

Not only are these visits terrific fun and time well spent, but they are also amazingly informative: There's no substitute for seeing the work up close and in person to enable an observer to grasp the vision, creativity, skill and pride that the best and brightest in the trade bring to the table. Indeed, it's humbling to stand in the company of these artists and absorb their insights into the nuances of their work.

These brief road trips, in fact, continuously reinforce my sense of how dynamic and diverse the watershaping trades are becoming.

Just recently, I was invited to visit job sites with our "Natural Companions" columnist, Stephanie Rose. I could go on at quite some length about what I saw, her skill as a designer, her deft touch in working with clients and the diligence she brings to project management. What impressed me most, however, were the insights she shared into the creative process she applies in everything from small spaces to vast outdoor canvases.

The most dramatic example of vastness came in our stop at the Lake Shrine of the Self-Realization Fellowship. As she explains in what is, surprisingly, her first feature article for *WaterShapes* ("Sea of Tranquility," beginning on page 30 of this issue), Rose was asked to consult with the facility's staff about their program for upgrading and reworking a number of details among the Lake Shrine's various garden spaces.

As she reports, she'd passed by the site for years and never bothered to stop in – and I have to say that had been my experience as well. Little did I know that alongside one of the busiest streets in Los Angeles is a space of peace and repose that rivals any contemplative garden I've ever seen anywhere.

The entire space is organized around a lake, and every few steps around its perimeter present the visitor with different views of plants, animals, artwork and magnificent reflections across the surface of the quiet waters. I was struck by the simple beauty and encompassing tranquility – all achieved through the thoughtful application of water and landscaping.

Rose's detailed article, illustrated with photographs by *WaterShapes*' publisher Jim McCloskey, goes into detail about the site, its history and her involvement with the gardens, offering insights on watershaping, landscaping and the art of creating and transforming the human experience.

Similar transformations happen in all sorts of public and private spaces – in backyards, civic plazas, community aquatic facilities and especially in the rare spaces set aside for tranquility, peace and meditation. Speaking for myself, I felt invigorated and inspired by spending only part of an afternoon at the Lake Shrine. It was, in its own quiet way, a profound experience.

Not that I really needed convincing, but when you see a space such as this, it's enough to make even the most skeptical heart believe in the great healing power of water.

Eric Herman

Editor

Eric Herman — 714.449-1905

Associate Editor

Melissa Anderson Burress — 818.715-9776

Contributing Editors

Brian Van Bower David Tisherman
Stephanie Rose Mike Farley

Art Director

Rick Leddy

Production Manager

Robin Wilzbach — 818.783-3821

Circulation Manager

Simone Sanoian — 818.715-9776

National Sales Manager

Camma Barsily — 310.979-0335

Publisher

James McCloskey — 818.715-9776

Publishing Office

McCloskey Communications, Inc.

P.O. Box 306

Woodland Hills, CA 91365

Tel: 818.715-9776 • Fax: 818.715-9059

e-mail: main@watershapes.com

website: www.watershapes.com

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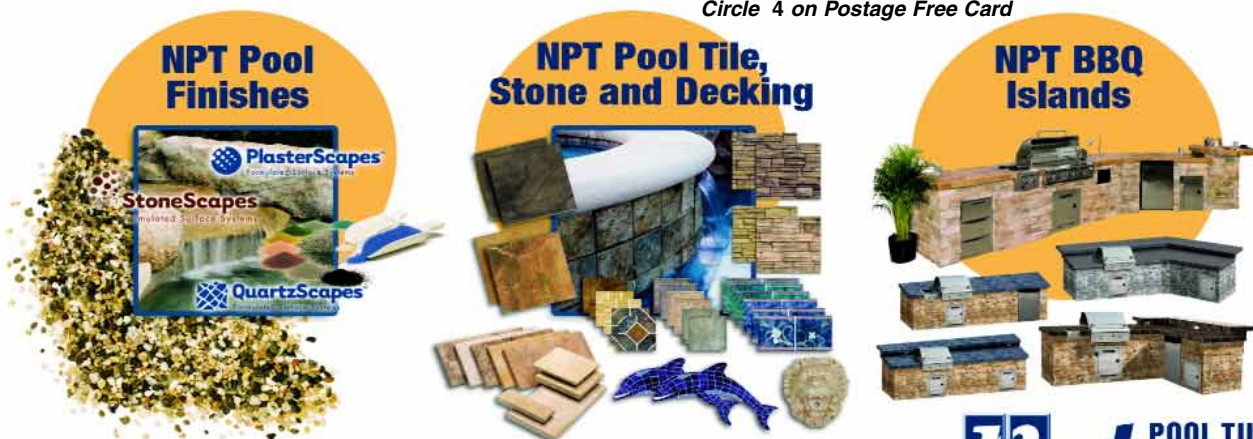
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Stephanie Rose runs Stephanie Rose Landscape Design in Encino, Calif. Once a New York securities analyst, she gave up Wall Street 15 years ago to pursue a career in landscape design – and has never looked back. Her firm specializes in residential gardens for upscale clients in the Los Angeles area, where the lengthy planting season and mild climate provide tremendous creative freedom and year-round work. Her projects frequently include collaborations with custom pool builders, a cross-disciplinary blending of perspectives and skills she sees as having profound potential for professionals on both sides of the relationship. Rose also can be seen as an ongoing participant in

episodes of “The Surprise Gardener” on HGTV.

Dennis Haase is the general manager of Tru Stone, the U.S. distributor for Tureks, a quarrying and stone-manufacturing firm with numerous facilities in Turkey. After graduating from Tulane University in New Orleans with a degree in business management in 1989, Haase pursued a career as a business consultant who specialized in reorganizing struggling companies. This activity brought him into contact with firms that distributed natural stone products and led him to join the stone industry. He began working with Tureks two years ago and now works closely with various architects, landscape architects and con-

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Michael Gardner is communications coordinator at Taylor Technologies, the Sparks, Md.-based manufacturer of water-testing products. He earned his bachelor's degree in English from Penn State University in 1997 and a master's in publication design from the University of Baltimore in 2002. He has contributed articles about water chemistry and testing to numerous trade publications; edits newsletters for several of the firm's major markets, including the pool/spa industry; and produces catalogs, fliers, and other technically oriented materials for water analysts.



Ken Alperstein is co-founder of Pinnacle Design, a golf-course architecture firm with offices in Palm Desert and San Diego, Calif. He is a 17-year veteran of the landscape-architecture industry and has specialized in golf-course landscaping since 1989. Alperstein and his partners, Ron Gregory and Bill Kortsch, founded Pinnacle to serve the highly specialized golf-course-design industry. The company's portfolio includes high-end championship golf courses, clubhouses and grounds throughout the Western United States – including several courses rated in the top 100 in the United States by *Golf Digest* and *Golf* magazines.

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By Brian Van Bower

The Mathway to Success



I've always been puzzled by people who look at money as a taboo topic. Within any form of business, of course, competitors are restricted by federal anti-trust laws from getting specific in discussions of pricing, overhead and profit margins. But it's always seemed to me that understanding those factors in broad, general terms (which *are* legally discussable, by the way) is at the core of the success of any business – especially in the world of contracting.

The reason pricing, overhead and margins are so critical is that they reflect your core values and those of your company with respect to both money and overall business philosophy. It's my informed view that too many contractors severely undervalue what they do and that those who do so will invariably benefit from taking a step back to look at how they can cost and price their work from a fresh perspective.

In this column, I'll set up some ground rules and touchstones for that exercise. The rest – that is, what you do with the information I'm about to offer – is up to you.

the big picture

It's a point that's been made in these pages many times through the years, but it applies directly to this discussion: If you find yourself treating water-

If you categorize what we do with watershapes as a head count of tons of steel, yards of concrete, feet of pipe, number of fittings and square footage of decking, you're not seeing the overall picture.

shapes as commodities in how you market and price the product, you may well be doomed to failure. In other words, if you categorize what we do with watershapes as a head count of tons of steel, yards of concrete, feet of pipe, number of fittings and square footage of decking, you're not seeing the overall picture.

Granted, it's easy to see things that way, especially for those who mistakenly believe that price is the single most important issue in the client's decision to buy. (Actually, price is much further down the list than most watershapers recognize.) And, worse, there's a misconception that price is generally the easiest thing to alter and trim. This is a slippery slope that leads to cut corners, unprofitable jobs and, ultimately, unhappy clients.

By contrast, when you view what you do as flowing from the concept of providing beauty and lifestyle enhancement, it informs everything you do, from the way you interact with the client to the manner in which you construct your price. At the most fundamental level, this "value-added" mindset lets you abandon the notion that garnering business must be a game of cutting your prices. Instead, you work with an understanding of, and insistence upon, what you need and deserve to make.

This point of view is all about having confidence in your own work and feeling entitled to make what you're worth. Until you make that transition, it will be difficult to see your way to pricing your work as more than the standard "time and material plus markup."

Given the right mindset, you must put in place a clear methodology for pricing that reflects value. That process begins with good take-offs.

Back when I was first working in construction, I had a partner who came from a general contracting background. For a long time, he made his living by estimating huge construction pro-

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jects and taking off the details of the job right down to the count of screws and hinges on the doors. When we started working together, he taught me to do that very thing on every single job – and then, when the job was finished, to go back and run the numbers again so that we could learn exactly what we were spending to get the job done.

taking off

That exercise emphasized the differences of each of our jobs, even among those that might have seemed similar to past projects when we started. Through the before-and-after take-off, we could see exactly where things changed and how if we didn't anticipate and accommodate those variables in the future, we'd be

shortchanging ourselves.

We were *thorough*: We'd count all the materials – all the steel, concrete, plumbing and fixtures, every valve and piece of tile, each skimmer, every piece of equipment and all the little parts and pieces that went into the project. To that we'd add the cost for plans, permitting, trenching, back-filling, supplying soil, hauling trash, pre-filtering the fill water, start-ups, customer instruction and everything else that had cost us a quarter either for time or materials.

In addition to all that, we calculated other factors that weren't so easily defined, such as warranty work. In our effort to be a top-flight firm, we wanted the freedom in our pricing structure to be able to do absolutely everything we had to do to make our clients happy. So we'd build in an anticipated (small) dollar amount for warranty work as a line item. We put that line in on every job (and we marked it up, too, which I'll discuss below). That meant that when something came up where the client needed or wanted something, we knew the money was there to cover the extra expense – and we were even making money on *that* work!

We didn't run into those costs on every job, of course, but in some cases the amount of warranty or extra work ran high, so in time it all balanced out. The benefits this had with respect to our mindset was just fantastic. Instead of dreading those calls and knowing what the requests would do to our bottom line, we were able to greet our clients' needs comfortably and enthusiastically.

In some cases, we also included a "miscellaneous" category as a line item (and marked it up as well) to add further to our comfort level. Bottom line: We'd include and mark up every single thing we could think of that went into the process from the point the clients gave us the go-ahead to the time they'd start floating in the water.

Add all of these things up and you have a number commonly referred to as the "cost of goods sold" (or COGS). When you have that fully and adequately estimated, then you can confidently add your mark-up to the project.

overhead projections

This mark-up is a key calculation. Indeed, every business owner should pe-

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periodically take the time to estimate all non-job-related costs that go into keeping the doors open, the lights on and the wheels turning. This includes a range of items such as office space, utilities, supplies, office furniture and equipment, support-staff salaries, travel, training and education costs, insurance, taxes, depreciation, association dues and entertainment.

Those costs should be tallied up and related to each job as a percentage. If, for example, your business does \$1 million in annual volume and it costs you \$120,000 to keep the doors open, then you know that your overhead is 12 percent. That means you need to clear that percentage with each and every job.

Overhead can vary substantially, of

course, depending on the size of your operation, its marketplace position, advertising and salaries. Overhead also varies greatly with volume, which is why it should be periodically recalculated to follow changes in direct costs.

Once you know your cost of goods sold and the overhead you need to clear, you run into the mysterious and wonderful world of *profit*. Every business is entitled and expected to earn a profit. *Gross profit* is the total receipts of a business minus the initial cost of goods sold but before deduction of operating expenses and taxes. *Net profit* is what's left after *all* expenses have been deducted from the gross amount.

Without profit, there's no reason to be in business. Those who continue without earning a profit are not only essentially working for a salary, but they carry the additional burdens and responsibilities of operating a business with no margin for error.

Exactly what your profit should be is a

Cost to Customers

As mentioned in the accompanying text, I've observed through the years that many watershapers operate under the false impression that clients see price as the most important of all factors in their purchasing decisions. In fact, I've seen some firms work themselves right out of jobs because they kept cutting the price and degrading the project to a point where the job moved along to another company.

Honestly, I think that if you explain everything that will be going into a project from start to finish and ask the customer to give their own estimation of what the price would be if they were doing the job, they'd often come up with a number that dwarfs the pricing we had developed.

There have been times when a client has questioned me on price. I'll tell them, flat out, "Given what's involved, this is exactly what we need to be paid." And I'll sometimes add, "If you were in my shoes, doing this project the way we're doing it, I'm confident this is what you'd charge."

I've yet to have one client balk at the cost when given that explanation.

— B.V.B

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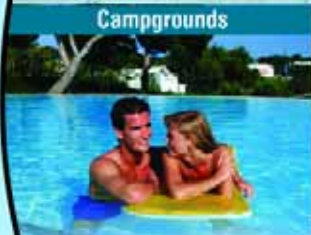
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personal decision, but there are important factors to consider. What do you have invested in your business? What could you make if you liquidated all of your assets and invested this amount in income-producing vehicles such as stocks, mutual funds or real estate? What is the value you should receive for the risks that you take as a business owner or manager? These are all questions you must answer for yourself in establishing your profit margin.

value factors

I believe as well that it's critical for us to consider the nature of the watershaping business in determining that margin.

Consider this: We are in the business of providing what is for most people their second- or third-largest lifetime purchase. We are also in a business that requires us to understand and apply the skills of a range of trades and work in variable environments while tearing up people's property.

We're responsible for workers who drive big vehicles, operate big machinery,

Price Formulation

The following is an example of how my firm calculates a final price. These numbers and percentages are presented *strictly* for the purpose of illustration and are in no way meant to suggest costs and margins that you should apply in your own business.

Selling Price (X) = Cost of Goods Sold (COGS) + Overhead (12% of X) + Desired Profit (30% of X) – that is, $X = \text{COGS} + .12X + .30X$ or $X = \text{COGS} + .42X$.

Looking at it a different way, $X - (.42X) = \text{COGS}$, that is, $.58X = \text{COGS}$. Therefore, $X = \text{COGS} \div .58$, so $X = \$17,400 \div .58$ – that is, $X = \$30,000$.

This makes the Base Selling Price (BSP) = \$30,000. To this BSP, you must add the sales commission at, say, 5%, so the Selling price = BSP + Sales Commission – that is, Selling Price = \$30,000 + 5% of \$30,000, or Selling Price = \$30,000 + \$1,500 and the ultimate Selling Price = \$31,500.

Note: Since we have added the commission to our BSP, we must deduct it before calculating overhead and profit because the commission is actually part of the COGS calculation. Therefore, this price yields 12% of \$30,000 for overhead, that is, \$3,600 and 30% of \$30,000 for profit – that is, \$9,000 in Net Profit.

–B.V.B.

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Now compare what we do to what, for example, furniture retailers do. They basically acquire a manufactured item from a factory and place it in a showroom or warehouse, where it sits awaiting a buyer. That activity is much less complicated than our business and carries much less risk. Still, we all know that items such as couches, chairs, tables and beds carry *huge* mark-ups.

I'd argue that if furniture retailers are entitled to a significant profit margin, which they are, then we are, too, and perhaps more so.

One more key factor to consider: Many companies in our industry are quite small, and in many cases the owner is out in the field doing the work or supervising the project right along with the crews. If that's the case, you have to calculate what you'd have to pay someone else (as capable as you are) to do what you do.

As an owner, you should *not* view yourself as someone who is working for a wage, but you *do* need to ask yourself what you would have to pay to replace yourself. Again, how you factor that into the profit and/or overhead equation is a personal issue. My point is that if you don't consider your own value and include it in the mix, you're shortchanging yourself.

And all of that should be reflected somewhere in your costing structure.

get involved

There was a time in this industry when a majority of firms applied sets of standard factors to come up with prices, such as a standard cost for X square feet of pool-surface area or X square feet of deck or X square feet of landscaping.

I'd argue that such an approach is obsolete. Not only is it a shortcut and, ultimately, the lazy way to go, but there's no way in today's market, especially in custom work, that "eyeballing" a price will accurately reflect both true costs and an appropriate profit margin.

You can use several different formulas to determine a final selling price, and I offer an example of one I've used in the side-

bar on page 16. Whatever you do, the key is to consider the full cost of what you do for your clients and how much you want to make. You'll find that when costing and pricing are based on hard math that can be confirmed in real numbers, you'll have an increased sense of tranquility as you approach the often grueling challenges of watershaping. **WS**

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



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By Stephanie Rose

Simple Green



It's that time of year when our thoughts begin turning to the beautiful colors of the fall – and the subsequent bareness of winter.

Whether you're in the coldest northern reaches or enjoy the relative warmth of the Sunbelt, we are all aware that fall is a transition to a time when the annuals will fade once and for all and the deciduous plants will drop their leaves.

But I propose that it doesn't have to be so – or at least that we can *minimize* the seasonal holes in our gardens through thoughtful use of evergreen trees and shrubs. These are the most abundant of all plant types, after all, and the bones of many a successful landscape.

By focusing on evergreen trees and shrubs with a variety of textures and green colors, we can develop landscapes that provide our clients with feelings of warmth year 'round, even in the dead of winter.

getting started

For some of us, the first thought that comes to mind for winter landscapes is a reliable, solid-green hedge, but I'd argue that this is a solution with little to no character – and that needn't be the case. There's a vast array of basic evergreen shrubs and trees to choose from that can act as backdrops, fillers or even specimens, while smaller and lower evergreens can be used as space dividers or to define visual breaks in a border.

For some of us, the first thought that comes to mind for winter landscapes is a reliable, solid-green hedge, but I'd argue that this is a solution with little to no character – and that needn't be the case.

Each setting is different, of course, so there's no universal answer. That in mind, I usually start on winter-proof landscapes by making a list of all of the basic green plants I might use. The list is soon narrowed in accordance with style and the client's specific likes and dislikes. (Personally, I tend to avoid large-leaf plants or very lacy or smaller-leaf plants: No matter the style, these tend to stand out a bit too much.)

If time allows, I take my clients to the nursery and show them the different types of mainstream and basically nondescript green plants we might use. I note carefully that, even though many of the types of shrubs in this category may not be particularly appealing to them, these plants can be used to emphasize *other* plants that may be more important to the overall look of the landscape.

I look at these as utilitarian plants, as the worker bees of the garden – plants that cover walls, camouflage unsightly structures or provide a break from one part of the garden to the next. Bottom line: Sometimes you just need something that is simple, green, and doesn't flower in a way that anyone will notice.

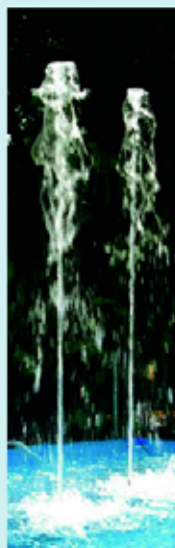
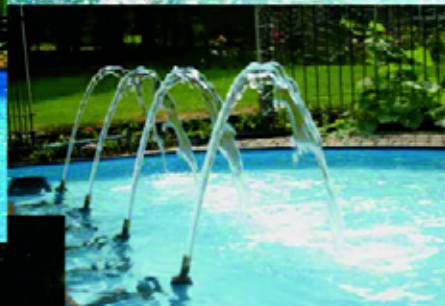
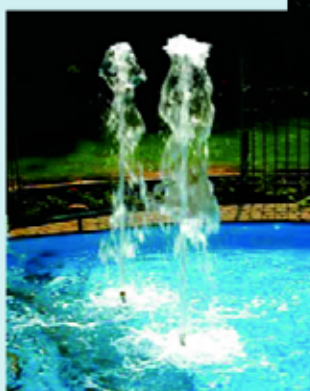
You might, for example, select a Podocarpus as a hedge plant. (For those who aren't familiar with this one, it's a basic, light-to-medium-green shrub that can be shaped – depending upon the variety – into a hedge, a single plant or even a tree.) Your clients may or may not like the Podocarpus itself, but you should be able to persuade them that it will serve well as a backdrop to more intricate planting in the foreground.

It's kind of like putting a coat of paint on a wall: Maybe you want the wall to stand out on its own, or maybe you want it to fade into the background or be a foil to emphasize furniture or artwork you plan to place in front of it. You're



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5'	GPM	18.5	19.8	24.6	29.0
	FH	6.6	6.2	6.2	5.9
6'	GPM	20.6	22.0	27.7	32.2
	FH	8.2	7.2	7.2	7.2
8'	GPM	23.8	24.8	30.4	37.0
	FH	10.5	9.5	9.5	9.5
10'	GPM	26.1	29.0	35.1	41.0
	FH	13.8	13.1	12.8	12.8
12'	GPM	28.3	32.2	38.8	44.9
	FH	17.4	15.7	15.4	15.4
15'	GPM	32.5	36.2	44.9	51.5
	FH	21.6	20.3	19.7	20.0
20'	GPM	38.3	43.3	55.5	62.0
	FH	29.5	26.6	26.9	26.6
25'	GPM	44.4	50.1	67.4	72.7
	FH	36.7	34.1	33.8	33.8
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doing the same thing in the garden, with the specifics depending upon the setting and what you are trying to achieve.

green choices

I'll come back to how to use these plants in a moment, but first I'd like to give some examples of some basic green plants that I use in the southern California area. (I hope my colder climate friends will forgive me if I don't include their favorites!) Most of these selections have medium-sized leaves and work with any planting style.

► **Podocarpus.** There are many varieties of this plant, which is typically used as a hedge or tree. For the purposes of this discussion and as stated above, I like to use this as a backdrop for something I want to stand out in front of it. Quite recently, for example, I used it to create a green wall behind artwork.

► **Ligustrum japonicum (Wax-Leaf Privet).** Privets aren't particularly well loved by most people I've encountered,



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but even so, most of my clients are comfortable with its inclusion in their landscapes. It has dark-green leaves and insignificant flowers and fruit, can easily be pruned into a hedge or tree and is generally a hardy selection.

► ***Osmanthus fragrans* (Sweet Olive).** I've discussed this plant before. Its best feature is its incredible apricot fragrance (best detected in late spring and summer in my area). Medium-green leaves allow it to blend well into most landscapes. In my experience, it's a slow grower. But with its fragrant flowers, I think it's worth the wait.

► ***Ternstroemia gymnanthera*.** This darker-green-leaved shrub usually grows to a height of three or four rounded feet. Its big advantage is that it prefers shade, which makes it perfect for filling in underneath a tree.

► ***Buxus* (Boxwood).** There are a lot of different varieties of boxwood that are familiar to most of us in the form of manicured hedges. These shrubs are available

in shades from dark to light green and can be left natural or pruned heavily. Check your garden guides for one that fits your specific needs.

► ***Pittosporum tobira* 'Wheeler's Dwarf'.** Use this mounding, dwarf shrub in a foreground where you want a plant that won't typically grow to be more than

four feet high or wide. It can get bigger, but by then it's usually time to refresh the landscaping!

► ***Coprosma repens*.** The shiny leaves of this medium-green plant may make it stand out a little more than do the others listed here. Depending upon the rest of your palette, though, it may be just the



Osmanthus fragrans (Sweet Olive)



**Pittosporum tobira
'Wheeler's Dwarf'**

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natural companions

medium-sized shrub you need to fill in a sunny border spot.

► **Griselinia littoralis.** This is a new medium-green, medium-size plant I discovered when flipping through my *Sunset Guide*. As is my practice, I ordered one from my favorite nursery and placed it in my own yard – and it's thriving in a slow-going, nondescript way that calls little attention to itself. As *Sunset* says, "Always looks well groomed" – which I think says it all!

► **Pachysandra.** I know this is a groundcover, but I've included it in this list as a plant that can be used for its basic green color, particularly when there's plenty of perennial or annual color surrounding it. It works great in the shade and, with its dark green foliage, makes a nice green mat.

practicing green

I recently installed the foundation

plants for a border along a driveway. Among the plants I used were Abutilon (with yellow and mauve flowers), Oakleaf Hydrangeas (white), Roses (many colors), Jasmine Vines (pink), colorful perennials in the foreground and an Angel's Trumpet (peach) to one side. These plants all call attention to themselves in one way or another, but they work well when blended together.

When I reached the point where I was spacing all these plants out on paper, I recognized that I still had areas to fill. The homeowner liked the selection of plants we already had and hadn't anticipated more, but I informed them of the need and suggested going with Privet or Osmanthus.

We selected *Osmanthus fragrans* because its leaf color blended with the rest of the plants without standing out. We also chose it knowing that it would fill the holes in the landscape quite nicely over time and would also cover a wall while emphasizing the foreground

plants that were more important to them. The *Osmanthus* also provides a green backdrop in the winter, when the Roses, Hydrangeas and perennials are without their leaves.

In other words, the basic green plants create a balance between complete deciduousness and constant greenery while providing a background for sculptural plants, artwork and other features that make landscapes beautiful straight through the winter. **WS**

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



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By David Tisherman

Living in Color



Few things are as important to the aesthetic impression made by swimming pools, spas and other watershapes as the colors you select to use in and around them.

Take tile as an example. Whether it's just a waterline detail, a complete interior finish or some elaborate mosaic pattern, it serves to draw the eye into a design. If the color and material selections work, the scene can become extraordinarily elegant and beautiful. If they don't, you can have a major eyesore on your hands.

The amazing thing to me is how few watershapers ever really consider the importance these color decisions have in the overall visual impressions their work makes.

playing the blues

About three years ago, I attended a seminar and watched a slide show about lighting in and around swimming pools. At one point, I made the comment that we should *never* use blue tile with a dark gray or a black pool.

It's amazing to me how few watershapers ever really consider the importance of color decisions in the overall visual impression of their work.

Everybody in the room looked at me as though I was crazy. After all, people have been using blue waterline tile with dark plaster pools for years if not decades. But I held my ground and argued that when you put blue next to black or gray, the blue looks almost fluorescent and really pops visually.

As if to prove my point, the very next slide was a beautifully lit pool with black plaster and blue waterline tile. Everybody laughed, because the slide perfectly expressed the issue: The blue tile positively *glowed* compared to the rest of the setting.

So despite the fact that it's been used forever, I'll state as fact that blue on black is absolutely the wrong design solution for a watershape and generally a poor color combination in any context – unless, of course, you're a fan of the Carolina Panthers football team.

Why the chromatic folly? I think it boils down to a lack of familiarity with color theory. In that context, black is considered the absence of all color (although in practice it's usually either an extremely dark red or a dark blue) and works as a dead or neutral color when used in water or a landscape. That's fine, but when you put a primary color such as blue right up against the black, the blue will jump out strongly.

In other words, using blue in this context makes a powerful (if unintentional) statement – and most of us don't perceive a problem because we've seen blue tile on black-plaster pools so often that we've become conditioned to accepting what is actually a visual travesty.

Let's take another common example: Red brick is one of the most common of all coping materials for pools. Very often, it is placed next to white plaster and/or blue tile inside the pool and butted up against greenery on the other side. Although Christmas has acculturated us to pair-

A woman with dark hair is relaxing in a swimming pool. She is leaning her head on the edge of the pool, with her arms crossed and her eyes closed. The water is a vibrant blue, and the pool deck is a light-colored stone or concrete. The lighting is warm and soft, creating a serene atmosphere.

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ings of red and green, when you look at a color wheel you see they go together about as well as purple and orange.

Some may argue that red brick and green grass are a classic, timeless combination, and that may be true. But it still doesn't mean it's the best of color combinations, as a comparison of a red brick wall against greenery with a cream- or gray-colored stone against greenery will attest. In the former there is visual cacophony; in the latter, there's a harmony of colors and a soothing elegance.

under water

Let's double back to the classic mass-produced pool, with its red brick over blue tile and white plaster and a ribbon of concrete deck or greenery all around. What happens with this arrangement is that bands of color are emphasized and even exaggerated at the edge of the water. It's my belief that if we weren't so accustomed to seeing this combination, most of us would be aghast at the gar-

ishness of it all.

To my eyes, it's just butt-ugly.

It's ugly because it violates the harmonies embodied in color theory and design. Those who walk into a backyard don't want to see visual fireworks going off all over the place. Instead, they want to see an overall setting in which a watershape elegantly reflects and blends into its surroundings with respect to style, texture, spatial relationships and color.

This is *not* to say that you can't use bold colors; rather, it's a matter of using whatever colors you choose in the proper combinations and in ways that create balance and harmony. There are instances where brightly colored ceramic, porcelain or glass tile can be exquisite, as in a Spanish-styled environment where vivid color combinations capture a style and evoke an era and its design sensibility. Bright colors also work in modernist and contemporary designs, as the works of Ricardo Legorreta and

Luis Barragan fully attest.

So why do so many watershapers rely on busy blue tile at the waterline – or bluish floral patterns that relate to nothing around them? As much as I'd like to assign specific blame, I won't – but I can guarantee you that these are aesthetic decisions made without any basis in color theory!

When I've made this argument in the past, some people have pointed out that I use a tremendous amount of color in my projects – witness the notorious "red pool" published in *WaterShapes* in October 2002 – and offer the opinion that this or that combination doesn't quite "work." To each his or her own, I suppose, but I rest easy knowing that my design-oriented clients know what they want, know what I'm doing with color, know that it's based in my study of and appreciation for color theory – and find nothing but good things to say about my choices.

The key is in the relationships between

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WATER SHAPES



The 'red pool' isn't about applying red plaster in isolation, but rather putting it in a chromatic context that makes sense and offers a detailed statement about the environment in which the entire composition has been placed.



Not all of my color selections shoot for drama or visual confrontation: In this case, for example, I worked with a range of materials – concrete, plaster and tile – in simple, similar greens to create an impression of sensory calm.



When I work with glass tile, I select combinations of color within a tight range – one that works with respect to color theory and also responds to other colors seen elsewhere either in or around the watershape.

and among colors. When I use tile, for instance, I'm always trying to pick up on the color of the coping or of the deck or of the plaster or pebble finish. If I hit it right, the tile line visually recedes and becomes an element that is simply there to mediate the wet/dry environment at the waterline.

I love, for example, a particular gray-green tile made by American Olean (Dallas). It comes in one- and two-inch squares, and I match it with a pale green plaster or a green-tinted concrete coping or deck – a combination that makes the tile disappear.

context clues

By contrast, when I work with a material such as glass tile, my desire is usually to *accentuate* the color rather than make it recede. I want to draw a certain amount of attention to the interior finish of the vessel, often with custom-mixed, multi-hued mosaics that involve three or more colors, because the sparkling, brilliant nature of the material makes it eye-catching when observers get right up next to the water.

I currently have four projects that will be finished entirely in glass-tile mosaics. In each case, I'm working with extremely "tight" combinations of color – with all decisions based firmly in color theory – in greens, blues, pinks and lavenders. And yes, I will use blue tile – either glass or ceramic or porcelain – if it picks up a color I'm after or strongly complements the deck or coping material and all of the colors relate to one another in ways that make sense.

But what often makes sense to me is more adventurous: Take a gray limestone, for instance – a very neutral color – and place it next to a finish composed of lavender and pink tile shot through with gold veins. What happens is that the blue of the water combines with the lavender and pink to create a gorgeously colored water that runs to deep purple as the water deepens. It's a *beautiful* complement to the gray decking.

(I don't mean to complicate the discussion too much by bringing the water into it, but we should never overlook the fact that water influences the perception of color and adds further complexity to the issue of color selection – not to mention placing an even greater premium on an understanding of color.)

While I enjoy the opportunities I'm afforded to be adventurous, I also work on

projects with much simpler color palettes. A few years back, for example, I installed an all-green pool – poured-in-place green concrete coping, green tile on the outside of the raised pool walls, a raised spillway spa wrapped in green tile and a big thermal ledge finished in a beautiful celery-green tile from Oceanside Glasstile (Carlsbad, Calif.) – all set off with a dark-green plaster. The landscaping was mostly green as well but with black-bamboo accents – a simple range of colors, wonderfully elegant.

Then of course, there is the “red pool,” a case in which I was emboldened by my clients’ love of vivid colors and ethnic artwork to have fun with a passionate color scheme. But even here, there were harmonious relationships between colors that worked together, including the red plaster, the coral waterline tile and the purple walls.

measured harmony

I bring these specific projects up not

to justify specific color combinations I’ve used, but rather to make the point that you can use color theory as a foundation for all sorts of palettes that work with the setting and within the clients’ tastes. In all cases, the idea is not to look toward the water and see riots of color, but instead to create environments that are both elegant and beautiful.

Sometimes elegance and beauty are achieved in subtle ways; other times it takes boldness. It can mean working with light colors or dark colors, warm ones or cool ones. You may be working with tile details or an entire mosaic finish. Bottom line: The fundamentals of color theory apply across the board – no exceptions. If your intention is to design beautiful watershapes, it’s important to develop an understanding of how to work in color.

It can’t be a hit-or-miss exercise.

As a designer, you really need to understand and know how to use color as you compose exterior spaces and make

recommendations to your clients. Yes, some people have an intuitive knack for color, but if you’re not one of them, there are tools (starting with a color wheel) that you can use to achieve exciting and elegant color combinations.

As is the case with any other aspect of design, when you approach the challenge with a background that’s based on reliable methods and information, you’ll be able to hit the mark and ultimately shape something that you and your clients will look to with pride for years to come. **WS**

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

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Sea of Tranquility

By Stephanie Rose



Tucked into a canyon with-
in easy walking distance of the Pacific
Ocean, the Self-Realization Fellowship
Lake Shrine in Los Angeles is an oasis
of water, plants and spiritual imagery.
At a time when exterior designers are
often being asked to develop “tran-
quility gardens,” it’s a model space of
beauty and serenity – and, for land-
scape designer Stephanie Rose, has
become a place to fine tune her skills
in plant selection and placement.



During a lifetime of driving up and down the part of Sunset Boulevard where it finally meets the Pacific Ocean, I’d often noticed the sign pointing to “Lake Shrine” but had never taken the time to stop and have a look.

I suppose the “shrine” part of it made me think it was the exclusive preserve of adherents or members of the Self-Realization Fellowship – an organization I knew nothing about other than that their facility was in one of Los Angeles’ most beautiful locations.

I finally overcame my hesitation about visiting the Lake Shrine after a friend told me it was a place where people of all faiths and religions were welcome to stroll, meditate and enjoy the tranquility of the setting. Curiosity overcame skepticism and I finally visited the place. What I found at the Lake Shrine was a serene, calm, meditative oasis of lush, beautiful gardens surrounding a lake.

To this day many years later, the minute I drive through the entrance gate, I’m always swept up by sensations of serenity and peace – and have since adapted some of the shrine’s features in designing tranquility gardens of my own.

Drawn to Water

My connection to the place is now professional as well as personal.

In February 2005, I gave a talk titled “Landscapes in Southern California” to the annual meeting of the California Landscape Contractors Association. In the front row was a gentleman who appeared to have come straight from work in a garden and seemed incredibly well informed about the Pacific Palisades area of Los Angeles.

He asked several pointed questions and seemed quite interested in the selections of “different” plants I was presenting for the audience’s consideration. He left a bit early, so I didn’t get a chance to chat with him or even meet him formally.

About six weeks later, he called me to inquire about my design services. As it turns out, he was in charge of the gardens and garden staff at the Lake Shrine. He told me that he’d liked what I had to say and, after my first meeting with him and some other people, I was hired as a consultant. I must say I’ve never worked with anyone who has a greener thumb – an almost magical touch with plants.

Before I get to my own efforts, a bit of history: The current site of the Self-Realization Fellowship Lake Shrine in Santa Ynez Canyon was originally used in the making of



As you enter the Lake Shrine, your first close encounter with water is in the form of a small birdbath. As you move along the path, however, your prospects soon open upon a large lake surrounded by trees and flowering plants.

silent movies. In 1927, the site was graded in anticipation of development, but the project was cut short, leaving a basin in the center that eventually filled with water to create Lake Santa Ynez. This was and is the only spring-fed lake within the city limits of Los Angeles.

The site was purchased in 1940 by H. Everett McElroy, who turned it into a private paradise. He moved his houseboat – “Adeline” – from Lake Mead to Lake Santa Ynez and lived in it for a while before building a home on the property. That home, modeled on a small mill house, featured a two-and-a-half-ton, 15-foot water wheel that directed excess lake water to irrigation. Subsequently, he added a reproduction 16th-century Dutch windmill and a boat dock and landing, all of which are still there today.

The property was eventually purchased by an oil executive. Within a few years, he sold it to Paramahansa Yogananda, the spiritual leader of the Self-Realization Fellowship, the international society he founded in 1920. When he designated the site as a spiritual sanctuary in 1950, he also dedicated a portion of the grounds to the Gandhi World Peace Memorial, which contains a portion of





In navigating the lakeside path, your eyes are drawn toward the water by various features and plantings at the edges. Occasionally, however, your attention is pulled away from the big water by details such as a small waterfall or alternative pathway.

Mahatma Gandhi's ashes. (This is the only location known still to contain a portion of the Mahatma's ashes.)

Paths to Tranquility

Paramahansa Yogananda first arrived in the United States in 1920 as India's delegate to an international religious congress. During the next few years, he lectured throughout the country, reaching Los Angeles in 1924. In 1925, he established the international headquarters for the Self-Realization Fellowship atop Mt. Washington, overlooking downtown Los Angeles, and eventually wrote *Autobiography of a Yogi*, which has been translated into 21 languages and is used as a text and reference throughout the world.

Whatever your own beliefs, I have the feeling we can all get behind the concepts of nonviolence, peace and love encapsulated in the Lake Shrine. The atmosphere created over the past half century is one of complete peace and serenity – the ideal setting for any form of meditation or contemplation.

The ten-acre site is home to breathtaking gardens and a variety of animals,





The structures around the lake reflect its history. The houseboat and wind-mill, for example, were set up by a previous owner in the 1940s and have been preserved, while the Lake Shrine's current status is reflected by the Gandhi Memorial's tribute to world peace.

including swans, ducks, turtles, koi (some seeming as big as the swans) and countless water plants. It's said that many local doctors recommend visits to the shrine for patients in need of stress reduction or emotional healing, and I can believe it: No matter your mindset, there is something soothing at the Lake Shrine for everyone.

The deliberate, thoughtful creation of spaces designed for tranquility, meditation, prayer and healing is an ancient practice – and one that has caught on in a big way through the past few years on the grounds of hospitals, places of worship, arboretums and some public parks. The Lake Shrine is a venerable precursor to these modern facilities, something of an American prototype for such designs.

It's a place that serves as a laboratory for the exploration of the almost magical combination of plants, water and spiritual artifacts. And given its location, surrounded by steep canyon walls so close to the Pacific Ocean, the Lake Shrine may well be the ultimate destination for this marriage of elements.

My own involvement with this beautiful place is about providing consulting services for the Lake Shrine's garden staff in maintaining the sense







Visitors to the lakeside are invited to get involved. A small dock and seating area, for example, offers a supply of food pellets that people can drop to the swans, ducks, turtles and large koi that thrive in this special environment.



of serenity established over the years.

Within the ten-acre site are many smaller gardens established according to sun exposure and microclimate. There is, for example, the Japanese Garden with partial sun exposure and the perfect conditions for Japanese Maples and other traditional plantings. There's also the Sunken Garden, one of the best full-shade gardens I've ever seen, and the gardens surrounding the Gandhi Memorial, host to a constant flow of visitors from around the world.

Plant Works

All of the gardens surround the lake and have been designed to take advantage of stunning views and settings in serenity-inducing ways. Many people take advantage of the interactive nature of the setting as they circle the lake on its undulating and meandering pathways. There's a supply of food for the koi, and swans and ducks will some-



A walk to the far side of the lake is rewarded by a distant view of a tall, multi-tiered waterfall that rolls down a cliff into the green water. The green is a result of the nutrient-rich runoff that finds its way into the basin from higher elevations in the thoroughly developed surrounding canyons – a challenge the facility's staff is trying to overcome.



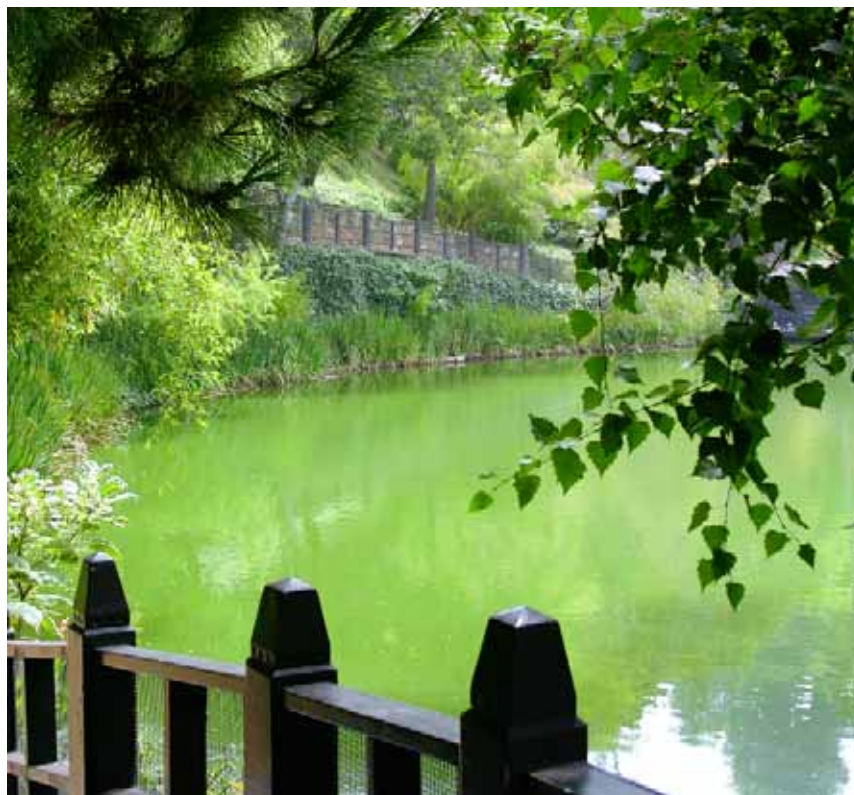
The views from the pathways and through the trees offer visitors glimpses of poetic spaces and fill the mind with sensations of serenity, tranquility and contemplative, meditative calm – a refreshing way indeed to pass a few peaceful hours.

times swim up to greet you at various spots around the lake.

It's an honor to be involved in maintaining and enhancing such a beautiful environment, and I have made it my goal to offer my planting-design sense while also working to smooth the transitions from one area to the next by weaving plantings together at the margins.

We're also focusing attention on the health of the trees surrounding the lake and have brought in an arborist to assure the ongoing survival of many of the large, old-growth trees. One of the major charms of the Lake Shrine is, after all, the sense of being enveloped in the gardens and the forest feeling the trees offer.

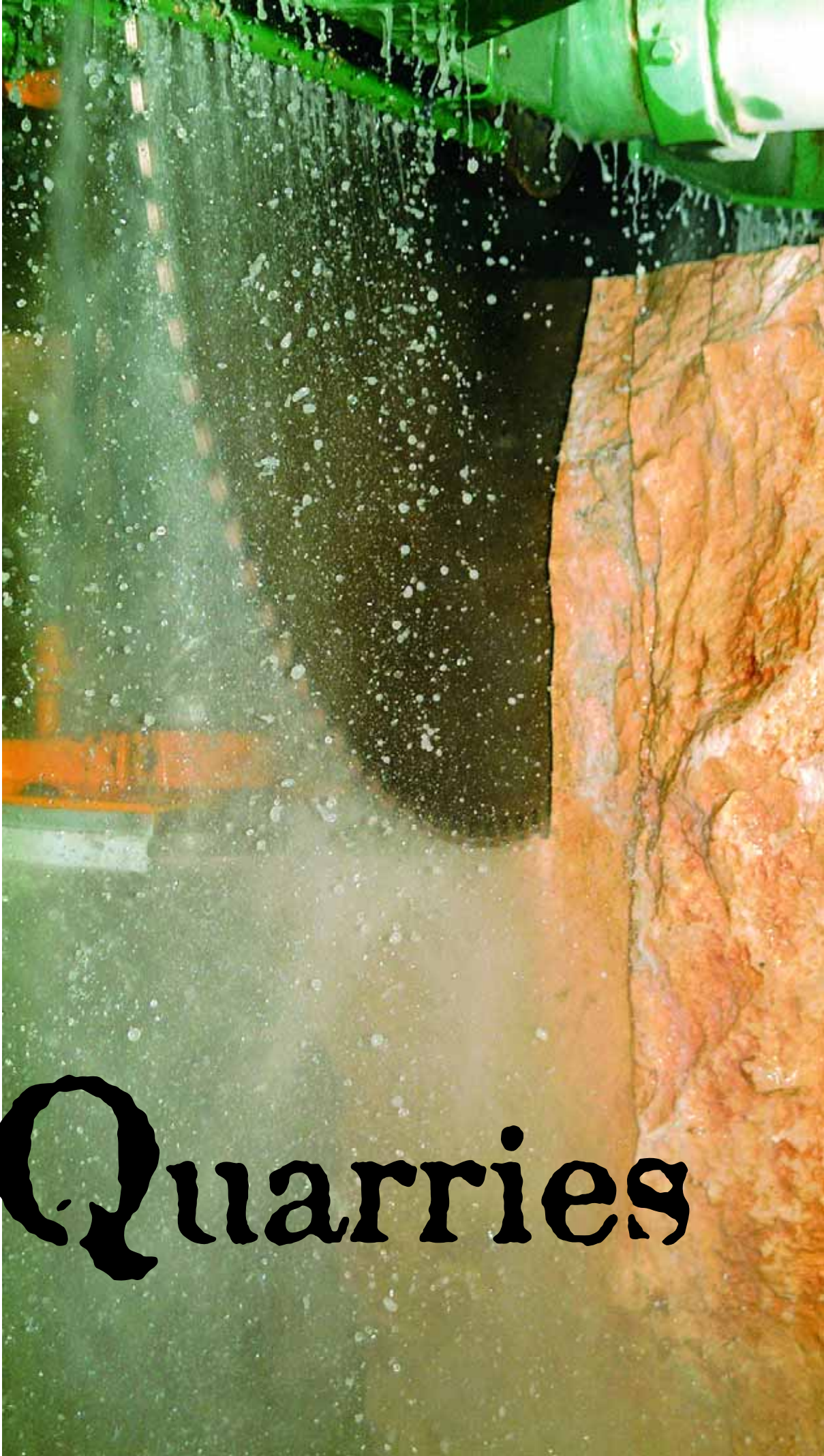
I've told the people I work with at the Lake Shrine that it's funny how life brings you back around sometimes. I see how appropriate it is that I've been drawn back to the Lake Shrine at this point in my life. I don't question it – I'm just going to take advantage of this opportunity to work in the service of tranquility!






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Quarries





Natural stone has been used in and around watershapes for uncounted generations, observes stone supplier and distributor Dennis Haase. In recent years, however, its use in these aquatic contexts has increased dramatically. That's partly due to an expanding range of products, he says, but it's also a result of modern quarrying and manufacturing technology that has made fine stone more accessible to increasing numbers of designers and builders.

By Dennis Haase

Natural Stone

is certainly the most time-honored of all building materials. From the pyramids of Egypt to the temples and civic buildings of ancient Greece and Rome; from the palaces and villas of the Renaissance to the most contemporary structures of our modern era, we see a material forged within the earth for millions of years that has been painstakingly quarried and shaped into myriad forms both functional and decorative.

Even with the advent of cementitious components and a range of other manufactured substitutes, stone remains the material of choice in a great many applications. In fact, the range of natural stone materials available to designers and builders expands almost daily in response to the specific demands of watershapers and other designers and contractors – and there's no end in sight.

Our company, tr stone, is a U.S. distribution facility owned and operated by one of the world's largest stone producers, Tureks, based in Afyon, Turkey. The best thing about the marketplace from the perspective of designers and builders is that high-quality stone is now available from a wide range of domestic and foreign sources in a number of distinctive forms, colors and textures.

Dynamic Trends

Indeed, the range of products available in the

modern stone marketplace is virtually limitless: You'll find everything from pavers, coping stones and stepping stones to block and ledger stone, statuary and all manner of pilasters, countertops, pillars and columns – in all shapes and sizes, custom and off the shelf.

Even the materials that don't make it to the finishing shop, including boulders and smaller stones that comprise the by-products of the formal quarrying process, will be finding their ways into all manner of decorative settings.

And when you factor in all of the variations of color and texture that exist within even a single type of stone – the rainbow of hues in travertine, for example – the aesthetic possibilities become even more boundless. Furthermore, every quarry is different, every piece of stone unique, and there's a subtle spectrum of variations that lends the material a natural quality that can never be accurately mimicked by a synthetic material.

The earth is fantastically prolific when it comes to making stone, but it is not much concerned with what one might call *uniformity*. The processes of extracting, forming, designing and placing stone materials in the most elegant and appealing ways possible are therefore challenges shared by everyone from the quarriers and the craftspeople in the finishing shop to the architects, watershapers and artists who have for centuries used this most fundamental of all building materials.

Even with that history behind it, however, stone used in exterior settings is emerging and growing these days with a tremendous momentum. A huge percentage of that growth has to do with watershapes and suppliers' increasing ability to turn out products that are designed specifically for use with water, such as coping stones, fountain bowls, scuppers and the like.

More surprising is the fact that even with products that aren't necessarily used with water – pavers, flagstones, ledgers, wall caps, columns and more – we on the supply side see that the majority of those stone forms are, more than ever before, being used in conjunction with pools, spas or fountains of some kind.

When you add firepits and barbecues to the pools, spas and fountains, what we



see is a literal renaissance in the use of natural stone. While much of the action is in higher-end custom residential and commercial projects, we've also seen the use of stone filtering into lower-budget markets as upgrades that set clients' gardens or pools or entertainment areas apart from those of their neighbors.

In the Quarry

The existence of this active marketplace has resulted in innovation. Tureks, for example, has developed a form of coping intended for remodeling projects that fits over existing brick or concrete coping on pools and spas, and other suppliers have come up with new ideas and products in response to the growing demand for stone in increasingly creative applications.

As never before, companies like Tureks and tr stone are becoming more involved in working directly with water-shapers (in much the same way we've long worked hand in hand with architects) in making recommendations for material types and sources and developing and designing custom pieces. This street-level involvement makes all of us more responsive to individual needs and fires the stone industry's own creativity, worldwide.



The scale of quarrying operations is immense and involves the systematic, careful slicing away of cliff faces to form blocks and slabs suitable for processing. These cliffs often dwarf the cranes and other machinery used to move the quarried stone to the factory for processing.



The quarried material is brought to the factory, where it is classified by quality, character, color and intended use before being cut to various specific dimensions and being stored in batches so clients receive materials with consistent textures and features.

As we learn to supply just the right pieces for the job, we see approaches developed on the highest end (such as the stonework at Bellagio in Las Vegas) filtering across to projects of a much more modest scope. It's all exciting: Installations at both levels will endure countless years of use because of the beauty and durability of the basic material.

Everything starts in the quarry, of course, but relatively few people are aware of the scale and complexity of the work. Tureks, for example, has been in business for 23 years, has 12 separate sites in Turkey and employs 500 people on five continents to produce and purvey 5,000 different products (including a million square meters of flooring material alone). It's bigger than some operations, but not atypical.

Quarrying is a capital-intensive venture that relies on exhaustive geological studies and surveys of potential digs and huge investments in site development. Along the way, we use some of the heaviest cranes and excavating equipment used by any industry along with some of the world's biggest and most powerful saws, planers and honing machinery. All of this large-scale mechanization is needed to exploit quarries that in some cases will be in operation for decades on end.

No matter how long I've been in the business, I'm still fascinated by the variety and subtle complexities of stone produced by individual quarries. As explained in the sidebar on page 45, marble, travertine, limestone and granite are each found in specific geological locations often related to relative elevation.

In other words, different strata reflect different conditions at the time the rock was formed eons ago, so marble or travertine quar-



Ancient Ground

As has been previously mentioned in these pages by David Tisherman, Turkey is unique among nations for its treasure trove of ancient ruins as well as its unique geology. His descriptions of his travels capture his excitement in seeing ancient monuments and buildings with his own eyes and expanding his sense of the history and traditions of art and architecture.

In his most recent trip, we at Tureks were pleased to host Tisherman and the rest of his group for a tour of some of our facilities. (As the credits indicate, a few of the photographs he took during the tour have been used to illustrate this article.)

What we tried to convey to the group during its visit is that Turkey is not only an exciting place to study the use of stone material in construction, but also a place to see, at first hand, deposits of marble, travertine, limestone, granite and a host of other materials in a variety deepened by the range of stone found within each of those major categories.

The country's varied landscapes were created by earth movement that has shaped Anatolia for hundreds of thousands of years. Those forces continue to manifest themselves in frequent earthquakes and occasional volcanic eruptions.

Given that geological history, it's not surprising that more than 80 percent of the land surface is rough, broken and mountainous and of limited agricultural value. This is especially true in the east, where two mountain ranges converge into a lofty plain with a median elevation of more than 4,500 feet.

The intensive folding and uplifting of the mountain belts was accompanied by strong volcanic activity and intrusions of igneous rock material through the past 1.6 million years. These processes are still at work as the Turkish and Aegean tectonic plates – moving south and southwest, respectively – continue to collide.

There's a reward for seeking out and working in remote, rough areas: Some of the world's most beautiful marble is found in the highest and least-accessible places.

—D.H.



Much of the work in preparing stone for its intended use is done by saws and polishing machines on a huge factory floor, but the work of assembling small pieces into mosaics and border patterns is still done by hand. Here as everywhere else, consistency in appearance is the ultimate goal.

ries, for example, will have material that ranges in color from extremely dark to extremely light and all shades between, with endless variations of color and texture between the extremes depending on the level at which the rock is harvested.

In the Factory

Once we begin to work with the quarried stone, we see all sorts of variations in the factory, even from block to block. These blocks range in size from two to ten tons and are carefully analyzed and categorized according to quality and characteristics in adherence with strict standards across a range of features.

Once the block has been categorized, it is sorted by intended use – an important process because it is essential to ensure our clients that a batch of material will have an acceptably consistent level of

quality and appearance. All this preparatory precision enables stone suppliers to stand behind their products and assure clients that they'll receive material without extreme or random variations.

As suggested above, stone suppliers prepare different sorts of materials in response to trends in market demand. We know, for example, that travertine pavers, countertops and tiles are popular in the southwestern United States these days, probably because they work well with Spanish Colonial, Mediterranean and contemporary styles.

In the northeast, by contrast, the prevalence of more formal, colonial-style designs results in greater demand for lighter marbles. These sorts of trends shift with the tides, of course, so we carefully monitor buying habits and respond accordingly: After all, you don't want to chase

markets with a product as heavy and awkward to move as stone!

As much as we've seen great growth in the use of natural stone in recent years, we're also aware that our products aren't right for every project or every client. No matter how trends ebb and flow, our interest is in seeing stone used in the best possible ways in each and every application, from modest barbecue countertops to elaborate, multi-tiered fountains.

We see natural stone as a valid option in projects at all levels, and our aim is making certain watershapers and others are aware of the full range of possibilities. Ultimately, we know if these materials are offered, the beauty, durability and timelessness of natural stone will capture enough imaginations to keep us digging in quarries for millennia to come.

Stone

Species

Throughout history, marble, travertine, limestone and granite have been used to create the world's most beautiful and enduring structures, hardscape and statuary. In mining these materials in Turkey, Tureks works hard to categorize and assess features of the stone to help those who select and work with the material know what the features and variations mean with respect to quality and aesthetic potential.

Building that knowledge base involves getting some basic definitions under your belt.

► *Marble* is a metamorphic rock formed by the alteration under pressure of limestone or dolomite. Often irregularly colored by impurities, marble is used especially in architecture and sculpture. The colors range from white to black, but you'll also see yellows, reds and greens as well as veined or clouded appearances.

The name "marble" is also used to describe other rocks of similar use and appearance, including *serpentine* and *verd antique* marbles. The term "marble" is used less correctly to describe polished porphyry, granite and other similar materials.

There are also some specific types of marble prized for certain aesthetics or practical applications, including *Breccia marble*, which consists of limestone fragments cemented together; *ruin marble*, which, when polished, reveals forms resembling those seen in ruins because of dispersion through the material of iron oxide; *shell marble*, which contains fossil remains; and *statuary marble* (such as Parian or Carrara), which has a pure white color and a fine-grained texture.

► *Travertine* is a massed form of calcium carbonate that results from deposition by ancient springs or rivers. It is often beautifully colored and banded as a result of the opportune presence of iron compounds or other impurities at various stages of deposition.

Travertine is also variously known as *onyx marble*, *Mexican onyx* and *Egyptian* or *Oriental alabaster*. It is generally less coarse-grained

and takes a higher polish than do ordinary calcium carbonate stalactites and stalagmites, which are similar in chemical composition and origin but aren't quarried for architectural use.

► *Limestone* is a sedimentary rock composed of calcium carbonate as well. It is ordinarily white, but it may be colored by impurities including iron oxide (making it brown, yellow or red) and carbon (making it blue, black, or gray). It will have textures that vary from coarse to fine.

Most limestones are formed by the deposition and consolidation of the skeletons of marine invertebrates, but a few types originate in chemical precipitation from aqueous solutions. Either way, limestone deposits are frequently of great extent and thickness.

The action of organic acids on underground limestone deposits causes such formations as the Luray and Carlsbad Caverns as well as Mammoth Cave. Limestone is also used as a flux in the extraction of iron, an ingredient in Portland cement and as a source of lime. In addition and obviously, it is used as a building stone and for architectural ornamentation.

► *Granite* is a coarse-grained igneous rock of even texture and light color. Composed chiefly of quartz and feldspars, it usually contains small quantities of mica or hornblende with traces of a variety of other minerals. Depending upon the type of feldspar present, granite may be pink or dark or light gray.

The rock forms from molten rock (called *magma*) under pressure. Granites are among the oldest known rocks on earth, with some examples stretching to the earth's earliest geological periods. Crystallized at depth, granite masses are exposed at the earth's surface by movement of the crust or by the erosion of overlying rocks.

A coarse-grained granite, called *pegmatite*, can contain minerals and gemstones of economic value.

– D.H.

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Premiering at the Aqua show In November 2005, Genesis 3 introduces the crown jewel of its educational programs: a set of five intensive, 20-hour, fully accredited design classes. Come join us in Las Vegas at

The Genesis 3 Design School

You can't learn to be a designer in an hour any more than you can learn a foreign language in your sleep. It takes time, discipline and a structured curriculum run by instructors who expose you to the essence of what they know about the graphic and practical arts – and offer you the opportunity to benefit from their established, recognized and profound expertise at a level of instruction usually available only in university classrooms.

You have to choose: The five courses all run concurrently during the Aqua Show for 20 full hours each – starting the day before the show with eight hours on Tuesday, November 15, and four hours each on the mornings of Wednesday, Thursday and Friday, November 16, 17 and 18. The cost for each course is \$990 (\$890 with registration before September 15, 2005), with all classroom materials included as part of the fee.

Don't miss out: Enrollment is strictly limited and will be available on a first-come first-served basis. For registration information, contact the Aqua Show office at (800) 536-3630 or visit www.aquashow.com.

The five courses described at right are part of an ongoing Education Revolution that includes a series of Construction Schools (premiering in October 2005) taught by recognized designers, engineers and builders including hydraulics expert **Steve Gutai**, tile artist **Scott Fleming**, control specialist **Tom Schoendienst**, watershaper **Paul Benedetti** and engineer **Ron Lacher**, P.E. There's also an expanded roster of seminars at the Aqua Show in November, including outstanding sessions led by landscape architect **Mia Lehrer**, lighting designer **Janet Lennox Moyer**, watergardener **Anthony Archer-Wills** and environmental artists **Ron** and **Suzanne Dirsmit**.

This level of education has been a long time coming for the watershaping trades and will be the key to establishing a new Society of Watershape Designers (SWD) in the months to come. We're also proud to note that these courses are accredited by IACET, AIA and ASLA.

For more information on Genesis 3 programs, contact our office at (877) 513-5800 or visit us at www.genesis3.com.

GENESIS  DESIGN GROUP

Basic Color Theory

What happens visually when you place green grass next to a border of red brick as opposed to one of blond stone? What surrounding colors make a watershape recede – or take center stage? This course offers a detailed exploration of color perception that starts with the color wheel and carries you through to individual experimentation and practical applications related to art, architecture and the dynamics of the colors found around water. *Instructor:* **Judith Corona**, a teacher and visual artist whose work has been exhibited in U.S. and European galleries and who is also a fellow of the Whitney Museum of American Art.

Elements of Design

Design is a specific educational discipline that is taught and can be learned – training that enables those who possess it to do extraordinary work for their clients. This course, which introduces participants to the principles of line, texture, shape, balance, proportion, scale, spatial relationships, color interaction and more, will begin developing your perceptual skills and creative awareness in ways that ultimately shape a true designer. *Instructor:* **Donald Gerds**, author of *Perspective: The Grid System* (now in its sixth edition) and an industrial designer with more than 30 years' teaching experience in eight countries.

Measured Perspective

The path to success in watershape design has to do with creating visual representations that let clients see and fully understand the potential harbored in their projects. This advanced course in perspective drawing and rendered elevations cultivates those specific communications skills, developing your competency with two-point perspective while focusing on scale, proportion, structured layouts, grid systems, tone, shadow and more. *Instructor:* **Lawrence Drasin**, an industrial designer who focuses on special-effect interiors and a long-time instructor recognized as Teacher of the Year at UCLA in 2002.

The Vocabulary of Architecture & Style

When you speak with prospects and clients, does your level of knowledge of art and architectural history position you to communicate with them in designing a watershape that meets expectations? Can you make your watershapes harmonize with styles found in their homes and the artworks they love? To stimulate that conversational and practical ability, this course surveys architectural history from ancient to modern, including Greek, Roman, Islamic, Renaissance and contemporary examples. *Instructor:* **Mark Holden**, landscape architect and guest instructor at California Polytechnic State University at Pomona and other educational institutions.

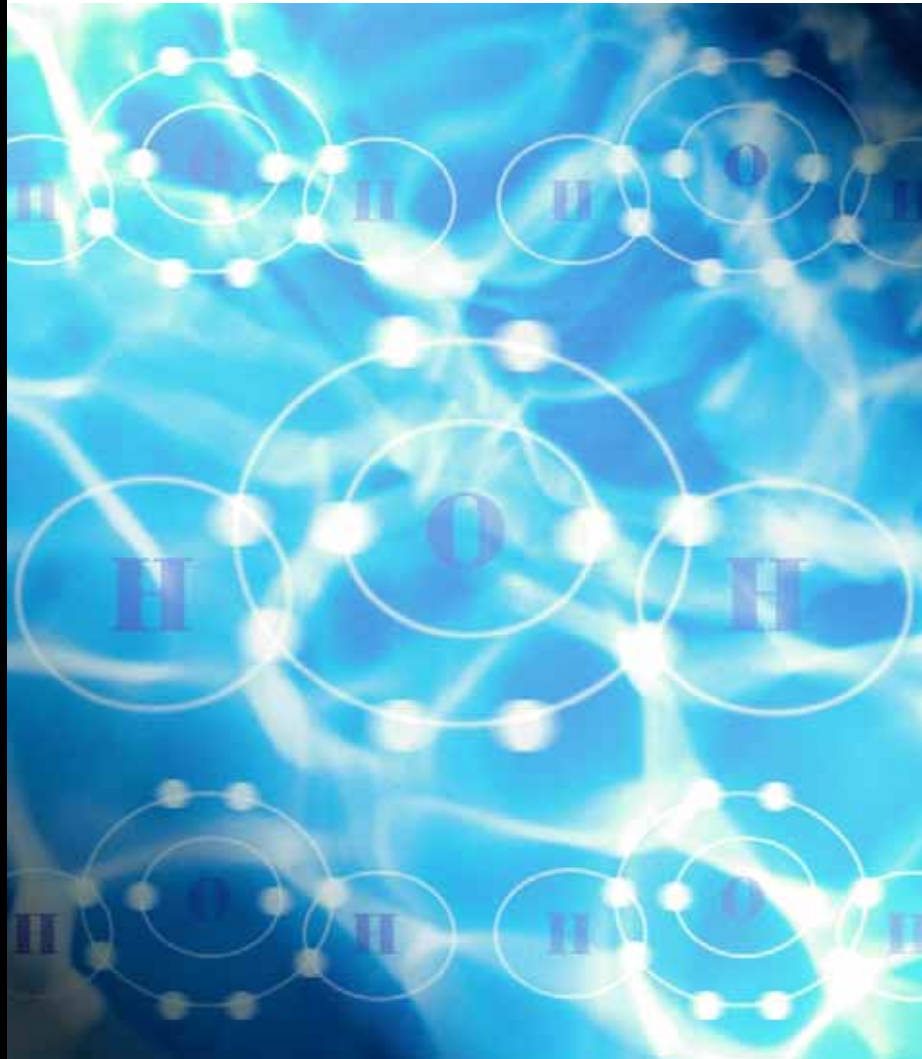
Understanding and Designing Fountains and Waterfeatures

Designing a fountain is about much more than sticking a pipe in the ground and watching what happens. Instead, it's about hydraulics and sound and light and control systems that take common head pressure and turn it into something magical. This program offers an intensive examination of the principles and technologies involved in making water flow in precisely controlled patterns to achieve defined and spectacular visual effects. *Instructors:* **Paul L'Heureux** and **Larry O'Hearn**, fountain designers and engineers with years of experience teaching designers and clients what can and can't be done with water in motion.

Testing Know-How

By Michael Gardner

Even watershapers who don't perform daily tests of water quality in the systems they design and/or build will benefit from being familiar with the various methods available for water analysis, says Michael Gardner of Taylor Technologies. Such knowledge, he notes, helps in starting up new systems, formulating chemical-treatment regimens, calibrating automatic controllers or simply educating those who'll care for the watershapes you create.



Watershapers pour their artistic vision, engineering skill, architectural know-how and construction expertise into projects that clients expect to enjoy for years to come. Lots of factors determine the longevity and successful operation of those watershapes, but one long-term-satisfaction point stays consistently near the top: *water quality*.

Those of you who have been following Jeff Freeman's water-chemistry series in *WaterShapes* already know that water must be balanced to prevent damage to surfaces and equipment as well as sanitized to protect the health of people who come in contact with it. In addition, water in living systems such as ponds and streams must be managed to prevent harm to aquatic plants and animals.

So how can you ensure acceptable levels of water quality? Simply stated, you must test it. Indeed, regular testing is the cornerstone of any effective treatment program.

In this primer on test methods, we'll

explore the analytical methods commonly associated with water-testing kits – colorimetric, titrimetric, turbidimetric and electronic – so you can choose the best one for your needs or make sound recommendations to clients and service providers.

COLORFUL SOLUTIONS

In a *colorimetric* (that is, a *color-matching*) test, chemicals called *reagents* are added to a water sample, where they react with the *analyte* of interest (that is, free or total chlorine, copper, ammonia or some other component of the water). The interaction of reagents and analyte produces a color proportional to the analyte's concentration. This color is then compared to a set of color standards until a match is found.

There are several types of color comparators on the market, including printed, liquid and colored-plastic standards. All three types require you to differentiate among colors – often hues in the same

range, such as the shades of yellow used in many chlorine tests or the shades of pink in pH tests (Figure 1) – to determine chemical concentration.

In these comparative methods, you must follow instructions carefully to obtain accurate results. Some test suppliers, for example, may ask you to hold the col-



Testing Tip: Whenever testing outdoors, remove your sunglasses before making a reading because the tinted lenses will interfere with color perception.

or comparator at eye level with the sun off to the side (that is, not shining directly through the comparator nor directly onto the faceplate) when testing outdoors. When testing indoors, by contrast, it may

be necessary to use a special lamp – one that is neither incandescent nor fluorescent – to simulate daylight and ensure a proper color match.

Before selecting a colorimetric test, it's important to know the likelihood of encountering color or turbidity in the sampled water, as either one of those factors will interfere with color matching. If, for example, you're planning to analyze pH in green or colored pond water or chlorine in cloudy, winterized pool water, you must either filter the sample before testing or choose a test system that compensates for the interference (Figure 2).

And regardless of the type of color-matching system you choose, you must



Testing Tip: If you are among the estimated six to eight percent of the population who lives with red/green deficiencies in your color vision (mainly males), some colorimetric tests will be problematic. Be aware of your limitations and look for alternatives. The color standards used with DPD chlorine tests are all shades of pink, for example. If you have trouble differentiating among the hues, use an FAS-DPD titration test instead – or get a colorimeter and have it read the sample for you.

be certain to select a kit with color standards that reflect your target range of concentrations.

IN PRINT

Despite the fact that neither printed colors nor colored plastic can exactly match the characteristics of an aqueous sample, such comparators are often used in measuring sanitizer levels, water balance parameters and the metals content of watershapes.

There are, for example, many liquid test kits that ask you to dose water samples and then compare the color that develops to printed standards or blocks of tinted plas-



Figure 1

Many test kits use color comparators. Although the one pictured here uses printed-color standards, others may use colored-plastic or liquid standards.

tic corresponding to a range of concentrations for the analyte of interest.

Test strips also require matching colors against a printed standard (Figure 3 on page 50). Strips are now used for a wide range of water tests in both sanitized and living systems and are particularly common these days in testing of ponds and lakes, where parameters such as pH, alkalinity, hardness, ammonia, nitrites and nitrates must be monitored to protect the health of plants and fish.

When using these test strips, you simply “dip and read,” matching the color that develops on each pad against color standards that are usually affixed to the container (Figure 4 on page 50). To ensure accuracy, you must be sure to follow the manufacturer's instructions regarding

immersion time and whether to swish, swirl or dunk the strip to expose the reagent system to the water sample. You also need to follow instructions about how much time you must let elapse before taking a reading.

Test strips are generally recommended for quick checks of watershapes when there's a high probability that the tested water-quality parameters will be within the expected ranges. Suppose, for example, that you're using a typical test strip to determine total alkalinity in a pool: Its container has printed standards for 0, 40, 80, 120, 180 and 240 parts per million and you get a reading somewhere between 40 and 80 ppm. How much sodium bicarbonate should you add to increase the alkalinity to your target of 100 ppm?



Figure 2

Comparators such as this one will compensate for color and turbidity in a water sample.

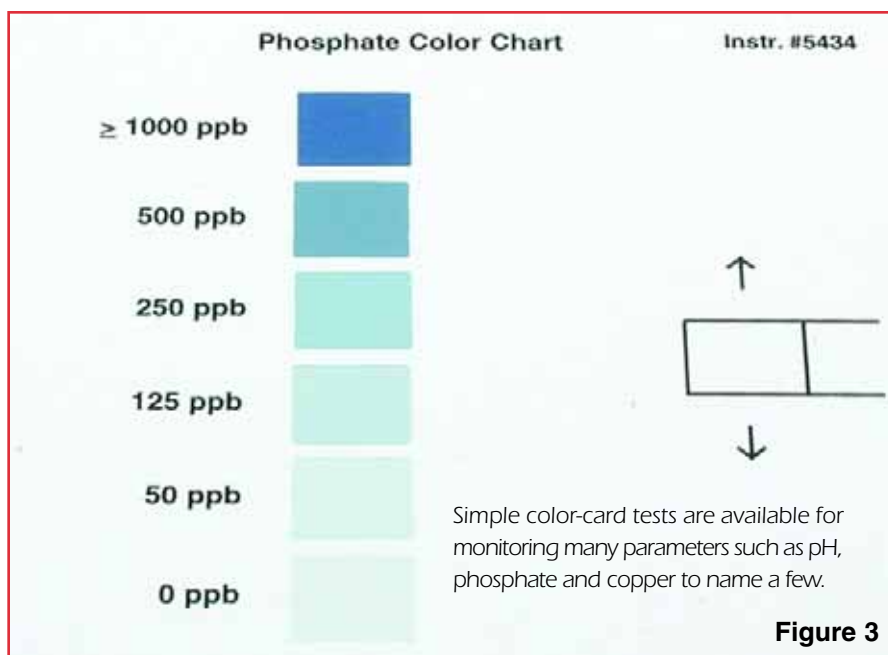


Figure 3

The simple answer is that you don't know exactly because the test strip doesn't operate with the level of resolution needed to calculate a dosage. In this case, it would be better to use a drop-count test, which measures total alkalinity in 10-ppm increments and lets you more accurately determine what you need to do to treat the water properly.

LIQUID LOGIC

To avoid problems associated with the consistency and accuracy of printed standards, many test kits employ liquid-to-liquid color matching.

In these tests, you add reagents to a

water sample that subsequently develops a color proportional to the concentration of the analyte of interest. You then compare this color to multiple liquid standards housed in a handheld comparator, looking for the closest match (Figure 5 on page 51). A typical iron-content comparator, for example, might include liquid standards at 0, 0.2, 0.4, 0.6, 0.8, 1.0, 1.5 and 2.0 ppm in hues that range from light to dark purple.

Liquid-to-liquid comparators are ex-

tremely easy to use, portable and available in the ranges most often encountered in watershapes. If you exercise reasonable care in handling these tools – that is, don't drop them, leave them out in the sun or let them freeze – you will enjoy many years of service from a modest investment.

DROP BY DROP

With some water-quality parameters, the method for testing will take you back to your high-school chemistry class and a process known as *titration*.

Alkalinity, hardness, bromine, chloride



Testing Tip: Look for reliable quality: The best liquid standards are guaranteed not to fade over the lifetime of the comparator.

and chlorine levels, for example, can all be monitored with this simple procedure. First, you collect a sample of the water to be analyzed and then carefully measure it (according to instructions) into a graduated sample tube or flask. Next, you add a special color-changing indicator chemical.

The indicator will change color at a



Testing Tip: With printed standards, important quality distinctions include how close the printed colors actually come to target colors, whether the manufacturer consistently achieves the same colors from press run to press run, and how the standards hold up under constant use in wet environments. Your best bet: Use kits with standards printed on laminated or waterproof paper.



Figure 4

Be sure to hold test strips level when comparing colors to prevent water from running between the reagent pads and contaminating the tests.

specific point in the reaction; this is called the *endpoint* and is the moment in the analysis when the test reading should be taken. Finally, a reagent of known concentration, referred to as the *titrant*, is added incrementally until a permanent color change takes place.

In a total alkalinity test, for example, you will see the treated sample turn from green to a mix of green and red and, finally, to all red at the endpoint (Figure 6). The concentration of the analyte of interest is calculated based on how much titrant was added. (Suppliers recommend conducting these tests against a white background so you can clearly see the progress of the reaction and the endpoint's color change.)



Testing Tip: In performing titrations, swirl the tube after adding each drop to mix the reagent thoroughly into the sample. When in doubt about whether or not a permanent color change has occurred, add one more drop of titrant: If the color does not change any more, do not count that last drop.

Generally, test kits designed for use in the field feature a specific type of titration called a drop-count titration or *drop test*. Titrant is dispensed from a dropper bottle or pipette into the treated water sample until the endpoint is reached. These tests are quite popular because they are portable, require minimal expertise, can be performed in a minute or two even by inexperienced analysts, offer a degree of accuracy sufficient for most applications (depending upon the quality of the dropper's tip) and are quite economical.

In addition, these titration systems have few components, require no calibration and need little upkeep. Some manufacturers offer systems that use

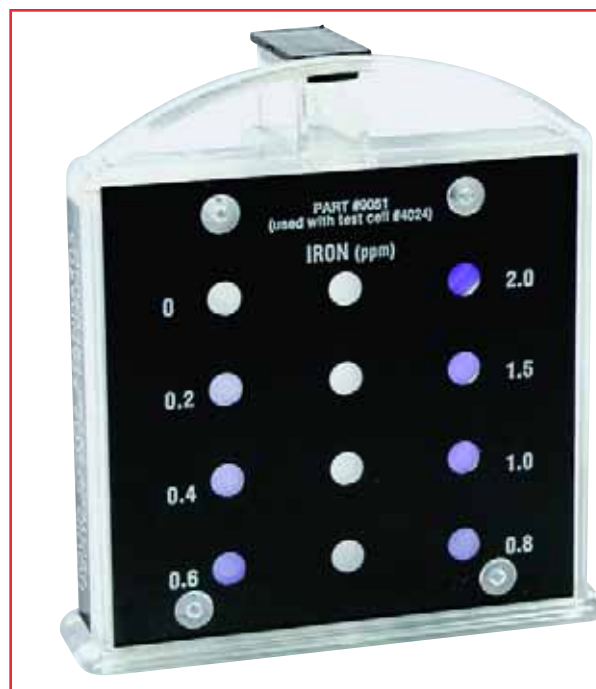


Figure 5

Liquid-to-liquid color comparators provide extremely accurate color matches and are available in a wide variety of parameters and test ranges.

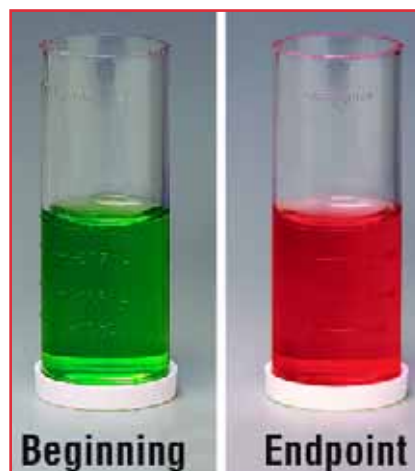
highly accurate microburettes for dispensing the titrant; there are also “reverse titration” kits in which the sample is added to the titrant until the endpoint is reached.

SEEKING CLARITY

The testing of cloudy water is a special sort of water analysis. The cloudiness (or *turbidity*) is caused by solids



Testing Tip: In titration testing, be sure to hold the dropper bottle or pipette straight up and down when dispensing reagent to ensure proper drop size. If you notice a diminishing drop size, you need to remove the static that's causing the problem by wiping around the tip of the dropper with a clean, damp paper towel. (To prevent contamination, wet the towel with a few drops of the reagent.)



In a titration-based test, such as the total alkalinity analysis shown here, a chemical indicator changes color at a specific point in the reaction, signaling that a reading should be taken.

Figure 6

suspended in the water.

Turbid water's cloudiness is caused by suspended solids. Outdoors, these solids would likely include algae and sediments. The naturally occurring turbidity of a pond or stream can be used to gauge its general water quality; a Secchi disk may be used for this purpose on site, or a portable turbidimeter can be used on site or off.

In some tests, turbidity is deliberately created in a water sample as a means of measuring the level of a specific analyte. With pools and spas, for instance, the water is made cloudy in the process

of testing for cyanuric acid, the chemical used to slow ultraviolet degradation of chlorine.

Many watershapers are familiar with the cyanuric acid test in which there's a black dot on the bottom of a test cell (Figure 7). You pour reacted sample water containing a whitish precipitate into it. When you can no longer see the dot, you take the reading from calibration marks on the side of the test cell.

Such a test operates on the same principle as the Secchi disk: The degree to which a marker in the test cell is obscured by the cloudiness of the treated water sample correlates to the concentration of the analyte of interest.

ELECTRONIC ASSISTANCE

As might be expected, many water-quality tests can now be performed with electronic systems that take much of the

subjectivity and approximation out of the equation. When properly maintained and routinely calibrated, these microprocessor-based instruments offer a high level of accuracy in field testing.

Handheld meters, for example, can be used to measure parameters such as pH, temperature, conductivity, resistivity, total dissolved solids (TDS), oxidation-reduction potential (ORP) and many other parameters of interest to those who test and treat the water in watershapes.

Some instruments measure just one parameter, while others measure many. The best are built to withstand the demands of field work and feature waterproof, dustproof, and chemical-resistant housings, ergonomic designs, intuitive operation, pre-programmed methods for multiple analytes, automatic "housekeeping," easy interfaces



Testing Tip: In performing titrations (or any of these tests, for that matter) avoid direct contact with reagents. Many contain harmful substances. In addition, soil and oil transferred from your hands will leave them unfit for testing.

with a personal computer or printer and the potential for a certain amount of customization. These meters enable even those with minimal knowledge of water chemistry to be successful water analysts.

Electronic *controllers* go one step further by continuously analyzing water chemistry and activating mechanical or

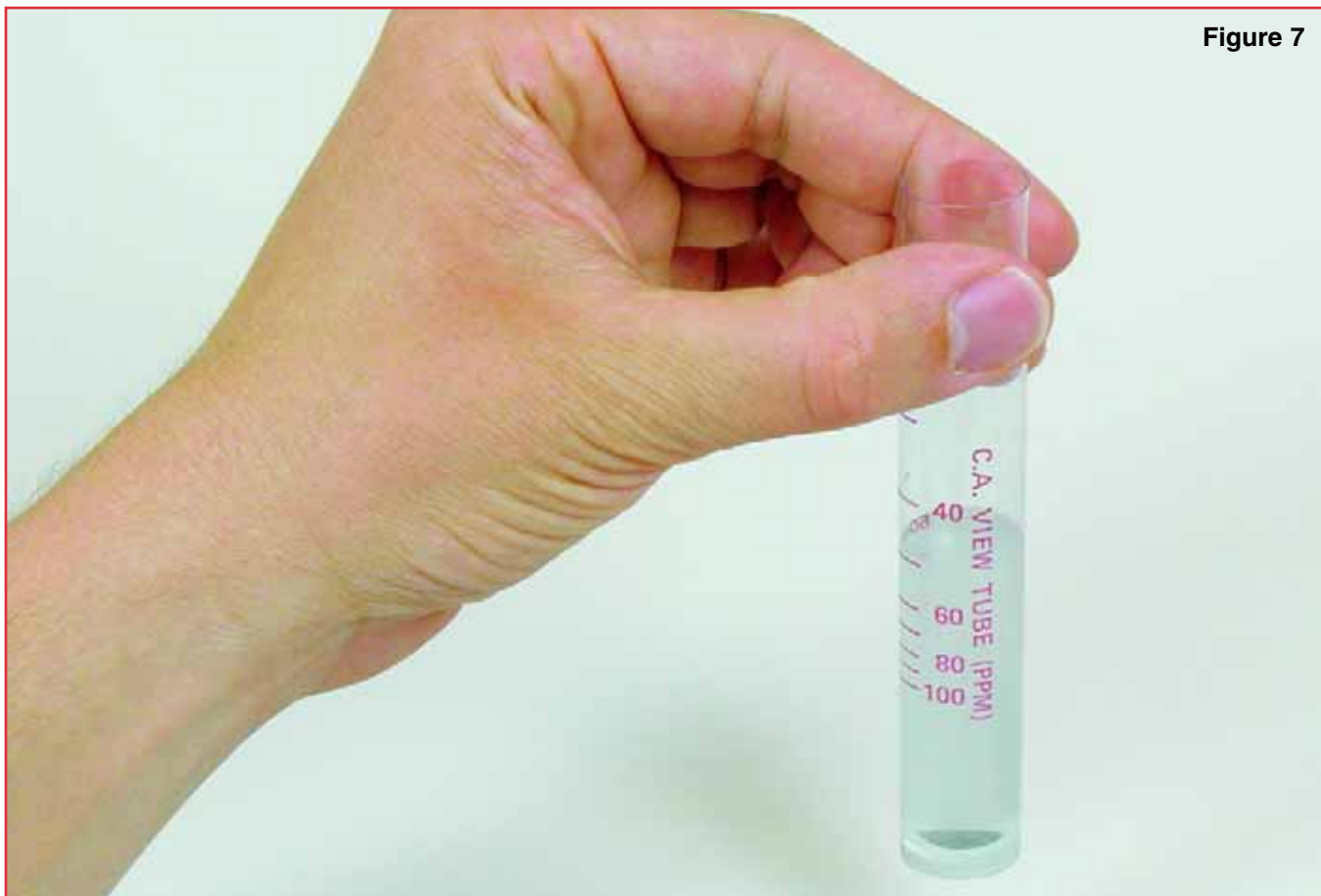


Figure 7

The calibration marks on this test cell indicate the concentration of cyanuric acid in parts per million. The reading is made when a black dot on the cell's bottom is obscured by cloudiness.

chemical water-treatment systems as needed to keep various levels within target ranges.

While once limited mainly to laboratory environments, colorimeters and spectrophotometers are beginning to see greater use in field testing in their portable forms. The technologies employed in these units make them far more sensitive to light and color than the human eye, and they analyze samples in the same way each and every time, which leads to repeatable results.

Simply put, these devices are both accurate and precise. The basic premise is this: Light passes through a prepared water sample and reaches a detector that measures the amount transmitted through or absorbed by the treated sample. (Light of different wavelengths may be used, depending upon the parameter being analyzed.) This measurement of transmitted or absorbed light is then converted to a reading of concentration by software in the meter – a great thing when you need to monitor a parameter at ultra-low levels.

Electronic instruments, however, are not yet a replacement for all other methods. Their price can be prohibitive, for example, in light of the fact that the wet chemistry tests discussed above can do the job much less expensively. Further, they require more care and can go out of commission unexpectedly (although some suppliers offer service loaners for a fee). Still, no one can afford to ignore the benefits of the systems instrument manufacturers have been making available for water analysis.

MAKING CHOICES

This survey of available techniques and technologies is by no means exhaustive and should serve only to introduce basic concepts and to offer you some guidance in the sort of testing associated with starting up and maintaining watershapes of various types.

There are tests for just about every detail of water composition for both sanitized and living systems, and knowing your way around them – at least to the

Testing Techniques

In addition to the tips offered throughout the accompanying text, there are some basic points to follow in any good testing regimen.

- * Before testing, be sure your hands and work area are as clean and dry as possible. Also, keep a notepad, logbook, or PDA nearby to record test results.
- * Familiarize yourself with test instructions before beginning a test – especially when running a test that's new to you – and follow the steps exactly. Note any special considerations stated in the instructions, such as required waiting times, safety warnings and conversion factors for test results.
- * Before beginning, make sure you have all the reagents and labware needed to perform the test – and verify that all components are in good condition.
- * Review test instructions and field manuals carefully for information on potential test interferences and how to avoid them.
- * For meaningful test results, take a water sample representative of conditions in the whole system.
- * Before gathering a sample, always rinse the test cell with the water to be tested to prevent contamination from any residue. This is especially important when using the same test cell to analyze multiple parameters or when using equipment at multiple testing locations.
- * When gathering a sample for off-site analysis (at a pool/spa or pond supply shop, for example), fill the container to overflowing and cap it so no air is present.
- * With on-site analyses, test immediately after sampling, since some values (halogen sanitizers in particular) can change within minutes.
- * After testing, flush out the test cell with demineralized water and wipe equipment down with a clean, dry cloth.
- * To prevent contamination of reagents, don't interchange container caps and always replace them securely.
- * For the same reason, never cap a sample container with your finger while testing.
- * If exchanging one manufacturer's reagents with another's, be sure they're of equivalent strength.
- * To keep reagents fresh, store them out of direct sunlight at 36 to 85 degrees Fahrenheit (2 to 29 degrees Celsius) and away from treatment chemicals. Also avoid extreme temperature fluctuations.
- * Refer to the manufacturer's product literature for information on the useful life of reagents.

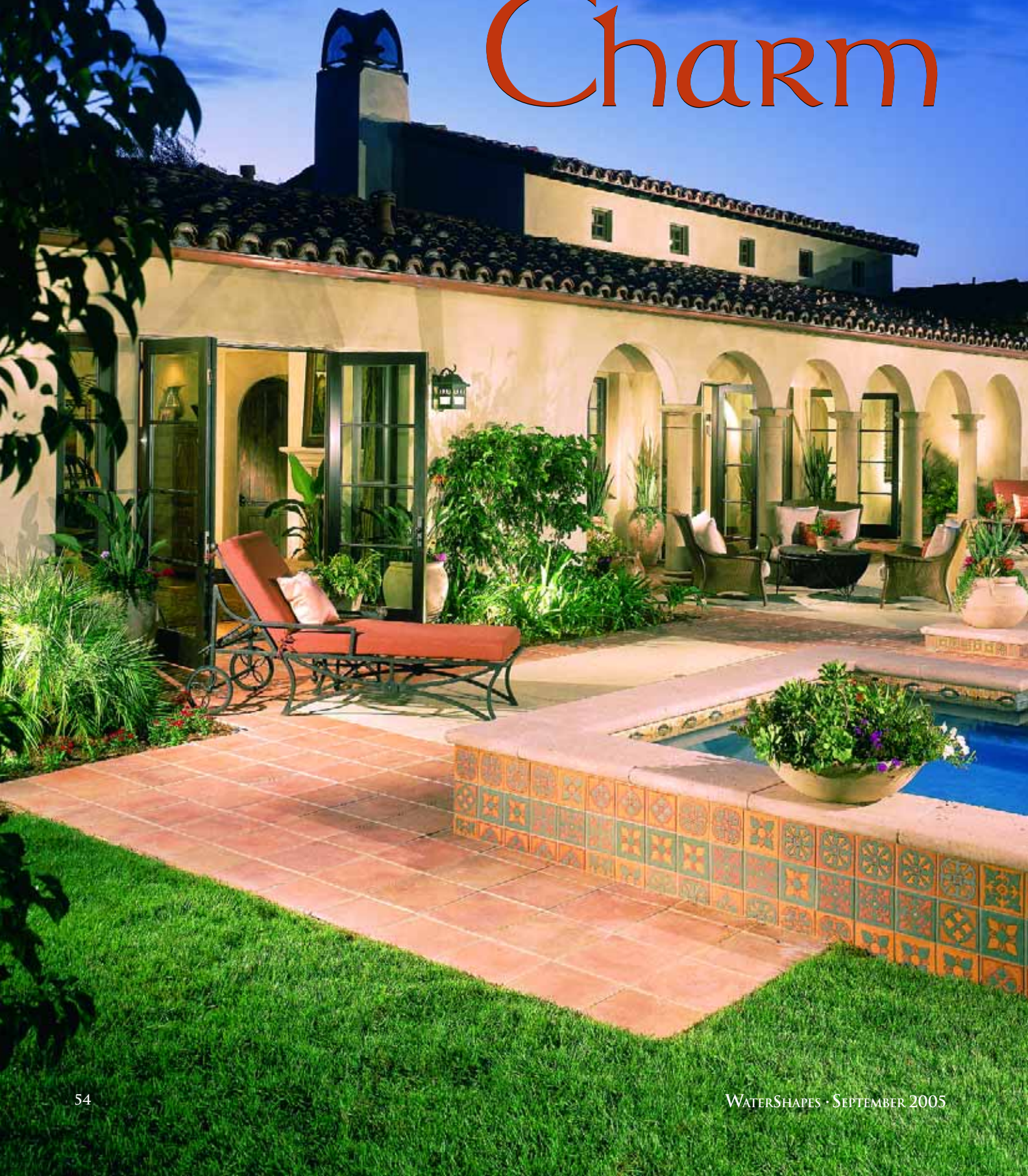
– M.G.

extent of knowing what features can be tested and what the results imply – is good, commonsense practice in a realm where client satisfaction is everyone's goal.

It's all about understanding the options: If you know what's available and why and how it is used, you're better positioned to choose or make sensible rec-

ommendations among the many possibilities and find the test that's best suited to a given application. As you make your decisions, the goal should always be ensuring accurate test results, defining an effective treatment program and, ultimately, figuring out the best way to keep your clients happy.

Mediterranean Charm



MORE than a decade in the making, The Bridges at Rancho Santa Fe is one of the country's most prestigious golf and luxury-living properties. Ken Alperstein and Pinnacle Design were brought in to create watershapes and landscapes for the championship course and the surrounding grounds, then became involved in designing swimming pools and outdoor entertainment spaces for several of the Mediterranean-style homes on the property.

By Ken Alperstein



Our firm has always focused on the creation of watershapes and landscapes for championship-level golf courses. It is work on an enormous scale in beautifully conceived settings, and the clients are extraordinarily demanding. On occasion, our work has reached beyond the links and into the grounds, facilities and homes that surround them.

That makes sense, because the lion's share of our work bordering the fairways, tees and greens runs parallel to development of adjacent luxury homes. This means that we often expend considerable energy in considering the views from future home sites and the ways our watershapes and landscapes visually interact with what are often enormously valuable pieces of private real estate.

Case in point: For the past nine years, my colleagues and I at Pinnacle Design have worked on a golf/residential complex known as The Bridges at Rancho Santa Fe in the rolling hills on the north end of California's San Diego County. In contrast to other projects where our work is primarily concerned with the spaces within the play areas of the courses themselves, this project had us ranging over the *entire* property, including pools, spas, landscapes and exterior environments for about 110 homes.

This has been an all-encompassing project in which every element adheres to a self-consciously European design sensibility. At every step, we extended and amplified an overall visual narrative that drew inspiration from the golden hills rising above the Mediterranean Sea.

Class Acts

Our work began, as is natural for us, with the golf course and the design of multiple waterfeatures and landscaped areas adjacent to the field of play. In this case, it also meant early involvement in developing an extensive stream system that was to enhance and visually unify the settings for the first homes established on the property.

The golf course itself is a masterpiece. Designed by The Robert Trent Jones II Group and a thing of great beauty and variety now played comfortably by players at a wide range of skill levels, the course meets PGA-championship standards and

Photo by Eric Figge, Eric Figge Photography, Irvine, Calif.

plays host to an annual “Battle of the Bridges” tournament that has attracted Tiger Woods and other luminaries from the golf world.

The 540-acre complex includes 231 luxury homes on acre (or larger) parcels. Much of our work has been on The Villas and the Cortile Collection, sets of homes inspired by the architecture and landscapes of Italy and Spain in three broad stylistic categories: Tuscan Farmhouse, Formal Italian and Spanish Countryside.

Unlike most planned developments, however, each home here is unique. They share certain design elements (the use of courtyards, extensive stonework and deep-set windows and doors as well as oversized fireplaces and exposed structural timbers meant to express the homes’ timeless character), but all are intended to provide homeowners with a distinct sense of individuality.

Our challenge in designing the watershapes and landscapes was to echo and magnify the stylistic motifs while providing homeowners with spaces that would be theirs alone. This was clearly *not* a neighborhood, after all, where anyone would be satisfied with having things look too similar from lot to lot.

In other words, we had to work in harmony with those features but also had to respond to whatever we could find that was unique about the settings. In each case, this left us generous room to maneuver with hardscape, planting plans, exterior structures and an array of fountains, pools and spas, outdoor fireplaces and fire pits, patio areas, walls and outdoor cooking areas.

As you’ll see in the accompanying photos, we maintained focus by integrating our work with materials, color schemes and stylistic touches found in the homes themselves. The concept was to create residences that were completely turnkey, finished in every respect except for the furniture.

Points of Pride

In all, we’ve developed designs for more than 50 homes in the Cortile development. And we’re proud to report that our work has earned numerous design awards, including recognition by the Building Industries Association. More important, our clients – both the developers and the residents who have moved in – have expressed their complete satisfaction.

We’re still at work at the Bridges, continuing with residential designs and making improvements to the overall landscapes and community areas. The project is so enormous and intricate that by the time we reach completion of a certain set of tasks, we’ve already started projects involving something new and different.

We’ve done all we can to evoke impressions of Mediterranean climes, but I suppose our success in that particular area is up to the individual observer. For my part, I know that when I spend time in this setting, I get a wonderful feeling of being transported to an environment that is distinctly different and, to me, possessed of a truly European flair.





From the Tuscan Hills

The homes with Tuscan Farmhouse designs are far and away the least formal of the possibilities at the Bridges complex. Here, we surrounded the pools with lots of flagstone, stacked stone and fieldstone waterfalls and opted for rustic, free-flowing, organic looks well suited to the homes.

The cantilevered flagstone decking blends seamlessly with the softly colored ceramic waterline tile and gray pebble finishes – stone and tile details we carried beyond the pools and into outdoor cooking areas, pathways, courtyards and fireplaces.

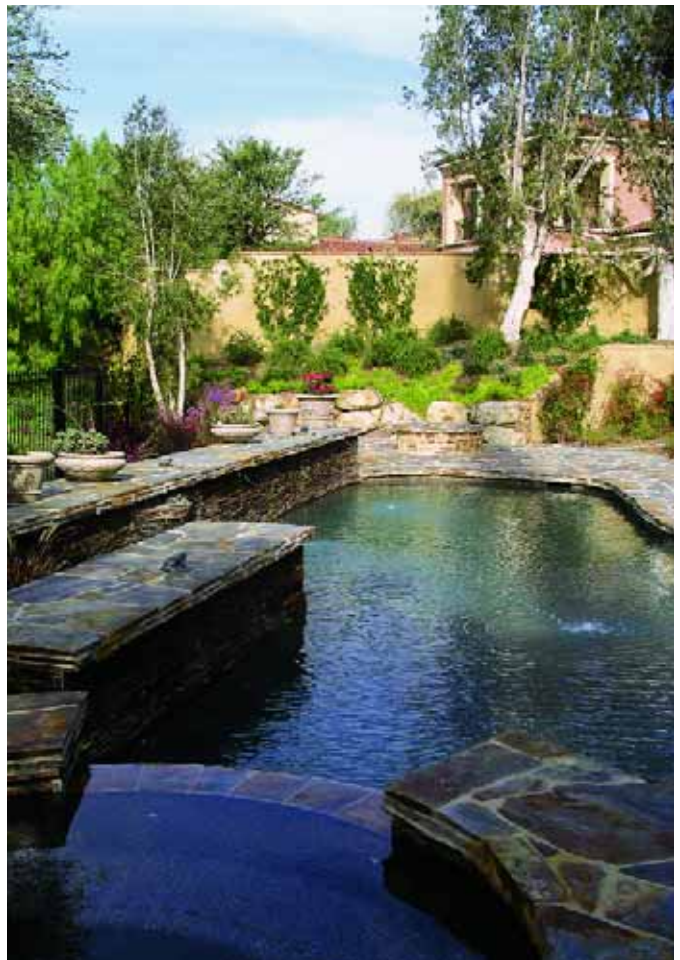


Photo by Eric Figge, Eric Figge Photography, Irvine, Calif.



Photo by Eric Figge, Eric Figge Photography, Irvine, Calif.



Distinctly Italian

With homes of the Formal Italian class, we leaned more toward the look of a classic villa or urban home and a more formal architectural style. The pools in these cases tend to have a symmetrical geometry with crisp rectilinear or curvilinear shapes. The color palette is similarly refined, with contrasting light and dark hues intended to accentuate the geometric designs.

In these cases, we relied on light pre-cast concrete, black and white ceramic tile, classic Roman pottery designs and, occasionally, beautiful statuary or raised spas that double as waterfeatures. It was all about creating a sense of tranquility through use of intimate spaces, lush plantings and the sounds of moving water.

Feature continues on page 62



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Moorish Touches

Homes of the Spanish Countryside persuasion reveal touches of Spain's Moorish heritage – in many ways the most distinctive and influential of the Mediterranean styles.

We used warm, organic colors – lots of reds, browns, beiges, blues and oranges – in the form of vivid, hand-painted Saltillo tile and glass-tile mosaics that adorn simple, rectilinear water-shapes. These tile details are picked up in a variety of ways throughout these spaces – as back-splashes on the outdoor cooking areas, for example, or on pilasters and walls. We also made extensive use of Cantera stone in the pottery and decking.



Key Players

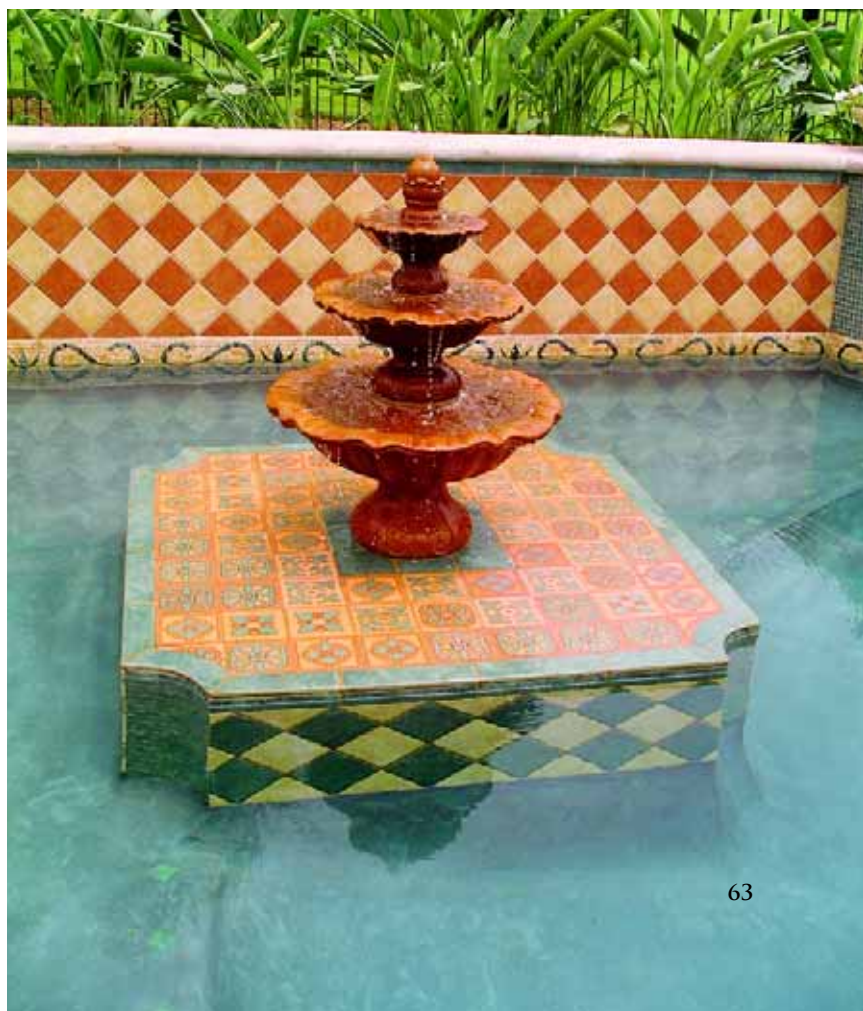
Our firm, Pinnacle Design of San Diego and Palm Desert, Calif., focuses strictly on design and site supervision related to watershapes and landscapes. As is true of any sophisticated project, the success of our design work depends heavily upon the work of key contractors, subcontractors and suppliers.

For our residential work at the Bridges of Rancho Santa Fe, we must acknowledge the amazing skill and flexibility of the following California firms:

- ▶ San Diego Pools, Rancho Santa Fe: *pool and spa construction*
- ▶ Steve Wolff & Associates, Orange: *landscape decoration, pottery and artwork*
- ▶ Rock 'n' Roll Tumbled Stone & Mosaics, San Diego: *stonework and custom tile mosaics*
- ▶ Costa Verde Landscape, Encinitas: *landscape installation*
- ▶ Cross Construction, Vista: *hardscape and stonework*

All were instrumental in the expert execution of the various spaces depicted in this article.

– K.A.



COMPACT EXCAVATOR

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BOBCAT offers the Model 323 compact excavator. Designed to enable contractors to reach farther and dig faster with minimal repositioning, the excavator's two-speed travel motors and hydraulic system provide increased travel speed and improved digging control. The unit has a digging depth of 7-1/2 feet and a maximum reach of nearly 13 feet at ground level for placing of spoils at greater distance. **Bobcat**, West Fargo, ND.

QUICK-CHANGE SPRAYER HOUSING

Circle 137 on Reader Service Card



RAIN DROP PRODUCTS has introduced OmniPod, an inground component that facilitates changes in waterplay features above and below the surface. Contractor-friendly and engineered for use with low-maintenance spray features, the unit installs flush to the ground and features rustproof polymer components and a leak-proof internal gasket that virtually eliminates all sealing problems. **Rain Drop Products**, Ashland, OH.

RETAINING-WALL SYSTEM

Circle 136 on Reader Service Card



REDI-ROCK INT'L offers a modular retaining wall system with units that have nearly six square feet of exposed face and the appearance of natural rock. The natural-rock appearance enhances aesthetics, while the massive scale of the individual blocks (with each weighing about a ton) allows for a fast, easy, and efficient installation process with stable gravity walls up to 13-1/2 feet tall. **Redi-Rock Int'l**, Charlevoix, MI.

MODULAR SLIDE SYSTEM

Circle 138 on Reader Service Card



INTER-FAB has introduced the Build Your Own Slide (BYOS) system. Designed for use by designers and builders who specialize in custom rock and concrete formations, the system features ten different flume sections (in three standard colors) that can be combined and incorporated into custom pool designs. The company's design parameters ensure the safety and quality of each configuration. **Inter-Fab**, Tucson, AZ.

Continued on page 66



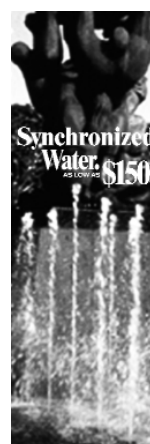
photo by Eric Figg

Golf Course Landscape Architects

PINNACLE
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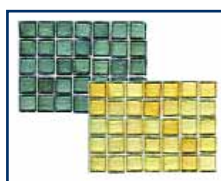
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VERSA-LOK RETAINING WALL SYSTEMS offers solid, pinned segmental retaining wall systems that offer great design flexibility along with ease of installation. Available in standard split-face and weathered textures, the system allows for creation of corners, curves, columns, stairs, terraces and more – including construction of stable walls to heights of 50 feet or taller. **Versa-Lok Retaining Wall Systems**, Oakdale, MN.

NEW GLASS-TILE COLORS

Circle 141 on Reader Service Card



HAKATAI ENTERPRISES has expanded the color palette of its Ashland Series of 1-by-1-inch glass tiles with the addition of two translucent shades: Smoky Quartz and Ginger Tea. All tiles in the series feature multi-toned shading for a unique blend of colors and textures in any installation, and the vibrant yet neutral hues combine well with other materials, including wood, stone and metal. **Hakatai Enterprises**, Ashland, OR.

HIGH-FLOW PUMP

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PENTAIR WATER POOL AND SPA offers the SuperFlo high-performance pump for inground pools. Available at ratings from 1/2 to 2 horsepower, the quiet, self-priming pump features 1-1/2- and 2-inch unionized fittings, a heavy-duty motor and an integrated volute and strain-er pot to reduce hydraulic noise. Its compact size makes it ideal for cramped equipment pads. **Pentair Water Pool and Spa**, Sanford, NC.

WIRELESS REMOTE

Circle 145 on Reader Service Card



JANDY has introduced AquaLink PDA – Pool Digital Assistant, a wireless control system for pools and spas. The device, which features a water-resistant, hand-held remote with a backlit display for nighttime use, is available in five models and controls the filter pump, heater, solar heater, lighting and up to 7 auxiliary circuits. It also interfaces with the company's chlorine generators and digital lights. **Jandy**, Petaluma, CA.

ADA-COMPLIANT RAILS

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S.R. SMITH offers pool and spa ladders and rails with outside diameters of 1-1/2 inches to meet new ADA requirements. All are made with 304 or 316-L stainless steel with a 600-grit finish that resists corrosion. The rails and ladders are also available with 1.9-inch outside diameters, and all products can be ordered with powder-coating for added corrosion resistance and aesthetic appeal. **S.R. Smith**, Canby, OR.

ARCHITECTURAL STONE

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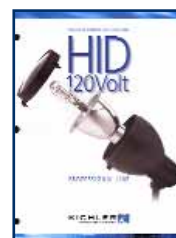


ARRIAGA MARMOLES offers stone architectural elements, tiles and slabs from its quarries in Spain. Custom stone fabrication is the firm's specialty, but it also provides a range of standard designs in marble and limestone including columns, balusters, fountains, statuary and fireplaces. The stone is available in a dozen colors, from rich greens and reds to beiges, browns and whites. **Arriaga Marmoles**, Macael, Spain.

LANDSCAPE-LIGHTING CATALOG

Circle 144 on Reader Service Card

KICHLER LANDSCAPE LIGHTING has published a new Professional Line catalog on its 120-volt HID lighting systems. The 40-page, full-color booklet describes the company's brass and copper fixtures and covers accent, well, ballast, path and spread lights along with installation details, accessories, photometric tables, a lamp guide, a technical glossary and more. **Kichler Landscape Lighting**, Cleveland, OH.



EVAPORATIVE COOLERS

Circle 146 on Reader Service Card

INTELLICOOL offers self-contained evaporative coolers designed for outdoor use. Hot air is drawn into the cooler's bottom, where flash-evaporation occurs. The cooled air then passes through moisture eliminators before moving to the louvered discharge head. The quiet-running, cast-aluminum, powder-coated units come in three finish colors and cool the air by up to 25 degrees. **IntelliCool**, Richardson, TX.



Continued on page 68

HOW GOOD DO YOU WANT TO BE?



Pool & Watershape Construction School October 13-15, 2005

Baltimore, Maryland
Program Cost: \$1,950

In keeping with our mission of advancing education on a global level, we are pleased to announce our new Genesis 3 Pool & Watershape Construction School as the latest component in our design-certification program. The new school's curriculum covers plan review, excavation, layout, soil and drainage, steel placement, plumbing, utilities, gunite, tile and coping, decks and drainage, remote controls, automation, plaster and start-up – with top-flight tradespeople, designers and engineers from the industry as instructors. The school will be held in cooperation with program sponsor Hachik Distributors in the Inner Harbor on the Baltimore Waterfront. Program cost includes accommodations for three nights, meals and course materials.



Level I Design School October 19-23, 2005

Morro Bay, California
Program Cost: \$3,500

Our flagship program focuses on introducing participants to the Genesis 3 philosophy and our practical approach to watershape design and construction. Sessions focus on drawing and presentation techniques, design principles, engineering details, vanishing-edge design and construction, hydraulics, the history of pools and fountains – and much more. Enrollment is limited to ensure personalized instruction, and all courses are taught by recognized industry experts. There's also a lifestyle component to the school, so participants are encouraged to bring a spouse or guest (additional cost: \$950). Program cost includes accommodations for four nights, meals and all course materials.

Landscape Lighting Institute December 10-16, 2005

Scottsdale, Arizona
Program Cost: \$4,100

Come spend five days and nights with world-renowned lighting designer Janet Lennox Moyer and associates to learn all about the art of lighting exterior spaces. Structured to familiarize participants with what's needed to develop and achieve a number of lighting effects in their own projects, the intensive program will include technical information and an introduction to lighting-design concepts as well as design workshops and five nights of hands-on exploration of lighting techniques. The school will be held at the exclusive Hyatt Regency Scottsdale Resort & Spa at Gainey Ranch in the Sonoran Desert. Program cost includes accommodations for six nights, meals and course materials.

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FIBERGLASS SLIDES

Circle 147 on Reader Service Card



WHITEWATER WEST offers PoolSider, a 36-inch open-flume body slide, and AquaTube, a 32-inch enclosed slide, both made using SilkTek, a fiberglass technology that allows for resin injection into molds pre-loaded with fabric. The result is slides made with narrower tolerances, higher structural integrity and superior appearance, consistent thickness, smoother joints and easier maintenance. **Whitewater West**, Richmond, British Columbia, Canada.

POND-EDGING SYSTEM

Circle 149 on Reader Service Card



OLY-OLA EDGINGS offers Keeper for Ponds, an edging system that can be installed above or beneath a liner to secure and define the edge. Installing the liner over the black-vinyl edging allows the water line to be level with the ground surface, thus hiding the pond liner. Alternatively, installing the edging on top of the pond liner creates a defined edge ideal for ponds rimmed by pavers. **Oly-Ola Edgings**, Villa Park, IL.

OUTDOOR SPEAKERS

Circle 151 on Reader Service Card



SONANCE has introduced eight new models of outdoor speakers. Designed for superior performance and increased durability, each product in the Mariner line includes a new wire-routing system and a versatile indexed mounting system to make installation faster and easier. The speakers lock into their brackets and also feature sealed enclosures for greater protection from the elements. **Sonance**, San Clemente, CA.

DECK-EDGE ROCKS

Circle 153 on Reader Service Card



REPLICATIONS UNLIMITED has developed a new line of deck rocks to be used on their own or to match and coordinate with the company's artificial rock waterfalls. The rocks come in 8 shapes and 4 colors, and each is designed to hang over the edge and into the pool either to touch or submerge into the water. The finish color will last for years without fading or chipping. **Replications Unlimited**, St. Louis, MO.

LIGHTED MINI-LAMINARS

Circle 148 on Reader Service Card



FIBERSTARS offers Lighted Mini-Laminars for compact waterfeature applications. The jet housings are 8-by-12-1/2 inches for easy installation and concealment and are designed to produce colorful, coherently illuminated water flows that reach up to 3 feet in height and 5 feet in distance. Each unit comes with a deck box and with either a 20- or 40-foot run of pre-attached, 50-strand fiber-optic cable. **Fiberstars**, Fremont, CA.

SPECIALTY FITTING

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LASCO FITTINGS has introduced a 22-1/2-degree elbow fitting designed to allow standard piping to follow the contours of watershape and landscape edges more easily and accurately in situations where the pipe is too stiff to bend safely. The injection-molded Schedule 40 fitting comes in six diameters – 1-1/2, 2, 2-1/2, 3, 4 and 6 inches – and has been pressure rated to 315 psi. **Lasco Fittings**, Brownsville, TN.

THREE-BEAM LASER LEVEL

Circle 152 on Reader Service Card



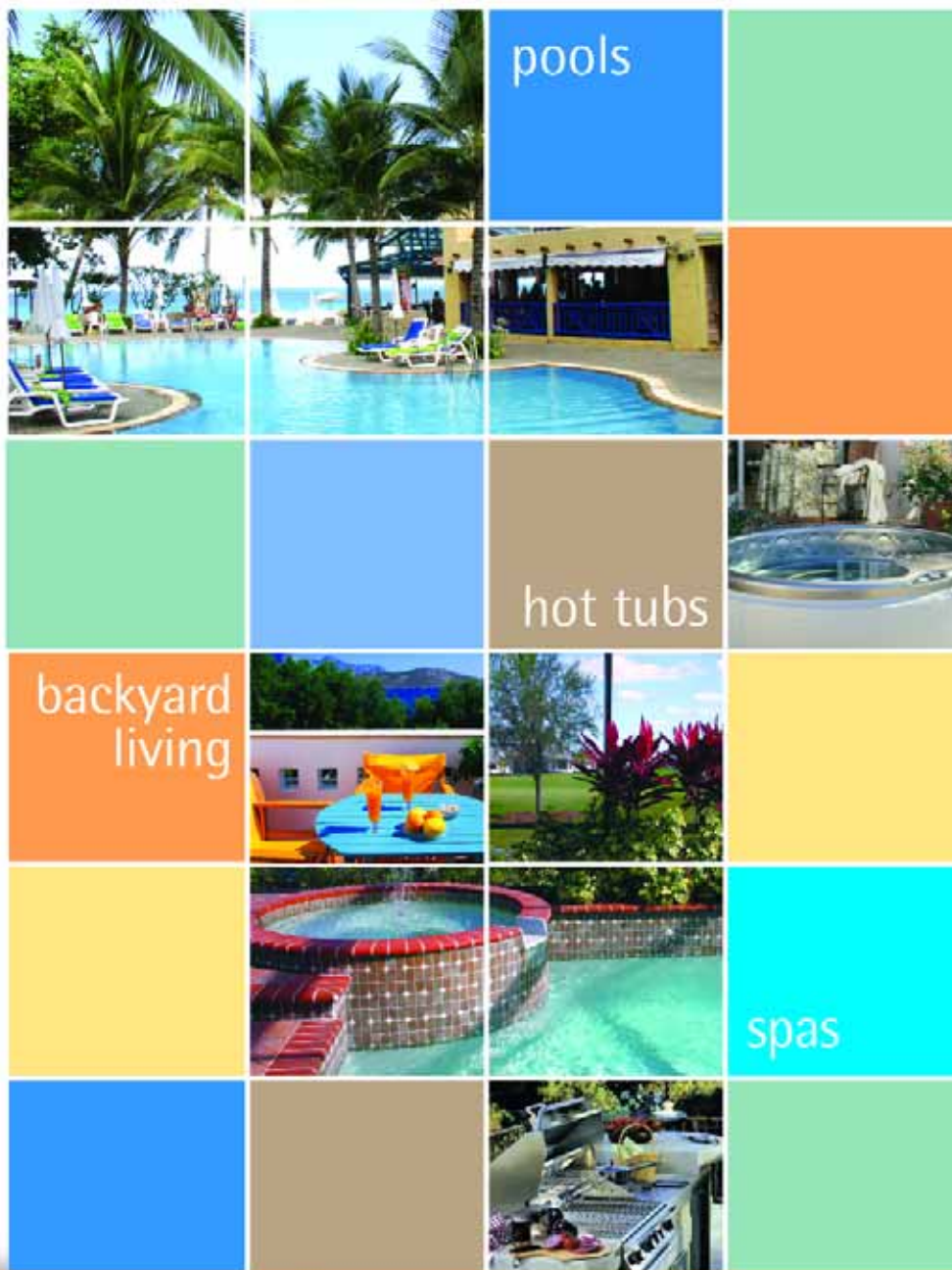
DEWALT has introduced Model DW099, a three-beam laser level designed for durability and to offer users a reference tool that combines three precision bubble vials with laser beams for cross-referencing. The unit allows users to meet varied job-site demands and application needs and generates precise laser beams for plumb, level and square applications with an operating range of up to 200 feet. **DeWalt**, Baltimore, MD.

LED STEP LIGHTS

Circle 154 on Reader Service Card



BRONZELITE has introduced 3- and 5-watt versions of its brick-sized step lights. The WLA1/WLB1 LED series is energy efficient and long-lasting, with 70-percent lumen maintenance after 50,000 hours; comes with cast aluminum or brass faceplates; and features horizontal frosted lenses, horizontal louvers or vertical louvers. The lights are ADA-compliant and can be used indoors or out. **Bronzelite**, Littlestown, PA.



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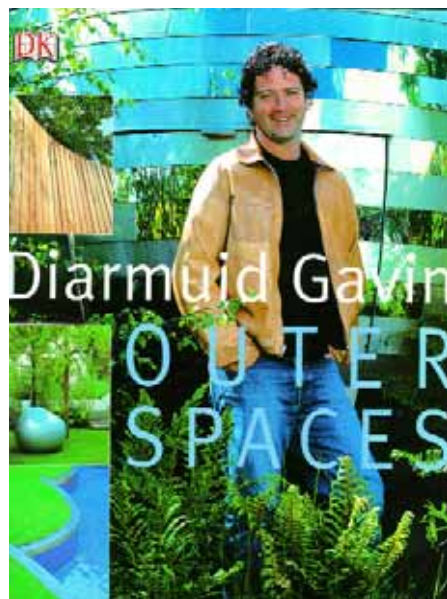
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By Mike Farley

From Outer Space



If you're uncomfortable with ultra-adventurous design schemes, you can stop reading this review right now.

If, however, you find inspiration in projects that are completely original, then Diarmuid Gavin's *Outer Spaces* is an amazing and rewarding book. The 256-page text (DK Publishing, 2003) covers 25 mind-blowing projects by this award-winning Irish landscape architect and host of his own PBS series, *The Home Front*.

Gavin has become something of an international celebrity with a reputation for creating what might loosely be termed "contemporary spaces" that use materials, shapes, plants and water in extraordinary and surprising ways.

In this book (one of several he's published), he starts by discussing his background and philosophy. He explains that in the early 1990s, after having won several design awards at the prestigious Chelsea Flower Show, he began to recognize that everything he and other designers were doing was no more than a grand repetition of the past.

Inspired to break from tradition, he embarked on a quest to tear down the walls of traditional exterior design by using forms and materials that run toward contemporary style but that are otherwise difficult to categorize. As he explains, however, what most people think of as "contemporary" is extremely limited and often quite austere, when in fact it is a much more open-ended and varied design sensibility.

Using his own work as an example, he makes his point in a big, bold way.

The 25 case studies are broken into six categories: "Play," about spaces for kids; "Parties," on spaces for entertainment; "Inspiration," about meditative

and tranquility gardens; "Nature," which focuses on blending contemporary design with naturalistic design elements; "Unwind," on projects meant purely for relaxation; and "Dreams," on the wildly unusual.

In each case study, he generously discusses a project's goals and missions, the inspiration he used to develop the design, the process of working through renderings, how he achieved some of the more unusual effects with respect to construction, and the end product. All of this is extremely helpful in developing an understanding of his work, some of which is so unusual that the point might be lost in simply looking at the beautifully shot, arranged and captioned photographs.

The details range from the extremely subtle and simple to the wildly bold and complex. One of his gardens, for example, is organized on various levels in an artfully composed set of trays. Another uses steel grating in conjunction with plant material to create grade transitions. In another instance, he floats a glass garden room atop a glassy body of water, while in another he uses a human-sized slinky to create a transition from one space to another. One of my favorites is a glass room that slowly moves through a large garden while you sit in it, courtesy of a set of tracks he installed.

Each project has elements that challenge the way we think. In many cases, it's a matter of using materials or shapes that we wouldn't consider mainly because it's not something we've seen before – a curvilinear trellis, for example, or a tree swing in which you sit in a giant metal ball. There are also fascinating walls, pathways, shade structures, caves and grottos – and *lots* of water, which makes this book extremely useful for watershapers.

Bottom line: This is a terrific book, if for no other reason than it challenges us to think of exterior design in a fresh way. For my part, I'm already including a few Gavin-inspired details in some of my designs. **WS**

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

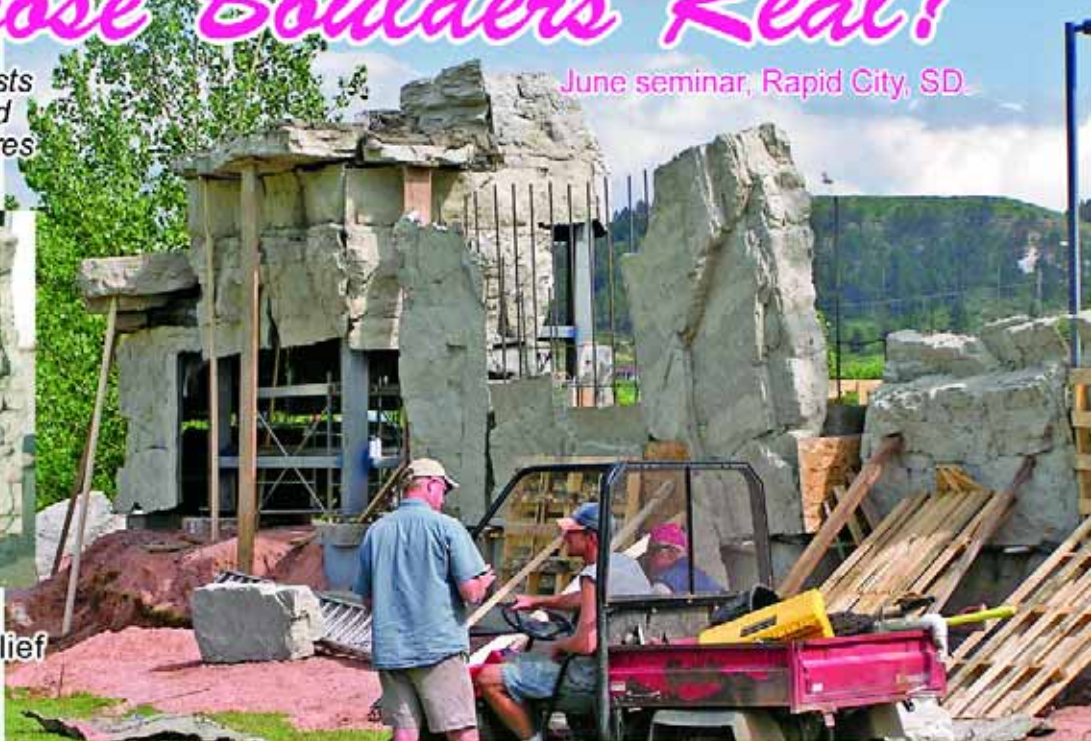
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