

WATER SHAPES

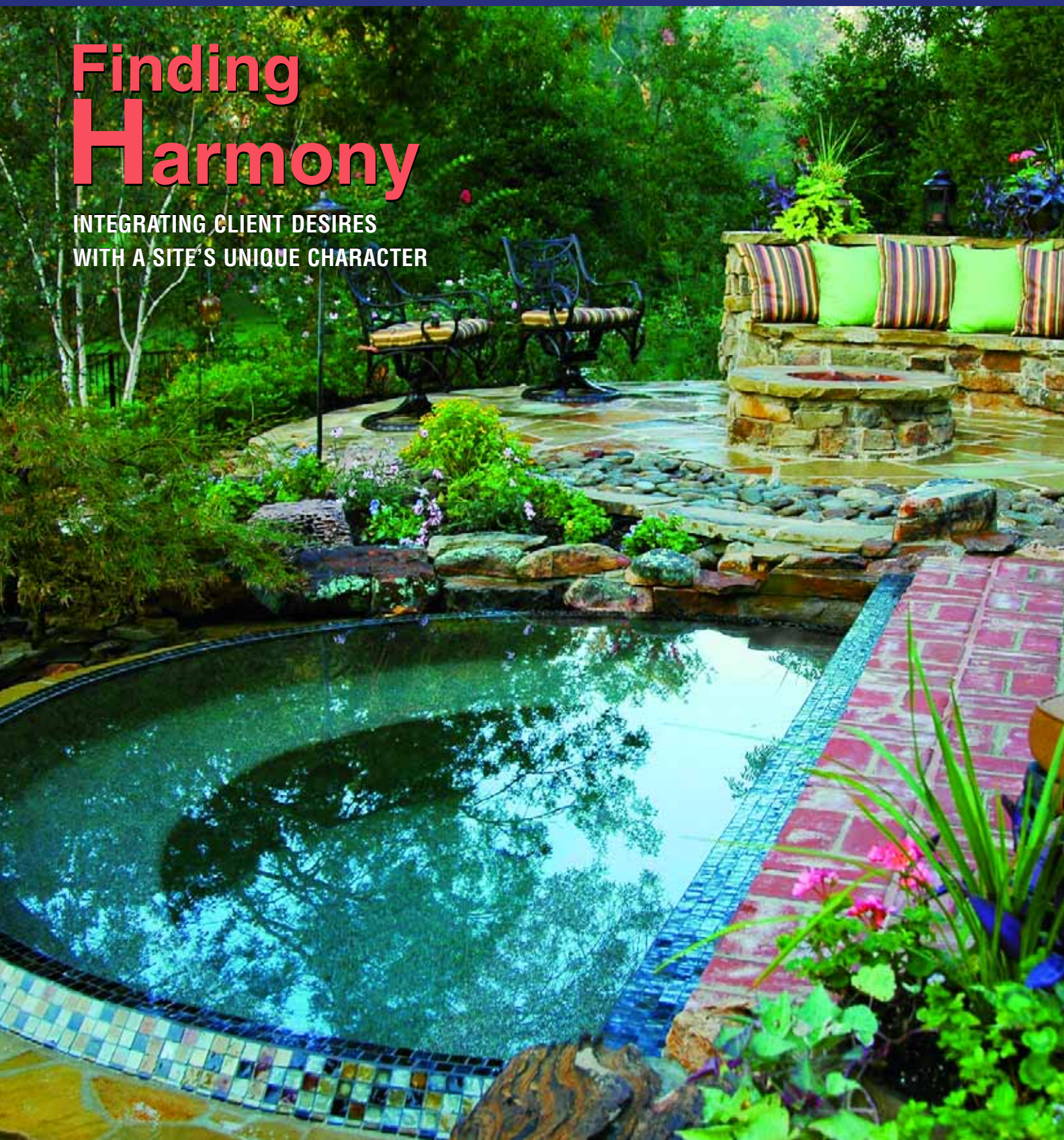
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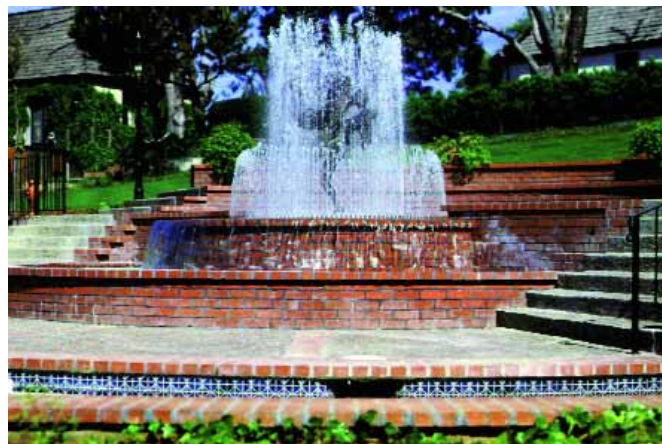
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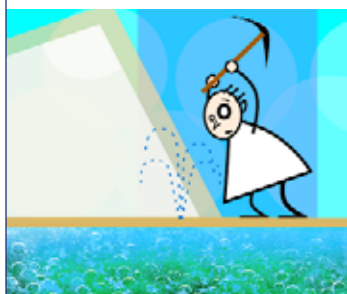
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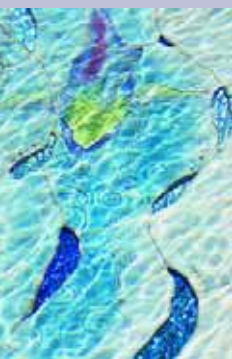


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For a closer look at the tile from the supersized project by **Kathy Marosz** seen in our March 2009 issue, go to www.watershapes.com and click on **Image Gallery**.

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On the Cover: Photo by Michael Nantz, courtesy Elite Concepts, Dallas, Texas.

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Finding Hope

By Eric Herman

This is almost certainly the toughest column I've ever written – and maybe the most important.

In past editorials, it hasn't been unusual for me to share various forms of personal information, some of it about my family, some of it concerning my own health. I've been keenly gratified by the words of support I've received from colleagues and friends on those occasions, and I thank you here, one and all.

This is, I fear, another of those occasions, as I recently received word from my doctor that she's concerned about my liver. It's too early to tell exactly where this is all heading, but at the very least I face sweeping changes in my lifestyle. These issues have most likely been brought on by a mélange of past behaviors, but it has been determined that genetics is a key factor as well.

I'm sharing this with you here to call attention to a simple, profound truth: A healthy life is a gift. We all know that our industry, the country and the world are facing extreme economic challenges, but none of us can afford to become so distracted by current struggles that we ever lose sight of what is most precious in our lives.

In my case, these medical issues have caused me to step back and take a hard look at myself and what is truly important. Like most of you, I've spent a lot of time in recent months worrying about the immediate challenges of daily life, but ever since I had my conversation with my doctor, I'm far more focused on taking care of my mind and body – and cherishing the health and wellbeing of those I love.

I am most encouraged by the fact that the most effective treatments for what ails me are all completely within my control: nutrition, rest, regular exercise and a sound, positive mental outlook. I am a changed man already.



Through the past few years, we've published occasional features on the health benefits of swimming and aquatic exercise. In this issue, we've picked up that thread once again with the aid of Dr. Steven Blair, a lifetime researcher in the field of exercise. In "Swimming to Longevity" (page 46), he discusses recent findings about mortality in men and how various forms of exercise increase the chances of living a long life.

It's a tremendously important discussion and something we all should consider from both professional and personal standpoints. Given my own situation, however, I can't help noticing the ironic poignancy in publishing this particular article in this specific issue. In many ways, I've caught myself approaching Blair's observations less as an editor and more as a reader.

On all levels, there's a wonderful, positive message carried within his discussion having to do with the fact that our industry provides consumers with venues for what is arguably the most healthful form of exercise and the keys to augmenting both the quality and the length of their lives.

For me as a longtime swimmer, right about now that's the very brightest of all possible silver linings.

WATER SHAPES

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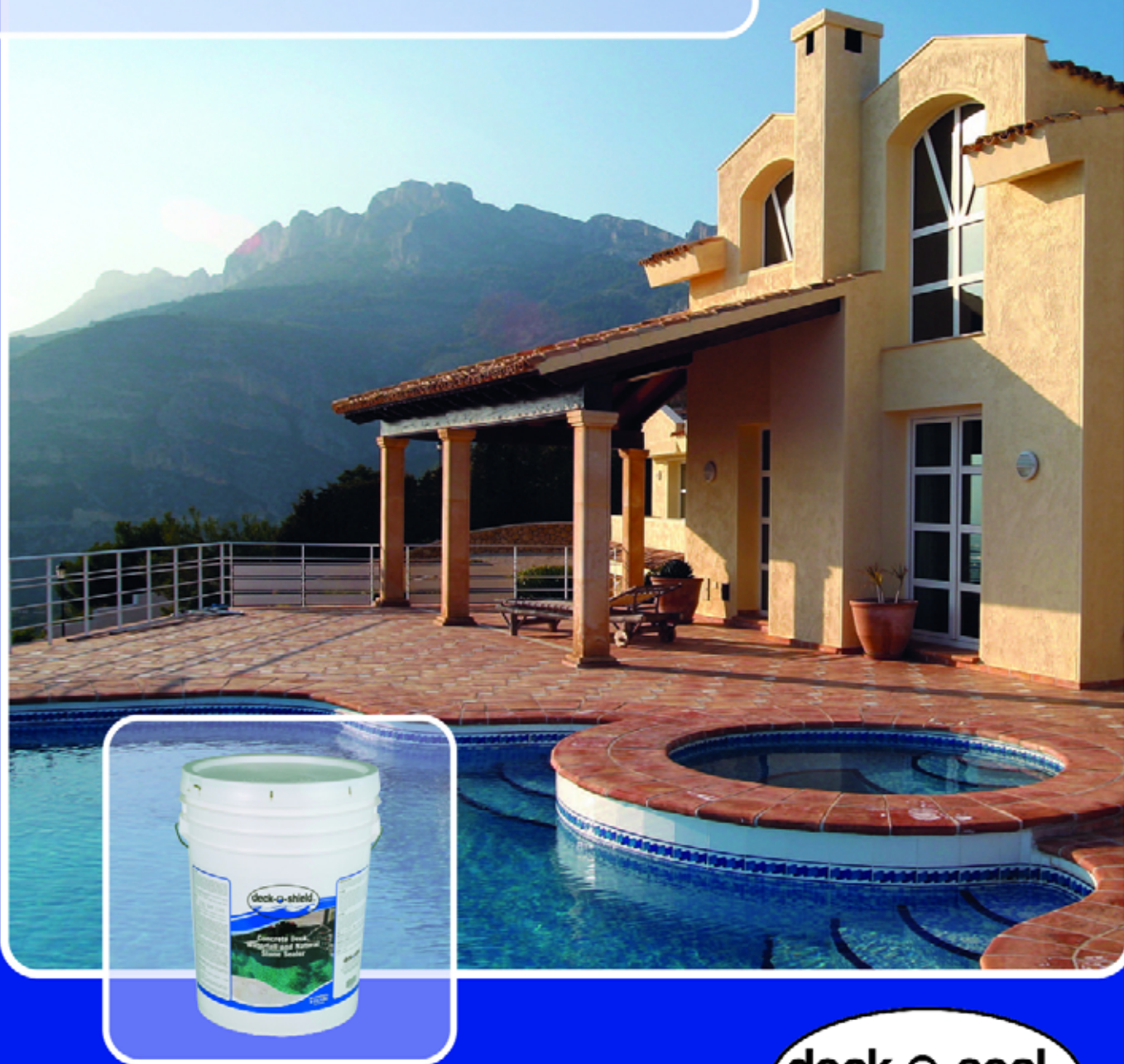
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In This Issue

May's Writers

Dave Garton is founder and president of Lawn Chair Productions, a Lakewood, Colo.-based design, construction and consulting firm specializing in the framing of water elements. Originally a specialist in creating natural-looking streams and waterfalls to mimic Colorado's natural wonders, he has seen his business grow through word of mouth to include installation of more formal waterfeatures. Desiring to raise the level of professional skill in his area and see to it that local demand would be met by skilled craftspeople, he began teaching and talking about his work and has reached a point where public speaking takes about half his time. He now tackles only a select set of commissions each year and finds that teaching others to create beautiful watershapes is a higher use of his time and effort. His Web site, www.davegarton.com, offers an overview of both his construction company and his public-speaking activities.

William Drakeley is owner of Drakeley Industries, a design and structural-shotcrete consulting firm for swimming pools, water tanks, tunneling, mining and other infrastructural shotcrete applications; and of Drakeley Pools, a specialty watershape design, construction and service firm – both located in Woodbury, Conn. Drakeley holds the distinction of being the first and, so far, the only American Concrete Institute (ACI) Certified Examiner for Shotcrete Placement from the pool industry. He is also an approved trainer for ACI-Certified Nozzlemen on behalf of the American Shotcrete Association (ASA), an ASA Technical Adviser, a Genesis 3 Platinum member and a member of the Society of Watershape Designers and its advisory board. He has taught numerous courses on shotcrete application at the Genesis 3 construction schools and is a contributor to *Shotcrete* magazine.



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Steven Blair, PED, is a professor in the departments of Exercise Science and Biostatistics & Epidemiology at the University of South Carolina's Arnold School of Public Health. A prolific author of scientific papers and book chapters, he was senior scientific editor for the U.S. Surgeon General's Report on Physical Activity and Health. He also has served as president and CEO of The Cooper Institute in Dallas and has been an adjunct professor at the University of Texas Health Science Center in Houston as well as a Benjamin Meaker Fellow at the University of Bristol in England. He was a Rudd Scholar at the Rudd Institute and is a fellow of the American College of Epidemiology; the Society of Behavioral Medicine; the American College of Sports Medicine; the American Heart Association; and the American Academy of Kinesiology & Physical Education. Among his many other

awards and academic citations, the American Heart Association recently awarded him its Population Research Prize.

Michael Nantz is the principal in two design/build firms: Elite Concepts of Dallas and Liquid Edge of Tyler, Texas. A Genesis 3 Platinum member, he also maintains certification as a member of the Society of Watershape Designers. With a background in design and construction management, Nantz specializes in creative outdoor environments in the United States and abroad. His work through the past two decades has been recognized with several local, national and international design awards, and he is known for his capabilities across a wide range of styles, genres and project types.

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Aqua Culture



Working on the Water

By Brian Van Bower

From its very first issue, this magazine has made one key point over and over again: Soil conditions determine the way a watershed's shell is constructed; to achieve success in construction, the approach must be established by a competent engineer and followed on site.

Through the years, numerous contributors to the magazine have described the process of placing watershapes on hillsides or dealing with soil conditions that lead to differential settlement. So far, however, less attention has been paid to the challenges of working in locations where high water tables prevail.

In my career, I've had the good fortune of working in southern Florida, which is about as flat as can be but is a place where it's possible (or even likely) to encounter water just a few inches below grade. Building anything with these soil conditions – whether it's a home, a pool, a deck or a shade structure – means dealing with a host of issues and po-

Watershapes designed to hold water *in* aren't necessarily prepared in ways that make them good at keeping water *out*.

tential problems in both design and construction.

Some other time, I'll take a closer look at what's involved in bringing structural integrity to watershapes built in water-rich conditions and the systems of piles they often require. Here, however, I'll focus on the water itself and the effort it often takes simply to *start* the construction process.

challenges unseen

It's ironic in the extreme, but watershapes designed to hold water *in* aren't necessarily prepared in ways that make them good at keeping water *out*.

We're actually quite good at the former and have for generations lined the insides of our structures with plaster, exposed-aggregate or tile finishes to create what's known as a "positive-pressure," watertight seal. To cinch the deal, many of us use waterproofing agents – coatings or admixtures – to add layers of protection against water penetration of the concrete. (Personally, I'm a big advocate for and often specify use of admixtures from Xypex Corp. (Richmond, British Columbia, Canada), which fill the voids in a porous concrete matrix with expansive crystals.)

Basically, in other words, we've figured out how to make our vessels hold water – definitely an important skill! In general, however, we as an industry are less concerned about building shells that keep water from moving into shells from outside as a result of what some call "negative pressure." What almost anyone who builds in areas where there's a high water table knows is that concrete – shotcrete, gunite or poured-in-place – is *not* necessarily waterproof.

As an example, I recently designed a project in Birmingham, Mich., where there's a high water table. The way things worked out, a storm rolled through and halted construction while the completed shell was empty. When the weather broke and the contractor came back on site, he discovered that water had leaked through the shell in several places. While it had been properly installed, the shell *definitely* wasn't impermeable.

This and similar stories have piqued my interest in discussions that have arisen during several recent Genesis 3 schools. Bill Drakeley, one of our instructors and the only American Shotcrete Association–Certified Nozzlemen instructor in the pool industry – is a vocal proponent of elevating basic specifications for concrete shells so that all become effectively watertight. (For more on the subject, see his "Top of the Class,"



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appearing in this issue on page 38.)

He's a sharp guy, and when he says watertightness can be achieved if concrete is properly specified, mixed, applied and cured, I tend to take him at his word. He doesn't go so far to say that shells prepared this way will be *waterproof*, conceding that "watertight" may involve

minimal (if any) leakage.

There are a number of factors at play in his approach, one of them being the concrete's density or strength. Drakeley recommends application of concrete at strengths exceeding 4,000 pounds per square inch – in direct contrast to industry standards that call for concrete that

is 3,000 psi or better and common practice that deems concrete at densities of 2,500 psi (or even 2,000 psi in some cases) to be acceptable.

Without getting into the particulars of the debate, it's fair to say that when you're dealing with a waterfront installation or one located in an area with a high water table, it cannot hurt to specify concrete that tests out at 4,000 psi. (This may become the new industry standard if some of our Genesis 3 compatriots have their way.) Nor is it ever a bad idea to use a coating or admixture to increase watertightness.

up and out

Where water penetration is an annoyance and can lead to a variety of issues and maladies, the main thing to watch for when you build in areas with high water tables is the hydrostatic pressure that bears down on the outside of a pool shell.

Not only might the presence of this groundwater require you (at your engineer's behest) to thicken the shell to resist the strain, but it can also influence the type of reinforcing bars you use in a shell, particularly on waterfronts where there's concern about saltwater penetration and the rapid corrosion it can cause.

Many times, I've even seen engineers call for epoxy-coated rebar under these circumstances – and that's despite the fact that there are questions about the integrity of structures in which the epoxy prevents a good mechanical bond between concrete and steel and the issues involved in penetrating the coating (and thereby compromising *its* integrity) to create an electrical bonding system.

Continued on page 14



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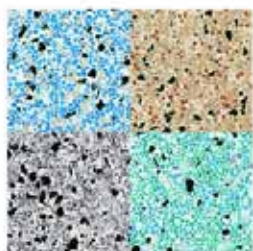
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(It's interesting to note that, when I work on waterfronts in Bermuda, local codes call for the use of galvanized steel rebar in all concrete structures!)

The real concern with hydrostatic pressure, of course, has to do with its ability, under certain conditions, to pop a shell right up out of the ground. If you have a shell that is watertight (but isn't on a piling system of some kind) and leave it empty for a period of time without having provided a way for water on the outside of the pool to pass inside or otherwise be evacuated from the vicinity, a shell will do all it can to float on the water.

So-called "popped pools" are among the most notorious and catastrophic of all structural failures of inground concrete vessels. We've all heard these stories, and doubtless some of us are amused (in a sick sort of way) because it's tough to imagine a concrete structure weighing several tons bobbing up out of the ground. Safe to say, this isn't a phenomenon you ever want to encounter in your own working life.

Unfortunately, I'm the source of one of those terrifying tales. Many moons ago when I didn't know any better, I took on a renovation job – not near the shore, mind you, but in an area with a high water table. (I was dumb, but not an idiot.) We drained the pool in preparation for our work and left it empty overnight.

The next morning, I received an urgent call from the homeowner letting me know that something had gone horribly wrong. It was no exaggeration: When I showed up on site, I was confronted by a pool that, at one end, had risen fully five feet out of the

ground and in doing so had destroyed both its plumbing and the surrounding deck.

The homeowner asked, "Is this going to be okay?" I told her, "Sure, *eventually*," expanding that in my mind as, "Sure, I may go out of business, but *eventually*, you'll have a new pool." It was a misstep born of ignorance, but the result was that we tore out the old pool and built her a new one from scratch.

dewatering details

The moral of the story is, of course, that you can run into areas of high water in the most surprising places (you just never know unless you happened to be the original builder) and that you need to make certain water outside the pool has someplace to go when you remove the weight of the water inside it.

From that disastrous point forward, whenever I worked anywhere with even a possibility of high groundwater, I'd cut weeper holes in my shells in strategic positions to allow water to flow in and out of the pool during construction. (In some cases, it was actually fascinating to watch the water rise and fall with the tides.) Nowadays, of course, it's pretty much standard practice to install hydrostatic-relief valves in main-drain sumps: These devices open under pressure to prevent spectacular catastrophes.

All of this, of course, begs the question: With so much water in the ground, how do you build the shell in the first place?

In the early days of the pool industry here in Florida, builders came up with a creative (but characteristically lazy) way to deal with the problem: When they'd dig down a few feet and hit water, they would simply tell the homeowner, "Sorry, we can't go down any further," and would then simply raise the pool out of the ground – several feet up in some cases – and build steps up to the edge.

(Back in my early days in pool construction and renovation, we remodeled a number of these pools, usually just cutting down the edges and creating shallower pools that were more in keeping with modern trends anyway. I haven't seen any recently, but I'm certain some of these odd pools still exist to this day.)

A better approach has since emerged

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More photos of interesting projects featured in *WaterShapes* can be found at www.watershapes.com. Click on **Image Gallery**.

in the form of dewatering systems that simply clear water away from construction sites. Our preferred method has been to overexcavate the shell, place perforated piping to act as an under-drain and then fill the hole to the desired level with a substrate of gravel on which the shell is installed.

We'd tie these under-drain lines to sump pumps that ran constantly during construction to keep groundwater at bay. Once a pool was complete, we'd cap the pipe, making sure to highlight its location on the plans so that, in the event the pool ever needed to be drained, the contractor doing the work could insert his or her own pump and dewater the area around the shell.

That's just one approach, and there are many others. The point is, when you know a vessel is subject to water intrusion during construction (and thereafter), you must be aware of the level of the challenge and develop a dewatering program that gets the job done. You also need to warn clients of these situations and let them know what must be done if the pool ever needs to be emptied.

situational awareness

When you are designing or building on waterfronts or in areas with high water tables, you have enormous creative possibilities within your grasp – but you also have extreme responsibility to make certain your watershapes have what it takes to stand the tests of water, pressure and time.

One last note: As suggested briefly above, when you're working in the vicinity of bodies of saltwater, electrical safety becomes an issue of special concern. I've done renovations in which, for example, bonding wires are attached to grounding stakes that no longer exist because salinity has completely eaten them away.

It's not hard or terribly expensive to remedy such situations, but it's worth mentioning that it doesn't make sense to put a new stake in where the old one failed. If you can, find a place where corrosion isn't an issue – or tie the bonding system to the home's plumbing.

As is true of so many aspects of water-shaping, if you enter the fray armed with

knowledge and can communicate effectively with your clients about costs and possible hazards, you'll usually come out ahead. If, by contrast, you decide *not* to survey the site and don't bother to commission soil studies because your "experience" tells you to leave well enough alone, you may end up with a disaster on your hands! **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.

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On the Level



Gearing Up

By Bruce Zaretsky

As winter draws to a close here in the northeast, we begin preparing in earnest to deal with the inevitable springtime rush. There are contracts to sign, materials to order, plants to grow, schedules to set and hires (if any) to be made. And we do all of this knowing that, once the weather breaks, we want to burst out of the gate like an odds-on favorite at the Kentucky Derby.

To make this happen, we need to be ready. Where I live and work, winters are usually long, so by spring our coffers are low, our staff is eager to get some exercise and our general desire to get outdoors again is as high as can be.

Design-only businesses don't have these sorts of concerns, of course, but those of us who work in firms with construction/installation components know what this seasonal ebb and flow are all about – and the nasty effects a long winter's layover can have on the tools we need to have ready for use as soon as the frosty weather loosens its grip.

If you and your staff welcomed the end of

Where I live and work, winters are usually long, so by spring our coffers are low, our staff is eager to get exercise and our general desire to get outdoors again is as high as can be.

the previous season by shoving all of those tools into a storage area and walking away as quickly as possible to enjoy a warm drink in front of a roaring fire, you might find some unpleasant surprises as you get ready to roll out on your first job the next spring. This is when you discover that the throttle cables weren't fixed, the oil wasn't changed and worn-out tires weren't replaced.

Indeed, if you're not on top of these sorts of issues, you can wind up stalling at the very moment you want to be galloping into action.

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As we see it in our business, tools are – right after our employees, of course – our most important assets.

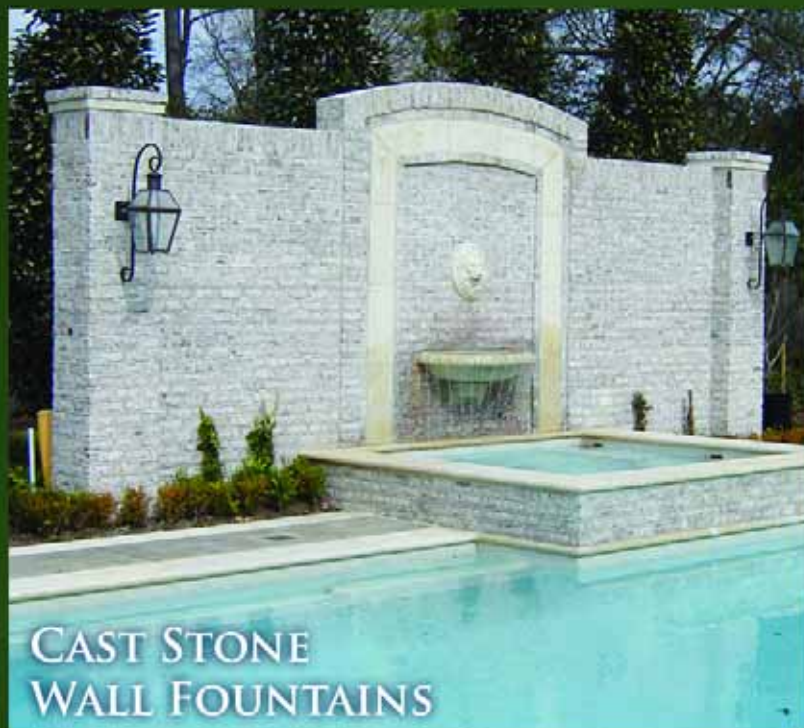
Unfortunately, it has long been our observation that some on our staff don't value those tools the same way we do as managers. As much as we might stress to them that tools in good working order are their most important assets on site, lots of times we can only wince at seeing how those items are treated.

Through the years, we've seen staffers use them, abuse them, break them – and then hide the damage from us, leaving us to discover what happened only when an invoice shows up from an equipment supplier or when the employee makes a note on a job sheet that they had to leave the site to go and purchase a new tool. (It seems that they're hoping we won't notice – and know as well that *not* telling us in some way or other could be a fatal employment error.)

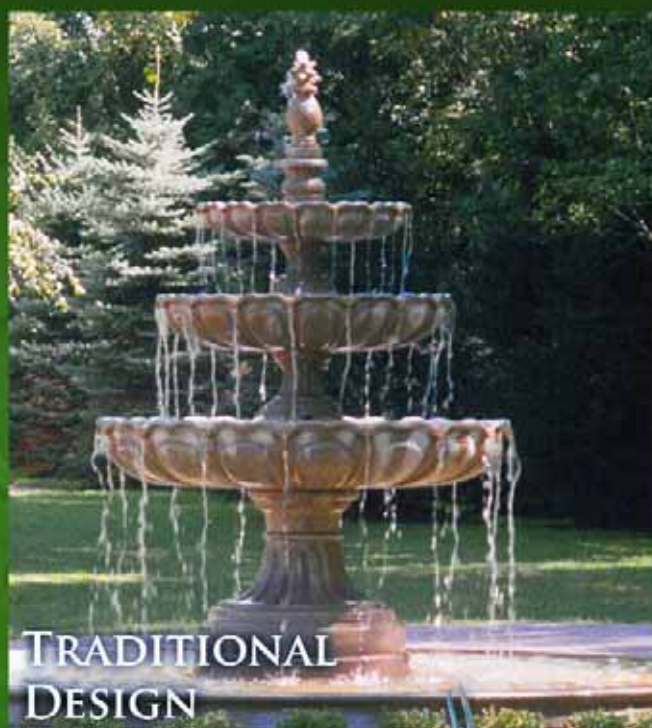
Rather than get steamed about such situations, years ago I decided to hold a special annual class for my employees called "Be Kind to Your Tools." This meeting takes place every spring without fail, but I don't hesitate to repeat it as needed if I notice tool-related rashes during the season.

The meeting goes like this: I tell them what the tools cost, what service bureaus charge to repair them when they break and, finally, what the down time means to the efficient, cost-effective flow of business. I also tell them that even tools of nominal cost, such as utility knives, can sap productivity and hit the bottom line hard through lost time and productivity, especially if breakage or loss means dropping everything to run to Home Depot to replace them.

Continued on page 18



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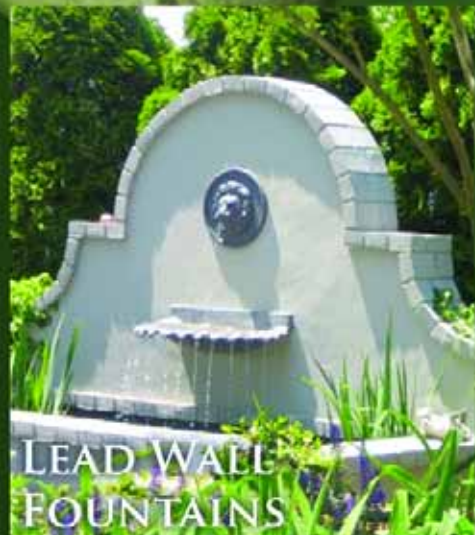


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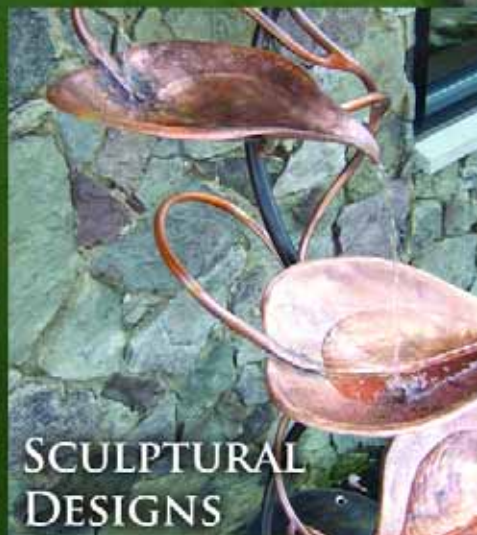
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On the Level

I supplement this meeting with refresher sessions throughout the year on tool needs and repairs. It's long been my observation that even lifetime, battle-hardened veterans of the landscape industry are remarkably naïve when it comes to understanding the costs associated with their activities and what it

takes to keep us all moving forward.

Through the years, I've found these discussions have helped enormously in keeping us productive. But I'm also aware that meetings aren't what keeps tools ready to go: To do that, we need to size up our tool inventory, follow up on repairs and do all we can to maintain them

in good, working order. Tools never break when sitting on a shelf: They break on job sites, and we are constantly aware that one breakdown can shut a project down, costing us both time and money.

Although we do have backups in many cases, ours is a small operation and it has never made sense to me to have expensive equipment sitting around, waiting weeks, months or years to get into the fray. Even without the current economic downturn, we've always run as lean as possible, keeping expenses low and productivity high – so we do what we can to make certain we buy quality tools and keep them going.

stitches in time

As mentioned above, we meet to discuss tools (and tool needs) several times each year, and I do all I can to stay close to situations in the field. I visit every job site at least once each day, and I pay close attention to what tools are working, which are breaking down and which might need to be pulled off the line for periodic maintenance.

But of all the time spent on these issues as the work moves forward, there is no meeting more important (in the context of tools, anyway) than the one I call at the end of every year.

This is when I sit down with my mechanic/equipment operator, Merrill Watson, to discuss what needs to happen over the winter. Ours is a small company, just ten people (including seven in the field), so many of our employees are specialists in more than one area. Watson, for example, was originally hired to take care of equipment and our yard operations; only later



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On the Level

did I discover – much to my delight – that he's good in the field as well, adept at operating all sorts of equipment from Bobcats to loaders that can lift 15-ton stones.

During our meeting, we review our overall needs. Then he provides me with both an operator's and a maintenance expert's report of what needs to happen to each piece of equipment, from our smallest brick saw to our biggest truck. In preparation, he develops a list of necessary repairs, compiles parts lists (and associated costs) and calculates how much time it will take him to do the work.

Not only does this give us a great idea of how much to budget for these maintenance items, but it also enables us to discuss whether it's time to scuttle an old piece of equipment and replace it with something new so we'll be fully ready for spring. (It helps that this meeting happens before the close of the fiscal year, giving me the option of taking the tax write-offs in the current year or the next.)

Basically, this key, early-winter meeting allows us to be sure we are on track to have all our equipment up and running and in great shape for the spring rush. This also gives Watson his marching orders, letting him set a schedule for servicing all equipment, changing oils and other fluids, greasing joints, replacing filters and going over all other maintenance steps.

We know, of course, that no December meeting is going to anticipate everything, so we've set up procedures to make sure that, all year long, tools are taken care of, repaired quickly if necessary or replaced to ensure that we stay productive during the season.

Every single morning from spring to fall, for example, Watson checks all fluids on trucks and large equipment, greases all fittings and tends to chores such as tightening belts or changing air filters. In addition, at the beginning of every project, I provide my crew chiefs with job binders that include sheets itemizing all

materials needed to do the job (brick quantities and types, base materials and the like) as well as all required equipment.

according to need

We're not like big companies that might equip each of its crew with its own tools and trucks: Instead, we all draw from a common pool of tools, equipment and vehicles, keeping everything in storage sheds or on the yard for use as needed.

That approach has led us to develop some simple but unbendable rules: No power tools may be left on a job site unless they can be locked up securely and are therefore inaccessible to thieves or young children; operators must check fluid levels and filters each morning and again before initial use; and all tools must be cleaned thoroughly at the end of the day.

To make this system work, we have a sign-out sheet on the door of the shop. Not only does this let us know where any given asset is to be found on any given day, it also lets us know which crew was the last to use it. If it's dirty in the morning, I make a note of that fact and reflect it on the crew chief's incentive sheet at the end of the project.

Obviously, tools occasionally (but invariably) need repairs. I have no problem whatsoever, for example, if a pull cord breaks and needs replacing, but I'm less benevolent if I find a dent in the muffler of a plate tamper because someone was careless in loading it or hear that a cutoff saw "accidentally" fell off the truck.

Whatever happens, we have simple sheets in our office labeled "Equipment Repair Request." Designed for use by our crew chiefs, these sheets include spaces for listing a piece of equipment and reporting what's wrong with it, how it happened and if it could have been avoided.

These sheets are placed on my desk at the end of the day, and I pass them on to Watson if it's something he can repair. Either way, I need to be apprised of these issues: It's another means of keeping my employees on their toes – and a simple system for them to use in reporting a need.

As I see it, it's important to get these reports in writing: Not only does this create a paper trail, but it also helps us all avoid miscommunication (I can't count the number of times I've heard, "Well, I told

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Merrill about it!”) and helps us avoid situations where problems are only discovered in the field the next day.

As I tell my staff: “Put it in writing, cover your own behind and be sure that the equipment is ready for you when you need it.” It’s that simple!

operating ease

Through the years, the systems outlined above have worked well in keeping us on track, on schedule and moving forward. Each of our crews has a specialty – masonry, for example, or carpentry or planting – but we’re small enough that everyone is cross-trained to do or assist in other crews’ activities.

While the expensive power tools and equipment are pooled for everyone’s use, we also issue each crew its own set of hand tools (shovels, rakes, brick hammers and other basic landscaping necessities). Just before the beginning of the season, each crew chief comes in and assesses his or her

needs, putting together tool-request lists and compiling all they need to hit the ground running when the weather breaks.

Once everything is assembled, each crew selects a color that is then painted on all of its tools to simplify keeping track of them on job sites and reclaim them if they’ve been borrowed by another of our crews. I know that tools wear out and break from use, but I also try to spot abuse and neglect and also keep track of losses that occur when employees leave tools on job sites or accidentally throw them away when disposing of debris.

As I explain to them in our meetings, replacement costs come right off the bottom line, so we all need to do our best to take care and keep track of our tools. As mentioned above, going to a local store to buy a tool that was lost or forgotten is always costly – and it’s even more unacceptable now in tight times.

What we try to do is create an environment in which employees accept ac-

countability for their tools and equipment. It’s up to them, as users of these key assets, to be sure these devices are kept in tiptop shape and cared for appropriately, and it’s up to me, as their employer, to be sure that they have what they need to do their jobs effectively and well.

Since we’ve implemented these procedures, we have, with Watson’s help, cut our equipment-repair expenses by more than 50 percent. Again, that falls right to the bottom line, but it also makes us more productive and therefore more profitable – and helps keep the gray hairs off my head! **WS**

Bruce Zaretsky is president of Zaretsky and Associates, a landscape design/construction/consultation company in Rochester, N.Y. Nationally recognized for creative and inspiring residential landscapes, he also works with healthcare facilities, nursing homes and local municipalities in conceiving and installing healing and meditation gardens. You can reach him at bruce@zaretskyassociates.com.

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Keeping Pace

By Mike Gambino

From my perspective on the design and installation side, I see bringing landscape lighting to a property as a process that includes careful planning and execution as we compose the different scenes and lighting elements; count and select fixtures; lay out the power-distribution system; install everything properly; and, finally, fine-tune it all before turning things over to our clients.

Looking at it from the other side, it's been my observation that clients approach these projects with an equivalent level of deliberation: Even among relatively affluent clients, landscape lighting represents a significant investment – definitely *not* something they approach impulsively or on a whim.

In other words, it's rare that bringing light to exterior spaces involves much by way of spontaneity or day-by-day (or even moment-to-moment) improvisation.

Lately, however, I've been involved in one of

In many ways, these clients are a dream come true. They're nice people, they love my work and they've engaged me in a steady stream of projects since we first linked up.

those rare, unconventional projects – one that has called on everything I've been able to muster with respect to adaptability, creativity, technical finesse and personal commitment. The best way I've found to describe it is as a free-flowing, organic campaign in which one never knows what the next day will bring.

one thing to another

To set the stage, my clients own a 275-acre ranch in the hills overlooking the sleepy seaside enclave of Carpinteria, Calif. – a place better known for long-board surfing than for well-to-do citizenry. The clients call it a “weekend retreat” (their primary residence is in Beverly Hills), but it's also a full-time, working horse ranch and avocado grove.

I first became involved with them last year, when I installed lighting for two beach houses they own in the same area. They liked my work and decided to bring me on board for work on the freshly purchased hilltop property.

To say this has been quite an undertaking is a huge understatement. So far, the clients have worked with four different landscape architects and numerous contractors – and we're a long, long way from being done. Most of the work to date has taken place on just two acres surrounding the main house, which is perched on a rise overlooking the ocean, the avocado trees and the equestrian facilities.

Located on a lower section of this project are three new guest cottages designed as replicas of bungalows found at the famous San Ysidro Inn in nearby Montecito, Calif. At this writing, we're currently working around the cottages, which are eventually going to be associated with some beautiful lighting effects, including several unorthodox fixtures that will hang from specimen trees. As this work has moved forward, we've also been putting finishing touches on spaces around the main house.

In many ways, these clients are a dream come true: They're nice people, they love my work, they've engaged me in a steady stream of projects since we first linked up at the beach houses and they have the wherewithal to do as they please, no problem. They are, however, *extremely* particular in their likes and dislikes and have no qualms whatsoever about ripping up entire landscapes and starting over from scratch.

Continued on page 24

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In fact, I'd have to say that *revision* and *expansion* are defining characteristics of the project to date.

I should have known what was coming: When we started on the beach houses, they were adamant that they wanted to keep things simple and straightforward. Their resolve didn't last long: As soon as they'd see one area lit, they would immediately expand the scope of the project to include other areas, often with more elaborate lighting treatments.

The same has happened here: We started with the main house, again with a "simple and straightforward" mandate, but every time we'd finish an area, they'd immediately jump in with a desire to expand what we'd done into another space, always adding more and more lights, layers and textures. And it's not just the *lighting* that's been dealt with in this way: The area around the main house is currently in its fourth sweeping, major revision – including the demolition or relocation

of significant hardscape structures with each iteration.

master plan

The clients purchased the property as a fully functioning ranch, with the existing main house, orchards, avocado groves, corrals, equestrian competition rings, barns and more. It's a bit like entering a small, isolated town: You drive onto the property and pass a variety of buildings and facilities as you travel a long, winding road up to the main house with the Pacific Ocean stretching out beneath you at almost every turn.

When I arrived on site, I discovered that the main house was already surrounded by an antiquated (and completely inadequate) landscape lighting system. Along with almost every landscape element in striking distance, the old fixtures were ripped out and discarded.

Working with the clients and their design team, I planned out several light-



Working in spaces subject to immediate, total revision has been difficult enough, but the requirement that all of the lighting – with some 300 fixtures in place – had to operate in response to a *single* photocell was a magnificent complication for a project that's been full of twists and turns.

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ing areas, designing one zone at a time, making power-need calculations and then waiting for the electrician to place the requisite subpanels. This all took place amid a virtual beehive of activity, with excavators, masons and carpenters everywhere, alongside crews craning in mature specimen trees.

To protect my lighting systems, I made an early decision to install all the wiring in conduits. I typically use direct-burial cable, but in this case I was legitimately concerned that any unprotected lines would be subject to damage given the nature of the ongoing work around the property.

From the start, there were complicating factors. For one thing, the clients wanted the entire system to be triggered by a *single* photocell, meaning all the lights would come on simultaneously each night. That *sounds* simple, but in a system with so many zones and circuits, we had to improvise a complex system of relays to synchronize everything.

It didn't help that we were working with fundamental line-voltage power issues: All of the up-lighting for the trees was set up on dimmers, which result in line-voltage lamps functioning at lower outputs even with the dimmers fully ramped up. At the same time, many of the other elements we installed (including mushroom-style flood lights around the perimeter of the area and tree-mounted downlights) all put differing loads on the existing power system

Much of the lighting is there for nighttime safety – not so much from human intruders as for wildlife. We've been told that there is a bear who stops by from time to time, for example, and that there are several coyotes. I personally had an encounter with a mountain lion: Happily, he seemed to be as terrified of me as I was of him. And that happened *during the day*, so I can only imagine what comes prowling at night.

As designed, the down lights in the trees come on every evening, all year 'round, along with the low level spread-lights at the perimeters of the upper property. When the clients plan a visit, their property manager arrives before them to tie all of the other lighting to the photocell trigger, set the dimmers and make certain all is as it should be.

rearranging furniture

This entire program would have been complicated enough to design and install if what I've described so far was all there was to the project – but there was much more to it than that.

Once we were started, in fact, the challenges just kept multiplying because the

clients have *continuously* revised the landscape. Time and again, for example, they've moved mature trees around the space in the way typical homeowners might move furniture around their living rooms.

What typically happens is that the landscape contractors will get an entire area planted, arranging and rearranging every

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detail until the clients are happy – and then I'll come in and light it. Almost invariably, however, the clients will decide to change major elements, so we start all over again.

For my part, that means removing fixtures, pulling cables out of conduits and, most times, redirecting conduit runs to new locations, often around existing structures or structures that are in the process of being revised. Then I redesign and reconfigure the power distribution and reinstall the entire system. It would all be frustrating beyond belief if what was going on wasn't *interesting* in so many ways.

At long last, our work around the main house has drawn to a close (or so we all hope). Now as we focus our efforts on the three guest cottages, we've noticed the same processes of revision and expansion starting up once again. We *did* begin with a set of plans, so things unfolded in typical fashion, but even at an early stage of this current project phase,

the original layout has already been discarded and everyone on the project is operating in the improvisational mode we became accustomed to in working around the main house.

I have to say that, on some level, I'm the one who's responsible for the constant revisions: Fact is, the clients are enthralled when they see the landscape come to life at night. We're working with beautiful sycamores and olive trees and a host of other beautiful trees and plants, and when we layer everything and hit the trees with up-, cross- and moonlighting, the clients have typically decided that they want more of the same.

This isn't unusual. Indeed, I frequently run into this desire for enhancements when clients see their landscapes lit up for the first time, no matter the size or scope of the project. There's something infectious about well-lit exterior spaces, which is why I don't see what's happening here above Carpinteria as anything



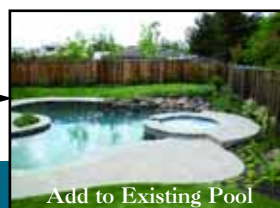
While the lighting of the trees and landscapes has dominated our work on site, we've also worked on more intimate spaces where the lighting of pottery and sculptures has been the order of the day. In this case, the effect we created with this urn beside the driveway led to mirroring the look in a feature on the opposite side of the house.

Turn This



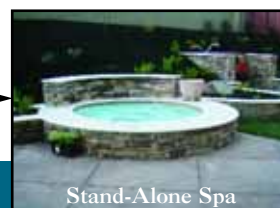
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other than the same sort of impulsiveness – only on a grand scale.

In fact, just when we all thought we were finished with the areas around the main house and were finally devoting full attention to the cottages, I showed up and was told that the clients had just added a set of four mature California pepper trees to a new patio area. Apparently, they'd just realized that what had been a stretch of lawn would be absolutely perfect for a private seating area overlooking the ocean.

So now we're all working on this new patio space, accommodating the pepper trees and making certain the lighting is just so.

final scope

In no way do I mean to make this work sound like drudgery – far from it. Along with the more common lighting applications, for example, we've also developed a number of special areas with sculptural lighting and have established a num-

ber of vignettes both large and small within the grander spaces.

One of my favorites is a beautiful focal point on the driveway up close to the main house, where the first thing you see is a waterfeature consisting of a large urn with water spilling over the rim and down the sides. We placed several submersible lights inside the urn and then lit it from all around – such a beautiful detail that we echoed it with a waterfeature at the back of the house as well.

In all, our work around the main house called for nearly 300 fixtures on 18 transformers – so far, that is. The systems around the cottages will likely require similar fixture counts, and we know there will be more to do by way of path lighting and some wonderful effects we've planned for small garden spaces woven among the cottages.

As the old saying goes, past behavior is the best predictor of future behavior, so I have every reason to believe that these

highly creative and ambitious clients will continue to revise things for the foreseeable future. That thought in mind, I'll almost certainly return to this site from time to time in these columns to let you know how things are going.

After all, it's not every day a project like this comes along. So far, I have to say it's been both challenging and fun to keep pace and, more important, enjoy the ride – especially because, as we were putting the finishing touches on this column, the owners of the property awarded us the contract to illuminate yet another cottage on the property. Stay tuned! **WS**

Mike Gambino owns and operates Gambino Landscape Lighting of Simi Valley, Calif. A licensed lighting contractor since 1990, he has specialized since 1995 on high-performance, low-voltage systems. He may be reached via his Web site: www.gambinolighting.com.

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To Colorado pond/stream specialist Dave Garton, a certain 'flexible responsiveness' is the quality of utmost importance in all of his watershape designs. It's an approach, he says, that calls for a keen understanding both of the setting and of what makes his clients tick – a dual awareness he puts on eloquent display here in discussing how he maximizes the personal appeal of his designs even as he works across a broad range of project types and styles.

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By
Dave
Garton

f r a m e s

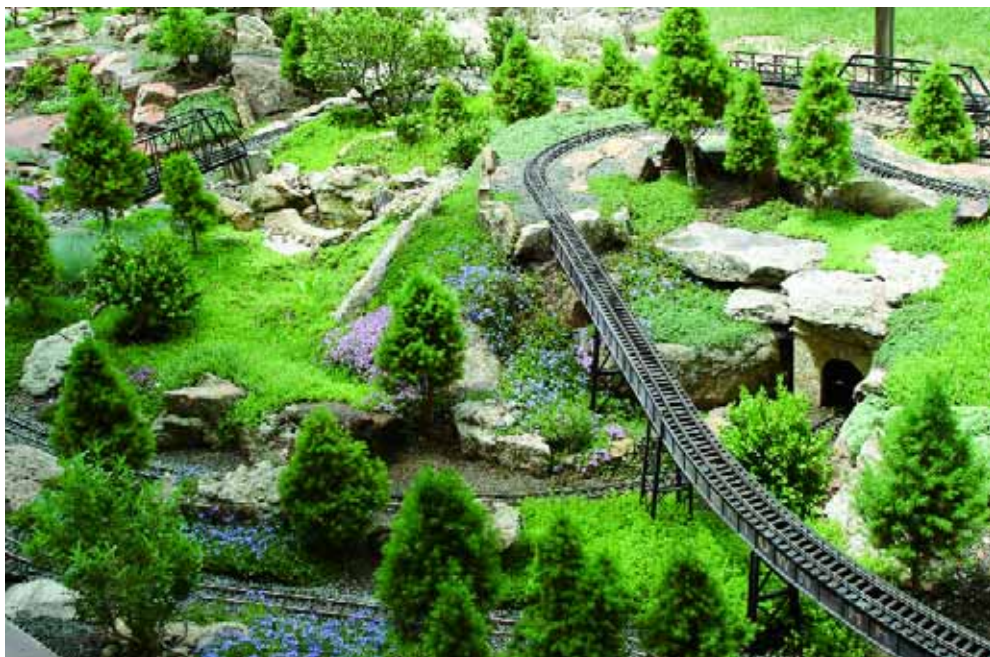
No matter how much I talk or write or think about how I use water in landscapes, it never ceases to fascinate me. From childhood days of playing in the rain and watching as water formed puddles, flowed along gutters and ultimately disappeared into storm drains through to my grown-up work as a watershape designer and installer, this fundamental amazement and the intrinsic appeal of water have always been part of my life.

Along the way, I've always been interested in the language associated with things aquatic and how words tell water's story. Thirst, quench, drench, roil, gush, splash, trickle, rain, wave, surf, bathe, float, tidal, gurgle, dive, freeze, boil, cascade, rivulet, torrent, cleanse, soothe, refresh – these and many other colorful, evocative words speak directly to a vast array of life experiences, images and sensations that cut to our emotional and spiritual cores.

This is where watershaping starts for me: When I'm designing any type of feature, these words and associations are never far from my mind. I use them as tools the way other people work with pencils and paper, drawing on a powerful, shared lexicon as the basis for my interactions with clients and in finding ways to use water effectively on their behalf.

sense of place

In effect, I see watershaping as an exercise in frame-making: We are in the business of finding the best ways to frame this wondrous material, and the physical possibilities we work



with are as infinite and varied as is this most primal of nature's elements.

In philosophical terms, this means that I don't see what I do as creating water-features; instead, what I do is forge links between the water and surrounding spaces. Sometimes that means connecting ponds with distant mountain views. Other times, it's about fashioning intimate gardens in the confines of small corners of clients' backyards – or establishing flows alongside paths connecting one space to another.

Although this is largely an intuitive process, I consider a clear set of timbers as part of the framing process – typically starting with the visual boundaries of the space.

Working mostly in the glorious Rocky Mountains, I'm often confronted by expansive views and by the need to use water to create elegant visual transitions from private spaces to the seemingly infinite grandeur of the natural landscape. There's no way to "compete" with such vistas, so the challenge comes by way of creating the feeling of linkage between what I'm doing and what everyone who enters these spaces will immediately see.

The viewers in these cases come away with the impression that there is no separation between the distant prospect and a scene that is only a few feet away – or right where they're standing.

Not all of my clients, of course, have such views at their disposal. When I work instead within discernible confines – surrounding fences or hedges or tree lines or walls or homes – my goal is to establish intricate, intimate tableaux that have their own internal charm and variously engaging details. These concentrated designs very often will complement adjacent structures, harmonizing with their colors, lines and textures. It's typically work on a smaller scale, but it conjures the same sorts of visual and emotional linkages I seek in more open spaces.

My approach to scale, incidentally, was changed forever during 2007, when, for some reason, I found myself doing several projects in which I contributed waterfeatures to the landscapes of elaborate G-scale model railroads. These were fascinating projects, basically because they forced me to abandon my conventionally naturalistic, Rocky Mountain-sized approaches to scale as well as perspective.

Those railway projects were unusual, to be sure, but they made me aware of how details functioned on much smaller scales than those in which I'd been accustomed to working. Rather than letting water elements take over and become expressions of my own expectations and ego, ever since those railroad

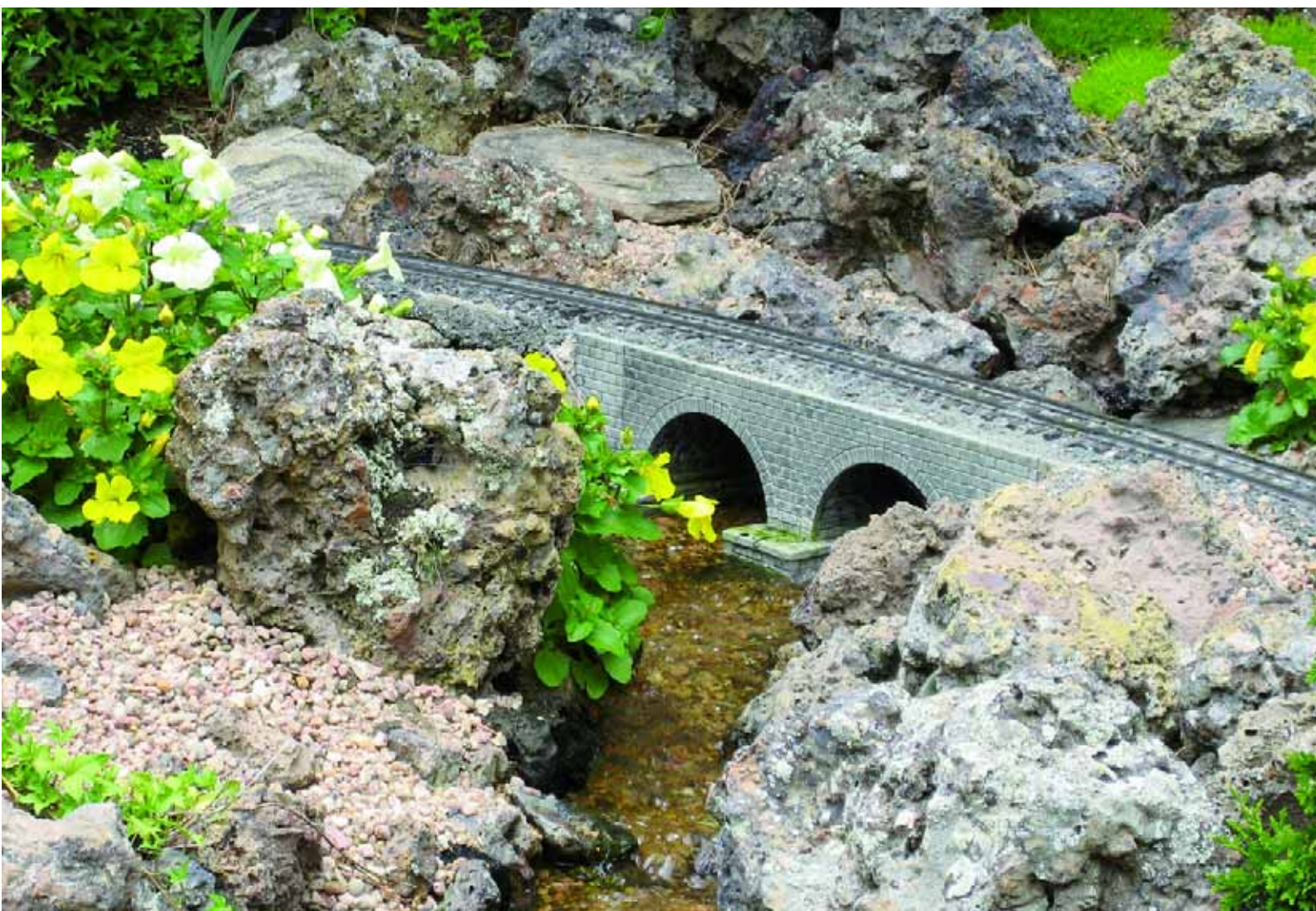
I learned a lot about how I approach the design process a couple years back when, for some reason, I found myself involved in a number of garden-railway projects. The attention to detail required to make these clients happy was phenomenal: It forced me reconsider the grander, Rocky Mountain-scale with which I was so familiar and taught me to look at scale and perspective in much more intimate ways.

projects I've become even more sensitive to surrounding environments and have seen the advantages this fresh outlook has given me in creating visual linkages and establishing frames within smaller settings.

cerebral landscapes

Water also has a kinetic side of which I'm very well aware – especially in projects where it moves along some kind of pathway or thoroughfare. In these cases, I'm conscious of how people will pass through the space relative to the water's movement and see this as another way to frame their aquatic experiences.

I recently, for example, completed a project for a couple in which the husband had created a series of flat, curving concrete paths through the backyard to make things easy on his wife, who uses a wheelchair. These structures tightened the spaces I had to work with, but that didn't relieve me of the responsibility I had to



create features that looked good and that were interesting up close while complementing a distant vista.

In this case, I used the water to convey a rhythm, starting with a quiescent pond that fed brisk streams and falls that flowed eventually to a tranquil collection pond. I had only a few inches of vertical transition available to conjure these effects—a situation that isn't unusual for me despite the fact I work in a mountainous place.

If you know what you're doing with moving water, you're aware that you don't really need dramatic elevation changes to create beautiful, flowing streams. The water can be induced to gurgle, bounce, sheet, drop and have different sounds. In fact, an orchestra can be conjured with a small vertical drop, and I often end up toning these elements down, using subtle methods of concealing water sources and making them seem as natural as possible as they emerge from around flat rocks or small welling pools.

This lower-key approach is applied



This project was all about accommodating specific client needs. The husband had set up these concrete pathways for his wheelchair-using wife, and it was my responsibility to use them to frame a watershape that not only looked good but would also brighten their experience of their yard and the views it offered.



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even in my large, more dramatic systems: I like horizontal rockwork, subtle waterfalls, cascading streams and glassy, reflective surfaces. In the natural hierarchy of the world, water elements are lowest, so to have water sources placed at artificially high levels simply isn't appropriate. As I see it, if anything is going to compete with the verticality of the Rockies, it's a challenge best left to trees!

In all of this, I am aware of the fact that, to be truly effective as a designer, I must occupy the environments that exist in the minds of my clients. I've found that if I listen carefully and am patient about the process, most people actually have wonderful capacities to visualize what they want. They might not be particularly adept at *expressing* those desires, but if I take my time and listen, I've always been able to extract what they're "seeing" and combine their ideas with my own.

That's part of why I call my Lakewood,





Colo.-based company Lawn Chair Productions: It's a quirky name, of course, but more important, it speaks to the fact that with every project I tackle, I just *sit* with my clients, often as not in lawn chairs, and spend time looking *with them* at spaces where water will be placed.

Much of the time, we don't even speak directly about the project. Instead, we let the conversation wander where it will across a range of subjects. Invariably, this non-directed, restful conversation takes on meditative qualities that end up giving me valuable insights into what they're imagining.

people and nature

I believe that all of the sitting and looking is very important, because the places I chose to sit with them are precisely the points from which my clients will observe and generally come to enjoy their watershapes – resting by the water, relaxing and allowing their minds to drift. By placing them in that spot and fostering a contemplative outlook, I help them unlock their ideas



Although I often work on grand projects that take advantage of the Rocky Mountains, a great many of my clients live on the flats in lots that offer little or nothing by way of elevation change. As I see it, these projects give me the opportunity to frame the experience of the great outdoors in confined spaces by subtly contouring their yards and using small vertical drops that bring sound and the visual joys of water in motion into their lives.

and develop their own sense of the frames we're developing.

This method is so effective that even when clients resist investing their time in this way, I have taken to insisting (gently, of course) on their participation as a pre-condition for my taking on their projects. I do so knowing that, with some of my clients, projects have taken up to three years to take shape in their minds' eyes!

These conversations, as suggested above, take place in a spot I've selected as a point of departure in organizing primary focal points. Once preliminary ideas begin to emerge, we can move to other locations – opposite angles, for example, or views through windows or along projected pathways. During this time, I'm paying very careful attention and glean the minutest details of how the clients think, drawing specific inspiration from how they've decorated and organized their homes. (As a rule, their book collections offer veritable treasure chests of insight.)

Sometimes, for example, if I've noticed that clients have an extremely orderly garage, it prompts me to think of more structured designs with distinct boundaries and lines. If that same garage is a mess, I look for other cues that indicate a more chaotic or freewheeling lifestyle and may light on a more naturalistic treatment in which the water is fused almost imperceptibly into the landscape.

There are no hard-and-fast rules in this process: Every client and every setting are different, and I rely on my years of experience in organizing outdoor spaces to drive a highly individualized, highly intuitive collaboration.

right angles



Through the past few years, I've found myself taking on more and more projects in which I've combined the natural sensibilities of pondcraft with the distinctly formal characteristics of architecture. In many of these situations, I end up working with contrasts and finding ways to create the impression that old fountains have been around so long and have been the subject of such neglect that purely natural ecosystems have taken up residence in the water.

I generally start with square or rectangular ponds framed in weathered stone – perfect design solutions in courtyards or other small spaces because they work so well with other structures (including nearby swimming pools) and create general feelings of the unexpected. They also can be used to inject a sense of timelessness, as though these aged structures had been battling with nature for decades or even centuries.

Some of these watershapes are very small (and inexpensive) – sometimes no more than small flows of water brimming out of a square basin into a surrounding bed of river rocks. Others are elaborate (and costly), as was the case with a project I did last year in which an extremely expensive carved-stone Spanish basin from the 1600s was deployed as a sculptural feature that flows in spring, summer and fall but is dry through the winter.

In many of these architectural features, I still use natural stone within the confines of the frames, along with aquatic plantings and fish in some cases. The concept is that you approach a feature that appears to be architectural and in harmony with adjacent structures or formal spaces, but when you get close enough to peer down into the water, you discover and are rewarded by the presence of nature in wild-seeming forms.

– D.G.



Once a clear set of ideas forms in my mind, I become far more specific in making suggestions. This is when I find out how well I've managed to align my insights with the realities of my clients' ideas and visualizations. Most of the time, I come very close, but there have been cases where I've made suggestions that haven't caught hold – so I'll back up and offer alternatives, comforted by the fact that it's often just as important to know what clients *don't* like.

Atop all of this is the fact that my clientele's tastes are subject to trends that come and go. A case in point is that ban-

ner year of 2007, when outdoor railways seemed to be on more than a few minds hereabouts. But there are also larger, non-localized trends that come into play, such as the ongoing cocooning trend and the desire many folks have to establish backyard oases – or the vogue for interactivity and the desire to create safe play areas for children and even pets.

The outcomes with the latter trend have often been fun, as in designing streams that are set up in such a way that kids can build dams, redirect the water, have boat races or simply float leaves or twigs down their streams. (I know it is

a successful project when I turn around and the kids and family pets are already wading in the water!) On an adult level, this has often meant positioning large, solid, flat rocks at the water's edge for sitting or for close observation of ponds or streams. Occasionally, it means setting up shallow areas to attract birds.

In sum, I design with water in such ways that my clients are able to enjoy and appreciate their lives relative to the water and in conjunction with the natural world in which we all live.

To me, that's what "framing" water is really all about.

It intrigues me that my work on highly detailed, smaller-scale and (often) flat-lot projects has had so much influence on the way I now approach projects in far broader settings. In listening carefully to my clients and working deliberately to determine their needs and desires, I often find myself using lower-key approaches – even in grand spaces.







Last year, the project team planning Canterbury High School's new aquatic center brought in watershaper William Drakeley to discuss the facility's state-of-the-art competition pool. Before he could start, however, questions about how it should be built involved Drakeley in educating the project team about the distinctions between shotcrete and cast-in-place concrete – and which should be used in creating what was to be a huge, monolithic shell.

By William Drakeley

Every so often, our company is confronted by the belief among certain design professionals that, as it is used by the pool industry, shotcrete is simply not viable for use as structural concrete in high-profile watershaping projects. The assumption, I've learned, is that the pool industry is filled with contractors and specification writers who know little about the material and therefore tend to produce substandard results.

I could argue the merits of the case, but let it suffice to say that the upshot of this widespread belief is that institutions and commercial clients hesitate to use shotcrete and instead prefer cast-in-place concrete, which they perceive as having greater quality and reliability in watershape applications.

We at Drakeley Swimming Pool Co. (Bethlehem, Conn.) recently encountered exactly that sort of prejudice: An elite private high school that was in the process of designing and building a state-of-the-art aquatic center and an eight-lane, all-tile competition pool offered bid specifications that called for use of cast-in-place concrete, with shotcrete allowed as an alternative.

In approaching the project team, my challenge was twofold: I had to make our company attractive as a fully qualified contractor, but also and more important in my view, I had to convince them that, done properly, a shell made using the shotcrete-application process would be the better choice.

Core Values

Canterbury High School is a prestigious institution in the hills of western Connecticut. Built at the turn of the last century, the campus boasts architecture clad in dark-gray field-stone and has the look of something out of a Harry Potter movie. An Ivy League ambiance resonates at every turn, belying the fact that the facilities behind the walls are as up-to-date and modern as can be – including an array of first-rate sports facilities.

Before this project, however, the one glaring exception was the school's aquatic center. Our company had done some ren-

ovation work on the original pool – an antiquated tub old enough that at one time it used draw-and-fill circulation. At some point after our work was completed, an alumnus who'd been on the school's swim team in the 1950s passed away; in his memory, his family dedicated a multi-million-dollar bequest to construction of a new facility.

From the start, the design team made it clear to us that they were after the state of the art. The surrounding structure and amenities for swimmers and spectators were in the hands of top-flight architects, and the pool itself had been designed by Gary Schultz of Aquatica Pools & Water Parks (New York), which, as we observed, had done a wonderful job with the plans and specifications. The one exception, we believed, was their favoring of cast-in-place concrete for the pool's shell.

For bidding purposes, we'd been asked to submit information on a shotcrete structure for comparison to the cast-in-place architectural specification. They might have thought of this as a *pro forma* exercise, but we jumped at the chance to show why a monolithic shell made using the shotcrete process would be superior in many ways to a typical poured shell. (We were also motivated, of course, by the fact that we had the opportunity to build a top-quality competition pool that would serve a high-profile institution for decades to come.)

We felt we were operating from a position of strength. History has shown time and again, for example, that cast-concrete pools have issues with expansion joints and watertightness that sooner or later produce water losses that can never fully be addressed. Our aim was to prove to the project team and Aquatica's specification writers that shotcrete was a viable alternative if only because of its watertightness and structural longevity – not to mention the superior bonding it allowed with finish materials.

Our presentation obviously spurred a response. During the interview with the design group, in fact, the engineering committee quizzed us on what we were going to use as expansion or movement joints, thereby enabling us to explore with them one of the primary ad-



Delivering on the commitments we made to the design team was largely a matter of following our usual procedures for shotcrete application, including construction of solid, non-vibrating forms; installation of reinforcing steel to ensure complete concrete coverage; and a systematic, patterned approach to what was to be a multi-day shoot.



In this case, the pool was so deep that we kept an excavator on hand to ease removal of any concrete spoils or incidental rebound. Frequent tests were also conducted to make certain the shotcrete material was being applied at (or beyond) the specified strength.

vantages of shotcrete: There *are* no expansion joints, nor is there any need for using bonding adhesive between areas of concrete placed on subsequent days.

This bonding, we know, is a common concern among engineers, who often wonder how it's possible to create monolithic structures when material is placed over the course of many days.

Digging In

Now we were on a roll.

Using the opening they gave us, we explained that transitioning applications from one day to the next included preparing the concrete in a construction-joint format that sets us a 45-degree angle treated with a gun or broom finish.

Before new material is applied, any overspray or miscellaneous dirt would be carefully removed from all exposed steel, and the already-applied material would be maintained in what is known as "saturated surface dry" (SSD) condition so there would be no moisture or liquid changes between already-applied and new material.

We further explained that, by using proper velocity (that is, 375 cubic feet per minute) in the shotcrete process and thereby driving fresh cementitious material into the pores of the previous day's shoot, the result would be a tremendous physical and chemical bond attributable to the properties of cement paste.

Once that issue was cleared away, they raised a second question about what we were going to add to the concrete as a water- or damp-proofing agent to prevent leaks or possible damage to finish materials. (We knew this would be an issue for them, because test holes dug previously indicated that the water table rose to a level two feet higher than the bottom of the dig elevation during certain seasons.)

My team's response was simple: If pursued correctly, the shotcrete process is such that there would be no call for *any* water- or damp-proofing agent. This was another great opening, enabling us to explain that we would be applying a high-density, low-permeability, low-porosity material: The shell mix itself would be designed, engineered and installed to hold water on its own.

Now we called in our big guns, refer-

ring to three key documents published by the American Concrete Institute: *CP-60 (02) – Nozzleman Certification*; *506R – Guide to Shotcrete*; and *506-4R – Guide to Evaluating Shotcrete*. These publications defined the intended strengths and characteristics of properly placed concrete and completed the process of education we'd begun when our meeting started.

But while the project team knew a good bit more now than they had before, they were still hesitant to go out on a limb – either for me or for shotcrete – so I ended up taking that big step for them.

In retrospect, my proposal was really quite bold: We would *guarantee* that the pool would reach a defined minimum-acceptable concrete strength in 28 days and that the shell would be demonstrably watertight before finish application – all without any water- or damp-proofing agents. If those criteria were not met, we would rip the pool out and proceed anew with cast-in-place materials.

Basically, they couldn't lose and had lots to gain, so the design team ultimately awarded the job to us and the shotcrete process we advocated.

On Site at Last

By that time, the old facility had been razed, leaving all of us to start with a blank slate. Many trades were to be working on site for the duration of the project, so one of the primary challenges was working with and around the scheduling of other activities – a calendar that involved sporadic stops and starts.

As it turned out, we were first to get going, based on the concept that whoever goes deepest goes first. We began with extensive excavation, then installed a drainage/dewatering system to take care of any potential issues with the water table. Next, we installed a base of gravel atop which we began installing construction forms, steel and pool plumbing.

All forms included solid, non-vibrating members to eliminate the possibility of inviting any voids or shadowing in shotcrete application. Once that was complete, we installed the steel reinforcement for walls and floors that were to be 12 inches thick with offset, double mats of #5 and #4 bars set at 12 inches on center. We used PVC chairs and



Optimal concrete strength is encouraged when you discourage surface evaporation, so we do all it takes to keep the surface saturated during the shoot and throughout the 28-day curing period. Done properly, the integrity of the shotcrete surface is so high that the finish can be applied directly to the substrate.

wheel spacers for proper rebar separation and full concrete coverage and set guide wires for elevations, the multiple levels of the bond beam, the floor's slope and the walls' radiuses.

In all, the application required 350 cubic yards of material applied in seven days of shooting spread out over ten days in all. The mix design was set to achieve a minimum strength of 4,000 pounds per square inch after a 28-day wet cure.

We started in the radius sections where the walls and floor met to establish critical transition points, then shot the floor

in sections. We chose to work with the wet-shotcrete process rather than the dry-shotcrete (gunit) process because we had some control over the environment and could easily apply a high volume of material without straining our finishers – and while achieving the specified minimum strengths.

Once in the pool, we consolidated and leveled off each shot section with a power screed and then applied a light broom finish. Everyone was well aware that the pool was to be lined with one-inch-square tiles, so critical tolerances were maintained

throughout. After each day's shoot, we'd place soaker hoses to keep the concrete in a saturated condition. This allowed the mix water to stay within the concrete matrix, thus encouraging optimal strength gain with no surface evaporation.

As mentioned above, each construction joint was kept in an SSD condition, providing us with moist receiving surfaces – but not ones that were dripping wet, as we wanted to avoid changes in chemistry and water-to-cement ratios relative to new material we were applying. The pool was quite deep (sloping

Durable Efficiency

To the casual observer, the watershape at Canterbury High School looks like any other competition swimming pool – a standard 25-meter, eight-lane rectangle – but closer examination reveals every feature of this particular facility as being first-rate, from the lighting and HVAC systems to the pool's all-tile finish and surrounding decks.

The pool also boasts wonderful circulation and water-treatment systems more than capable of handling its 308,000-gallon capacity and turnover of 1,100 gallons per minute (that is, once every four hours, forty minutes).

The system is driven by a 20-horsepower flooded-suction pump from Paco Pumps (Brookshire, Texas), while filtration is handled by a 60-square-foot, stainless steel vacuum sand filter from Paddock Industries (Rock Hill, S.C.). The filter is a huge, open tank, fully automated with a 300-gallon-per-minute backwash flow that uses an air-scour blower. This sub-grade filter also has ample capacity to handle the bather surge.

The IFRS-ASR System 3 stainless steel gutter system, also supplied by Paddock, includes a tile fascia and combines the gutter with the return-plumbing system – meaning all the flow back into the pool is handled via the gutter, thus minimizing penetrations of the pool shell.

The overall system is designed for speed, minimizing wave action during competition and allowing for "automatic surge recovery," which means that if there's a sudden bather surge, an auxiliary pump activates, evacuates the gutter and momentarily reverses flow through three 24-inch-square main drains (each of which is equipped with a hydrostatic relief valve). This way, the gutters never flood to the point at which they might cause waves to rebound into swimming lanes.

Chemical treatment is handled by an automatic sodium hypochlorite system from PPG (Pittsburgh, Pa.) managed by a PC 6000 ORP controller from Chemtrol (Santa Barbara, Calif.). That primary system is supported by an ultraviolet treatment system supplied by Hanovia Ltd. (Slough, Berkshire, United Kingdom) that reduces chlorine demand.

– W.D.





The finished pool is a triumph on all levels – and testimony to the fact that shotcrete, when applied (as it should be) according to basic concrete-industry standards and procedures, produces non-porous, ready-to-finish surfaces that truly hold water.



from seven feet down to 12 feet), so we used scaffolds to work on the walls. We also kept an excavator with a long reach on site to facilitate removal of concrete spoils left behind by cutting and trimming and to dispose of small amounts of rebound.

Test samples of the concrete were extracted by an independent service hired by the design team. Technicians performed routine concrete analyses – including assessments of the compressive strengths of sample blanks. The first test sample was assessed after seven days at the lab, and we were all thrilled by the results, which came in at 6,200 psi.

Back on site, we let the concrete cure for 28 days. In the week that followed, we filled most of the raw shell with water and found no signs of leakage.

A Smooth Finish

After the mechanical systems were installed (see the sidebar on page 43), we applied the tile interior by placing its setting bed directly on the shot product.

This was possible because of the low

permeability and high density of the concrete substrate: There were no issues with bleed water or bonding ability; indeed, use of bonding agents or water-/damp-proofing agents would only have added a potential bond-breaker to the project. (This approach worked so well that, in fact, the design team is now using these specifications in other commercial projects throughout New England.)

It also helped that, even given the size of the project, the entire process went off in rapid order with very few glitches or delays. We began construction in June 2007 and the pool was commissioned in September 2008 inside a sparkling new building.

One factor that might have helped keep everyone on track was a “Netcast” arranged by the alumni association: They set up cameras on nearby buildings and put the entire project on the Internet, 24 hours a day, seven days a week. Knowing that we were being “watched,” all crews were aware that any on-site shenanigans were strictly off limits.

Everyone views the project as a tri-

umph, from the school, its students and alumni to the architects and design team who pulled everything together. For us, however, everything was sweetened by overcoming misconceptions about the shotcrete process in winning the contract: It was an effort that, we hope, will come to exemplify what the pool industry must do to change perceptions of the way we work. It’s also a clarion call urging pool designers, engineers and builders to pay attention to basic standards and procedures recommended by the American Concrete Institute.

I know that entire organizations have built themselves on the notion that pool concrete is supposed to be porous, have strengths of less than 4,000 psi and can be made adequate by applying some topcoat to make the vessel hold water. The plain truth is that this sort of approach has prejudiced much of the commercial design/construction community against the pool industry.

I’d say it’s time to accept higher standards – and then exceed them, project after project.

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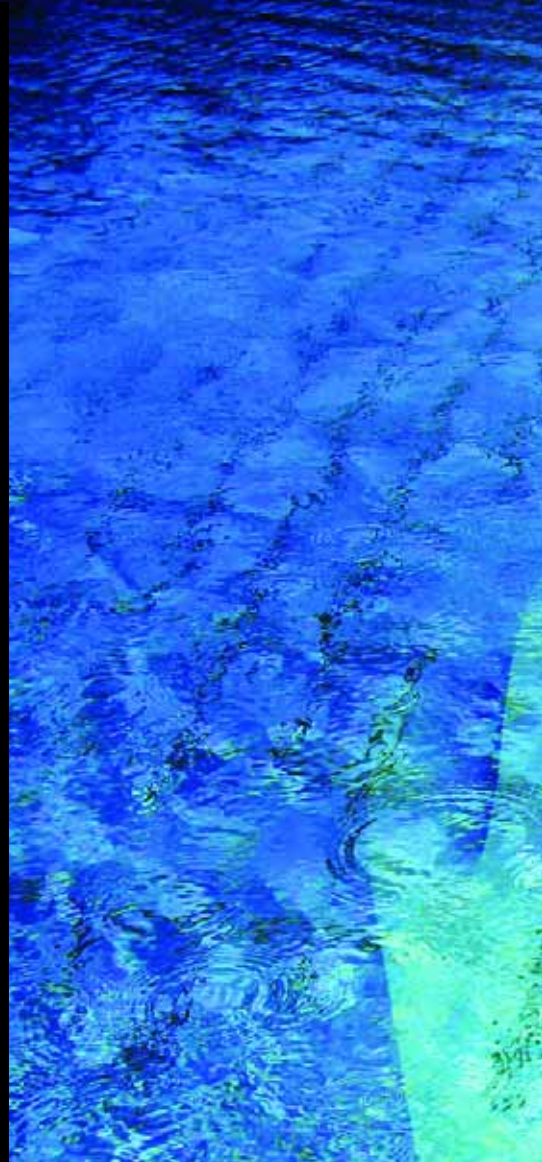


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Swimming to Longevity

By Steven N. Blair, PED

Delivering the keynote address to the World Aquatic Health Conference in September 2008, Dr. Steven N. Blair asked a simple question: Does swimming reduce your risk of dying? As he stressed then and repeats in detail here, the answer is a resounding yes. Indeed, the findings he offers stand among the most compelling reasons ever offered to promote swimming and other forms of aquatic exercise to the general public.



Medical science has long seen exercise as a crucial part of a healthy lifestyle. In fact, there's an *enormous* amount of evidence about its health benefits—so much that the U.S. Department of Health & Human Services recently stepped up with its first-ever guidelines for physical activity.

Lots of individuals, organizations and other entities have proclaimed the positive outcomes of exercise through the years, but never before had the U.S. government published an official set of guidelines.

These government recommendations were largely the result of a submission by an independent review panel that, after scouring volumes of research and hundreds of references in the medical literature, presented a 700-page report chronicling the role of exercise in health. Dietary guidelines have been around for a quarter century and have proved helpful, and all of us involved in studying the

effects of physical activity have been waiting for *years* for the government to get involved in promoting the healthful benefits of exercise as well.

Anyone can gain complete access the federal guidelines online at www.health.gov/PAGuidelines/ and via any number of other sources. The basic message: Any activity is better than nothing, and the average person should engage in at least 150 minutes of moderate physical activity (such as brisk walking) each week, or 70 minutes of vigorous activity (jogging or running).

Swimming, everyone should know, is listed as a source of either moderate or vigorous exercise.

a careful survey

For nearly 40 years, I've been studying data collected by the Cooper Clinic, a preventive medicine center in Dallas

that is part of a massive study known as the "Aerobics Center Longitudinal Study" (ACLS). The study team worked with more than 40,000 men from the ages of 20 to 90 between 1970 and 2003.

Each of the men submitted themselves to a rigorous physical evaluation, and in all cases their health was followed and documented up to 33 years after their examination or until death. I worked at the Cooper Institute as a research epidemiologist from 1980 to 2006 and led the ACLS.

The information that emerged from the ACLS is remarkable for a variety of reasons. For one thing, the sheer scope of the study—that is, how many people were involved and the length of time they participated—has provided investigators with a unique treasure trove of research opportunities.

Each participant entering the study



HEALTH

underwent an extensive preventive-medicine examination lasting several hours, and in 33 years more than 80,000 of these detailed examinations took place. Better still from my perspective, each man was subjected to a standardized “Maximal Exercise Test” on a treadmill – meaning exercise researchers are able to pinpoint each participant’s fitness levels at the time they entered the study.

Moreover, a very high percentage of these people were also checked for percentage of body fat and waist circumference, so we’ve also been able to relate observations to body composition.

Using this vast resource, researchers have been able to look at death rates relative to an individual’s level and type of physical activity. Everyone eventually dies, of course, but in researching mortality, we now look at groups of people and various factors and can follow them

forward in time to examine their deaths and draw comparisons to the various factors studied among members of the group.

Right off, we found that swimmers had significantly lower risk of all-cause mortality compared not only to those with sedentary lifestyles (which was something we had expected), but also to either walkers or joggers. The plain fact is that swimming, water jogging and aqua aerobics are physical activities that can be pursued for a lifetime and have benefits comparable and possibly superior to those found with walking or running.

Direct information on the association between swimming and mortality is, however, a good bit thinner than it is for those other activities, basically because swimming was an activity pursued by fewer study participants.

Even so, a total of 3,386 deaths oc-

curred through 543,330 man-years of observation. After adjusting for age, body-mass index, smoking status, alcohol intake and family history of cardiovascular disease, we found that the swimmers in the study had 53, 50 and 49 percent lower all-cause mortality risk, respectively, than did men who were sedentary, walkers or runners.

by comparison

Those are dramatic statistics, and although one might quibble over the number of swimmers studied relative to the number of walkers and joggers, these are the percentages that emerge in this study. In many respects, it’s surprising to see such dramatic differences between swimming and the other forms of exercise. It begs the question: Is swimming better for you than walking or running?

I'm not sure we can reach such a conclusion, at least not yet. This is, after all, the first study that has examined mortality while comparing types of physical activity. And frankly, where I wasn't particularly surprised to find that swimmers on balance tend to live longer than people with sedentary lifestyles, I'm not prepared at this point to say it also has greater benefit than walking or running. Certainly, I believe the information at hand is provocative enough that it warrants further study.

Even without more research, however, we know with clarity that swimming is useful in recovery from various types of injuries – and that there are factors including the buoyancy involved in being

that *any* activity, certainly including swimming and other forms of aquatic exercise, is very good for you. In fact, our findings align perfectly with other studies related to all-cause mortality and physical activity in comparison with sedentary lifestyles: Higher levels of physical activity decrease the prevalence of cardiovascular disease and cancer; those benefits, in turn, decrease mortality risk.

Where those other studies are most immediately helpful is that, in looking at various types and levels of physical activity and common diseases, swimming has been determined to be largely comparable to jogging, which is itself a bit more beneficial than walking.

we can say with complete certainty that people who are physically active live longer than those who aren't.

Furthermore, there is mounting (and compelling) evidence that people who are physically active not only live longer, but also retain physical function far longer into their lives than do those who do not exercise. And now we're seeing some evidence that physical activity contributes to retention of brain function as well.

On a most fundamental level, what this means is that, if you want to stay out of a nursing home and lead a fully functional life, you need to get into some form of exercise program: It's the best insurance policy you have



There is mounting (and compelling) evidence that people who are physically active not only live longer, but also retain physical function far longer into their lives than do those who do not exercise.

in water that may be implicated in a range of other benefits. Whether we can go from there to say, "There's reduced risk of dying with swimming compared to other activities" – well, that's a leap we cannot responsibly take based on this study alone, no matter how intriguing the findings may be.

As suggested above, part of the problem in comparing swimming to other forms of exercise is that swimming is *not* the most common activity in the study group. Even with a project as sweeping as the ACLS, we were only looking at 562 regular swimmers out of the 40,000-plus men who participated; among those, there were 11 deaths. With a sampling that small, responsible researchers will be cautious about drawing conclusions or over-interpreting the data.

In any event, what the study *did* show – and conclusively, I think – is

Clearly and conclusively, swimming and other activities dramatically reduce the risk of chronic diseases.

sitting still

The main message in all of this research is that a sedentary lifestyle increases the risk of chronic diseases, diabetes and some forms of cancer – not to mention the likelihood of suffering a heart attack. Inversely, the message is that physical activity reduces those same risks and that sedentary people carry twice as much mortality risk than those who lead active lives.

In research projects in which, through the years, we've studied fitness levels by running subjects through maximal exercise tests on treadmills, low fitness is one of the strongest predictors for these common/chronic conditions. Based on this and other research about longevity,

when it comes to achieving your long-term objectives.

As self-evident as these conclusions may seem, there remain misconceptions about fitness that need to be addressed. First and as mentioned above, the ACLS provides extensive data about body fat and waist circumference, and this has enabled us to look at the relationships between exercise and various risk factors.

In some areas, the results are surprising. Although obesity, for example, is currently considered a national epidemic, what we're learning is that carrying excess weight is not nearly as great a threat as a sedentary life. In 1996, in fact, I published a paper examining obesity and fitness that indicated that someone who is obese but fit (and can prove it on a treadmill) is at far lesser risk of chronic disease than is a thin person who

is *not* fit. In fact, unfit people who are at so-called “normal” weight are about twice as likely to die as obese people who exercise regularly!

In other words, fatness and fitness are two different things, although no clinician will ever counsel either an obese or a fit person not to exercise. I often put it this way: We all know someone who is skinny and unhealthy, so why is it such a stretch to allow that we also know people who are fat and healthy?

Again, the issue is fitness. If you look at other so-called risk factors (high blood pressure, diabetes or even smoking), we find the same sorts of relationships. For example, we have found that people who are physically active (but who also smoke) are at less risk for some chronic diseases than are non-smokers who are sedentary.

Of course, we’re not saying that obesity and smoking are good. Indeed, there are clearly risk factors associated with both. But it’s accurate to point

out that physical inactivity presents even greater risks: That’s how important regular exercise is!

in perspective

Whether or not swimming is truly superior to other forms of exercise is an open question and one that should be explored in future studies. I, for one, will look at those findings with great interest.

Beyond that, however, research done to date—research that prompted the U.S. government to intervene in our lives and recommend exercise as a life-lengthening investment—offers a take-it-to-the-bank idea that cannot be overstated. Physical activity, as now defined by the U.S. government, is good for you. Good for all of us, in fact, because it reduces the risk of serious chronic diseases and clearly contributes to longer, healthier lives.

And, you can get that exercise by swimming: What a wonderful reason to get in the water!

formal findings

A full report of the findings discussed in the accompanying text is found in “Swimming and All-Cause Mortality Risk Compared With Running, Walking, and Sedentary Habits in Men,” by Nancy L. Chase, Xuemei Sui, and Steven N. Blair. It originally appeared in the *International Journal of Aquatic Research and Education* (Human Kinetics, Inc.) and reflects work done by the authors in the Exercise Science Department at the University of South Carolina in Columbia.

This report can be found at www.NSPF.org along with a video of my 2008 keynote address to the World Aquatic Health Conference.

— S.B.



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Balancing Act

Michael Nantz has built a reputation for success in design work across a range of styles and settings. Here in words and images, the Dallas-based watershape designer and builder leads us through a set of recent projects that put him to the test, forcing him to work with challenging sites and more than a few quirky client requests – and, invariably, pushing him to balance his instincts against the needs of his projects in developing creative solutions.

Through the past few years, a number of my most interesting projects have been all about revising outdoor environments for upscale residential clients, generally with the thought in my mind of integrating exterior and interior spaces. That seems simple enough, but these tasks have frequently been complicated by unusual site features and the fact that what clients want at the outset isn't exactly what the site seems to require.

In a few of these situations, I've needed to reset the stage entirely by remodeling significant architectural elements of the house to fuse indoor and outdoor spaces; in others, I've had to revise and reconfigure everything on site except the house. As I roll through these various scenarios, the thought I always keep uppermost in mind has to do with making everything seem as though we're working off a master plan, despite the fact that the actual processes always involve adjustments and on-site improvisations.

The key to success, I think, has to do with managing transitions between materials and blending various design components and elements so that colors, textures and, in some cases, lines all flow seamlessly into one another.

Finding Harmonies

The difficulty in approaching these projects simply as matters of interior/exterior design integration is that this is seldom the way the clients are thinking about things when we first get together.

Bringing them around to this all-encompassing point of view can be difficult, primarily because they very frequently have thoughts about how everything will eventually look that *don't* involve integration on any level. This leads me to start by defining the harmonies that emerge when one space flows easily into the next.

If they take to that idea, I get them to evaluate their home and its surroundings and begin a process of deciding what can stay the same, what needs a fresh start and, where conflicts still exist, what we can do to expand and enhance their original design vision into a workable, integrated plan.

Sometimes, the process flows smoothly and all my work takes place outside in a defined footprint for a watershape. Most of the time, however, the integrative process requires us to remodel a part of the house, completely revise the total outdoor environment or invest a great deal of time and energy in developing and revising the design and adjusting it on site.

Projects of this sort require open-minded clients who are able to visualize opportunities and communicate effectively and thoroughly with me as we all move forward. When it all works – as I believe it does in the five projects highlighted here – we all make beautiful music together.

By
Michael
Nantz

Tuscan Exchange

In this case, the clients had lived and worked in Italy's Tuscany region and had both fallen so in love with its rusticated styles that they wanted to capture the essence of a Tuscan farmhouse in their Texas home.

One problem: The house was very traditional, with red-brick architecture that was about as far removed from Tuscany as anything you might imagine. Rather than saddle the home with a poolscape in a style that really wouldn't fit, we decided after some discussion to add onto the house and create a comfortable transitional flow into the outdoor space.

Working off the master bedroom suite, we opened the existing roofline to extend its ridge out to the swimming pool, establishing an outdoor "room" with a beautiful stone fireplace and dining area (A). We also used brick to echo the home's architecture – but, more prominently, we used a fieldstone familiar in Tuscan architecture in the column bases, the fireplace and in decking details around the pool (B).

We also conveyed the pool's rustic roots with a hammered stone coping and set up an antique urn as an overflow feature (C): By the time you reach the water's edge, you've gently and convincingly passed from a stodgy red-brick realm into the softer, natural textures found in the Tuscan countryside.



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Close Reflections

In this project, the clients had previously been given a free plan by a pool builder. Rather than take advantage of the beautiful contemporary architecture of the home, he'd pushed the pool well away and had offered nothing by way of stylistic integration.

My response was altogether different. When I saw the spectacular curved windows at the back of the house, I immediately started thinking about mirroring their sweep in the pool design and bringing the water up close to the house for a complete sense of visual continuity – so much so that it would seem as though the home's carpet ran right up to the water's edge (A).

The homeowners liked my proposal, and we set to work in placing the pool up against the home's foundation (B). My structural engineer (Terry Brannon of Tyler, Texas) and I discussed a method for recessing the swimming pool's beam into the home's foundation and effectively tucking the pool beneath the structure, but that was more than they would consider. This left us with a need to fashion a joint that could be

concealed by the finish material. To that end, Brannon worked out a structural detail for a cold joint in which the pool structure abuts the home's foundation.

We battered this edge away from the window to bring the water as close to it as possible. To hide the joint and conceal the window's mullion, we used a glass tile surface that enhanced the apparent interplay between glass and water and minimized the visual intrusion of the pool wall, in effect bringing shallow water right up to the bottom of the window. As we were preparing this detail, however, the client asked a simple question – “How will my window washers clean the outside of the windows?” – that led to a significant late-game adjustment.

After a bit of consideration, we added a bench six inches below the surface of the water right below the window. Not only would this be a kindness to the window washer, but it also added a nice functional element to the inside of the pool, as the homeowners could now sit in the water looking out over the vanishing edge toward the golf course beyond – a lower angle on the same view they enjoyed so much from inside the house.



A



Complex Contours

I was brought into this project on a consulting basis by Mark Clark of Clark & Sons Pools (Springfield, Mo.) to assist in the design process. When I arrived on site, the space seen here featured an enclosed brick deck on an upper elevation that had no connection at all to the grassy slope below or views to the greenbelt shared with neighboring properties. Now, by contrast, the revised site includes a brick courtyard that recalls the intimate spaces of New Orleans (A) and gives access to new viewpoints that fully exploit the property's potential.

Entering the backyard, you move through the brick courtyard into a central hub. From there, you can turn right to approach a rustic stone deck that includes a fire pit and a concentric stone bench backed up by landscaping. (Here and elsewhere, in fact, I blended landscape with hardscape by visually linking dark-colored stones, tile and interior finishes.)

Adjacent to the central hub, you can step down into a spa for a view that overlooks the entire space. To the left, we located a set of stone slabs stacked in stairway fashion and descending through a planted area and down toward the swimming pool.

My thought here was to create an impression of water flowing from the plateau and down the slope, using a dry streambed of river rocks that wraps around the spa before dropping down to the pool's level, continuing on the pool's far side and even-



tually leading to the fireplace (B).

The stonework fireplace structure on the pool level cuts off part of the view, but that's intentional, as it masks an outbuilding the owner uses for storage. The new structure now serves as a destination and entertainment area rather than as a stark visual intrusion.



A



B

Rugged Terrain

This project – another collaboration with Mark Clark of Clark & Sons Pools – is all about exploiting the bold, rugged stonework on the façade of the house and translating its look into my own strong statements in stone and flowing water (A).

The challenge in this case was finding the material I wanted to use in finishing the vanishing edge. I visited the biggest stone suppliers in the area with no luck at all – despite the fact that the terrain was dotted with just the sort of stone outcroppings I wanted. Finally, at one outlet I ran into a landscape contractor and asked his advice. He directed me to a tiny operation at the end of a small county road where I met “Ol’ Joe” – the archetypal homespun cowboy and also the owner and operator of the stone business.

I explained my situation, and Joe offered to



C

take me on a ride. We bumped along back roads and streambeds until our path was cut off by a fallen tree, at which point we set out on foot. Suddenly, Joe pointed to just what I was looking for: a small bluff about a yard tall and 50 yards long featuring an outcropping of solid stone. I let Joe know I wanted about 40 feet of it and he later extracted it in large pieces for re-assembly on site (B).

We set these stone pieces, each weighing two to three tons, on top of a natural ledge and allowed the water to fall freely across their surface features and into the catch basin (C). From the house, the pool works as a traditional vanishing edge, blending with the distant views (D). On the reverse angle, I designed a low terrace that invites everyone to come down and share the spectacle of the water flowing over the rock ledge.



D

Extreme Makeover

This project took off from one of the worst swimming pool concepts I've ever seen. Located in a beautiful wooded glen, the home features dramatic brick-and-glass frontage overlooking beautiful acreage – but someone had decided that the right thing to do was set the pool in a pit below the house. Worse yet, there was a waterfall from an upper level that flowed directly onto a deck beside the pool (A). It was, simply put, a nightmare.

To restore the site's sense of well-being, we devised a scheme in which we demolished the old pool, raised its deck level by 18 inches and, up above, created a new rock-ledge waterfall that now flows into a freeform watershape. As you might imagine, getting to this point in what was becoming an extensive remodeling project took months of design development – and continued to evolve once work began on site.

Chief among the emergent ideas had to do with the waterfall system: The flow originates in a group of stones set atop the cantilevered roof of the equipment room and an adjacent lavatory. (These stones share their space with an outdoor living room, bar and kitchen.) When the waterfall is active, water moves out across the extended slab, then drops into the pool (B & C).

At the edge, we notched boulders and attached them to the concrete slab to convey a “natural waterfall” look. Setting this up left us to deal with the space *under* the cantilever, now fully exposed as something of a focal point for those in the pool and on the deck below. We chose to create a ceiling with tongue-and-groove teak to match an access door treated the same way.

Originally, the textured concrete wall of the utility struc-

ture had the same color as the brick home, but when the clients remarked on the deep color of the water and its strong reflective qualities, I suggested a change to a dark, blue-green hue that would add some useful depth to the space behind the waterfall while also harmonizing with the pool's appearance. They agreed.

Another late-developing request was for a diving board. Given the contours of the pool's floor, the only place to put it was over the vanishing edge – a tough situation, as this placement would make the board central to broader views of a wooded ravine and an old willow tree beyond. I proposed a diving *rock*, but that was a non-starter. Before long, I just had to bite the bullet and make things work.

The solution was a structurally integrated pedestal we placed at the back of the vanishing-edge wall. We rigged it with a jig to which we could subsequently mount the stand, but this arrangement left us with an access issue. To address it, we surmounted the catch basin with a large, slab-like boulder that now serves as both a bridge *and* a step up to the board.

The key decision here was to go with a wooden board – the least visually disruptive of the available options by far. My cabinetmakers, who often work with me in furnishing outdoor dining areas, suggested using Ipé, the Brazilian hardwood that has become a popular decking material. I selected several planks for color variation and interest, and these were ripped into two-inch-wide strips and bonded together (D). The resulting eight-foot board was finished with a textured marine varnish for good footing – a beautiful feature in a most unlikely setting.



A



B



C



D

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The WaterShapes Interviews

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Dr. Tom Lachocki:

Fostering Research into the Benefits of Swimming

Dr. Tom Lachocki, CEO of the National Swimming Pool Foundation, talks about his organization's support for research on the health benefits of swimming—as well as efforts to eliminate drownings, diving accidents and suction-entrapment incidents. How well does Dr. Lachocki think the watershaping industry is doing at spreading the word on both fronts?



Skip Phillips:

How Pool Builders Can Avoid Being Sued

Skip Phillips—owner of Questar Pools in Escondido, Calif., and one of the founders of The Genesis 3 Design Group—has served as an expert witness in more than 300 lawsuits involving pool construction. With that vast experience under his belt, Phillips reveals how pool builders can lower the risk of winding up in court.



Greg Wittstock:

Turning a Hobby into a Multimillion-Dollar Business

Greg "The Pond Guy" Wittstock discusses the growth of Aquascape, the phenomenally successful waterfeatures company (approximately \$60 million in annual revenues) that he founded in 199—plus his business philosophy and how people react to his larger-than-life persona.

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Drain-Safety Kit



AQUACAL (St. Petersburg, FL) has introduced its Drain Safety Test Kit for use by construction and renovation companies. The kit makes it easy to evaluate and diagnose hydraulic situations and includes two total dynamic head gauges, the tubing and fittings needed for pump connections, a set of manufacturers' pump curves, a waterproof log book for recording inspections and information on current regulations.

Dehumidification Systems



DUCOOL (Hof Harcmel, Israel) offers chiller-free, desiccant-based dehumidification/cooling systems for use with indoor swimming pools. Designed to save on energy costs, the devices convert outside air to comfort conditions using solar-heated water and cool well water and remove humidity by passing the air through a honeycomb, recycling desiccant medium, thus providing 100-percent fresh to the building.

Updated Controls

PENTAIR WATER POOL & SPA

(Sanford, NC) has updated its EasyTouch Automation Controls.



Designed for automatic scheduling and control of pool/spa equipment and various accessories, the devices now support the company's ThermalFlo heat pumps and have the ability to control up to two IntelliFlo pumps. There are also eight new feature circuits for programming flexibility.

Outdoor Structures

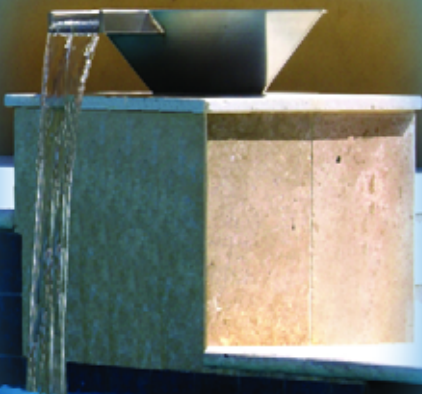
NATURAL STRUCTURES (Baker City, OR)

has published literature on its shelters, pavilions and gazebos. The 24-page, full-color brochure includes coverage of the Ruby Mountain Series of gazebos, which feature arched, laminated beams and a choice of steel or laminated posts in designs that are available in a range of sizes. They also discourage bird nesting while offering clear spans for optimal space usage.



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Water-Access Devices



AQUATIC ACCESS (Louisville, KY) makes a full line of lifts that offer pool and spa access to the disabled in public and private settings. Designed for compliance with the Americans With Disabilities Act, the eco-efficient devices operate off the flow from garden hoses or plumbed-in lines. The seats are attached to cylinders that let users control the flow that raises or lowers bather out of or into the water.

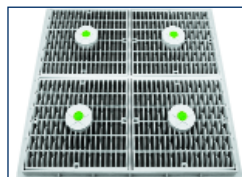
Clean-Up Pump



site clean outs. It operates continuously for two hours on a tank of gasoline.

FRANK WALL ENTERPRISES (Columbus, MS) offers an 8.4-horsepower, commercial-grade, high-performance trash pump from Koshin for cleaning out pools. The unit is made of cast iron with a die-cast aluminum housing for portability and can handle up to 354 gallons of water per minute, making it ideal for construction-

Suction Outlets



AQUASTAR POOL PRODUCTS (San Diego, CA) now offers Wave Drain anti-entrapment suction outlet covers in 18- and 24-inch-square configurations. Certified for compliance with the Virginia Graeme Baker Act, the new models come in eight colors and feature UV-resistant polymers as well as stainless steel frames and screws. Both have undulating surfaces that make them resistant to blockages.

Water Leveler



STETSON DEVELOPMENT (Lake Elsinore, CA) offers the Pour-A-Lid Model SDI-WF420 Automatic Water Level System. Designed for use with pools as well as ponds, the device features a dual-lid system for either a poured-finish or a plastic look in clear, gray, tan or white. The housing includes a float valve and also has an optional overflow line as well as a 1-1/2-inch equalizer line.

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In the Spotlight

For live links to the companies featured here, go to
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Heavy-Duty Trencher



DITCH WITCH (Perry, OK) has introduced the HT300, a rock-digging machine capable of trenching up to ten feet deep and up to 36 inches wide. The easy-operating, 300-horsepower rig is designed to deliver maximum trenching power even on rocky and/or uneven terrain, making it ideal for heavy-duty applications. The reversible conveyor effectively deposits spoils on either side of the trench.

Precast Fencing

ARTISAN PRECAST (Los Angeles, CA) offers an eco-friendly alternative to traditional masonry and concrete-masonry units in fence construction. Made using VOC and mercury-free molds, water-based release agents and recycled materials to reduce the use of cement, the panels are durable, sustainable and aesthetically pleasing, come in many colors and can be cast to resemble wood, brick, stone and more.



Fountain Fixtures

EASYPRO POND PRODUCTS (Grant, MI) has introduced a line of statuary fountains for use with the company's basins or as stand-alone water-features. Molded from tough, impact-resistant, UV-protected resin, all pieces – from formal fountain towers and textured urns to compositions with contemporary stylings – come with three-foot sections of vinyl tubing for easy connections to pumps.



Deck Drains

QUICK DRAIN USA (Frisco, CO) offers low-profile, visually unobtrusive linear deck and pool drains for residential and commercial applications. Designed for use with any size ceramic, glass or stone tile and manufactured from stainless steel with a brushed finish, units are available with both side and bottom outlets and come in seven standard lengths from 30 to 58 inches – all 1-1/2 inches wide.



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Artificial Rock Systems



UNIVERSAL ROCKS (Garland, TX) produces a line of artificial rockwork. Made of polyurethane and polyurea and designed for durability, the handmade, individually colored waterfalls, cascades, creeks, ponds and rock features withstand extreme heat

and cold; are easy to cut with a sharp knife; can be installed in just about any location; and can be mixed and matched to suit any design need.

Pool Operator Handbook



NATIONAL SWIMMING POOL FOUNDATION (Colorado Springs, CO) has released the 2009 edition of its Pool & Spa Operator Handbook in English and Spanish. This fundamental training and reference manual is intended for use by professionals who interface with aquatic venues, including operators, health officials, service technicians, retailers, property managers and manufacturers.

Filtration Controls

ALLEN CONCEPTS (Chandler, AZ) offers two models of controllers for use in managing swimming pool filtration systems. Using a special algorithm that makes certain filters run only as much as needed, the easy-to-install devices – TightWatt for single-speed pumps and TightWatt2 for either single or two-speed pumps – reduce energy costs and can be used with new pools or retrofit to existing ones.

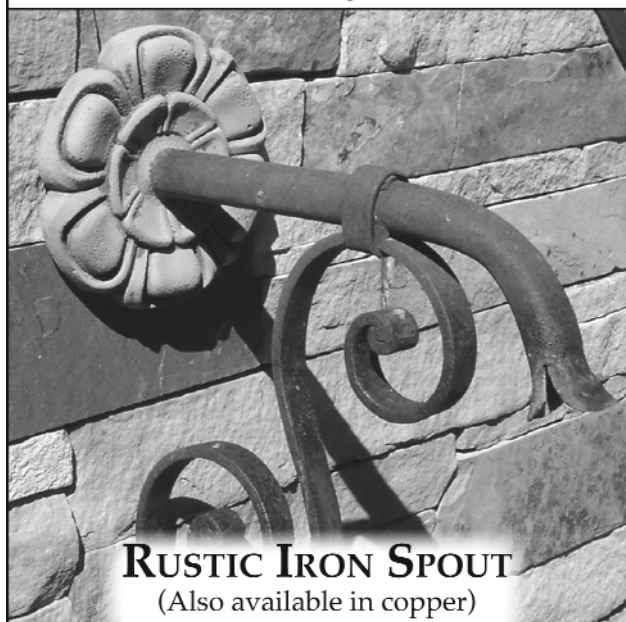


Automatic Pool Cleaner

ZODIAC POOL SYSTEMS (Vista, CA) has introduced Baracuda's X7 Quattro, an automatic pool cleaner designed for greater energy efficiency, faster cleaning, quieter operation and enhanced maneuverability. Instead of one, the new suction-type unit has four discs for better traction. It also has an enhanced diaphragm for greater reliability as well as a cleaning head that pivots for improved mobility.



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Architectural Majesty

By Mike Farley

Earlier this year, I attended the Texas Pool & Spa Expo in Fort Worth – and, upon arrival, was treated to an unexpected earful.

As soon as I reached the show floor, I walked over to greet my friends at the Genesis 3 booth. Before I could even get in a good round of “hellos,” David Tisherman asked me if I’d ever been to the Modern Art Museum of Fort Worth – just down the block from the Convention Center and practically in my own backyard.

For those of you who know David, whether as an instructor or as a prolific writer for *WaterShapes*, I’m sure you can guess how he reacted when I confessed that I had not. I don’t recall his exact words, but to say I received an old-school dressing down would be a bit of an understatement. I laughed it off at the time, but you probably won’t be surprised to learn that, later in the day, I dutifully marched down to The Modern (as it’s known locally) and checked it out for the very first time.

It won’t be the last. For one thing, the building itself is a masterwork by Tadao Ando, one the world’s top living architects. The site includes a beautiful reflecting pool and is a magnificent celebration of light, glass and stone – the perfect surroundings, I might add, for the museum’s surprisingly broad collection of modern art.

I was so impressed by my surroundings that I picked up a copy of *Colours of Light* by Richard Pare (Phaidon Press, 2002) – a wonderful 260-page volume with scores of beautiful photographs distilling the spirit of Ando’s approach. I love books like this one, because I know it will inspire my design work for years to come.



That stop alone would have been enough, but David’s chiding had me so fired up that, after leaving The Modern, I stepped across the street to visit the Kimbell Art Museum as well.

Once again, I found myself in the presence of an architectural treasure – this one by renowned

mid-20th-Century architect Louis Kahn. As had been my experience at The Modern, I ended up purchasing a book about the museum’s designer – *Louis I. Kahn: Building Art, Building Science* by Thomas Leslie (George Braziller, 2005) – another volume absolutely packed with inspiration and design ideas.

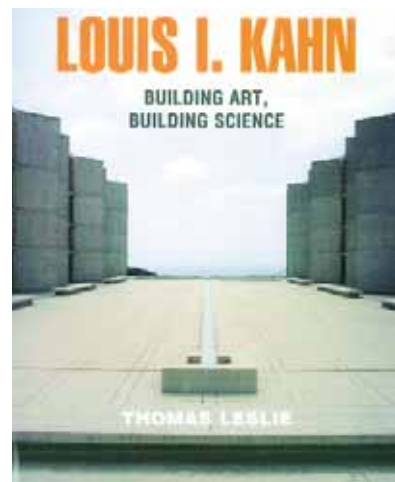
The lesson I learned in all of this, ironically, is that as valuable as books may be in giving us access to the worlds of art and architecture, pictures and words alone cannot replace the experience of visiting such great spaces in person.

It reminds me of the first time I went to Hawaii: I’d always known how beautiful the place was based on a lifetime of seeing it in photographs and films, but until I went there and felt the tropical wind on my face, smelled the fragrances of the trees and flowers and felt the spray from the roaring waves, I’d never truly understood the depth of its appeal.

That was exactly the case that day in Fort Worth, and all I can do now is encourage you to make the effort to seek out versions of The Modern and Kimbell Art Museum that are within your reach where you live and make a point of visiting similar museums and cultural centers when you go on the road: Our world is filled with artworks of surpassing beauty, and for those of us involved in the design and construction of watershapes, we have everything to gain by taking the time to experience great works of art and architecture at first hand.

Just let them know Tisherman sent you! **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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