Inside: David Tisherman on Excavation

WaterShapes

Design • Engineering • Construction

Volume 9
Number 7
July 2007
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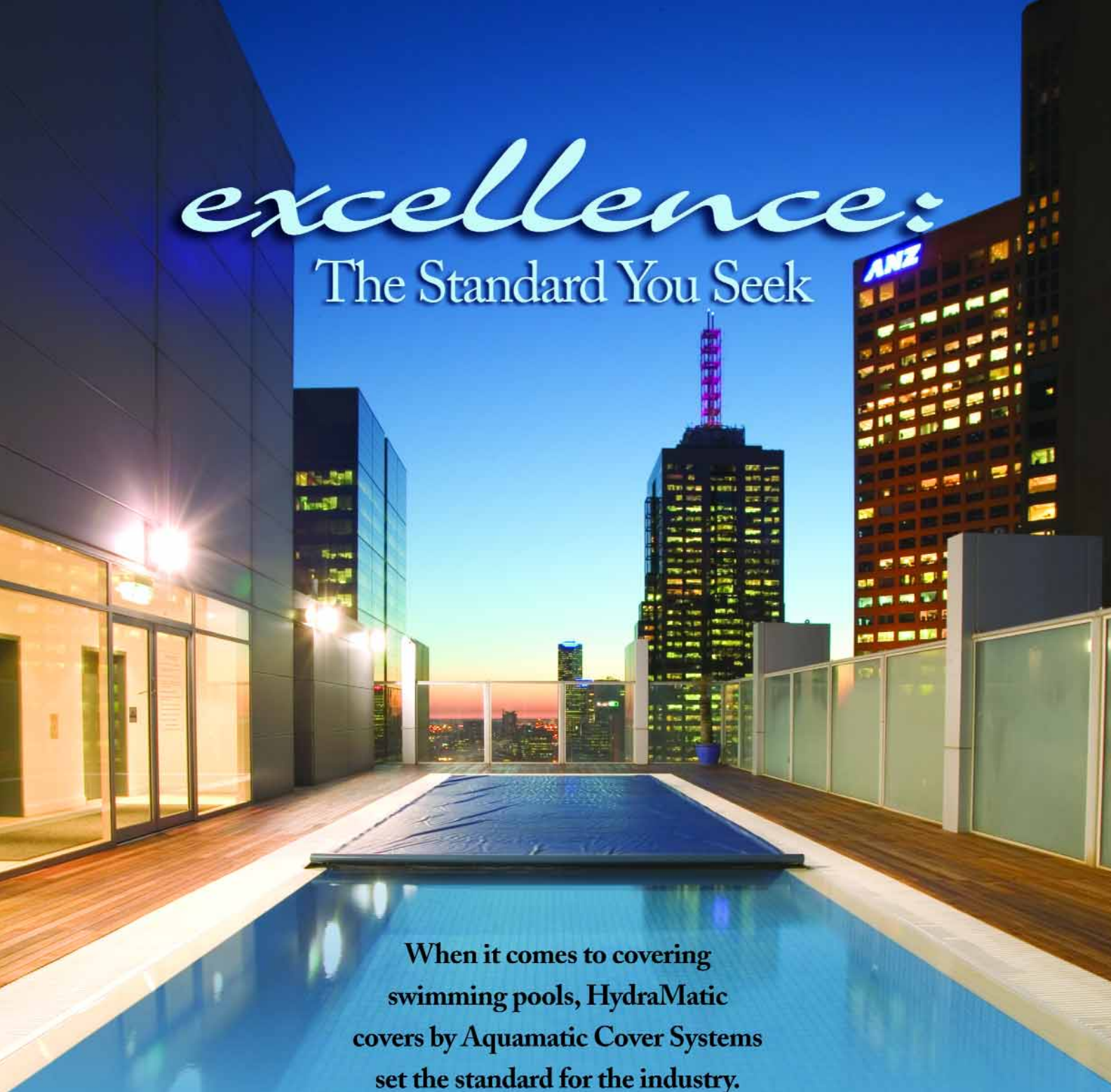

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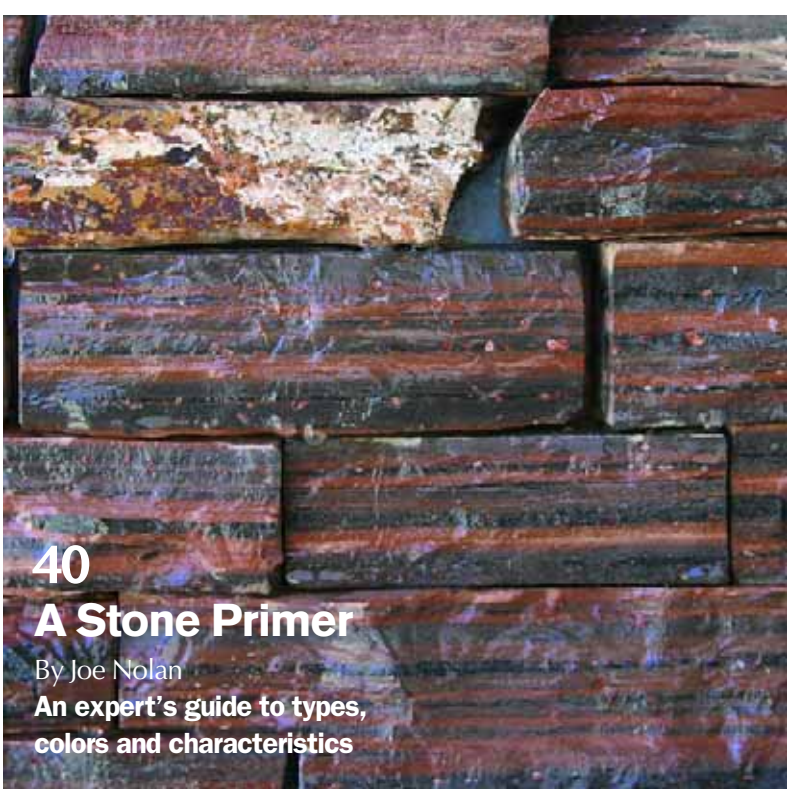

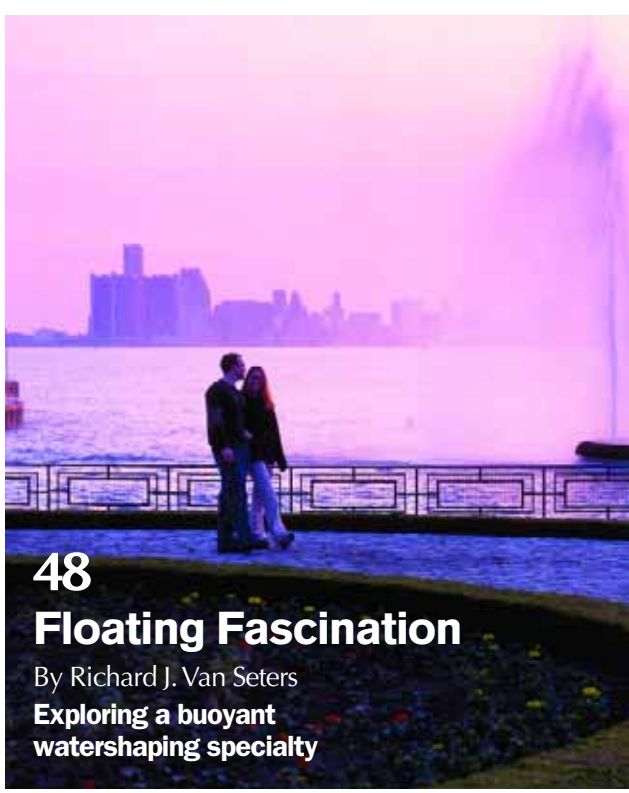

WATERSHAPES
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On the cover:
Photo courtesy Robert Bledsoe, Cripple Creek Rock Co./Cripple Creek Construction, Gladstone, Mo.

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By Eric Herman

Correcting the Record

It is with complete and utter candor that I must point out a significant error on my part.

In our June 2007 issue, we mistakenly ran several photos with Jim Robinson's article, "Eastern Influences," that were *not* provided by Mr. Robinson or his company, Daichi Landscape of Eugene, Ore. These images, which appeared on pages 56, 64 and 65 as well as the magazine's cover, were in point of fact given to us by Robert Vaughn of Earthwerx (Cartersville, Ga.) for use in a future article covering his work.

This is a serious error that resulted from the misfiling of a compact disk. As editor of *WaterShapes*, I accept full personal and professional responsibility and offer this public apology to both Messrs. Robinson and Vaughn on behalf of our entire staff.

In speaking with those men after the error came to light, both were extremely and understandably concerned about the fact that their work had been miscast in our pages. To be absolutely clear, this mistake was neither the fault of Mr. Robinson nor of Mr. Vaughn; I am squarely and solely responsible.

To our readers, I further apologize for this misstep and assure you that we at *WaterShapes* take seriously our responsibility to provide you with reliable information. In the event of any such error, large or small, we *always* seek to correct the record as soon as humanly possible. Both of the watershapers who've been affected by this miscue do exquisite work, and it was far from our intent to cross our wires and disappoint either one of them – or you.

I offer no excuses, only my genuine contrition and an ongoing, personal pledge to continue serving you to the best of my ability.

▼ ▼ ▼

On an entirely different and unrelated note, this issue carries the last installment of Stephanie Rose's column, "Natural Companions."

Since the magazine's very first issue, Stephanie's contributions to the magazine have stood out like beacons. Her great gift in describing the myriad ways plants and watershapes go together has made a major contribution to our understanding of methods by which exterior environments are tastefully and artistically integrated.

She's been a pioneer, and her approach has left an indelible stamp on the watershaping industry. Thank you, Ms. Rose. The pleasure has been ours.

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July's Writers

Robert Bledsoe is founder and CEO of Cripple Creek Rock Co. and Cripple Creek Construction in Gladstone, Mo. – firms that offer complete design and construction services to residential clients and also supply stone and masonry products to other companies in the Kansas City area. Previously the owner of Bledsoe Construction & Landscape, he has been in the landscape-construction business for more than 20 years – the first ten as a specialist in large-scale pond/stream installations for golf courses, public parks and estate-sized residences. Bledsoe's work balances client preferences with leading-edge construction principles and an outlook on quality design inspired by the existing environment. He focuses on creating settings for varied outdoor lifestyles, and his designs typically encompass a range of watershape and landscape features.

Joe Nolan is vice president and co-founder of Malibu Stone & Masonry Supply in Malibu, Calif., a construction wholesaler specializing in decorative stone products. Following several years as a construction superintendent for a

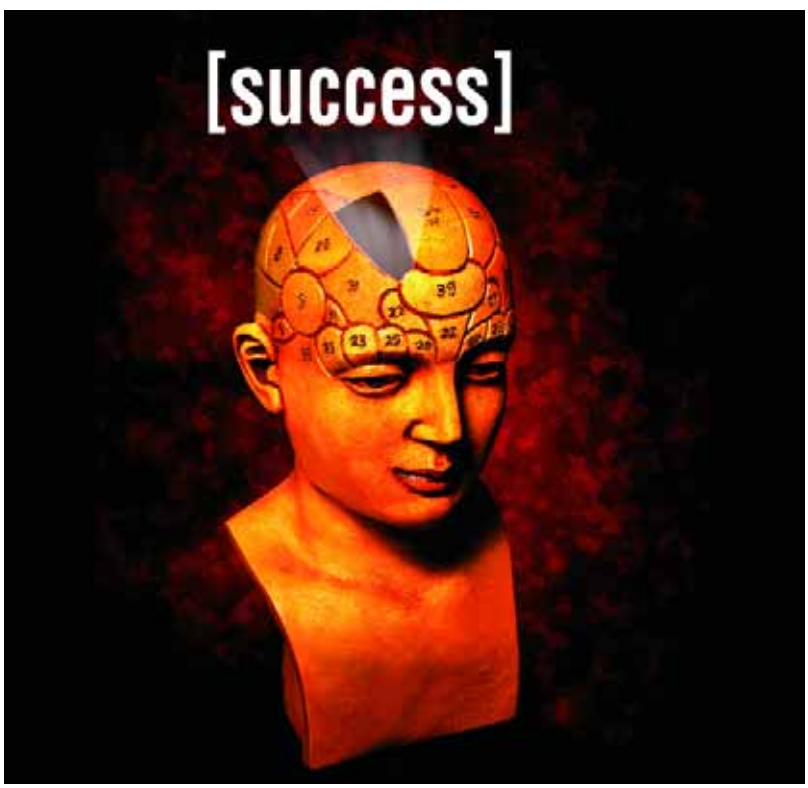
general contractor, Nolan began his career in the stone business in 1985 when he went to work in sales for a masonry retail and wholesale supplier. Recognizing a large void in the decorative stone supply business, Nolan and co-founder Scott Armstrong established Malibu Stone & Masonry Supply in 1997.

Richard J. Van Seters is founder and principal of R.J. Van Seters Co. Ltd., a design/consulting firm for fountains and other highly specialized watershapes based in Unionville, Ontario, Canada. He began building swimming pools and fountains in the 1950s while training as a landscape architect and spent 25 years working in both design and construction before establishing his own firm to focus exclusively on design and engineering of display systems for architectural and landscape settings. He has extensive expertise in mechanical, electrical and structural engineering based on decades of experience and often conducts seminars about fountain and display-feature design. His projects include a wide range of system types now in operation at sites around the world.

By Brian Van Bower

Free Your Mind

Time and time again, I've found that by releasing my own thinking from the usual assumptions I am consistently surprised by what people want and are willing to buy to elevate their projects.



One of the fascinating things about working with the different types of clients we encounter as watershapers is that we can never really know what to expect.

If my years of experience have taught me anything, it's that perception is often very different from reality. Instead, what I find is that the basic assumptions we might be inclined to make about different "categories" of clients are, often as not, completely confounded by the uniqueness of every situation.

As a result, working effectively across a range of project types and client economic levels means being able to withhold judgment or at the very least avoid acting on the assumptions we can't help carrying with us. The truth of the matter is that our prejudices may help at times, but it's just as likely that they'll make us miss the mark.

Striking the balance between those two opposing positions can be tricky if you don't keep an open mind.

riding the range

Using my own practice as an example, I'm proud of the fact that we often work on elaborate, creative designs for well-heeled clients with spectacular homes and seemingly unlimited budgets.

These are the projects that capture the most attention, which is why I use them to promote additional business. They're also the ones that enable us to stretch the artistic envelope and often involve us in team efforts directed at achieving the ultimate in watershape and exterior design.

At the same time, I've been noticing lately that we're tackling lots of design projects at much lower levels with respect to budgets and project scope. These are clients who want pools that will cost less than six figures but who are also interested in having the project detailed beautifully and designed reliably. In fact, a great many of these "mid-range" clients are more than willing to pay thousands of dollars just for the design work, adopting a set of values for their projects that were once thought to be found only in working with the "private-jet crowd."

Even ten years ago, the mere *thought* that a middle-class consumer would pay a separate fee for a pool design was laughable, and for years I faced an uphill battle convincing clients that they should pony up and that the investment would be worthwhile. Things have changed, so much so that these days any presumption that quality, custom design is the exclusive province of high-budget projects should be completely discarded.

Obviously, moderately priced projects aren't going to have the bells and whistles or trick materials of their more fully realized cousins, but many *do* include premium elements such as the all-tile interiors I've written about for years, and I always make it a point to make these options available to people you might not think would be open to spending that kind of money.

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step into color

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Time and time again, in fact, I've found that by releasing my own thinking from the usual assumptions I am consistently surprised by what people want and are willing to buy to elevate their projects. By the same token, I've also run into well-to-do clients with more money than taste and who crave designs that are so unbelievably elaborate that the work suffers. Sometimes these people are also incredibly difficult, demanding and litigious, and there are occasions when it makes sense to "fire" them.

It's something of a paradox, but I think all of us would benefit from opening our minds and questioning what we might naturally think about working with folks at different economic levels.

high end?

This undermining of preconceptions has led me to reevaluate the term *high end* – a convenient phrase that is often used to describe projects with big budgets. Truth is, budgets alone are not what define true, "high-end" quality and value. I'd argue instead that creativity and a desire for something beautiful are far more effective ways to think about clients and what they want and need.

I currently have clients in the northeast, for example, who own sports franchises, have three homes in upscale areas and enjoy what seem to be almost unlimited resources. These are people who can pay for whatever they want and are willing to foot the bill for multiple site visits and meetings. They also enjoy fine dining and travel and are by all accounts sophisticated in addition to being wealthy.

Best of all, they are wonderful clients who have a truly joyful approach to the process of obtaining a beautiful backyard environment.

Just a couple of days after a recent trip north to work on that project, I found myself involved in a job with a middle-class couple and a modest budget. They live in a nice house in a nice neighborhood, and just like the wealthy couple, they want something that fits their home and will provide them with years of luxury and fun.

Yes, there are significant differences with respect to scale, budget and my need to travel. Yes, the project for my northeastern clients will take far more time than will the job for my mid-level clients – and there's no question that to work at the higher level, I need to be comfortable with the trappings of wealth and in dealing with large dollar figures.

To my way of thinking, however, the similarities are far more important than the distinctions. The middle-class clients are just as passionate, excited and intent on obtaining work that has true value as is the family traveling among multiple estates. Ultimately, both sets of clients deserve quality designs. Heck, they're both paying the same hourly rate for design services, and when you get down to the work we're doing, the only real difference is that one is more elaborate and time-consuming than the other. The core values in play are really no different.

For my part, I enjoy both types of pro-

jects and gain the same sort of personal satisfaction knowing that work we're doing will result in enjoyment and fun. It's reached a point where we see our projects at all levels bearing a "mark of quality" that's becoming the distinction that matters most.

key differences

In seminars, classrooms and casual conversations, whenever I discuss working with the broad range of clients who come our way I always start by saying that I don't look up or down to anyone: Wealthy and not-so-wealthy people all respond to respect, good humor and a straightforward, truthful approach to doing business. For me, it's a matter of certainty that human dignity and human nature are not the exclusive turf of any group, no matter how one tries to categorize people along those lines.

That does not mean, however, that we should ignore some of the differences that come into play with clients at disparate economic levels. In fact, recognizing that wealthy people and their projects often require a greater level of attention than will the work we do with the rest of humanity is extremely useful. The key to success on all levels, I believe, is being comfortable in your own skin regardless of the economic status of a given client.

As an example, I'm currently working on a design for a well-to-do couple in Georgia who want their project to include an almost unbelievable range and number of features: pools indoors and out, both with spas and both with multiple additional elements including fountain features, perimeter-overflow details, multiple swim jets and all-glass-tile interiors. The outdoor pool is to be the primary focal point for the surrounding house.

Again, it's all about the fundamentals – paying attention to detail, providing a range of material options, being responsive and having respect for the process – and it's no different in this case from those of projects at a fraction of the cost. What *is* different is that these clients are going to require multiple meetings, near-constant attention, accommodation of a steady flow of changes and almost daily answers to a bevy of questions.

I've known from the start that this project would continue for a long time and that I'd be engaged in it up to my eyeballs every step of the way, right up to completion.

Furthermore, this project means that I need to be completely comfortable talking, among other things, about tile installations that will cost hundreds of thousands of dollars. I've known people in this industry to get tongue-tied in discussing those kinds of costs – and I also know that if the conversation were about my own resources being spent that way, I'd do more than stutter. But when I'm working with these clients, I understand that affordability is relative and that these folks don't have a problem with spending large sums of money for beautiful materials and special details.

In other words, their comfort translates to mine in making extremely expensive products available to them.

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defining value

There's an opposite, yet quite similar, process at work with mid-range clients. Just as I've known watershapers who almost choke on big numbers, I've similarly known many who assume they shouldn't make expensive products available to clients of more modest means. And some have even told me that they avoid presenting too sophisticated or upscale an image for fear of alienating these clients.

Both assumptions are flawed.

As I mentioned above, we should present a range of options to *all* clients, because you really never know what they'll want. More than a few times, in fact, I've been pleasantly surprised by the value that people place on beautiful materials, so I make a habit of talking about the benefits of upgraded materials and the aesthetic power of vanishing edges, the exercise opportunities of swim jets and the decorative exuberance of laminar jets. You never know what will strike any client's fancy, so why not make the offer when it is appropriate to the overall design?

And when it comes to issues of personal image, I just don't understand the idea that we need to dress ourselves down for a certain class of client. Just as I don't believe in putting on airs to impress anyone, I see no reason to hide from the fact that I drive a nice car, wear reasonably stylish clothing and enjoy talking about fine wine, great food and nice vacations.

In my book, those things let clients know that they're working with someone who enjoys luxury, fun and the good life – and isn't that the largest part of what our products are all about?

I would never presume to dictate your personal style, but allow me to suggest that there's nothing wrong with presenting a positive, professional image. If a nice watch on your wrist or a quality vehicle intimidates a prospective client, then that really is his or her problem. Conversely, if you're the sort who's comfortable meeting with clients in shorts and a T-shirt and it's working for you, then more power to you.

For my part, these days I'm placing the greatest value on projects that are going to be fun and, for the most part, free of the potential for conflict. As far as that goes, there really isn't any difference at all between clients based upon their financial status: It's all a matter of attitude and the spirit of collaboration they bring to the table.

fun in mind

Just before writing this column, I terminated a relationship with a wealthy potential client who, frankly, showed all the signs of posing wall-to-wall problems: She was, for example, unable to see value in paying me to make a site visit, despite the fact she wanted me to assess an existing project that she'd recently had installed.

She was, she told me, extremely unhappy with the work and basically wanted me to offer a critique that might become the basis of a lawsuit. I responded that I was unwilling to adjust my fees for travel, that I was unwilling to work via e-mailed pho-

tographs (as she had suggested) and that I certainly was not interested in participating in her desire to seek a pound of flesh.

I was polite and professional, of course, but it was extremely satisfying to hang up the phone and move on to more enjoyable work – and in this specific instance, a project for clients of more limited means. Taking this step away from a lucrative hell to deal instead with people who are upbeat and positive idea about what we'll accomplish made perfect sense to me. The point is, good and bad clients exist on all levels and, again, making assumptions based on economic status is simply a poor way to go.

Yes, it's easy to pigeonhole clients. On a certain level, that's human nature, and stereotypes exist because there are often kernels of truth in them. Just the same, whenever I find myself falling into some sort of prejudicial thinking about clients, it's usually at those times that the assumptions fall to pieces.

There have been times, for example, when I've met wealthy people who, upon introduction, seemed like members of the maintenance staff. Fortunately, I'm seasoned enough to avoid saying anything dumb to anyone under those circumstances. To my mind, however, incidents such as these drive home the point that you can't always judge a book by its cover.

Bottom line: The things that make for good clients and great projects don't necessarily revolve around wealth. Instead they boil down to the value that we and our clients agree to place on the tasks at hand. When you look at the art of watershaping in that way, you'll find that working with clients across the spectrum isn't difficult.

If you're true to yourself, if you free yourself from assumptions and if you recognize that, for the most part, clients all want the same things, the complex issues of client relations will far more easily fall into place. 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.

Mosaic Swimming Pool

Detail of Spa Water Line

Detail of Bond Beam to Spa Wall

By Stephanie Rose

Making Changes

This has been a year of changes.

Consider the weather, which, in my corner of the world, saw unusual, sustained periods of freezing temperatures never witnessed in my lifetime along with inconceivably low rainfall totals that make water rationing a very real possibility on southern California's horizon.

Whether these climatic extremes are, as some scientists are saying, a consequence of global warming or not, the fact of the matter is that these phenomena are worrisome and their implications need to be taken seriously by people in the watershaping and landshaping trades.

Consider opportunities as well. In my case, the past year has seen two big ones occupy my time, one in a related field that didn't work out the way any of us hoped, and another in an entirely separate field that did.

A wise person once told me that we shouldn't waste time worrying about things we can't control and should instead focus on those we can. I believe that adage to be true, and the immediate consequence of my success in this new venture is that I am moving on: This will be my last "Natural Companions" column for *WaterShapes*.

For years now, I've written about the importance of communication and collaborative effort and about the necessity of paying attention to detail while still being able to step back and look at the Big Picture.

where we've been

From the comfort of my office for nearly ten years now, I've sat down at my computer every month to collect my thoughts and offer a landscape designer's perspective on the watershaping realm.

My words have always been surrounded by those of gifted, dedicated watershapers of all sorts, and my intention each time has been to flow my ideas in among their wide-ranging concerns to reinforce our genuine, collective effort to elevate an industry that really needed to raise the bar.

I began in 1999 by looking at how we view our roles as watershapers and landscape professionals and by defining the effects we have on the world around us. Sometimes I narrowed my focus down to minute details that influence the way our clients see our work and the way we shape how others view these environments. Other times, I painted with a broad brush, occasionally in provocative ways.

Controversy has occasionally resulted from expressing certain of my points of view, but probably not so often as has been the case with either Brian Van Bower or David Tisherman, fellow columnists whom I respect tremendously. I've always admired those who have the courage to stand up and try to effect change by stating unpopular (yet valid) opinions, and I am proud of those occasions when I have done my share of stirring the pot.

To my mind, this is a growth process – a profound professional dialogue that shapes the work we do.

For years now, I've written about the importance of communication and collaborative effort and about the necessity of paying attention to detail while still being able to step back and

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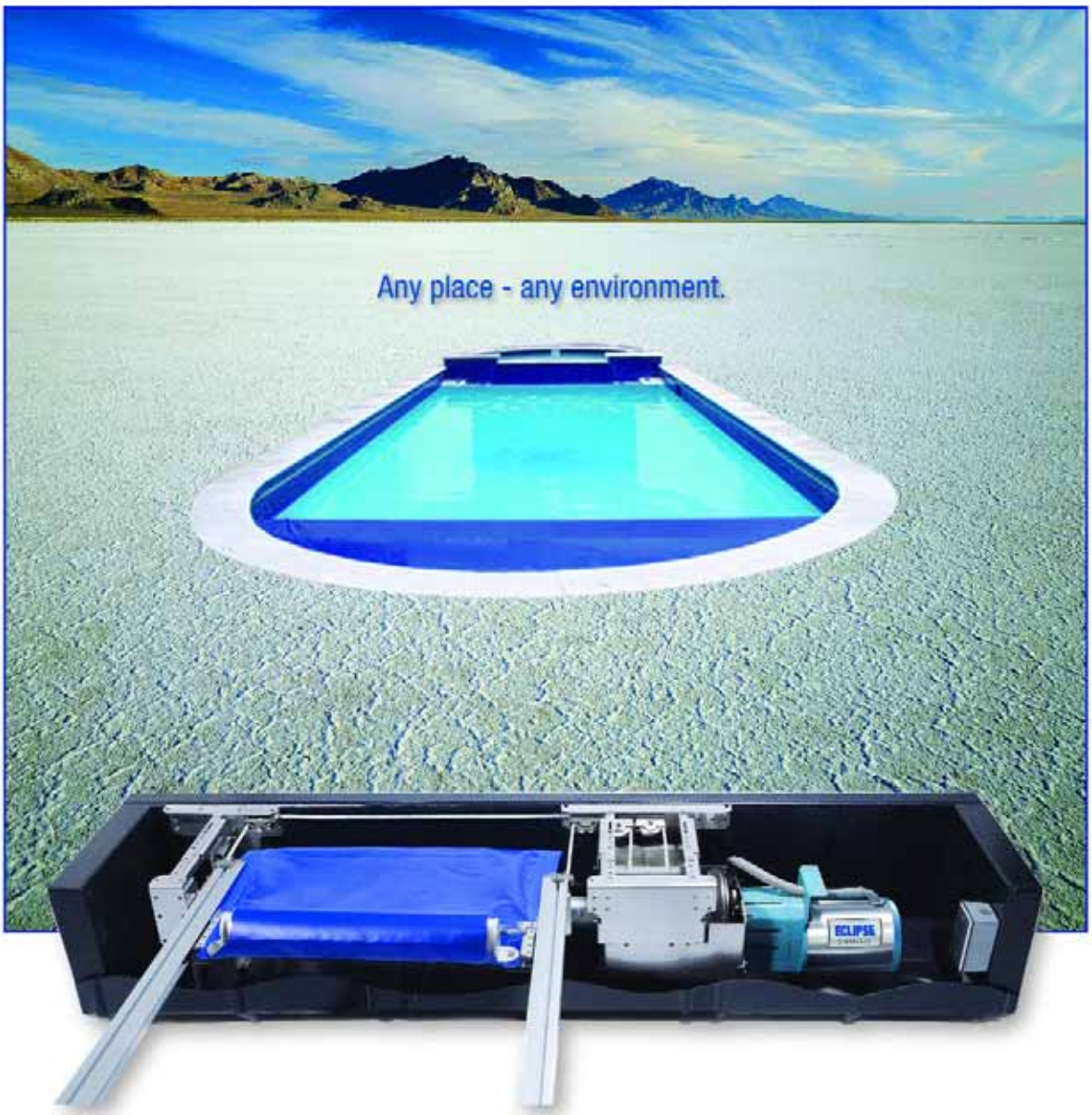

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look at the Big Picture. I've discussed everything from climate to irrigation, from individual plants to whole families of plants, from overarching design concepts to specific project details. I've profiled my work and delved into a host of key topics – and I've enjoyed every opportunity I've had to use this amazing forum to express my point of view.

Curious about the sheer volume of thoughts and ideas I've expressed in the pages of this magazine, someone asked me recently how I managed to write something every month that was both fresh and relevant. At that moment it occurred to me that, as a landscape designer, I go about my work most often on instinct. On paper, however, I must step back and dissect what I do and think things through in ways that examine intuitive processes and convey them as clear, communicative words.

into words

In a sense, this column has made me a better designer by making me think on a more microscopic level about the work that goes into creating beautiful, successful designs. It's my belief now that the more we're able to think about what we do, the better we're able to understand the work – and carry that insight into future projects.

In an even more personal sense, my writing for *WaterShapes* has effectively been a voyage of discovery not unlike the experience of many other watershapers and landshapers – the difference being that I've been able to share steps of the process with all of you for nearly a decade.

From the start, I felt a sense of responsibility to use this monthly space to try to get all of you to think about what you do every day and how your thoughts and actions affect those around you. All of us who've ever written for the magazine have in some way challenged you to create beautiful landscapes and watershapes, and there is no question in my mind that on that score the watershaping industry has progressed admirably in the past ten years.

It's magical: We are creating masterpieces that had previously never been envisioned.

The future is bright, and I think it has a lot to do with the synergy of the landscaping and watershaping industries channeled through this publication: *WaterShapes* has inspired and motivated an entire generation of watershapers and landscape designers and architects, and it will continue to do so with generations to come.

Most who lock into the sort of career path I've pursued do it in the hope that skills will improve over time, that projects will become bigger and better, that money will flow freely and often and that, ultimately, we'll reach a point where we find satisfaction and fulfillment on the path we're following.

In my own case, however, I don't seem to be one of those people who has found that spot to settle in, and I'm not even sure it's in my nature to find it: I'm always looking for change, for something new, for something that grabs me and carries me down a new path that is exciting and

offers me opportunities to do things I've never done before.

This time, that quest has led me to an altogether new career path, so I'm saying my farewells and moving on.

new roads to travel

This change was wholly unanticipated but fully welcomed in a sense that it's an opportunity I've had my eye on for many years – it's just that until recently I never figured out exactly how to make it work.

Even had I not made this change, I have the feeling that it wouldn't have been long before I surrendered this space to another columnist: I think I've done about all I could in my time at *WaterShapes*, and although I know I could continue in my role here for many years to come, I believe the readers of this incredible, groundbreaking publication are ready for a change as well – a different point of view.

I'll miss the call from my editor every month, gently reminding me that it's time to e-mail him some pearls of wisdom about design ideas, plant performance or some other expression intended to inspire readers and an industry that has grown significantly in sophistication in the past ten years.

I will miss the camaraderie I've experienced at trade shows and in teaching seminars (even though I generally dreaded preparing for them!). But most of all, I will miss my seat in the forum and the opportunity it has given me to engage in a monthly dialogue with you – and the chance to suggest that you think about what you do and how it affects peoples' lives.

In parting, let me share a few final thoughts – one last stab at passing along key messages I've been working for years to impart to you:

- *A successful landscape never materializes in a vacuum:* It takes effective communication, willing collaboration and a sharing of ideas and creativity to build projects of true beauty.
- *Keep an open mind and always welcome the input of others:* You never know, but one small idea has the power to revolutionize an entire industry and inspire everyone to do better.
- *Believe in yourself and love what you do:* I had no idea when I started out in landscape design 18 years ago that this was where my path would lead. I gave up a career in finance and a hefty paycheck to do what I love, and I never looked back.

If there's one additional message you'll allow me to reiterate, there's a single phrase I've probably used more than any other in the 88 columns I've written: The possibilities are endless!

Thank you for your loyal readership – and goodbye! WS

Stephanie Rose *has run Stephanie Rose Landscape Design in Encino, Calif., for the past 18 years and has been a columnist for* WaterShapes *from its very first issue in February 1999. If you would like to wish her well in her future endeavors, please e-mail her at sroseld@earthlink.net.*

By David Tisherman

Digging Holes

One would like to think that if there was anything all watershapers were good at doing, it would be digging holes.

As with many other watershaping activities, however, it is apparent that some are better at it than others and that the excavation portion of a project either does a good job of setting the stage for great things to follow – or involves errors that can project themselves all the way through to the finished product.

In my view, getting things right at this stage is as important as any other step in the design, engineering or construction process and is actually the culmination of all the hard work that has gone before, whether it's in giving homeowners an accurate sense of what's going to happen in the backyard; working with soil and geological conditions to determine the type of structures, equipment and workforce you'll need; and being ready for the level of on-site management and oversight that will be required to ensure the best possible results.

In other words, there's much more going on here than the mere digging of a hole of a certain shape and size.

In my work, I see two distinct types of excavations – those we might call "conventional," meaning the excavation of a vessel that will be completely in the ground, and "unconventional," which is about those situations where, for example, we're excavating a hillside for elaborate substructures including piles and grade beams. Much of what I'll discuss this time applies to both types of digging, but I will get more specific about hillside excavations next month.

Getting things right at the excavation stage is as important as any other step in the design, engineering or construction process and is actually the culmination of all the hard work that has gone before.

proper preparation

As with all aspects of watershape construction, excavation requires careful planning and supervision. When you consider just how intrusive the process is, doing the job correctly on the most basic level means making certain that you're only breaking up that part of the yard that should be destroyed and removed.

Access is a key concern as well, because it will determine to a large extent what type of equipment you'll be using. As a rule, bigger and more powerful is always better, because big machines work quickly and thereby offer a measure of cost efficiency. Site access, however, will always determine what kind of machinery you'll be able to move into position.

You also need to consider what damage the process will cause to the area around the excavation site. If, for example, you have great access and can bring in a large, steel-tread earthmover to get the job done with great efficiency, you can pretty well assume that anything it passes over directly – including driveways and walkways – will be damaged or destroyed.

You can, of course, shield a driveway with a run of two-by-four planks or bury it under a layer of dirt and get a big machine across the surface safely. In these cases, I minimize the risk by having the earthmover make the trip just twice: I move it in and let it do the digging and bring it out afterward, but all the runs to the street with the spoils and debris are made by Bobcats and other lightweight machines.

If by chance you do have great (and destroyable) access, however, I'd suggest bringing in the biggest machine you can find. Then, once in the yard with a machine of whatever size, it's imperative that you are absolutely clear with everyone what is to be dug up and removed and what is to stay – both structures and plants.

Continued on page 22

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This bit of clarity is especially and obviously important when it comes to specimen or mature trees, but I must say that I sometimes run into clients who have amazing fondness for common, dispensable trees they might have planted or about which they have happy memories. These are issues that must be discussed ahead of time.

This is also why, well before the excavators arrive, we clearly mark *every* tree in the affected area as to whether it will be dug up and boxed for relocation or removed altogether. When removing trees, I always bring in a service to cut them down ahead of time to a five- or six-foot stump: With that done, it's easy for a big machine to extract the trunk and root system.

Finally, the day before the equipment shows up, we do a site survey and make sure the work area is cleared of movable pots, patio furnishings and anything else the homeowners might want to save. We also give them the opportunity to get rid of things they don't want to keep: We

Access will determine what sort of equipment you'll be able to use in excavating any watershape. In some cases, actually *using* that access means overcoming obstacles in the form of decks, steps or low walls, which we've accomplished here by covering them in dirt to create ramps suitable for passage of lightweight machines.

don't encourage anyone to have us clean out a garage for them, but we're happy to cart away old patio furniture and broken pots.

And we never, *ever* leave this clean-up step to the day of the excavation: That process is chaotic enough without conducting an impromptu session of musical chairs.

proper care

Before we bend a single blade of grass, we make a big point of contacting Dig Alert (or whatever agency performs such services where we're working) to be sure we have the best possible chance of avoiding contact with any and all electrical, gas, water or sewer lines, septic tanks or leachfield systems.

The potential damage to be done in hitting these below-grade utilities can be astronomically costly. More important, it can be dangerous as well, and under the wrong circumstances somebody could be seriously injured or even killed. And nothing matches the sheer unpleasantness of hitting a sewer line: This is a situation that makes life utterly miserable for homeowners, neighbors and workers alike.

Another consideration is what you're going to do with the spoils. In California, for example, spoils and related demolition materials can only be dumped in certain areas by trucks taking certain predetermined routes. With some planning, this is seldom a big deal, but you do have to know precisely how much material you will be removing (or bringing in) to map out all movements and arrange for the right number of trucks to meet the need.

By law (in California at least), all trucks carrying away spoils must also be covered so loose material won't be scattered over local streets and highways or onto parked cars.

Our greatest area of procedural care, however, comes in forming for the excavation. This is a subject I've covered at length in these pages, and it's important to note that working with reliable and accurate forms begins *before* excavation, not after. I say this knowing that it is almost an afterthought on many job sites, but it's my firm belief that good, low-tolerance construction begins with good, low-tolerance excavation – a process that can be greatly aided by deployment of good excavation forms.

Good forming, of course, requires accurate layouts. This is why, before we start digging anything, I personally articulate the layout of the pool with spray paint, carefully following the plan and always indicating details such as skimmer locations, the widths of bond beams and the dimensions of any cantilevered structures.

As with all my forms, those we install to guide excavation are made with two-by-fours and proper stakes with kickers every 24 inches. And we always use fresh lumber: Recycling is a wonderful

concept, but using wood that has been exposed to wet/dry conditions and the sun doesn't tend to be terribly straight. And where we use bender board, we always double it up: It's flimsy stuff, and when confronted with the jarring pressure and vibration of the excavation process, I want to be extra certain it won't move or flex.

As the forms are being built, we repeatedly measure, check and recheck to be sure we're putting everything in the right place, both within the property and with respect to basic measurements and dimensions. We do so knowing that it's easy to fix mistakes at this point – and a monumental hassle later on.

proper execution

Excavation forming is one of those activities where I am sometimes appalled by what I see others doing in the field. I have, for instance, seen "forms" made with PVC pipe as stakes, making me wonder how tough it is to send some-

On occasion, access is so limited that the only option is to bring in crews to excavate the space by hand. It's back-breaking, time-consuming work, but it can be done as the situation requires.

one to a building-supply center to get a bundle of proper stakes. I've also seen bender board wired to stakes, making me wonder how much the savings on the cost of nails must mean to the bottom line. And I've seen all sorts of scrap used to make up flimsy forms that are supported with stakes set at three- or even four-foot intervals.

To me, this is the top of a very slippery slope: Those who are willing to cut corners on as direct a process as excavation forming are often those who will take a "close enough" attitude when it comes to dimensions. And that will have to do for these charlatans, because the unstable forms they use are often several inches out of position relative to plan and they've already lost control of not only the excavation, but also of the ultimate shape of the watershape – *and the digging hasn't even started yet!*

To me, "almost right" is never acceptable, and abuses of the term "plus or minus" should be banished from industry

Sometimes it all works out and it's possible to get big excavating rigs onto a site. That was important in this project from many years ago: We encountered a granite so hard that it actually cracked one of the breaking tools. We needed every ounce of this big machine's power to get the job done.

practice. None of us should accept being off in an excavation by anything beyond the slimmest fractions of inches. And it doesn't matter what level of work you're doing: There's just no excuse for missing the dimensions by as many as six inches. Now is the time, before the digging begins, to take responsibility and make certain everything is correct.

Care at this stage is important for every project, but it is *crucial* with custom work, where every excavation is different and you can't fall back on routine to get the job done. Even for similar types of vessels, the conditions of the site can present major differences – starting all the way back where we began this list of considerations with site access and the equipment we'll be able to use as a result of that access.

For residential spaces where access tends to be limited, Bobcats and other small machines are often used because they require just a couple feet of passing width. But they are limited in power and digging capacity (and therefore take longer to get the job done), so I always look for ways to maximize access so I can bring bigger equipment to a site.

Continued on page 28

laws of salvage

Before excavation begins, it's important for clients to understand the rules about what happens when you run into something unexpected below ground. Yes, soils testing and a Dig Alert report will help you work your way around many problems, but you can never be absolutely certain what's out there until you dig into it.

I often raise the subject of the unexpected with clients by asking them a simple question: "If we find a treasure chest filled with gold bullion or jewels as we dig, who owns it?" Invariably, they say, "We do, of course," and the law is on their side. This is where I point out that if we hit a big boulder or run into something else completely unexpected, they own that, too, as well as the costs associated with dealing with the problem.

Removing a giant boulder or some other subsurface stone structure is an occasional need and often requires regrouping and determining the next steps because big rocks can be a nightmare. And sometimes you'll encounter other problems that weren't revealed in the soils or geology reports. In all such cases, it's important to have someone on site who is savvy enough to recognize, for example, how differences in the appearance and texture of the soil may affect the structures you're planning on building.

If there's nobody on site who's on the lookout for deviant soil conditions, the entire job might go on and become subject to structural failure – an unfortunate but entirely common occurrence in the watershaping business.

And there's more to consider by way of the unexpected. Several years back, for example, I was on site in the Hollywood Hills when the excavator unearthed what looked like human bones. I'm not a forensic scientist and didn't know for certain what we were seeing – and that's my point: Recognizing that I was looking at something potentially important, I stopped the job and contacted the police. As it turned out, they *were* human remains and the police slammed the project to a halt for six months while they investigated.

I've also heard of situations in which ancient artifacts or the walls and foundations of long-lost structures have been unearthed. That doesn't happen too often in our young country, but it's a situation in which it's enormously important to stop what you're doing and contact the appropriate authorities.

Don't feel compelled to stick to your schedule or fear a work stoppage: Just consider instead the consequences of destroying an ancient burial ground, for example, or a possible crime scene. There's no swimming pool project in the world that would be worth assuming that kind of risk!

– D.T.

It always helps to know what's available for these purposes. The major suppliers (Bobcat, Caterpillar and many others) seem to release new and more capable models every day. I take the time to keep up and know the dimensions of different models so I can arrange to have the best-possible equipment brought in.

As a final consideration, you need to decide whether a ramp down into the dig is the best option. Oftentimes, using a backhoe with good reach is a better way to get the job done, and here as elsewhere, bigger is almost always better.

proper results

When the big day comes, the process of actually digging the hole should be straightforward enough for completion by any experienced machine operator. In my experience, problems arise only when the necessary preliminary steps haven't been taken – or where reliable on-site supervision and oversight is either inadequate or absent.

In the run-up to the dig, we routinely go through a checklist of all applicable OSHA guidelines and safety rules. I've heard lots of people express annoyance with these regulations, but they serve to protect my crews. For the nearly 30 years I've been a watershaper, I've always done what's been required, and nobody has ever been hurt – a record that makes me particularly proud but one that should be a matter of course for all contractors.

At that point, all is ready, the digging begins and everything proceeds according to plan – generally without any hitches, although the sidebar on page 26 raises a couple of crucial possibilities to be considered.

Allow me to make two practical points before I set this discussion aside until next month: First, the earth should, in most cases, be considered as no more than a form for the concrete, and all of it should be removed from the confines of the vessel rather than used to define any parts of the structure itself. Unless otherwise specified by an engineer (for a feature such as a big thermal ledge, for example), this means that interior structures such as steps and benches should

In every case, the goal is always to complete the excavation stage with a hole in the ground that sets things up perfectly for the project's subsequent construction phases.

Planning and complete knowledge of how the process should unfold from start to finish is critical.

not be carved from or in any way formed by the soil.

Second, it is always better to excavate the entire site (including grades for decks) at the start of the construction process (before the pool is built) than it is to come back and do so later. All too often, I've seen pools being built where the hole is dug without anything having been done around the vessel – this despite the fact that it's far easier and more economical to use a Bobcat to cut the grade for a deck than it is for a crew to do so manually later on.

This is also important because you need to control relative elevations in light of the materials being used. If the hole isn't deep enough, for example, a situation may arise in which the coping and decking around a pool may be set in such a way that water hitting the deck will drain back toward the home – *not* a desirable detail.

Of course, this is another case where planning and complete knowledge of how the process should unfold from first penetration of the surface to application of the last finish detail is critical. In that light, it's safe to say that digging a watershape is about much more than the hole itself. WS

Next time: excavations and drilling on sloping sites.

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



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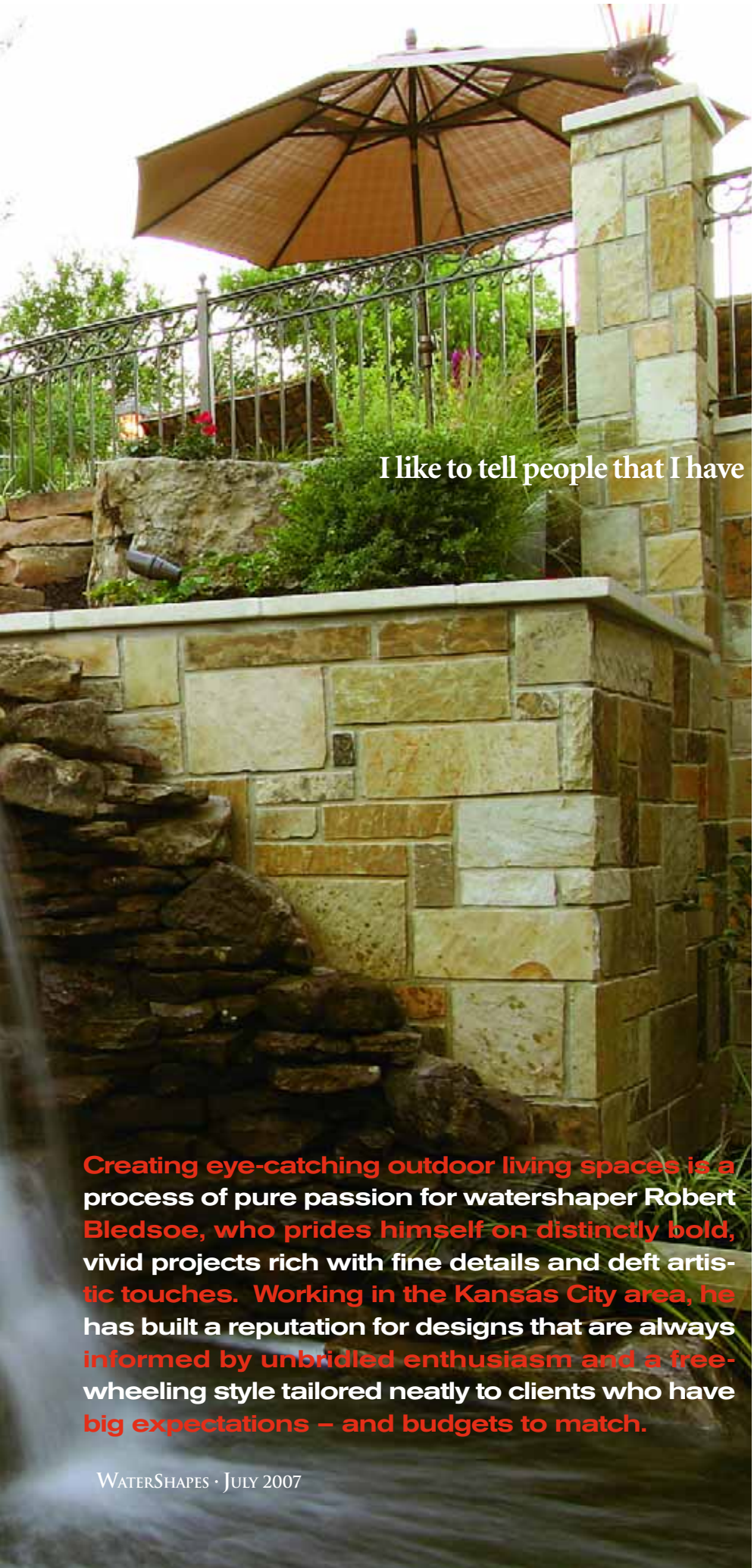
Passion in the Heartland

By Robert Bledsoe



Creating eye-catching outdoor living spaces is a process of pure passion for watershaper Robert Bledsoe, who prides himself on distinctly bold, vivid projects rich with fine details and deft artistic touches. Working in the Kansas City area, he has built a reputation for designs that are always informed by unbridled enthusiasm and a free-wheeling style tailored neatly to clients who have big expectations – and budgets to match.

I like to tell people that I have the greatest job in the world.

It's true, and whenever I start working with a new client, I feel like a kid in a candy store. Look at it this way: As a watershaper, I get paid to use my ideas, experience, imagination and creativity to make my clients' dreams come true. Essentially, we're big kids playing with very big toys, and clients respond to our enthusiasm in a big way.

And the best thing about it is that exterior designs are like fingerprints: Each one is different; every client has his or her own set of priorities; and every property calls for a distinct set of solutions. No two projects will *ever* be quite alike, and each of them comes with its own set of limitations and expectations.

I also like the fact that we at Cripple Creek Pools & Rock Co. work mostly in the Kansas City area, where the idea of "outdoor rooms" and "private resorts" isn't nearly as much a part of the culture or lifestyle as it is in places like California, Arizona or Florida. When we get into the design phase with our clients, it's great fun to watch their eyes light up as they start to comprehend just how fantastic their homes' exteriors are going to be by the time we're through.

friendly ties

I started the company in 1997 after spending about seven years building large ponds and streams for high-end golf courses across the country. My decision to move in a distinctly residential direction came after years of seeing how volume pool builders were under-serving the Kansas City market: It occurred to

me that we could create the same levels of beauty and spectacle we were providing for golf courses for residential clients right here at home.

As it turned out, my experience with golf course clients was quite helpful, teaching me a number of lessons about working on high-stakes projects of all types.

First, I observed the value of developing strong, friendly relationships. I know there are watershapers who don't need a personal rapport to make a project work to everyone's satisfaction, but I'm not that guy. When I show up to an initial client meeting, I don't even bring a notepad. I'm there mostly to determine if there's a basis for an amicable working relationship.

In most cases, I've come to these meetings through referrals, so I'm usually prequalified in the clients' minds. So I dig right in and aim these discussions at determining their ultimate wish lists. There's no mention of budgets at this point: Instead, I want to get a sense of how they think and how active their imaginations are, always trying to figure out if there's a good fit for our ambitious approach.

I'm never there to "make work." In fact, I'll walk away from a client if we don't connect, and sometimes that means setting aside major projects. My experience has been that, when you're doing something this personal, artistic and *intrusive*, if you're not on friendly terms with clients, the results won't be to anyone's satisfaction.

Next, we visit one of my past projects – never a problem because I maintain close relationships with my past clients, most of whom don't mind showing off their backyards in this way. This is an extremely important step, because I don't think photographs do the work justice: My clients have to be there to get the feeling of moving water and an overall sense of the given space.

Once they're on board and we all agree that we want to work together, the real work always starts with a design contract and a design fee. It's my belief that when clients pay for a design, they place a greater value on the creative side of the work and see what we're doing as more than just a construction project.

As my firm's sole designer, I work off pictures of the site and create a master plan for the entire exterior. With the vast majority of projects, we also do the construction, which is always going to be better for the client in that when changes occur, we're on hand to make everything work within the overall plan.

the 'bling' factor

In our area, land is relatively inexpensive, so people who have money tend to think on large scales. That's a

ELEVATED AMBITIONS: Our projects are all about great materials and craftsmanship, from our approach to masonry and deck work to our arrangement of naturalistic details and the selection of plants. Everything flows from our relationships with our clients and our desire to enable them to maximize their enjoyment of the spaces we create on both aesthetic and functional levels.

big part of why our bold approach to the entire environment works so well here: These clients want large outdoor cooking and dining areas, big pools and large decks where they can host big parties and take full advantage of the weather when it's warm.

This level of engagement, this sense of how they'll use their outdoor spaces is so important because it always helps us define the fine details that really bring these projects to life. Water is almost always a central part of the design, but the way we surround it with plant materials, fire effects, lighting, hardscape treatments, pottery, furnishings, audiovisual systems and more – all of these combined elements are absolutely essential to the overall impression the work makes.

In everything we do, there's an element of what I like to call "bling": We aim to dazzle and excite our clients and their guests with these environments. In other words, this is work with an attitude, and although that may seem like a vague or ephemeral quality, that fact informs every aesthetic and technical detail.

As an example, I *love* moving water, even in places where you might expect it to be still, so it's not unusual for us to put as many as a dozen returns in the deep end of a pool to create an upwelling, rippling effect on the water's surface. That's subtle, of course, but it makes the water come alive – a great look when you use quality materials in interesting designs. We also include lots of underwater stone and interesting bench, step and lounging areas: When the water ripples over those structures, it's as though the whole pool has a life of its own.

I also believe in putting returns in the floor of the pool so that heated water is added at the bottom. For one thing, it increases energy efficiency, but for another, there's no "layering" of the heated water. That may seem a small point, but it's a detail that makes for a more enjoyable experience when my clients go for a dip.

In addition, we use saltwater chlorination systems on all of our pools these days to give our clients fantastic water quality. We also use upsized sand filters to make the water clear and inviting. Some might say our systems are overbuilt, but we know we're creating exciting environments, and the last thing we want our clients to face is cloudy water.

Finally, and unlike most watershapers in our area, we build our pools for year 'round operation. We want our clients to be able to take advantage of their investment in an outdoor lifestyle 12 months a year, if only from a distance at times. They may not want to swim in January, but there's no limit on their ability to look at a graceful waterfall, a babbling brook or reflections across the water. It's all part of our program of taking the concepts of luxury and enjoyment as far as we can push them.

florida in the midwest

To illustrate what I mean in more specific terms, let's look at two special projects – the first of which was built for a doctor specializing in cancer treatment.

A TOUCH OF FLORIDA: **For this project, the clients wanted tropical, Florida flavors for their Kansas home. The main element in the outdoor-living scheme is the large, open-air structure that flanks the pool, but the broad, open decks set against a forested backdrop are also visually compelling – as are the fire-effect-topped towers that mark one edge of the space.**

His work is all-consuming, so he wanted a special retreat, a place where he and his family could unwind, entertain and have fun.

In the design phase, he told me that he wanted a backyard that reminded him of Florida. There was an existing pool – nicely done with clean lines, a diving board and some decent landscaping. It wasn't offensive by any means and was just two years old, but right off the bat he told me they'd come to hate it because it seemed so *ordinary*.

Before long, the design included all sorts of Florida-esque features, such as an open-air, 30-by-40-foot building complete with a full kitchen decked out with a smoker, a charcoal grill and two gas grills. We also mapped out a full bar and plasma televisions in a plan rounded out with beautiful rockwork and woodwork and an unusual, one-of-a-kind iron post-and-railing system made to resemble tree trunks and branches (courtesy of a local sculptor).

Throughout the site, we used a stone called Indian Sunset. Quarried in Oklahoma and Arkansas, it's a beautiful material with a wide spectrum of colors in bronze, rust and gold and a variety of grays, browns and creams. Mostly, it has a sort of

buckskin look that works well with greenery and the shimmering blue water.

The stone deck covers 5,000 square feet. That may seem large – and it *is* – but the surfaces are arrayed on a ten-acre wooded property and have been carved out of the woods in such a way that the trees offer the perfect backdrop. All that material encompasses a reworked pool finished in a vibrant, acid-washed-blue-jean plaster chosen to make the water stand out and dance over the finish. The waterline features an iridescent blue tile that completes the picture.

The vessel itself is 60 feet long and 40 feet across at its widest point. The deep end reaches down 13 feet – great for diving – and the well is finished in the same stone material as the deck. The whole thing is designed with a sweeping, curvaceous, freeform shape that meanders through the wide space.

Off the deep end, there's a large natural-stone grotto fitted with a large bench offering a great view of the back of a waterfall. The grotto is a dry space with a sound system, lighting and all sorts of seating – a perfect, secluded hangout.

There are also three 12-foot-tall, stone-finished columns topped with steel bowls that contain fire elements, lighting sconces and speaker systems. This wasn't included in the original plan, but the clients saw them as a way of adding visual drama to the environment. They work well: At night when the fires are lit, reflected flames dance on the water's surface in truly spectacular ways.

a room without walls

By contrast, the second project I want to highlight is one in which we weren't working with a large space.

The home has a contemporary style, so we developed a rectilinear design that takes advantage of the sloping property with a series of cascading architectural fountains and a raised spa – all of which spill into a long, narrow pool tucked up against the slope.

The area between the home and the pool is very much an "outdoor room," complete with a beautiful fireplace that interfaces with the wall and waterfeature treatments as well as an outdoor kitchen and some intimate dining areas.

The pool, spa and waterfeatures are pushed right up against the property line within about 30 feet of terrain available behind the house. To give the space depth, we persuaded the neighbors to give us access to their property to landscape the boundary in such a way that the downslope space seems larger than it actually is.

Off to one side, there's a landing where the view opens up over the entire slope. This is where we established the transi-

tion between the architectural leanings of the pool and the naturalistic appearance of a three-story-tall waterfall that flows toward a putting green set at the low point of the property.

As I mentioned above, I started in the watershaping business installing large stream, pond and waterfall systems for golf courses. I still have a passion for those designs, and this project gave us a wonderful opportunity to show off our pedigree. Given that background, the entire waterfall structure is made of reinforced concrete.

Making a stream with a concrete structure look "natural" takes careful planning and proper engineering. The stream course, for example, is large enough that we had plenty of room to work in placing large boulders. We then feathered in the landscaping on the edges with rocks that extend into the dry areas beyond.

As is the case in everything we do, I like my natural watershapes to have a strong sense of drama, and this waterfall is no exception with its vigorous flow, tuneful cascades and strong sense of motion. When you enter the yard, you hear the cascade well before you see it, so it draws visitors over to a point in the backyard where the scene shifts from architectural to natural in a bold, distinctive and dramatic way.

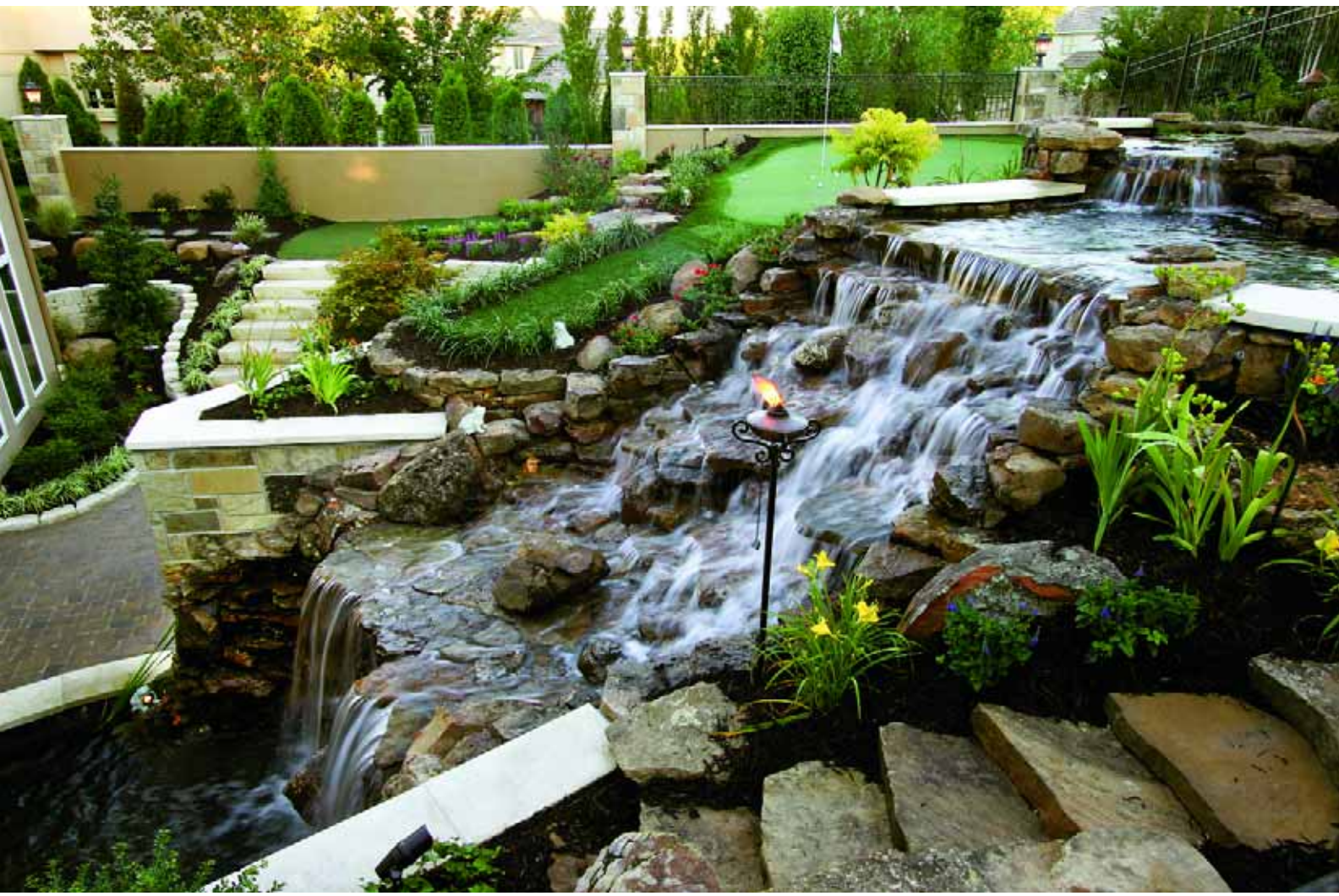
no fear

When I look at the work of other watershapers, I sometimes get the sense that they're afraid to reach for something truly spectacular. That's too bad, because most of the time what I see in their work is unrealized potential.

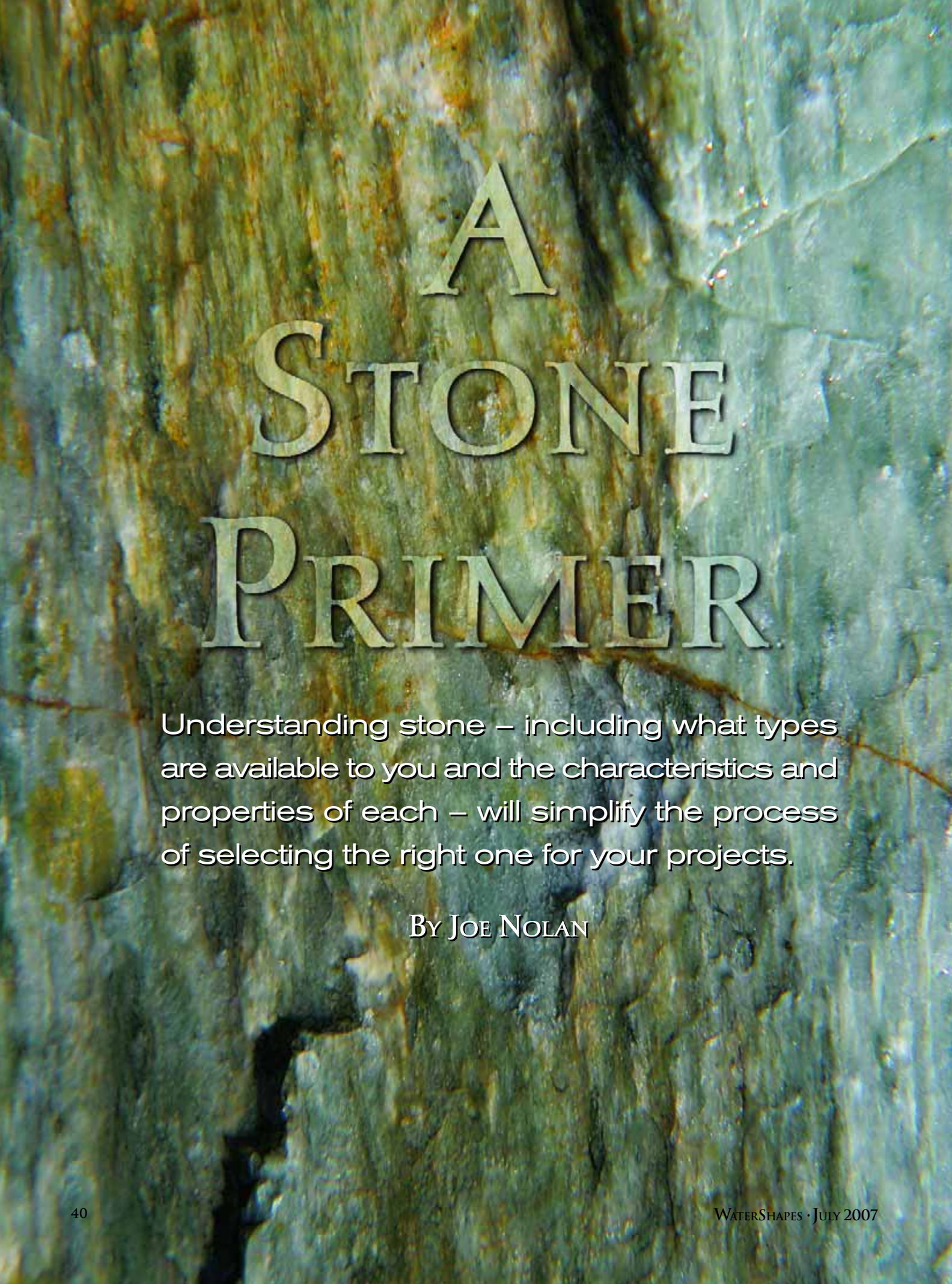
To be sure, our clients don't run with every idea we present, but with us they're always going to have the opportunity to do something that makes a statement: Ultimately, they are going to wind up with something special – a setting they'll be proud to share with guests and in which they themselves will feel comfortable spending their time.

I get a lot of "high fives" from my clients when we conclude our work on site, and they know that what they've been through is a process of creating what I call "living art." We're often invited to attend parties at these homes once construction is through, and I must say there's nothing like showing up to a place we created and watching people come alive because they're excited to be there.

Some might accuse us of having an over-the-top approach to the work, but speaking strictly for myself, I wouldn't know how to do it any other way.



COMPACT TRANSFORMATION: **The pool and its sculpted cascades have an appropriately distinct, contemporary flavor that goes perfectly with the house, but the two low posts at the far end of the pool deck define a transition to another, wilder world occupied by lily-strewn ponds and a vigorous cascade you can certainly *hear* from the formal deck but cannot see without stepping out for a closer view.**



A Stone Primer

Understanding stone – including what types are available to you and the characteristics and properties of each – will simplify the process of selecting the right one for your projects.

By Joe Nolan

In one form or another, almost every watershape and landscape project uses stone. Whether it's ledger, rubble, pebbles or flagstone – on its own or woven into other hardscape materials – when it comes to shaping exterior environments, stone is one of the most versatile of all materials at your disposal.

In my experience as a stone supplier, however, few watershapers understand enough about the properties and characteristics of available stone products to use them as effectively as possible. This is true despite the fact that inappropriate stone usage creates liabilities for both the installer and the client and that the need for eventual replacement incurs great cost down the line.

Simply knowing which types of stone are dense and which are soft, for example, is enough to prevent many problems with installations and will make projects more successful. While placing beautiful slate on an exterior deck may seem a great idea visually, for instance, it will eventually disintegrate as a result of exposure to the elements, nobody involved will be happy, and everybody will recognize that it would have been better to use a stone capable of holding up under the same circumstances.

With that in mind, this article will discuss, compare and contrast the various categories of stone, the aim being to help designers think through and make proper choices and guide installers who need to know the materials they're working with in order to do a better job in serving both designers and clients.

Primary Considerations

When landshapers come to visit us at Malibu Stone & Masonry (Malibu, Calif.), they typically have something in mind for their projects. No matter what, however, my first question is about what color stone they need.

Color is, without exception, *the* driving force behind all other decisions about stone – and it immediately limits the range of choices. The design task may involve matching a color on the architecture of the home or picking up a hue or tone found prominently in the watershape or some other key design element. Whatever the impulse, color almost invariably points us in a particular direction.

In my discussion with watershapers, I always have the information in Table I in mind: Thus, if someone comes in looking for a blue-colored stone, I quickly know that the palette will be limited to granite, bluestone and marble. If, by contrast, the need is for a black stone, I know I can find something in virtually every category. Although most stone has a mix of colors within each piece, there is typically a predominant tone for us to discuss right off the bat.

Another insight I bring to the conversation is an experienced awareness that a stone's color may vary depending upon the way the material is cut or broken. When clean cut, for example, a quartilitic sandstone such as Malibu Sunrise shows no color on its side edges. When Apache Cloud (a schist) is broken or chiseled, however, it shows variations on its top surface as well as on the fractured edges.

Most watershapers know, of course, that stone can take many forms: rubble, pebbles, cobble, ledger, flag, blocks and slabs. You know it can be made smooth to various degrees by saw-cutting it and then putting it through a polishing, sandblasting, honing, flaming or tumbling process – or that it can be left with a smooth but more natural appearance using natural-cleft or split-face techniques.

Each type of stone takes differently to the processes of producing those forms and appearances as determined by the individual type's relative hardness, density, abrasiveness and durability (summarized in Table II). Armed with this standard information, you can begin to understand which stone types are best suited to being treated to achieve particular looks – or why they should be fabricated only in certain forms.

Table I: Commonly available stone colors.

Color	Stone Type
Black	Virtually all
Earthtones	Most (except soapstone and volcanic)
Green	Most (except travertine and volcanic)
Pink	Granite, sandstones, quartzites, marble, schist
Blue	Granite, bluestone, marble
Pure White	Marble

Table II: Each stone type responds differently to processing based on its relative hardness, density, abrasiveness and durability (11 = most, 1 = least).

Stone Type	Hardness	Density	Durability	Abrasiveness
Sandstone	1	1	1	11
Slate	2	2	10	10
Limestone	3	3	5	9
Soapstone	4	6	8	7
Volcanic Rock	5	4	2	8
Travertine	6	7	9	4
Quartilitic Sandstone	7	5	3	6
Marble	8	8	7	5
Schist	9	10	6	3
Quartzite	10	9	4	2
Granite	11	11	11	1

With few exceptions, color is the determining factor in stone selection. If they don't already have something definite in mind to get the selection process going, our displays help designers and their clients work through a wide range of possibilities.

In the Quarry

Those four factors (relative hardness, density, abrasiveness and durability) generally dictate the ways in which stone is quarried. Harder, denser materials such as marble, for example, are cut out in giant blocks rather than as flagstones.

With painstaking effort, of course, you might be able to form a marble block into flags by breaking it, but the resulting product won't look like typical flagstone. You might also impose a chiseled-edge look on marble, but that's an odd request that results in an appearance that's not particularly desirable. The fact is that marble is a very solid material that simply doesn't lend itself to this type of shaping.

Most of the denser/harder stones are quarried as blocks with smooth surfaces. (These include travertine, soapstone, marble and granite.) By contrast, softer, less-durable materials are quarried using a chisel, bar or other machinery that is not intended to produce a smooth-surfaced material. These types of stone (including quartilitic sandstone, schist and quartzite) are chiseled in layers rather than in blocks and have uneven edges.

There are, of course, some materials that aren't classified so simply: Limestone and sandstone, for example, can be quarried either in blocks or layers, while volcanic stone – a true oddball among stone types – is harvested as it lays in the field.

Once the color decision is made and the range of possibilities has been whittled down a bit, it's time to consider the specific application for which the stone is intended – where and how it will be used, whether it will be in or out of water and what texture is desired. If the material is to be used near a pool, for example, we know immediately that only certain stones will work.

I won't list all possible applications and define the appropriate stone for each; suffice it to say that having an understanding of how the stone will be placed in the landscape or hardscape, whether it will be walked upon (or not), whether it will be directly exposed to the elements (or not) and, in short, whether any of a dozen other issues related to its application are part of the picture (or not) will all combine to identify the

Decomposed Granite

Decomposed granite is, as its name suggests, a byproduct of granite – essentially a slab that has been exposed to the elements for thousands of years and eventually begins decomposing and disintegrating and is ultimately crushed into a sand-like substance.

This inexpensive material is used primarily for pathways and is great for flat-surface applications where no plants will be grown. It's a porous material, but it compresses to become a hard surface that prevents weed and plant growth.

– J.N.

best stone for the job.

To speed the selection process, the information on the following four pages aims to give you enough information about the fundamental characteristics of stone in each of the key categories to help you make basic decisions and narrow choices down yourself before you visit a stone supplier. It's not that we don't want to help: It's a matter of streamlining the process so you can focus on design or installation issues rather than spend time shopping randomly for stone.

Finishing the Picture

Once the appropriate stone has been selected for your project, it's also important to consider – *before* installation begins – whether the material will need to be sealed or not and, if yes, what type of sealant will be required.

One of the great misconceptions about stone is that it doesn't usually need to be sealed: Even though it looks like it has an impenetrable surface, for example, polished granite should be sealed to deal with the many fractures and crevices in its surface. This is why I consider sealing to be one of the most important aspects of any stonework job – and a future maintenance consideration as well.

Rust

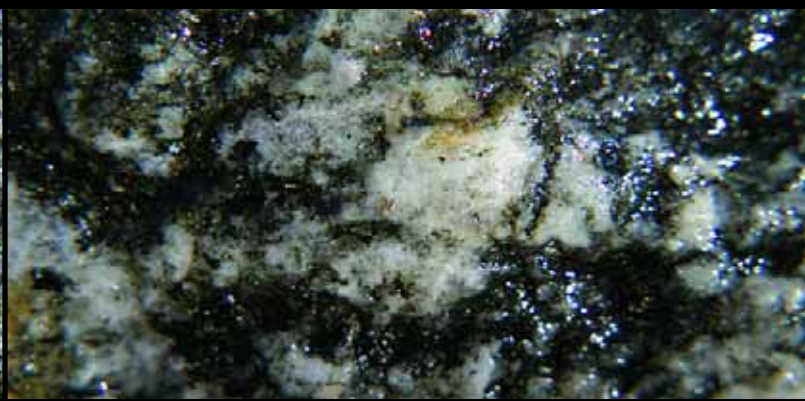
Rust appears where there are iron deposits in stone – anything from a small piece to whole layers of material contained within the stone. These deposits are found in almost every type of stone (excepting soapstone, travertine and volcanic rock) and can appear anywhere in the material.

Stone is porous, so rust leaches out to the surface when exposed to the elements – particularly water or sun. There is nothing anyone can do to prevent its emergence, and in some cases there's no choice but to replace a given piece of stone. The best practice is to inform clients of the possibility up front so there are no surprises down the line.

– J.N.

The way stone is prepared (or not prepared, in some cases) has a lot to do with appearance. Again, we help with displays that show stone in various finished forms, from the rough faces of cobbles (A) to a variety of other textures that can be used either separately or in blends (B).

Granite



Uses: Primarily countertops or heavily trafficked areas; mostly indoor applications where exposure to the elements is an issue. **Sources:** Worldwide. **Appearance:** Crisp, modern-looking material with smooth surfaces. **Colors:** Full range. **Forms:** Slabs, blocks. **Advantages:** Cool surface; can be cut into strong squared or otherwise molded edges. **Disadvantage:** Unless flamed or treated to reduce slip hazard, not good for exterior traffic areas. **Comment:** Can be polished, honed or flamed.

Limestone

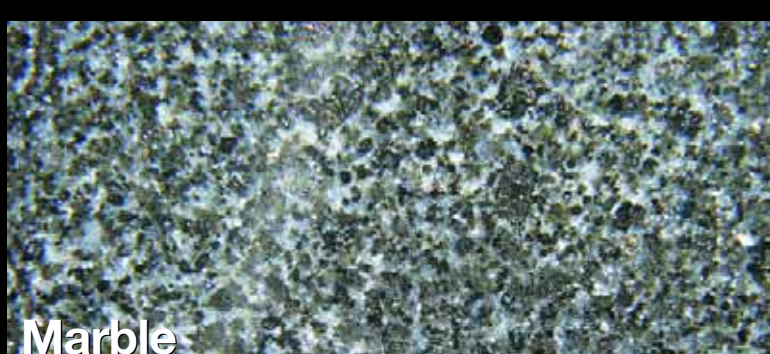
Uses: Wide variety, including interior and exterior countertops and decks. **Sources:** Midwest, Texas. **Appearance:** Flat/matte surface. **Colors:** Mainly earthtones, but also (rarely) greens. **Forms:** Predominantly blocks and slabs but also various flat-surfaced shapes. **Advantage:** Cool surface. **Disadvantage:** Tends to chip easily. **Comment:** Fairly inexpensive

The key is to determine what you're trying to seal out. If the stone's on an outdoor kitchen, for example, the concerns range from grease and oil to heavy traffic and maybe a sprinkler system. If it's part of a pool, fountain or stream, a different set of sealing options come into play.

Then there's appearance: Are the clients interested in holding the initial look, or do they want to make it brighter or different? Sealants are available in variations designed to do everything from simply protecting the surface to altering its appearance in subtle or not-so-subtle ways.

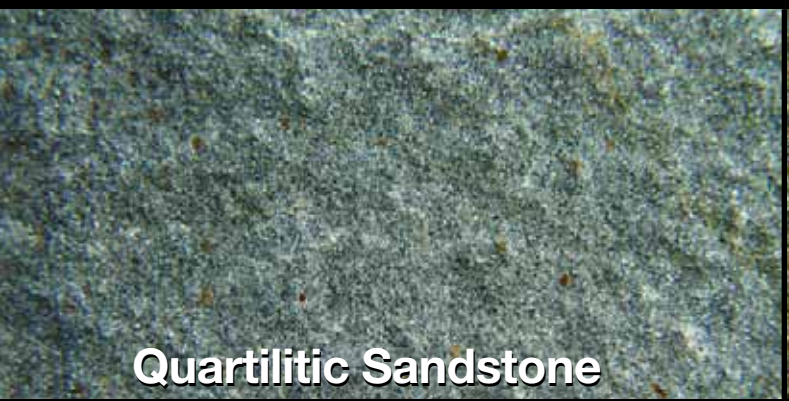
Always, however, the main reason to use a stone sealer is to improve the material's longevity. No matter the stone type, a good sealant will *always* increase the usable lifespan of the stone and in many cases will enhance its appearance – depending, of course, upon the look you're trying to achieve.

I also suggest hiring a specialist for stone sealing: Not only will this person apply the material correctly, but he or she will



Marble

Uses: Not good for outdoor applications (too slippery); used primarily indoors. **Sources:** Worldwide, with best known supplies in Italy. **Appearance:** Smooth surface. **Colors:** Various. **Forms:** Blocks, slabs. **Advantage:** Can be shaped and polished easily. **Disadvantages:** Absorbs moisture easily; gets dirty fast. **Comment:** Commonly used in statuary and fountains



Quartilitic Sandstone

Uses: Highly versatile. **Sources:** Pennsylvania, New York, Tennessee, Oklahoma, Texas, Arkansas. **Appearance:** Lightly textured surface. **Colors:** Various, particularly earthtones, greens and blues. **Forms:** Quarried in layers and blocks; available as flagstone or cut in a variety of shapes. **Advantage:** Can be flamed, honed or polished. **Disadvantage:** It's everywhere – a bit overused. **Comments:** Highly reliable, widely available, inexpensive – a great value. **Examples:** Bluestone, Malibu Sunrise, Chapparal, Four Rivers, Malibu Gold

Quartzite

Uses: Limited because of density and hardness. **Sources:** Idaho, Utah. **Appearance:** Rough texture. **Colors:** Grays and blacks and whitish/gold colors. **Form:** Flagstone. **Advantage:** Very thin and hard, making it good for rustic pathways. **Disadvantages:** Abrasive; dense/hard nature makes it expensive to cut – and results are generally poor. **Comments:** Inexpensive when used as flagstones; not good for large areas as single pieces are typically plate-sized. **Example:** Idaho Quartz

Modern Methods

Many machines and techniques are available to create stone surfaces and shapes for a wide range of applications. The most common are:

- *Diamond saws*, with blades that produce the smoothest possible surface.
- *Stone guillotines*, which provide for more controlled breakage but result in rough surfaces.
- *Stone chisels*, which will produce a hand-hewn, hand-worked appearance.
- *Stone splitter machines*, which create a more rugged surface than a guillotine and offer a hand-hewn look.

– J.N.

Finishing Techniques

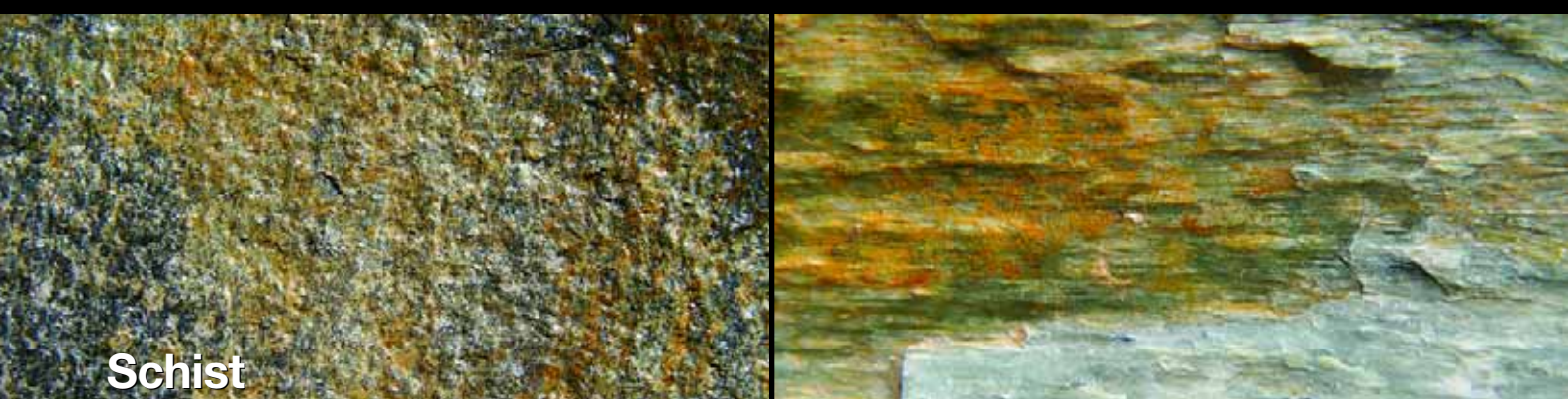
Different finishing techniques offer a variety of looks for completed stone surfaces, and the more versatile stone types can be finished in a number of ways.

Granite, for instance, can be polished, honed and flamed. When *polished*, a shiny, smooth surface results, while *honing* roughs up the surface to produce a matte finish on a relatively smooth/flat surface and *flaming*, in which a cutting torch is applied to the surface, results in a much more rugged (but still flat) surface with small, exposed pits.

– J.N.

Sandstone

Uses: Wide variety, but most popular as flooring. **Sources:** Arizona, Colorado, Tennessee, California. **Appearance:** Similar to a roughly sanded concrete. **Colors:** Neutral tan to pink shades without much tonal variation. **Forms:** Rubble, block. **Advantages:** Cool surface and therefore good around pools or on decks; wide availability; lots of sizes and shapes; quite inexpensive. **Disadvantages:** Not very dense; lifespan of about 25 years in deck applications. **Comments:** Can be used in place of travertine to reduce costs. Good for applications where great longevity isn't needed. Some people like the look that comes from long-term wear and tear and chipping resulting from its soft nature.



Schist

Uses: Walls (ledgered or flat). **Sources:** California, Connecticut, Utah, Idaho, Arizona. **Appearance:** Fairly flat, but has irregular surface and edge textures. **Colors:** Various. **Form:** Quarried in layers. **Advantage:** Provides great wall textures. **Disadvantage:** Contains mica (a tight-grained, sand-like mineral), which makes controlling cuts difficult. **Examples:** Bouquet Canyon, High Desert, Apache Cloud.

be completely informed about options and which products are right for which jobs. There are also codes and laws about the use of stone in certain applications: If you use marble or another slippery stone in a commercial application, for instance, there may be Americans with Disabilities Act rules that must be observed with respect to slip factors. An expert will know what to do and get the job done in a way that eliminates concerns about liability.

Here as in all circumstances, the more you know about the materials you're working with, the better you'll be at using them in the right ways. Being creative is a good thing, and many spectacular innovations have sprung from the minds of those who've used materials in situations nobody else has considered. But the only way to make stone work in any context – bold and imaginative or simple and routine – is to understand the characteristics and properties of each variety at your disposal and make the right choices based on what you know.

Soapstone

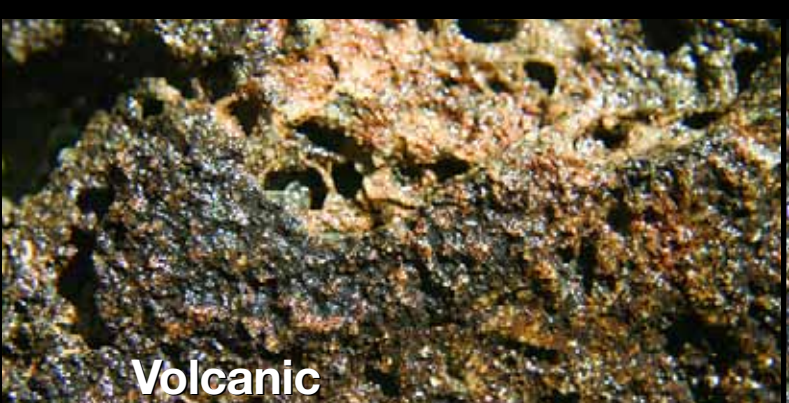
Uses: Mostly countertops, thresholds, bathrooms, kitchens and indoor environments, including pizza ovens. **Sources:** Vermont, Scandinavia. **Appearance:** Flat, steel-gray surface, mostly monochromatic. **Colors:** Green or gray-green. **Form:** Mainly in blocks. **Advantage:** Very heat resistant. **Disadvantage:** Has talc that comes off on hands and clothing. **Comment:** Needs to be oiled.

Slate

Uses: Most flat surfaces. **Sources:** United States, China, India. **Appearance:** Shiny/flat surface with layered ridges. **Colors:** Dark pink to darker gray tones. **Form:** Layered. **Advantage:** Only material that offers a shiny surface in darker-gray tones. **Disadvantages:** Highly susceptible to flaking; not recommended for outdoors because of slip factor; expands and contracts between layers when exposed to nature, resulting in flaking and surface pops; not good with radiant heat systems. **Comments:** It's generally inexpensive, but slate is made up of layers of unfused shale and mud and has no strength or solidity; best for interior applications where it's not exposed to the elements; should be sealed.

Travertine

Uses: Quite versatile – mainly pool copings, interior applications and flat/smooth surfaces. **Sources:** Worldwide, with Roman travertine the most famous. **Appearance:** Smooth surface. **Colors:** Earthtones. **Forms:** Blocks, flags (but hard to get as flagstone). **Advantage:** Can be sawn, honed or polished. **Disadvantage:** Overused. **Comments:** Unusual in that when it gets wet, it becomes less slippery.



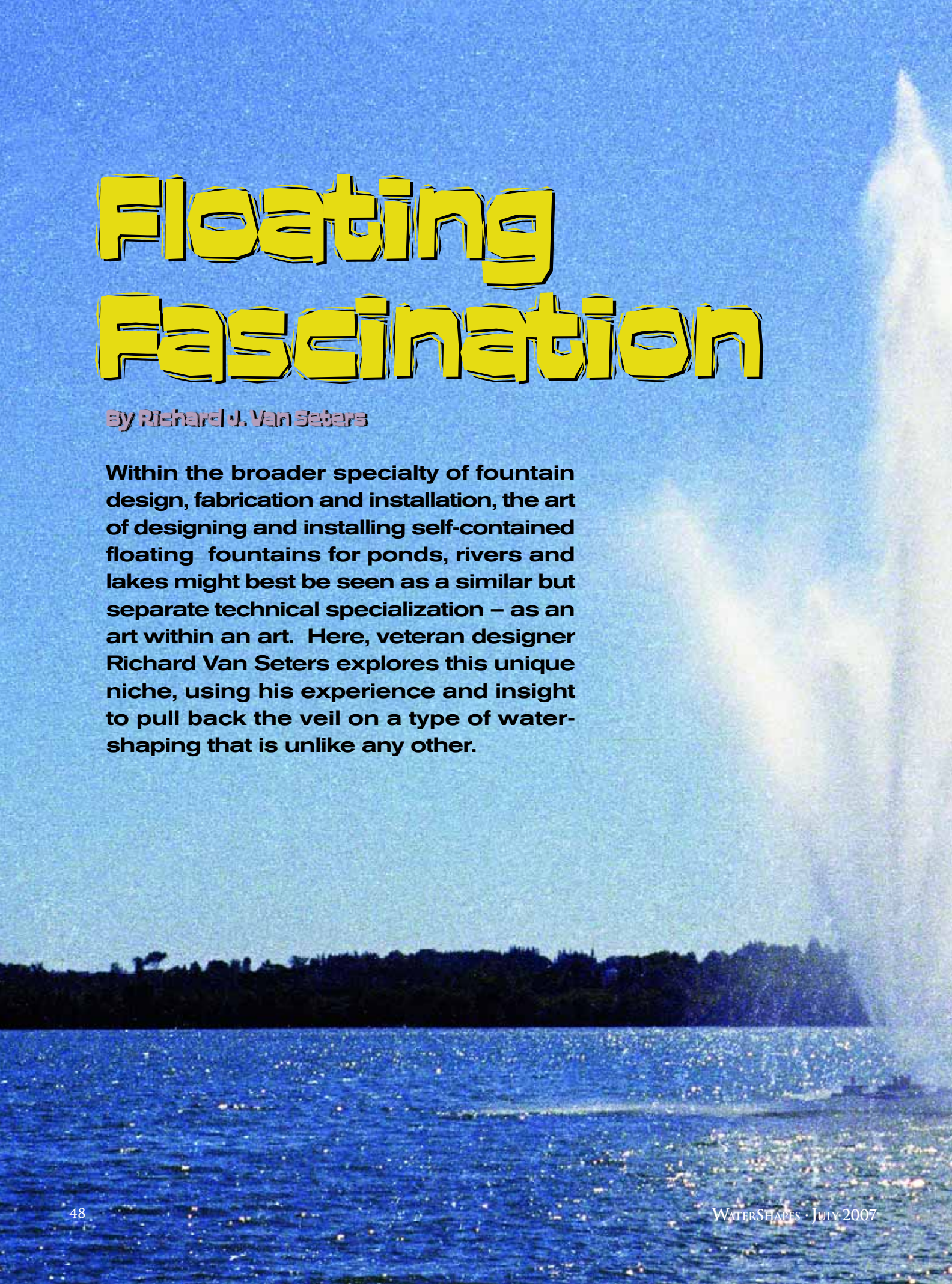
Volcanic

Uses: Primarily limited to fireplaces, firepits, veneers. **Sources:** Hawaii, Mexico. **Appearance:** Rough and craggy. **Colors:** Red, black or brownish red. **Form:** Rugged rubble shapes. **Advantage:** Can be used in firepits. **Disadvantage:** Not a lot of colors to choose from. **Comment:** Machines are now available that allow it to be cut.

Floating Fascination

By Richard J. Van Seters

Within the broader specialty of fountain design, fabrication and installation, the art of designing and installing self-contained floating fountains for ponds, rivers and lakes might best be seen as a similar but separate technical specialization – as an art within an art. Here, veteran designer Richard Van Seters explores this unique niche, using his experience and insight to pull back the veil on a type of water-shaping that is unlike any other.



When it comes to the myriad specialties of the world of watershaping, it's tough to think of any as broad as the one occupied by floating fountains: It's a category of systems that encompass flotation, illumination, spray systems, submersible pumps, connecting devices and land-based controls.

On the one hand are the huge systems installed near the shores of lakes and rivers. These fountains can be monumental in size and visually dramatic – the sorts of popular landmarks that become tourist attractions and, often, community icons. On the other hand, there are the countless smaller floating fountains and aerators located in golf-course ponds and water hazards, in municipal-park and storm-water ponds, on private estates and institutional campuses and in the bays of larger bodies of water, either as groups or single features.

For 45 years now, our firm has been fortunate enough to have designed (and at times installed) floating fountain systems across this full spectrum, from the large and spectacular to the small and surprisingly subtle.

Some have been purely decorative, while others have been totally practical – as with installations for wastewater-treatment facilities or storm-retention ponds, where certain types of floating fountains and highly efficient aerators are valued for their curative ability with fetid or stagnant water. In many cases, however, these floating systems serve dual purposes by providing visual interest while at the same time improving water quality through de-stratification and aeration.

We've done it all through the years, but there's no question that our favorite projects are those in which we're asked to conjure identities or landmarks for particular, special places, such as city waterfronts, theme parks, national exhibitions and World's Fairs. This aqueous art form is also becoming popular with large resorts and international sporting events as well as conservation and environmental consortiums.

River Sculpture

Floating fountains are often difficult to discuss as a conceptual whole, basically because each project differs so much from any other. They all present their specific challenges (many of which aren't found with land-based, architectural systems), and they've forced us to be ready to deal with whatever stands between us and a project's successful completion.

A prime example of this individuality is the City of Windsor's Charlie Brooks Memorial Peace Fountain, which

was installed in a man-made bay on the Detroit River for its namesake Canadian city's Coventry Gardens waterfront.

This bay had been carved out of the banks using sheet metal pilings to form a sea wall and new shoreline. Adjacent to the sea wall is a network of gardens and walkways as well as a large belvedere that enables pedestrians to look out over the water for a spectacular, panoramic view of the river, the Detroit skyline and the fountain floating 200 feet offshore. It is truly a beautiful spot and a drawing card for tourists on both sides of the U.S./Canada border.

The circular bay is only six feet deep, however, so we had to provide a large, deeper, reinforced-concrete-lined "sump" in its center. This structure provides the clearance needed for cables and several submersible 60 and 80 horsepower pumps that now hang down into deeper water directly below the fountain.

The 20-ton, stainless steel, hydrodynamically shaped flotation structure for the fountain itself is anchored to a perimeter of submerged steel beams that line the sump, which is rigged with heavy chains and "snubbers" to absorb the shock from oscillating, Seiche Effect waves and with special, adjustable keel plates that allow us to use the strong river current to stabilize the floating structure.

The floating platform also has adjustable ballast chambers governed by a continuous supply of compressed air that enables operators to empty the chambers while sealing out moisture for the electrical connecting boxes and onboard controls. It also houses a filtered, fresh-water supply feeding the hydraulic control valves that operate and regulate the changing water patterns.

Nothing was easy about this project. In fact, I had to take diving lessons and obtain Advanced Open Water Certification so I could supervise the underwater work, all of which had to be performed by experienced commercial divers who were less than happy to be working in murky, low-visibility conditions in strong currents with high wave swells caused by marine traffic.

The Detroit River is one of the busiest inland commercial waterways in the world, so that level of traffic is simply in-

credible. Giant ships constantly passed by in the deeper channels with their loads of coal, steel, wheat and other materials, and underwater we could hear the pulsing engines and their propellers going by. Not only was it slightly unnerving, but we also were aware of large unseen carp that were constantly bumping into us. And if we ever dropped a tool, we had to reach down through two or three feet of muck to recover it.

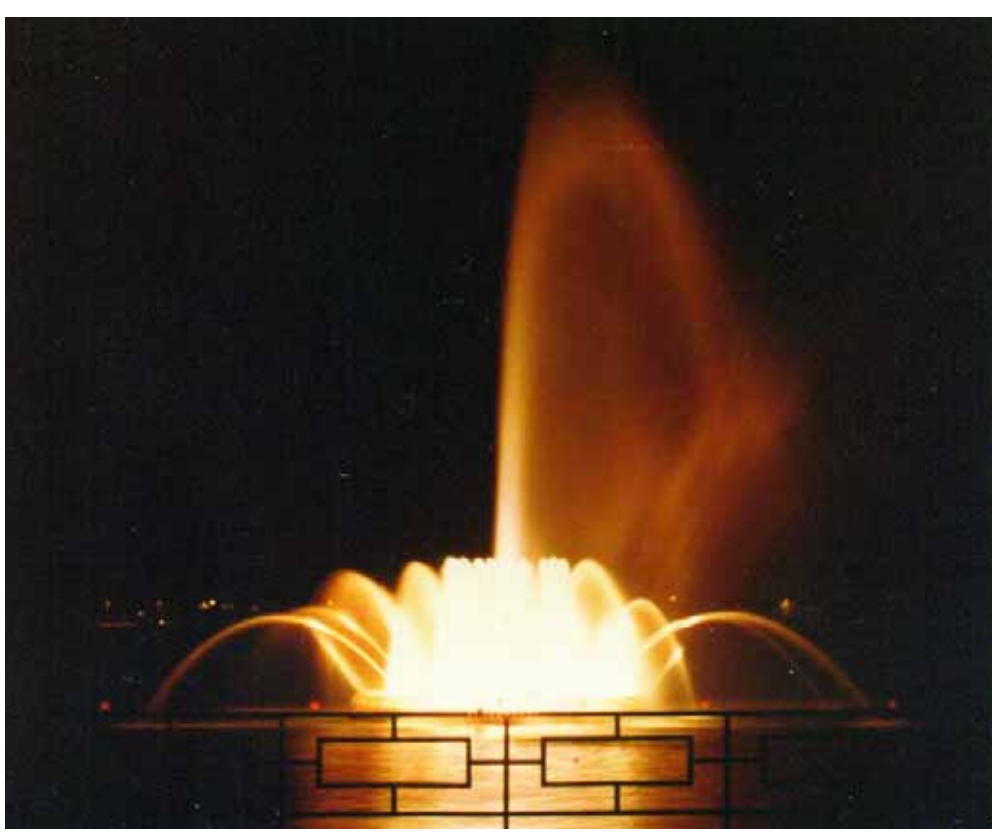
Finally, however, we left behind the spooky water and a sparkling fountain that uses 12,000 gallons of river water per minute through multiple jets to create beautiful computerized, floral-looking patterns brilliantly illuminated by some 500 color-changing floodlights and a ring of aircraft landing lights beaming silver streaks into the night sky. The work was completed in 1977, and the 70-foot high by 300-foot diameter fountain still operates to this day as one of the most photographed and identifiable features of the entire region.

Civic Pride

As often is the case with these projects, the Windsor Peace Fountain has become a source of civic pride. Another example of the compelling nature of these large systems is found in the Peterborough Fountain. Located in the town of that name in Ontario, Canada, the system is in a small body of water on the Trent Canal system called Little Lake. This one features a stream that shoots 250 feet into the air.

As with Windsor's Peace Fountain, the Peterborough Fountain is, along with the region's world-famous lift-lock system, a community icon. Built in 1967 for the Canadian Centenary, the octagonal floating structure for the fountain

The Charlie Brooks Memorial Peace Fountain in Windsor, Ontario, Canada, is now an indelible part of its city's identity. That's true during daylight hours, when the beauty of the displays draws people to Coventry Gardens' Belvedere for a good look, but it is perhaps even more compellingly the case when the sun goes down and the combination of different water displays and lighting arrays produces rare, wonderful and often romantic spectacles.



was made of concrete by the Trent Canal Authority, which has a great deal of experience manufacturing concrete barges and other floating concrete structures for the inland waterway system that runs between two of the five Great Lakes.

This structure is a steel-reinforced, barge-like vessel, honeycombed with large styrene-filled drums for buoyancy. It was made with vertical openings within which the large submersible pumps, screens and jets are suspended. The high center jet and pump are hung on a gyroscopic gimbal: When the floating structure tips and bobs in boat-generated waves, the jet always stays vertical.

Located in a distinctly northern climate, the Peterborough Fountain platform freezes solidly in place in the wintertime, which is why it needed this specific type of structure. It's also in navigable waters, which means that during the warm months, pleasure craft and houseboats move all around it. Canoes or kayaks come close as well, sometimes with drenching results: Depending on the wind direction (which can suddenly shift), paddlers will either be hit by a drenching spray – or by a heavy deluge that can swamp a small boat in a matter of seconds.

The fountain's central jet operates off a submersible, 180-horsepower, multi-staged turbine pump (13 feet long) mounted directly beneath a 12-foot long conical nozzle with a three-inch, case-hardened-steel orifice at the top. The additional outer arching sprays reach as high as 60 feet and are run off individual 20-horsepower pumps suspended beneath each jet.

From a distance, these streams look small by comparison to the central element, but when you get close and realize they reach a height of more than five stories, the overall scale makes quite an impression.

The Peterborough Fountain offers another example of a fountain that has become one of its host city's primary icons. The water jet rises to 250 feet above its host lake's level – a feat that takes an awesome amount of technology, sheer pumping power and a large dose of applied engineering skill.

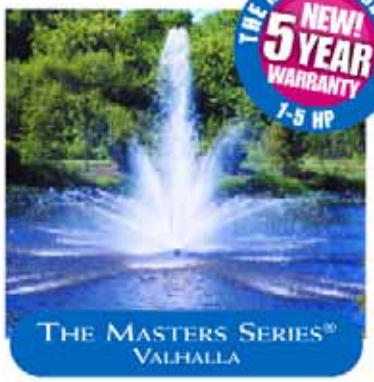
Flexible Approaches

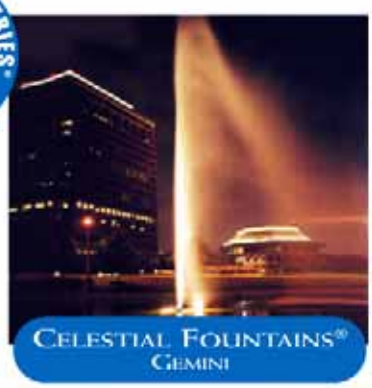
In observing fountains like these, few people recognize just how sophisticated they need to be from an engineering standpoint. They see the spectacle, but seldom do they perceive the electrical, hydrodynamic, mathematical and mechanical calculations required for these large systems. There's also a level of preparatory work and testing that often exceeds what's needed to develop typical land-based fountain systems.

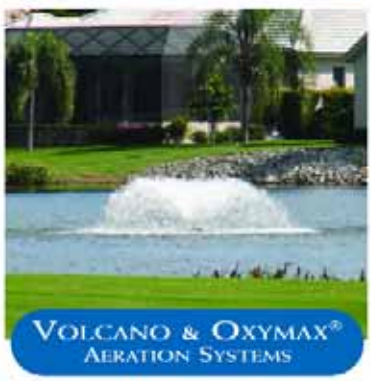
It all begins with the staging area and the structure that must be built to support construction of the fountain itself. Then there's design and construction of the apparatus needed to launch or lift the fountain and move it into position.

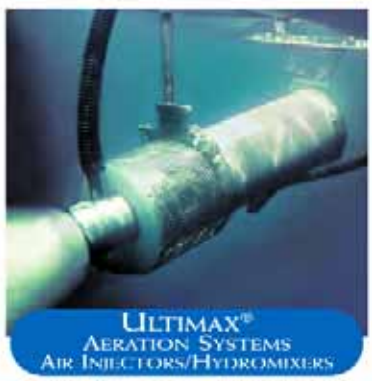
We also anticipate and plan for the "flag" and drift pattern produced by the spray during windy conditions; set up lighting systems requiring tremendous output levels to be effective; and build everything with a durability called for by operation in wet conditions under pounding sprays and oftentimes difficult marine environments.

Where needed, we also develop programs for seasonal storage and winterizing down to the last detail. And as outlined in the examples above, the flotation devices must be designed to accommodate highly individualized needs related









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The driving force behind Windsor's Peace Fountain is a flying-saucer-shaped equipment platform packed stem to stern with nozzles, lighting fixtures and control mechanisms. The fins on the perimeter of the platform give it an otherworldly look, but they actually function as a key stabilizing system. I recall clearly that finally lifting and moving this precious bundle into position was a distinctly high-stress operation.

to such factors as water-level variability, turbulence, water quality, wind, currents and stability in addition to buoyancy, factors related to the overall displacement of the system and the simple downward thrust of the pumps and jets. Added to this are consideration of public and marine safety, maintenance and, as needed, the logistics of seasonal removal and storage.

It's an outsized, challenging job – but it's also tremendously satisfying for builder and owner alike when it works well.

To pull everything together, the teams of designers, engineers and installers include a variety of disciplines – everything from shipbuilding, submarine design, mechanical and electrical engineering and hydrology to meteorology and marine biology, with the occasional civil engineer or landscape architect included for good measure. In almost every situation, there is a unique solution that flows in accordance with specific environmental conditions, and all we've touched upon in this article are freshwater applications!

On one of our projects, for example, the fish (attracted by sound and the highly oxygenated water) were so densely present and of such curious natures that we had to install protective netting around the entire perimeter and underside of the fountain structure to keep them from becoming mincemeat. On another, the lake was so full of weeds that we had to clear an area on the lake bottom beneath the fountain, lay down a PVC liner with weights and install buoys and a barrier to keep the aquatic plants at bay.

Feasts of Variety

There are also big differences between working in relatively still ponds or lakes compared to flowing rivers. With the Windsor Peace Fountain on the Detroit River, for example, we actually constructed a 360-degree prow on the floating structure to reduce the drag of the river's current and the impact of waves from all directions, as the wind and the river have a fetch of several miles.

All fountains in this category and of this scale also must be carefully engineered so they maintain a high degree

Tower of Power

Of all the projects we've ever pursued, the Louisville Falls Fountain was among the most awesome.

Once the largest programmable floating fountain in the world, it was positioned on the Ohio River adjacent to Louisville's waterfront, where its center jet sent a vertical spire of water 400 feet into the air. This stream was flanked by an array of smaller arching jets that encircled it to create a giant *fleur de lis* pattern – the symbol for this Kentucky city.

The main jet's specially hardened nozzle had a tapered, six-inch diameter bore and was unusual in that the spray was hollow in the center, basically creating a cylindrical stream. This special conical nozzle, engineered and built in Switzerland, allowed us to create a taller effect by reducing the friction between water and air. It worked beautifully, but it took every bit of force generated by a powerful pump array to do so.

Everything was installed in what amounted to a floating, three-story building fabricated for the purpose by a Tennessee tugboat/barge company. In the hold or bottom level (well below the water line) was the pump room, where three 500-horsepower variable-frequency-drive pumps were plumbed in sequence to generate the pressure required to shoot water that high into the air. The second level contained all of the electrical switching equipment, while the telemetry equipment occupied the third.

The three-level structure resembled a large, octagonal houseboat. Made of a special copper/steel alloy, it was floated upriver on a barge the hold of which was flooded and sunk beneath the structure once it was in position.

The water level at its point on the Ohio River varies considerably in the course of a year, so a sophisticated anchoring system attached to the solid-rock river bottom was devised to accommodate fluctuations while keeping the fountain stable. Moreover, debris floating downriver during storms and floods upstream could be the size of a house, so the hull of the vessel was reinforced to withstand the impact of large objects driven by fast river currents.

Power for the Louisville Falls Fountain was generated at a nearby hydroelectric-power station used primarily to drive the lock system that allows pleasure craft and ships to bypass the falls. As luck would have it, one of the plant's spare turbines was not in use at the time we were designing the fountain, and local authorities were persuaded to dedicate it solely to the considerable energy needs of the fountain.

None of us was fully prepared for how beautifully the fountain would be reflected across the mile-wide, mirror-like river surface on clear nights. Illuminated by high-powered Zenon searchlights at the center column and by color-changing floodlights on the outer water effects, the spectacle was breathtaking from both the Indiana and Kentucky sides of the river.

The fountain was decommissioned in 1998 and is no more, but in its relatively brief life, it was a source of great civic pride, a magnet for tourists and locals alike and a spectacular example of what can be done when fountain technology comes together with monumental ambitions.

– R.J.V.S.

of stability and proper ballast. A failure in this area dooms an installation to bob up and down and tilt off center in the waves. This is why, in some instances, suspended weights and counterbalancing anchors are used.

In addition to the engineering and environmental challenges, working in this highly specialized market means that we have to be adept at public relations. Considerable time is spent dealing with the wants and desires of various community organizations, city governments, regulatory agencies, local businesspeople and, sometimes, sponsors, philanthropists and charities.

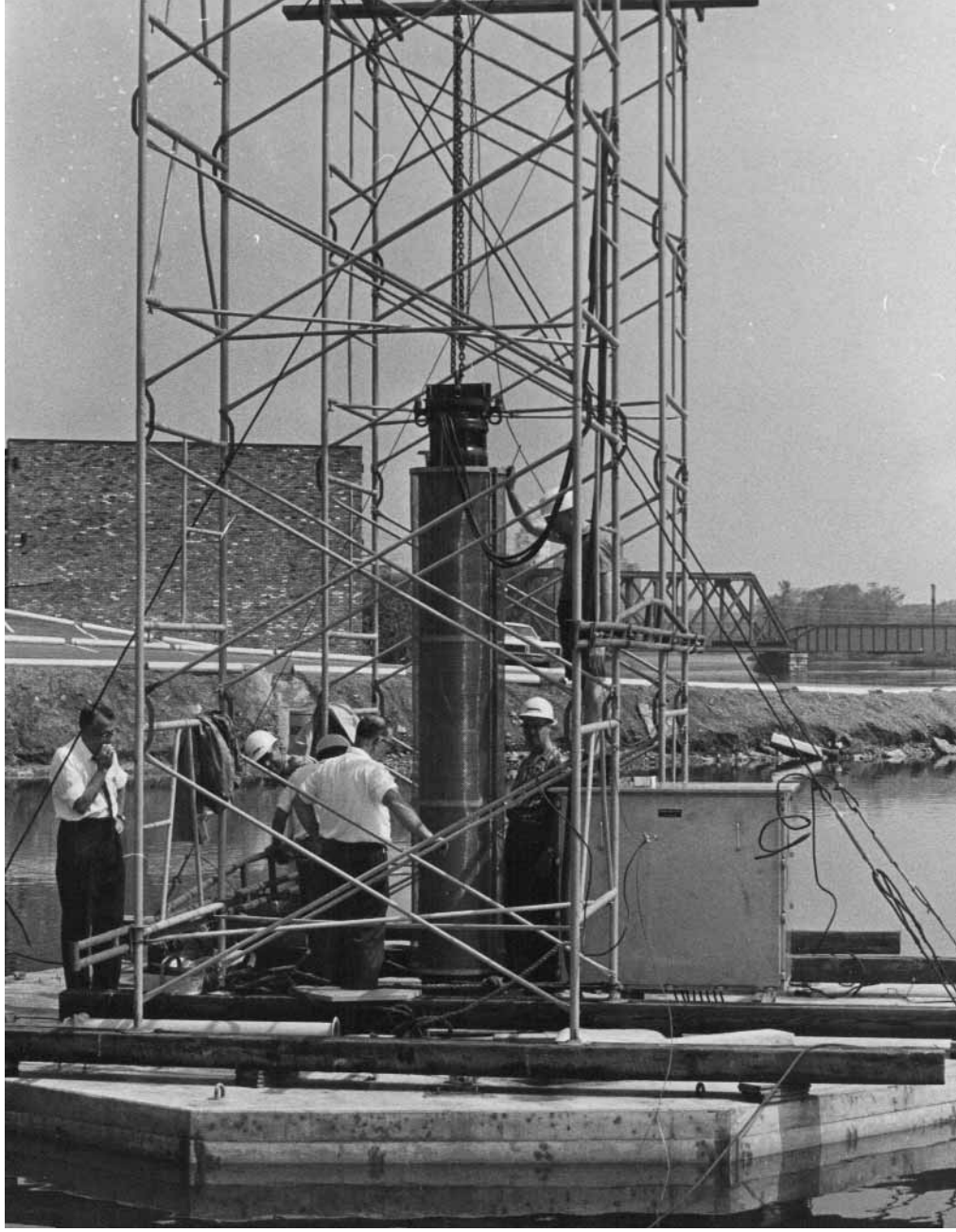
Indeed, there's always a good deal of diplomacy that attends these projects, and the process can be quite time-consuming as we meet with politicians and city officials to work out concerns and conform to all applicable restrictions, budget constraints and regulations. Our multimedia presentations must be extremely sophisticated and are often animated, detailed, and predictably accurate – and we must be prepared to answer questions across a broad range of topics and concerns, confident that we can meet or exceed client expectations.

Reliability is also an absolute in this specialty.

If all goes as planned, these fountains soon become major civic attractions and tourist draws, often serving as the backdrop for wedding photos and advertisements. If a system goes down, panic is the usual result and there's a need to get things back up and running in quick order. This is why system durability is a priority, as is developing a clear, manageable operations/maintenance-and-repair program that we present as part of the system-commissioning process. Helpfully, self-cleaning systems for some larger fountains, although expensive, have reduced or virtually eliminated the need for maintenance during the operating season.

Up and Running

So far, as you may have noticed, we've focused only on large fountains – but we're no less interested in their smaller cousins simply because they are so infinitely variable and distinctive. As men-



tioned at the start of this discussion, these systems are used for aesthetic purposes, but to a far greater extent than most large systems, they are also intended to improve the quality of the relatively small bodies of water that host them.

Our firm has worked on systems at this scale in a huge range of settings and applications – everything from high-end business parks and golf courses to college campuses and water-treatment facilities. These systems have become so popular, in fact, that an entire supplier industry has grown up to provide off-the-shelf fountains that can be easily installed to provide a wide range of visual effects and functionalities in all sizes, from fractional horsepowers up to 25 or 30 horsepower.

In aesthetic terms, what's fun about smaller floating fountains is how flexible they truly are. They're also easy to install, easy to remove and not extraordinarily expensive, so we can get fairly creative and experiment a bit as we strive to achieve different effects.

The fact that these photos of the installation of the Peterborough Fountain are in black and white hearkens back to images of the early space program and the spirit of invention that must have been prevalent when those technological marvels were planned and accomplished. Not to be grandiose, but the range of challenges and variables we face in staging these spectacular floating displays often does seem a bit like rocket science, if only with respect to the required attention to every detail.

One of my favorite approaches has long been to use multiple fountains in a body of water, each equipped with its own flotation, lights and pumping equipment so that all of them can be combined or moved around to achieve different patterns and configurations. In effect, this allows us to turn a pond or lake into a multi-faceted "fountain complex" by rearranging and recombining complementary features. These devices are also available with a variety of easily interchangeable nozzles that allow for periodic adjustment of water patterns at relatively low cost.

In many situations, however, smaller floating fountains play as great a role in maintaining water quality as they do in providing a decorative water display or focal point. On this practical side, for example, we've installed a great many fountains (and aerators that look like fountains) in stormwater-retention ponds where the water display's appearance is not the main purpose but rather becomes an added bonus.

In all these curative applications, efficient aeration is the key. Water spraying into the air and broken up into small airborne droplets absorbs oxygen and cools at the same time. In addition to acting as a localized air-conditioning system, when those droplets hit the surface, the temperature differential causes them to sink, thereby enabling them to deliver their oxygen to lower depths where it's likely to be needed the most. This causes lower strata to roll over both through convection and mechanical means.

The same process occurs with big floating fountains, of course, but in most cases those bodies of water are so large that the contribution a fountain might make to the oxygenation process is relatively negligible.

Making the Scene

With smaller ponds and lakes, the presence of an aerator or two (along with the right balance of aquatic plants, shoreline plants, bogs and fish) can make all the difference between terrible conditions and water that is appealing and enjoyable to be near or even *in*.

And just as larger floating fountains define the "scene" for entire communities, smaller ones likewise add tremendous beauty and interest to otherwise ordinary-looking bodies of water in either commercial, public or residential settings.

The technical nuances of floating fountains – large, small, or in-between – could fill several good-sized books. For the most part, however, much of what those volumes might contain would be difficult to apply in any direct sort of way, largely because these projects tend to be so highly individualized to settings and their physical requirements. That said, some well-known suppliers of small- and medium-size floating fountains have achieved good success at standardizing families of fountains and aerators that are very suitable, if not ideal, for most pond applications.

For large-scale projects in particular, however, the complexity is almost infinite and calls on designers and installers to be very particular when it comes to details. Failure at this level can be both spectacular and costly, and risk goes up exponentially with complexity unless you really know what you are doing. Experience and hindsight certainly have their advantages.

Smaller-scale, time-tested systems are much more forgiving, and there are limitless opportunities here to offer clients a large variety of attractive options for their ponds. And if you have the location and the inclination to get creative, the possibilities can be numerous and spectacular.

For my part, I'm pleased with the results we've achieved and take great satisfaction in knowing that these jobs, done well, provide real enjoyment for countless people in a wide variety of settings. In this particular specialty, apart from the many different types of waterfeatures we design, our work is not unlike that of other watershapers: We may specialize in what we do, but making people smile as they gaze in amazement and wonder (or as they quietly contemplate and enjoy) is still our ultimate objective and reward.

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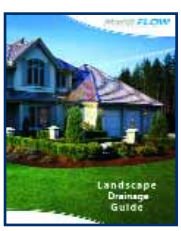
Salt Chlorinators

Circle 136 on Reader Service Card

BALBOA DIRECT has introduced a family of salt chlorinators for a variety of applications – inground and aboveground pools, spas and waterfeatures as well as large commercial applications. The line includes the ECOmatic, the classic product for inground pools, as well as the ECOspa; the ECOfountain for waterfeatures up to 5,000 gallons; and the ECOcomm for commercial facilities. **Balboa Direct**, Tustin, CA.

Drainage Guide

Circle 137 on Reader Service Card



VARICORE has published a *Landscape Drainage Guide* for use in the design and installation of drainage systems. Highlighting applications designed to maintain water balance around pools, waterfeatures and retaining walls as well as in lawns and planters, the booklet focuses on use of the company's Multi-Flow products and specialty connectors and includes sample drawings and details. **Varicore**, Prinsburg, MN.

Safety Cover Colors

Circle 138 on Reader Service Card

PLASTIMAYD has expanded its line of safety covers to include three different types of UV-resistant cover fabrics: Gardall Mesh, Gardall Solid and Ultra-Mayd Mesh. The first two have reinforcing thread throughout the material and have been designed and tested to resist wind, sun, snow and ice. The third is a tighter-weave mesh that offers the advantages of solid safety covers with less weight. **Plastimayd**, Oregon City, OR.

Garden Amenities

Circle 139 on Reader Service Card

BRANCH offers one-of-a-kind garden planters, furniture, arbors, sculptures and ornaments in a variety of media for residential and commercial settings. Hand-made with metal, wood, concrete and ceramic, the line was originally inspired by traditional French faux bois – concrete pieces sculpted to emulate wood – but has grown and diversified into a wide series of standard items and custom productions. **Branch**, Pontiac, MI.

Floating Islands

Circle 140 on Reader Service Card

FREEDOM PONDS has introduced Islandscapes as living, floating gardens for ponds and waterways. The units look like conventional islands but are much easier to install and serve as hosts to plants of all kinds – terrestrial flowers, shrubs and grasses as well as aquatic species. They are also friendly to fauna and fish, offering roots and concentrated nutrients beneficial to fish growth. **Freedom Ponds**, Albuquerque, NM.

Gray Deck Drains

Circle 141 on Reader Service Card

QUAKER PLASTIC has added an appearance-friendly gray base to its Water Hog line of deck-drain systems. Available in 3- and 4-inch sizes, the line also features a new radius, curved drain option in its 3-inch size. Made with all-weather PVC, the drain tops come in tan, gray or white, mount flush against the pool wall and come ready for installation with tops, base screws and connectors. **Quaker Plastic**, Mountville, PA.

Shade Structures

Circle 142 on Reader Service Card

SHADE SYSTEMS has published a catalog on its line of structures designed to protect people and property from exposure to UV radiation. The 28-page, full-color booklet covers frame-supported products of various shapes and sizes as well as cantilevered covers, sails and more. Custom designs are available, and many items offer the Turn-N-Slide system for easy removal and reattachment. **Shade Systems**, Pompano Beach, FL.

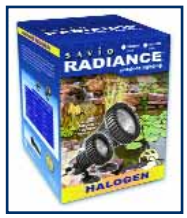
SEALER/WATER REPELLANT

Circle 143 on Reader Service Card

DECK-O-SEAL offers Deck-O-Shield to protect natural-stone and concrete pool decks from salt staining. The ready-to-use, water-based sealer/water repellant is designed for use on waterfalls in or around pools but works on virtually any area located near or around a watershape. It will limit the penetration of water into structurally sound, crack-free surfaces without altering colors. **Deck-O-Seal**, Hampshire, IL.

OUTDOOR LIGHTING

Circle 144 on Reader Service Card



SAVIO ENGINEERING introduces the Radiance line of lighting fixtures for exterior applications. The LED models can be added as accents in or out of the water, emit almost no heat, are incredibly energy efficient and deliver remarkable brightness. The submersible halogen models offer more intense illumination while providing dramatic lighting for waterfalls, ponds and landscapes. **Savio Engineering**, Albuquerque, NM.

BRICK AND CLAY PAVERS

Circle 145 on Reader Service Card

BORAL offers more than 150 styles and textures of brick – everything from 17th Century Brick to an array of pavers. Made from all-natural clay, the paver products are designed never to fade and come in three distinct styles: straight edge, beveled edge and Antique. They also come in numerous colors to match any architectural masonry, and custom products and design services are available. **Boral**, Roswell, GA.

TILE MOSAICS

Circle 146 on Reader Service Card

OCEANSIDE GLASSTILE has introduced the Geologie line of handcrafted tiles. Inspired by rock formations often found glittering with crystals, the new series of glass-and-slate mosaics combines luminous, gem-like glass with richly hued, naturally textured slates in a unique harmony of smooth and textured, reflective and matte finishes that lend intriguing effects to projects of all kinds. **Oceanside Glasstile**, Carlsbad, CA.

Stone-Pattern Liners

Circle 147 on Reader Service Card

PEN FABRICATORS has introduced TumbleStone, a highly realistic stone pattern for vinyl-liner swimming pools. The pattern was created using real stones in rich gray, blue and earth tones to imitate the look of a real stone wall and has been developed to meet the growing demand for vinyl-liner patterns that integrate into pools with stonework in their decks, fountains and landscaping. **Pen Fabricators**, Emigsville, PA.

LED Lighting

Circle 148 on Reader Service Card

KICHLER has added LED accent fixtures to its line of lighting products. Each of the low-voltage units offer five watts of warm, white light – in the same temperature range as their incandescent counterparts – with low energy usage and a 40,000 hour service life. The fixtures are small in profile for use in tight spaces and are available with optional housings that allow for underwater applications. **Kichler**, Cleveland, OH.

Wall Fountain

Circle 149 on Reader Service Card

HADDONSTONE USA offers the Bayeux Fountain. Inspired by Romanesque architecture and made using a unique form of cast limestone, the self-circulating system features detailed leaf moldings around the fountain bowls and is designed to act as a focal point in a sheltered garden or conservatory. The fountain stands 60 inches tall and is available with a finish in any of five colors. **Haddonstone USA**, Bellmawr, NJ.

Water-Management System

Circle 150 on Reader Service Card

ACU-TROL has introduced Aqua PC On Point, a water-quality-management system designed specifically for larger residential pools and spas. Designed to take the guesswork out of maintaining balanced water, the system uses simple software that displays a visual alarm when water moves out of preset ranges and features sensitive chemical and temperature sensors to ease overall water maintenance. **Acu-Trol**, Auburn, CA.

Remote for Cleaners

Circle 151 on Reader Service Card

WATER TECH has introduced a wireless radio-frequency remote control for automatic cleaners. The device allows a facility manager or service professional to make a robotic cleaner turn right or left or move in forward and reverse directions at the touch of a button. It also has a standby mode, a choice of two cycle times and algorithms for cleaner type and the time it will take to do the job. **Water Tech**, East Brunswick, NJ.

Fiberglass Uplight

Circle 152 on Reader Service Card

ORBIT/EVERGREEN has introduced Model FG1020, a new 12-volt fiberglass directional light designed for use in coastal locations and in other weather-challenged environments. The corrosion-resistant fiberglass body is available in black or dark green, has an optional lens hood and can be precision-adjusted for optimal illumination with lamps ranging from 20 to 35 watts. **Orbit/Evergreen**, Los Angeles, CA.

Pond Spillway

Circle 153 on Reader Service Card

ATLANTIC WATER GARDENS has introduced the Big Bahama Pro Series Model BF2600, a 26-inch-wide spillway system featuring a one-piece liner attachment flange for easy installation. Made from HDPE, the system has a top grate that supports up to 250 pounds; large filter pads with ample surface area; and 8 inches of open space above the filter pads for additional bio-media. **Atlantic Water Gardens**, Mantua, OH.

Distance-Measuring Wheels

Circle 154 on Reader Service Card

KOMELON has added distance-measuring wheels to its line of measuring systems for heavy-duty applications. The line includes wheel models for outdoor use, all with accurate, gear-driven, five-digit counters. There are magnifying glasses over the counters for easy reading as well as comfortable pistol grips, high-traction polyvinyl tread wheels and spring-loaded kickstands for easy outdoor use. **Komelon**, Waukesha, WI.

Steel Spa

Circle 155 on Reader Service Card

CARDINAL POOL SYSTEMS offers a steel spa for use in conjunction with vinyl-liner inground pools. The spa can be manufactured in any size, shape or depth with a limitless variety of step, bench and seating options – basically a customized vessel made to order – and can be designed to fit anywhere on the pool kit. Once placed, it assembles in the same way as the rest of the pool. **Cardinal Pool Systems**, Schuylkill Haven, PA.

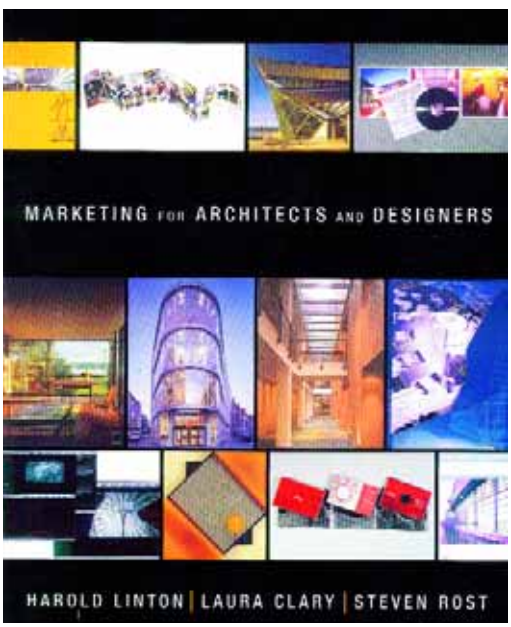
Trash Pump

Circle 156 on Reader Service Card

MODERN POOL SYSTEMS offers a commercial grade, high-performance trash pump for cleaning out pools. The lightweight, low-maintenance, 8.4 horsepower device can handle up to 354 gallons of water per minute, making it ideal for clean outs on pool-construction sites. It runs on a gasoline engine that allows for two hours of continuous operation per tank of fuel. **Modern Pool Systems**, Columbus, MS.

By Mike Farley

Designer Messages



It only makes sense that designers should promote themselves in ways that reflect their abilities.

When we look at the materials many watershapers use to market their services, however, it's obvious that everything from business cards to brochures and web sites has often been assembled without much attention being paid to how messages are conveyed in words, images or graphics.

Recognizing these shortcomings in others prompted me to reflect on my own approach to marketing and promotion – which in turn led me to pick up a copy of *Marketing for Architects and Designers* by Harold Linton, Laura Clary and Steven Rost (W.W. Norton & Company, 2006). As the helpfully descriptive title indicates, this 150-page, beautifully illustrated text defines what designers need to know about packaging and communicating the essence of their work.

I've seen scores of books on marketing through the years, but this is the only one I've found that cuts so close to the needs of watershapers. It counsels us to take a sophisticated approach to marketing – something that might challenge some of the less-enlightened players in our industry, but also a point that should appeal to those of us who are trying to set our sights higher and elevate our games.

As I read through the book, I was repeatedly amazed by all that goes into a thorough marketing campaign. The text starts with a discussion of the nature of marketing and how the term means different things to different people – specifically, how some see it as a matter of building personal relationships while others approach it as a numbers game or strictly as a vehicle for building a company's public image. That's followed by a terrific discussion on methods for identifying who you're trying to reach and the ways that audience influences your marketing approach.

From there, the discussion moves into tightly focused treatments of specific details, starting with company names, logos and catch phrases. That section flows into another on how messages are transmitted through graphic design of business cards and letterhead as well as the content of brochures and other pieces of marketing collateral.

There's a terrific, up-to-date chapter on digital communication and how web sites, CDs and DVDs can and should be designed and packaged to reflect quality design. Another section explores the fundamentals of advertising via direct mail, print and electronic media, and yet another describes working with magazines to gain editorial coverage – and what you should do with that coverage once you've been published.

The book is rounded out with sections that cover ways to make the most of trade shows, seminars and conferences. There's also information on assembling a portfolio and a discussion of the ins and outs of book publishing as a marketing tool.

While everything I picked up along the way was useful, there was one glaring omission: There is no discussion at all of photography, which I consider to be an indispensable component of any good marketing plan, particularly for a watershaping business. That aside, this publication succeeds as a wonderful primer on techniques and the artistry involved in spreading the message that your work is worth investigating. 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.

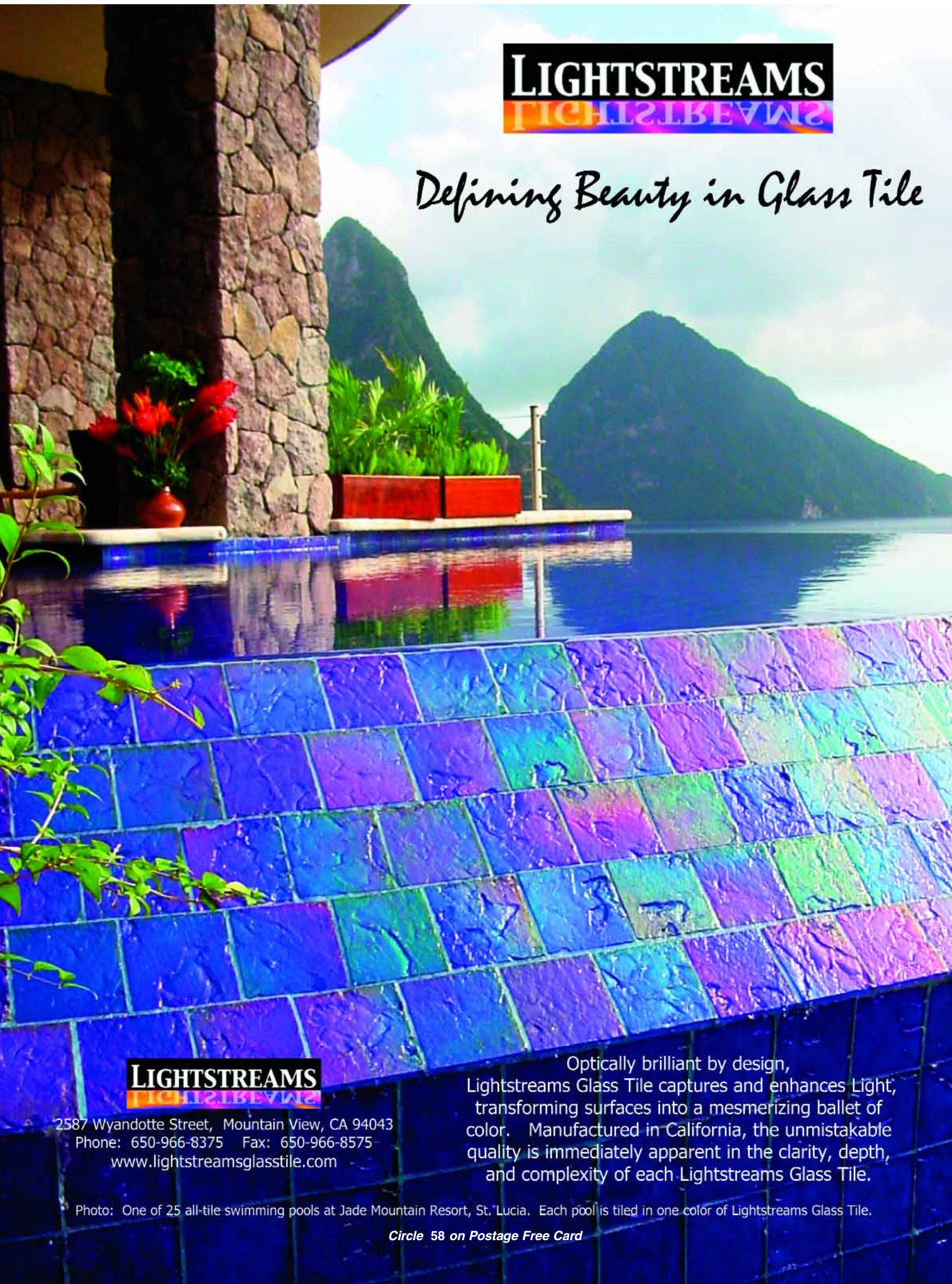

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Photo: One of 25 all-tile swimming pools at Jade Mountain Resort, St. Lucia. Each pool is tiled in one color of Lightstreams Glass Tile.
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