Inside: Stephanie Rose on Garden Tours

WaterShapes

Design • Engineering • Construction

Volume 9
Number 5
May 2007
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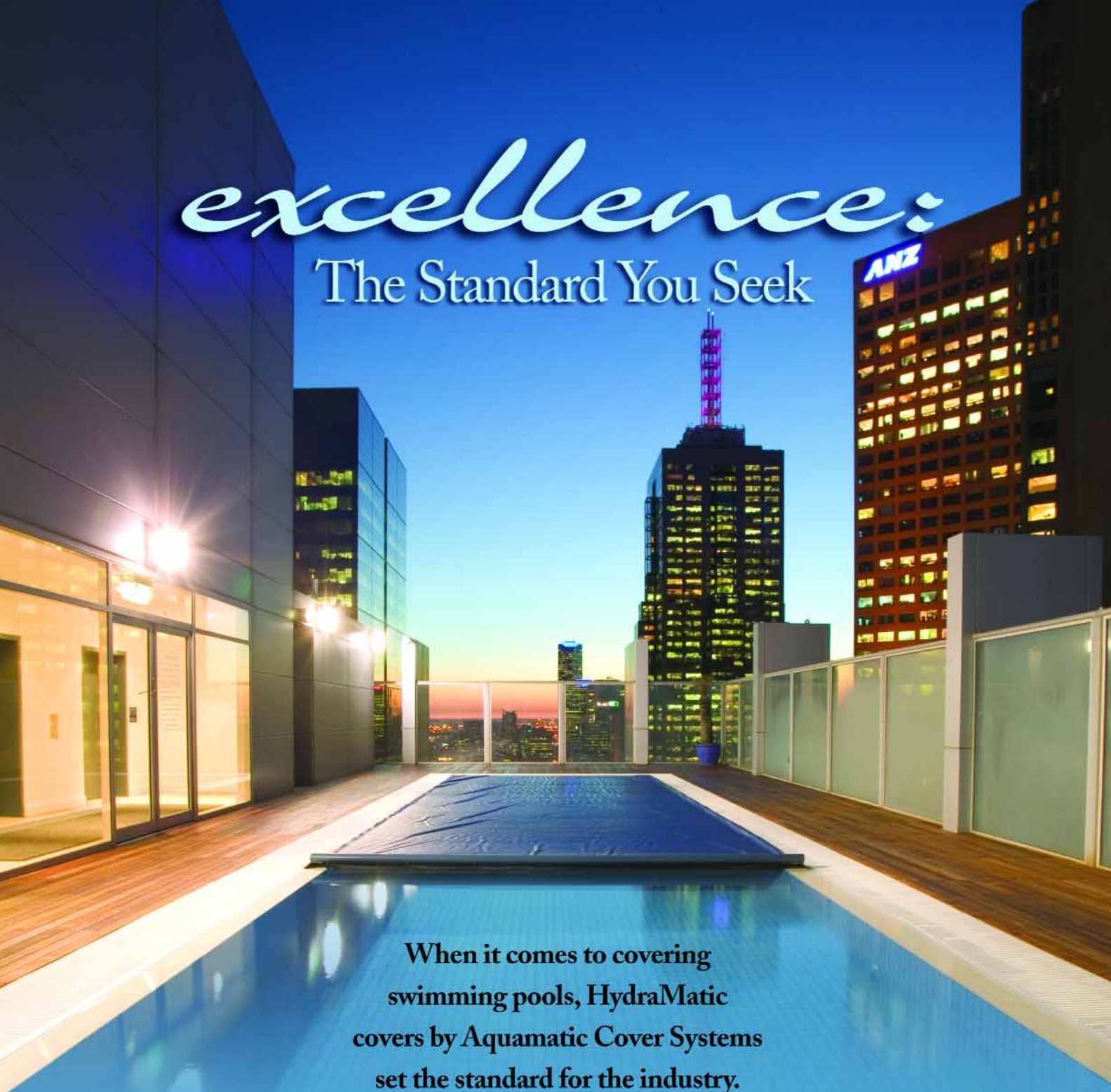

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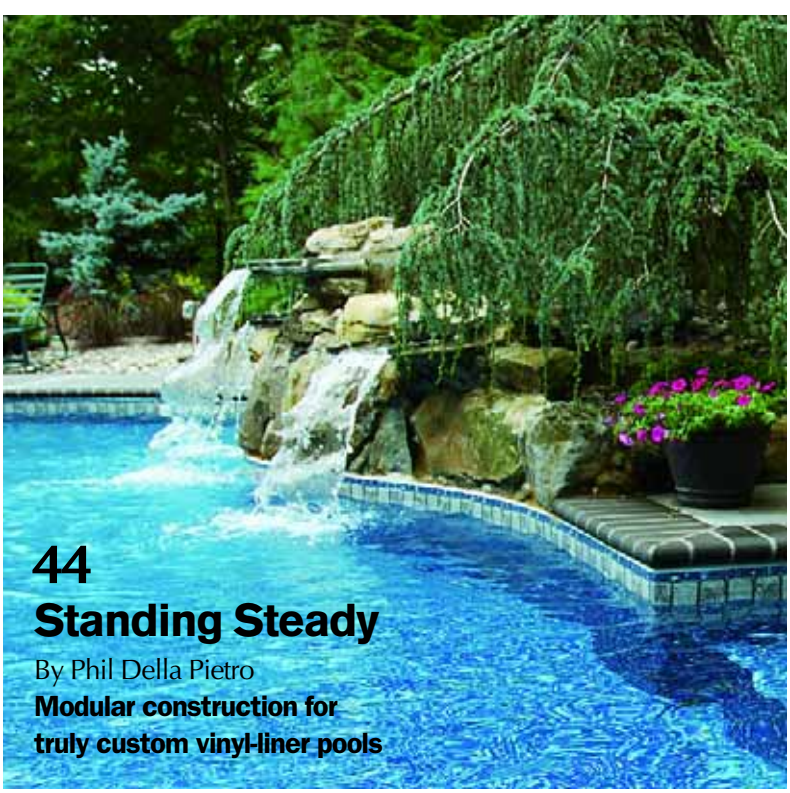

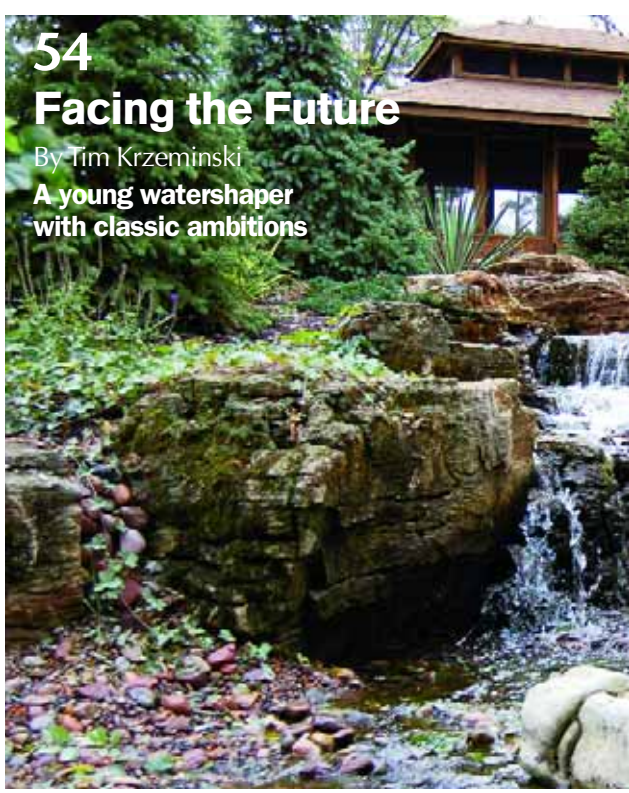

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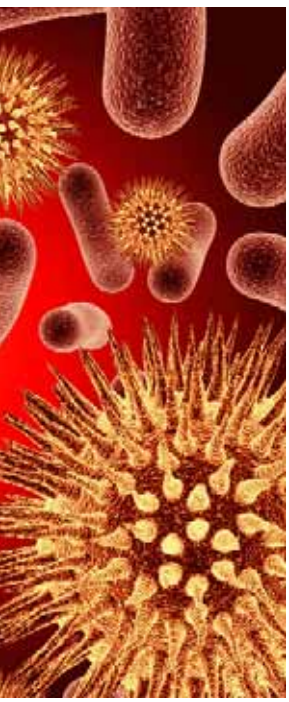

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On the cover:
Photo courtesy Paolo Benedetti, Aquatic Technology Pool & Spa, Morgan Hill, Calif.

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By Eric Herman

Good Purchases

As the list of columns and articles appearing on these pages has grown longer and longer through the years, it has often been my pleasant duty to use my own column to call attention to specific stories and authors.

Most often, I do what I can to lend my own perspective to what they have to say, drawing connections between their work and a larger context or setting up expectations for something special. Some of these authors appear regularly among these pages, others less frequently – but in all cases they deserve credit for advancing dialogues that many of you tell me have profoundly influenced the way you approach your working lives.

This time, I'd like to get a bit more focused than usual and spotlight one of the watershaping industry's most passionate and accomplished practitioners, my good friend Paolo Benedetti. This "pool contractor par excellence" has been a part of the *WaterShapes* family for many years now, and in this issue (beginning on page 30) he delves deeply into the subject of finding sources for materials.

This latest feature is just one example of the enthusiasm and dedication Paolo brings to the process of designing and building top-flight residential watershapes. In this case, he reviews a number of sourcing methods that are tried and true, but the remarkable thing is the way he shares some unusual approaches that many in his position would have guarded as secret – as his edges in a competitive marketplace.

Instead, he speaks with years of experience in beating the bushes for the ideas and new products that characterize his work and the beautiful stone, tile, concrete treatments and other materials that make their way into his designs. Along the way, he argues for making substantial investments of time, money and energy, using his body of work to define the benefits of his approach and his candor to make it accessible on a number of levels.

This subject of finding and using great materials has been a thread of discussion we've woven through a huge number of columns and features published in *WaterShapes* through the years, but no writer has ever gone as far as Paolo has here to lay out an approach to making it happen in a practical, ongoing way.

As I see it, this discussion defines an open-mindedness that defines the true potential of watershaping: At its best, it's an art form that is about possibilities and, quite often, about presenting unexpected and even surprising options to clients. The fact is, clients can't ask for materials they've never seen or have never considered in the context of a watershape; what Paolo and like-minded colleagues do is make the case for unusual choices that continually expand the realm of watershaping possibilities.

By stepping beyond the boundaries of standard product offerings – and by sharing details of his approach – he invites all watershapers to join him in expanding material options and applications. When enough of you join him in the hunt, creative horizons will broaden and your clients will reap the benefits.

For my part, I feel lucky to know people like Paolo who refuse to accept the status quo – and even luckier to be able to provide all of them with a forum in which they can tell their dynamic stories.

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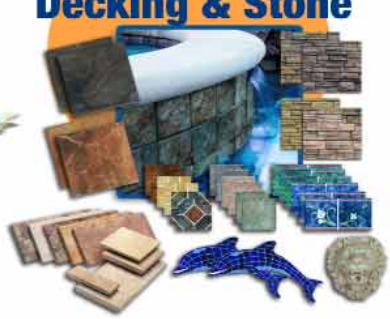

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May's Writers

Paolo Benedetti is president and founder of Aquatic Technology Pool & Spa in Morgan Hill, Calif. He started in the pool industry several years ago when he purchased a high-end pool/spa service and repair company in California's Silicon Valley. Operations quickly expanded to include the remodeling and construction activities that are now the firm's sole focus and to which are applied the latest advances in construction technology and quality control. Long dedicated to advancing his knowledge of design and engineering – and working to foster those values throughout the industry – Benedetti was honored in 2005 as one of the first ten professionals to have successfully completed the educational requirements of the Society of Watershape Designers. He is also a regular speaker at Genesis 3 educational events and serves as an instructor for their internationally acclaimed Pool & Watershape Construction Schools.

Bruce Kania is an inventor with a successful track record in the licensing of product concepts in the prosthetic, orthotic, textile and sporting-goods industries. He originated the idea of replicating natural, self-sustaining floating islands while working at his research farm in eastern Montana and runs what amounts to a think tank of independent contractors through his company, Fountainhead LLC of Bozeman, Mont. In his work, he deliberately

draws on an enormous talent pool centered in and around the state, finding creative people with the right skills to achieve innovative and marketable results.

Phil Della Pietro Sr. is vice president of Pool & Spa Doctor, a vinyl-liner pool service, design and installation firm based in Wall, N.J. A pool-industry veteran of 38 years, Della Pietro began in the industry with his own backyard pool, which he began servicing and repairing himself. He subsequently worked for a variety of local firms until he and his wife Geri founded their current company in 1984. His son, Phil Jr., is also a vice president for the company. Della Pietro has a degree in physical education from Kentucky's Moorehead State University. Before joining the industry, he worked extensively as a lifeguard and for a short time as a school teacher.

Tim Krzeminski is president and founder of Laughing Water, a high-end pond/stream design and installation company based in Palo Park, Ill., that he founded in 2002 while still in high school. His first experience came in landscape maintenance, but, recognizing local demand for quality pond and stream services, he decided to enter that field soon after. Ever since, he has applied himself rigorously to studying the fine points of naturalistic water-shaping and now focuses solely on ultra-high-end residential projects.

By Brian Van Bower

Cross Pollinating

It may be a cliché, but I think there's something to be said for the notion that you need to know where you've been to see where you're going: The present and the future are always both a result of (and a response to) the past.

For years, voices in this magazine have described, defined and advocated changes in the way the watershaping industry works. I, for one, have written volumes on what the pool and spa industry was once like and how the benefits of elevating our approaches flow to everyone from suppliers, designers and contractors to consumers as well. I've also meditated more than once on how professionals on the landscape architecture/design side seem to be evolving in the ways they think about water and its uses.

From where I sit as a watershape designer, educator and columnist, it's been an exciting ride: In many ways, in fact, our industry is simply more diverse, creative, interesting and fun than it used to be.

One of the things that continues to interest me – and should probably pique the curiosity of others as well – is the way in which the boundaries of what we call the watershaping trades continue to expand. Recently, for example, I've noticed that landscape *contractors* seem to be jumping at watershaping in substantial numbers – a development that may well influence the industry's future.

I would never have imagined that landscape contractors would have been so interested, so *engaged* in our discussion of the fine points of creating vanishing-edge or perimeter-overflow pools.

turning blue

It's never been a secret that landscape architects and designers have been heavily involved in all manner of watershapes – everything from backyard swimming pools to golf course lakes. In lots of cases, the actual work on these watershapes was done "by others," with those others very often coming from the pool/spa industry or the emerging pond/stream marketplace.

Now contractors in the landscape industry are getting involved in shaping these systems, too – and those who haven't done so as yet definitely seem to be thinking about it.

All of a sudden, it seems, my Genesis 3 partners Skip Phillips and David Tisherman and I have been asked to deliver programs at events that previously seemed to have little to do with watershaping in general and pools in particular. In March, for example, Skip, Genesis 3 Platinum member Randy Beard and I delivered two separate seminars on water-in-transit systems during the Landscape Industry Show sponsored by the California Landscape Contractors Association (CLCA), and we've been asked to provide similar programs to other groups in the nursery and landscape-contracting industries in months to come.

At the CLCA event, we faced large, enthusiastic audiences that peppered us with a range of unexpectedly interesting questions. Most in attendance represented contractor companies of the sort that would typically install irrigation systems and put plants in the ground.

Indeed, I would never have imagined that landscape contractors would have been so interested, so *engaged* in our discussion of the fine points of creating vanishing-edge or perimeter-overflow pools. Yet there they were, in force and obviously eager to learn all about a distinctly advanced form of watershaping.

Continued on page 12

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So what's going on here? Obviously these people are interested for a reason, and the fact that event planners contacted us many months ago to schedule our presentation tells me that watershaping has been the subject of discussion in this sector for a while. Now they're at the point where they've sought out and invited instructors to meet the demand for information – but why is this happening and what might it mean?

To get to an answer, all we need to do, I think, is back up and take a look at where the pool and spa industry was a couple years back: I recall a time when those who installed swimming pools didn't give a second thought to plants, focusing all their energies on concrete, plumbing, electrical systems and equipment pads. To borrow a phrase used above, plants were "by others."

back at us

That "the rest of the backyard is someone else's concern" attitude has obviously changed for multitudes of pool/spa designers and builders in recent years, partly because our clients themselves have changed and are now thinking in terms of complete, fully integrated exterior environments.

Responding to this demand, we as watershapers somehow came collectively to the conclusion that we needed to be at least *conversant* about plant material, and some of us have even become directly involved in planning, plant selection and installation. On our side of things, this has been a *huge* evolutionary step.

Of course, the magazine you hold in your hands has played a part here: Back when *WaterShapes* first appeared in February 1999, I'm certain it puzzled a great many people (and in some cases probably still does) that the editor included, in every issue, a column by landscape designer Stephanie Rose, whose subject matter is basically nothing but plants.

As it turns out, this was a radical move that catalyzed an important focus on plantings as part of the enlarging picture of what watershaping was all about. Her column has always been both interesting and useful, but it's only in preparing my column this time that I'm beginning to appreciate just how *influential* it has been as well.

Looking back with this perspective, it's no surprise that Genesis 3 began including landscape-side experts in its programs, offering coverage of watergardening and landscape lighting: Perhaps prompted by *WaterShapes*, our own audience had begun to recognize that watershapes do not exist in vacuums and are, in fact, components of much larger pictures. Again, we collectively came to recognize that, in a great many situations, watershapes are there mainly to accentuate the beauty of the plants that surround them.

As professionals focused on water, in other words and on some level, we understood that it is to our advantage to look past the water's edge and embrace land-

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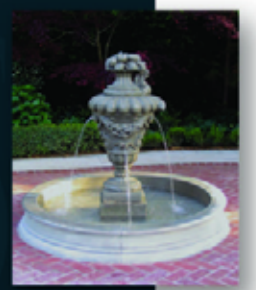

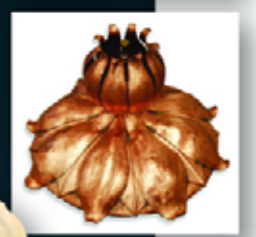

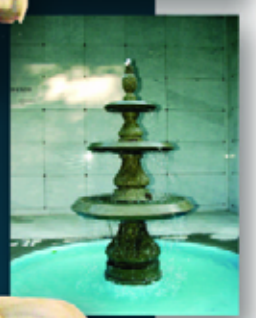

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scaping and all the other potentialities of the spaces in which we work. Now it is becoming clear that the traditional landscaping trades are reaching similar conclusions: Contractors who once would have given little thought to swimming pools or even fountains are now casting their collective gaze toward the water.

So what are we watershapers to take from this observation? What does this new trend mean and how should we respond to it?

core values

Before I offer answers to those questions, I want to make a clear distinction. For as long as there have been landscape architects and designers, they have tended to be fully involved with water. This column isn't about these professionals, who have stood under the umbrella of watershaping forever; instead, it's about landscape contractors – the people who often install their designs.

In the watershaping trades, there's been a blurring of the lines between designers and installers that has taken practical form in the growing population of design/build firms. It's long been asserted that the best designers understand construction and the best contractors understand design, and these firms embody this wisdom in one operation.

The same thing, it seems to me, is happening among landscape firms, where more and more operations are embracing both design and installation as their business models and are seeing what watershapers have seen for years now: There's value in being able to deliver the whole package, the entire backyard environment to clients. I may be biased in saying this, but water is the heart of the best exterior spaces, so it makes sense that landscape contractors who are interested in design would head our way.

And if they don't get directly involved, they are at least passionate about understanding the natures of systems that are increasingly part of overall project plans.

What's even more important – and perhaps the force that drives all of this – is what's happening with consumer expectations. Simply put, if you're a watershaper, your clients are more likely than ever before to ask you about landscaping; conversely, if you're a landshaper, your clients are going to ask you about water. They do so because they want a complete composition of exterior elements for their homes and probably don't give a moment's thought to the gap between industries.

In other words, in crossing over classic disciplinary lines, both watershapers and landshapers are responding to a major consumer trend and, in the case of this magazine and a number of forward-thinking firms, are also driving consumer expectations at the same time. Ultimately, this means the boundaries of the landscape and watershape industries are overlapping more than they have ever before.

It's a time when both industries, once isolated from one another, are now increasingly integrated. In my book, this is a trend that spells opportunity for those who see what's happening – and peril to those who cling to the status quo.

in perspective

The trouble with discussing trends, of course, is that it's easy to get ahead of yourself: The fact that a couple nursery and landscape-contractor shows are offering courses on water (and a few pool-industry events are offering landscape-oriented seminars) doesn't mean that there's anything approaching complete integration: In fact, there's more than a little evidence that points to ongoing disconnection of the two industries.

On the pool side, there are many who still ignore landscaping and stick to vessels and the three-foot ribbons of decking with which they surround their work, just as there are many industry events that go nowhere near the subject. Likewise, there are landshapers who ignore water's potential and events in the landscape industry that don't dip into water unless it's about irrigation or, perhaps, wetland restoration.

What this tells me is that there are going to be those on both sides of the equation who will make a killing by recognizing and exploiting this trend and those who will come late to the game or never embrace the change at all. Some might even argue with me that any of

what I see is happening at all.

I must say that I'm surprised that some of the smartest people in both industries don't seem to see this trend – or at least show no evidence of acting upon it. By now, I would have expected trade-show exhibitors to migrate across industry lines and classic pool-industry firms to show up, for example, at the American Society of Landscape Architects' annual Expo. Pebble Technology and a few others participate, but few others do despite the fact we know that thousands of landscape architects read *WaterShapes* and that contractors from the landscape industry are pressing their associations to provide seminars on watershape-related subjects.

The inverse is true, of course: I've never seen a tree farm or nursery exhibit at a swimming pool show, even though we know for a fact that many watershapers are now involved with providing plant material.

It seems to me that developing broader client bases is what being a supplier is all about. At a time when we watershapers and landshapers are looking to magazines, trade shows and the Internet for resources from both industries, it only makes sense for suppliers on one side or the other to reach across the boundaries and check into what's happening on the other side.

It may take time for these suppliers to generate meaningful results, but at a time when boundaries are breaking down, those who are ambitious, focused and aggressive stand to gain the most. At the very least, this sort of outreach will be interesting; at the most, it may be completely transforming.

natural selection

If you step back a thoughtful pace or two, none of what I've written here should come as a shock. We live in an era of rapid change and incredible competitive and economic pressure, and in such times, integration and market expansion are often used to gain a strategic edge.

When you think about watershaping and landshaping in that light, integration of the two industries seems a logical step: As Stephanie Rose proclaims in her column's title, they are indeed "Natural Companions," and it's not much of a leap to see the two activities as an increasingly seamless tandem.

What will this picture look like in the future? Who knows, but I have every reason to believe that there may come a day when the two industries will merge into a single, beautiful hybrid. For some, that prospect will be frightening; for those who embrace change, however, it might just be *sweet*. WS

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

By Stephanie Rose

The World of Others

With spring upon us, calendars of local events are filling up with garden tours of all shapes and sizes. From large estate tours and special events at botanical gardens to tours of wonderful neighborhoods staged by local garden clubs, there's much to be seen while wandering through the grounds and yards and viewing the work of other designers and architects.

I've always enjoyed these tours and learn something from each and every one, whether it's about a new plant or plant combination or an installation technique shared by a generous designer or installer who's on hand for that purpose. On a completely business note, I also have to say that some of my best-ever referrals to contractors have come through contacts made at these tours.

A while back, I mentioned my fondness for these forums to another landscape professional, and I was taken aback when she informed me that she didn't like going on tours because she didn't want to see and be influenced by what everyone else was doing. I found this a bit odd, as it has always been my belief that viewing the work of others is generally inspirational and filled with lessons I can adapt and apply on my own.

In plain terms, I don't attend these events to be entertained by beautiful landscapes. Instead, I see them as opportunities to gain insights on current trends, evaluate other professionals' work, see new plants and connect with others who may make significant contributions to my work in one way or another. To me, garden tours are less an option than an absolute requirement.

I see garden tours as opportunities to gain insights on current trends, evaluate other professionals' work, see new plants and connect with others who may make significant contributions to my work in one way or another.

going on tour

The first such tour I ever attended was arranged by a local garden club in a fairly exclusive neighborhood in Los Angeles as a benefit for a local hospital. (Perhaps because it's the way I started out with them, but I've always liked events related to philanthropic causes: Participating makes me feel good at the same time I get to learn.)

This particular tour exposed me to a wide variety of landscape styles, including an amazing succulent garden on a large piece of property that at first glance looked just like an English garden. It was obvious the homeowners had invested many years and many dollars to establish this unusual space, and I must say that, to this day, it is one of the best-designed and best-tended gardens I have ever seen.

Other gardens on this circuit were in traditional, contemporary and experimental styles, and I walked away from each feeling motivated to get to work and apply elements of what I'd seen. I took away a long list of plants, researched them and subsequently used them in my own designs, considerably expanding my palette and discovering interesting ways of arranging various plant types into more interesting designs.

In the 18 years since that first circuit, I've been on dozens of garden tours, have attended events sponsored by the Garden Conservancy and been to numerous events at prominent local sites, in-

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- If you fail to install a skimmer you will be required to constantly net leaves off the pond surface.
- If rocks are placed on the bottom of the pond to hide the liner they will create pockets for fish waste and leaves to collect. As these leaves decay they will give off tannic acid which will cause the pond water to turn to a "root beer" color. The only way to solve the problem is to remove the fish from the pond, completely drain it and then pressure wash the whole pond bottom. This could be an all day project, not to mention, very stressful to the fish.

2) Poor pond shape and contour-

- Many ponds are built too small to properly support koi. There is a good chance that you will be unhappy with a pond that is less than 1500 gallons.
- A pond should be at least 4 feet deep with no area of the pond less than 2 feet deep. Ponds with shallow areas near the edge will allow predators to dine on your fish. Even shelves for plants create a potential problem with predators. A pond built with even one shallow area will eventually need to have a net placed over it to protect the fish.
- A pond with a flat bottom, even if it has a bottom drain return, will be hard to keep clean.

3) Poor Filtration-

- The filter is the heart of a koi pond. Unwisely, this is where people often times try to conserve money. A filter that is not properly designed or to small for the pond will never provide clean, healthy water. Many filters are also, extremely hard to maintain, requiring regular washing of mats, brushes and sponges full of fish waste. This is a real area of complaint with many pond owners.

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cluding the historic Virginia Robinson Gardens in Beverly Hills – an historic site that hosts an annual benefit tour I try never to miss. And wherever I travel, close to home or abroad, I always do what I can to tap into local resources and see as many great installations as I can.

The main value for me is always the recognition of design variations and palettes required by the specific locations of these gardens or by the local availability of particular plant varieties. I also look at installation practices and at the ways topography and local traditions influence design. As I've observed many times in these columns, what grows in one place may not thrive even a few miles away, so the palettes and consequently the lessons to be learned expand exponentially with greater distances.

What I seek are basic concepts that guide the local approaches. If I keep my mind and eyes open, I can take ideas from a garden in Italy and apply the principles and arrangement styles I see while using plants available to me where I'm working. Just as human cultures vary throughout the world, the same is true in the world of plants.

gaining sight

I make such a point of seeing gardens when I travel because I never know what I might learn while wandering down one path or another. It may be just a simple concept or idea that makes me think differently about how I might approach a certain design, or I may come across a distinctive look I can incorporate into other designs. Simple or grand, I know that it only takes a single thought to influence my course in a positive way.

I tend to believe that there are no new ideas, just variations on old themes. But sometimes, the simple assembly of new combinations of plants is enough to freshen a repertoire and may even spark a whole new design style that will then be copied by others – and the cycle of our design tradition rolls on.

I sense that this assimilation of ideas from disparate locations is what stylistic and design evolution is all about. If all we ever did was reproduce the same design over and over again with the same planting patterns, the same installation techniques and the same materials, the results would eventually become boring, dull, shopworn and stale.

With that in mind, we all need to do what it takes to keep ourselves fresh – and to me, participating in tours and events at prominent gardens is just about the best available solution.

As you all know by now, I'm a big advocate of education, reading and networking as avenues for professional improvement, and I'd like to add garden tours to that trio: I believe we all should attend at least two tours a year (one in the spring, another in the fall to see how nature balances itself) as part of our continuing educations. And the fact that most of these events happen over weekends makes them easy to add to our

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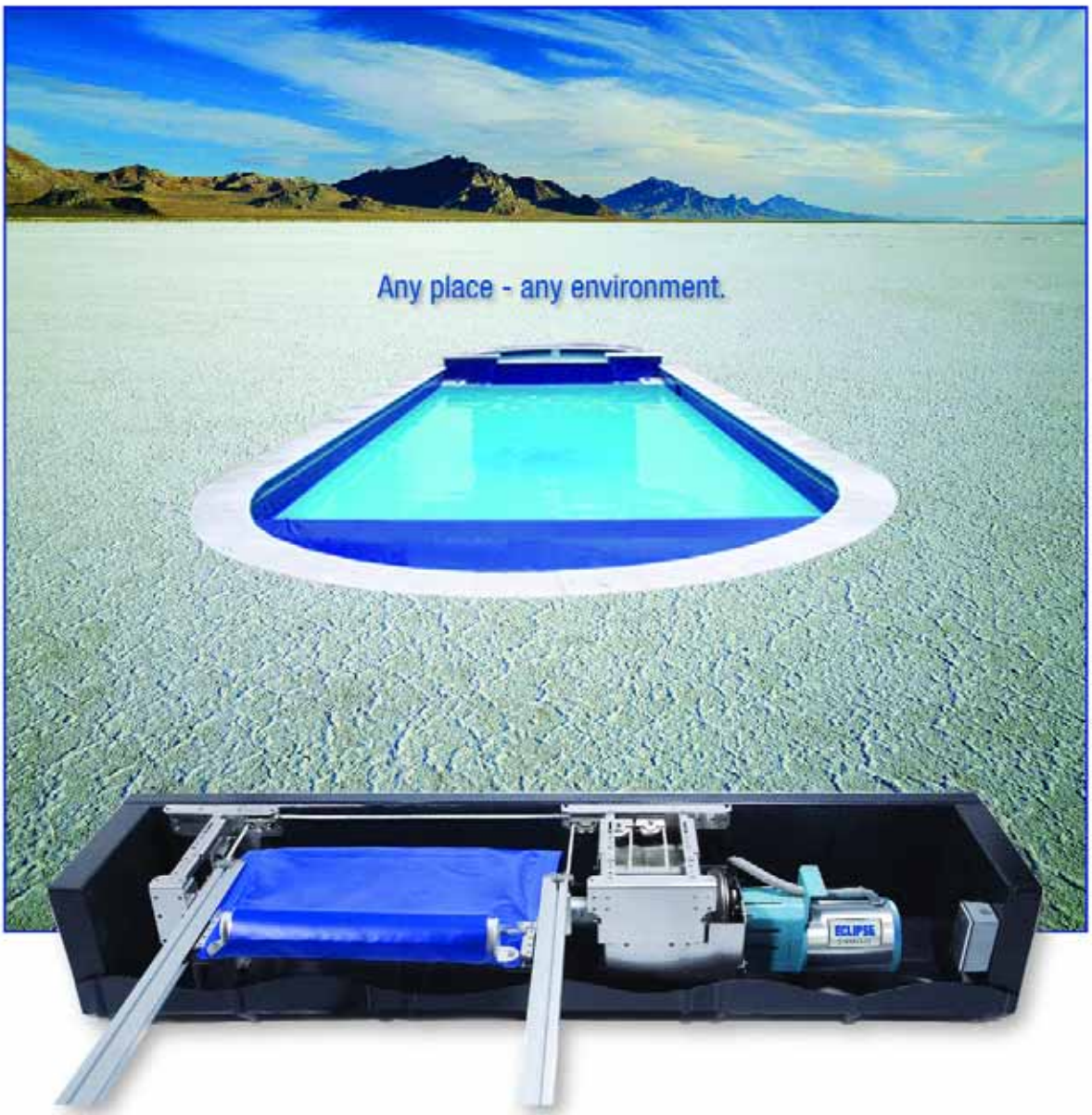

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I enjoy spending time with 'civilians' on tours: Their untrained eyes see things in ways mine don't, and I find distinct value in hearing what the 'person on the street' thinks about the landscapes we're exploring together.

schedules – no excuses!

As for finding tours, there are numerous ways to go. The calendars of the big trade associations (the American Society of Landscape Architects and the Association of Professional Landscape Designers, for example) are filled with relevant events, and garden publications and trade magazines post these dates as well.

Local garden clubs often have newsletters that promote local happenings, as do the garden sections of local newspapers. Your nursery probably has some sort of bulletin board on which flyers are posted for tours and shows, and I've often heard about great events from other landscape designers and contractors.

And of course, there's always the Internet. By Googling "Garden Tours" and "your city" (using quotation marks to narrow the searches), you'll find a plethora of options, from tours down the block to special garden-related events around the world.

rubbing elbows

After so many years of practice in a single (but large) geographic area, I've become skilled at figuring out which local tours will hold the most interest for me. Many are annual, and if I've run into a good one, I'll make note and watch for announcements about it at a certain time each year.

Again, I go to all this effort because these events are incredibly helpful to me as a professional. They inspire and motivate me, and if I'm on the road and can't find an organized tour, I'll even go so far as to stop at nurseries and inquire about good neighborhoods in which I might walk on self-guided tours. Yes, it's better to have company and be surrounded by other professionals with whom I can share thoughts and ideas, but these opportunities to see what's going on in other places are simply too valuable to waste.

Left to my own resources, I can still evaluate things on my own – critique them, size them up, figure out what makes them succeed or fail – but I must say that my strong preference is to be in a crowd with fellow landshapers: It deepens the experience by letting us all share ideas and insights and learn how others perceive the same space I'm examining.

Even if the exchanges are highly critical of plant choices, hardscape materials or installation techniques, it's all part of the process. You might be surprised to find yourself thinking in new ways about what you do – and changing the way you approach your work as a consequence. The possibilities are endless.

I even enjoy spending time with "civilians" on these tours: Their untrained eyes see things in ways mine don't, and I find distinct value in hearing what the "person on the street" thinks about the landscapes we're exploring together. In other words, rubbing elbows with fellow garden devotees of all types can provide you with access to new ideas and pathways to creative inspiration and expression.

So if you're like my old friend and can't stand the thought of looking at other people's work, I suggest you think again and take a closer look at how open and creative you're allowing yourself to be. You may be happy in your isolation, but are you serving your clients as well as you might? 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. Stephanie is also an instructor on landscape design for the Genesis 3 Design Group. If you have a specific question about landscaping (or simply want to exchange ideas), e-mail her at sroseld@earthlink.net.

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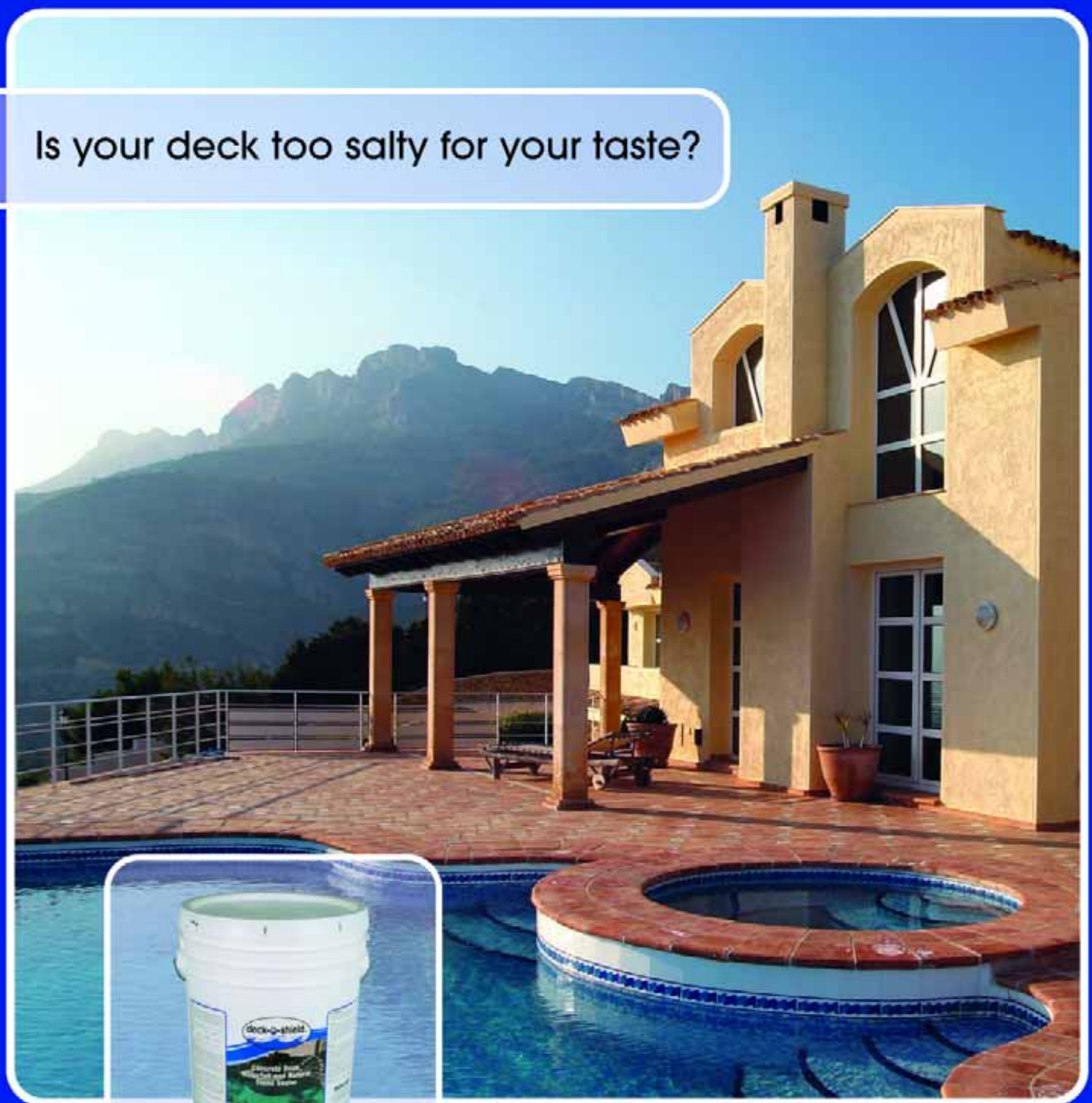

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By David Tisherman

Paper Trails

If you've done the right things and the project reflects an informed knowledge of what is involved in actually building the watershape, the permit and contract processes will tend to flow smoothly.

In my last two columns, I've gone to unusual length in describing my views of the design-preparation and presentation processes. This time, the subjects are more compact but, in practical terms, no less significant and vital: permits and contracts.

We left the discussion last time at the point where I've shown my clients the design package and it's time for them to decide what to do. In most cases, they choose to build – the usual outcome for me because of the way I pre-qualify my clients and communicate clearly with them at every step of the way.

In general, if you've done the right things to this point and the project reflects an informed knowledge of what is involved in actually building the watershape, the permit and contract processes will tend to flow smoothly. If you haven't, however, prepare yourself for a project that might become mired in red tape, delays and monumental frustration.

the green light

I covered my basic approach to the permitting process in July 2006 ("Hitting the Green Light," page 28) in the context of a project my partner Kevin Fleming and I tackled on the New Jersey shore. I won't repeat what was a detailed discussion of the hands-on approach we take and how we don't rely on permit runners to represent us with city and/or county regulators.

What wasn't stressed there and bears mentioning here, however, is that the permit process is directly tied into what happens when the time comes for inspections.

I know many of you absolutely dread the permitting process and are even more bothered by inspectors and the inspection process. While this anxiety may be common, it's nonetheless misguided. Yes, the nitpicking requirements applied in some areas seem unnecessary and, yes, some inspectors can be officious and overbearing, but fighting bureaucracies has never seemed to me like a sensible investment of time or energy.

Indeed, it behooves us as professionals to accept permitting as part of the process and do everything we can to pass through it smoothly. I also think we need to inform our clients about the nature of these requirements and let them know how long compliance with the rules is likely to take.

Depending on the jurisdiction (and sometimes on site conditions), you'll run into the need for a variety of inspections. For any given lot in California, for example, you might need a grading inspection and then, on every project, a combined inspection (generically known as a "pregunite inspection") of the plumbing, steel and bonding. Next comes an inspection after application of gunite, shotcrete or poured-in-place concrete.

There are also inspections of associated structures, including decks (structural and/or bonding), barbecues and outdoor kitchens. Given the way the rules vary from place to place, I'll stick to generalities here and say only that it is the contractor's responsibility to know the local rules and abide by them.

Continued on page 24

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No matter where I work, I'm always prepared – and I've always found that by being open and showing inspectors everything we're doing on site, they might raise questions but the process never bogs down. As I see it, problems arise only when you try to slide sloppy or incomplete plans through the process and/or don't build according to plan. If you are open, thorough and communicative – and you know the ropes – you'll seldom encounter serious problems.

borrowed expertise

Building departments are not inherently bad institutions, and I'm always aware that even when problems arise with plans or inspections (and despite the fact that these experiences can be immensely frustrating), the people I'm working with are simply doing their jobs.

I've heard many people refer to them in all sorts of unflattering ways, but my thought has always been that, as expert contractors, we should have no problems if we're doing things right. In that context, building officials from plan checkers to inspectors are nothing more than additional sets of eyes making sure we're building structures that will last: I want and welcome their support.

In California, the law says that the contractor is the expert on site. As the expert, if you haven't made sure the structure is right for the soil conditions, you're likely to run into problems with a failed shell, deck or wall — and it's never the fault of the building department. By the same token, if you're doing substandard work and an inspector catches you at an intermediate stage of the project, you should be grateful: In these cases, the regulator may just have saved your hide!

I approach my contracts with the same sort of open-mindedness. In fact, I see the way I structure mine as another reflection of quality and the clear, open ways I communicate with my clients.

The way I look at it, if we reach the point where a contract is to be signed and my clients are surprised by anything they see, I simply haven't done my job of letting them know what's going on and of establishing clear sets of expectations. In fact, if I'm on target in these respects, most of what they'll see in a contract has already been covered in the presentation and the document itself is little more than a formality expressing agreed-upon project parameters.

This is why I'm a firm believer in simple contracts. Mine start with boilerplate developed by the American Institute of Architects, but that's just one of numerous available resources that are appropriate for watershaping. They all specify your name, your company's name and the clients' names; the address of the job site; your contractor's license number; and exactly what you are to do in the construction phase within a given pricing structure and schedule.

That's all simple stuff, and the only way to get tripped up is if you aren't prepared

or have been less than effective in communicating with your clients.

fine tuning

Of course, no boilerplate contract does the whole job, and there are always areas that are open to discussion. This is where conflicts can arise and where you therefore need to be particularly careful to get the appropriate words into place.

The biggest example of this need has to do with surprises that might arise, particularly those related to excavation. Even with professionally generated soils reports, nobody approaching a site has X-ray vision, so the contract needs to describe what it means if, during excavation, you

Contract Pratfalls

When it comes to contracts, I've known more than a few watershapers who include disclaimers in their contracts declaring, for example, that they are not responsible for earth movement.

What an absurd idea! No matter where you may be, all earth moves, and it's up to us as project experts to make certain our plans and, more important, the structures we build have accommodated that fundamental fact.

This is why those who work directly with homeowners need to be knowledgeable: All clients at all levels need to be informed about basic realities, including earth movement as well as the fact that all concrete cracks and that all colored plasters will mottle. A salesperson without suitable knowledge will tend to gloss over these details because such disclosures run against the grain in the sales process.

To me, lack of complete candor in these matters is unacceptable: I know these gaps can lead to conflicts even long after work on site has been completed. My point: If your clients aren't informed about these issues and you run into a roadblock with inspectors or post-installation issues with clients, it's not the homeowners' problem – it's yours!

– D.T

hit a pocket of incompetent soil or run up against a massive boulder.

Neither occurrence is anyone's fault, but real trouble will arise if you haven't included language in your contract stating that unknown conditions can rise in the course of a project and will affect the cost of building the watershape.

Beyond that, there's room for misunderstanding when contracts make general statements that aren't based on specific numbers. To be fair to my clients, my contracts include breakdowns of all elements based on linear and square footage. If the project includes X square feet of a particular type of stone at X dollars per square foot, then that item is called out – and the same holds true for decking, the size of the pool, the edge treatments, the equipment set and more.

The only way to get tripped up by a contract is if you aren't prepared or have been less than effective in communicating with your clients.

I even call out the work required to install stone, specifying whether the work includes grading, footings, stonesetting or any part of those activities. I'll even specify the sub-base and indicate whether it is to include steel, wire or steel *and* wire and if it is to be blocked up on "chairs" (also known as *dobies*) – not to mention the depth of any footings. In my book, these are all significant details that must be called out.

Why so much detail? Well, if you don't have that information spelled out, there is no reliable basis for accommodating change orders – and as all of us who work on custom projects know, there will almost always be changes along the way.

If you have 300 square feet of stone called out and the homeowner wants to get rid of 100 square feet of it, you can easily revisit the original breakdown and do the math. This way, there are no foundations for disputes: Everything's there in black and white, complete with signatures, as a set of constants established at the outset. In effect, neither you nor the homeowner can diverge from those parameters.

ready to perform

Although it really should go without saying (but unfortunately doesn't), the key to contracts is that they hold you to build exactly what has been delineated in the contract at the same time they bind your clients to certain terms. In that sense, the contract protects your interests as well as those of your clients.

At the same time, I'm aware that, in the real world, a contract is only as good as a client's handshake: If I don't feel confidence in the clients or have a comfort level that tells me they'll meet their commitments, I would be crazy to proceed

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and have found myself, even at this stage, walking away from what I see as disasters waiting to happen.

I recognize that, on the level at which I operate, I have the opportunity to pick and choose among clients, most of whom come to me on the basis of strong referrals. If you're in a volume-oriented company, the standards for client quality are obviously different and you're really playing the odds: Sometimes things will work; sometimes they won't.

From my perspective as a low-volume, high-end operator, nothing about contracts needs to be terribly fancy. The documentation usually runs to about seven pages with three primary sections: a standard contract that covers boilerplate-type information; a section that lists all of the abovementioned breakdowns; and a section that describes the payment schedule.

This last of these parts is extremely important – and for obvious reasons.

There are all manner of ways to structure the payment schedule, but the key is to be sure everything is clearly defined, no matter how you choose to do it. In my case, I base the schedule on percentages of work completed and set things up so that I stay even through most of the project and make the margin in the last two payments. This makes sense to me because of the way I've organized my business, but there are many ways of approaching the issue.

Taking a long view of my projects' life spans, I've always seen this stage between the presentation and actual construction as a legalistic break in the action. Once these needs have been accommodated, it's on to construction – a subject we'll begin approaching in my next column. 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

Mosaic Swimming Pool

Detail of Spa Water Line

Detail of Bond Beam to Spa Wall

The discovery of exciting new materials and your ability to communicate those options to your clients is a big part of being a true custom watershaper, observes designer/builder Paolo Benedetti. Here, he outlines the approaches he takes to sourcing new materials and shares his insights into working with vendors and clients alike once those key selections have been made.

Material Issues

By Paolo Benedetti

Custom watershapers need to understand materials.

That's not a new message by any means, but the fact of the matter is that many of the watershapers I encounter have yet to fully embrace the vast range of material options available in today's marketplace. The reason for that is, I think, quite simple: Locating new materials and amassing a library of unique offerings for clients can be a full-time job unto itself. All too often, this makes it easier to rely on familiar sources and options instead of doing the work of finding new ones.

I know from personal experience that the work can be hard and represents an amazing investment of time, energy and resources. But as I've pursued the very best of all possible choices for my clients, I've learned a great deal about the nuances of the "material world" and find myself steadily getting better and much more efficient in the sourcing and selecting processes.

In fact, it's at a point now where I pride myself on being able to find materials for my clients from anywhere around the world – things they'll *never* see at the local stoneyard, tile shop or design showcase. The trick is to be ambitious and open-minded – and have faith that the time spent in research almost always will pay dividends.

Working the Web

One easy way to begin any materials search is on the Internet. This isn't the be-all and end-all of research some make it out to be, but used correctly, I've found it to be an invaluable tool.

When I have the time to spare, I'll often sit at my computer and scramble around the web looking for and at new vendors and materials and chasing through links to gain additional information and insights. It's an odd habit, but now I often find myself up late at night, scouring the Internet for tile suppliers and stone quarries, importers, processors and dealers located outside the United States.

When I find something that looks useful, I'll frequently communicate with these international vendors in their own languages: It's not that I'm

My scouring of the Internet has enabled me to find unusual, custom-crafted objects for use in several of my projects – including this hand-carved granite bowl, which I commissioned from a company in China. It is now functional both as a fire effect and as a great conversation piece and point of pride for my clients.

a multilingual genius, but rather that I've gotten reasonably good at using the free-translation services offered by web sites including AltaVista's *babelfish.com*.

Using these basic tools, I've found that international, business-to-business web browsing is basically a one-stop shopping resource for all kinds of materials from far-flung corners of the world. These sites are usually comprehensive, including contact information, product illustrations and pricing, and allow me to size things up in just a few minutes.

The web is a great starting place, if nothing else. And sometimes you run into real gems: Once, for example, I imported a bunch of granite farmhouse sinks – items I'd seen in home-improvement stores locally for thousands of dollars – for mere hundreds of dollars, *including* freight.

I've even joined an international on-line stone exchange and have found stone processors and importers in the same way. I just complete request forms that define what I'm after, indicate the quantity needed and set a deadline, and the whole thing works like a commodity exchange – except that suppliers in *this* universe bid *down* the price against each other until I get the firmest rock-bottom price available.

If you work in situations with generous lead times, exchange sites such as these enable you to help your clients stretch their budgets – always a great help when the time comes to select materials. As a rule, however, these sites are about large quantities (usually shipping-container level or more) and are therefore of little help with small projects. But if you find something versatile that fits one big job or multiple smaller jobs with similar needs, these sites can be a great help.

On the Show Floor

Another tremendous resource for materials takes the form of the trade shows that crowd the calendar.

I've never been a big proponent of repeatedly visiting the familiar shows (including the myriad pool and spa industry events), basically because they involve me in sorting through the same sets of products over and over again. Indeed, I find far greater benefit in attending shows *outside* my home industry and through the years have come upon some wonderful surprises.

This past year during the AQUA Show in Las Vegas, for example, I split off from the crowd for an evening to visit Stone Expo, a show that was being held across town. In just a few hours there, I sourced some new materials and found some new processing tools, methods and installation information.

The scheduling here was entirely coincidental, but this is one of the reasons I always check with the convention bureau whenever I'm going to a pool-industry event: You never know what other trade shows might be occurring at the same time.

This scheduling trick has enabled me to attend several worthwhile shows in re-

cent years, including Surfaces (for flooring, tile and stone), Luxury Kitchen and Bath (cutting edge in the realm of outdoor kitchens) and World of Concrete (a must-see event every four or five years) in addition to Stone Expo, which covered everything having to do with stone in the form of tiles, slabs and building veneers.

These shows and their seminars have made a real difference in the way I approach both sourcing and installation of the finished materials. Indeed, the experiences have revealed just how outmoded some of our installation practices are in the pool industry and how much room there is for improvement.

It upsets me to think that these technologies and techniques are out there and will benefit us and our clients, but the information doesn't seem to cross over to the far corner of the construction marketplace occupied by the pool industry. In walking around these shows, I've spotted methods for preventing material failures, delaminations and cracking of veneers – problems that raise tremendous liability issues for watershapers – and the good news is that answers to all sorts of questions are available to those who attend events a bit outside our realm.

I first encountered crack-control membranes, for example, while attending one of those off-the-beaten-path shows about 15 years ago. Now when one of my concrete sub-decks cracks (as they all do), the damage no longer migrates through to the stone or tile finishes. I constantly run into people who are amazed by this technology and had no idea it existed, but it's been second nature to me for years, all because I attended another industry's trade show.

By Design

When I travel, I'm also a devotee of visiting any big city's design centers.

I've worked with a number of fantastic suppliers of glass tile, including Boyce & Bean of Oceanside, Calif. (A), Oceanside Glasstile of Carlsbad, Calif. (B) and Sicis of Ravenna, Italy (C). Through the years, I've amassed a wide range of samples from each one and use them as needed to offer my clients a full range of high-end looks, textures and color palettes.

These facilities are mostly geared toward the interior-design trades, but I've found them to be a great source of insight on cutting-edge trends in furniture design, textures, colors and tile selections. They are usually large and are filled with showrooms decked out by various designers and manufacturers.

I recently had the privilege of attending a pre-grand-opening gala for the new international design center in Las Vegas, and it was filled to bursting with new materials and information sources. Don't miss it the next time you're in town – and bring your checkbook, as many showrooms offer "samples." I've picked up a few things for my own home, of course, but I've been surprised (and encouraged to go back) because of things I've seen for exterior applications.

These centers are only open to the trades, so carry proof you are a designer or contractor or work in a related trade. Business cards are never enough: You need a business, trade or contractor's license. Some of the designers whose work is showcased use these facilities instead of maintaining their own showrooms, so clients are allowed in – but only when accompanied by a qualified professional.

One point of sensitivity in these places has to do with discussions of price: Visitors wear different badges, and you need to be careful about bringing up dollar figures in their presence: Whoever's escorting them may want to mark things up or sell them something off the floor. Although prices are not posted for that reason, quotes are easy to get, and samples can be ordered in many cases.

I'm also happy with information sources that let me view things in the comfort of my office. I've always appreciated *WaterShapes* as such a resource, but I also subscribe to many publications beyond the pool and landscape industries, including some directed to architects, home remodelers and general contractors as well as magazines about specific materials, fences, concrete design, material testing, engineering, home automation and more.

I find each of them helpful from time to time, often finding solutions to design or construction problems. I don't care where the ideas come from so long as I can integrate their insights seamlessly into my projects.

This broad awareness is also helpful in project-team meetings, where I can often recommend a solution from something I've read or seen in a relatively obscure trade publication: The clients quickly see added value in having me aboard, and I gain respect from the team's other design professionals in ways that increase the chance they'll want to involve me in future projects.

Being There

As much as I value all the resources I've discussed to this point, I have to say that I like getting the fullest possible picture when it comes to key suppliers and that, whenever I can, I enjoy visiting their facilities for up-close looks.

Even when I'm heading out with my family for a vacation, I always do my homework and see if there's something of interest within striking distance. Most vendors are more than happy to show me around, and some have formal tours of their facilities and operations that have ultimately turned out to be *the* highlight of our family outings.

I'm also a big believer in the value of traveling the world to see great materials and their suppliers at first hand – a point on which I agree with David Tisherman, who organized a trip during which he, my fellow Genesis 3 Platinum member Kevin Ruddy and I visited the Bisazza glass-making operation in Italy.

As active clients, we were given access to proprietary areas where they make their gold-leaf tiles. Seeing how these beautiful handmade tiles are created was a treat on a personal level, but being able to describe to clients exactly how these tiles are manufactured has undoubtedly helped me win their confidence when it comes time for them to plunk down $100,000 or more for a truly deluxe watershape finish.

We also visited the island of Murano during that same trip to

Seeing Roman floor mosaics (A), getting a sense of how the builders of ancient temples fitted stones together with intimate miters (B) and observing the ways Byzantine and Islamic designers worked with materials, colors and patterns (C) is incredibly informative and helpful in my design work. And the details I've witnessed and absorbed range from the delicacy of the mosaics at the base of Napoleon's tomb in France (D), for example, to the massive grace of the limestone walls I saw along the Yangtze River in China (E).

Italy, visiting its world-famous art-glass studios. While there, I sat down and designed a set of custom green-glass lampshades for a project I was developing. The client was assured that these commissioned designs were absolutely one of a kind, and they had additional boasting rights as well, knowing that I designed the shades in collaboration with artists right there in the Murano studio.

Another trip took us to Turkey, where the staff at Tureks, a stone supplier, picked us up at the airport and drove us for three hours to their marble and granite production facilities. Some of their quarries are in the shadow of Mount Ararat, where some say Noah's Ark is buried in a glacier.

While there, we followed a truck-size block of marble through the production process, watching as it was sliced into slabs then machined into architectural elements including columns, fireplace mantels, coping, balustrades, railings, sinks and more – or cut into simple tiles. We were shown how those tiles were given their "tumbled" look, how mosaic borders were hand-assembled and how their mounting mesh was applied.

I've been to Egypt and visited granite quarries there that were used by the ancient stonemasons who made the obelisks. I've seen the quarries in Carrara, Italy, where Michelangelo obtained his amazingly white marble. I've visited studios where famous Italian, Spanish and Portuguese porcelain tiles and ceramics are created. And I'm well aware that I haven't even scratched the global surface.

Visual Aids

If I've learned one important rule in sourcing custom materials, it's that I always, *always* want samples!

I get multiples of the same materials for my clients – at least three of each. Once the choice has been finalized among all possibilities, I have the client sign and date all three pieces of the selected material. I keep one, the client keeps one and the third goes to the vendor. This way, everyone is on the same page and the selection is formalized in everyone's mind – a surprisingly useful step few people bother to take.

Once actual production has started, I insist on the vendor sending me three units from the actual production run. The client and I compare the fresh material with the samples we already have: If all is well, the client again signs and dates the samples – the *production* samples this time. If there are any issues to be raised, the time is *now*, not after delivery of the full run. To me, this is the essence of clear communication and documentation.

If the materials are made up as a blend (as with glass-tile mosaics), I want samples that have been thinset onto cement backerboard *and* grouted. This mounting and grouting is important, as the tile will look different once it is set – particularly glass tile. And it should always be a premium white thinset, as gray thinset will dull the color of the tile and change its degree of reflectance.

As a rule, I'm *always* willing to pay for these samples and cover any freight charges. Most suppliers are willing to provide samples at cost (or even gratis), but I'm always prepared *at least* to pay for freight. This stuff is heavy, and the fact that it comes to me from around the world is why I have accounts with DHL as well as UPS and FedEx – just to make sure there won't be any problems in getting the material when and where I'll need it.

When I'm a new client, almost every supplier I've ever en-

countered has charged some type of fee for samples and/or freight. Once I actually make a substantial purchase, however, the rules of the game change, those same suppliers take me seriously – and lots of courtesies begin to flow my way.

It's at a point now with certain vendors where I don't even need to ask for things: They'll send me updated sample kits, for example, or new offerings and promotional literature and catalogs free of charge or for freight alone. It's simple: Once they know me as a serious buyer, the doors open and most vendors will bend over backwards to accommodate my needs.

Forming Expectations

Inherent in all this building of relationships is my awareness that every vendor is different and that it's important for me to be flexible in how I work with them and form my expectations of how far they'll go to make me happy.

Some designers and builders I know are *tremendously* demanding and want the moon before anything gets beyond the exploratory phase. As I see it, I don't think I have the right to hold anyone's feet to the fire until there's money on the table: If they let production schedules slide, delay shipments, misproduce samples of custom blends for which I've paid, then and only then do I have the right to complain.

For the most part, suppliers, manufacturers and quarries will custom-produce whatever you want so long as you (that is, your *clients*) have the wherewithal to pay for it. At the same time, I'm cognizant of the fact vendors who do not normally provide materials to custom specifications will have their own adjustments to make and timing issues to resolve – and that there will be costs associated with having them perform beyond normal parameters.

As a result, I expect to pay more for custom work, including custom tile blends. I know what each color costs, the proportions in which each will be used and the raw cost exclusive of making up the samples, so there aren't many surprises when it comes to raw cost. And I apply that same basic approach in figuring out what each special material I'll be presenting to each client will cost.

Through it all, I'm realistic and keep my feet (and ego) on the ground. Most vendors are willing to assemble special orders, but from their perspective it's always a matter of scale: If it's a large order, I have lots of leverage; if it's not, I back off and accept the fact that pushing won't carry me too far.

It's with large orders that everyone reaps the benefits of the economies of scale. Here, I've been able to negotiate larger discounts and eliminate custom-production charges based solely upon the total value of the order. The vendor's happy, I'm happy, and the client reaps the benefits with respect to ultimate costs.

That last point is significant: Most of my projects are built on a negotiated "actual costs plus percentage" basis, so I am compensated based upon the costs of the materials *plus* the negotiated percentage of the gross margin mark-up. Some would say this gives me no incentive at all to find the best price for my clients, but the exact opposite is true: I know my next project is likely to come as a referral from a past client, so it is in my best interest to negotiate materials costs for them on the best possible terms.

Full Disclosure

I'm known as an up-front/no-hidden-agenda kind of guy, so it's probably no surprise that I believe in full disclosure to my clients, without exception. Indeed, I don't even like the *perception* of shenanigans or improprieties, so I go out of my way to keep them apprised of everything that's going on in the business of designing and building their watershapes all the way through to the materials we use.

Without hesitation, for example, I let them know that I will take advantage of and pocket the proceeds of any vendor programs normally available to the industry, such as annual volume incentives or special short-term rebate programs. I will also pay for materials using a credit card, thereby turning the purchase into travel miles that I will use myself. At the same time, any discounts a supplier offers at the time of sale (quantity breaks, sale pricing, freight allowances, credits for samples and the like) all flow to my clients, not me.

It is my sense that any malfeasance in these areas will open me to litigation at least and criminal charges at worst. It's a simple truth: My clients have more money and energy (in the form of attorneys) than I will ever encounter in my entire lifetime, and I don't want to tangle with any of them over trivial details of our business relationships.

In that vein, I will *never* ask a vendor for "rebates after purchase": These are kickbacks that reside on the shady side of the law. Nor will I offer to split an overcharged or inflated invoice; accept vendor credits to be used later; or take free materials for my personal use. I have turned down such offers in the past, transferring them instead to my clients by insisting that less-than-aboveboard vendors extend these "discounts" to my clients instead of to me. And I apply the same rules to subcontractors who work with me on my projects.

I look at it this way: Getting caught performing any of these acts, even if just once, can ruin my reputation and cast a cloud over anyone associated with me (business associates, subcontractors and vendors alike). It might, in fact, destroy my business, and I have no desire to end up on the wrong end of a civil lawsuit or in jail with a criminal-fraud conviction. Then there are the IRS audits, the license revocations – and the sure knowledge that these schemes all have their ways of unraveling.

What will happen to you if your vendor goes through an audit, the IRS discovers irregular accounting practices and then comes after *you* to review *your* books? What if someone gets hurt on the job, a lawsuit is filed and the state audit reveals irregularities? What if some clerk in the vendor's shipping office mistakenly attaches an invoice to your delivery instead of a packing slip and your client discovers the actual price paid for the materials?

To me, this is all like playing golf in a thunderstorm: I want nothing to do with any of it!

– P.B.

In the Open

In considering the margins I charge with materials, I am aware of the fact that, whatever that cost may be, it has to cover a lot of ground.

This includes everything involved with acquiring the materials, from my stock of knowledge of general materials options to the effort involved in researching and sourcing specific materials for a project. Then there's time spent in testing various products and defining installation methodology and specifications. And there's also time on the phone and writing e-mails to negotiate pricing and delivery, coordinate customs clearances and freight forwarding, set schedules with trucking companies and arrange for off-loading, pick-up of the empty container, inspection of the materials and consideration of gross profit.

It all adds up, and I find that by making the process relatively transparent, my clients are satisfied that they've been dealt with fairly.

Through many projects and lots of interesting materials, I've learned two basic lessons: First, it pays to keep your eyes and mind open to new sources. By hunting down new suppliers with compelling products, I keep finding ways to set my work apart from that done by almost everyone else. Second, communication is the key in dealing with both suppliers and clients, and I carry a strong desire for clarity and transparency right through to pricing: It helps me avoid mistakes, inspires confidence in my clients and increases my value to suppliers as a quality contractor.

To me, working effectively with materials is one of the things that makes my projects worthy of being considered as works of art – and art worth keeping.

They say that travel is broadening, but I had no clear idea how *helpful* it can be in working with homeowners until I started to put that adage into practice for myself. To tell clients that I had been to the Murano studios in Venice, Italy (A) and had worked with the glass artists there is powerful stuff, as is having been to ceramic-pottery showrooms in Perugia, Italy (B), to Tureks' stone-mosaics shop in Turkey (C) and, much closer to home, to the Rock of Ages Quarry in Vermont (D). These first-hand experiences almost invariably impress clients at the same time they absolutely inspire me.

Microbes Rule!

For as long as liquid water has supported life on our planet, a range of factors have played dynamic roles in sustaining balanced, untreated, wholly natural lakes and ponds, observes inventor and researcher Bruce Kania. By breaking things down and understanding the relationships between microbes and nutrients in water, he adds, watershapers are better able to mimic nature and create watershapes that will stay clean and clear without artificial treatment.

By Bruce Kania

For a long time, I've studied a small lake that formed long ago in a natural bowl in Northern Wisconsin. It has about 20 acres of surface area and is now surrounded by a cow pasture and a cornfield.

Holsteins graze right up to the water's edge and at times step into the lake to drink. Sometimes, cows being cows, their waste ends up in the water as well. On the opposite shore, the cornfield has an unusual configuration, with its furrows running straight down the slope and into the lake. When it rains or the fields are irrigated, some fertilizer inevitably washes into the lake.

The stage is set for aquatic misery: Viscous, pea-soup mats of green algae and foul odors are the common results of this sort of nutrient loading. Indeed, few life forms other than algae survive in such water, and such situations are far from uncommon. Almost any waterway connected in these ways with human activity can experience profound nutrient surges, and the results tend not to be pretty.

While common sense would tell us its water should be a mess, the fact of the matter is, beyond a slight tannic tinge, that the water in this Wisconsin lake is crystal clear. And when you scoop up a sample in a clear glass, you see it's teeming with life – tiny critters enjoying a swim in water that smells fresh and doesn't have anything more than the slightest trace of algae.

Clean and Clear

The role microorganisms play in maintaining water quality at this level is a fascinating but subtle topic that is understood mainly by interested chemists and microbiologists – and relatively few watershapers.

It's a subject in which I've been engaged for years as my company, Floating

Island International of Shepherd, Mont., has developed artificial systems capable of mimicking natural agents that foster water clarity. Through the years, I've learned that you don't need a scholar's level of familiarity with their secret lives to put microbes to work in either a natural or artificial body of water.

So what does this Wisconsin lake have going for it? Why isn't it suffering under steady nutrient surges? Why hasn't algae taken over here in the same way it does in backyard ponds and watergardens and, in fact, almost everywhere else? In this case (and the reason I've been studying it for so long), it's because the lake has a natural floating island in it: That structure harbors the proliferation of *microbes* and the formation of *biofilm*, that is, colonies of life forms that essentially treat the water by consuming and thriving on large quantities of otherwise harmful nutrients.

Systems such as this one are the products of a natural evolution that has transpired through a period far longer than the existence of any man-made system. In general, these long-lived ecologies involve the integration of a multitude of living systems under one large "umbrella." Within the Wisconsin lake, for example, are dozens of plant and other biological systems whose survival depends on the health of every other system present in the lake.

Indeed, almost all natural systems in a pond or lake interrelate with each other in some capacity. And the more interrelationships there are, the healthier the "umbrella" system. In this case, these living systems have worked out their balances over vast stretches of time through which they've been subjected to multiple competitions, synchronicities and symbiotic relationships that have all vectored toward a current healthy state – and this has continued to be true even in the face of a substantial intrusion by ranchers and farmers in the past few decades.

My point here is that, where nature designs for bio-diversity, we humans tend to design for monocultures when it comes to lakes and ponds. We insert fish and treat away other life forms, for example, developing an artificial "balance" that's as fragile as can be.

So what is it about this lake that has kept it from hosting a monoculture? Why hasn't it been overwhelmed by obvious nutrient surges? Why in the world isn't it a literal cesspool of algae? The reason this lake has survived to this point without lapsing into extreme eutrophication is because, so far anyway, there are enough living systems in its confines to use and process any nutrient surges that come its way.

Critical Mass

As I've just suggested, there are indeed tipping points between healthy water and foul, green, murky water, and the difference between the two states is embodied in living systems that take up nutrients in a process known as *biological sequestration*.

We're all familiar with the concept of the food chain in which, generally speaking, small life forms are consumed by larger life forms. In that context, microbes, phytoplankton (algae) and zooplankton are at the very base of the chain – and of the three, microbes form the base of the base.

In a healthy natural system, microbes usually do most of the nutrient uptake and in a head-to-head battle of survival can out-consume (and therefore outgrow) even algae. Unlike free-floating algae, however, microbes require a surface area upon which to proliferate. If that surface area is adequate, they will steadily outperform algae.

Now back to the lake: It has avoided its tipping point because a natural, floating peat bog covers about a third of its surface area

In the wild, natural floating islands such as these play critical roles in maintaining water clarity, supporting biological diversity and lending a sense of wonder to a landscape by sprouting trees and other life forms that seemingly belong on dry land. These are all formations I've observed at close hand in Wisconsin (note the diver exploring the edge of a tree-strewn island) – and each exists in amazingly clear, clean water despite the fact their environments are constantly challenged by agricultural runoff.

– about six acres in all – thus providing a high ratio of surface area relative to the water. Most of that surface area is on the *underside* of this floating island, where a matrix of roots extend throughout and around the physical structure and provide an absolutely enormous colonizable surface area on which microbes thrive and generate the biofilm that is the residue of microbial action.

And of course, the microbes aren't alone: Plants growing on the shoreline and on the top surface of the floating island also tie up nutrients, with various studies indicating that, in lakes like this one, plants are typically responsible for 20 percent or so of nutrient uptake, while microbes are responsible for the other 80 percent.

And in addition to their role in nutrient uptake, microbes and biofilm are primarily organic material, which gives them extremely important potential as *carbon* sequestration tools as well. In other words, they tie up carbon dioxide that would otherwise more readily enter the atmosphere, improving water quality in the bargain.

As the base of the food chain, microbes and biofilm also set the stage for bio-diversity: Zooplankton, freshwater shrimp and countless other tiny life forms will grow in healthy water – and they all represent additional avenues for carbon sequestration.

Staying Afloat

How can a wild, naturally occurring floating island support a forest of trees?

As you might expect in reading the accompanying text, it's all about the microbes once again: As they consume nutrients, they tie up a portion of what they consume in new cell tissue or in more microbes and biofilm. But another portion of what they consume is gasified in the form of nitrogen, oxygen, carbon dioxide and methane.

As an aggregation, these small gas bubbles provide the entire floating structure with its buoyancy: The thicker the island and the more peat or humus it contains, the better the island is at containing and using these gases to stay afloat.

In making artificial islands, at least two companies – Savio Engineering (Santa Fe, N.M.) and Floating Island International (Shepherd, Mont.) – produce structures that incorporate a startup layer of peat, humus or sod that effectively creates a gas barrier. As they build up and become thicker, these islands become even more buoyant with time – so buoyant, in fact, that some are being used as walkways or docks!

– B.K.

The wonders of floating islands occur mostly out of sight, below the waterline: Here, roots provide a massive amount of surface area for colonization by microbes and numerous other tiny life forms, and both the plants and the colonies take up huge quantities of nutrients found in the water – thereby achieving a balance they manage to maintain even in the face of man-made challenges. In turn, the islands provide safe haven and a food supply for fish, while their top surfaces offer prime habitats to birds, frogs and other wildlife.

And ultimately, along with plant detritus, biofilm becomes humus, a critical component of fertile topsoil.

In other words, microbes truly rule.

Oxygen's Role

Alongside microbes and biofilm, oxygen plays a pivotal role in cleaning and clearing water.

In the average lake or pond, the water can be in one of three states relative to oxygen: *aerobic* (that is, with oxygen), *anoxic* (where oxygen is tied up in a form that makes it unavailable to many organisms) and *anaerobic* (without oxygen). It's interesting to note that all three of these conditions need to be happening within a watershape for all nutrients to be biologically sequestered or gasified.

The average wetland will normally provide all of these conditions, as will a lake or pond that has either a natural or artificial floating island to mimic the wetland effect. The key here, as mentioned above, is to provide microbes with the surface area they require to thrive and generate biofilm.

It's also important with artificial systems to pair the wetland effect with a good circulation system: Except under extreme-cold or extended-cold conditions (when ice buildup might be an issue), it is always appropriate to aerate and/or otherwise keep the water moving.

One drawback to the use of artificial-wetland systems is that they are basically incompatible with standard practices of water stewardship: Chemical water treatment, for example, is likely to harm one level or another of the biota and cause cascading damage throughout the system and to all forms of life, from microbes and plants to fish and birds.

Another key to good system design involves determining how much surface area is needed to maintain a healthy watershape – that is, how much wetland will be needed relative to the size of a pond or lake. Given the number of variables – size of the watershape, water depth, water temperature, inflow, outflow, aeration, positioning of an aerator relative to a floating island and more – this is a complicated issue. At the moment, however, it's safe to say that more is better.

And "more" is a fairly easy target: My company's floating islands are eight inches thick, which translates to 198 square feet of new surface area for every square foot of top surface area. At any total island size, this represents an enormously useful contribution to the surface area available in the pond or lake for formation of microbial colonies.

Ultimately, when a watershape design provides a place for microbes to form biofilm, you're putting nature's own water-treatment system to work in your mission of providing clients with clear, healthy, attractive water.

Applied Observation

The lake I mentioned to start this article isn't alone: At another location in Northern Wisconsin, for instance, I've seen a floating island that measured 30 acres in top surface area. It is 19 feet thick within 30 feet of its edge – a truly massive nat-

Artificial floating islands operate on the same principles as their wild cousins and can be made to order for bodies of water as substantial as lakes or as small as backyard ponds. Their effectiveness can be seen in their healthy appearance: They take advantage of nutrient-rich water and reward the eye with intense, diverse greenery.

ural phenomenon the organic content of which amounts to 92 percent of its mass, thus providing for carbon sequestration on a grand scale.

It's as though the whole of a wetlands system has been concentrated in a single, floating patch or microbe-encouraging haven – an effect that has led several companies (including mine) to "bio-mimic" floating islands.

In addition, at least three non-profit entities are supporting water-quality enhancement through deployment of "floating treatment wetlands," while government-sponsored research in New Zealand has been directed to determining the potential these systems have in sequestering heavy metals in stormwater retention ponds.

The thought to be drawn from all of this activity and the passion with which scientists and others are expanding the range of potential applications of floating-island technology is that this sort of bio-mimicry is an idea whose time has come.

The classic forms of water stewardship – complete with ungainly balancing acts of treatment and constant adjustment – are more frequently being described as dysfunctional these days. At the same time, recognition is growing that the effective design of sustainable systems entails taking responsibility for management of all living systems associated with what we build, from microbes all the way up through the food chain.

Studying natural systems that work and replicating those systems is in fact an emerging science. Increasingly, research is questioning the use of smooth pond liners, ultraviolet sterilization, copper sulfate algae management and other forms of chemical and technological intrusion, labeling these treatments as stopgaps that do not foster stable aquatic environments.

Truer sustainability is found in understanding the needs of microbes and biofilm. By integrating bio-mimicking constructs into our watershape designs, we will provide our clients with self-sustaining systems that represent both real value and a boost for the health of the planet.

This floating island graces the lake at our company's Montana research station and has been part of its ecology for several years. In that time, it has reached a point where it no longer has much of an appearance of artificiality – a tribute to the fact that it is an established component of a diverse environment in which plants thrive, the water is clear, clean and healthy and microbes truly rule.

Standing Steady

For quite some time, vinyl-liner pools have been installed using a range of structural materials, from poured-concrete and block walls to a range of steel and polymer panels. Here, long-time pool installer Phil Della Pietro discusses how these materials are now being used in ways that bring creative flexibility to the design process and allows him to serve clients who are looking for vinyl-lined watershapes that rival their concrete counterparts.

By Phil Della Pietro

I've seen many changes in the 38 years I've been installing vinyl-liner pools.

When I started out, we worked mostly with wooden walls, and I even recall some made with asbestos. We always did our best, but I'll concede that in those early days the construction techniques were relatively unsophisticated.

These days, we at The Pool & Spa Doctor (Wall, N.J.) work mostly with galvanized-steel construction and, in a smaller percentage of projects, with either modular polymer or fiberglass systems. We've been at it long enough in our family-owned and -operated business that, through the years, we've gone in and replaced many of the old wooden walls with modern modular systems – an experience that always drives home for us the fact that the vinyl-liner segment of the industry has come a long way.

Many of the old pools held up well, which I attribute to the fact that we've always focused on quality installation regardless of the materials we were using. Today, however, the wall systems and liners we're installing are vastly improved – so much so that the results may even be favorably compared with gunite or shotcrete construction.

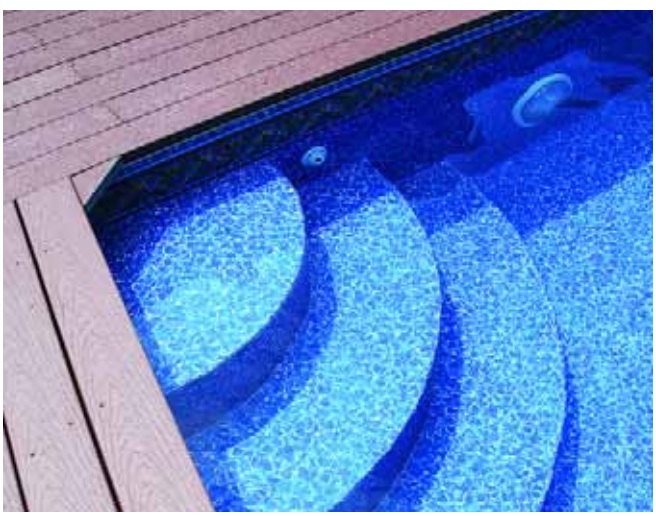
Going Modular

The systems we now use allow us a tremendous amount of creative flexibility. In fact, we approach most of our current projects as custom jobs and work with a near-endless variety of shapes and features I wouldn't have dreamed of designing into a project 30 years ago.

No matter the wall material, we now have the ability to include waterfalls, attached spas, grottos, stone decks and vanishing edges in discussions with our clients. With each passing year, the projects seem to become more elaborate as well as more integrated into their surroundings.

It's reached a stage where we're quite often members of design teams with landscape architects and other design-

The increasing flexibility when it comes to design details with vinyl-liner pools is seen most broadly in steps and benches: They can now be provided in just about every imaginable configuration, from classic corner treatments or grand entries through to combinations of steps with benches in crisp, eye-catching arrangements.



ers, and we've never felt any inadequacy when we've been called on to participate in truly custom projects. At this point, about all we haven't done are jobs involving full perimeter-overflow systems or in-pool barstools; beyond that, we approach our clients with a complete, full-featured repertoire.

Recently, in fact, we've seen a trend among our clients toward installing vinyl-liner pools for purely aesthetic reasons. Years ago, most vinyl-liner pools were utilitarian vessels, basically glorified aboveground pools made for swimming and play. In that context, their basic, homely appearance wasn't an issue, but now we're seeing clients who want small, highly reflective bodies of water, for example, to enhance their backyard environments and fit into overall exterior-design schemes.

We still install our share of basic rectangles and lazy Ls, of course, but even with these projects, the vast majority of clients want the same sort of elegance and aesthetic values they would expect to find in the gunite/shotcrete market.

This single trend has transformed the way we speak with our clients and has required us to raise the level of our game to the point where we're highly conversant when it comes to design elements such as site integration, stone decking materials, landscaping and a variety of amenities.

That's a sea change in our market, no question, and it has made our business more personally satisfying as well as more profitable. And it's been easy for my firm because quality construction has always been the heart of what we do. And although it tends to upset our counterparts working in gunite or shotcrete, we do all of this at a fraction of the cost of their watershapes.

Simplifying the Process

From beginning to end, our edge in the marketplace is that modular wall systems make everything we do go faster and more easily than is the case with other types of construction. In fact, this is where a large part of the cost savings develop, along with the fact that it takes us much less time to deliver a finished product.

With the steel walls we typically use, for example, the panels come in sizes ranging from three inches to nine feet wide. They can be made with almost any radius, and by combining standard and custom panels we're able to create a pool of virtually any shape. All these panels are 42 inches tall and have five-inch shelves both top and bottom.

With a 30-by-16-foot rectangle, we'll set up four panels to run the length of the pool, with two panels on the narrow ends. We'll install steps or shelves of some kind in the shallow end and interface the structure with decking or rockwork. In that light, even a simple structure becomes more than a place to play or swim laps.

As with concrete pools, soils conditions are critical. Whatever the material, these pools need either competent soil or some sort of subgrade support. In our case in New Jersey, we usually have solid ground to work with, but as we get closer to the beach, it's not uncommon to set our pools atop systems of piles driven into the sandy soil.

To install our walls, we simply over-excavate by about two feet on all sides to accommodate braces and supports that go behind the walls as well as all plumbing. We lock the panels in place

with a band of concrete, and everything is kept level to within a fraction of an inch. In most cases, we complete the excavation in less than a day and install the walls in a few short hours thereafter.

Once we install the panels and bolt them together, we precisely adjust their configurations using the turnbuckles on the A-frame supports behind each section. It doesn't matter if it's a simple rectangle or an elaborate free-form structure: The basic process of digging, setting and adjusting the panels is the same, and it doesn't take a lot of time.

Installing steps and coves is another simple matter of dropping them into place. We can now go with any number of standard or custom configurations with virtually any type of step, shelf or bench configuration. And all this flexibility comes without adding much (if any) difficulty.

When you pay close attention to establishing a level base and getting the panels exactly plumb and square, it's really not that hard to nail a pool's basic shape in just a few hours.

Locking In

As mentioned above, we secure the base of the pool by pouring a six-inch deep collar of concrete on the lower shelf extending behind the pool walls. For some projects, that's just a starting place.

If a project calls on the walls to support a stone deck, for example, we take things a step farther and set up four-inch PVC standpipes filled with concrete at

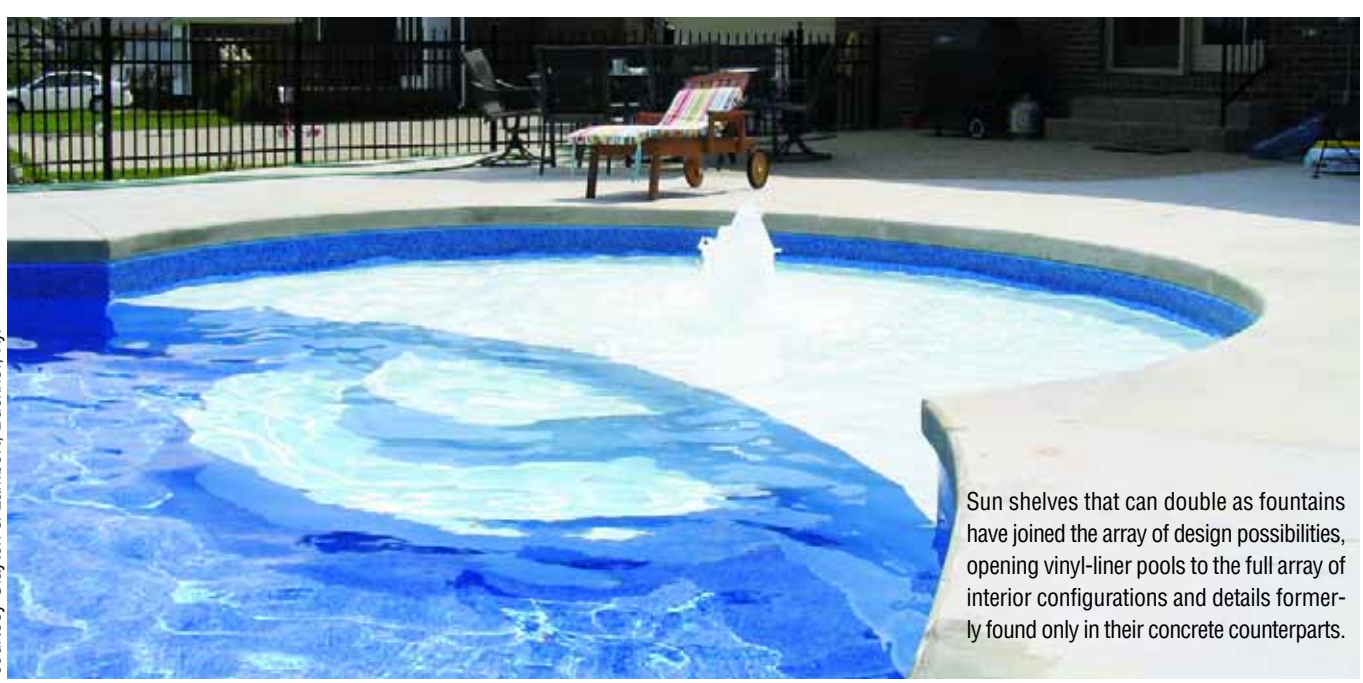


Photo by Suntime Pools West, Middletown, Ky., courtesy Clayton & Lambert, Buckner, Ky.

Sun shelves that can double as fountains have joined the array of design possibilities, opening vinyl-liner pools to the full array of interior configurations and details formerly found only in their concrete counterparts.

Attractive, soothing waterfalls cascade into these vinyl-liner pools – part of a trend in which those of us who design and install these vessels are exploring the full range of custom design features – and are also integrating them much more fully into surrounding deckwork and landscapes.

every four feet to lend extra structural support. With rockwork, we may use more of these extra supports depending on the rocks' sizes and weights and their proximity to the pool's edge.

These are largely precautionary steps because the lion's share of the load will be carried by undisturbed soil around the walls. As we see it, our aim is to isolate the walls from the deck or rockwork so that any ground movement will have no effect on the basic wall structure.

Atop the collar, we add a layer of soil onto which we lay the plumbing. All penetrations for suctions, returns, skimmers and light niches are specified before the panels are ordered, so it's a simple matter of running the lines to the right locations and making sure they are all properly connected.

In a basic 30-by-16 rectangle, we'll place a skimmer in the deep end 18 inches from a corner; a return in the wall on the opposite side of the pool; two returns in the steps to keep debris from accumulating there; and split main drains in the deep end. Every suction and return uses a "home run" to the pad, where we set up quality equipment sets.

Once the walls, collar, plumbing lines and electrical conduits are in place, the pool is inspected and, that done, we go to work on the pool floor, shaping it to the precise contours of the liner. Again, we over-excavate – but this time by just two inches to allow for placement of a layer of vermiculite. We also install an eighth-inch layer of foam materi-

Photo by Home Pool & Building, Owensboro, Ky., courtesy Clayton & Lambert

Attached spas are now a regular part of our pool compositions, either as manufactured shells with spillovers that cascade to the water below or in full-vinyl configurations in which they are integrated into the pool-wall system using much the same approach as is found with concrete pools.

al inside the panels, an optional step that gives the walls a softer feel.

At this point, we're ready for the liner. If the pool is a basic shape, it was ordered at the same time as the walls; once the vermiculite is installed, we get right down to dropping and snapping the liner into place. If the pool has a custom shape, I take precise measurements with the walls in place, then order the liner. (That's the only step in a custom design that adds significant time to the installation process.)

Once the liner has been installed and all the plumbing penetrations have been sealed, we fill the vessel with water. Once we're assured everything is structurally sound, we backfill the space behind the walls with soil: The real strength of the system is in the walls themselves, not in the surrounding soil.

Associated Structures

Beyond this basic sort of installation, nowadays there are a number of options to be considered – and more and more of our clients are insisting upon them.

Spas are by far the most common of these desired additions, and several companies offer panels, liners and steps for use in creating attached vinyl-liner spas. In our case, however, we go with manufactured inground fiberglass spas, typically with finishes chosen for compatibility with a liner. The shells we use are made to accept cantilevered stone decking or coping,

Photo courtesy Cardinal Systems, Schuylkil Haven, Pa.

The increasing appearance of vanishing edges on vinyl-liner pools is perhaps the clearest indication that this modular approach to pool-making has 'arrived' at the forefront of modern design possibilities.

Photos by Home Pool & Building, courtesy Clayton & Lambert

Photo by Johnson Pools, Huntsville, Ala.

so their appearance is easily integrated with a pool. In other words, they *never* look like a separate item that was simply dropped into place.

The shells we use have 12-to-18-inch-deep spillover lips that we set back from the steel wall with the edge of the lip just slightly cantilevered over the edge of the pool. We can also set the spa up 18 inches above the top of the wall, filling the space between the structures with brick, stone or some other masonry work – or we can set the spa back a couple feet and set up a masonry runnel between spa and pool. Although the top of a steel wall can and will support a small surcharge from an attached spa (or rockwork, a grotto or a waterfall, for that matter) we don't rely on the pool to offer structural support.

The tops of the panels come with a couple of options – either a flat lip that can accept anything from pre-cast coping to flat stonework, or a fiberglass panel that extends back 18 inches. With custom pools that are tied to the landscape, we typically use the former option so we can bring the decking material right to the water's edge.

Artificial rockwork on the side of the pool is generally set back far enough that the vast majority of the weight is supported by virgin ground. If in doubt, we'll always install additional PVC piers in key locations to support any weight over the backfilled area behind the walls.

Vanishing edges are another possibility and represent the most dramatic instance of vinyl-liner pools inching stylistically toward their concrete counterparts. The edge is handled by setting key panels a couple of inches lower than the rest of the structure – perhaps two or three inches – to bring the top of the wall just below the waterline. The liner simply wraps over the top of the wall, and the backside can be finished with any of a variety of brick, stone or plaster materials that serve to conceal the wall system.

The catch basin is made using a structurally separate modular wall system that can take on just about any required set of dimensions. In one recent case, we set a trough up to function as a separate wading pool.

Photo by Home Pool & Building, courtesy Clayton & Lambert

The state of the art in vinyl-liner pool design and construction has reached a level at which just about anything is possible. With the support of wall and liner suppliers, we are able to conjure just about any configuration with a wide range of interior details and can further customize our work with the full range of pool-design options – as in this case, with fire-on-water features, fiberoptic lighting and laminar jets.

Ever Better

As with any custom project, specific design and construction solutions with vinyl-liner pools will vary from job to job. The most significant development of the past 40 years has been the emergence of custom liner-manufacturing capabilities: Coupled with the complete flexibility and reliability of wall systems, we now have the building blocks we need to be extremely creative across a range of sites, situations and client desires.

We may not be able to install rockwork below the waterline, but these days we're seeing truly elaborate backyard treatments where design details including rock waterfalls, stone decks and other project elements are costing far more than the swimming pool itself. The important point there is that, in these custom environments, our vinyl-liner pools no longer seem at all out of place.

Operating at that level is all about an orientation to quality. Regardless of the relative simplicity or complexity of a project, attention to detail and construction accuracy are always crucial: No wrinkles allowed, for example, and no out-of-level framework!

Those points may seem obvious, but installers in the vinyl-liner business haven't always thought that such accuracy and attention to detail were important. These days, however, the basic systems have been polished to such high luster that excellence is always within reach for those who are motivated and ambitious enough to carry their vinyl-liner projects to the next level.

Facing

Mastering the fine points of stream, pond and waterfall design and construction generally takes years of patient practice, but 22-year-old Tim Krzeminski seems bent on condensing the process: Already, his work has a sophistication and visual appeal that delight those who see it; as important, he has a growing list of clients who are more than willing to let him exceed their expectations and make the most of the spaces they offer him.

the Future

By Tim Krzeminski

To me, designing and building ponds and streams is the best job in the world: It offers the professional rare opportunities to shape beautiful compositions that mimic nature and bring joy to those who spend time near the water's edge. It's hard work both physically and mentally, but ultimately, it's profoundly satisfying.

I backed into this business while doing lawn and landscape maintenance work during high school. What I observed on that end of the market was a level of competition so intense that I soon recognized I'd need a specialty if I were to have any chance of pursuing a good career at it.

In surveying the market, I noted that a number of landscaping firms were getting into naturalistic waterfeatures – and that the outcomes frequently looked terrible, even from my novice's perspective. To get in and out quickly, too many of these operators created systems that bore no resemblance to nature at all: From the rockwork to the way streams cut through spaces, what I saw just didn't square with what I'd seen in the real world.

These shortcomings spelled opportunity, of course, but I also knew that to stand apart from the rest, I'd need to develop my own skills and deliver work that reached a much higher level than just about everything I was seeing.

Natural Patterns

Getting traction on this career path was no small effort. I started out in my parents' backyard, progressively learning by trial and error as I worked my way through the yards of other family members. It didn't take long before I decided to give it a try professionally, and I haven't looked back since I started my firm, Laughing Waters of Palos Park, Ill., in 2003.

My approach is defined by two major factors: First, everything I do is based on my experience of nature. When I was a child, my family did a lot of camping in Colorado and other beautiful places, and I particularly enjoyed spending time near streams and waterfalls and picking up impressions that have stayed with me ever since.

Building a Narrative

As I see things at this point, age isn't the issue in getting work as a pond/stream specialist: Whether you're 22 or 52, this business is all about communication.

Certainly, listening to clients and discerning their wants and needs is a starting point that requires us to open our ears at any age and hear what they have to say. While some of them have fairly distinct ideas about what they want, I've found that most don't fully realize what's possible – and that's where our expertise comes into play.

This is why, in early conversations with my clients, I take my time and patiently look for opportunities to inject ideas that come from my own creative experience. More often that not, my low-key suggestions serve simply to open the doors to clients' imaginations and guide us into more dynamic exchanges of ideas that will lead to results they'll enjoy for years to come.

When combined with detailed site inspections, these conversations fuel my labors back in my studio. I don't draw by hand; instead, I rely on my computer and prepare a variety of illustrations to help my clients experience the space in three dimensions. These illustrations usually take the form of two distinct design approaches, giving clients the opportunity to refine their thinking, recombine design elements and get a real grasp of the possibilities.

The purpose here isn't to develop exact, literal representations of the project; rather, it's about lending definition to a narrative in which my clients are engaged as we begin the glorious process of bringing ponds and streams to their backyards.

– T.K.

Second, I recognized from the start that, as designers, we must work with what the site gives us. In studying what went wrong with many of the installations I'd seen, I noticed that many of them looked *forced*: They were often either oversized or undersized for their spaces, and no apparent thought had been given to making the watershapes and the surrounding landscape look like part of a unified, natural environment.

Looking in the opposite direction, I studied the work of masters who make their watershapes look as though they had been on site before the land was developed. In general terms, their successes had to do with the orientation of a property relative to its surroundings, the natural contours of the land and the scale of the spaces: I came to accept these as my guiding principles and have made them the keys to every creative move I've made since.

I also recognized that natural bodies of water exist on their own terms and their own scales, so my challenge has been to learn how to translate natural "patterns" of rock distribution, stream contouring and edge formation to confined residential spaces. Soon came acceptance of the fact that I was in a world without guidelines: Every project is different and each has its own set of parameters, so I've had to adapt my approaches accordingly and constantly.

Before long, I began to see each composition as having its own story, its own way of declaring how it should be shaped. Whether the tale has to do with the forces of erosion, the random dispersal of stone, fundamental geological activity and/or the influence of plant materials, I've seen each story played out in natural systems and do all I can to transfer one or more of them to my clients' backyards.

Whenever I place a stone or determine the course of a stream or the formations along an edge, I always make sure I'm thinking about the story at hand and where I am in what I'm doing relative to what I've seen in nature. If I can't see the narrative thread clearly, I'll keep making changes until I can.

Youthful Freedom

Of course, I don't dodge the fact that, at 22 years old, I'm something of an anomaly. I don't know too many people my

Our projects engage us in the full range of watershaping activities related to ponds and streams, from excavating basins (and in this case creating an island around an existing tree) to jockeying large rocks into place and establishing appropriate plumbing systems to keep the water flowing.

age who are tackling independent, creative work on this scale with so much at stake financially.

The way I see it, however, I had little to lose in reaching for the brass ring while still in college. I had no mouths to feed other than my own and saw no need to limit the risks I could take; I also had the energy, strength and stamina to work extremely hard for days on end and found that I enjoyed the growing sense of self-reliance: If something went wrong on a project and I lost money – which happened (and still happens) from time to time – the only person compromised financially was me.

In that sense, my career path has always made sense. I have an aptitude for the work, and although I'm proud of what I've already accomplished, I am also aware that I have many years in front of me to develop my skills and get better at what I do. There's also a remarkable sense of satisfaction that comes from not just *dreaming* about a creative life, but actually *living* it.

Of course, being a "kid" in the eyes of potential clients comes with its own set of challenges. I *do* have to work hard at establishing my credibility and I *do* have to help them get past any reservations they might have about working with someone they think should still be in school. I simply accept this as part of the process at this point.

But truth be told, I have a knack for winning people over, and I'm always an open book when it comes to sharing my experiences and past projects. In addition, I'm highly conscious of the fact that I must carry myself as a serious professional and represent every aspect of what I do and how I do it as being worthy of trust and confidence.

This is probably no different from what seasoned veterans in this business must do, and that's a fact from which I take

some comfort. Persuading clients that their projects will be taken seriously and done competently is always part of the business; no matter one's age, it all boils down to learning good habits and doing well with presentations, project management and client relations.

Mostly, once homeowners see that I'm utterly serious about what I do, they quickly move past concerns about my age and start looking at me as a professional with a job to do on their behalf.

From the Woods

Once I'm engaged in a project, I spend a considerable amount of time with the homeowners, listening carefully to what they have to say and offering guidance that fits within the scope of their needs and desires. But unlike many others whose work I've seen, I also spend a good bit of time listening to the site and hearing what it has to say about the way its watershapes should work.

Too often, I've seen designs in which ponds are brought right up close to houses so they can be seen from the most convenient indoor viewpoints, but only infrequently is this the best use of the available space. Instead, what works best is a subtler placement that invites observers to walk out into the yard and rewards their curiosity with pleasant surprises along the way.

I seek this sort of "direction" from the site because I know my clients are working almost exclusively in simple visual terms: They want to see what they're paying for in a convenient, steady way. As a watershaper, however, I'm aware that the design has dimensions of visual depth, sound and motion that also must be considered and that these subtler details likely will come as a revelation to my clients once the work is completed.

Another point of which the typical client is unaware is that, to seem natural, water systems must start from someplace out of view in the environment – perhaps from a wooded area or a rock formation. (This is yet another reason why front-and-center/under-the-kitchen-window placements seldom work in naturalistic visual terms.)

What I encounter most often are sites large enough that we can think in

Continued on page 62

When completed, our work on the pond seen under construction on the preceding pages included extensive rockwork and plantings (quite young in the photographs) related to a system of waterfalls as well as a bridge leading to the island perch. Given the setting's prominence, we needed to focus not just on key views from a distance, but also had to get the details just right for the waterfalls to bear up under the scrutiny they'll get from the island, the water and the shoreline.

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For information on program cost (including for four nights at the Hyatt Harborside in Boston, meals and course materials), visit our web site: www.genesis3.com. (Spouses will be welcome for an additional fee.)

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In addition, shorter seminars and presentations will be offered by top instructors including Anthony Archer Wills, Stephanie Rose, David Duensing and Greg Andrews on topics ranging from hydraulics and pond construction to garden styles, landscape design and fire and water effects.

New short courses this year will cover the waterproofing of watershapes, the art of creating world-class hardscape for water environments and engineering related to the proper use of steel. There will also be a new and expanded seminar on water-in-transit systems.

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

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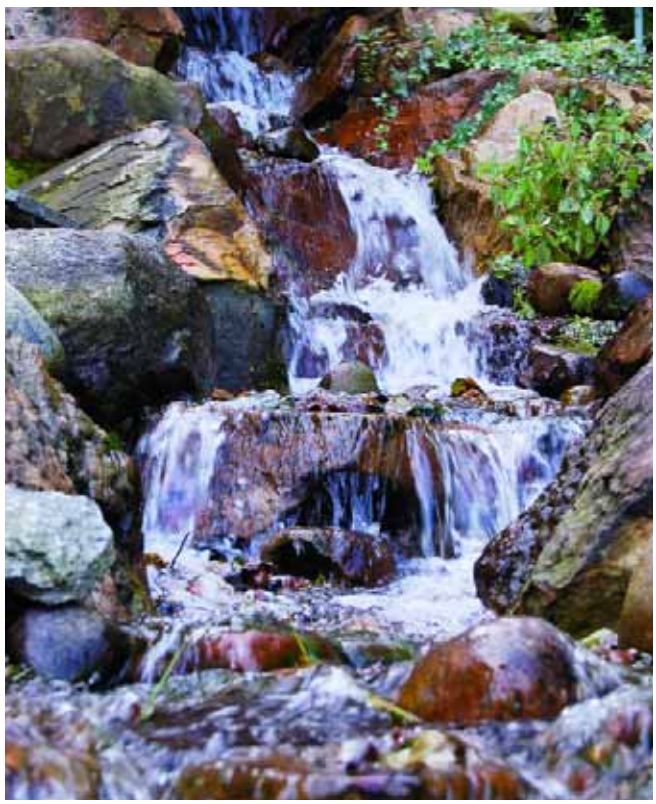
Our study of the way water works in natural settings pays dividends in a project such as this one, for which we actually had something of a slope at our disposal. Even in such a compact composition, the source of the water is hidden, and we invite detailed examination of all the waterfall's dynamics from the comfort of a small footbridge.



grand terms and can connect our clients' experience of their streams and ponds to the entirety of their outdoor space, adding value to areas that might otherwise be ignored by including them in the design.

For the most part, I've found that clients catch onto these concepts quickly and appreciate what water adds to the experience of being on their properties. When they're drawn out to reach special spaces, they get the feeling that their yards somehow have grown in size and, more important, have a greater range of experiences to offer.

You can't do any of this if you don't work with the site and make the most of what it has to offer.

Hanging Loose

Hidden among all these nuances of the business is the biggest challenge of all (and one I intend to explore for the entirety of what I'm projecting as a long, happy career): Every client and every site is different, so there are no hard, fast rules to this form of watershaping. It's a realm of improvisation, and it takes a good bit of skill to operate in it while still responding to each new combination of client and site in unique, creative ways.

When I look at the works of the masters of the craft – including my personal hero, the great Anthony Archer Wills – I'm always struck by how their compositions in rock, water and plants flow seamlessly into the setting. That's a level of finesse that can't be picked up from a book or a seminar: You need to go out and press the issue in the field as you're setting stone, working edges and acclimating the landscape to water's new presence.

These tasks stir my heart and creative spirit at every turn, and I'm happy to face a lifetime of attempting to master so worthy a form of art.

In grander settings, our compositions spread out and take advantage of scale – in this case on a basically flat piece of land. The temple-like structure at the top sets a background for a scene in which it seems perfectly appropriate to spot an icon that might have tumbled from the hilltop to reach its serene resting place.

The Hand You're Dealt

I've learned through the last few years that size really does matter with naturalistic bodies of water. Tiny ponds in isolation do not typically exist in nature, yet lots of projects I see are simply too small and look distinctly out of place in the typical backyard.

This is why I tend to persuade clients to think bigger: To me, it's the key to making the water seem as though it's always been there.

Certainly, it helps in this context to work on large properties, which has often been the case for me. These spaces give me options when it comes to creating views across the water's surface, and it leaves plenty of room for meandering streams and fusions of stone and plantings that blend the design into the surrounding landscape.

Large or small, however, in my area of the Midwest we're generally saddled with flat terrain and limited availability of natural vertical transitions. That's a huge challenge, part of which requires me to make use of *any* available grade changes. It's always easier (when the site allows) to follow natural contours in creating cascades that don't seem forced and can be situated so as to conceal the water's source.

– T.K.

Of Interest

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

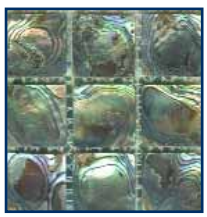
Pond Treatment

Circle 135 on Reader Service Card

SCOTT AERATOR offers All-Natural Pond Treatment. Designed to promote and maintain clean, clear water in ponds and lakes, the formulation of beneficial bacteria in a barley base assists in the elimination of muck while reducing murky water, surface algae, nitrates, phosphates and odors. Safe and harmless to aquatic life by overdose, the product is packaged in pre-measured packets. **Scott Aerator**, Holland, MI.

Natural Shell Mosaics

Circle 136 on Reader Service Card



AGAPE TILE has introduced the Tesoro del Mar collection of natural seashell mosaic tiles for applications in watershapes. The Abalone mosaics come in 10, 15 or 23 millimeter sizes; the Black Mother of Pearl, White River Shell or White/Beige River Shell mosaics come in 10, 15, 20 and 25 mm sizes; and the Spiral Shell tiles are available in 20 mm size. All come on mesh-backed sheets. **Agape Tile**, Albemarle, N.C.

Filter Medium

Circle 137 on Reader Service Card

WORLD MINERALS offers AquaPerl, a perlite pool-filter medium. Engineered as a replacement for diatomaceous earth, the non-toxic, chemically inert product is designed to improve filter performance and water clarity with its greater dirt-holding capacity. The NSF-certified product also prevents premature grid fouling and requires the use of less water in backwashing cycles. **World Minerals**, Santa Barbara, CA.

Submersible Pump

Circle 138 on Reader Service Card

GODWIN PUMPS has introduced Sub-Prime, a compact, submersible pump. The unit has a top discharge and is capable of maximum heads to 65 feet and maximum flows of 140 gpm. It is powered by a dual-voltage motor and is ideal for dewatering construction sites and for insertion into caissons as small as 8 inches in diameter. Suction and discharge hoses and couplings are also available. **Godwin Pumps,** Bridgeport, NJ.

Polymer Pool Walls

Circle 139 on Reader Service Card

NOVELLE POOLS has introduced a high-end polymer pool-wall system for the construction of inground vinyl-liner swimming pools. Featuring a unique parabolic design for stability and strength, the line can be used to form everything from rectangles, octagons and Grecian shapes to freeform pools and offers a modular system that allows for large variety of shapes and sizes. **Novelle Pools**, Schuylkill Haven, PA.

Wireless Controller

Circle 140 on Reader Service Card

CAT CONTROLLERS offers CAT 4000, a microprocessor-based water-quality controller with integrated wireless communications. Easy to install and operate, the device features professional-grade pH and ORP sensors and is compatible with most existing chemical-feed equipment. It also links to the company's *Poolcomm* web site for constant monitoring with wireless convenience. **CAT Controllers**, Gaithersburg, MD.

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QUICK MIXER

Circle 141 on Reader Service Card

STOW CONSTRUCTION EQUIPMENT offers six hand-held mixers in its new Collomix line. Designed for quick mixing of grout, concrete and mortar with even material and color distribution without clumps, the rugged, ergonomically correct devices are ideal for applications with decorative concrete and more and are available in high-torque single- and dual-speed models. **Stow Construction Equipment**, Carson, CA.

RECREATIONAL FLOORING

Circle 142 on Reader Service Card

RENOSYS offers RecDeck Recreational PVC Flooring as a long-term solution to problems with existing recreational decking. Ideal for applications on pool decks, locker/changing rooms and other recreational areas, the product is made with a durable, felt-backed, 85-mil PVC and can be used in virtually any space where slip-resistance, durability and ease of maintenance are primary concerns. **RenoSys**, Indianapolis, IN.

EQUIPMENT CATALOG

Circle 143 on Reader Service Card

GUNITE SUPPLY & EQUIPMENT offers a catalog on its line of gunite rigs and shotcrete pumps, covering wear parts, hoses, couplings, nozzles, finishing tools and accessories. The 20-page, full-color brochure also covers batch plants for on-site material preparation – everything from small-batch units to mobile rigs that eliminate the need for deliveries by ready-mix trucks. **Gunite Supply & Equipment**, Cincinnati, OH.

CHLORINE INJECTOR

Circle 144 on Reader Service Card

CHEMILIZER PRODUCTS has introduced CP33, a water-driven injector for chlorinating commercial and residential pools and spas. The unit's high flow capacity makes it suitable for use with large pools, but it works with vessels of any size. It injects a controlled amount of liquid chlorine automatically – no electrolytic cell to clean, no problems with power surges, no residues. **Chemilizer Products**, Largo, FL.

Changeable Tabletops

Circle 145 on Reader Service Card

CALIFORNIA OUTDOOR CONCEPTS offers tables with multi-function centers that can take the form of coolers, grills, firepits or umbrella fittings. Designed to transform the outdoor-living space into what the homeowner needs on a specific day, the tables feature tops made of granite, while the bases are made of wrought iron, cast aluminum, concrete or copper. **California Outdoor Concepts**, Commerce, CA.

Software Enhancements

Circle 146 on Reader Service Card

NEMETSCHEK NORTH AMERICA offers a maintenance update for its VectorWorks line (Designer, Architect, Landmark, Spotlight, Machine Design, Fundamentals and RenderWorks). The new 12.5.1 version improves system stability and performance while addressing issues raised by users – particularly those related to opening and saving files over a Mac network. **Nemetschek North America**, Columbia, MD.

Salt Chlorinator

Circle 147 on Reader Service Card

ADVANCED CONTROL LOGIX has introduced the Clor Tec salt-chlorination system. Designed for safe, on-site generation of chlorine using salt, water and an electric current, the system produces a 0.8-percent hypochlorite solution that flows into a storage tank; from there, a metering pump delivers controlled amounts of disinfectant to an injection point in the pool's return line. **Advanced Control Logix**, Colfax, CA.

Power Trowels

Circle 148 on Reader Service Card

MULTIQUIP has introduced Whiteman's B and J Series of walk-behind power trowels. Using powerful engines to generate improved rotor speeds for smoother, faster deck finishes, the four new B Series models have 46-inch diameters, while the six J Series models have 36-inch diameters. They also feature lifting bails, simple-to-use ergonomic throttle controls and rugged frames for long service. **Multiquip**, Carson, CA.

Pool Seating

Circle 149 on Reader Service Card

QUAKER PLASTIC has introduced an in-wall seat that mounts directly into the structure of a vinyl-liner pool, thus allowing for seating designs that don't intrude into the main body of the vessel. The product features two contoured seats for maximum in-pool comfort and a center section that serves as a convenient armrest. It comes in gray or white and can be fitted with hydrotherapy jets. **Quaker Plastic**, Mountville, PA.

Skid-Steer Loader

Circle 150 on Reader Service Card

BOBCAT has introduced the S330 skid-steer loader. Designed with increased horsepower and an improved cooling system to allow for use under extreme conditions, the device has a lift height to 10 feet, 10 inches – ideal for construction and landscaping applications – and a lift capacity up to 3,000 pounds. It also has a cab outfitted for maximum operator comfort and unobstructed visibility. **Bobcat**, West Fargo, ND.

In-Pool Treadmill

Circle 151 on Reader Service Card

SWIMEX has developed a motorized treadmill for its line of pools. The programmable device provides speeds up to 8 mph, allowing for custom training or rehabilitation regimens. Set in the floors of select models of the company's paddle-wheel pools, the device is made with durable, high-traction rubber with a non-corrosive frame and has removable handrails for optional support. **SwimEx**, Fall River, MA.

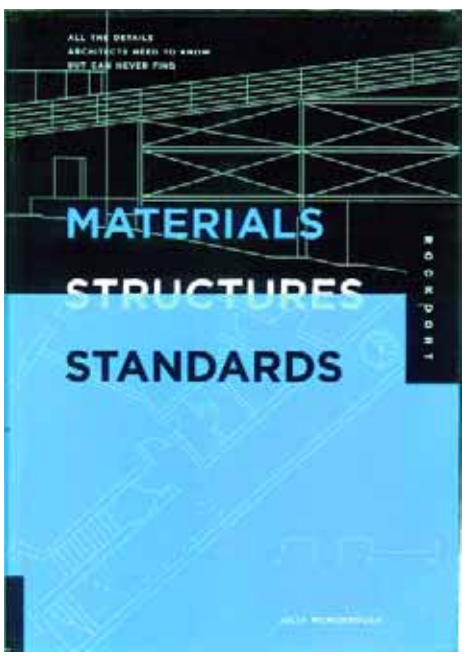
Chemical Controller

Circle 152 on Reader Service Card

ACU-TROL has introduced the Smart pH controller, a water-quality-management system designed to reduce chlorine usage and incidental corrosion in residential pools and spas. Made using commercial-grade components for durability, the device continuously measures pool and spa water pH and adjusts the chemical balance to avoid the highs and lows that cause eye irritation and cloudy water. **Acu-Trol**, Auburn, CA.

By Mike Farley

Good Measure



As watershape environments become increasingly integrated with homes and overall exterior spaces, increasing numbers of our clients are asking us for associated structures – everything from outdoor kitchens and dining areas to arbors, cabanas and pool houses.

In my case, just about every single design I tackle includes one or more of these features. What this means is that we watershapers are effectively being drawn into the world of architecture. While we may not ultimately design or build these structures, at the very least we need to be familiar enough with their ins and outs that we can talk about them intelligently in the context of a given project.

I've picked up a lot of basic knowledge through experience and close observation, but I recently decided to seek out a formal reference that would help me give definitive answers to a wide range of these questions, some as simple as inquiries about how much space an outdoor kitchen requires or how big a pool house's bathroom must be.

There are all sorts of references and guides to this type of information, but I found myself most satisfied by *Materials Structures Standards* by Julia McMorrough (Rockport Publishers, 2006). This wonderfully comprehensive, 270-page book is organized as six sections (measurements, drawings and plans, systems and structural components, code requirements, materials and their characteristics and architectural styles), each one addressing a range of technical issues with the help of remarkably clear charts, tables and diagrams.

The Measurements section, for example, describes in detail the size and spacing required for everything from wheelchair access to the amount of room required for bathroom fixtures and kitchen appliances. There are also details about how high counters should be, how much space is required for dining-room seating, proper stair and step dimensions, correct door and window apertures and more.

Equally useful is the Drawings and Plans section, which describes the types in common use (plan views, floor plans, perspective drawings, details, isometric diagrams and the like) while offering information on all sorts of standard plan symbols and commonly used terms – all important to know when reading a set of blueprints or preparing plans for use on a job site.

The Code Requirements section delves into the International Building Code (IBC), the American with Disabilities Act (ADA) and more, while the Systems and Structural Components section covers foundations, framing, trusses, roofing and more. The Materials section discusses types of lumber and their dimensions, I-beams and finish materials from wood and stone to plaster, tile and concrete. There's great information here about issues such as the spans you can achieve with particular beams, for example, and on the finishes required for different types of wood surfaces.

Wrapping things up is the Architectural Styles section – a wonderful, brief treatment of basic architectural components as seen in different styles as a guide to how they should look.

I imagine just about everything in this book might be found in various other places, but I don't know of any resource where it's all covered so thoroughly or quite so compactly. For a good stretch to come, I know this is a resource I'll keep on my desk so I can refer to it over and over again. WS

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

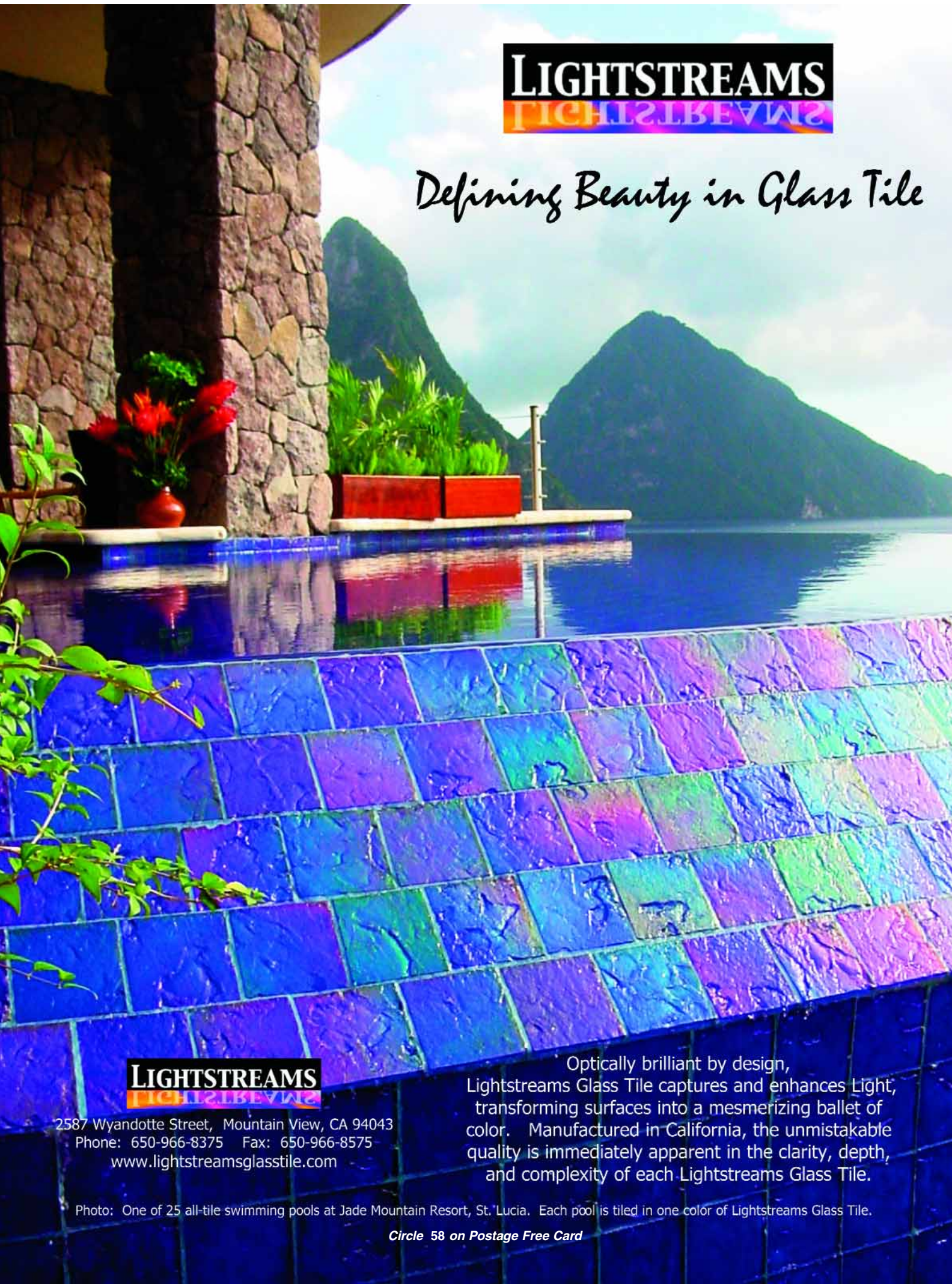

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Photo: One of 25 all-tile swimming pools at Jade Mountain Resort, St. Lucia. Each pool is tiled in one color of Lightstreams Glass Tile.
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