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Volume 10  
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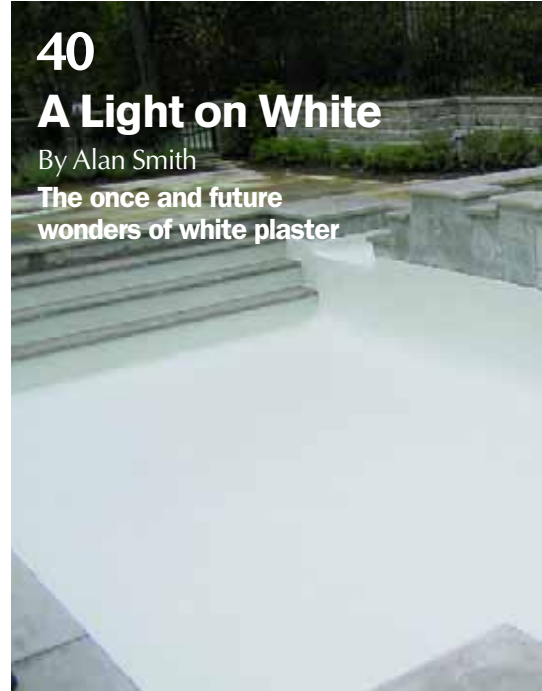
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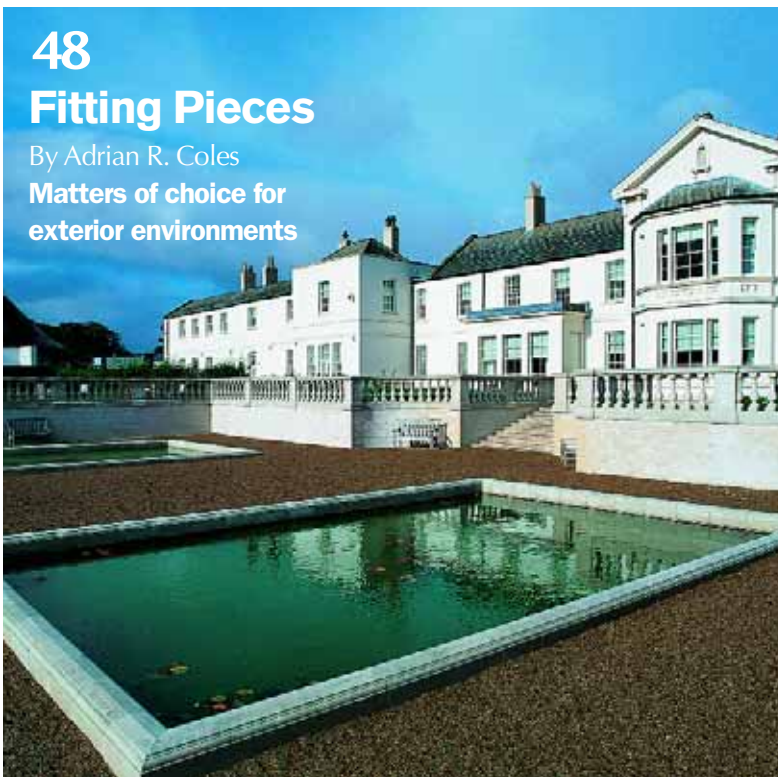
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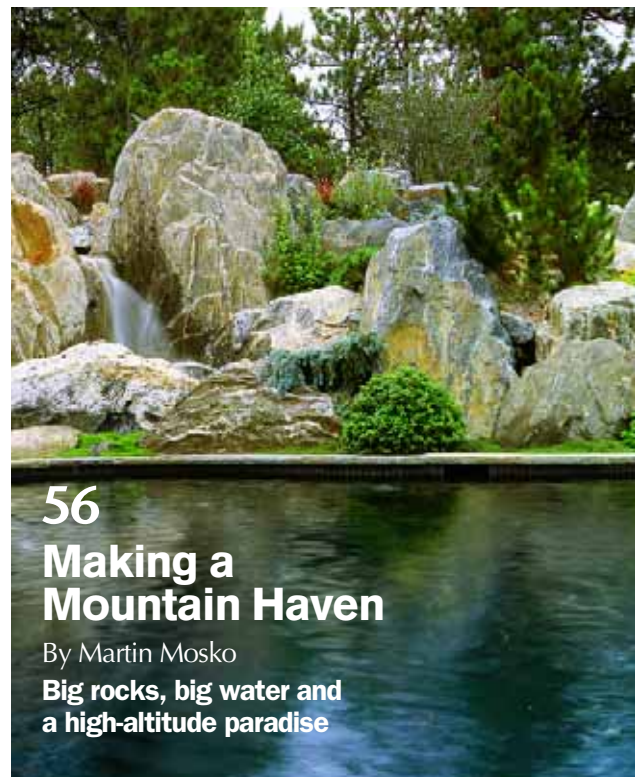
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Photo courtesy Martin Mosko, Marpa Design Studios, Boulder, Colo.

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## Seeking Solutions

Back in October 1989, I was on the second day of a new job working with Jim McCloskey for another pool/spa industry magazine when he called me into his office and suggested that I might want to spend my evening at a meeting of the Plaster Mottling Committee.

He sat me down and explained that this ad-hoc group had been formed to explore problems that suddenly seemed to be happening with plaster finishes in swimming pools. I'd just assumed my post as one of his associate editors, so I gamely agreed to go and through the next several minutes of detailed instruction tried my best to act as though I understood what he was saying about this group and its intentions.

As I drove the 30 miles from our offices in downtown Los Angeles to the Howard Johnson's in Monrovia, I just couldn't help wondering what could be so earth-shaking about swimming pool plaster that it would require a special committee. Little did I know back then that I was headed deep into the heart of a surprisingly dynamic and wickedly contentious issue, the fallout of which continues to be debated and explored to this day.

That night, I sat in a room with upwards of 50 plaster subcontractors, service technicians, cement suppliers and chemical manufacturers who had locked themselves into what was at times a lively, intense exchange of information and ideas. While I was impressed that everyone seemed to aim themselves at coming together and bonding to solve a set of shared problems, I was startled at times by the flaring of tempers, the incredible passion of advocates for various points of view and, most of all, by the surprising complexity of the issues they were addressing.

Plaster, I discovered that night, was far more interesting than I would ever have imagined.

That group was the forerunner of a much larger set of professionals who would soon band together as the National Plasterers Council. Today, the council has grown to include hundreds of members in the United States and Canada; has an annual conference that is a fixture on the industry's calendar of events; and established and maintains a sophisticated testing and research program at the California Polytechnic State University at San Luis Obispo.

All of this is by way of introducing an article in this issue by current NPC president Alan Smith ("A Light on White," beginning on page 40) — a retrospective look at pool plaster in general (and white plaster in particular) and the role these finishes have played in the history of watershaping. In discussing the past 20 years of debate and research, he points out that, despite the seeming multitude of surface finishes that have emerged since the National Plasterers Council was started, white plaster is still an industry standard.

Indeed, white plaster offers a timeless look that will forever be closely associated with classic swimming pools — and to this day, there are many clients who opt for this look, which is so clear and clean that it's still synonymous with backyard recreation and luxury. And now that a clearer understanding has grown of the factors that led to problems in the 1980s, it seems white plaster may even be on the verge of something of a renaissance.

Whatever comes, I feel privileged to have been associated with these discussions and issues for the entirety of my lengthening career in the watershaping industry. But as I think back to that first meeting and about all the research, investigation, exploration, reason and rancor that have unfolded since, I can't help recalling my long drive home from Monrovia that night and my growing sense that there was much more to pools than meets the eye — a recognition I've happily explored ever since.

*Eric Herman*

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**Scott Murase** is a second-generation landscape artist who learned the art of place-making and fashioning unique landscapes while working for more than a decade alongside his father, Robert Murase, an internationally acclaimed landscape architect and founder of Murase Associates of Seattle. Scott Murase's own multi-disciplinary background in architecture, landscape architecture and fine arts have combined to inspire an integrated, collaborative approach to site design that results in unique spaces that are particularly sensitive to the human experience. Murase apprenticed under Kinzo Nishimura, a fourth-generation stone sculptor in Kyoto, Japan, and oper-

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By Brian Van Bower

## On a Wire



**S**everal years back, I was in a seminar at the International Pool & Spa Expo when the instructor asked everyone who had an e-mail address to raise a hand.

Way back then – it was in the late 1980s or perhaps even the early '90s – using the Internet for communication was a brand-new concept to most people and there were only a few people in the room who lifted an arm. I wasn't one of them, and at that point I had no idea that e-mail and Web sites would ever become such an integral part of my life.

At that time, in fact, I didn't think I'd ever need an e-mail address. After all, I was a pool guy: My business was going well, my company enjoyed a good reputation and I was comfortable in managing our communications needs with phones, the Post Office and express-delivery services. But what a turnaround: As is true for almost everyone in business nowadays, I've become almost entirely dependent on today's technology to the point that when my Internet service goes down – no matter how temporarily – it's like someone has turned out the lights and hidden everything I need just to torment me.

Not only do I communicate by e-mail to the tune of more than 100 per day (beyond deleting an additional few hundred bits of junk mail), I keep my calendar and schedule on my personal data assistant (another invaluable piece of modern technology). In addition, my PDA has a docking station so that everything on it automatically backs up to my computer, securing all of my

**I find myself almost daily thinking about the ways I maintain contact with my clients and when it's more important for me to pick up the phone than it is to save a few minutes and pennies by dashing off an e-mail.**

phone numbers and appointments. I'm wired in – and loving it!

And all of this helps me with my clients as well. I routinely refer prospects to my Web site and do much of my design work on a CAD program that generates documents anyone can receive and read – no muss, no fuss. I'm not as sophisticated with any of these technologies as are some people I know, but I've reached a viable comfort level with all of these systems and I can't imagine turning back the clock to the days when none of us seemed to know what was just around the corner.

### primitive ways

Despite the fact that it all seems so inevitable today, I still run into people who are reluctant to climb aboard and adopt this great set of tools. Some are too stubborn, others are too intimidated – and many are simply so wedded to old ways of doing things that they've managed somehow to ignore the rapid evolution of communication, management and design technologies.

This line of thought, by the way, came to me while watching "There Will Be Blood." If you haven't seen that film, which was nominated for the Best Picture Oscar last year, it's about an oilman who toils in rocks and dirt to find black gold in turn-of-the-20th-century southern California and parleys his hardscrabble efforts into an empire. The film had a tremendous air of realism about it, and I could sense the difficulty of the lives the key characters led to a point where I wondered how on earth people could ever have lived that way.

Of course, people actually living in those times had no basis for comparison to anything different or better. They lived in a day and age that saw the advent of electrical utilities, refrigeration, public water systems and the internal combustion engine, and I would imagine that their





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heads spun as much with the leaps forward they witnessed as ours have by the advances of the Communication Age.

Thinking about life before the Internet is actually a bit painful at this point, at least from the standpoint of managing daily business and personal communications. In fact, when you stop to think about it, the way we did things was actually quite primitive, relatively speaking, and I find it hard sometimes to imagine how we ever managed to get things done.

Consider, for example, a function as basic as moving documents from one place to another: It's been completely revolutionized, and processes of generating plans and proposals and copying and shipping them has gone from something that could take several days or even weeks to being almost instantaneous.

E-mail has been a particular blessing. With it, we're able to maintain multiple threads of communication with different people, respond more quickly and spend far less time on the telephone. Indeed,

it has so expanded our capabilities that it's almost silly to compare productivity in pre-Internet days to what can be accomplished now.

The upshot of all this is that certain types of businesses have dramatically expanded their reach; the pace of our working lives has increased manifold times; and the cost of doing business has been substantially reduced. In the old days, I would submit information about our company to prospective clients in the form of 60-page presentation packages that included all sorts of written information and color photos, carefully bundled and shipped by the best available means. I didn't think about what I was doing: It came naturally and was simply what had to be done – and looking back, I can't help thinking that we tied quite a bit of money up in wooing clients.

Nowadays, by contrast, I just refer would-be clients to my Web site, where they can absorb all of that same kind of information at the touch of a few but-

tons and a little patience with a mouse – then we follow up with each other via e-mail. What cost real dollars and took a considerable amount of time not long ago now happens in seconds at minimal cost – and the base of my business has grown to the point where I can work anywhere in the world.

## now we know

I know I'm preaching to the saved when it comes to most of you who are reading this column. Indeed, for many of you, the power of the Internet and other forms of modern communications technology is already so woven into your daily lives that you might be wondering why I'm even bothering to bring this up.

Aside from the fact that it's interesting to step back occasionally and think about the way technology influences and changes our lives, I also find it beneficial to consider not just the opportunities that come with this sort of change, but also the downsides that sneak in at the same time.



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Indeed, I wish at times that I could get completely away from what I see as the negatives of the Communication Age. As I see it, for instance, there's no real substitute for direct human interaction, either on the phone or in person. As a result, I am pained when I see people become so insulated by technology that they use it in preference to more direct and intimate forms of communication.

I am pained by this because I see ours as a business in which we provide highly personalized products that can have a transforming influence on our clients' daily lives if we get things right. As I see it, to reach that level of familiarity, you need to forge relationships and get to know clients and their families as people. No matter how efficient e-mail may be, using it as your sole communications medium robs what you do of the human touch.

It's all about balance, and I find myself almost daily thinking about the ways I maintain contact with my clients and when it's more important for me to pick up the phone than it is to save a few minutes and pennies by dashing off an e-mail.

Then there's the whole expectations game that comes with e-mails – something that not only gets out of whack from time to time but that can also be a source of real aggravation. I, for one, do *not* like Instant Messaging: I consider the pop-ups such an intrusion on my workday that I would never, ever consider sending one.

And what I *really* don't like is that when I receive an Instant Message, there seems to be a demand for an instant response. As any of you know if you've read my columns for a while, I'm big on prompt responses to phone calls and I've extended that to e-mails as well. But so far, I haven't been willing to extend that same sense of duty to Instant Messages and, for now at least, can't see that I ever will.

And believe me, I've run into people who actually get annoyed if I don't drop what I'm doing and hop right on a response. It's my contention that just because Instant Messaging (or its often-intrusive cousin, Text Messaging on cellular phones) affords us the ability to reply in the moment, that doesn't mean we need to feel obliged to do so, nor should we ex-

pect such promptness from others. I also have the feeling that if I give in, I will soon find myself buried in Instant Messages and Text Messages – so much so that I'm content to train people who want to contact me that they need to be patient.

Beyond that, the Internet in general can be a nasty place. There's lots of objectionable content, and I hate dealing

with spam from all those generous folks in West Africa who want to send me piles of money if only I'll provide a bank account number. There are times when I wish the Internet would just go away and leave me alone. It's a sort of love/hate relationship, but on balance I've come to terms with it and see the Internet as having great value.

Continued on page 14



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## weaving the web

What's exciting to me despite the downsides and will probably hold my interest for many years to come is the way people are increasingly using the Internet to form communities defined by common interests and goals.

Younger people especially seem to have tuned into these possibilities, but even those of us of advancing years can get involved and take advantage of pools of information, chat rooms, blogs and bulletin boards that seem to be forming all around us. In just the past year or two, for example, the Genesis 3 Web site has seen a dramatic increase in use by professionals who are networking, debating various topics and generally sharing useful information.

I also see that *WaterShapes* is jumping into the mix in a passionate way, having revamped [www.watershapes.com](http://www.watershapes.com) with a number of new features, including one I know I'll find particularly valuable—that is, full electronic access to every issue of

the magazine from its premiere nearly ten years ago. It's a wonderful and vast resource that should be up and running this fall and I encourage all of you to check it out.

The great thing about these communities, beyond the information they carry and the resources they offer, is the fact that you can opt in or out and proceed at your own pace. They can be as grand or overwhelming as you want them to be, or you can check in as you wish to see what's up.

Bottom line: The genie is completely out of the bottle when it comes to communication, and we're clearly never going back to the days of pagers, fax machines and messenger services. And every time I turn around, it seems another one of my contacts who is more completely wired in than I am will tell me about some new wrinkle that may not make a lick of sense to me now, but seems as though it will inevitably be a big part of my life before much time passes.

These are exciting times, and I want to make certain I'm making the most of what's available and that I'm using new technologies in ways that are sensible, considerate and effective. It may already be a cliché, but the Internet truly has made the world a smaller place, and I'm glad to be here to take advantage of that future.

I'm also glad I'm not drilling for oil in Bakersfield and shedding blood, sweat and tears to compete with *There Will Be Blood's* Daniel Plainview. I may dislike Instant Messaging, but I'm far happier living now than I would have been 100 years ago! **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](mailto:bvanbower@aol.com).



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By Bruce Zaretsky

## Tumbling Down



**R**eading *WaterShapes*' 100th issue brought back memories of when I first discovered the magazine and my early conversations with its editor, Eric Herman. I remember thinking at that time—or at least hoping—that there really were lots of other people out there in the design/build world who truly aim to do things right, first time, every time.

In looking over the poster included with the issue, I spotted the one from January 2000 with a photograph I'd taken of one of our projects—a retaining wall under construction. I don't know quite why, but that image made me think of a site I visited last year where a retaining wall built by inexperienced hands was in the process of collapsing. And not only was the wall falling apart, but it was also compromising the fence atop it as well as a concrete patio, a storage shed and an inground pool it was intended to bolster.

I couldn't help thinking that, as far as our industry has come in the past decade, there are always going to be those who make serious mistakes. It also occurred to me that walls are so fundamental to the arts and crafts of water-shaping and landscape design and construction that it was about time for me to put on my mason's cap and dig into this topic at greater detail.

There's still much work to be done in leveling the playing field and arming consumers with the information they need to make the right choices among designers and contractors.

### hitting the mark

In that article I wrote for *WaterShapes* eight years ago, I described a project in which I replaced a failing retaining wall with a new one and will use it again here as a point of departure for explaining the fundamentals of proper wall design and construction and defining the distinctions between walls built to last and walls that will inevitably take a tumble.

Let me reset the scene: The clients called me in because they needed a retaining wall in their backyard—not just *any* retaining wall, but a big, expensive one that was going to cost them \$38,000 in 1995 if I was to be the builder.

The reason for the expense was the fact that the wall was to hold up the house, which had been built many years previously on the edge of a ravine that dropped about 75 feet down a 45-degree slope. The structure's footing was supported by a masonry wall about nine feet tall that started at one corner of the house and then moved out to wrap around its back about ten feet or so down the slope.

This masonry wall had been repaired periodically through the years and had at one point been reinforced by railroad ties that had been strategically piled in front of it. The replacement system I designed featured two terraces supported by four-foot walls penetrated by two sets of steps connecting the upper and lower levels of the property.

The program had a lot going for it practically and aesthetically, but instead of hiring my firm to do the installation, the homeowners opted for another contractor who came in with a lower bid—a fellow who obviously thought it would be perfectly acceptable to alter my design.

What this other contractor lacked most, it



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seems, was any understanding of the fundamentals of wall construction and the need for proper base preparation, tiebacks and drainage. As I knew and he *should* have known, those three details work in conjunction with each other: Ignore one of them and the others will not be able to hide the omission and the wall inevitably will fail. It may fail soon, or it may take a while – but fail it will.

Let's take a quick look at those three critical factors:

► **Base Preparation:** The base is the prepared material in which the footing of the wall will rest. For a retaining wall, that base should be prepared by excavating to a predetermined depth (as determined by an engineer in view of the height of the wall) and placing what is known as *crusher run* (a mix of crushed stone and stone dust) to a predetermined thickness.

This material is designed to be tamped down to form a solid mass and must be set in a layer thick and stable enough to handle the downward forces imposed by

the weight of the wall without allowing any settling to occur. In the specific case outlined above, the wall called for placement of one foot of crusher run to serve as the base.

► **Tiebacks:** This wall element, as the word itself clearly indicates, is all about tying the vertical wall horizontally into the material behind it. When a timber wall is built, for example, certain of those timbers will be set perpendicular to the back of the wall so that they reach into the supported slope. Once the area is backfilled, the weight of the soil atop these perpendicular timbers holds them rigidly in place and enables them to support the wall. (In many cases, these perpendicular tiebacks elements are alternatively known as *deadmen*.)

There's another approach to providing this same sort of stability that involves using a product known as *geogrid* – especially common in building segmental walls using concrete masonry units. This product is a woven plastic material that

reaches from four feet up to 50 or more feet into a slope, depending upon the height of the wall and its intended purpose. Geogrid also serves to separate backfill behind a wall into a series of layers, essentially making a very tall wall into a set of small walls stacked one atop the other. In the project described here, the wall design called for two levels of grid (six feet and eight feet deep) for each wall.

► **Drainage:** It doesn't take a lot of deep pondering to see the critical need for keeping water from accumulating behind a retaining wall. Not only does seepage through the wall make it look bad, but the simple presence of the water creates a mechanism that can eventually lead to a wall's demise. The simple task here is to make certain any water that arrives in the vicinity is moved elsewhere.

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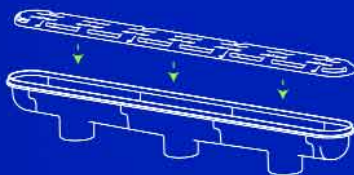
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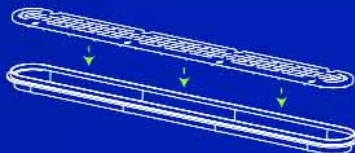
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Moreover, we also (where we can) grade the surface area behind the wall to keep water from collecting. In the north, obviously, a harsh winter's freeze/thaw cycle can be a wall-buster, but water accumulation is problematic no matter where a wall is and should not be allowed to happen.

To reiterate: If a wall is built without any one of these factors having been considered and accommodated, the wall will fail. Poor base preparation will cause the wall to settle and break apart; insufficient geogrid will allow the weight of the soil behind the wall to push it over; poor drainage will cause the wall to blow out from hydrostatic pressure and, in some areas, frost heave.

There are no shortcuts – never have been, never will.

## slow or fast

As noted above, some failures take their time, but some walls start falling apart almost immediately – as was the case with the wall installed for the homeowners atop the 45-degree slope. Indeed, their wall was completed in November 1995 and had already deteriorated significantly by January 1996.

When a wall fails this quickly, major construction issues would seem to be the obvious problem. First, even a quick initial examination revealed improper base preparation. The size and configuration of the wall called for burying two courses of block below grade on top of a foot of crusher run. In fact, the installer used just four inches of crushed stone (not the more compactable crusher run) beneath the top wall section and

didn't sink *any* courses below grade. The lower wall was, incredibly, backfilled with moisture-retaining sand rather than crushed stone.

The combination of these construction errors soon compromised the wall: Not only did the upper wall settle into the sand and begin cracking almost immediately, but no geogrid had been used, so the wall also began falling forward and down.

I brought in a soils engineer to aid me in redesigning the walls, taking the current, much-degraded situation into account with respect to soil conditions, the stability of the house and the recommendations of the wall-system manufacturer. The upshot: The existing wall, which had been built using pre-cast segmental units, had to be entirely disman-



When first completed, this wall was filled to the top with stone, but now it has settled by more than a foot and *something* has to give – most likely the wall, in which case the fence, storage shed, deck and pool the wall was intended to support will also be compromised, perhaps catastrophically.



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When it comes to wall disasters, this one takes the prize. An original masonry wall had been bolstered first by railroad ties and then by vertical timbers – and then the whole thing was finally lashed to long-suffering trees. Adding insult to injury, the contractor who won the job of replacing that mess clearly didn't know how to build a proper wall (witness the improper base) and the new one is already failing.

tled and then reassembled properly.

We expected teardown and excavation for the replacement wall to take a week, but it actually took two because the previous contractor had, in addition to everything else, done the utterly boneheaded

job of tying all four downspouts from the rear roof surfaces of the house into the drainage system behind the wall. We couldn't believe our eyes: The whole back side of the roof was draining into the wall, and digging out the mucky mess was

much more time-consuming than we'd anticipated.

As we continued to tear the wall down, we found that while geogrid had been used on one side of the wall, there was none on the other (the side that began failing almost immediately). But the contractor had failed to remove all of the railroad ties and had adjusted the geogrid around them, simply rolling the fabric up in front of the timbers so it reached only about two feet back into the slope rather than the required eight feet. Moreover, they didn't excavate for installation of drainage stone – not even to the minimum two feet suggested by the wall manufacturer. (In my projects, I leave nothing to chance and always dig back well past the angle of repose).

We finally removed all of the block and the soggy soil and dug a trench for the lower wall to a depth of 28 inches below grade – sufficient for 12 inches of crusher run and two courses of buried blocks. We also brought an engineer on site to examine and sign off on the fact that we were proceeding properly with each phase – once when we finished excavation and again when we finished compacting each of the two layers of crusher run and yet again after we'd placed the base course of blocks.

## deliberate and steady

Once three courses were in, we back-filled with #3 crushed stone, tamping it down in six-inch lifts. This was a criti-

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cal step, because this stone was to support the upper wall. Then we laid six-foot-deep lengths of geogrid before continuing to build the wall. After three more rows of block, we laid eight-foot-deep lengths of geogrid atop a foot of crusher run that was to serve as the base for the upper wall. We continued in this methodical fashion until all 2,000 blocks were installed.

At the base of each wall, we set two layers of four-inch drainage pipe to move water away. By now, we'd also redirected the downspouts into their own, brand-new system that carried the water far down the slope and well away from the wall. By the time three weeks had passed, we were setting the last capstones and cleaning up the site.


Today, about dozen years later, the wall hasn't moved a millimeter. Given the critical nature of the installation and its role in supporting the house, I check it every year and am pleased that it's such a testimonial to proper construction.

Now back to the present and that project I mentioned at the beginning of this column: After evaluating the existing wall, I explained the gravity of the situation (pun intended) and let the homeowners know that everything would have to be removed to a point about 15 feet back from the wall (and to within about a foot of the pool). This was the only way we could properly rebuild the wall and correct the disastrous errors the previous contractor had made with respect to base preparation, tiebacks and drainage.

They asked me how much it was going to cost, and I gave them a quick ballpark figure of \$60,000. I never heard from them again, but I must confess that I think of them often and wonder if the pool is still there.

As far as we've come in the watershaping and landscape trades through the past ten years, this recent incident confirms that there's still much work to be done in leveling the playing field and arming consumers with the information they need to make the right choices among designers and contractors.

There is indeed a right way to do things, and I like to think that this magazine is

helping and that there are more and more of us out there who know what needs to be done. To be sure, it's difficult to get consumers to face reality and recognize that in saving money they may be buying trouble, but just the same, I look forward to the day when they'll all be comparing oranges to oranges rather than my oranges to someone else's rotten apples. 

**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](mailto:bruce@zaretskyassociates.com).

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By Mike Gambino

# Illuminating Footsteps



It's not an uncommon goal: Nearly all of the homeowners I speak with about lighting designs want to be able to move safely and comfortably around their properties at night. Perhaps more important, they want guests and others unfamiliar with those spaces to be able to do the same without anyone being concerned about suffering an injury as a result of a misstep brought on by darkness or glare.

The interesting thing is, some of my clients need convincing when it comes to path or step lighting. Even if they see the value of illuminating main areas and passageways, they'll often hesitate when it comes to investing in lighting of peripheral paths or step systems because, they say, "they won't be used very often." My response is that if those stairs or paths are *ever* going to be used at night, then they should be lit as a safety precaution. As I point out, all it will take is one mishap to persuade them to change their minds – and by then it'll be too late!

Of course, safety is only one of the issues at stake: My chief design objective in developing lighting programs for paths and steps is to make certain people can move comfortably and easily through exterior spaces at night as they transition from one destination to another – from the street to a front door, from a patio to a pool or from a deck to a spa. If I get *that* right, the safety of these passageways is a natural outcome.

My chief design objective in developing lighting programs for paths and steps is to make certain people can move comfortably and easily through exterior spaces at night as they transition from one destination to another.

## comfort and ease

Happily, getting things right with path and step lighting is often a relatively straightforward process.

For starters, these systems typically have the lowest intensity level of any lighting in a landscaped space. There are some exceptions – maybe if the stone of a walkway is so wonderful that you want to call attention to it even at night, for example – but for the most part the job is to establish visual boundaries and elevations so people feel comfortable while on the move.

With that in mind, paths can be defined by lighting that is actually quite dim. The goal here is to provide enough illumination for trouble-free passage without having any bright lights that shine directly into the eyes: Glare causes a person's pupils to contract rapidly, thereby rendering the surrounding area dark for five to ten seconds – a phenomenon that defeats the purpose of the lighting, creates unpleasant physical sensations and draws attention to the lighting itself rather than to the landscape it is meant to illuminate.

Steps are a different story. First, they require somewhat brighter illumination and, second, they benefit most from fixtures that bathe their treads and risers in an even glow.

To be sure, some step systems are quite elaborate and might merit having attention called to them day and night. Even so, I never let that be my primary consideration in place of either safety or comfortable passage: Invariably, I'll stick to the basics and leave the big aesthetic statements to the daylight hours while focusing my aesthetic attentions to other elements of the lighting composition.

I do so for practical reasons: Steps are inherently more hazardous than other lit elements in gardens, and I'll willingly sacrifice some of their



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aesthetic potential to the causes of safety and comfort. This is why I'm particularly watchful for sources of glare around steps – a serious issue with grade changes because as one moves up the treads, poorly chosen fixtures mounted at higher levels can shine light directly into a person's eyes and create just the sort of hazard the lighting was meant to remedy.

I've also seen many instances where paths and steps are moonlit from above – a technique that is typically used to cast interesting shadows on the spaces below. This can work with pathways so long as there's enough light that the boundaries are clearly defined. Just the same, I recommend this approach for step lighting with reluctance, not only because shifting shadows will obscure a walker's sense of the relationships of treads to risers, but also because the person's own shadow will be projected onto the steps, further compromising clarity if the light source is

placed incorrectly.

That may seem complicated, but once you make practicality the guiding principle of your approach to lighting pathways and steps, things get sorted out with relative ease – starting with fixture selection.

## the right moves

One of the consequences of my approach to path and step lighting is that it imposes some limits on what's available to complete a lighting portrait.

For pathways, for example, many designers choose from various mushroom- and tulip-shaped products as well as bollards and any of a number of other decorative fixtures. With steps, they have those same options plus the possibility of mounting lights in risers or stringing them across the recesses of risers or placing them on nearby walls or step cheeks.

Personally, however, I prefer to use fixtures that blend into the landscape rather

than those that make some kind of grand aesthetic statement or serve some greater decorative purpose. In my book, the aim of landscape lighting is to make garden elements look great after dark, so I don't particularly focus on the aesthetics of the light sources themselves. Yes, there are clients who have other thoughts in mind and want their fixtures to make decorative statements. I'll comply – but only if the desired fixtures do their job, which is not always the case!

This practicality issue is why, for example, I discourage clients from mounting lantern-style fixtures on pilasters or nearby walls or from using streetlight-style fixtures for step and path lighting: Simply put, they are mounted so high that they often cannot help being sources of glare and a visual distraction that will particularly compromise safe passage up sets of steps. (I especially advise against the use of common pagoda-style fixtures:

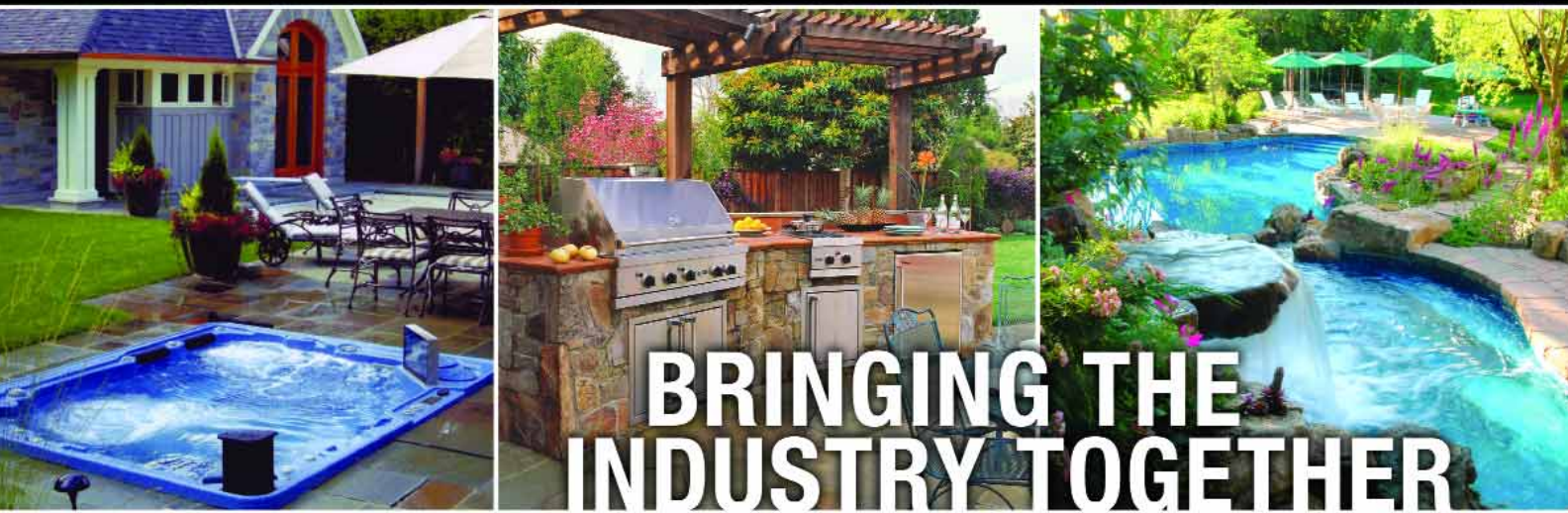


My ambition in lighting pathways is to create a situation in which anyone who comes along can move safely and easily through the space after dark. It doesn't take much light intensity to get the job done, and I prefer alternating fixtures along the path to putting them all on one side and running the risk of creating a 'runway' effect.





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They may or may not look fine by day depending on your tastes, but at night they don't shield glare *at all*.)

Once fixtures are selected, placing them is the key. For me, it's always a balancing act: You want them to be close enough to a path that they provide adequate light, but you also want them to be back far enough that they'll blend into the plant material even if they're set just a few inches off the path. Granted, I can't hide the light sources completely if they're right next to a path, but I do all I can to minimize their presence while achieving acceptable illumination.

What this means is, although I'm a lighting system designer/builder I need to put on my horticultural hat and consider what's been or will be planted along the sides of the surfaces I'm illuminating: My fixtures need to rise above, stay below or be located in front of adjacent plant material so the light will not be blocked, which means I need to know what plants are there and how they'll look when fully



Lighting paths from above can yield wonderful shadow effects, but only in circumstances where the shadows don't lead people to misread what's coming. This is why this overhead approach shouldn't be used on steps: You don't want to obscure any key details in patches of darkness!

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grown, not just “as planted.” Believe me, I’ve seen too many situations in which fixtures were placed either too low to the ground or too close to the plants and became overwhelmed as the landscape grew in: In rapid order, the entire lighting program was rendered useless.

There are also technical issues to be considered in placement and spacing of the chosen fixtures. In addition to the color or reflectivity of the surfaces being illuminated, you also need to consider how far given fixtures spread their light and at what brightness they do it relative to the width of the space to be illuminated. Obviously, the needs of a path six feet wide are different from those of path just two feet wide, and the solutions have to do with the heights at which the fixtures are set and how far apart.

### in range

What should be apparent by now is that there are enough variables involved in the design process that it’s difficult to come up with effective rules of thumb.

Even so, I know that with a path two to four feet wide, fixtures placed at 10- to 12-foot intervals and 18 to 24 inches above the path will generally get the job done. In following that plan, I always stagger the lights on either side of the path in a triangular pattern to avoid the dreaded “runway” look, which is both ugly and a bit silly since it allows two fixtures to light the same space on a path for the sake of full coverage. Yes, there are exceptions where it’s only possible to work on one side of a path, but as a rule, working both sides produces the best results.

It’s also a general rule that you need to place fixtures back far enough from the path that nobody will run into one without having stepped off the path while positioning them close enough that they actually shed light where you want it to appear.

In picking these spots, you need to consider that the higher up you place the fixture, the wider will be the light spread – and the more forgiving a fixture will be with respect to placement. By contrast, the lower the fixture placement, the less the spread will be – and the closer it will need to be to the path to be effective.

In my practice, I try never to place a fix-

ture closer than six inches back from the edge of a path or a system of steps and, when I do, I like to keep them low to the ground. I also seldom place them any further back than 18 inches, because if I do, I’ll need to raise them more than two feet above grade to get the job done – and that’s a height limit I am reluctant to exceed in my effort to avoid glare.

In almost all situations, this approach produces lighter and darker areas along a path. I’ve never found these small areas of darkness to be an issue because the contrasts can be striking (something many of my clients like) when the patches alternate along the way. If a client wants an even wash of light, however, I just raise the fixtures or reduce the spacing to produce the

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When I use decorative pathway fixtures, I try to select forms and colors that will effectively blend into their surroundings. As I see it, path and step lighting serve important utilitarian functions, and it's seldom my desire to call more attention to these fixtures than to the landscapes through which they guide people.

desired look.

In either case, I always prefer fixtures that cast soft light in wide patterns without defined edges and avoid those that create hot circular or semi-circular patterns or even hexagonal shapes on the pathway—looks I find to be extremely unnatural. With softer lighting, I achieve better coverage without assaulting anyone's eyes. A side effect of my approach is that the edges of the path are often brighter than the center, which is fine because one of my goals is to be sure walkers know their limits.

I also use adjustable fixtures that will cast light in just one direction—or at 360 de-

grees. Directional lights are great for path lighting, but 360-degree models give me the ability to illuminate the path as well as the landscaping beyond the path—a flexibility that comes in handy in some cases.

No matter the spread I select, I'm always after fixtures that do the job efficiently while shielding the lamp from view. As mentioned above, the latter becomes extremely important when fixtures follow a path or steps up a grade: I don't want people to see up under a fixture's hood from the bottom of a slope!

Helpfully, for these critical applications there are fixtures that conceal the light source completely in the housing, bouncing light off a reflector and spreading it without exposing the lamp. I frequently use fixtures of this type with dramatic grade changes to ease the way for those moving up the slope.

## moving up and down

Let me be clear: Under any circumstances, it's trickier to light steps effectively than it is to light any pathway, sloping or not. This is so for two reasons: First, they are more hazardous and therefore require more light with more even coverage and, second, they often have structures adjacent to them—a fact that can make lighting them with the same approach you use to light a path impossible.

As a rule, your objective should always be to light both the risers and the treads because being able to see both can be critical to moving up or down safely. If, however, you have to make a choice and can only light *either* treads or risers, go for the treads first.

Often, homeowners and even some lighting contractors or designers will want to light steps from above with fixtures mounted in overhanging trees or on nearby structures. Depending on the specifics of the situation, that can work well so long as the lights are mounted in such a way that they don't cast shadows through branches, for example, or through trellises or heavy railing systems.

Some also use moonlighting, which can be a good approach to path lighting in some situations and can add a wonderful dramatic touch to a design. In my view, however, it should be avoided with steps because the shadows present a safety hazard. Indeed, for any lighting from above, the source should be directly over the steps because a person moving up or down the steps will themselves cast a shadow that can pose problems of its own.

Personally, I like lighting steps from the sides with path lights—a good solution so long as I accommodate the number of steps and their configuration and can use enough fixtures spaced



Step lighting is something I take very seriously, and my intention is always to bathe both treads and risers in an even, unambiguous light. Where I can't readily accomplish that feat with both, however, I'll always focus on the treads first.



closely enough that each step will be fully lit. I don't want any dark spots here (which can be perfectly fine with paths) and want to avoid glare at all costs, but beyond that, pretty much the same set of principles apply to both paths and steps: I need to consider fixture types, placements and heights as well as issues related to plants and distances of the fixtures from the surfaces to be lit.

Often, of course, step systems are bound by cheek walls or some other adjoining hardscape structure. These can present a challenge by making the use of path lights impractical or impossible. In such situations, lights must be mounted within the cheek wall or structure – a situation that requires either working with the hardscape contractor ahead of time or core-drilling the walls after the fact.

Another option involves mounting lights in the risers, but I've never much liked this approach because the fixtures don't provide an even light and often produce small hotspots and dark areas. In situations where lighting the risers is the way to go, however, I prefer to mount fiberoptic cable at the top of the riser, hiding it in a slot in a cantilevered tread or in a channel at the top of the riser.

That mention of contractors and of setting things within step systems raises a key point: Step lighting is a critical safety function that can be made much more difficult by hardscape design, so it can be extremely helpful to get a lighting specialist involved at the start of design discussions or at least at a point before construction of the step system has begun. Coming in after the fact can mean a less-than-perfect design solution, not to mention the added expense of remodeling steps or adjoining hardscape after the fact.

### leading the way

For both path and step lighting, it's important to keep in mind that the primary goal is to enable someone to move comfortably and safely toward a destination within the landscape. If you have the ability to add in a dash of aesthetic finesse while doing do, that's nice in my opinion – but it's strictly an added bonus.

For exterior paths and steps in particular, the best lighting designs are those that nobody notices – the ones that let other,

more purely aesthetic lighting elements on the property get all the attention they deserve. My aim at ground level is to enable homeowners, their families and guests to enjoy well-designed spaces after dark without fear of traipsing into a planted area or worse, tripping and falling down.

It should all be about the pleasure, not the potential pain! **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](http://www.gambinolighting.com).

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# AN ELEGANT SLICE

Vera Katz Park was once just an empty sidewalk in Portland's Pearl District - up until landscape designer and sculptor Scott Murase transformed it into a vibrant urban 'sliver park' complete with a long watershape and other attractive amenities. The results of his endeavors are chronicled here, with an emphasis on a unique design process and his use of a creative editing approach that perfectly served the needs of this distinctly urban space.

BY SCOTT MURASE

Our involvement with Vera Katz Park started with a phone call from Alan Beard of GBD Architects, a firm that has been responsible for designing several signature buildings in Portland, Ore.

The project at hand was the complex renovation and transformation of the city's National Guard Armory into a modern theater and the new home of the Portland Center Stage Theater Company. After an energetic interview process, we were selected to design the site's landscape.

We were enthusiastic about the project from the start. The sidewalk area we were designing is an integral part of the redevelopment of what's known as the Pearl District, a former industrial area now being revitalized with mixed-use buildings and high-rise developments. At 200 feet long by 20 feet wide, the space presented an interesting design challenge in an area much in need of parks and public places.

The city's goal is to establish pedestrian connections throughout the neighborhood while creating a sense of community within the district. For our part, we saw the site, which was to be named in honor of former Portland mayor Vera Katz, a devoted supporter of the arts who had been instrumental in the repurposing of the Armory Building, as an opportunity to create a unique urban space within a defined historic setting.

Our goals were clear: to generate a design that would best use the available space to reflect the character of the site; to aid the city's plan by providing a gathering place for the community; and to create an artistic statement.

## SITE LINES

The park runs along the north side of what is now known as the Gerding Theater, which features a distinctive red brick façade over a striking base made up of large, dark basalt blocks. The land slopes about 10 feet from end to end, with its high point at the theater's northwest corner.

Given the long, narrow nature of the site and the limited amount of space available for programming, my immediate idea was to work in linear forms.





**The old armory was a formidable, imposing building with a brick façade surmounting a base of irregularly cut basalt blocks. We worked with the color of those blocks as well as the interesting keyhole detail on the upper level in developing the design for a very long, very thin park.**

The park needed to offer plenty of room for pedestrian traffic and seating, so I knew any watershape would need to combine functionality with a refined sculptural form.

In effect, these physical limitations helped to shape the design's key features – and happened to play directly to our strengths: As we see it, successful design is as much about the creative editing of concepts as it is about devising those concepts in the first place. For us, this editing phase is crucial to the design process,

and it certainly played a role here.

For this park, we were working with a space that would serve all of its intended functions only if we approached it as a minimalist expression. What was required was a measure of simplicity complemented by a few carefully chosen contrasts that would provide impressions of strength, variety and beauty.

To achieve this in built form, I found it necessary to limit the range of elements we considered and then made choices based upon those concepts that survived the editing process. To be sure, this sort of simplification is generally much easier to pursue with large-scale projects than it is with a small project such as this one: In narrow, linear confines, every decision is *very* much on display, which adds a great deal of self-imposed pressure to the challenge of creating what is to be

a well-used public space.

Rather than compete with the immensity of the building's walls – the massive, rough-hewn blocks of deep gray basalt are mortared in uneven patterns at the base – our design contrasts with them to create an engaging visual play.

Given the dominance of the north wall, it made sense to use a narrow channel to accentuate the building's appearance as well as the park's length. Our idea to fill that channel with water also stemmed from this thinking. Concurrently, the park's slope inspired us to establish a series of runnels and troughs that would be terraced to rise above grade and thereby would allow portions of the runnel walls to serve as seating. The design also uses stone materials that harmonize with the basalt, taking maximum advantage of its strong, stoic gray tones.

It is important to note that this is *not*





a traditional park space by any means: There are no lawn areas or picnic tables or play areas; rather, this urban space is a band of sidewalk marked by linear stone walls, custom benches, strips of plants and a flowing watercourse.

#### SHAPED IN STONE

The black basalt we selected for our watershape was provided through Yellow Mountain Stoneworks of Seattle from quarries in southern China. In

**The ten-foot drop along the 200-foot length of the sidewalk led us to break the watershape into three parts. This enabled us to create spillways for each section to add sound and variety along the full length of the composition; it also made it possible for the walls containing the runnels to be used as seating – a feature tailored to the city's stated desires.**





**Through our local stone supplier, we coordinated extensively with a quarry in China to prepare our black basalt material for installation. In fact, workers there assembled full-scale versions of the stonework for our online inspection and approval before crating things up for shipment.**



all, we used 30 tons of stone, and a number of the larger pieces were shaped in China before being shipped to the park.

Yellow Mountain Stoneworks' John Williams was very supportive throughout the process and went well beyond the normal role of "supplier." He often worked with me on site, tools in hand, sculpting and reshaping many of the pieces once they arrived. It was a necessary step: As precisely architectural as the work was in the planning and acquisition phases, many key aesthetic decisions were improvised on site – a process in which Williams was a significant collaborator.

Much of that improvisational spirit was made possible by the fact that, although the runnel structures appear to consist of large, monolithic pieces, they are actually made of formed concrete bases and beams veneered with basalt panels anchored to the support structure by tie rods.

An exception to the veneered approach is the three-layer stacked "source stone" we positioned at the highest point of the park. For a composition such as this one – overtly architectural and sculptural in appearance – we made no attempt to conceal the headwaters, as we would have done in a more naturalistic setting.

In fact, we celebrated the artificiality of the water source in a sculptural statement, adopting a circular motif seen in some of





**We made no attempt to hide the source of the water for the runnel system: In fact, we *celebrated* it by core-drilling through an oval-shaped basalt slab to create a pool and then cutting a channel to release the up-welling water – a form that echoes the keyhole shapes found on the adjacent building.**

the theater's old windows and architectural details. The result is a circular, core-drilled welling pool in the center of the source stone that rises to flow through a channel cut to the bush-hammered edge of the large, oval-shaped basalt slab. This juxtaposition of shapes and textures draws attention both to the well and the rough character of the surrounding stone – a contrast I often seek in my designs.

Water flows from the welling pool down through the channel of the source stone and then down over two additional layers of stone. We'd considered using a monolithic piece of stone for this section of the feature, but limits in the thickness of material the quarry could supply modified our choice.

In the end, we decided that the layered approach made a stronger statement. Indeed, the three layers of the source stone preview the three levels of the runnel system, setting up echoes that resound through the park. In addition, the stacked source-stone structure suggests the water tables and cisterns found in many Japanese gardens – a design tradition that has always been a major influence on my work.

Throughout this process, Williams continued to be an invaluable contributor to the project. Once we settled on the basalt material, he and his staff worked closely with the Chinese quarry and





arranged for preparation of full-scale mock-ups. These were photographed and approved by us before anything went into the shipping crates. The routine worked well, but we *did* need to modify some pieces once they arrived on site.

#### GRAY-TONE RIBBONS

The three troughs that constitute most of the waterfeature's 120-foot course each have different lengths and distinctive finish treatments. The three transition points are treated individually as well in order to maintain interest along the feature's entire length.

The troughs themselves are narrow at just six inches wide and three inches deep, featuring slow, gentle water flows. In fact, the entire system contains only a few hundred gallons – just enough to fill the area with the sight and sound of moving water. This part of the composition is based upon contrast as well and the juxtaposition of delicate water flows against the ponderous visual and physical weight of the stone.

Along the way, there is no place for water to pool: It is always in motion. When the water leaves the source stone, it moves to a small surge tank beneath the sidewalk in a small hidden vault that houses a pump and filter as well as the control equipment. We differentiated the way the water moves through all of the transition spaces from one level down to the next. At the end of the system, the flowing water generates a sense of intrigue as it “mysteriously” disappears into a small slot.

Beyond focusing on water and its appearance as it flowed through the space, we were also committed to working with the stone and its various textures. In some areas, we gave it a highly perfected finish, while leaving other stretches coarse and irregular. For example, in some spots we left the source stone's front face rough while polishing the top and channel to complete smoothness.

Again, the contrasts are evident, but despite these variations, the composition is able to unfold as a single installation: There is a visual variety within the space that the watershape ties together.

(One key point: This public artwork is located in a highly visible space, and one of our thoughts in varying the surface textures so much was to discourage skateboarders from turning the sliver park into a private playground that would be far more raucous than intended.)

Another substantial design element is the seating: We crafted clean, simple benches using Ipé, a richly colorful tropical hardwood that stands out against the dark stonework. The benches have been cantilevered to create the illusion that they are floating – another detail we used to soften the massive solidity of the stone.

The planting plan is a further reflection of the park's minimalist design and another study in simplicity. Individual plants were selected for their hardiness, drought tolerance, and ability to thrive without irrigation. This practicality reflects the modern urban design practiced in forward-thinking cities such as Portland, where ecological consciousness and local environmental sensitivity are highly encouraged by government, businesses and citizens alike.







From end to end, designing the park was an exercise in creative editing and narrowing possibilities down to forms that were simple, functional and appropriate. This minimalist approach left us with small flows of water through sleek, architecturally spare runnels; short (but tuneful and varied) drops into hidden catch basins; cantilevered benches that appear to float in space; and a restrained, slightly austere planting program – all in keeping with the city of Portland's desire to create pedestrian connections and gathering places within its revitalized Pearl District.







# *A Light on*





**Its dominance may have faded in the past 20 years as designers and their clients have moved along to consider other options, says surfacing specialist Alan Smith, but in the period before the mid-1970s, it was tough to find a pool finished in any material other than white plaster. Here, he traces the history of this material and the many twists and turns that led to its decline – and discusses what he sees as the potential for something of a revival.**

*By Alan Smith*

It's probably something that few owners of swimming pools built in the 40-year period after World War II ever paused to consider, but from the days of ancient Rome until modern times, pools and watershapes were often finished with white or light gray materials of some type.

From the late 1940s straight through to the mid-'70s, in fact, it was unusual – even over the top – for a backyard swimming pool to be finished with anything other than white plaster: That was what the companies that defined the industry in the early-postwar period used, and for the most part, that was the only choice consumers had.

There were, of course, some beautiful (and costly) all-tile pools, and pools belonging to folks on all economic strata were occasionally painted in different colors, but brilliant white seemed to be exactly what everyone craved to the point where white plaster finishes and swimming pools became synonymous and inseparable.

Why that is so and white plaster became the industry's mainstay is anyone's guess, but it's reasonable to assume that the material's affordability, workability and durability – not to mention the crystalline clarity it imparted to water – were major factors in its popularity and dominance for so many years.

By the late 1960s and early '70s, all that began to change. Alternative finishes including fiberglass, pool paints and, later, pebble surfaces began to emerge along with coloring agents for plaster, and consumers were quick to latch onto the greater aesthetic flexibility afforded by these options. At about this same time as well, concerns about the performance of white plaster began to emerge – a confluence of events that led to an explosion of interest in new surfacing options that will probably never be reversed.

For all of that, however, white plaster has remained a popular choice – so much so that I believe it's fair to say that it's experiencing a renaissance of sorts.

Photo courtesy National Plasterers Council, Port Charlotte, Fla.





Photo courtesy Pure Water Pools, Costa Mesa, Calif.

### *Crystal Clear*

One of the challenges for white plaster is its basic familiarity and the fact that it's a bit of a cliché among those who are constantly looking to push the creative envelope of watershape design.

Despite that trend, white plaster is nonetheless still associated with luxury and even opulence. Partly, that's attributable to the fact that the public has, for many years, seen this finish in incredible resort pools. It's also a fact that lots of the earliest memories today's consumers have about pools were formed in the crystal-clear, shimmering water of local community pools. Whatever the immediate association, white plaster offers a clean, crisp look that makes people feel good about jumping into the water for a refreshing swim.

There's no question, of course, that pools finished in *other* colors and surface materials can generate those same



Photo: National Plasterers Council

**In an era when designers, builders and consumers have more finish options than anyone could have imagined even 25 years ago, white plaster continues to be a popular choice among those who crave the appearance of a classic swimming pool. It offers a clean, crisp look that makes people feel good about jumping in the water.**



significant responses, but my conversations with consumers tell me that white plaster in particular is ingrained in our collective psyche.

To this day, in fact, I run into consumers who want the white-plaster look and *only* the white-plaster look and reject the alternatives for no other reason than that they simply like white-plaster pools. It's a powerful link, in other words, and it doesn't hurt that the material is closely associated with a range of classic, traditional styles.

As suggested above, it also doesn't hurt the image of this material that health departments in this country require pool surfaces to be white for safety reasons. Certainly white can be achieved with other materials – exposed or polished aggregate surfaces, for example, or fiberglass, vinyl or even painted finishes – but white plaster seems the steadiest of the options to this day. So despite all of the technical and aesthetic developments our industry has seen over the past two to three decades, it seems safe to conclude that white plaster will remain part of our industry's future as well as its past and present.

That's certainly true for my company – Alan Smith Pool Plaster of Orange, Calif. – which specializes in the application of a variety of pool finishes. While we now offer to apply almost everything under the sun, we are aware that white finishes are a major part of what we do and commit a great deal of time and energy to ensuring that they are durable, affordable and beautiful.

In doing so, we follow an unbroken line back to the 1940s and '50s, when the first “pool plasterers” – actually house and building finishers – were applying what they knew about plaster to swimming pool environments. Builders of that era knew that pneumatically applied concrete was susceptible to leaking and that a reliable sealing system was need-

**The process of applying white plaster hasn't changed much through the long and distinguished history of its use, but in recent years we've learned a lot about factors affecting the performance of the finish – including a number of issues related to workmanship as well as water chemistry.**



Photo: Pure Water Pools



Photos: National Plasterers Council







Photos: National Plasterers Council



ed. Plaster was the perfect fit.

Eventually, swimming pools became such big business in places such as southern California, Phoenix, Miami, Las Vegas and other areas that experienced rapid suburban growth that an entire class of swimming pool subcontractors emerged specializing only in the plastering of artificial bodies of water. This emergence was so significant that some of the early practitioners are hailed as industry pioneers.

### Industry Evolution

Back in those days, there was a basic formulation that everyone more or less followed with relatively little variation: a mixture of white Portland cement, silica sand and water, with a bit of calcium chloride added as a setting agent.

Those early plaster jobs have become almost legendary for their durability. Indeed, it's not unusual to hear about

**The venue for much recent investigation of real-world plaster performance has been the pool complex installed and finished by the National Plasterers Council in conjunction with industry experts and faculty researchers at the California Polytechnic State University at San Luis Obispo. It's a collection of pools and spas that promises to reveal a great deal about the dynamics of white plaster and other finishes.**





finishes that lasted upwards of 30 to 40 years or even longer with very little trouble. It was this durability – along with affordability and “the look” – that gave white plaster an iron grip on swimming pool design.

But as the industry developed and some contractors sought to gain competitive edges, the basic formula underwent a number of important changes, some that had unintended consequences.

The first big change had to do with a quest for an even whiter white. Consumers so strongly preferred the look of super-white plaster that a number of companies started looking for ways to brighten the finish to gain a marketing advantage. That led to the introduction of crushed-white-marble/calcite aggregate as a replacement for silica sand, which was never a pure white.

The use of marble aggregates ushered in a new era of super-white finishes that, for a time, dominated the marketplace – and still does in some areas. But in combination with industry developments in other areas, we will see that this shift also led to a certain clouding of white plaster’s future.

It’s tough to say exactly when it happened, but the near-simultaneous emer-

gence of marble aggregates and a variety of pool-sanitizing alternatives seems to have been an unfortunate coincidence. The affordability of chlorine gas as a water treatment, for example, caused a rapid expansion of its use in pools, and this was also a time in which trichlor tablets were leading a revolution of convenience in water treatment. These and other truly wonderful products opened yet another door that changed the industry forever.

The misfortune of the coincidence had to do with the fact that white marble aggregate is far more soluble than silica sand, meaning the surfaces were more susceptible to damage traceable to water balance. This, coupled with the higher acidity of the new chlorine treatments, brought a weaker plaster product together with more aggressive chemicals and led to a gradual uptick in the number of plaster surfaces that just didn’t last as long – or failed altogether.

### Trouble Spots

By the late 1980s, white plaster was truly on the ropes as more and more finishes were being marred by severe staining, mottling, spot etching and delaminations.

These problems were not limited solely to white plaster, but its prevalence in the market made it the focus of concern.

These issues, which at times led to heated discussions at industry meetings, led to investigations into what was going on and, before long, to the formation some 20 years ago of what would become the National Plasterers Council, an organization dedicated in large part to researching material, application and maintenance issues affecting the performance of plaster surfaces.

Throughout the ’90s, the council and an assortment of individuals and other organizations engaged in a series of studies, some informal and others quite structured, aimed at finding the root of the problems almost all of us plasterers were facing in the field.

Without going into excruciating detail, what emerged from these investigations was a greater understanding of the inherent potential conflicts among plasterers, the builders they work for and service providers. When plaster jobs failed,

consumers sought replacements, and the immediate, vexing question about who was responsible came to the fore: Was it the fault of the material or the application and therefore the plasterer’s burden? Or was it a maintenance/water chemistry issue and therefore the fault of the service technician?

Years of finger-pointing ensued, and at times the conflict became quite acrimonious. Eventually, however, all three parties to the discussions agreed to commit to the level of cooperation that would be required to find answers – and by this time material suppliers had become engaged in the process as well.

At times the work has been slow-moving and sometimes numbingly complex, because a whole string of variables have been researched, including mix schedules, application techniques, materials selections, cement/water ratios, admixture usage, start-up techniques and downstream water treatment.

As the current president of the National Plasterers Council, I’m proud of the fact that the organization continues to seek information and has invested in research through the California Polytechnic State University at San Luis Obispo, where faculty investigators are exploring a range of variables and operating conditions in test pools we helped build on campus. As our understanding of these complexities has grown, what has emerged most clearly is that the solutions ultimately boil down to a better understanding of water chemistry’s reaction to different pool surfaces and improvements in surface materials and durability.

We do know definitively, for example, that when you place a soluble material such as marble aggregate in an environment with “aggressive” water chemistry, the odds of a problem occurring increase significantly.

### Toughening Up

One consequence of the plaster-related turmoil that’s roiled through the industry in recent years has been the above-mentioned explosion of alternative surfacing materials – pebble finishes, polished aggregate surfaces, new plaster/aggregate combinations, all-tile pools and more – and a rainbow of finish colors.





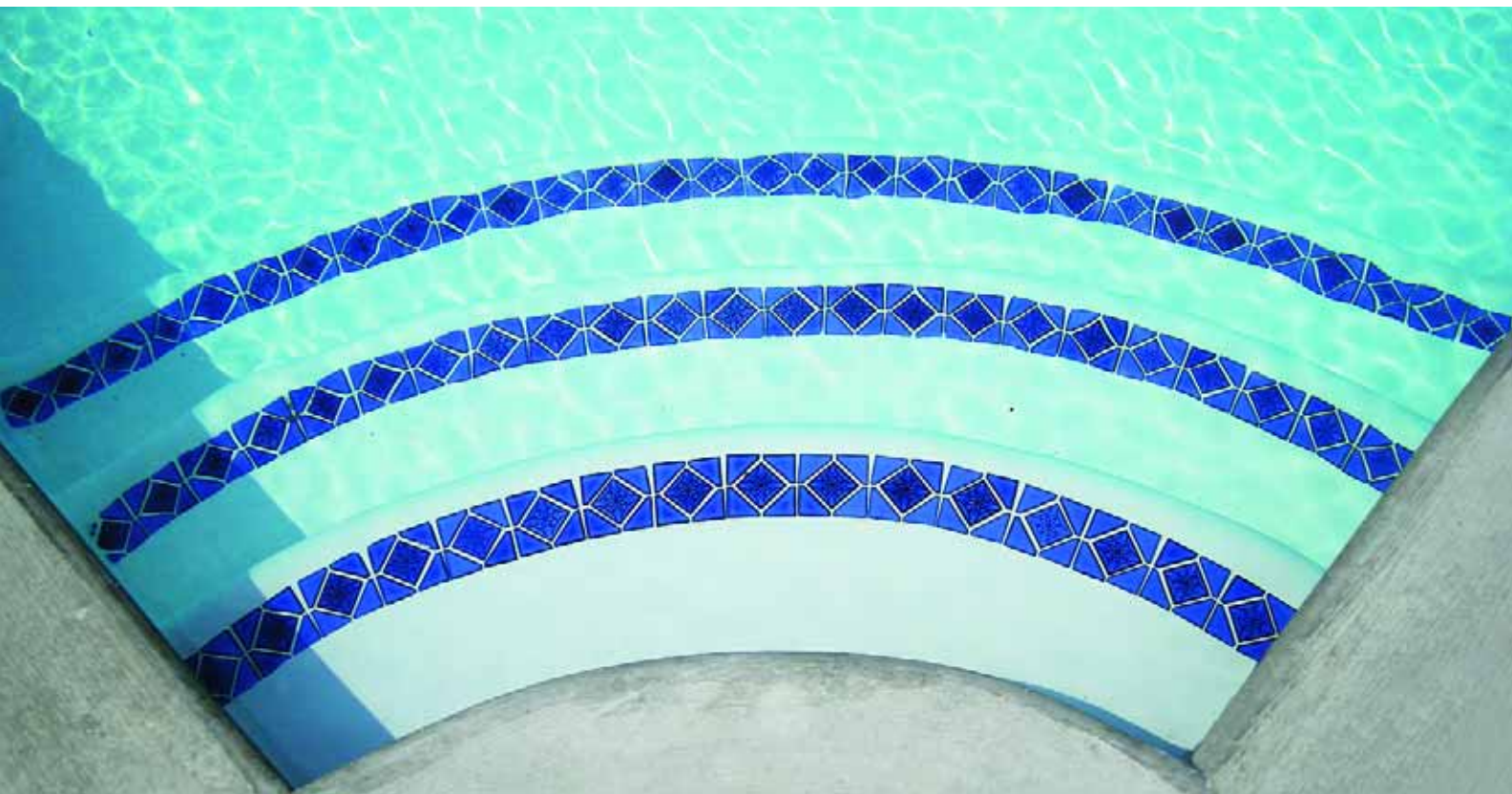


Photo: National Plasterers Council

That evolution probably would have occurred even without trouble in the world of white plaster, basically because the trend strongly reflected the desire of watershapers and their clients to have more design choices. In this new and expanded marketplace, it has reached a point where companies like mine offer literally dozens of surfacing options – and it's been a great ride.

One of the selling points for almost all of the new surface options is that they're more durable than so-called "traditional" plaster. And that's not just marketing hype: In addition to expanding the aesthetic palette, finishes made with exposed aggregates or polished aggregates have forged niches in the market because they are, in fact, more durable than basic white plaster.

So what we have now is a varied playing field – but it is still one in which many consumers have an enduring desire for white plaster – or for finishes that at least *look* like white plaster. Today, in fact, my business still sells some form of a white surface between 20 and 30 percent of the time. It is this persistent desire that has

kept white surfaces alive – and explains why an entire class of surface specialists have spent years and invested heavily in finding ways to improve white plaster and make it more durable.

What we have recognized along the way is that, no matter the level to which we come to understand the various material, application and maintenance issues – and no matter how excellent the materials or expert the maintenance – water is, by its very nature, an extremely dynamic, unforgiving beast known as "the universal solvent" for good reason. There are myriad explanations for why water chemistry will vary in the course of a surface's lifetime, and while it's crucial to advocate good installation and maintenance practices, it's equally important to engineer the product so that it is more durable.

This has led many companies (mine included) to seek other types of aggregates. In our particular case, for example, we've had extremely satisfying results with white-quartz aggregates (similar to the silica aggregates of the past, but much whiter) and have long

heard reports of the value of various polymer and pozzolan admixtures in producing finishes with increased durability.

It's to the point now where there are so many options that designing a mix is a bit like perusing a menu in which different selections and combinations of selections lead to greater degrees of finish reliability. It's also at a point where it's widely accepted that using a mix that features white marble alone is an invitation to a world of problems – not unlike wearing a white T-shirt to a spaghetti dinner.

### *Expectations*

It's important to note that while those of us on the plastering side of the picture have made significant advances, so have a great many service technicians.

Indeed, the water-chemistry standards promoted jointly by the National Plasterers Council, the Association of Pool & Spa Professionals and the Independent Pool & Spa Service Association have reached deep into the service community and have helped immensely.





Photo courtesy Coppock Pool & Spa, Vista, Calif.



Photo courtesy Rowley International, Palos Verdes Estates, Calif.

**In settings both residential and commercial and in locations both private and extremely public – as with the competition pool built at the University of Southern California in Los Angeles for the 1984 Olympic Games – white plaster has long been a go-to finish in swimming pools, spas and fountains of every description and to this day has a following that won't let it fade away as the industry grows and changes all around it.**

Moreover, the increasing use of chemical-control systems that include pH/acid assessment and ORP technology have resulted in far greater control over sanitizer levels and chemical balances than ever before. And it hasn't hurt that there are a number of chemical manufacturers who now provide effective remediation products for stain and scale removal in the event chemistry moves temporarily off course.

All of these factors have led to a dramatic recovery for white plaster and its surfacing relatives: What once seemed like finishes on their way completely out of the picture are far more viable options than they were ten or 15 years ago in terms of performance. A key to this rebirth has been the emergence of a greater understanding of the undeniable role consumer expectations play in determining satisfaction with the way white plaster performs.

When new, white plaster surfaces always offer a dramatic, distinctive look from Day One, and that was as true in the 1940s as it is today. When problems with these finishes began emerging 30-odd years ago, however, these pools were put under a microscope by consumers who noted every flaw and sought redress instead of living with minor variations

in appearance that had been accepted by pool owners for more than 40 years.

This formation of unreasonable expectations of perfection was quite nearly a death blow for white plaster: Pool owners wanted a pristine, white look that would stay that way virtually forever – not something that was expected by anyone even a few years previously. In this environment, a finish's natural adaptation to its setting was branded as product failure rather than as normal performance of the material.

The plain fact is, all cement-based products are susceptible to changes in appearance. Indeed, it's reasonable to assume that just about *any* surface material you place inside a swimming pool, spa or fountain will, in time, experience some degree of change in appearance. Yes, we can provide different levels of surface durability, and yes, service technicians can strive for balanced water chemistry, but it's become clear that we all need to help our clients understand the nature of cement-based materials in aqueous environments.

### *Keeping Pace*

Bringing consumers up to speed with this set of facts will take time, but it's happening – and of course we can't

use the nature of the materials we apply as an excuse for poor application technique or inferior water-chemistry management.

Indeed, we in the surfacing trades must continue to strive and improve the product while developing a deeper understanding of the nature of the materials with which we work. The more consumers understand about their options and the possible ramifications of the product choices they make, the more likely it becomes that they will be able to assess the performance of their chosen surface fairly and objectively.

As for white plaster, it will never again be as dominant as it once was in the world of watershaping, but that doesn't mean the demand for it will ever go away. I liken it to listening to a favorite old song in your car: The song and performance remain the same, but the technology we use to hear it continues to change and improve.

The same point holds true for white finishes in watershapes: People will continue to enjoy them for the same reasons they did decades ago, but the technology used to deliver this look will never be same because the industry has advanced – and we're all better off as a result.





**Since 1971, Haddonstone Ltd. has provided fountains, garden accents and architectural components to designers around the world. Using a cast-stone process that results in artful replicas of classic profiles as well as various contemporary and custom objects, the company's aim has always been to give watershapers, landscape artists and architects ready access to a selection of exterior decorations suited to a range of projects and styles.**



# FITTING PIECES

By Adrian R. Coles



Natural stone is one of the planet's most enduring artistic media and has been used in all historical eras across all design traditions in richly varied ways. From the pyramids of Egypt to the Great Wall of China, from the friezes of the Parthenon to the masterpieces of Michelangelo, it has always been the material of choice for work that *matters*.

For all its beauty and durability, however, natural stone has its limitations: Even in modern times with modern technology, it must be quarried or harvested; fabrication of finished pieces is laborious; and its weight makes moving it from place to place both costly and time-consuming. It's also not a renewable material: Supplies of many of the world's most favored types are restricted, and some are simply no longer available.

It's in this context that cast stone has emerged as a viable alternative in reproducing the looks, textures and sheer physical presence of natural stone materials. We at Haddonstone Ltd., for example, offer cast-stone products that can be used in architectural, landscape and watershape settings in ways that are virtually indistinguishable from pieces made of sandstone or limestone

– and do so at a fraction of the cost with a consistency and precision that are difficult to achieve with natural materials.

We started modestly in 1971 with a facility near Northampton, England, that turned out just seven ornamental pieces in cast stone. In the ensuing years, that list has grown to include more than 500 standard pieces, and we're now capable of accommodating an endless array of custom possibilities as well.

Through it all, our goal has been to provide watershapers, landscape artists, architects and anyone else involved in the design and installation of exterior environments with choices among fountains, urns and assorted other garden accents that complement projects in any number of scales and styles. As such, we see ourselves not as passive suppliers of manufactured design elements, but as active collaborators in helping designers bring their projects to fruition.

## Casting Forms

Put simply, cast stone is made using crushed limestone mixed with a cement-based binder. This mix is packed into molds to create objects in a range of shapes from the simple to the intricate – everything from straightforward balusters, columns and capstones to highly figured fountain bowls and ornaments – all without the labor involved in carving natural stone.

We use two different approaches, one a dry-mix process that produces a material that weathers and gains a natural-looking patina over time, the other an advanced wet-mix system we call TecStone that creates a far more durable material that changes very little in appearance when exposed to the elements. Either way, when we release an object from its mold after setting, the finished piece has a surface texture very similar to that of natural stone. Moreover, as is the case with cut stone, our pieces will exhibit slight shade variations from piece to piece,



reflecting the color of the natural materials that we use in the manufacturing process.

The finished pieces have a great deal of strength and, with proper engineering, can even be used as structural elements in conjunction with reinforced concrete. For the most part, however, these objects are purely decorative and require no special maintenance so long as they're not exposed to extremes of weather. (In extremely hot conditions, we recommend watering a garden only in the cooler morning or evening hours; in freezing conditions, we suggest emptying fountain bowls to avoid any potential damage.)

This technology has enabled us to develop a wide range of stock and custom pieces. Fountains and other water-related pieces have always been a big share of our collection, and we also have something of a specialty in pool, pond and fountain copings and surrounds. Standard styles range from classic Palladian and Gothic forms to Regency, Victorian and even Art Deco detailing – a fine complement, as mentioned above, to our ability to develop original works based on specifications provided by designers.

Since our modest start, we've watched the demand for cast-stone objects grow by leaps and bounds. In 1987, this led us to move down the road to new manufacturing facilities at Brixworth that have since been expanded many times. By 1990, we had set up shop in the United States as well and now have a manufacturing plant in Pueblo, Colo., to go along with a warehouse facility in Bellmawr, N.J.

These expansions have given us the flexibility we need to participate in the full range of projects around the world, and we're especially proud of getting more and more involved in restoration projects to which we supply pieces that are historically consistent with original designs: It's yet another wonderful complement to our ability to work in completely original forms.

The photographs accompanying this text show just a few examples of our capabilities in cast stone and demonstrate, we hope, that the sky truly is the limit when it comes to what can be achieved with these objects when they are placed in exterior environments.



### A Capital Classic

Our work with the Omni Shoreham Hotel in Washington, D.C., was another *tour de force* for us. In addition to a triple-tier fountain, we provided benches, urns, 500 balusters, coping stones and 100 custom pier caps that now surround the property's main terrace and entry stairway – all seen in a wonderful perspective through a distant balustraded temple we provided.







### *Sprucing Up Downtown*

Designed to breathe new life into its city, this project revolves around a body of water in Altamonte Springs, Fla., called Cranes' Roost Lake. Working with the project team, we supplied a variety of both standard and custom stone castings, including a classic balustrade system, a copper-domed temple and a pair of five-column pergolas that took their place at the water's edge.







## College Spirit

This project showcased our ability to replicate classic forms – in this case the three tiers of a much-deteriorated original fountain at Eton College. As part of our commission, we took molds from the original and created an exact replacement. The results were so outstanding that we asked for and received permission to use the molds in producing additional fountains (including a small cherub-topped version seen here) among our standard offerings.

Continued on page 54

## Raising the Bar

We at Haddonstone pride ourselves on the quality of our products and have worked as hard as we can to formulate and promote standards for cast-stone products within our manufacturing segment.

To that end, our firm was a founding member of the United Kingdom Cast Stone Association, an organization that defines strict levels of technical performance and quality control for its membership. One of the group's requirements is regular testing of materials not just in a company's own laboratories but by an independent laboratory as well.

—A.R.C.

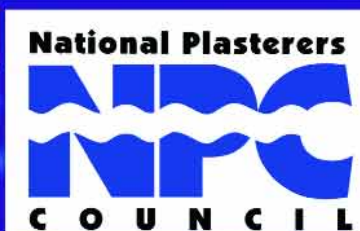




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## Combining Styles

Seaham Hall & Serenity Spa near Durham, England, offers a distinctive blending of traditional and contemporary styles. We served both visual missions by providing simple rectangular pond surrounds to go along with more overtly ornamental balustrades nearby.



## Intersecting Interests

Sometimes a single watershape can be the focal point of an entire, grand landscape, and that was certainly the case for this project at the intersection of Excelsior and Grand in St. Louis Park, Minn. Surrounded by mixed-use commercial and residential development, our triple-tiered fountain quickly became a hub, magnet and landmark for the expanding community's common area.



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– Ray Morrow, Ray Morrow Design, La Habra, Calif.

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– Blake Howell, Carolina Aqua Pools, Charlotte, N.C.

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# MAKING A MOUNTAIN HAVEN





For 35 years, landscape artist Martin Mosko has specialized in designing and installing highly customized watershapes and landscapes that harmonize with their environments. In this project, the client asked him to create a high-altitude paradise that would make the most of its dramatic surroundings – and Mosko responded with a pool, pond, stream and waterfall complex in which everything seems absolutely right at home.

## **I** By Martin Mosko

I see gardens as entire worlds unto themselves – as complete and alive and distinct rather than as simple decorative extensions of architecture. Whatever form they might take, these spaces should carry us back into the peaceful parts of ourselves and to the calm, clear realms of our minds and spirits.

This outlook has, in my role as founder and principal of Marpa Design Studio of Boulder, Colo., led me to consider landscapes as integrated wholes rather than as cobbled assemblies of solutions to various problems. It's a positive philosophy and design approach that is fully on display in the project depicted on these pages.

I was recommended by the architect, who was working with the owners of this sprawling Rocky Mountain estate on a major renovation of both the home and the surrounding land. From the start, I was told there was just one major theme in mind: The home and its surroundings were to look as natural as possible – as though everything had arisen organically from the roots of the mountains.

Neither house nor grounds possessed that spirit at the time, and the landscape was particularly deficient. Indeed, the only pre-existing feature was a cracked 20-by-40-foot swimming pool on the south side of the home, leaving me with an enormous and basically blank canvas.

I knew good things were on the way when I met the owner and discovered we had a shared affection for rock: He's a trained geologist and was as passionate as I was about using natural materials in ways that let them harmonize with their surroundings.

## **Water Woes**

As we surveyed the site, he mapped out his vision of a garden that would seem as though it had been put there by nature. The pool was to be long enough for a full-scale swim lane for his daughter, a serious competitive swimmer. It would also have a deck large enough for elaborate entertaining as well as a waterslide he didn't actually want to be able to see but *did* want to enjoy.

After carefully listening to the client, I spent a great deal of time on the site and a vision emerged of the garden that I then expressed in a model. After studying the model, we refined the design – a process that, among other things, saw the pool shortened by 15 feet from the west side at the owner's request.

It was all making sense, and then he told me the bad news: The 165-acre property, he said, was a combination of two adjoining parcels that straddled two water districts. The house itself is located within the town of Genesee, which has limited water supplies and strict water regulations. Under the rules, he told me, if you have a pool or any other type of watershape, you *must* use their water and that water cannot be used in any other district.

This meant that, despite the extent of the property, whatever watershapes we might install all had to be located close enough to the house (and its Genesee water service) that no parts of them would cross lines into the neighboring water district's turf. Immediately, my big blank canvas became considerably smaller, and I saw that I would be creating the naturalistic exteriors we'd been discussing within a relatively confined, definitely busy and distinctly architectural space.

The owner's love of stone and my decision that it was to be a major player in the design saved the day, giving us the avenue we needed to make visual connections between the home and the rugged, mountain-themed surroundings we'd been discussing. Using indigenous granite, we would ultimately prepare a visually engaging series of structures in and around the pool that extended well into the surrounding space.

We sited the pool on the west side of the home to take advantage of the magnificent view of the Continental Divide available in that direction. Not only did this tuck the pool neatly within the Genesee district, but it also let us borrow the distant views and establish the watershape as the unifying element in





an exterior design in which a mountain river would flow around the house before widening (and only seeming) to flow into a naturalistic “swimming hole” where the grade flattened to the west.

As with all gardens, it was important for us to establish boundaries, set visual limits and contain the energy of the space. We did so in this case by using the home to the east and tall, existing trees to the north. To the south, we would be crafting a retaining wall made of boulders and trees, while the vanishing edge of the swimming pool serves as the fourth, western boundary. Although these features establish physical and visual limits, the views are wide open to the west above the pool so there’s no practical sense of confinement.

In our offices, we refer to this phenomenon as “connecting the microcosm of the built landscape with the macrocosm of the existing natural landscape.” To us, this is the key to conjuring the sense that the work we’re doing has always been there, has always been part of the mountainous scenery.

## Selling the Drama

At the south of the house – outside the kitchen in the space near where the old pool once stood – we installed an upper deck that leads down to a patio surrounded with the sight and sounds of moving water. There’s a small, hidden pond near the top of the driveway that serves as the source for a stream that flows down in a sequence of turns that embrace the patio. This water follows a clockwise path – excellent *feng shui* – and moves along a boulder-strewn course softened by plants and wildflowers.

We placed the entrance to the water-slide at the edge of the patio, making it resemble the access to an abandoned mine. From here, the slide runs right through the heart of the waterfall-carved mountain we devised before emerging into the pool. (The waterfall itself is part of a separate system that *appears* to flow into the pool but actually doesn’t.)

As suggested above, the client knew the addition of the slide was an aesthetic risk; we minimized its potential intrusiveness by burying it beneath tons of stone. And I mean *tons*: Some of the boulders we

used in this area weighed up to 70,000 pounds each, and we massed them in such a way that they’ve become their own view, blocking off visual access to the pool from the patio. The use of these massive boulders allowed us to make the entire mountainous waterfall feature quite natural-looking.

These 16- to 18-foot boulders, by the way, are backed by a 12-foot concrete retaining wall that cannot be seen in the finished landscape. Once the boulders were placed, we backfilled with soil between them and the concrete wall. We then planted the gap heavily and covered the upper edge of the retaining wall with cantilevered Bluestone.

The most noteworthy feature of construction of the waterfall/slide mountain is that we actually built it twice: access was so restricted that we couldn’t get a crane to the west side of the house to set the rocks. Instead, we brought in the largest excavator in Colorado, which arrived in parts in two semi-truckloads and took a week to assemble on site. Once the swimming pool area was excavated to the desired depth, we set all





the boulders for the waterfall.

We carefully numbered, photographed, and documented the boulders' various dimensions and positions, then removed them all and stored them at the edge of the site. This enabled us to build a waterproof concrete substructure and the engineered support wall that would stand behind the boulders.

Once this was accomplished, we used the excavator to build a temporary road up the mountainside and to convey the stones from the delivery trucks. This meant we didn't have to disassemble the excavator; it also gave us a means to get a crane to the job site and use it to reset the boulders in their proper places with considerably greater ease than we'd experienced the first time around. Once the boulders were set and shimmed exactly as we wanted, we filled the gaps between them with shrink-proof shotcrete.

Once the owner saw the big boulders in place, he wanted to be able to dive off them. For safety, this required a diving well 16 feet deep. Given the fact we were already cutting into the grade, this meant the hole for the shell in this area was 29



**It's ironic given the fact that we were working on a 165-acre property, but the construction process for this project was complicated because of the narrow space in which we had to work to keep the pool within the home's water district. Once we overcame the access issues, we still had to deal with big stone and the sheer size of the pool and related structures.**





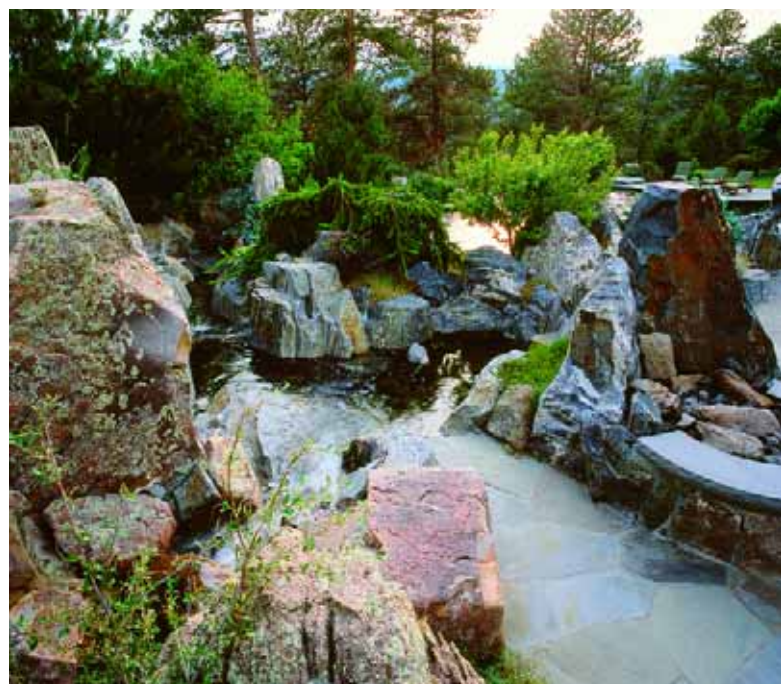
Just off the home's south side, we built a large deck/patio space encompassed by a stream and waterfall system. In keeping with basic principles of *feng shui*, the water follows a clockwise course as it traverses a significant drop through boulders and wildflowers.

feet deep and led to creation of one of the most impressive steel cages for the pool and its retaining wall that I've ever seen.

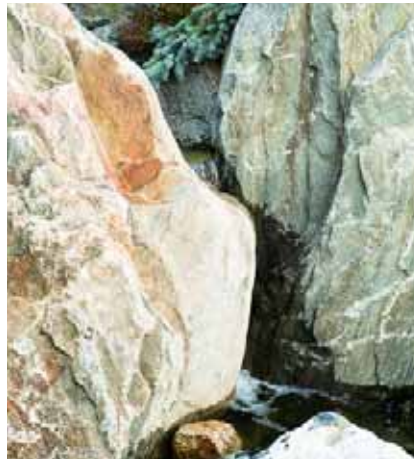
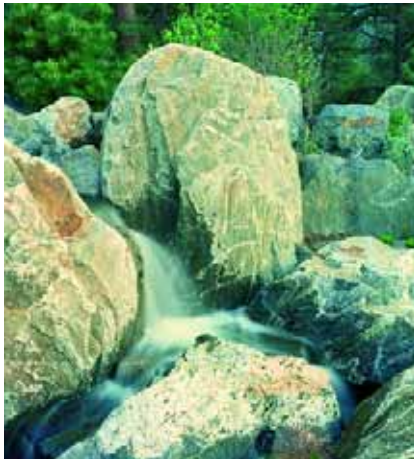
### **Back to the Water**

In organizing the waterworks for efficient operation, we established two separate water systems – one for the pool, waterslide and the small pond that spills over into the pool from the upper patio via two scuppers in the central stone wall; the other for the stream/waterfall system. The motivation here was entirely practical: This division allows the client to heat and filter the pool independently to save on energy and maintenance costs.

The pool is heated with a custom-designed heat-exchanger that warms the pool to comfortable swimming temperatures for three seasons and allows the water to be kept just above freez-



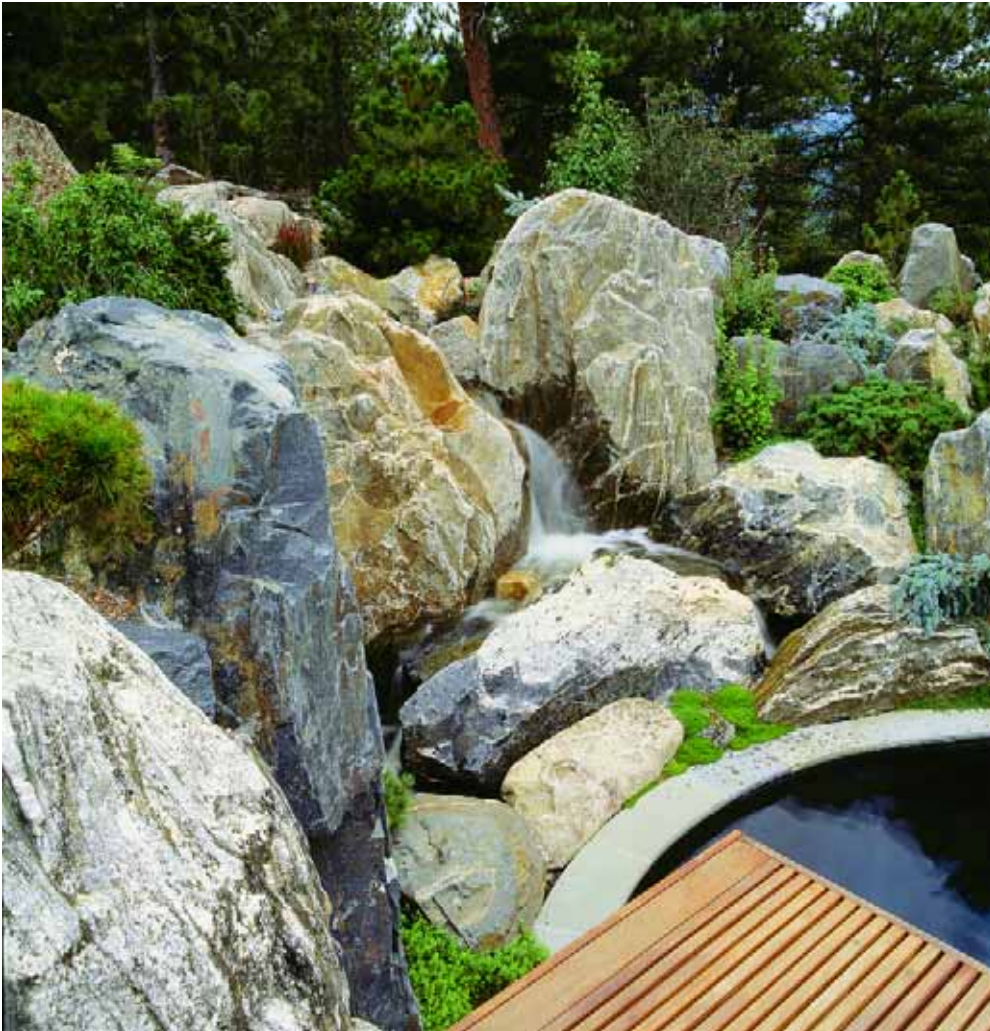




Boulders and waterfalls mark the intently naturalistic transition between the upper deck and the pool level. The interesting thing is that we built this composition *twice*—once to define the extent of the support structure we'd need and then again after the rocks had been removed and the base prepared. One of our goals here was to hide the slide that snakes its way through the waterfall structure: All that's visible now are the entrance and exit, both of which have been framed in timbers to look like abandoned mine shafts.







ing during cold months so our client and his family can enjoy their beautiful pool on a year-round basis. All equipment is hidden in a giant vault buried 12 feet under the original grade at the southwest end of the pool.

The pool itself is irregularly shaped to maintain the illusion that it's a mountain lake, and boulders spill over its edges and appear in the water as well. Engineering the shell to carry the extra load imposed by the boulders was a painstaking process. It was very helpful that by the time we were setting these stones, the crane was on site and available for use.

Near the vanishing edge of the swimming pool is a hidden bonus: a ledge large enough for two that lets bathers lounge with their bodies submerged and their heads above the water. This platform rises in depth relative to the surface from six to 12 inches, so each bather can decide exactly how much exposure to the sun is desired.

Throughout the process, we knew that stone-setting was an important part of the design of the pool and the key to the way things would look from various vantage points inside the house. In particular, we considered the view from the home's "great room" on the second level: It is well above the pool and opens onto a balcony that takes advantage of every vista.

By design, we wanted to extend the pool far enough out from the house that it could be seen from inside the great room, but that proved impractical because of the steepness of the slope and the expense and difficulty that would have been involved in building retaining walls to make things work in the ways we wanted. There were also the ten-foot waterfall scuppers to consider – another factor that limited the visual depth we could practically achieve.

At this point, we had to evaluate the balancing act we were trying to accom-



**The pool has a broad, deep well for a reason: The owner was keenly interested in being able to dive from the wooden platform we'd planned on installing, but once he saw the big boulders, he also wanted us to make certain he could safely take the plunge from the stones that encircle the south side of the pool.**





There are several ways to get from the upper level down to the pool, its deck and views of the stones that break through the pool's irregularly shaped perimeter in several key places. Our desire was to create the impression that this was a mountain lake that had always been there – and if questions to the owner from his guests are any indication, it seems we did a fair job of making the visuals work.





plish between the width, depth and height of the water relative to the house and recognized that we couldn't build the pool with enough width that it could be seen directly from inside the great room – especially given the fact that the balcony had a railing that was definitely in the way. Helpfully, the architect went back to one of his original ideas, revising the balcony to step down from the level of the great room, thereby lowering the railing enough to pull the pool's vanishing edge into view and make the sight lines work.

As completed, the side of the pool with the vanishing edge stands about 18 feet above grade. Its shell was engineered to stand on its own, but to give the structure a natural look from below, we added a "retaining wall" made of boulders and established numerous planting pockets among the stones.

## Natural Balance

Although the water in any landscape is a magical and important element, we see it as just one of five we consider along with earth, pathways, stopping places, plants and space. To succeed, a project must balance all of these elements in scale with each other, the home and the surrounding landscape. This doesn't mean that each element takes up 20 percent of the space; rather, it means that each must have enough presence to work properly with the others.

In this landscape, for example, the water occupies a great deal of the physical space. That dominance, however, is balanced by the fact that the water is reflective – a quality we enhanced by finishing the pool's interior with a black Diamond-Brite plaster from SGM (Pompano Beach, Fla.) – and repeats the presence of the tall surrounding trees, boulders, and plants as well as the house. In other words, the water doesn't stand alone: it engages all other elements in the space.

And in any event, it's not *all* water. There's plenty of entertainment space in this landscape, from the Pennsylvania Bluestone patio spaces on the upper level to the area around the pool. There's also a fire pit near the waterslide's entrance, and there's an expansive verandah near the top of the space that's high enough on the hill that the view from its spa captures the view across the pool and into the mountains and forests beyond.

As is true in any space where architecture and naturalistic landscapes come together, visual transitions should be as graceful as possible. In this case, we used a ten-foot-tall stone wall and sweeps of steps leading down to the pool, borrowing the look of the home's façade and using granite to ease the visual shift from the built to the seemingly "natural" space.

Our ambition in all of this was to conjure the thought that the house had been built to take advantage of a naturally occurring stream and mountain pool the homeowners had happened across in surveying their property. By the time we finished our work and erased all traces of our construction activities and the temporary access road, we'd created just such a compelling illusion: frequently, our client tells us, his guests will ask him how he happened upon such a beautiful spot for his house and wonder how in the world he managed to build it amid all the outcroppings and boulders and waterways.

That's his little secret – and a source of great pride for us.



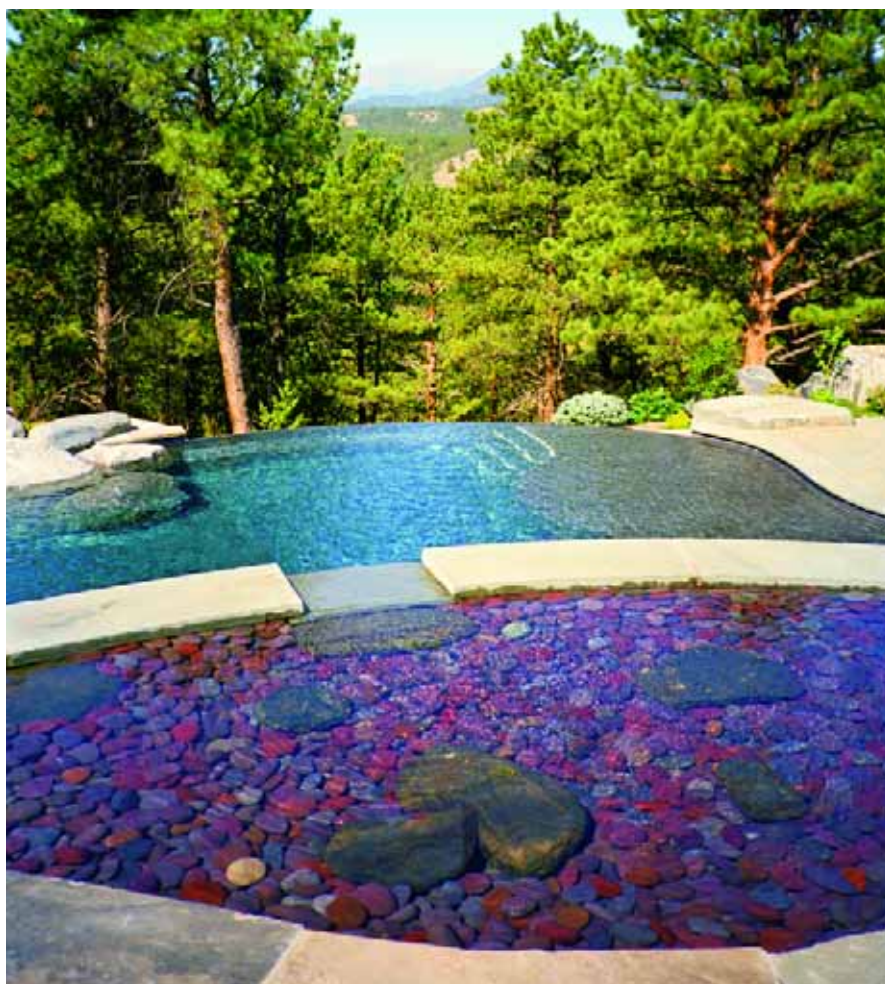
## Recognition

In the end, everyone involved in the project described in the accompanying text was thrilled with the results and the sheer joyousness of the space we created.

Although our personal satisfaction was quite sufficient, I'm pleased to report that we at Marpa Design Studio earned some professional kudos as well, winning the Tucker Award from the Building Stone Institute for excellence in the use of natural stone; a Merit Award for Residential Design from the American Society of Landscape Architects; and a Grand Award of Excellence from the Associated Landscape Contractors of Colorado.

–M.M.






We did all we could in this project to put great beauty within easy reach in the form of stone structures, a mountain lake, waterfalls and more, but when all is said and done, our work was about surrounding a beautiful home with an exterior environment that provided worthy transitions from architectural to natural spaces while taking full and primary advantage of breathtaking views to the Continental Divide in the distance.





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**Finley** on Japanese gardens; a **roundtable** on pools and landscape design; **West** on color rendering.

## ☐ February 2000 (Vol. 2, No. 2)

**Hersman** on lighting design; **Macaire** on faux-rock installations; **Andrews** on glass mosaics.

## ☐ March 2000 (Vol. 2, No. 3)

**L'Heureux** on project management; **Long** on steel cages; **Forni** on installing and maintaining lakes.

## ☐ April/May 2000 (Vol. 2, No. 4)

**Schwartz** on garden access; **Anderson** on streambeds; **Nantz** on watershapes and architecture.

## ☐ September 2000 (Vol. 2, No. 7)

**Davitt** on designing for small spaces; **Altvater** on the importance of aeration; **Hetzner** on sheet falls.

## ☐ November/December 2000 (Vol. 2, No. 9)

**Arahuate** on John Lautner; **L'Heureux** on stretching laminar flows; **Benedetti** on satellite surveying.

## ☐ January/February 2001 (Vol. 3, No. 1)

**Holden** on a retro-look design (I); **Fleming** on upscale approaches; **Gutai** on pump technology.

## ☐ March 2001 (Vol. 3, No. 2)

**Moneta & Farley** on site-specific design; **Benedetti** on fiberoptics; **Alperstein** on golf-course water.

## ☐ April 2001 (Vol. 3, No. 3)

**Jauregui** on inspired clients; **Dirsmith** on frosty fountains; **Tisherman** on deluxe finishing.

## ☐ May 2001 (Vol. 3, No. 4)

**Reed** on sculpture gardens; **L'Heureux** on sequenced water; **Brandes** on restoring riverfronts.

## ☐ June 2001 (Vol. 3, No. 5)

**Winget** on fun-inspired waterforms; **Holden** on survey formats; **Schwartz** on classic stonework (I).

## ☐ July/August 2001 (Vol. 3, No. 6)

**Rugg** on pond basics (I); **Ruthenberg** on perimeter overflow; **Schwartz** on classic stonework (II).

## ☐ September 2001 (Vol. 3, No. 7)

**Rugg** on pond basics (II); **Urban** on energy savings; **Pasotti** on interactive waterplay.

## ☐ October 2001 (Vol. 3, No. 8)

**Tisherman** on hilltop views; **Hagen** on natural stream work; **Schwartz** on classic stonework (III).

## ☐ November/December 2001 (Vol. 3, No. 9)

**Straub** on Kansas City's fountains; **McCloskey** on the Getty Center; **Tisherman** on Fallingwater.

## ☐ January 2002 (Vol. 4, No. 1)

**Phillips** on Hearst Castle's watershapes; **Bower** on the Raleigh Hotel pool; **Roth** on Katsura Rikyu.

## ☐ February 2002 (Vol. 4, No. 2)

**Marosz** on project integration; **Moneta** on spa-edge details; **Affleck** on sculpture and water.

## ☐ May 2002 (Vol. 4, No. 5)

**Anderson** on pond essentials; **Pasotti** on interactive waterplay; **Gibbons** on 'stellar' fiberoptics.

## ☐ June 2002 (Vol. 4, No. 6)

**Altorio** on civic fountains; **Gutai** on skimmers; **Beard** on working with landscape architects.

## ☐ September 2002 (Vol. 4, No. 8)

**Rosenberg & Herman** on site-sensitive design; **Dirsmith** on long-term design; **Gutai** on filters.

## ☐ October 2002 (Vol. 4, No. 9)

**Copley & Wolff** on modernizing fountains; **Bethune** on imitating nature; **Tisherman** on edgy colors.

## ☐ November/December 2002 (Vol. 4, No. 10)

**Holden** on Villa d'Este; **Hobbs** on Maya Lin's watershapes; **Phillips** on water in transit.

## ☐ January 2003 (Vol. 5, No. 1)

**Fleming** on high-end ambitions; **Harris** on decorative interior finishes; **Gutai** on surge tanks.

## ☐ February 2003 (Vol. 5, No. 2)

The **Beards** on collaboration; **Yavis** on custom vinyl-liner pools; **Mitovich** on Microsoft's campus.

## ☐ May 2003 (Vol. 5, No. 5)

**Zaretsky** on sensory gardens; **Freeman** on hydraulic retrofitting; **Hanson** on water/stone sculpture.

## ☐ June 2003 (Vol. 5, No. 6)

**Gunn** on fountain whimsy; **Tisherman** on watershaping for an art collector; **Holden** on tile.

## ☐ July 2003 (Vol. 5, No. 7)

**Fintel** on attracting birds; **Lacher** on structural engineering; **Alperstein** on golf course design.

## ☐ August 2003 (Vol. 5, No. 8)

**Miller** on site-specific fountains; **Gutai** on plumbing joints; **Holden** on period-sensitive restoration.

## ☐ September 2003 (Vol. 5, No. 9)

**Hebdon** on borrowing naturalism; **Ruddy** on indoor designs; **So** on modernist sculpture.

## ☐ October 2003 (Vol. 5, No. 10)

**Mitovich** on dry-deck fountains; **Roth** on liner issues; **Marckx & Fleming** on installing glass tile.

## ☐ November 2003 (Vol. 5, No. 11)

**Holden** on carved stone; **Shaw** on roles of consultants; **Forni** on period-sensitive renovation.

## ☐ December 2003 (Vol. 5, No. 12)

Five-year **article and topic indexes**; five-year index for all **columns**, 1999-2003.

## ☐ January 2004 (Vol. 6, No. 1)

**Ruddy** on enclosures; **Lacher** on steel and concrete; **Forni** on water quality for natural watershapes.

## ☐ February 2004 (Vol. 6, No. 2)

**Varick** on nature and architecture; **Benedetti** on protecting stone; **Kaiser** on grand-scale watershapes.

## ☐ March 2004 (Vol. 6, No. 3)

**Morris** on kinetic sculpture; **Cattano** on collaboration; **Hebdon** on water and settings for healing.

## ☐ May 2004 (Vol. 6, No. 5)

**Rowley** on main-drain safety; **Ewen** on purposeful restoration; **Dallons** on high-wire watershaping.

## ☐ June 2004 (Vol. 6, No. 6)

**Dallons** on a hilltop treasure; **Mitovich** on the D-Day Memorial; **Slawson** on Japanese inspiration.

## ☐ July 2004 (Vol. 6, No. 7)

**Benedetti** on fortifying concrete; **Shaw** on fountain 'standards'; **Holden** on Italy's watershapes.

## ☐ August 2004 (Vol. 6, No. 8)

**Bravo** on Olympic-scale restoration; **Martin & Tester** on water and music; **Jauregui** on clients and styles.

## ☐ September 2004 (Vol. 6, No. 9)

**Abaldo** on a grand-scale vision; **Gutai** on valves; **Lennox Moyer** on principles of lighting water.

## ☐ October 2004 (Vol. 6, No. 10)

**diGiacomo & Holden** on watershaping's role; **Allen** on integrated spaces; **Grusheski** on a river's history.

## ☐ November 2004 (Vol. 6, No. 11)

**Abaldo** on grand-scale detailing; **Freeman** on water-chemistry ABCs; **Hughes** on naturalistic design.

## ☐ December 2004 (Vol. 6, No. 12)

Revisiting 25 projects that define **The Platinum Standard** in watershaping.

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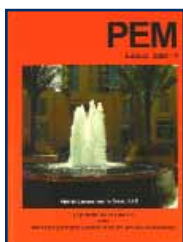
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## FOUNTAIN CATALOG

## Circle 135 on Reader Service Card



**PEM FOUNTAIN** has published information on its line of fountain, water-display and fountain-pond products. The 235-page catalog covers new products, water switches, jumping, spray and laminar jets, lighting fixtures, wiring devices, fountain controls, pond and pump fittings, projection-screen jets and flow straighteners as well as illustrations and current technical information. **PEM Fountain**,

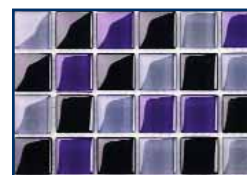
Richmond Hill, Ontario, Canada.

## TILE MOSAICS

## Circle 136 on Reader Service Card

**TRANS CERAMICA** has introduced a collection of mosaic tile products that feature metal, pebble, glass, stone and iridescent elements. Designed to complement and work with each other, items in the line come in a full spectrum of natural colors in all materials – and all are premounted on 12-by-12-, 13-by-13- or 14-by-12- 1/2-inch formats in varying thicknesses (depending on the material).

**Trans Ceramica**, Chicago, IL.



## DECK-JET SYSTEM

## Circle 137 on Reader Service Card



**FOX POOL CORP.** has introduced deck jets as accents for inground pools of all types – vinyl, concrete and fiberglass. Designed for applications in both new construction and renovations, the jets add drama to poolscape by generating arcs of water that reach into a pool from nearby deck

or raised surfaces and bring the sight and sound of moving water to residential projects at a modest cost. **Fox Pool Corp.**, York, PA.

## SITE-ACCESS SYSTEM

## Circle 138 on Reader Service Card

**FRANK WALL ENTERPRISES** has introduced DuraDeck, a mat system designed to provide job-site access to builders while protecting turf from damage. The high-density polyethylene mats can be placed over marshy terrain, mud, sand and other soft surfaces for access and traction to create an instant roadway over virtually any type of ground and will not warp, rot, crack or delaminate. **Frank Wall Enterprises**,



Columbus, MS.

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# WATER SHAPES



## SURFACE MATERIALS

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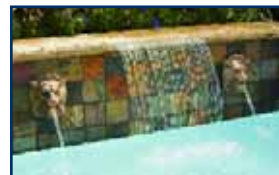


**NATIONAL POOL TILE** provides a complete array of decking, stone and tile materials to integrate the looks of decks, pools and patios. Collected to enable designers and builders to weave outdoor spaces seamlessly into one another, all of the materials – quartzite, Travertine and more – are durable, acid-proof and slip-resistant and come in a range of colors and surface appearances. **National Pool Tile**, Anaheim, CA.

## WATER EFFECTS

### Circle 140 on Reader Service Card

**PENTAIR WATER POOL & SPA** offers MagicFalls Water Effects in five different forms: with waterfalls in sheet, curtain or rain style; and as arcs in sheet or rain form. Each is available in six finishes (brass, bronze, copper, gray, silver or white) and in ten widths from 8 inches to 8 feet. In addition, some sizes can be factory-cut to a concave or convex radius or custom curves. **Pentair Water Pool & Spa**, Sanford, NC.



## STERILIZER BALLASTS

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**EMPEROR AQUATICS** has introduced Smart Ballast. Designed to deliver precise input wattages to lamps in ultraviolet sterilizers, the device maximizes UV-C output, lengthens lamp life and can be positioned well away from the sterilizer housing for added safety using its 19-1/2-foot power cord. The system is also watertight and resists damage in the event of a quartz-sleeve failure. **Emperor Aquatics**, Pottstown, PA.

## CONCRETE SEALER

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**DECK-O-SEAL** offers Deck-O-Grip W/B, a non-yellowing, water-based, blended, polymer-based, high-solids sealer for decorative concrete. The product is clear, transparent, easy to apply and cures to form a hard yet flexible film. It also provides improved chemical resistance when compared to standard acrylic-only curing and sealing compounds and results in a slip-resistant surface. **Deck-O-Seal**, Hampshire, IL.



Continued on page 70

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## GLASS-TILE COLLECTION

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**OCEANSIDE GLASSTILE** has added several new options to its Casa California collection. A silken matte finish is now available along with the line's iridescent and translucent non-iridescent finishes, and there are three new colors: cool gray, cinnamon and chocolate. Made using recycled materials, the handcrafted collection also includes an extensive selection of trim pieces. **Oceanside Glasstile**, Carlsbad, CA.

## FIBERGLASS POOLS

### Circle 145 on Reader Service Card



**VIKING POOLS** has published a catalog on its complete line of fiberglass pools. The 28-page, full-color booklet describes the manufacturing and installation processes step by step; reviews the full range of available finishes and shapes (including lap pools and spas); and offers information on vanishing edges, raised beams, special tile details, lighting options and much more. **Viking Pools**, Jane Lew, WV.

## COMMERCIAL PUMP

### Circle 147 on Reader Service Card



**PENTAIR WATER COMMERCIAL POOL & AQUATICS** offers the Berkeley B-Series centrifugal pump for commercial applications. Designed for high performance and easy maintenance, the end-suction unit is made with thick-walled, close-grained cast iron and

has a unique back pull-out feature for easy access to the impeller without disturbing the piping. **Pentair Water Commercial Pool & Aquatics**, Sanford, NC.

## BACKYARD WATERPARKS

### Circle 149 on Reader Service Card



**COOL BLUE OASIS** offers equipment for backyard waterparks. Intended either as stand-alone splash pads for clients who want nothing more than interactive waterfeatures in their backyards or as integral parts of larger backyard pool complexes, the line includes a range of jet systems as well as rainwater-collection and renewable-energy options – all designed for easy installation. **Cool Blue Oasis**, Wooster, OH.

## PAVER DRAINS

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**QUAKER PLASTIC** now offers its paver drains in both tan and gray colors to match more design choices. The 2-3/8-inch-tall units are made specifically for use with standard pavers and require no cutting or adjustment. They are held in place by securing clips that reach under the pavers and can be alternated from side to side or all placed on one side to fit flush against a wall or building. **Quaker Plastic**, Mountville, PA.

## LANDSCAPE LIGHTING

### Circle 146 on Reader Service Card



**FX LUMINAIRE** has published a catalog on its full line of professional-grade landscape-lighting systems and fixtures. The 36-page, full color booklet covers the company's PotenzaX power/control system as well as its collections of wall lights, uplights, downlights, path lights and specialty lights – all made using high-quality, non-corroding stainless steel, aluminum alloys, copper and brass. **FX Luminaire**, San Diego, CA.

## DECK RAILINGS

### Circle 148 on Reader Service Card



**AZEK BUILDING PRODUCTS** has added several styles of flat and rounded railings to its decking line. The units come pre-drilled for easy installation and are available as 6- or 8-foot kits. Featuring the texture of painted wood, the co-extruded materials have encapsulated wood-composite cores; come in white, Brownstone, Gray and Clay; and are stain- and scratch-resistant. **AZEK Building Products**, Scranton, PA.

## RUBBER LINERS

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**FIRESTONE SPECIALTY PRODUCTS** offers PondGard rubber liners. Flexible and easily shaped, the fish- and plant-friendly material works in ponds, streams, watergardens and waterfalls and comes in a variety of sizes and lengths. It is also resistant to ultraviolet exposure, ozone, frost, snow and temperature extremes and resists microbial attacks and algae growth. **Firestone Specialty Products**, Indianapolis, IN.

Continued on page 72



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## POLYMER POOL WALLS

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**CARDINAL SYSTEMS** has introduced the Caravelle line of polymer walls for vinyl-liner pools. With a design based on the strength and stability of parabolic-arch construction, the new system features precision-manufactured parts and molded components and complements the

company's existing line of steel pool panels, sun shelves, steel spas, drop-in steps and coping systems. **Cardinal Systems**, Schuylkill Haven, PA.

## COMPACT EXCAVATOR

### Circle 153 on Reader Service Card



**DITCH WITCH** offers the Model XT850 excavator/tool-carrier. Designed for lightweight power, the unit has turf-friendly rubber tracks with zero-radius turning and can put more than 70 attachments to work in underground construction. It also features 260-degree excavator sweep for outstanding single-point offset digging capability and comes with a trailer, stands and a set of standard tools. **Ditch Witch**,

Perry, OK.

## PLANT CATALOG

### Circle 155 on Reader Service Card



**MONROVIA GROWERS** offers a compact disk entitled "Great Plants" as the company's catalog. Covering a range of new introductions as well as company classics, the 336-page, full-color document includes growing tips and information on plants for tropical, water-wise and small-space gardens as well as topiaries. There

are also plant indexes using both common and botanical names. **Monrovia Growers**, Azusa, CA.

## TALL RETAINING WALLS

### Circle 157 on Reader Service Card



**KEYSTONE RETAINING WALL SYSTEMS** offers the 133Elite line. Designed specifically for tall-wall applications and using high-strength pins to ensure secure interlocking within the segmental wall face and with geogrid soil-reinforcement material, the blocks are easy to

install in straight or radiused forms and come in a variety of finish textures and colors. **Keystone Retaining Wall Systems**, Minneapolis, MN.

## CLASSIC STONE

### Circle 152 on Reader Service Card

**YELLOW MOUNTAIN STONeworks** offers custom architectural and landscape stone. Materials include antique granite, limestone and sandstone salvaged and reclaimed in China as well as newly quarried dimensional stone finished in a range of textures and finishes – honed, polished bush-hammered, cleft, flamed and more, either hand-tooled or done with machines. **Yellow Mountain Stoneworks**, Seattle, WA.



## DECKING-PRODUCT CATALOG

### Circle 154 on Reader Service Card

**TIMBERTECH** has published a catalog covering its line of wood-composite decking and railing systems. The 24-page, full-color booklet includes information on an array of decking profiles, color options and textures; docking planks; two railing systems available in an array of colors that complement decking choices; a deck-drain system; and a variety of accessories including fascias, risers and end caps.

**TimberTech**, Wilmington, OH.



## WATERFALL PUMPS

### Circle 156 on Reader Service Card

**AQUA CONTROL** offers four lines of submersible waterfall pumps. Designed for installation in either wet vaults or on a pond's bottom, the units come in three mounting styles in sizes from 1/2 to 40 horsepower. They feature a sled design that eases the process of bringing the pumps to the surface or ashore for maintenance – and a float that keeps them from getting mired in soft material. **Aqua Control**, Spring Valley, IL.



## pH CONTROLLER

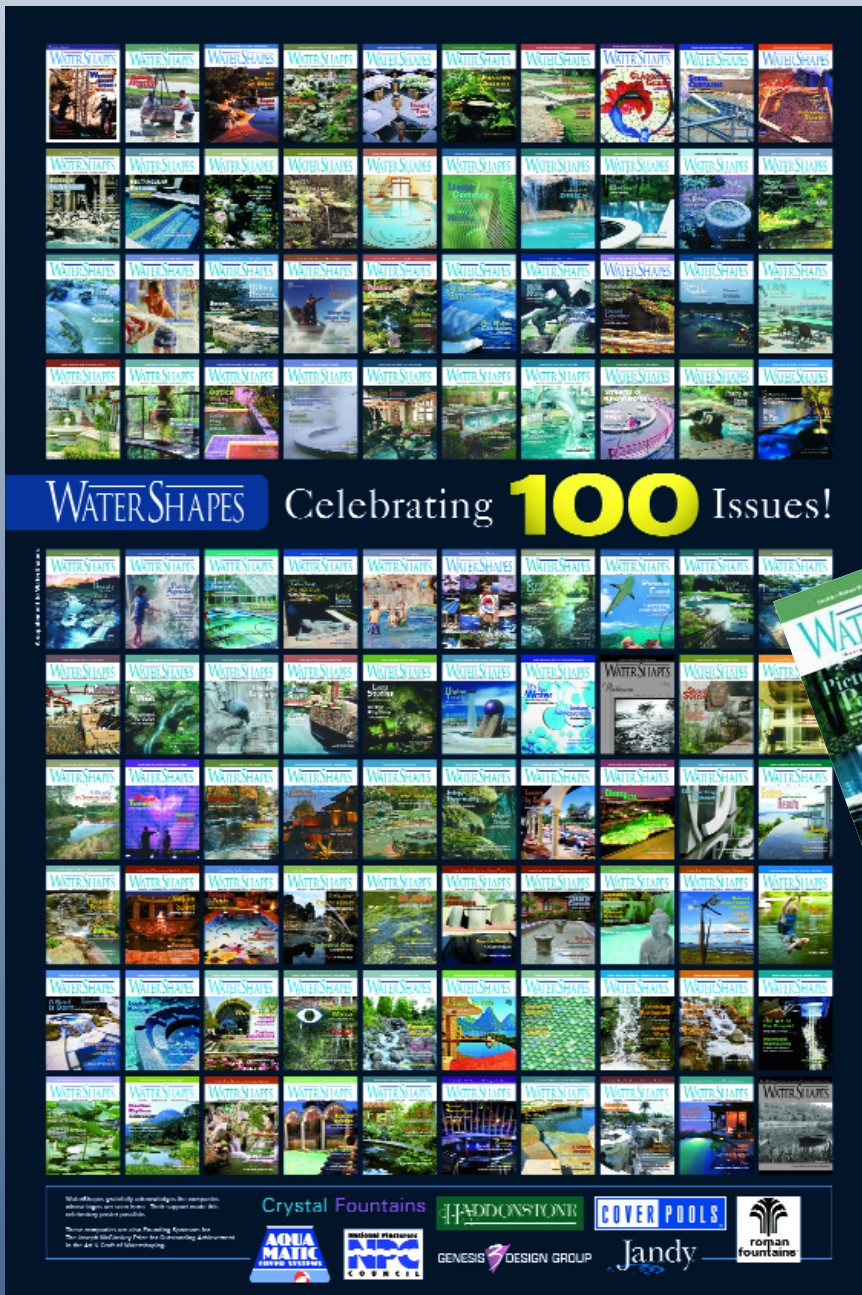
### Circle 158 on Reader Service Card

**CAT CONTROLLERS** offers the CAT 1000, a digital controller that constantly monitors and automatically corrects pH. Designed for use in residential pools, the system is a perfect complement to salt chlorine generators, protecting plaster and aggregate finishes while easing chemical maintenance. The unit comes with either a CO2 kit or a peristaltic acid pump and tank system. **CAT Controllers**, Rockville, MD.





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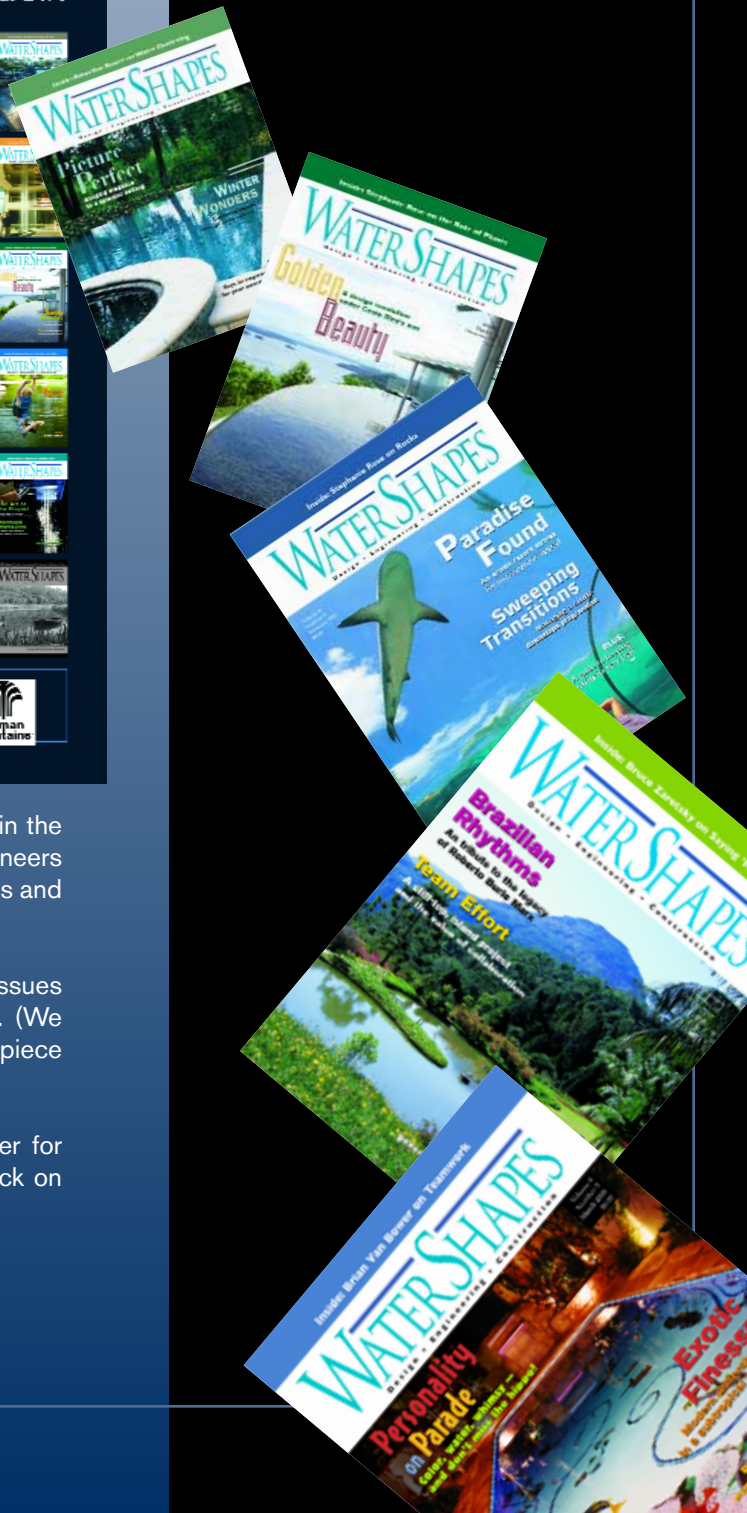


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By Mike Farley

# Beyond the Edge



Last month, I did my usual annual roundup of books that feature custom residential swimming pools. I must confess that I deliberately withheld one such book from the usual summary treatment because it was just too good for me not to give it a full column's attention this time around.

The book – *Infinity Pools* by Ana G. Canizares (Collins Design, 2006) – is one of the best on pools as a design genre that I've ever seen. In fact, one of the few things I *don't* like about it is the title, because I've always preferred the term "vanishing edge." That quibble aside, I think she's done a terrific job of presenting what has to be the most powerful, influential design look of the past 20 years. More important, she manages to do so without making these pools seem a visual cliché.

As is demonstrated repeatedly throughout the book's 190 beautifully illustrated pages, vanishing edges are truly dynamic design features when used appropriately and creatively. This collection, however, goes far beyond the basics, serving as a gallery of some of the most beautiful projects of *any* kind I've seen gathered in one volume. In fact, it's such a fine collection that the title almost does the content a disservice by making it seem more limited than it really is.

For one thing, the geographic diversity is amazing. In addition to representing what we do here in the United States, there are also projects from Costa Rica, Lebanon, Austria, Italy, South Africa, Brazil, Australia and Spain. For another, the range of styles on display is quite diverse, including not just the predictable ultramodern projects but also some that might be classified as classic or tropical and some others that defy easy classification. Finally, the photography is stunning – some of the best I've ever seen in a book of this kind – and the descriptions, although brief, offer interesting insights into the designs and settings.

All of that is impressive, but what really won me over is the fact that the book puts myriad details on full display. Beginning with the edges themselves, we are treated to a host of ways that these pools can be used to create visual links to a setting, a home's architecture, a landscape or the hardscape elements that surround these pools. There are creative shade structures, deck treatments and railings, for example, along with well-realized lounge areas, entertainment spaces, fire elements and various associated waterfeatures.

The use of materials in some of these projects is nothing short of visionary. The combinations of water with wood, stone, glass, tile, stainless steel, thatching, grass, cobbles and sculptures are uniformly tasteful and thoughtfully integrated. There are also wonderful examples of lighting, step treatments, pathways, stepping stones, catch basins, troughs, edge details and spas. It's a true *tour de force*.

A number of wonderful watershapers are featured – most prominently my friend Joan Roca of Costa Rica, who contributed five projects to the collection (a couple of which have appeared in *WaterShapes* in recent years). His work here demonstrates a fluidity of design sensibility and a sensitivity to settings that is profound and inspiring.

To be sure, some of the projects Canizares covers are better than others and some even contain what I'd consider to be obvious mistakes (white drain covers in pools with dark finishes, for example). Overall, however, this collection shows off the art of watershaping in ways that capture its true potential even for those who think vanishing edges are already a bit passé: To me, it's a worthy addition to any designer's bookshelf. **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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