Inside: Brian Van Bower's 'Designer Quiz'

WaterShapes

Design • Engineering • Construction

Volume 3
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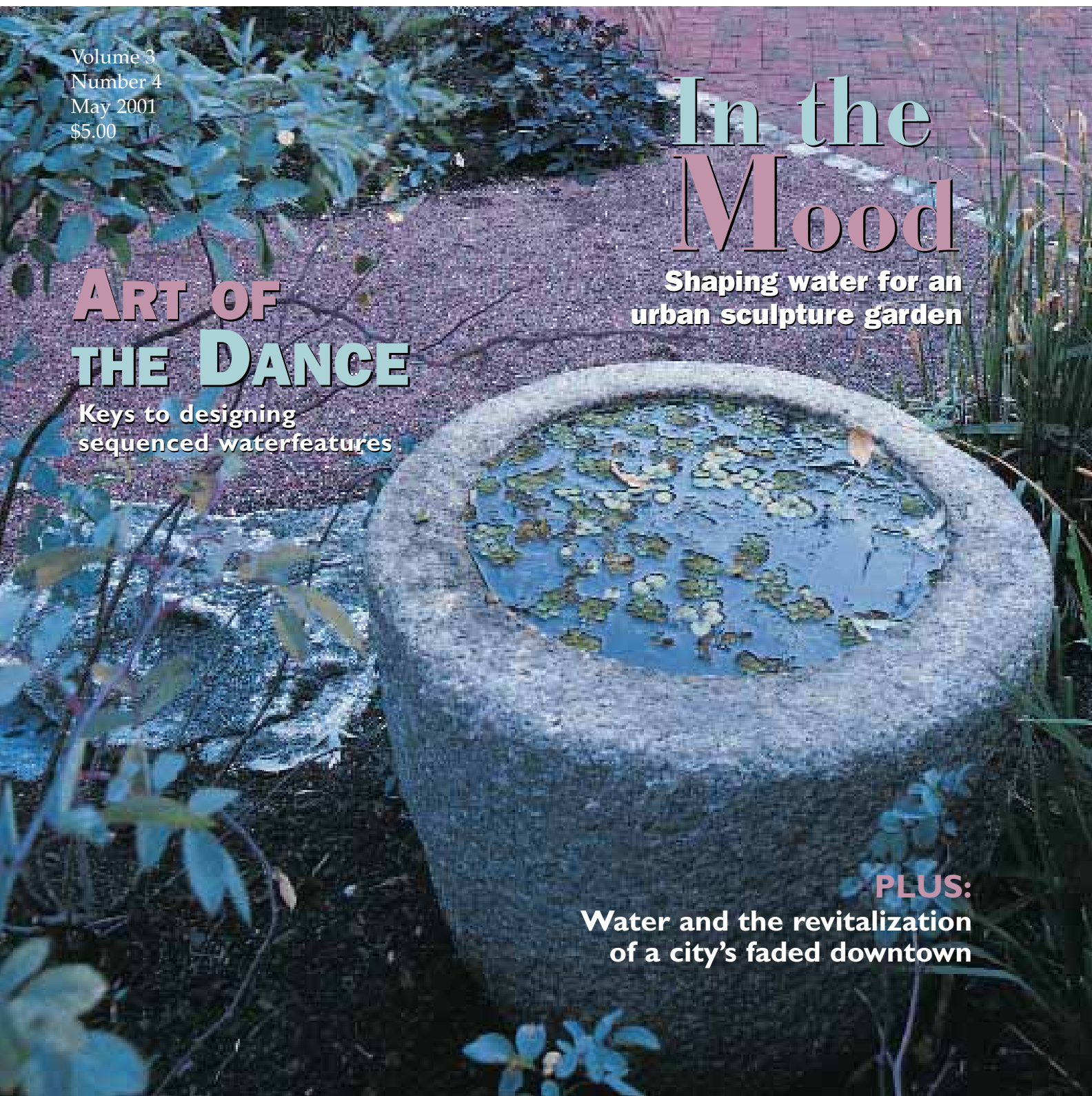

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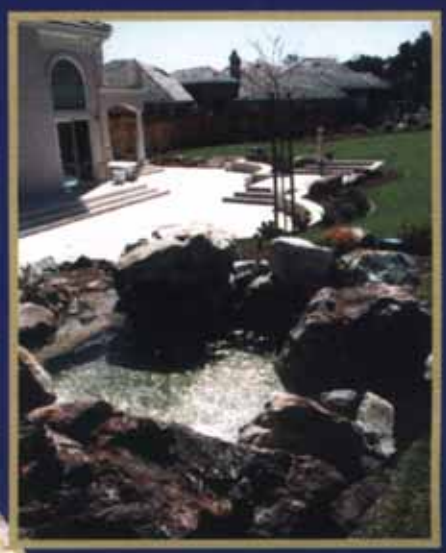

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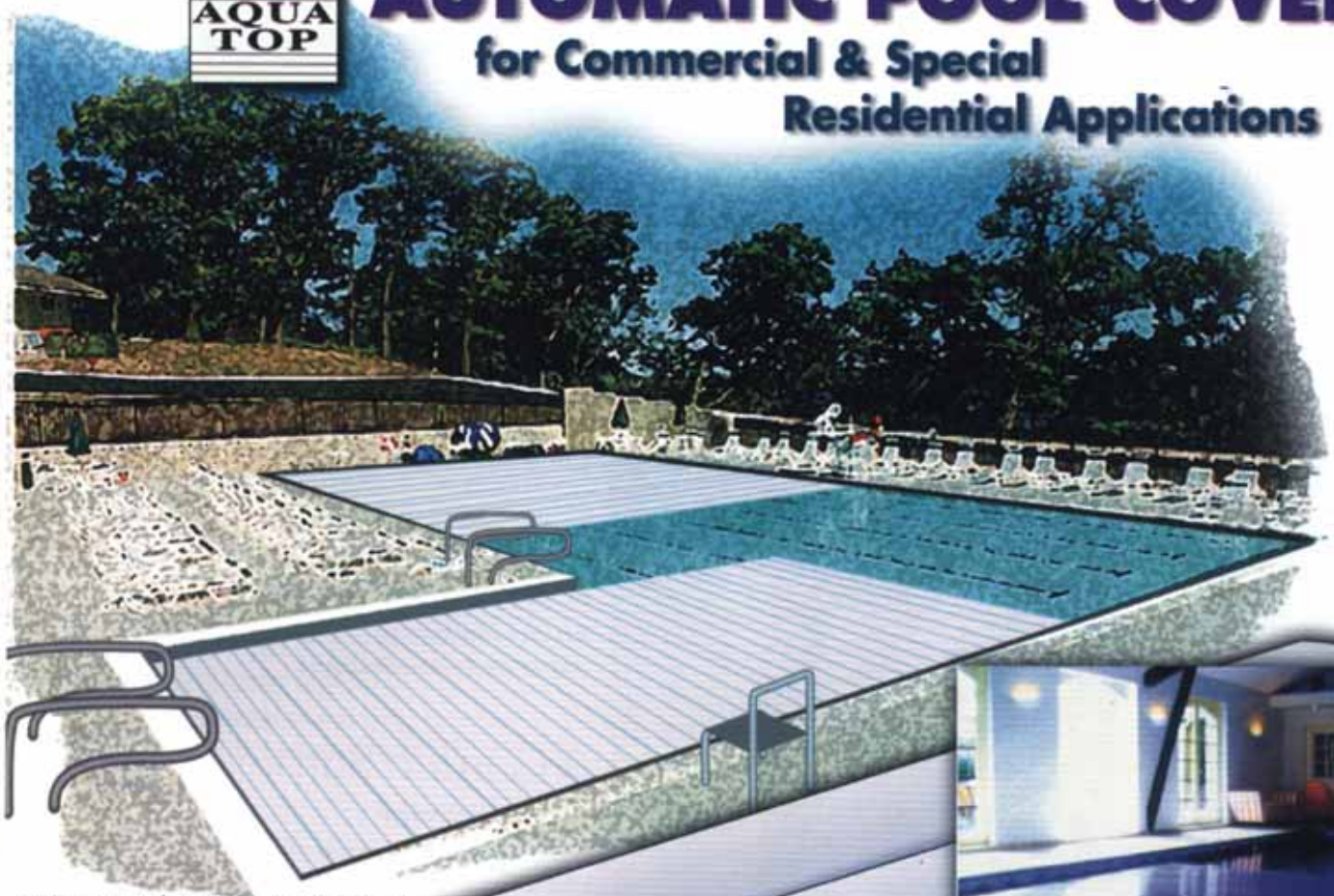

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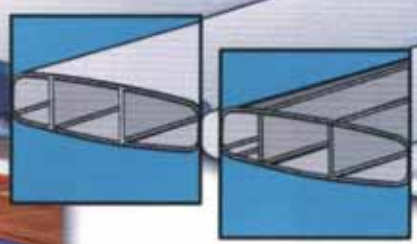

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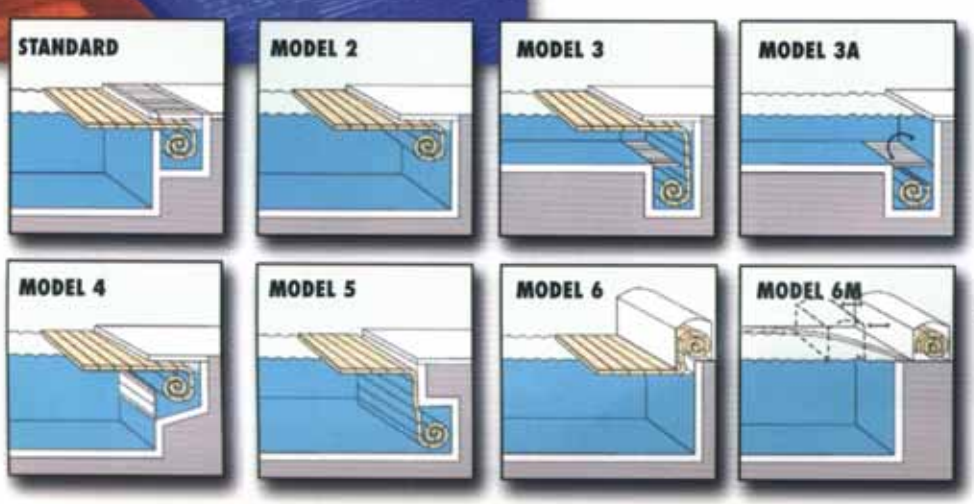

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Contents May

26

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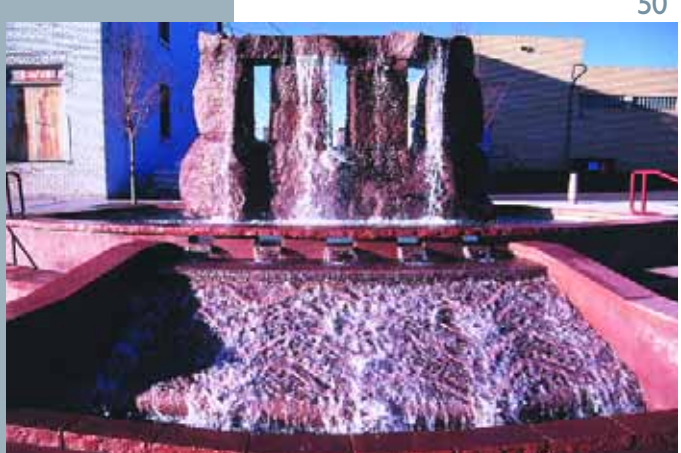

Features

36

WATERSHAPES

Volume 3 • Number 4 • May 2001

COLUMNS

14

20

70

DEPARTMENTS

On the cover:
Photo by Linda Oyama Bryan

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Choice Words

What do you call the effect of water falling over the edge of a pool? Do you say it has a negative edge? An infinity edge? A vanishing edge? Or do you have another term that you like instead? Ever since these pools have been around, those three expressions (and some others, including "horizon pool") have been used fairly interchangeably.

The imprecise terminology is understandable when you consider the sublime visual illusion that is achieved when these pools are designed, engineered and built correctly. It's a tough effect to describe verbally, which is why the choice of the best possible phrase is important.

As one who cares a great deal about language, I'd like to offer my wordy perspective on which phrase best fits this most dazzling of modern watershape designs:

q *Negative edge* was the first term I ever heard used to describe the effect of a plane of flat water disappearing over the edge of a swimming pool. This term makes literal sense in that the edge of the pool set is a fraction of an inch below the water's surface. The problem is the word "negative," which seems at once an ironic and dreary word for such a beautiful design concept.

q *Infinity edge* has a trendy sound and has caught on with many people. The problem I see with this nugget is that you have to go out pretty far on a metaphorical/metaphysical limb to find any connection between the word's actual meaning and the design it's being used to describe.

A friend recently explained to me that by visually connecting the water's surface with surrounding views, it in effect goes on forever. As much as I love the indulgences of poetry, even I have a hard time swallowing that one. When I think of an infinity edge, I think of an edge that truly stretches without end in both lateral directions. Seashores, some riverbanks and some lakeshores arguably have infinity edges. Swimming pools don't.

q *Horizon pool* is a newcomer to the discussion – and has some merit. It certainly makes more literal sense than "infinity edge" and embodies a certain poetic quality. For all that, there's another term that has been around longer and is more commonly used.

q *Vanishing edge* is my personal choice, by a mile. In the classic, water-on-water application of the design, the edge effectively vanishes from sight as the water's surface blends visually with the distant view. And even when the edge is used against a landscape (an application I'm seeing more and more), the term still works because the water's surface literally vanishes over the side.

In addition to its literal accuracy, the word *vanishing* evokes images of mystery and magic tricks and special effects in motion pictures – associations that seem fitting given the visual "sleight of hand" that's played on a viewer standing next to the pool.

Of course, a rose is a rose is a rose and by any other name is just as sweet, and the vanishing edge remains one of the hottest watershape designs going – and probably will remain so, no matter what you choose to call it.

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IN THIS ISSUE

MAY'S WRITERS

Rosalind Reed is president of Rosalind Reed Associates, a landscape-design firm headquartered in Chicago. Reed founded the firm in 1991 following a successful career in the commercial real estate business. Her firm creates unique exterior environments for a variety of commercial and residential clients, and its work has been featured in a variety of publications including the Chicago *Tribune* and on the PBS television series, *Victory Garden*. In 2000, two of her gardens were awarded Gold Awards of Excellence from Illinois Landscape Contractors Association, and she's a recent participant in the Genesis 3 Design School.

Paul L'Heureux is president of Crystal Fountains, a waterfeature design, engineering and construction firm based in Toronto. Working as a team of experienced architectural waterfeature specialists, the Canadian firm produces high-end commercial fountains and waterfeatures around the world. A "career world traveler," L'Heureux has more than 20 years' experience in business management, export marketing and process improvement.

Interested in writing for WaterShapes *on design, engineering or construction topics? Contact Eric Herman at (714) 449-1996!*

Bruce Zaretsky has worked in the landscape design and construction industry for 20 years and has owned and operated his own firm, Bruce Zaretsky Landscaping, in Penfield, N.Y., since 1989. His design/build firm focuses on projects that include waterfeatures, plantings, walkways, patios, lighting and retaining walls. He has become a frequent teacher and writer, sharing his expertise with others in seminar rooms, on the pages of magazines and at his website, *www.bzli.com*.

Donald H. Brandes, Jr. is president of Design Studios West, a planning, engineering, and landscape architecture firm based in Denver. In addition working on the Historic Arkansas Riverwalk of Pueblo profiled in this issue, Brandes' firm has been involved in similar planning and design efforts dedicated to the reclamation and rehabilitation of urban waterfronts in cities as diverse as Chattanooga, Tenn.; Estes Park, Colo.; Sarasota, Fla; and Stockton, Calif.

The Quality Challenge

I really enjoyed Brian Van Bower's column, "Quality Don't Come Easy," in the March 2001 issue of *Watershapes* (page 10). I agree with his main point that there are not enough quality-minded craftspeople in the pool or construction industry – but they are still out there. The challenge is to find them and hire them.

I am a pool plasterer in the Boston area. We do a variety of finishes, with Pebble Tech being our primary product. I enjoy the challenge of the large, high-end pools in our area. I run one of our crews, still work inside the pool and like my job.

I have to disagree, however, with his comment "that the driving force here is not money."

The penny-pinchers do not usually get a high-quality pool. They will shop their project around until they have gotten the lowest price because they think that they will be getting the same quality as the higher-priced products and that to spend anything extra would be a waste of money. These people are the driving force behind "minimum standards."

There are penny-pinching pool builders, too – the ones that have no loyalty to their subs and will make a change when another subcontractor comes along that is $50 or $100 less per pool.

I knew one builder who was an expert at negotiating his subs' prices down to the lowest possible price, mostly by pitting one sub against another. My choice was always to find work elsewhere. During the peak of our busy season, he would always call me to see if I could help bail him out of a jam. The "problem" he had was that he had negotiated his price so low that when the busy time came no one wanted to do his low-priced jobs and he couldn't get his pools finished.

Many builders think that by negotiating their subs' prices down they are doing what is best for their bottom lines and their companies' futures. As a consequence, the sub with the lowest price is forced to work with a smaller crew and is not able to afford new trucks and equipment – and the low-quality spiral continues.

I have also seen penny-pinchers self-destruct in other ways. One builder in our area, for instance, has the mentality that he needs total control and must do everything in-house. So instead of using a high-quality subcontractor to apply Pebble Tech, he decided to start his own crew and use one of the newer pebble products.

After purchasing a truck and putting to-

Continued on page 12

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Continued from page 10

gether a crew, he started doing pebble finishes in-house – and after applying their first finish on Tuesday and Wednesday spent the day Thursday jack-hammering it off. This is a perfect example of how the "king of the hill" mentality also serves to lower quality.

The point you made that people in this country tend to look down on people who work with their hands is true. One of my hardest jobs every day is to help my employees maintain their self-respect. I try to teach them that pool finishing is not a dead-end job. I try to help them appreciate the satisfaction we should get when we transform a pool from an ugly gunite shell into a beautiful finished pool in a matter of a few hours.

I'll never forget, in one of my first summers of working as a pool plasterer, when my boss asked me to knock on the owner's door and ask if we could please have some ice water for the crew. The owner told me we could drink the water out of the hose and shut the door.

In the last 20 years of having my own business, I've never had another homeowner tell us to drink from the hose, but I will never forget the feeling I had that day – and I take no chances: Now I always make sure we have plenty of refreshments on hand for the crew before we arrive at the job.

The point that I am trying to make is that people who work with their hands have to create their own goals and self-respect. We need to learn to appreciate those clients who watch our work and are in awe of what we do – and be understanding of clients who literally are afraid to come out of the house while we're working.

My suggestions for raising quality on the job? Have supervision on the job – preferably the owner of the pool company or a knowledgeable construction supervisor. Also, find subcontractors with the owner as a member of the crew. And remember: The more prepared you are to deal with unexpected problems that will come up, the better off you will be.

Finally, never settle for work that is just "good enough." Keep changing subs until you find good ones – and when you do, treat them with due respect so they will continue to give every job their very best.

David Kadison
Kadison Pool Plastering Service
Concord, Mass.

More on Quality

I was both impressed and moved by Brian Van Bower's March column on quality vs. quantity. I only wish the entire industry shared his views!

I hope that, after reading his article, more influential people in the industry will pull together and make some changes. But as we struggle to convey a message to the people of this nation that quality really does count, there are just as many companies that would rather sell just for the sale.

As a company, we take the high road, offering a quality product that we have tested on our own to assure our clients that the products we provide are safe for the water and any aquatic plants or fish that might come into contact with them. We have always tried to take a professional approach to the business and put our clients' interests first.

We're just a supplier, not the builder, and we know that our selling quality products doesn't necessarily mean that the installer will follow through with a similar level of quality. Education and training are the keys, and I thank Brian for driving that point home to those who need to hear it. I hope they're listening!

Becky Dollarhide
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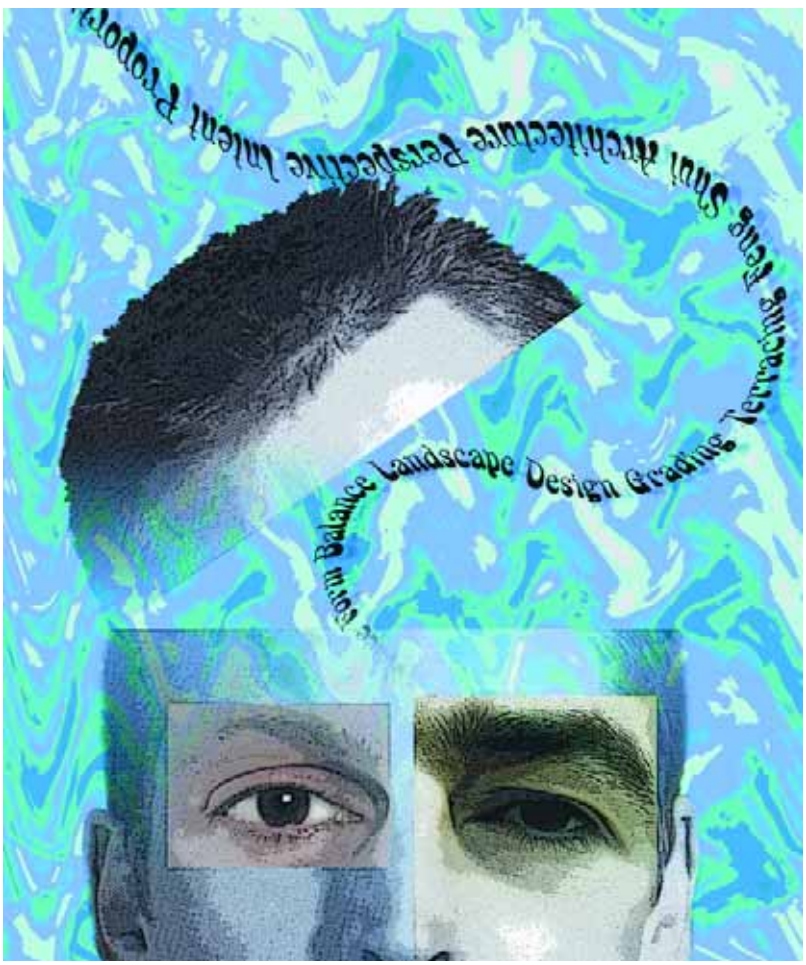

Are You Experienced?

In October 1999, I wrote an Aqua Culture column titled "Value by Design" in which I explained my belief that watershape designers should be paid for their designs in the same way interior designers and landscape designers are paid for theirs.

Since then, I've been contacted by lots of people who are interested in knowing more about how this works; I've also had the privilege of traveling throughout the United States and abroad to talk about watershape design and construction and have met hundreds of people with the same need for information.

On the one hand, it's exciting to see the notion of a watershape-design specialty catching on: It isn't a foreign idea to people the way it used to be, and I think that's great. On the other hand, it can get a bit frustrating: This is a new concept, and lots of people are jumping in without any sense of what it takes to get the job done.

As I've thought about this more and more, it has occurred to me that what we need is some clarification – a yardstick that will help each of us understand what we are qualified to do and, similarly, where there are gaps that need to be filled. In other words, we need a way to decide if we have the raw experience and background to demand compensation for what we know.

Do you have the personal capacity to generate effective, compelling, creative approaches to your clients' projects, and do you have the grit, determination and skill to turn those ideas into reality?

Mirror, Mirror

It can be tough to sort out your own strengths and weaknesses, but it's something that every would-be watershaper needs to do. In fact, I'll go so far as to say that properly assessing what you can and cannot do (and do *well*) is a cornerstone of sound thinking in all areas of your life – and especially so when it comes to how you're earning your daily bread.

Before you think about charging for your designs, you need to suck it up, be honest and ask the fundamental questions that define your capability to be a watershape designer. There's no academic program in watershape design to certify that you know what you should know, so we're all left to deal with something that's still informal and imprecise – although I think it's getting clearer every day.

The truth about qualifications for the title "watershape designer" is therefore up to each of us: Do you in fact have the personal capacity to generate effective, compelling, creative approaches to your clients' projects, and do you have the grit, determination and skill to turn those ideas into reality?

Without some guidelines, that's a lot of soul-searching. So as I've spoken with people and learned more and more about an artistic, creative role to which I myself am still aspiring in some areas, I've come up with a set of two dozen questions that show the kinds of experience required to make the grade. I modestly call it "The

Official Brian Van Bower Watershape Designer Pop Quiz."

Answering some of these in the affirmative will be a snap for architects and landscape professionals; others will be a positive breeze for pool builders. The point is, effective watershape design involves bridging whatever gaps might exist.

1. *Do you understand and use the principles of form, space, balance, scale, proportion, order, line, color and texture?* These are the base units of the currency of design and make the difference between aesthetic success and failure.

2. *Have you studied architecture?* This doesn't mean you've watched a special or two on PBS. Instead, have you cracked the books, compared what you see there to the environment in which you and your clients live, and then drawn some informed conclusions about how what you are doing fits into the picture?

3. *Are you familiar with architectural history and the range of architectural styles and details available to you as a designer?* You're cheating yourself if you don't, because these styles and details are all around us and can help you shape your own ideas and influence your clients.

4. *Are you able to design watershapes that are architecturally consistent with a home?* This is a key point – and a starting place for designs that truly seem to belong where they've been put.

5. *Are you able to design watershapes that are deliberately inconsistent with their surroundings and create proper transitions?* This is a complementary key – and, handled well, can be the starting place for designs that surprise and delight clients and their guests.

6. *Are you able to lift your perspective, encompass the Big Picture and see beyond the hole in the ground?* This is a huge stumbling block for many people I've spoken with, especially people who've always thought of themselves as "pool builders." As I see it now, there's much, much more to watershape design than the vessel. It's all about placement, balance, lines of sight – and all those basic design principles mentioned above. The pool is a component, not the whole deal.

7. *Do you have a basic understanding of landscape design?* This is essential to seeing the Big Picture. Even if you never, ever dig a hole to plant a shrub, it's essential to be able to visualize how a watershape fits into an overall scheme of plantings, hardscape and garden structures.

8. *Do you understand grading and terracing and the use of slopes to direct rainwater and runoff?* This is the more practical side of the pack of landscape-oriented skills you need to develop to be a Big Picture designer.

9. *Do you have a working knowledge of plant materials?* This is a bigger thing than I ever would have thought and has an absolutely crucial role in determining how your designs are perceived as the seasons change – even where I work in Florida.

10. *Are you familiar with* feng shui *and*

the principles of Japanese gardening? As I've written before in this column, what might be mystical mumbo-jumbo to some people is a real belief structure for others. I, for one, simply like the sense of serenity and elegance implicit in designs governed by *feng shui*. And what watershaper could possibly fail to appreciate the importance of the principles of Japanese gardening?

11. *Do you understand hydraulics?* This is critical knowledge: If you can't make it work (and work *efficiently*) in basic hydraulic terms, what's the use of inspired concepts? Yes, finding the solutions can be difficult, but it's work that must be done.

12. *Are you familiar with equipment and its proper application?* Again, this is basic stuff, but these days it involves much more than pumps, filters and pool cleaners. If you aren't up on control systems, sanitizing systems, fiberoptics, automatic covers or landscape lighting, just to mention a few possibilities, it's time to pay attention.

13. *Do you understand soils and structural engineering?* This is truly heady stuff, and I'm not suggesting that you drop everything and head off to MIT or Caltech to get a degree. But what you *do* need is a sense of when you should call in the experts to tell you what can and should be done.

14. *Do you understand lighting and electricity?* Personally, this is a big information gap I'm trying to fill myself. It's like the flower/seasonal thing: I'm increasingly aware of the full-time impression my work makes, and I have to say that how my projects look at night is much more important to me now than it was just a year ago.

15. *Do you understand the basics of water treatment and chemistry?* This is crucial no matter whether you're working with sterile systems such as pools or spas or biological systems like ponds and lakes.

TRUE GRIT

The confidence you have in your own work is the result of all the other skills you have, combined. When you're confident that you really do walk the walk and know your stuff, then you probably are a designer. And as a result, you'll probably have the courage to put your work forward as a true representation of yourself and your own best efforts.

Being a designer is a lot of fun and a great way to earn money, but it's seldom easy to open yourself to the kind of criticism you might receive. And being a watershape designer is tough, because you can't fall back on degrees and titles and legitimate accolades to pick yourself back up when someone knocks you down. Sometimes, however, confidence works in your favor.

Not long ago I was brought in by a client to work with an architect who was de-

16. *Are you familiar with a wide range of building materials?* I'm amazed at how narrow a range so many of us are willing to stay within in designing our projects. But there's an incredible range of products out there from which to choose, and my resource file gets thicker just about every day as I spot new possibilities and suggest new ideas to my clients.

17. *Can you relate to your clients' individual needs and their lifestyles?* This one is simple: If you can't read your clients, it's tough to come up with ideas they'll be able to visualize and that will capture their imaginations.

18. *Can you accommodate their imagined uses of the watershape in your design?* This can be tough for the strong-willed among us, but it's a question we must face as part of almost every design process.

19. *Can you convey all of these things to the client?* Communications skills are incredibly important: Convincing clients takes patience and sound verbal skills.

20. *Can you draw, or design with a computer, or build models?* If you can't use one of these essential tools or find some other way to get clients to "see what you see," designing is an uphill battle.

21. *Do you have good presentation materials and/or a good portfolio?* Your professionalism is important, and a good presentation kit is a great way to show it. You demonstrate the pride you have in your work and build confidence at the same time – if, that is, your work is at the level your clients are seeking.

Judging what you can and can't do and should or should not be doing is not easy: The mirror can cast harsh reflections.

signing a custom home. I received a set of plans that included the architects design for a swimming pool. Visually it was fine, but there were problems – like the vanishing edge flowing over into the spa, the skimmers in the spa (and none in the pool), the elevations and some horrible ladders.

I attended a meeting with the client, the general contractor and the architect. On the spot, I had to decide whether or not I was going point out the problems I'd seen – and I decided to go for it.

Without being rude or disrespectful, I made my thoughts known. The table fell silent – about what you'd expect when real dollars and real reputations are on the line. In the end, however, my ideas and my confidence prevailed – and everyone, even the architect, was happy I'd spoken up.

– B.V.B.

22. *Are you enough of a storyteller to set the scene for your client?* You need to set them in the scene, get them imagining what it will be like to dine near the water or play in it with the kids or relax in the warmth of the spa.

23. *Can you explain the intent of your design?* This is all about confidence and your belief that what you're offering encompasses the best the site and the budget have to offer.

24. *Do you have the confidence to stand by your ideas?* This one is so important that I address it at length in the sidebar on page 16.

How'd You Do?

If you answered "yes" to all or almost all of these questions, then you're probably ready to think about calling yourself a Watershape Designer and charging for your designs. But if you are shaky on even a few of these questions, then you probably need to ratchet up your skills and knowledge if you want to avoid some rude shocks as you pursue your ambition.

As I said at the beginning of this column, judging what you can and can't do and should or should not be doing is not easy: The mirror can cast harsh reflections.

To those of you who have the fortitude and the personal integrity to take an honest look at yourself and realize that you're not where you should to be in terms of your ability to work as a designer – and act accordingly to fill the gaps – you have my admiration as well as my respect.

Also consider the fact that being a designer is not for everybody. If you're a contractor doing designs when you really shouldn't be (whether you're paid for them or not), I ask this question: Are you acting in your clients' best interests – and, for that matter, your own?

Consider as well that there is absolutely no shame in knowing your limits and bringing in experts who can serve your client's design needs when you can't do so yourself. When good designers team up with good contractors, it's a great "strategic business alliance." And the time to find out if you're cut out to be a designer is *not* when you have a contract in hand and a backyard to shape.

To reiterate a point I made last century in what was only the fifth issue of *WaterShapes*: Yes, I believe that watershape designers should be paid for their work, and designs should not be given away simply for the sake of selling a construction job.

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

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BY DAVID TISHERMAN

The Educational Imperative

It's great that more and more people in the watershaping business are interested in becoming custom designers. The way I see it, the future of the industry rests in the hands of those who strive for creativity and excellence in their work.

Unfortunately, however, there are those out there who are brash enough to declare themselves "designers" without any sort of credentials to back up the claim – that is, without having done what it truly takes to understand available options and create great designs. Setting your sights high is a wonderful thing, but it's only the very first step on the road to realizing your true potential. The hard part comes in doing the work it takes before you even get to try to attain your goals.

I bring this up in a column about "Details" because lots of people ask me where I get these ideas. Here's the straight answer, minus any trace of the arrogance that some people ascribe to me: *I have been trained and educated to do what I do, and I work very, very hard at applying what I've learned and been taught.*

I went to school for more years than I care to remember and earned advanced degrees in drawing and design. I have immersed myself in the histories of industrial design, art and architecture. In the years since I left school behind, I have worked very hard to translate what I learned in other fields to become a watershape designer and builder. And I continue my education every single day by keeping my eyes open to the best of what's out there by way of architectural, interior and landscape design.

What we need as an industry is to learn the things that can't be taught in a day, a week or a month.

The Education Connection

Before I go any further, let me make three key points:

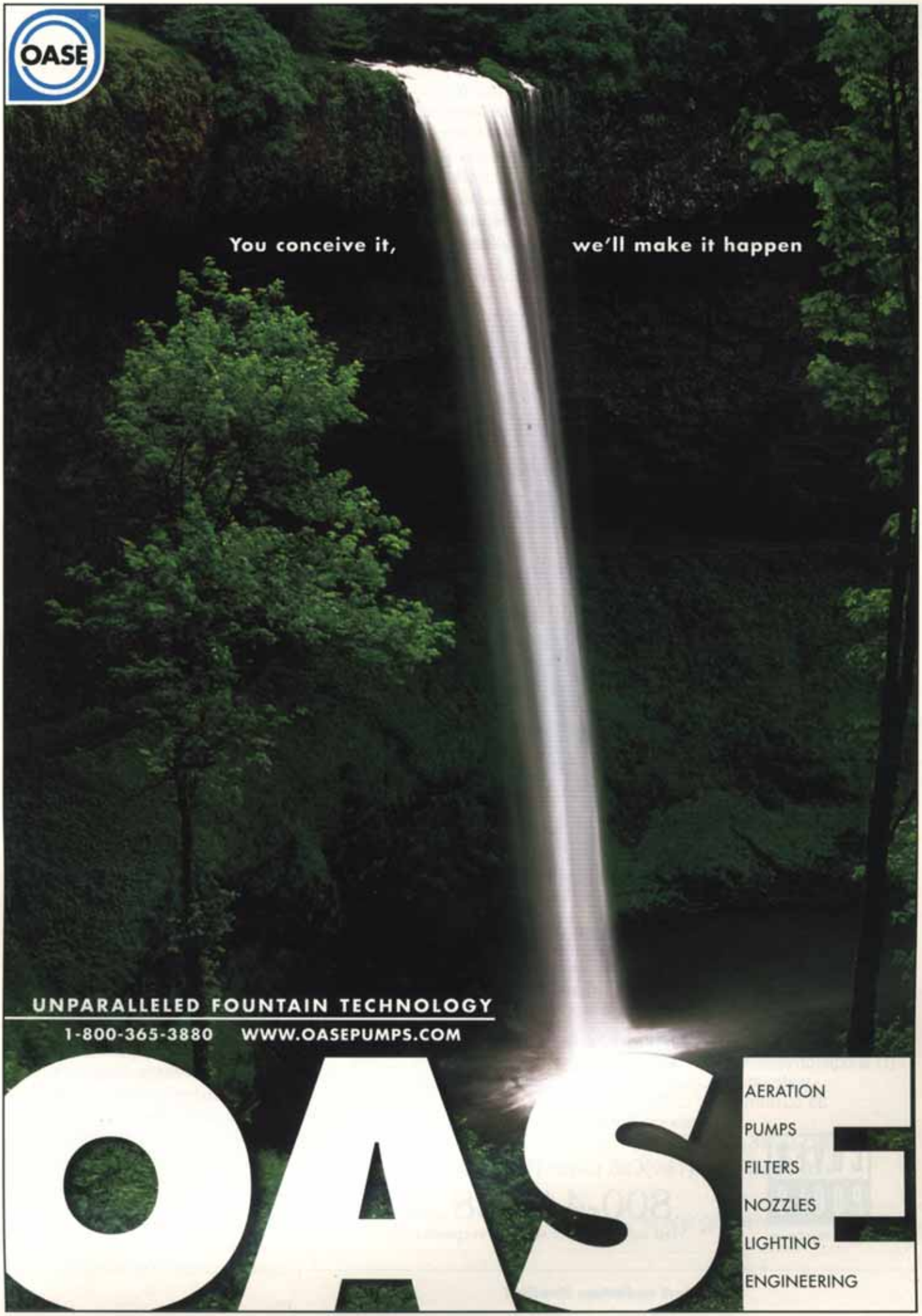
- This is a column about education, but unlike the vague discussions about the importance of education those of you in the pool industry have read over and over again for years, I have a very specific suggestion about how to improve things.
- What I'm saying here is my own opinion and does not necessarily reflect the opinions of my Genesis 3 partners Skip Phillips and Brian Van Bower, nor any sort of change in our own educational mission.
- If you're a big fan of the educational agenda of the National Spa & Pool Institute, what I'm about to say might make you uncomfortable, even a bit angry.

That said, please consider the following words:

When we talk about education, what we're really talking about is *value*. You can get one level of education – one form of value – by going to high school. You get another at a junior college, another when you earn an undergraduate degree and still other levels as you move up to advanced degrees.

You can attain these credentials by attending vocational institutes, state schools or private schools; you can go to the school down the road or to a prestigious institution such as Harvard or Stanford. Each of these levels and places of education involves different levels of personal commitment in terms of time, difficulty and cost. The cold, hard fact is that the higher you go, the more time it takes, the hard-

Continued on page 22



Continued from page 20

er it is to keep up and the greater the investment becomes.

As a person who's spent years pursuing higher education, I'm bothered by people who pass a lower level of training off as something more than it really is. It's not that my feelings get hurt; instead, their inability to perform as promised hobbles those of us who've been taught to know better.

And this is true despite the fact that a great many people in the pool industry say how much they love education – or, more accurately, the *idea* of education. You hear it all the time, and you read about it in all the trade magazines. The problem is that their usual definition of education is what happens in seminar halls at trade shows.

The notion of actual, formal education isn't even part of these discussions, yet the plain fact is that designing and building pools is about more than fixing a pump, masking cracks in pool shells or cleaning filters. Yes, those things are important on some level, but they don't do anything by way of truly elevating the trade or helping people design and build better watershapes.

Growing Pains

What we need as an industry is to learn the things that can't be taught in a day, a week or a month.

As designers, we need to have at our disposal all of the communication tools that help us lead our clients to visualize what we hope to accomplish for them. We need to know about balance, proportion, color, scale, lines of sight and a hundred other factors that go into good design. We need to know how to do detailed, three-dimensional renderings. We need to know architectural history and the principles of architectural design. We need to learn about resources and how to apply them.

As builders, we need to know how to read (and execute) complicated structural plans. We need to know about steel and concrete and finishes. We need to understand hydraulics. We need to embrace the importance of soils and geology in what we do and get away from the mentality that says understanding soil conditions is the homeowner's responsibility.

It's not that people in the pool industry are uninterested in true education – I know and have worked with many who are – it's that they've never been presented with higher education as an option.

There's no certificate program in reading plans; there's no place to go to get a doctorate in aquatic design. Those avenues of higher learning are unavailable to this industry, and until that changes, we're always going to be a hand-me-down trade instead of a stand-up profession. The bottom line is that we need to close the gap between what we *should* know and what we *do* know.

Where to start?

To a large extent, the educational tune

for the industry has been called by NSPI. Each year, NSPI and its regions stage shows and offer dozens, perhaps hundreds of seminars on the basics mostly of how to fix things – service-oriented skills like repairing pumps, acid-washing pools and the like.

In organizing programs, I believe that what NSPI has done is follow the path of least resistance. It's easy to set up a session on fixing pumps, for example, because you can draw on the technical services staff at a pump manufacturer to come and fill a two-hour session with good information.

To be sure, this is "education" – but it is of the most basic sort and works for topics that can be covered adequately in an hour or two. Through the years, however, NSPI apparently has come to believe that this educational approach is right for *every* purpose.

I'm not ascribing dastardly motivations here: All I'm saying is that NSPI and the organizations that have followed its lead have generated educational programs that simply don't work when it comes to the higher needs of the industry and its designers and builders. What I'm saying, bluntly, is that when it comes to design and construction, NSPI-style education is totally inadequate.

Seeking Alternatives

As far as I know, the pool industry is the only worthwhile trade that doesn't have a viable school with professionally trained instructors who have curriculums to follow and teaching standards and formal accreditation. What we need rather than easy access to thin information of the kind you get at trade shows is the type of education you get in a true educational system.

Without formal training, there's no way that our industry can grow. Yes, the number of people working in it may expand or contract depending on the economy, but product limitations brought on by inadequate education will keep us from pleasing our clients as they should be pleased and will forever doom us to life on the fringes of the design community to which I think we should belong with architects, landscape architects and other top design professionals.

Consider all of the Landscape Architects who read *WaterShapes*: They make legitimate claim to that title by pursuing rigorous degree programs at major colleges and universities. And to participate in full in *their* trade association, the American Society of Landscape Architects, they commit to participating in a rigorous, career-

It's not that people in the pool industry are uninterested in true education – it's that they've never been presented with higher education as an option.

long program of continuing education so they stay current and keep applying the basic principles they learned during long hours in the classroom.

The seminars at ASLA's annual conferences don't look all that different from NSPI's in terms of time spent in the hall or even subject matter. The key distinction is that ASLA's courses are meant as reinforcement and true continuing education, not as the sole educational resource.

This educational void in the pool industry hurts everybody: It hurts the consumer who receives a less-than-adequate product; it hurts the builder who doesn't know what it is to take pride in what he or she does; it hurts the insurance companies that have to cover the cost of lawsuits that come when ill-informed builders get in over their heads; and it hurts the manufacturers whose products are specified or sold by a generally uneducated trade.

So how do we fill this void?

I think we need to reallocate resources away from the status quo and move them into a new institutional structure that invests in our future. In case you were wondering, I even think we need to look beyond Genesis 3's schools (as good as they are) and develop an approach that will carry the next generation of pool designers and builders to a whole new plane of excellence and success.

New Construction

In any given year, there are approximately a dozen NSPI-style shows for the pool trades, and most but not all are staged by NSPI itself or its regions.

Give or take a bit, each is supported by the same set of manufacturers, and the educational programs include the same basic sets of seminars. Every year, organizers' claims of record turnouts make eyebrows rise higher and higher, because the impression most exhibitors are taking is that the aisles and seminar rooms aren't as full as they once were.

The problem with the trade-show habit (beyond its great expense) is that, like any addiction, this one is hard to break. So each year, the same group of faithful attendees shows up to take a look at essentially the same products from familiar

Imagine a place where you could learn about everything from art history to hydraulics to business law, from materials of construction to color dynamics to lighting.

suppliers – and everyone finds less and less to value in each successive exchange.

Let's be bold: Why not shelve all but the national Expo, which itself could be pursued on a lesser scale, and free up the resources that would be needed to set up a long-term investment in higher education? Making this happen will take courage – a brave manufacturer (or group of manufacturers) to step up and say, "Things must change."

Even if manufacturers took just half of what they spend in chasing a dozen shows all across the map and pooled those resources to endow a watershaping program and curriculum at a single college or university, it would be a start.

And that start is just what we need. It is a curriculum I would have pursued had it been available to me umpteen years ago, and it's one many I know in the industry would pursue – even given the chance now that they're long past college age.

Imagine a place where you could learn about everything from art history to hydraulics to business law, from materials of construction to color dynamics to lighting. Think about the doors that would open in the design community with the training and knowledge and credibility you'd acquire.

It's a brave, new world for our trade – one I think we should pursue.

And I promise: Next time, I get back to Details.

David Tisherman operates David Tisherman's Visuals, a design and construction firm based in Manhattan Beach, Calif., with offices in Marlton, N.J. He is co-founder and principle instructor for Genesis 3, A Design Group, which offers education aimed at top-of-the-line performance in aquatic design and construction.

Gallery Views

By Rosalind Reed

When watershapes and sculpture are both to be included in a garden, the designer faces the challenge of making each component look as though it truly belongs in the setting. Here, a Chicago-based landscape designer explores what is involved in pulling off this balancing act for a small urban space. The result is a careful interweaving of artistic and aquatic forms that blend serenely in the heart of a bustling city.

Looking for inspiration in an urban environment can leave a designer with precious few useful references. Take downtown Chicago, for example, where our indigenous waterfeature is Lake Michigan and our public art is too often plopped in the middle of concrete plazas.

Be that as it may, I do my part by trying to introduce both water and art into my projects. So I was thrilled to be retained by Mary O'Shaughnessy, owner of the Wood Street Gallery in Chicago, to design a sculpture garden. I knew it would give me the chance to create a balanced, beautiful space – even though I also knew the job wouldn't be easy.

What she wanted was a garden environment in which she could display and sell contemporary American sculpture – a place that would help clients visualize the way the art might look in their own gardens.

As we dug deeper, we uncovered additional goals: It needed to be a space that would accommodate a changing variety and number of pieces; it had to be functional for large parties; and it had to incorporate and acknowledge the garden's urban neighborhood while still providing a sense of enclosure for gallery visitors (and, of course, security for the art).

Garden Variety

One of the keys to balancing all of these objectives within a confined space was the inclusion of delicate watershapes. These, we agreed, would define and unify the various spaces we'd set up within the garden and bring a sense of tranquility despite the fact the garden was in the midst of the Midwest's largest city.

The sculpture garden has two parts: An entrance courtyard on the north side of the building of about 20 by 80 feet, and a main garden of about 75 by 75 feet bounded on three sides by building walls. The street-level views were important, but because the garden could be seen from the gallery's upper-floor windows, we also wanted the space to be inviting from that perspective and draw visitors to it.

These dual perspectives are significant because it's not so easy to make their needs line up. From a bird's eye view, for example, the plan needed to be simple and easily understood so as not to seem forbidding. By contrast, once a guest actually enters the garden, there had to be enough complexity that visitors would be encouraged to explore and see the sculptures. Further, ground-level visitors needed to see the sculptures both from a distance and up close through careful arrangement of lines of sight.

Then there was the X factor: We had no way of knowing what piece of art might be on display at any given time. All we had to go on was a general sense that the art would be "human scale," which meant anything from four to 12 feet tall and four to eight feet wide or deep.

When we started, the site was mostly weeds with a slate patio right next to the door to the main gallery. As is the case with many patios and watershapes and as was *certainly* true in this instance, this location right by the door was the worst possible placement: It cut off the rest of the garden and made it forbidden terrain. It placed limits on the entire space and gave people no need or desire to enter and explore.

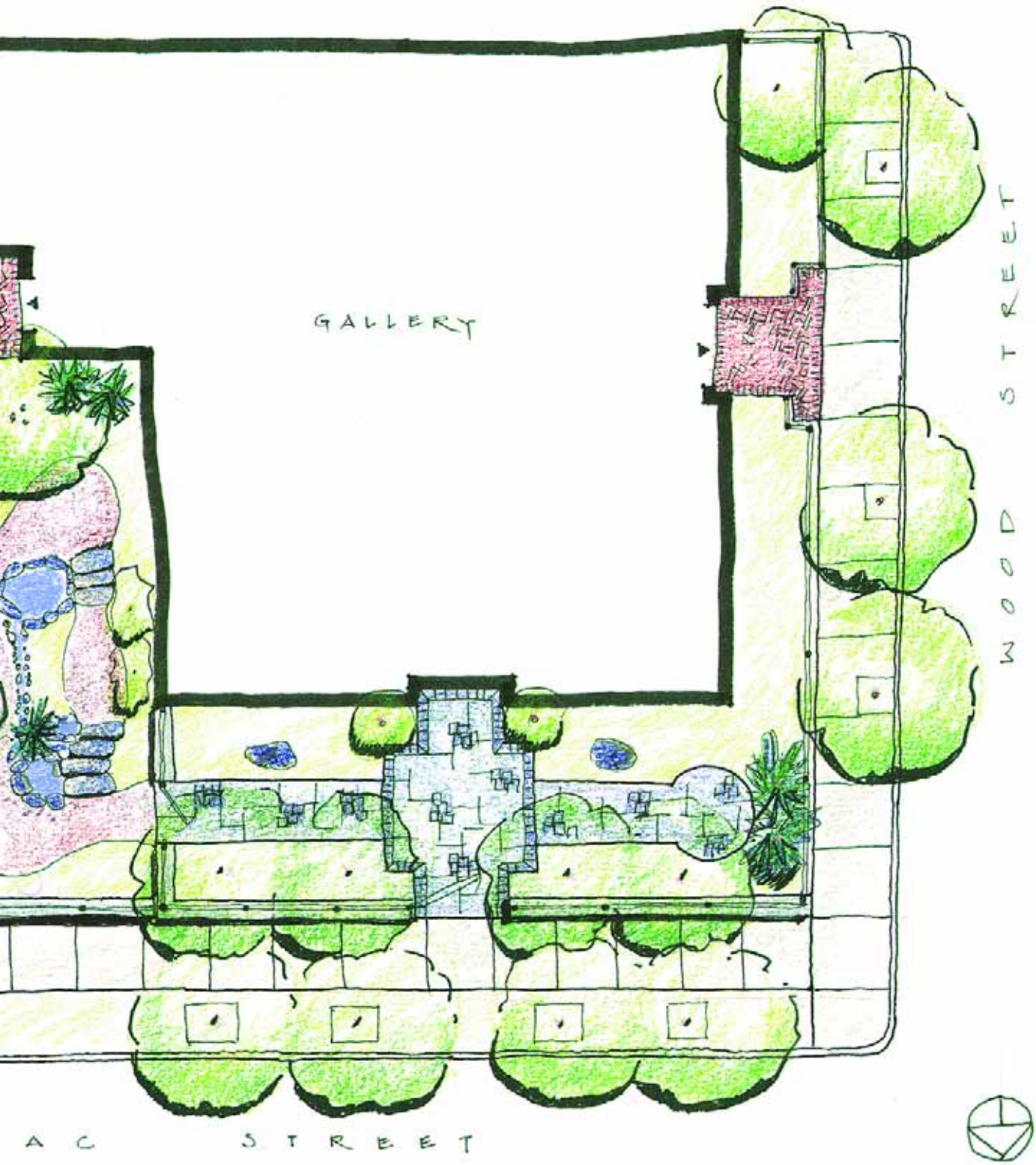
Our aim here was entirely different. We wanted to encourage wandering, to encourage visitors to get close enough to feel the artist's mark on a stone or lean against a piece or sit inside the space, so we made first steps into the space inevitable by moving the patio into the center of the courtyard.

Weather and climate also were factors in settling on this gathering point: We know from experience that a gathering site on the north side of any building makes the probability of year-round shade approach 100% – and that was something we very much wanted to avoid.

Divide and Conquer

Some of my favorite garden spaces are found in Charleston, S.C., where small courtyard spaces very often are divided into even smaller spaces and have the effect of making the whole garden seem bigger. We applied that same principle to the gallery's garden, creating a series of paths radiating from the central patio.

One of the key pathways off the central patio had a practical purpose: It flows to the street as a driveway that offers access to boom trucks used to bring new pieces into the garden and within reach of virtually all potential sculpture locations. Beyond that, the rest of the paths fit into the overall program of encouraging visitors to use their feet and to follow their eyes to carefully placed displays.


GALLERY
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Chicago in general is very flat – especially downtown near Lake Michigan – and this site was no exception.

Working and watching here through the years, I have often observed how much difference even a small elevation change can make in defining spaces and helping visitors feel a sense of enclosure. That in mind, we set up five distinct berms in the main garden. This gave us elevation changes of as much as 36 inches from the highest to the lowest points. Now the berms serve to create more visual "distance" between sculpture locations and separate the garden into distinct areas to explore.

To avoid the potentially hulking look of berms, we made certain to incorporate many small elevation changes into our elevation/drainage scheme. We made them appear to rise gradually, for example, by pitching paved surfaces and paths at one or two inches of slope per 10 or 12 feet of surface. We also incorporated stone steps to pick up an additional four to six inches of grade change and used stone seats and boulder retention at key points to offset any bulkiness of the berms.

We also changed the perception of grade changes, elevations and berms through the use of water. In fact, watershapes are the main landscape element we use to draw visitors through the garden space.

In the major berm, which stands more or less between the main and side gardens, we designed a two-tiered pond that flows into a stream that empties into a third pond. The sound of falling and flowing water attracts people to pass along the course of the stream and up to the double pond and, from there, to move between the two large patio areas.

Another, smaller pond on the other side of that garden provides an equal draw. Without the berms, any one of these waterfeatures would have looked artificial, but because we contoured the whole space, the waterfeatures snuggle into the slopes and feel "natural."

Material Issues

Managing movement through garden spaces is one thing. Making watershapes and sculpture feel part of the space is quite another and requires use of a range of congenial, harmonizing materials.

Typically, I don't specify the hardscape materials until the landscape plan has been settled and I know where

The upper pond creates a focal point at the intersection of the main courtyard and the entry garden (see the center of the drawing on the preceding pages). The branches of a weeping Norway spruce don't mind trailing into the water (A), which flows along a path-side stream (B) and into a lower pond (C). By design, this watershape draws people deeper into the space, leading them to a prospect from which they can take in both parts of the garden.

plant masses will go. This project was no exception. Complicating matters here was the looming presence of building walls; in such cases, you also need to consider the color of those structures and the texture of their materials of construction because they will tend to be the most dominant features on site.

This set of concerns is especially applicable in parts of the country where there is winter and where, from November through April, deciduous plant material will be devoid of foliage and constructed detail is truly going to dominate the scene.

In this case, the Wood Street Gallery's entry garden offered us a limestone façade on the first floor with brick facing above, while over the main garden loomed the building's back wall of Chicago common brick with its warm buff color. The adjacent apartment building (on the east side) has beige asbestos shingles. Our goal was to divert as much attention from this view as possible.

To facilitate our material selection, we laid samples of various materials out, trying different combinations of stone and brick – rather like putting together a matching suit, tie and shirt. To contrast the Chicago common brick, we used a simple color-wheel approach and settled on blue as the basic hardscape color (the opposite of orange) and a deep, dark red-brick color (a complementary or echo color).

To avoid any sort of institutional feeling that might have come in using large expanses of the same paving material, we used a variety that included clay brick pavers, cut bluestone, old granite cobbles and compacted gravel path mix. We also used four different wall materials, including face brick, stucco over concrete block, limestone caps and ornamental iron.

As for the watershapes, it's usually a good idea to use indigenous stone if you're striving for a natural look. But in Chicago, which is basically land reclaimed from the lake bottom and swamps, our local stone is blocky gray crushable limestone and a few glacial boulders. We took this as a declaration of independence as far as stone selections were concerned: It freed us to work with the sculpture garden as a designed environment in which the selected stone only had to be integrated with the rest of the hardscape and building materials to feel like it belonged on site.

As it turns out, the waterfeatures, stone seats, and berm-retention stones were of two types: aqua blue boulders (a quarried hornblende gneiss from Michigan, high in mineral content that creates veining in the deep blue/black stone and makes for a great appearance when wet) and grindstone (blue quarried sandstone, also from Michigan, which has a natural grit that makes it an excellent choice for stone steps when used in large slabs).

Pond and Stream

The project's four ponds are constructed with vinyl liners. We went with a double thickness to avoid any punctures from the sharp edges we encountered on the aqua blue boulders. The ponds are all four feet deep to minimize liner visibility, and we were careful to extend the stone below the waterline so the liner will not show in winter when the waterfall is shut down and the water level drops.

By contrast, the stream connecting the ponds is very shallow, with only an inch or two of flowing water. The stream runs next to a major path in the garden, so we did some thinking and decided that using a vinyl liner here presented too great a risk for punctures from things like spiked heels.

So we opted to design the stream on a concrete, frost-free footing, 42 inches deep. We set larger rocks directly into the dyed-concrete streambed, and later placed small, loose stones to direct water flow. As intended, the stream is a "little kid magnet," and it's a relief to know the liner will never show no matter how many decorative stones young hands move from here to there.

Once the hardscape materials were selected, the selection of plant material to fill predetermined spaces was straightforward. We knew we needed to meet certain criteria – ability to thrive in the site, characteristics suited to landscape lighting for nighttime viewing and suitable leaf colors and textures.

Those needs in mind, we started with a number of unique specimen plants, such as two weeping copper beeches (*Fagus sylvatica* 'Purple Fountain'), weeping Norway spruce (*Picea abies* 'Pendula'), fastigiate European hornbeams (*Carpinus betulus* 'Fastigiata'), weeping white pine (*Pinus strobes* 'Pendula'), weeping Sargent hemlock (*Tsuga canadensis* 'Pendula') and two western red cedars (Thuja plicata) we found growing together in a nursery.

These sculptural plants, almost exclusively placed near the watershapes or stonework, add impact to the landscape in the winter. Their sculptural qualities also enhance the art and add a plantsman's touch to the garden.

From the start, we agreed that the garden wasn't to be about flowers, although

Continued on page 34

The small pond on the east side of the garden becomes a sculpture in its own right with the aid of the weeping white pine that frames it. The gentle sound and visual quality of the pump's spray attachment makes this a most contemplative part of the main courtyard.

The main courtyard is a space in which we set up berms and used plantings and twisting pathways to create small "rooms" to feature selected sculptures (A). The before image shows how clean and flat a slate we started with (B) – and how it is possible to use plants to screen out unwanted views.

Working in a Window

The last and perhaps biggest challenge in making natural-looking watershapes work in a project like the one described in the accompanying article is finding a contractor who can interpret the aesthetic values that my client and I imagined and who can take care of the installation. Mackey Landscapes was the primary contractor on this site. Their team, led by John Evans and Al Haisman, worked closely with us every step of the way.

Teamwork also counted in another big respect.

In Chicago, we basically have a March-through-November installation window – as amended by weather (including frost and snow), a seasonal workforce and average rainfall of 36 inches. This leaves everyone in the landscape trades feeling like they are jamming ten pounds of work into a one-pound bag, especially in the last two weeks of May. Even with a fast-track construction schedule, all landscape construction work virtually stops while every available man, woman and child is pressed into service planting semi-truckloads of impatiens (our ubiquitous flower in most high-end residential suburbs).

Fortunately, Chicago has a can-do attitude about getting things done, and while it is the third largest city in the United States, we still operate with a small-town business atmosphere in which a person's reputation and word are important aspects of a résumé.

It is one thing to recommend a contractor to a client and oversee the installation of a project when all of the details are specified before we begin. It is quite another thing to fast-track a project on a small site where, in addition to Mackey Landscapes, we also needed close coordination among masonry, stucco, ornamental iron, irrigation, electrical, landscape lighting and arborist contractors.

Through constant coordination and close oversight, the project moved along smoothly with few hitches.

– R. R.

Appreciating a piece of sculpture generally means being able to see the whole work. Knowing that, we set up lines of sight that took advantage of the berms and pathways.

The entry garden has a more formal look than the main courtyard, making it a great setting for strong sculptural statements, even at night. The paving materials were mixed to make a mild sculptural statement of their own – but not in competition with any piece that might find its way into this key display area.

there is always something blooming. Foliage colors tend toward dark greens, reddish bronzes, chartreuse and blues, with grass-greens at a minimum. Perennials and ornamental grasses are planted in bold sweeps, so if only one species is blooming in the garden, it still has an impact. What flowers there are have deeply hued pastel shades, unless of course we are talking about springtime, when everything seems boldly colored as bulbs sprout and we wait for trees and shrubs to come into leaf.

Setting the Stage

Appreciating a piece of sculpture generally means being able to see the whole work. Knowing that, we set up lines of sight that took advantage of the berms and pathways to offer visitors both long and up-close observation points.

Many sculpture gardens and galleries seem to feel a piece of art isn't complete unless it's resting atop a concrete slab or a nice bed of white marble chips (or worse yet, atop a network of railroad ties). We see these as poor solutions that distract from and even demean the beautifully crafted and often very expensive pieces of art on display.

It's certainly true that many pieces of sculpture look best when slightly elevated, so we use the berms as naturalistic display platforms for smaller pieces. When it comes to big bronzes and larger stone pieces, we use compacted gravel or paved surfaces on the flat to provide more than adequate stability – even in our winters.

We began our work at the Wood Street Gallery and Sculpture Garden in January 1999, and the project was completed by August of that year. Making it all work took close, ongoing, three-way communication between the owner, the contractors and me, with each participant bringing his or her skills to the effort.

It was a challenging and satisfying process: In the end, we all had the pleasure of watching the sculpture garden emerge as a work of art in its own right.

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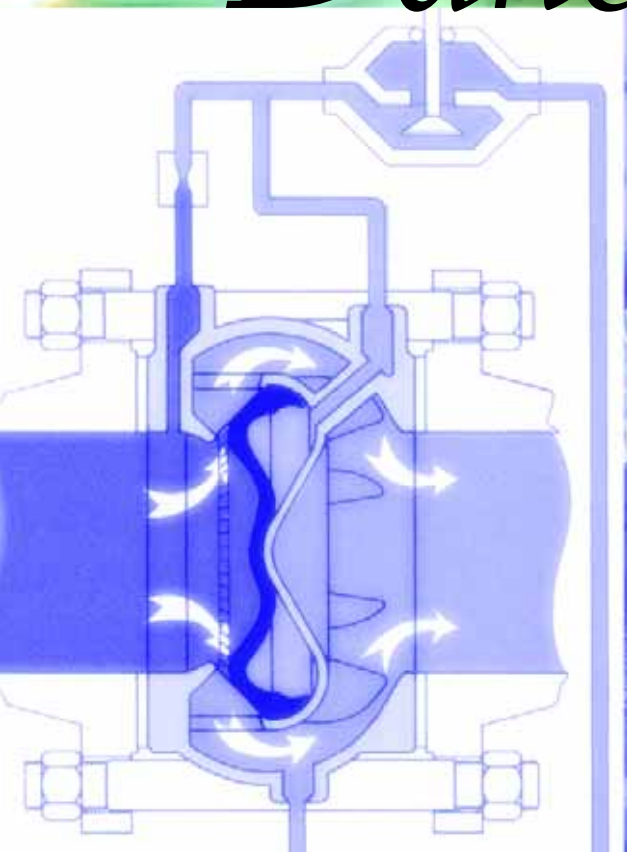
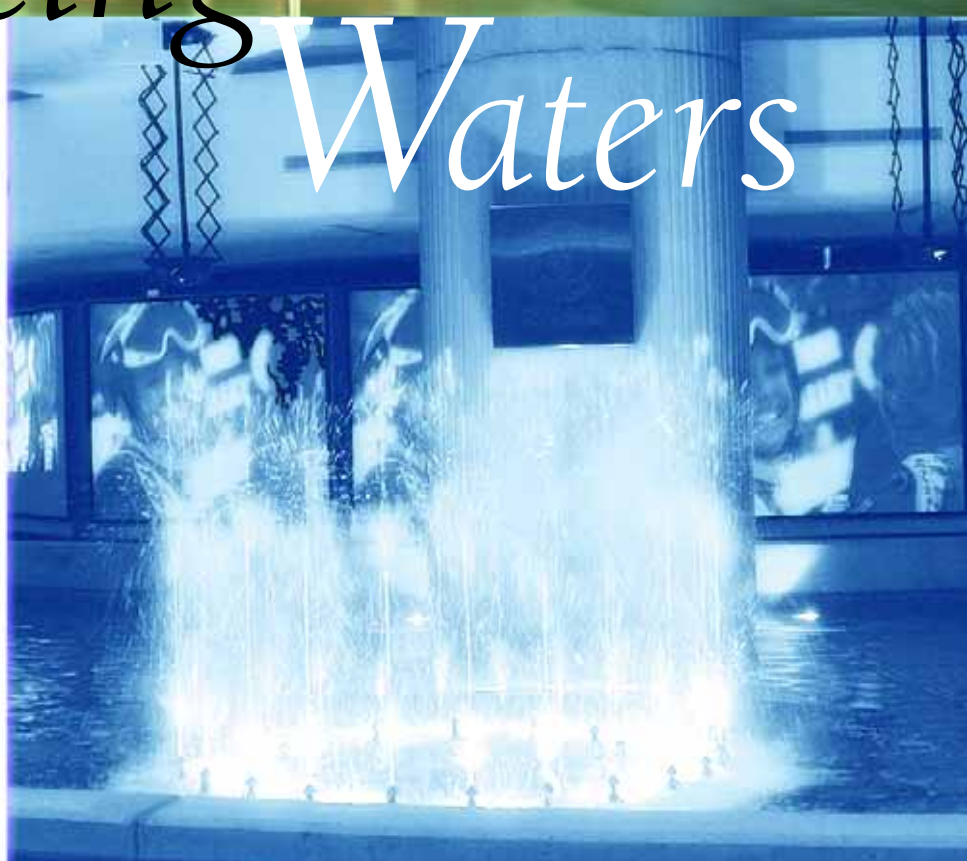
Among the most intriguing watershapes that have ever been built are those designed to move water in sequence – spouts that dance to music, jets to tease playful children, streams that toll the hours. Making these effects work, says fountain designer and manufacturer Paul L'Heureux, takes skill in mechanical and hydraulic engineering as well as an advanced sensitivity to 'liquid aesthetics.'

Here's a look at what he means.

Dancing Waters





By Paul L'Heureux

In the ballet of sequenced water, you'll find a repertoire of effects for watershapes of all kinds. Like individual dance steps, these water effects can be beautiful on their own – or they can be used in combination with other effects to create elaborately choreographed shows that dazzle, delight and entertain.

From simple to complex and from small to utterly huge, sequenced-water effects are truly amazing, and the nice thing is that they can be incorporated into all kinds of watershapes. We'll take a look at some of the possibilities here as a means of defining why you and your clients should think about incorporating the devices needed to make them work in your projects.

There are practical issues, of course, so we'll also cover the process of designing for sequencing and the considerations involved in the creative effort, as well as discussing the ins and outs of programming and commissioning for sequenced watershapes. In an extensive sidebar, we'll also take a look at available technologies and their strengths and weaknesses.

Before we get into the technology that drives water effects such as popcorn, fluffies and geysers, however, let's generalize a bit and explore some of the basics of sequenced water.

Versatility and Popularity

By adding sequencing devices to a nozzle effect, a fountain can take on many personalities.

It can be part of a serious, stationary fountain – or the heart of a play area for children. In the former case, it might complement surrounding architectural forms and hardscape, while in the latter it might be a concealed source of interactive play for children who will squeal in

PERFECT TIMING: A ten-minute sequence at Toronto's Eaton Centre finishes with a startling burst of water that shoots 90 feet into the air. Built in 1977, it's drawn oohs and aahs ever since.

delight as they react to unexpected water bursts. The sequencing can be rhythmic, almost hypnotic – or it can be random, dynamic and stimulating.

Even with very simple programming, water effects are extremely versatile. Fountains can be choreographed to music and/or other sounds or programmed as water shows that draw oohs and ahhs as spontaneous as those heard during fireworks displays. There are even sequenced fountains that tell time.

The best part of this is that I don't think the full potential of sequenced water and "liquid aesthetics" has come anywhere close to fulfillment. From private backyard gardens to bustling spaces in shopping centers, water provides a focal point that draws people in. Factor in a well-designed sequencing system, and you can create an icon – a landmark that quickly becomes *the* rendezvous spot.

Water managed in a sequenced way truly has the power to direct people. I think we've all seen it with dry-deck fountains in public spaces, where sequenced fountains bring crowds young and old together at desired times and entertain with continuously changing shapes, forms, motions and rhythms. Taken to a higher level, sequenced effects can move visitors' eyes to the upper levels of public or retail spaces, boosting awareness of what's in a building to great commercial advantage.

Sequenced water is also capable of influencing the mood of onlookers by changing the dynamics or personality of the waterfeature, which can change from soothing to surprising in a heartbeat. For parents tired of shopping or playing in the park, watershapes of this kind are great temporary child-minders: They have a way of capturing children's attention, giving parents a chance to rest their weary feet.

Indeed, the only limit to the potential of sequenced water is the scope of our imaginations. We believe this so strongly at Crystal Fountains that watershapes of this type are now a major focus of our business and a big part of our mission as fountain designers and installers. We've come to the conclusion that people love watching sequenced watershapes and thinking about what comes next.

Then they want to know: "How did they *do* that?"

Sequenced by Design

There are many products and technologies that you can consider in developing a sequencing design.

Before making those decisions, however, it is helpful to follow a process – a string of steps from concept to creation that will in effect lead you toward the best choice of equipment and systems and configurations. As you move smoothly through each step, having a repeatable process in place ensures that the resulting watershape truly captures the clients' vision, works within their budget and uses the most appropriate of all available technical options.

❑ **Vision:** Many clients get ideas about the watershapes they want from things they've seen before. So first you need to understand your client's perspective and what's driving and influencing it.

This vision will encompass broad aesthetic issues, but it will often represent system fundamentals, from the number of jets and the size of the pool space to the operational height of nozzles and sequencing speeds (fast or slow) – not to mention whether all nozzles are moving at the same time or each nozzle is individually sequenced.

All these elements play a part in determining the type of sequencing technology and the amount of hardware required. Drawing as many details as possible out of your clients is therefore essential if the work that follows is to proceed smoothly.

❑ **Budget:** Sequencing water systems can range from the $20,000 spent on truly wonderful residential fountains to the $25,000,000 spent to produce impressive and spellbinding water shows of the sort you'll see at places like the Bellagio Hotel in Las Vegas.

Trouble is, most clients won't be able to tell you how much they want or wish to spend until they first find out what is available (and practical) for their public or private space.

In other words, clients need your help and assistance at this initial stage. The trick is to provide this assistance without consuming too much of your own time, only to discover later that your clients were just "entertaining" the idea of a sequenced fountain.

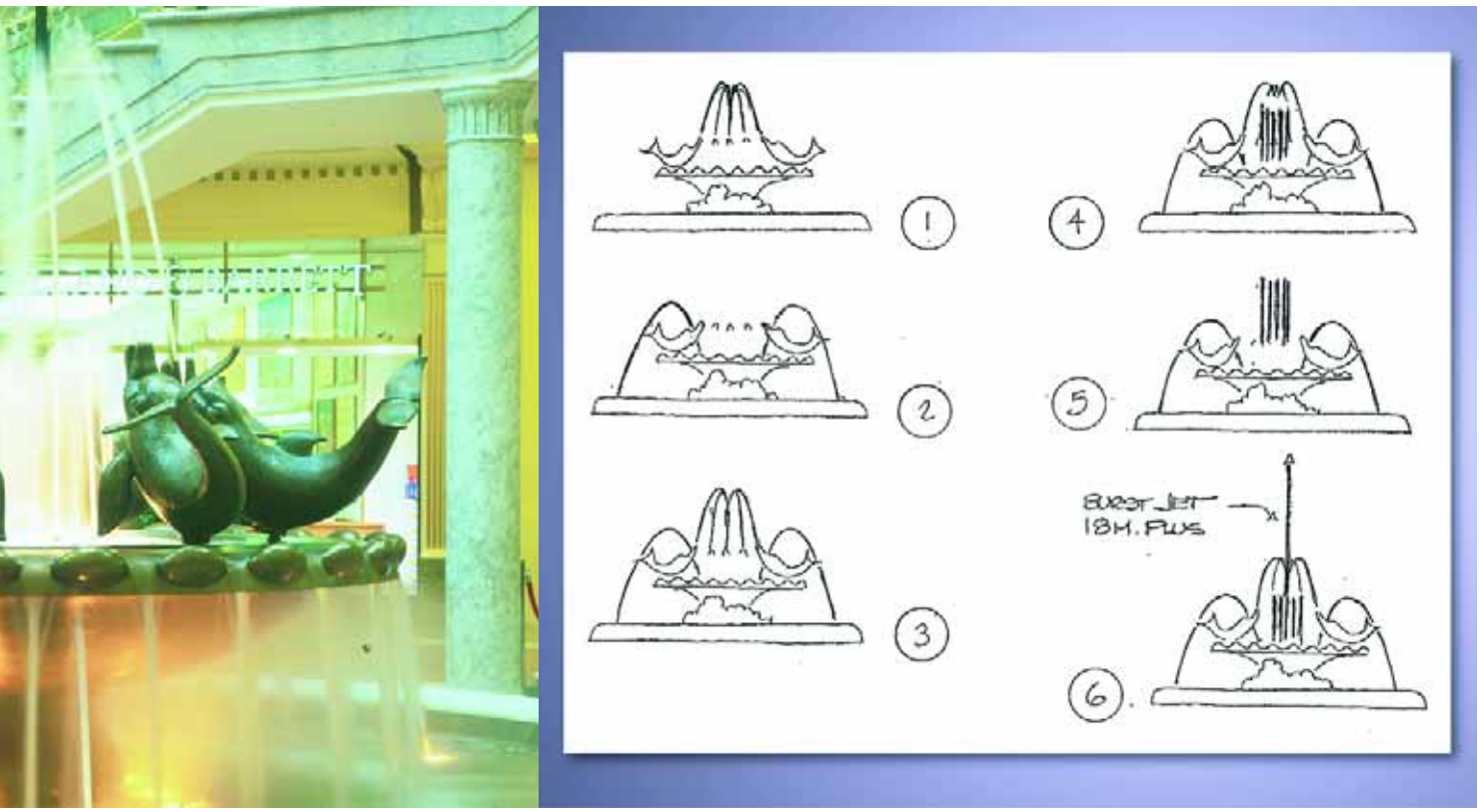
❑ **Options:** As is true with so many design possibilities, it's essential to show your clients what is available. When it comes to sequencing effects, this means you'll need to have a video at hand to show clients exactly what breed of ideas you're offering.

Armed with a video and knowledge of the costs involved in projects of varying degrees of complexity, you can help your clients determine which features they want while simultaneously giving them a sense of what it all will cost.

The Drawing Board

Once you've sold the concept, the real work begins. First comes the design/development phase, then the commissioning phase – the two most important stages in the creation of a sequencing fountain.

After your clients are satisfied that their dreams aren't in conflict with their pocketbooks, the next step is to roll up your sleeves and commit your aesthetic and



TELLING A STORY: These six sketches show the various water effects we had proposed for the fountain seen in finished form on the opening pages of this article. These storyboards helped the client see what we were talking about — and guided us to deliver exactly what he was expecting to see.

technical resources to the design. Your challenge now is, step by step, to turn a dream into a practical, reliable reality.

Part of our design/development process at Crystal Fountains is architectural "storyboarding." This is a tool with which relatively few watershapers are probably familiar, but we find it critical in getting ideas across to clients who cannot visualize the ideas we might be discussing.

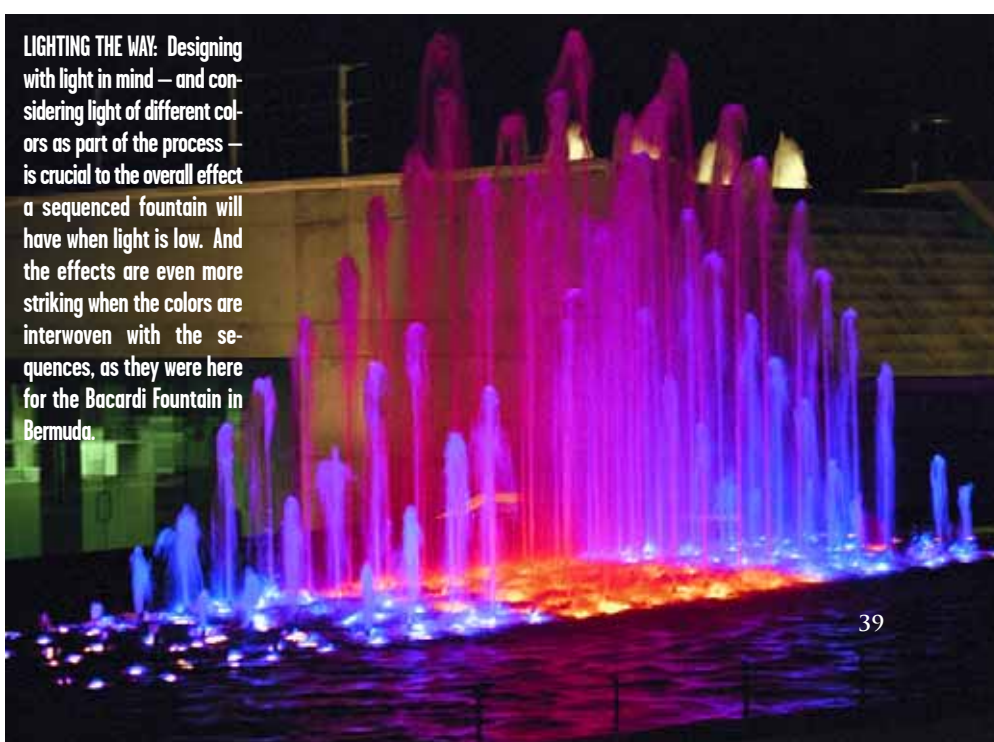
Along with illustrations, photos, videos and mock-ups, storyboarding brings a specific waterfeature and its sequences to life for the clients' own design and construction team. They show the various levels of potential operation and help anyone unfamiliar with sequencing technology understand the effects in clear, visual terms.

Among the benefits:

• Storyboards encourage clients to participate in the development process and help you understand their desires and buying logic. (Clients who understand the watershape's elements will better understand its cost.)

• Storyboards foster trust. People typically only buy from people they like, and all clients are different. Some clients want all your time and attention (we call them "high-touch" clients), while others are happy with little communication ("low-touch" clients). Either way, storyboarding engages them, offering them an opportunity to communicate with you (even nonverbally) as you move through the design process.

• Storyboards help manage clients' expectations. By communicating as graph-



LIGHTING THE WAY: Designing with light in mind — and considering light of different colors as part of the process — is crucial to the overall effect a sequenced fountain will have when light is low. And the effects are even more striking when the colors are interwoven with the sequences, as they were here for the Bacardi Fountain in Bermuda.

ically as possible, you can begin to find out if you and your clients are on the same page. After all, you don't want to find out your clients are disappointed with your ideas *after* the installation is complete and the final invoice has been submitted.

Creative Aesthetics

The point of all these discussions and models and storyboards is that you, as the watershape designer, need to have a well-established idea of what your customers are after well before you come anywhere close to developing technical solutions to the challenge of delivering the effects they want.

The simple fact with sequenced water is that you need to address, consider and settle the aesthetic elements before you work to find a technical solution.

Watershapers who are lucky enough to be technically minded may be quite comfortable talking technology. But most clients, including architects, don't often engage in detailed technical discussion – so you need to be careful not to discuss subject matter that numbs their brains.

In other words, given the fact that you'll seldom be able to settle any design issues by overwhelming command of technical detail, it pays to be familiar with some of the "artsy" issues you'll need to address early on in the design/development phase:

❑ **Viewing angles and sight lines**, which will help in determining the ideal location and size of the watershape.

❑ **The desired visual "weight" of the water**, which has to do with selection of nozzle types, jet-stream volumes and the spacing and number of nozzles as well as decisions about how intimate the fountain will be – or how prominent.

Watershapers can easily under-design the water volume and density of their water effects. That's why it's important to know what's involved in achieving the delicate effects that work for an intimate garden space, for instance, and the much-heavier water effects needed for a waterfeature that will be viewed by motorists as they approach the entrance to

Continued on page 42

What's Available?

Many different sequencing devices are available to you in today's watershaping marketplace.

Some equipment is offered off the shelf as commodity products, and anyone can purchase these goods. Other equipment is proprietary and must be purchased as a package consisting of pumps, control equipment, lighting – the whole nine yards.

Due to the conditional aspect of proprietary products, we will discuss only commodity sequencing hardware here.

As you shop around, be careful to choose equipment that will last and need as little operational attention as possible. After all, how happy will your clients be if their expensive sequenced fountain is not sequencing?

❑ **Variable-Frequency Drives:** Having first gained popularity in Western Europe, variable-frequency drives (VFDs) are being used more and more in North America. VFDs change the frequency of a motor and therefore the speed (in rpm) of the pump impeller. Variable flows and pressures are now available, too, thereby changing the height as well as the "rise/fall rate," that is, the speed at which a water effect changes height.

VFDs are electrical (not mechanical) devices and offer simple operation and reliable service. At first glance, they appear to be more expensive than some traditional solenoid-activated process valves, but that's before longer-term maintenance costs are factored in. VFDs also consume less power when the pump operates at lower speeds.

When designing with VFDs, consider the following:

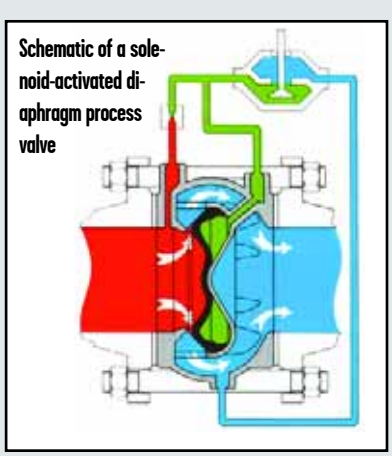
- VFDs are good for slower, graceful motions. The rotor requires time to "spool" up or slow down. Small pumps (that is, 5 hp and under) react faster to changes in speed than larger pumps (50 hp and up).
- Avoid using different pump sizes in the same sequenced fountain. It's clearly more difficult to choreograph the movements of water effects when one jet uses a 5-hp pump while others are working from 50-hp pumps.
- Look for good technical support from your supplier, especially when it comes to electrical design. Experienced fountain companies with VFD systems can assist you with things like water speeds and the more popular sequencing effects.

❑ **Solenoid-Activated Diaphragm Process Valves:** Historically, this type of valve is the workhorse of the slow and gracefully sequenced watershape. Hydraulic piloting-control options consist of height staging and speed controls: A three-stage valve provides low, medium and high height levels, while a small needle valve controls the speed changes of the rising and falling water.

When designing with these devices, consider this:

- The main advantage of using this type of sequencing device (compared to VFDs) is initial construction cost. One pump can be used to supply water to a bank of solenoid-activated sequencing valves.
- There's a service factor to be considered, basically because piloting controls using staged height- and speed valves can be confusing to operations personnel. Without substantial training, there's a high risk they'll make matters worse when trying to service these systems.
- Most models don't have "linear" performance characteristics, meaning a 50% change

Photo courtesy A.C. Tech



Sketch courtesy Roll Seal Valve.

in pressure to the pilot side does not translate to a 50% change in the height of the water effect. Although this isn't a problem with simple sequencing and choreography, it can be a headache for more elaborate systems.

• The staged height-piloting controls contain a pressure-reducing valve (PRV). When designing with PRVs, make sure you select pressure ranges correctly or you'll have difficulty in adjusting water heights.

• All diaphragms will need to be replaced every one to three years. Some models require the valve to be completely removed from the piping system, making service more costly.

❑ **Electrically Actuated Butterfly Valves:** These sequencers are simply butterfly valves (flanged or wafer-style) with an electric motor attached to the stem. Most are of the "4 to 20 milliampere" variety – that is, they open fully or close fully depending on an electrical signal varying from 4 to 20 milliamperes.

When considering these devices for your systems, bear the following in mind:

• They are used for slow and graceful sequences only and have limited operating speeds.

• Strong and robust, these valves are simple to operate and require very little maintenance.

• Depending on size, they can be more expensive than diaphragm valves.

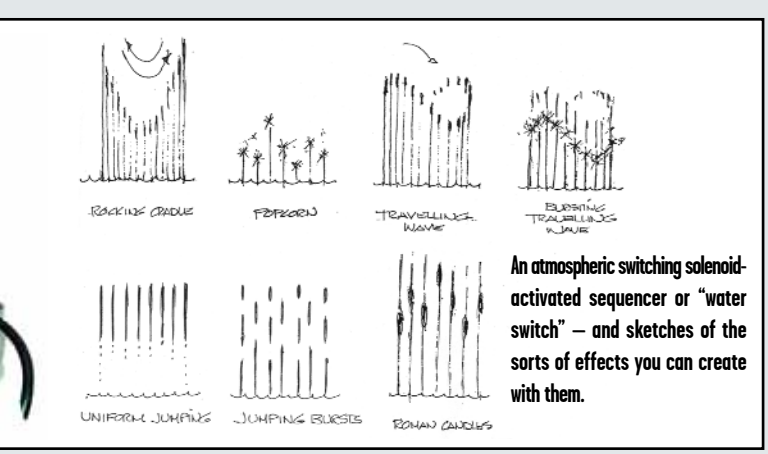
• These valves do not have "linear" performance characteristics, making sequencing and choreography difficult. But they are fine for simple sequences.

• These valves must be installed in a dry location in a nearby mechanical space and cannot be submerged or put in damp environments.

❑ **Atmospheric Switching Solenoid-Activated Sequencers:** The newest type of commodity sequencing device, this "water switch" is mounted directly to the fountain nozzle in the vessel. They are designed to provide fast and dynamic sequencing patterns without complicated pneumatic and hydraulic pilot controls.

The switch is a water diverter; meaning it changes the path of water from a nozzle port to an exhaust port at speeds of up to 20 times per second. A small solenoid controls the atmospheric air on either side of water flow, causing the flow to bend in the direction of the nozzle or exhaust port.

Here, you need to consider the following points:



An atmospheric switching solenoid-activated sequencer or "water switch" – and sketches of the sorts of effects you can create with them.

• These devices create fast, dynamic sequence patterns. They are "either/or" devices, meaning the water effect is either on or off.

• They don't cause "water hammer," a banging sound in the piping system. Because it only *diverts* water flow, the pump and piping system experience no pressure changes that are common with "open/closed" devices such as diaphragm valves.

• They are fully rated for submersible use. Indeed, the fast reaction times are partly due to their ability to be located right next to the nozzle.

• Their fast sequencing speeds of 0.5 milliseconds or faster can create water displays not possible with non-sequencing nozzles.

• The water switch has only one small moving part, making it very reliable with virtually no maintenance. In fact, they come with a 10-million-cycle rating.

❑ **Air Piloted, Hydraulically Controlled Diaphragm Process Valves:** This system is a useful and practical technology for larger and more complicated watershapes, but it requires sophisticated pneumatic systems and should not be considered for simple to mid-level sequencing features. Ultimately, the complexities of these systems put them well beyond the scope of this article.

– P.L.

The effects to be achieved in sequenced fountains can be combined, as in this case where the fountain at General Motors' world headquarters has its subdued "popcorn" look punctuated at intervals by uniform jumping bursts.

Photos by Simon Gardner

Continued from page 40

a building or development.

❑ **The mood required for the setting**, which is all about what your clients want observers to feel, not just see. Sequencing water can soothe or thrill depending on how the water's flow is adjusted and the speed at which it moves. Determining whether water effects are to be slow and graceful or fast and dynamic is critical in choosing the sequencing technology needed for the project at hand.

❑ **The need for lighting**, which holds true both for indoor fountains and outdoor installations destined for evening viewing. For small to medium projects, the best lighting is still incandescent halogen submersible lighting. Sequencing color-changing lights to the motion of the water can double or triple the viewer impact.

Once these basic issues of appearance and the impressions the watershape is to make have been covered, it's time to start turning the vision into reality.

Making It Happen

At this stage, watershape-design experience comes into play in a large way. Working with an experienced "fountaineer" will help make the critical decisions necessary to complete both mechanical and electrical system designs as well as bills of material.

No matter how you approach it, the following needs to be specified during this phase:

❑ **Sequencing devices.** The devices required here will depend on sequencing sophistication, sequence programming (from your storyboards) and sequence-device longevity (that is, number of cycles or open/close operations per device per year). Obviously, a device intended to operate at 100,000 cycles per year will be different in many ways from a device that will perform more than 4,000,000 cycles per year. (For more on available technologies, see the sidebar on page 40.)

❑ **Flow systems.** This is all about how you make the water move, from the water effects' display system to the water treatment/circulation system. Considerations here include flow rates, pressure losses, system balancing, pump sizing and basic mechanical-system layout.

❑ **Electrical systems.** The electrical system layout includes electrical requirements for motors, sequencing controls, submersible lighting, water treatment and wind- and water-level controls.

❑ **Control panel.** Design of the fountain's electrical-control panel will include MCC, electrical control systems and sequencing hardware and software.

❑ **Component concealment.** Issues of how and where you'll hide components needs to be addressed in order to make the feature aesthetically pleasing as well as safe for public use.

With this information, you can now determine an accurate budget for equipment and installation. That's quite an achievement: At this point, you've already taken care of the bulk of your solution-finding, including a supply list, process-flow diagrams and critical architectural/civil-engineering details.

As important, the design/development stage is also the relationship-building stage with your clients and their key represen-

UNDER COVER: The fountain for the Molkotow Centre in Warsaw shows how concealed components provide for a clean aesthetic appeal. Hiding the hardware prompts a wonderful question: "How'd they *do* that?"

tative, usually the architect. We've found it works best to get them involved in the process: If you consistently and readily show samples of ideas and suggestions and show that you are managing budgets and costs, your client meetings will build trust and understanding – and help you manage expectations!

Throwing the Switch

Given all of the careful preparatory work you've done in making certain your systems and plans are basically bullet-proof, installation of a sequenced watershape can be a straightforward process. Efficient and vigilant on-site management is essential, of course, but careful planning, detailed blueprints and good contractors tend to streamline the construction end of the operation.

The real moment of truth comes in commissioning – that is, starting up the system for the first time. It's like the dress rehearsal before opening night on Broadway: Everything must come together *now*.

You know your deadline (and so do your clients), so there's more tension and excitement in the air during this last phase of the project as you prepare the watershape for your clients' grand opening and the ribbon-cutting ceremony.

All dress rehearsals are nerve-wracking, and the one for a sequenced water effect is no exception. You're hoping that the installed components will operate properly and that the last of the construction steps will be completed in time to give your staff enough time to get the water moving, adjust and test equipment and get the software up and running to coordinate the sequencing devices.

In other words, this commissioning stage is, as mentioned previously, among the most important of all phases in the project. And almost every time, *something* will come up on site that makes you feel you need more time. The only trouble is, *there is no more time!*

If you are prepared for these last-minute, unexpected eventualities, your clients will perceive you as having done your job well. Always remember that even though the excavator triggered further delays or the tile setter took longer than expected, it is the last person holding a wrench who gets the brunt of a verbal broadside from unhappy clients. And that person may well be you!

No amount of paperwork proving someone else is responsible will help you when your clients are all decked out in tuxedos, the mayor on the way and the press is lined up, cameras in hand – and you're still trying to make the fountain work.

Here are some tips to ensure a successful end-game:

• Work some extra time into the schedule for unexpected events. Make sure what you say can be done in six days can actually be accomplished in *three* if it becomes necessary.

• Make sure you have 80% of your computer programming completed before commissioning. If you're starting with an empty sequence program only days before finishing the job, chances are good you're not going to make it.

• Have spare parts on hand for critical components. Murphy's Law states that the part for which you don't have a spare and whose manufacturer is the farthest away is the one that will break down.

• Be aware that if you're going to have trouble with any component, there's a good chance it will be with the electrical control panel. Sequenced fountains require electrical controllers that mix electro-mechanical devices with computers. (That's why we build our own, factory-test them and always have an electrical technician/programmer from our factory present at commissioning.) Water may be a hydraulic business and most of us have water-circulation backgrounds, but when it comes to sequenced water, it's the electrical crew that pulls off the back end of a project.

• Run the water. Many last-minute glitches arise due to debris blockage. This is why you should avoid installing sequencing devices until after the pump has been circulating water for 24 hours.

This above all: Keep smiling! Your clients are relying on you for the success of the commissioning party, whether it takes place in a public park or with a private party in a backyard. Nothing makes a client more skittish than a stressed-out water guy.

From Thrill to Thrill

The opportunity to thrill and amaze – or sooth and relax – and for bringing the experience of watershapes right to people is an extraordinarily satisfying business.

As this article illustrates, there's more to sequencing water than just the technical challenge. Before you get to that level, you need to communicate, capture a vision and consider the various design elements that are imperative parts of the process – and then bear in mind that you have a firm deadline to meet. And that's not to overlook the technical challenge, which is legitimate and can be amazingly complex depending on what your clients want and what you can deliver.

Sequencing water requires patience, yes, but with the right approach, you'll soon be directing a unique show of water effects for an appreciative audience. Where else could the combination of popcorn, traveling waves, fluffies and geysers bring people so much enjoyment?

For What It's Worth

In my opinion, whenever you're working on any kind of advanced watershape design, it's appropriate to ask for a design fee – and that's *especially* true of sequenced-water systems.

The design/development process requires your aesthetic as well as your technical knowledge and experience and can consume a huge amount of time as you generate conceptual illustrations and continuously revise the budget. If you are going to provide a service this valuable, you should be compensated for it.

Consulting fees such as these are, in other words, completely appropriate for this level of service, time, knowledge and experience. I know that some watershapers are uncomfortable or reluctant to ask for them, but one way of making the fee more palatable to clients is to offer a money-back enticement – that is, if you get the contract to build the watershape, your client recovers the design fee.

– P. L.

A Garden Surprise

Watershapers who tackle projects in older communities often face the necessity of fitting their new designs in with historic architecture and long-established landscape tastes and styles. It can be a challenge, says landscape designer Bruce Zaretsky, but if you're sensitive to tradition and work carefully with your surroundings, it's possible to add beautiful and even surprising features to classic homes.

By Bruce Zaretsky

LeRoy is a historic New York village that's most famous (or most notorious?) for being the birthplace of Jell-O.

Far more significant to me, however, is the fact that the town happens to be filled with beautiful 19th-century homes that run the architectural gamut from Colonial to Italianate and Victorian in style. It's a wonderful place – and the site of one of my firm's most unusual projects in recent memory.

The home featured in this article is a Second Empire Italianate estimated to be about 140 years old. It's a prime example of 19th-century craftsmanship, from the Mansard roof with its scrolled cornices to the drive-through porte-cochere and the wrap-around porch with its beefy wood railings.

It's definitely an architectural treasure, filled with the kinds of details that have been lost as far as today's custom-built homes are concerned. Mindful of those special touches, we set about designing a similar level of detail into the landscaping in creating gardens and watershapes that brought tranquility to the setting.

The Lay of the Land

Our initial discussions were pretty conventional: The clients wanted a range of entertainment spaces and some landscape lighting as well as areas for perennial and rose gardens.

During our first meeting, they mentioned more than once that the husband traveled frequently to Asia and was always bringing back items and artifacts that reminded him of places he'd seen. I didn't think much of this – until, that is, they mentioned that they also wanted a pond as part of the

The storage shed was a pretty humble structure, but we saw its potential as a dividing line between two different backyard worlds. Here, we've started on the lower pond and have already opened the far side of the building to overlook what will eventually be the upper pond and Japanese garden.

overall package. And they didn't want just a simple pond, but a creative and unique watershape that would look great and let them interact with the water.

Existing structures on the approximately one-acre site included a large barn/garage and a small outbuilding that may have been a woodshed at one time. The barn is larger than the home and provides plenty of storage space for the family and the husband's collection of Sprint racing cars.

As we walked the property, I asked the clients what they had in mind for the shed. They said that their roofing contractor wanted to tear it down "because it was old." I suggested that the roofing contractor had fallen off too many roofs and offered to find a way to incorporate the shed into the final design – and I already had something in mind.

In fact, as we sized things up, I recognized that the shed, which we believe was built at the same time as the house, would actually become the focus of this project. With a 20-by-20-foot footprint, the small structure sits about 100 feet from the house on the same axis.

Because the placement of the storage building was squared against the back of the home, the far side was completely invisible from the patio and a privacy terrace we had designed in Phase One of the project. This gave us an opportunity to create a completely new world on the far side of the small building. Inspired by their desire for an elaborate garden and playing off the husband's taste for Asian styling, I decided to remodel the shed as a Japanese teahouse.

The clients loved the idea, but this left us with the task of making the teahouse and Japanese watergardens fit into 19th-century, Italianate surroundings.

The solution turned out to be straightforward: We didn't do anything to the portion of the building that faced the home, leaving its compatible architecture intact. This meant that when anyone looked out into the yard from the patio areas, they'd never know what was going on with the far side of the building.

Now we had the element of surprise working for us – and a truly unique design was in the works.

The flatness of the site was the biggest practical challenge we faced. We tucked the lower pond in next to the shed (A), pushing the water level as far down as we could. On the upper side, we raised the level of the pond as high as we could against the structure (B). The result was an elevation change we used to set up a stream and a small waterfall.

I asked the clients what they had in mind for the shed. They said that their roofing contractor wanted to tear it down "because it was old." I suggested that the roofing contractor had fallen off too many roofs.

Front to Back

The layout we settled on incorporates two ponds. The first (lower) pond is on the side of the shed that faces the home.

The lower pond is only about 10 feet long and 15 feet wide, tucked neatly into a nook formed by the building and a large specimen quince to its left. A creek that can be seen from the house and terrace areas leads to a waterfall that drops about 18 inches into the pond – an ideal scale for the site and just about all we could muster from the relatively level lot. Surrounded by lush plantings and accessed via a stone path and terrace, it's a great place to sit and relax after a long day.

The surprises start when you walk around the building to see where the creek originates. There, on the far side of the building, we built a larger Japanese-style garden and pond. The water in the upper pond spills into the creek, feeding the lower pond. (We were able to accomplish this on a flat site by building up the height of the Japanese pond and lowering the water surface of the lower pond.)

The upper pond itself fills and circulates from the bottom, creating the illusion of complete stillness. Not only does the bottom circulation make for a nice effect, but it also is my preference because it helps to keep *all* the water moving, unlike surface-skimming circulation.

Continuing the walk around the building, you access the teahouse by a moss-covered stone bridge placed over the creek. Two bamboo plants (confined in pots) create a visual screen that separates the two "worlds." (We also have plans to build a fence incorporating a combination of Arts and Crafts and Oriental styles to further separate the areas.)

The back third of the building overlooking the Japanese pond was removed, exposing the rafters and collar ties. We added a new stone foundation up to floor height and extended the floor to cantilever it out a foot over the pond. Then we added translucent (but not transparent)

Japanese Shoji screens that keep the view from the teahouse focused on the pond while hiding the barn from view.

While the lower pond is perfect for relaxing, conversing and entertaining, the teahouse is just the place for quiet, peace and contemplation.

The overall effect is magical. In fact, the clients tell me that of the four distinct seating areas we have created for them – a patio, a privacy terrace, the flagstone patio near the smaller pond and the teahouse – it is in this hidden area where they spend most of their time outside.

Delicate Selections

Plantings around the Japanese pond are sparse, but carefully chosen.

We used a contorted, weeping White Pine, an Exbury Azalea and a few Liriope for greenery, then carefully placed boulders in and out of the water to lend traditional Japanese gardening touches to the scene. We're particularly happy with the column of hidden boulders we placed in the water – a moss-covered island in the middle of the pond.

In keeping with the sense of peace and tranquility, lighting in the

The rustic flagstone deck next to the lower pond offers observers a tranquil setting gently punctuated by the softly babbling stream and its small waterfall (A). The stream rises along the right side of the building and moves out of sight (B), inviting my clients and their guests to follow its course to a surprisingly different setting.

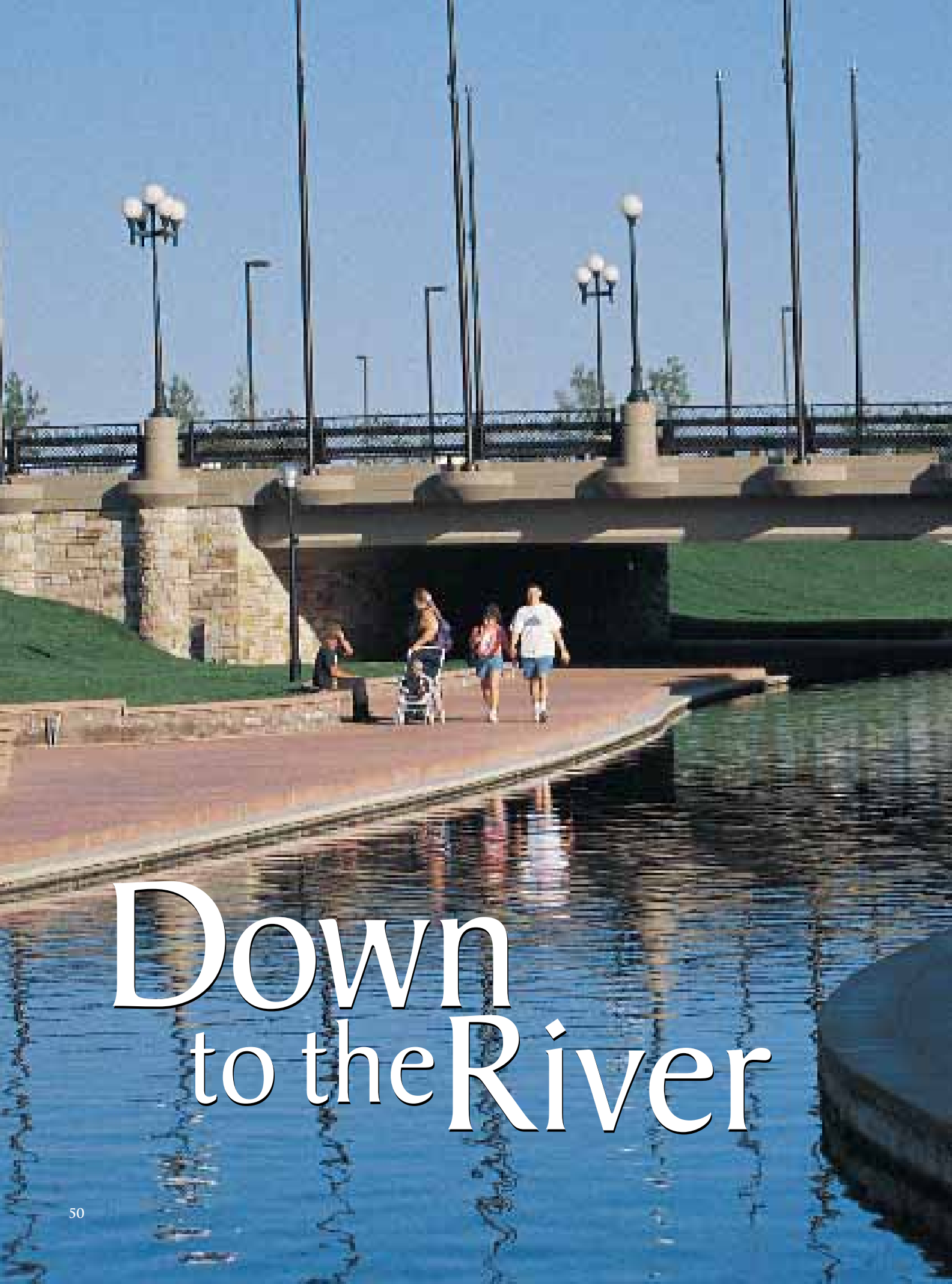
upper garden is understated. We re-wired a Japanese lantern that the client had brought back from one of his trips to China with a low-voltage fixture and buried a single spotlight to bring a subtle glow to the contorted White Pine – and that's it. There's a lack of clutter that makes this setting the essence of peacefulness.

With the lower pond, we were more "generous" in our finishing touches. A flagstone path leads to a matching flagstone terrace with enough room for a café table and chairs and a good-sized bench. Here we included Astilbe, Summersweet, Hosta, Iris and other plants, creating an ideal place to enjoy a Sunday morning cup of coffee. Our lighting program here includes a simple sharp spotlight on the small waterfall, path lighting using fixtures that look like cattails and a soft wall wash on the face of the building that silhouettes the plantings in front.

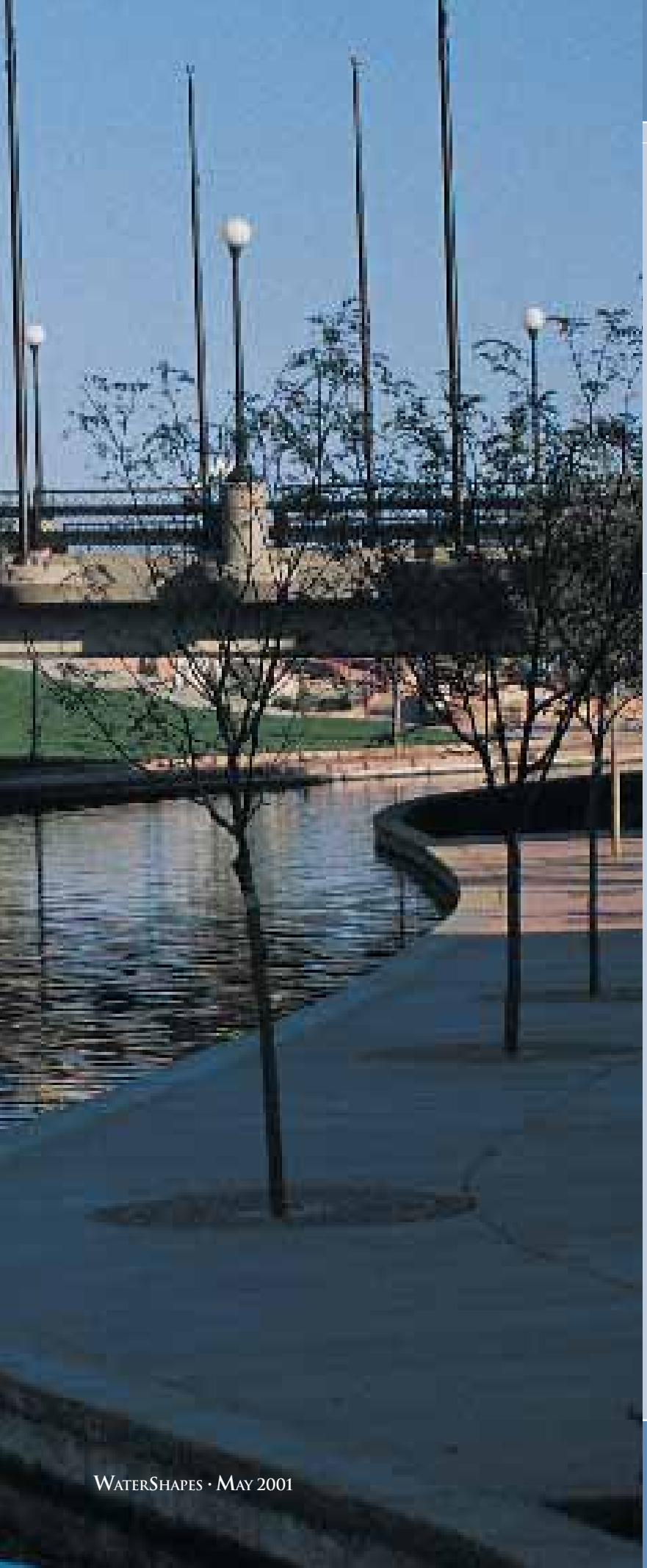
The challenge of creating unique projects like this one is what keeps most of us in this business. In this case, bringing elevations to the flat site was stimulating in many ways. In addition, with a budget of under $30,000, we also ran into some financial challenges as well. But the ends do seem to justify the means, particularly when the result is so much fun.

In fact, this project proves to me that I truly do not need a huge budget to bring pleasure and delight to my clients: All it takes is a vision – and the desire to make it reality.

Following the stream yields quite a reward: You come around the corner to see this Japanese-style upper pond surmounted by a picturesque teahouse. The serenity at this level is complete – all of it achieved without disrupting the garden's classic 19th-century surroundings.



Down to the River



Inspired by a source no less prominent than the hugely popular San Antonio Riverwalk, the citizens of an old Colorado steel town have invested $24 million in a project they call HARP – the Historic Arkansas Riverwalk of Pueblo. The project has transformed the town's rusty image, says landscape architect Donald Brandes, and sums up the benefits of thoughtful watershaping on the grandest possible scale.

By Donald H. Brandes, Jr.

In 1921, a flood rolled into Pueblo, Colo., submerging the civic center beneath 11 feet of water and leaving more than 100 people dead. To prevent the recurrence of such disasters, engineers came to town, diverted the river along a different path and encased it in underground levees several blocks away.

Seventy years later, a grand project known locally as HARP – the Historic Arkansas Riverwalk of Pueblo – undertook to restore the historic course of the Arkansas River and make it the centerpiece of a 26-acre downtown park.

HARP re-creates 2,220 linear feet of the historic river in concrete-lined (yet naturalistic) channels. Nearing completion after ten years, the urban park will include 3,300 linear feet of navigable waterway for use by water taxis and pleasure boats as well as dramatic fountains; more than a mile of promenades and other walkways; a two-acre lake; and an outdoor environmental-education center.

It has been a massive undertaking, as befits a project aimed at revitalizing an entire city. For the watershaping community, the project also stands as an example of the truly transforming effect that large bodies of water can have in an urban environment.

Role Model

Seeking inspiration, HARP's planners needed to look no farther than San Antonio, Texas, and its famous Riverwalk.

Like HARP, the San Antonio project is more an engineering feat than a natural river. And the size of San Antonio's artful waterways – 30 feet wide and 4 feet deep – are so similar to HARP's that it made the San Antonio model even more appropriate.

In both cases, a combination of weirs, waterfalls and treatment facilities ensures water quality. Here in Pueblo, storm water is diverted to a huge chamber beneath the channel; any outfall is hidden beneath a waterfall created by weirs as the HARP channel rejoins to the main flow of the Arkansas River.

In other words, HARP is an engineered, controlled environment that brings the public close to the water and serves to increase the value and usefulness of the area – not to mention the pride and image of the entire city of 107,000 residents. After 70 years, San Antonio's Riverwalk has become one of the nation's liveliest urban districts. The same ambitions apply to our Riverwalk in Pueblo.

Even in its uncompleted state, HARP already unifies the downtown area by providing a focal point and linking Pueblo's historic City Hall with other civic, cultural and educational institutions such as the Sangre de Cristo Arts Center, El Pueblo Museum and the new Buell Children's Museum. It embodies a style locals call "Pueblo soul" – a mixture of Chicago-influenced architecture, industrial grit, high-desert vegetation and Latino culture.

Today, the Pueblo Riverwalk is basically a downtown park, but future phases of development include an urban retail and entertainment district and, eventually, a hotel and conference center, restaurants, pubs, retail shops, offices and even some residences.

And already, HARP is a magnet for tourists as well as local people who enjoy visiting the museums, fishing, paddleboating on the lake and strolling along the promenades. With a year-round flow of water and a climate that boasts 350 sunny days a year, there's much to enjoy – and HARP's tailored waterways only make it better.

A Decade in the Making

Creating the Riverwalk was a massive public and private effort. As recently as five years ago, the site contained a large parking lot and a cooling pond for an adjacent power plant. The only other visible water could be seen through a grate covering a drainage system that led to two large buried pipes.

The task of transforming this bleak set-

Once the cooling pond for a local power plant, Lake Elizabeth is now a key feature of the Pueblo Riverwalk and serves as the controlling reservoir for most of the water flowing through the system.

Kelly Falls *forms the visual and physical link between Lake Elizabeth and the Riverwalk's main channels. The flow over the falls is supplemented by flow through openings at the base of the walls.*

ting into a cool, shaded tourist attraction began when a citizen group called the HARP Commission hired our firm, Design Studios West (DSW), in 1991. Our job was to collaborate with a team of designers, engineers, artists and citizens to design and, we all hoped, eventually build the project.

But first we worked with Pueblo's citizens to determine whether HARP was even feasible.

Challenges abounded: For the previous decade, for instance, the project was stalled by fears that "daylighting" the channel would revive the danger of flooding. Funding was an issue as well, and it was unclear how HARP related to other downtown revitalization projects.

So we started to ask hard questions. Would it be possible to divert the water HARP needed away from industrial use? What would be the impact of removing 250 downtown parking spaces from service? Would it be prudent to remove two 8-foot flood-control pipes that had just been installed at great expense?

To begin to get answers, our firm called on James E. Keeter, a fellow of the American Society of Landscape Architects and, for the past 40 years, the guiding force behind the San Antonio Riverwalk. Keeter designed many of the romantic, intimate spaces that have made San Antonio's Riverwalk successful while also resolving its flood-control issues. In fact, his latest San Antonio project has involved creating a diversionary tunnel to relieve the threat of a 100-year flood.

Meanwhile, the city of Pueblo began coordinating HARP's plans with overall renewal plans for its entire 80-block downtown district. In 1993, Pueblo voters passed a bond issue to build a $19 million hotel and convention center. This pushed HARP out of the realm of a linear park and toward the commercial, San Antonio model – and from a pastoral, bucolic approach to an urban one that would feature shops and hotels.

One problem soon emerged: The site chosen for the convention center was three blocks from the Riverwalk, on the opposite side of police and fire department buildings. While Pueblo officials negotiated to move these agencies, our design team added a new element to HARP: a finger-like, two-block-long channel heading north to the convention center site.

Then there was the biggest challenge of all: Pueblo's voters still needed to pass a $12.9 million HARP bond issue, which came up for vote in November 1995.

Making Impressions

To help residents grasp the project's scope, we at DSW commissioned Pueblo architects Hurtig, Gardener and Froelich to construct a scale model.

The $9,000 model was put on display at

the Colorado State Fair, held in Pueblo two months before the election. More than 500,000 people saw the model during the fair's three weeks, and many lingered for as long as 30 minutes, delighting in picking out landmarks such as City Hall and expressing amazement that such a project could even be considered for downtown.

The model was *the* single element that helped people understand what HARP was all about.

In November 1995, voters narrowly approved the bond issue. Other funding soon moved into place, including $7 million in foundation grants and private donations as well as $3 million in federal and state grants – among them a $1 million Legacy Grant from Great Outdoors Colorado (GOCO). The concept proved so popular that the Riverwalk raised more money than had been projected, allowing our team to customize design details and use higher-quality materials, including stone.

By the end of 1996, the Riverwalk had begun to take physical form. In Phase One, the parking lots were torn up, and Elizabeth Street was temporarily closed while other streets were extended and improved. Even these steps opened vistas from the future Riverwalk to historic downtown buildings and to Pikes Peak, 40 miles to the north near Colorado Springs. Underground utilities were moved or improved, and three roadway bridges over the channel were constructed or upgraded with adequate clearance for riverboats.

Now it was time to excavate the historic channel. Once the digging started, we found railroad boxcars, hoppers and even a woolly mammoth bone in the muck. For a time, we were concerned that these discoveries would cause delays as the paleontologists did their painstaking work; as it turned out, however, no more bones were unearthed.

As a bonus, the construction pit also yielded huge chunks of sandstone originally used as retaining walls when the Arkansas River freely coursed through downtown. Measuring two feet on each side, these were diamond-cut into masonry-sized pieces and were then used on new retaining walls along the Riverwalk's pathways.

The project's wellspring, the cooling pond from the West Plains power plant, was expanded, lined with impervious clay and converted into pastoral Lake Elizabeth. Water-rights negotiations ensure a minimum depth of four feet on the two-acre lake. Now water flows from the lake at a rate of at least 12 cubic feet per second over Kelly Falls and into the Riverwalk channel. (The maximum flow capacity is 32 cfs.) Even at the minimum flow, park visitors are assured they will never find themselves walking along an empty ditch.

The flow from Kelly Falls is supplemented by two box openings at the base of the channel wall. This bottom en-

At the heart **of the Riverwalk is El Pomar Plaza, whose grand staircase provides pedestrian access to the water and serves as a focal point for HARP's fountains and public art.**

try creates a churning that reduces algae buildup without detracting from the waterfall effect.

People Pleasing

Once the waterways were established, the aboveground work began in earnest.

El Pomar Plaza is HARP's grand entryway and focal point. Made of sandstone and framed by lush greenery, the plaza features a grand staircase that leads from parking facilities near City Hall through shaded walkways and various seating areas.

The Physicians' Fountain is the foundation for a performance stage at the base of the steps. Nozzles embedded in the stage floor produce computer-controlled sprays of various heights and intensity for water play. Given that intended use, water for the fountain is isolated from the rest of the Riverwalk system and is treated to drinking-water standards in a pump room/vault located 16 feet underground.

We also took steps to make certain this treated water will not reach the river. Fountain water collects in a trench drain and is recirculated. When the fountain is turned off, the flush nozzles do not interfere with performances on the stage.

At the project's northeast end, DSW designed a natural pond in collaboration with the state's Division of Wildlife. This area now hosts wetland plants, an observation deck and an outdoor amphitheater constructed of historic river stone. Here storm water and channel water mix before flowing back into the Arkansas River, resulting in a great fishing spot for downtown Pueblo.

In HARP's next phase, this area will be enhanced with more wetland plants. We were pleased when beavers discovered the spot and felled cottonwood trees to build a dam. Unfortunately, however, the beaver family had to be moved, because there was no way to ensure the water level they require. Even so, this demonstrates the natural forces already at work in this fabricated area.

Twelve acres of HARP have been elaborately landscaped. The $955,000 planting budget included 280 deciduous shade trees, 60 deciduous ornamental trees, 100 evergreen trees, 875 evergreen shrubs, 3,950 deciduous shrubs, 640 perennials and 4,700 wetland plants.

Retaining walls and abutments for the three bridges that cross HARP were built from three types of sandstone – the material the Arkansas River cuts through as it approaches Pueblo.

Celebrating the River

HARP shows how even cities located on parched prairies or deserts can capitalize on the drama and vitality of their urban waterfronts.

More important, however, is that HARP has become a symbol for Pueblo, a town basically left for dead after the early-1980s collapse of the steel industry. With admirable pluck and vision, the community diversified its economy and has captured its sense of revival in its downtown historic district. As a result of these and other efforts, the Partners for Livable Communities recently named Pueblo as one of the nation's "most livable cities."

Although not quite complete, HARP was dedicated with a weekend-long party in October 2000 – the crowning touch for Pueblo's renewal and a reflection of the pride and resiliency of its citizenry.

Enhanced by Art

The Pueblo Riverwalk provides a spectacular setting for water-themed public art.

The Farley/Reilly Fountain, for example, stands on concrete steps built into an elevated section of the channel wall. Designed by Colorado sculptor and landscape architect Richard Hansen, it was assembled from stones extracted (with a permit) from an abandoned Bureau of Land Management quarry about 50 miles from Pueblo.

In all, Hansen took 17 tons of red granite to his nearby studio, where he carved a quartet of 10-foot columns with a capstone measuring 18 feet across. The entire fountain has rough, unfinished surfaces that create what the sculptor calls a "geological presence."

He bored through the upright pieces with a core drill to accommodate 3-inch pipes – the source of cascades that shoot 300 gallons a minute from the top of the columns. The cascades fall down "water steps" across a Ripple Panel that Hansen carved from a 15-by-5-foot granite slab he found at the seconds yard of Cold Spring Granite in Minnesota. Using both pneumatic and hand tools (he was once a stone-carving apprentice at the Cathedral of St. John the Divine in New York), Hansen engraved a wave pattern that creates visual interest even when water is not running.

The Farley/Reilly Fountain also incorporates an optical illusion: Water appears to be flowing under the sidewalk, over the steps in the channel wall and back into the channel. It does not do so: In fact, the water spilling over the steps comes from a separate source and is pumped from Lake Elizabeth.

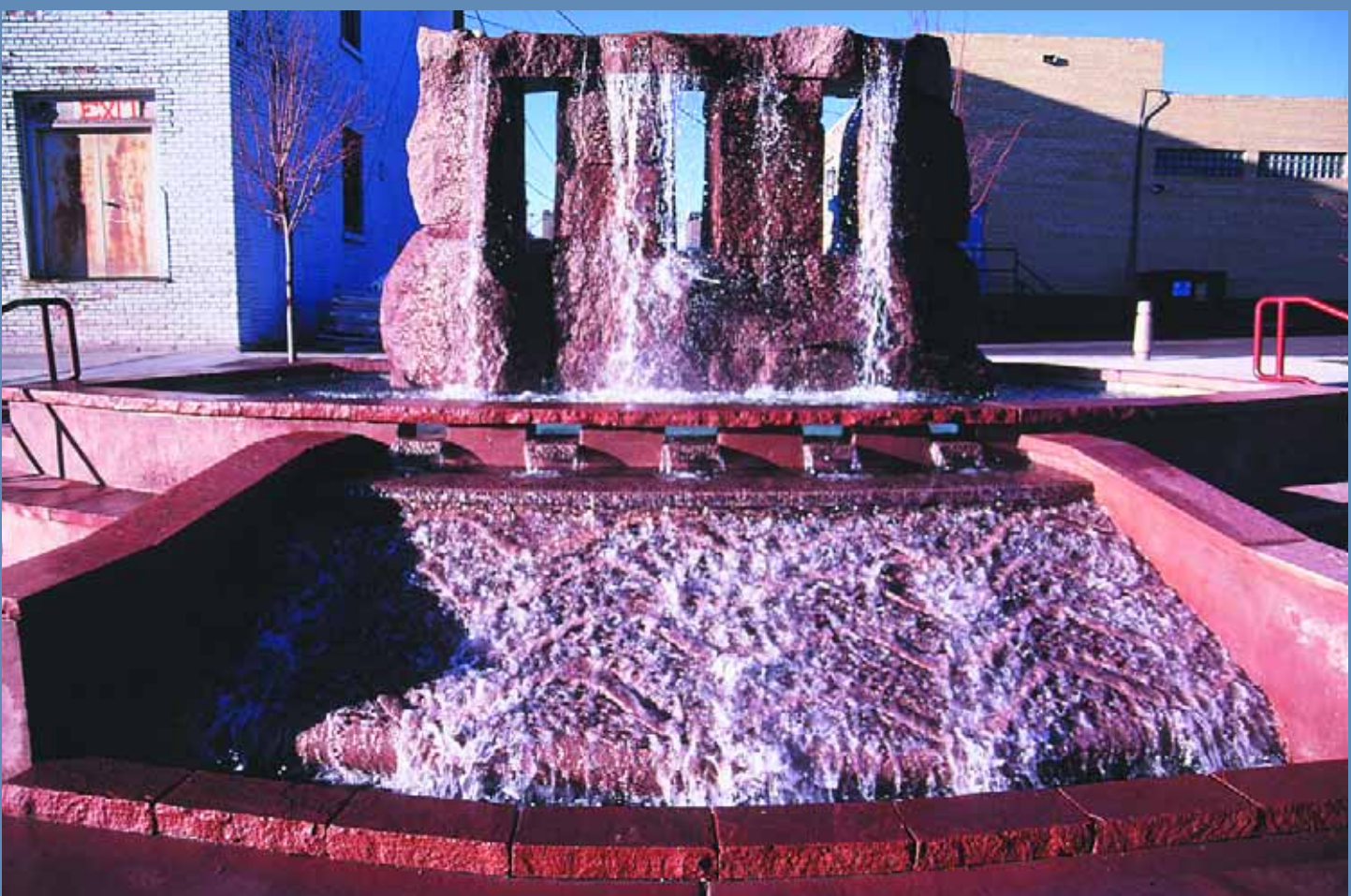
Hansen also executed two sculptures, "Meander" and "Wave," that double as benches. He chose to execute these pieces in granite, another material found locally. The silver and black tones of the granite provide a welcome foil to the ocher- and khaki-colored sandstone of the El Pomar Plaza.

These two pieces – practical public art that express the movement of rivers in the landscape – were fashioned by affixing light-gray slabs onto black boulders that were byproducts of local gold-mining operations.

"Meander" is an imperfect rectangle incised with the form of a meandering river from an aerial view. The groove casts slightly downward to allow rainwater to drain. "Wave" possesses a rougher look with unfinished stone that has been scored and grooved. The surface resembles Class II river rapids captured in freeze-frame.

The slab Hansen used for "Wave" cracked during fabrication. Rather than discarding the piece, he reassembled it by cutting matching joints and linking the two pieces with a quarter-inch steel slab slipped underneath. Both pieces have been so well received that Hansen has been commissioned to create three more benches for HARP.

– D.H.B.



Photos by John Wark

The Farley/Reilly Fountain

Meander

Wave

Of Interest

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

Pool-Deck Construction Products

Circle 100 on Reader Service Card

W.R. MEADOWS presents Catalog #001 featuring its Sealtight Deck-O-Seal products. Designed for ease of use, the 16-page brochure offers product descriptions and specifications along with photographs demonstrating product use. More than a dozen products are highlighted, including joint sealants, drainage systems, control joints and construction epoxies. **W.R. Meadows**, Hampshire, IL.

Fog-Effects Brochure

Circle 101 on Reader Service Card

ARIZONA MIST offers a four-page leaflet on the unique results that come when fog is added to commercial or residential water effects and garden areas with its convenient Mistscaping Kit. The package includes an outdoor-rated, UL-listed pump; 25 riser assemblies; tubing and fittings designed for simple, reliable connections; and 1,000 psi operating pressure for maximum fogging and cooling effects. **Arizona Mist**, Gilbert, AZ.

Landscape Lighting Catalog

Circle 102 on Reader Service Card

KICHLER LIGHTING has released a 64-page catalog covering its full line of decorative fixtures, accent lights and new finishes – everything from a frog figure holding an illuminated copper umbrella to Mission-style lanterns and integrated systems of deck, path and accent lights. Many items are available to contractors in cost-effective bulk packaging. **Kichler Lighting**, Cleveland, OH.

Pavers, Walls and Curbs

Circle 103 on Reader Service Card

OLD CASTLE APG offers a 56-page booklet on the Belgard line of concrete surfacing materials. Tested on an ongoing basis for resistance to temperature extremes, product stability, evenness of mixture, load-bearing capacity and more, the company's pavers, walls and curbs come in a wide array of colors and textures and require only optional use of sealants. An installation guide is included. **Old Castle APG**, Atlanta, GA.

Outdoor Speaker Systems

Circle 104 on Reader Service Card

OWI INC. offers outdoor speaker systems in both architectural and natural styles as a means of setting off the acoustical ambience of watershape and garden spaces. The architectural units provide 360-degree sound in five colors and come with optional low-voltage lighting for pathway use. The natural units realistically reproduce rock forms in four colors. All units come with five-year, limited warranties. **OWI Inc.**, Carson, CA.

Controller with Pager Alarms

Circle 105 on Reader Service Card

ACU-TROL introduces the AK100 pool and spa controller, now equipped with pager-notification alarms. The controller has both pH- and ORP-alarm options that immediately lets whoever is taking care of the pool know of any potential problems. With programmable setpoints for the alarms, the device automatically and continuously monitors and controls the pH and sanitizer levels of water 24 hours a day. **Acu-Trol**, Auburn, CA.

Lighter Landscape Ties

Circle 106 on Reader Service Card

LANDSCAPE TIES OF CALIFORNIA supplies landscape ties that are pressure-treated to last 5 to 15 times as long as normal wood, depending on the selected treatment option. Intended for use in contact with (or buried in) the ground, the ties are clean, dry and natural and will not stain clothing the way recycled railroad ties can. They are also lighter and easier to handle and fabricate. **Landscape Ties of California**, Bakersfield, CA.

Garden Ornaments Catalog

Circle 107 on Reader Service Card

HADDONSTONE (USA) LTD. offers a 76-page catalog covering its garden ornaments and interior stonework. The booklet offers introductory information on the company, materials of construction, finish selection, custom work and service and delivery, and displays a wide range of garden ornaments and architectural features – from urns and planters to statuary and fountains. **Haddonstone (USA) Ltd.**, Bellmawr, NJ.

Continued on page 62

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Product Information Card

For more information on advertisers and/or products featured in this issue's Of Interest *section, circle the corresponding Product Information Number on the postage-free card opposite this page.*

Reader Service Number

Advertiser Index:

6	Advanced Aquaculture Systems (pg. 68)
3	Air-O-Lator (pg. 18)
10	Aquamatic Cover Systems (pg. 3)
15	Atomizing Systems (pg. 63)
28	Carolina Solar Structures (pg. 65)
1	Clear Tech Automation (pg. 16)
	Com-Pac Filtration (pg. 69)
8	Cover-Pools (pg. 22)
18	Coverstar of Utah (pg. 66)
24	Crystal Fountains (pg. 17)
9	Dura Plastic Products (pg. 71)
4	Engelhard (pg. 59)
7	Fountains for Pools (pg. 25)
	Fountains & Ornamental Stone (pg. 65)
16	Genesis 3 (pg. 67)
22	Grate Technologies (pg. 23)
	Haloscape (pg. 69)
	Hobbs Architectural Fountains (pg. 69)
41	Harmsco (pg. 47)
2	Inter-Fab (pg. 53)
23	Jack's Magic Products (pg. 9)
19	Laars and Jandy Pool Products (pg. 72)
27	Macalite Equipment (pg. 62)
32	Master Supply (pg. 24)
29	National Pool Tile (pg. 12)
13	Oase Pumps (pg. 21)
49	Pentair Pool Products (pg. 13)
17	Pond Supplies of America (pg. 66)
11	Pool Cover Specialists (pg. 11)
12	Quaker Plastic (pg. 52)
59	Quikspray (pg. 63)
20	Regal Plastics (pg. 64)
21	Rock & Water Creations (pg. 7)
14	Spectrum Pool Products (pg. 48)
58	Spray Force Mfg. (pg. 19)
35	Standard Bronze (pg. 64)
45	Sta-Rite (pg. 35)
42	Stegmeier Corp. (pg. 15)
46	Strong Co. (pg. 10)
52	System Dynamics (pg. 8)
69	Waterworks Int'l. (pg. 25)
67	Western Rock & Boulder (pg. 2)

Of Interest Index:

100	W.R. Meadows (pg. 58)
101	Arizona Mist (pg. 58)
102	Kichler Lighting (pg. 58)
103	Old Castle APG (pg. 58)
104	OWI Inc. (pg. 58)
105	Acu-Trol (pg. 58)
106	Landscape Ties Of California (pg. 58)
107	Haddonstone (USA) Ltd. (pg. 58)
108	Fiber Productions (pg. 62)
109	Raypak (pg. 62)
110	Pentair Pool Products (pg. 62)
111	Noble Tile Supply (pg. 62)
112	Stegmeier Corp. (pg. 63)
113	Sundek Products (pg. 63)
114	Aqua Vac Systems (pg. 63)
115	Hayward Pool Products (pg. 63)
116	Vermeer Mfg. (pg. 64)
117	Emerson Motors (pg. 64)
118	King Technology (pg. 64)
119	Nightscaping (pg. 64)
120	Soil Retention Products (pg. 65)
121	Kasco Marine (pg. 65)
122	USFilter/Stranco Products (pg. 65)
123	Sensorex (pg. 65)

See any Gaps?

We have limited supplies of most back issues in stock, so go ahead: Build your collection of *WaterShapes*, the magazine for professionals who design, engineer and build with water.

February 1999 (Vol. 1, No. 1)
Featuring **David Tisherman** on working in difficult soils; **Peter White** on edge treatments; **Ron Lacher** on preventing damage from expansive soils.

April 1999 (Vol. 1, No. 2) Sold Out!
Featuring **Roger Hopkins** on designing with large rocks; **Fred Hare** on basic hydraulics; **Curt Straub** on the importance of shell curing.

June 1999 (Vol. 1, No. 3)
Featuring **Skip Phillips** on water and decks; **Parmelee** & **Schick** on soils and geology; **Rick Anderson** on using the sounds of moving water.

August 1999 (Vol. 1, No. 4)
Featuring **Rick Anderson** on resources for stream design; **Holli Adams** on designing community waterparks; **Steve Gutai** on spa hydraulics.

October 1999 (Vol. 1, No. 5)
Featuring **Mark Holden** on the history of aquatic design; **Jon Mitovich** on dry-deck fountains; **David Tisherman** on site geometry and lines of sight.

December 1999 (Vol. 1, No. 6)
Featuring **Elizabeth Navas Finley** on Japanese garden design; a roundtable on pools and landscape design; **Clint West** on color rendering.

January 2000 (Vol. 2, No. 1)
Featuring **Ken Hart** on designing for upscale model homes; **Bruce Zaretsky** on retaining walls; **Kirk Chapman** on hydrid pool finishes.

February 2000 (Vol. 2, No. 2)
Featuring **Mike Hersman** on lighting design for watershapes; **Ken Macaire** on faux-rock installations; **Dan Andrews** on glass mosaics.

March 2000 (Vol. 2, No. 3)
Featuring **Paul L'Heureux** on project management; **Larry Long** on setting up steel cages; **George Forni** on installing and maintaining lakes.

April/May 2000 (Vol. 2, No. 4)
Featuring **Bobbie Schwartz** on controlling garden access; **Rick Anderson** on streambeds; **Mike Nantz** on integrating watershapes into architecture.

June/July 2000 (Vol. 2, No. 5)
Featuring **Mark Holden** on the history of fountain design; **Rick Bibbero** on large stones; **Rick Anderson** on making streams work.

August 2000 (Vol. 2, No. 6) Sold Out!
Featuring **David Tisherman** on basic shapes; **Steve Lucas** on watershapes for wildlife; **Paul Ryan** and **E.C. Medley** on designing along the vertical axis.

September 2000 (Vol. 2, No. 7)
Featuring **Keith Davitt** on designing for small spaces; **Erich Altvater** on the importance of aeration; **Maria Hetzner** on sheet falls.

October 2000 (Vol. 2, No. 8)
Featuring **Jim Lampl** on natural design; **Barton Rubenstein** on water in kinetic sculpture; **Rick Anderson** on applying finishing touches to streams.

November/December 2000 (Vol. 2, No. 9)
Featuring **Helena Arahuete** on the watershapes of John Lautner; **Paul L'Heureux** on stretching laminar flows; **Paul Benedetti** on satellite surveying.

January/February 2001 (Vol. 3, No. 1)
Featuring **Mark Holden** on retro-look watershape designs; **Kevin Fleming** on taking upscale approaches; **Steve Gutai** on pump technology.

March 2001 (Vol. 3, No. 2)
Featuring **Tom Moneta** & **Mike Farley** on site-specific design; **Paul Benedetti** on fiberoptics; **Ken Alperstein** on golf-course watershaping.

April 2001 (Vol. 3, No. 3)
Featuring Melanie Jauregui on the value of inspired clients; Suzanne & Ron Dirsmith on frosty fountains; David Tisherman on deluxe finishing touches.

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Continued from page 58

FIBEROPTICS FOR WATERSHAPES AND LANDSCAPES

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FIBER PRODUCTIONS introduces fiberoptic lighting systems for use in pools, spas and watershapes of all sorts as well as an array of accent fixtures for use in landscapes. Pool/spa lights include both perimeter and single-point options, while the landscape fixtures include styles ranging from decorative tulip designs to classic architectural looks. **Fiber Productions**, Lakeland, FL.

RESIDENTIAL/COMMERCIAL HEATER CATALOG

Circle 109 on Reader Service Card

RAYPAK has released its 2001 catalog – 158 pages dedicated to its lines of residential and commercial gas heaters. Each highlighted model is shown in schematic form to indicate features and dimensions and is displayed with complete specifications and parts lists. (Separate parts lists are fully illustrated.) An appendix covers heat-loss calculations, sizing, product features and warranties. **Raypak**, Oxnard, CA.

HORIZONTAL SAND FILTERS

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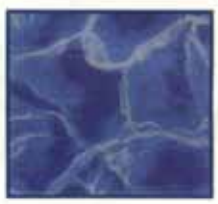
PENTAIR POOL PRODUCTS announces the new THS Series of horizontal sand filters. The non-wound, 50-psi-rated tanks are NSF approved and come in four sizes with up to 26.7 sq. ft. of surface area. Gel-coated inside and out in an almond color, the tanks offer a front-access manway for a smaller footprint, 6-in. PVC pipe connections and optional automatic or semi-automatic control. **Pentair Pool Products**, Sanford, NC.

SWIMMING POOL TILE CATALOG

Circle 111 on Reader Service Card

NOBLE TILE SUPPLY has published a 40-page catalog highlighting its full line of porcelain tiles for use in watershapes. Offering styles ranging from the traditional to the most contemporary, the tiles include solid colors, classic patterns and options such as the Reflection series, where the tile appears to reflect sunlight off the water's surface. Also covered are mosaics, coping options and interior finishes. **Noble Tile Supply**, Phoenix, AZ.



Construction-Forms Catalog

Circle 112 on Reader Service Card

STEGMEIER CORP. has released a 2001 catalog covering its comprehensive line of cantilever forms for many types of gunite, fiberglass and vinyl pools; forms for fiberoptic applications; renovation items; and systems for deck installation, drainage and expansion/control. The 64-page booklet also highlights installation and finishing tools and accessories. **Stegmeier Corp.**, Arlington, TX.

Concrete Coating Products

Circle 113 on Reader Service Card

SUNDEK PRODUCTS supplies and installs concrete-coating and repair products for contractors. Offering a wide range of styles – from brick to tile or stone patterns – and geared to the needs of residential as well as commercial clients, the company offers extensive support and technical service programs and completes most projects within five days. **Sundek Products**, Bell Gardens, CA.

Computerized Pool Cleaner

Circle 114 on Reader Service Card

AQUA VAC SYSTEMS offers TigerShark, a computerized pool cleaner that calculates the size of the pool and programs itself to follow the most time- and energy-efficient pattern at speeds of up to 50 ft./min. A powerful on-board pump collects dirt and debris as the unit brushes and scrubs floors and walls. The unit also features an easy-clean filter cartridge and comes with a two-year warranty. **Aqua Vac Systems**, West Palm Beach, FL.

Vertical-Grid DE Filters

Circle 115 on Reader Service Card

HAYWARD POOL PRODUCTS has introduced the Pro-Grid vertical-grid DE filter – a new part of the Totally Hayward System. The filters provide excellent water clarity, efficient flow and large-capacity cleaning for a range of inground pool types and sizes and feature an air-relief system that automatically vents the tank at start-up. Units come with filter areas ranging from 24 to 72 sq. ft. **Hayward Pool Products**, Elizabeth, NJ.

TRENCHER/PLOW SYSTEM

Circle 116 on Reader Service Card

VERMEER MFG. offers the V-5750 hydrostatic trencher/plow. Designed for easy operation, reliable productivity and versatility, the machine features compact design for tight turning, logical control arrangement, easy access for engine maintenance and a range of tools, from a backhoe to a trencher/plow combination and even a rock cutter or a vibratory plow. **Vermeer Mfg.**, Pella, IA.

PUMP MOTORS FOR POOLS

Circle 117 on Reader Service Card

EMERSON MOTORS manufacturers motors for use with inground pools. Offering easy field connections and simple voltage-change switches, the motors are designed for endurance, with unique double-seal systems to protect drive bearings. These motors are designed for use in demanding environments and come with a three-year warranty against pump-seal failure. **Emerson Motors**, St. Louis, MO.

AUTOMATIC BROMINE FEEDERS

Circle 118 on Reader Service Card

KING TECHNOLOGY manufactures the easy-to-install Sani-King 700 Series for use in maintaining bromine levels in spas and hot tubs. The sanitizer levels are controlled by the simple twisting of a cap that serves to move a steady amount of chemical into the flow-way. Adjustable for use with spas ranging from 80 to 700 gal., the bromine supply (tablets or sticks) will last for up to 30 days. **King Technology**, Minnetonka, MN.

COLOR-CODED LIGHTING GUIDES

Circle 119 on Reader Service Card

NIGHTSCAPING has published a reference chart for its low-voltage lighting systems. The chart classifies systems for path lighting, uplighting, downlighting, backlighting, specialty use and underwater lighting and by lamp type, wattage and model/part numbers. Nearly 100 products are covered by the four-page brochure, which also includes information on control modules and power centers. **Nightscaping**, Redlands, CA.

Plantable Retaining Walls

Circle 120 on Reader Service Card

SOIL RETENTION PRODUCTS offers the Verdura system of plantable retaining-wall blocks. The system combines a unique block configuration and wall inclination with a positive connection between the concrete blocks and geosynthetic material to form a secure wall that also offers spaces for planting on the wall's face. The same blocks serve as footings, faces, corners and ends. **Soil Retention Products**, Oceanside, CA.

Decorative Aerators

Circle 121 on Reader Service Card

KASCO MARINE offers the Model 8400/JF, a decorative, 2-hp aerator designed to address water-quality problems by increasing circulation and oxygenation. The device comes with five standard displays and a lighting option. The displays range in height up to 15 ft. and operate in as little as 20 in. of water. The corrosion-resistant housing, shaft and safety cage are made of stainless steel. **Kasco Marine**, Prescott, WI.

Mechanical-Room Control System

Circle 122 on Reader Service Card

USFILTER/STRANCO PRODUCTS introduces the System 7 mechanical room control system for aquatic facilities. The system automatically controls all mechanical, electrical and water-chemistry devices, optimizing filter performance, water balance and energy efficiency while monitoring water level and providing historical data for all mechanical-room equipment. **USFilter/Stranco Products**, Bradley, IL.

Low-Maintenance ORP Electrodes

Circle 123 on Reader Service Card

SENSOREX offers a low-maintenance electrode designed for use with most ORP meters or transmitters that has no moving parts and requires no power to operate. The system uses a flat platinum electrode surface, so the probe is essentially self-cleaning when exposed to turbulent flow. The electrode also has a quick-disconnect, cartridge-type system that makes it possible to change out electrodes in seconds. **Sensorex**, Garden Grove, CA.

Continued from page 70

After addressing these issues, you need to make a list of your clients' needs. I start by asking another series of questions:

❑ What is the purpose of the arbor? Is it strictly for shade, or will it house a barbecue or other entertainment area? Will it also be used for storage or some other purpose?

❑ How will a garden structure affect the flow of traffic in the yard? Will the proposed location truly be functional and fit your clients' lifestyle?

❑ What's the best location for a structure in the yard? Will they be carrying food out from the kitchen to be served under the structure and will they consequently want it close to the house? Will it be better placed away from the house for quiet and solitude?

❑ What type of structure do they want? Will it be open or covered?

❑ What furnishings (chairs, tables, barbecues, planters) are they thinking about placing under the structure?

❑ Do they want to grow something on the structure?

Armed with the answers to these questions, you're almost ready to design and build – once, that is, you accommodate one more issue: Do they have children? If the answer is yes, you most likely will want to put a garden structure as near to the pool as possible – but far enough away to avoid the "splash factor."

If the answer is yes, it's also likely you'll have to consider something you may not have considered otherwise, and that is how the structure may potentially break up the visual and physical flow of the yard. (This is particularly true of smaller yards.) The key here is to place any structure out of the way of kids' play areas – but not so far away that parents can't supervise play.

Under Construction

As a practical matter, most homeowners capable of digging holes and swinging hammers think they can build these structures without the help of a licensed contractor. It's your job to convince them otherwise.

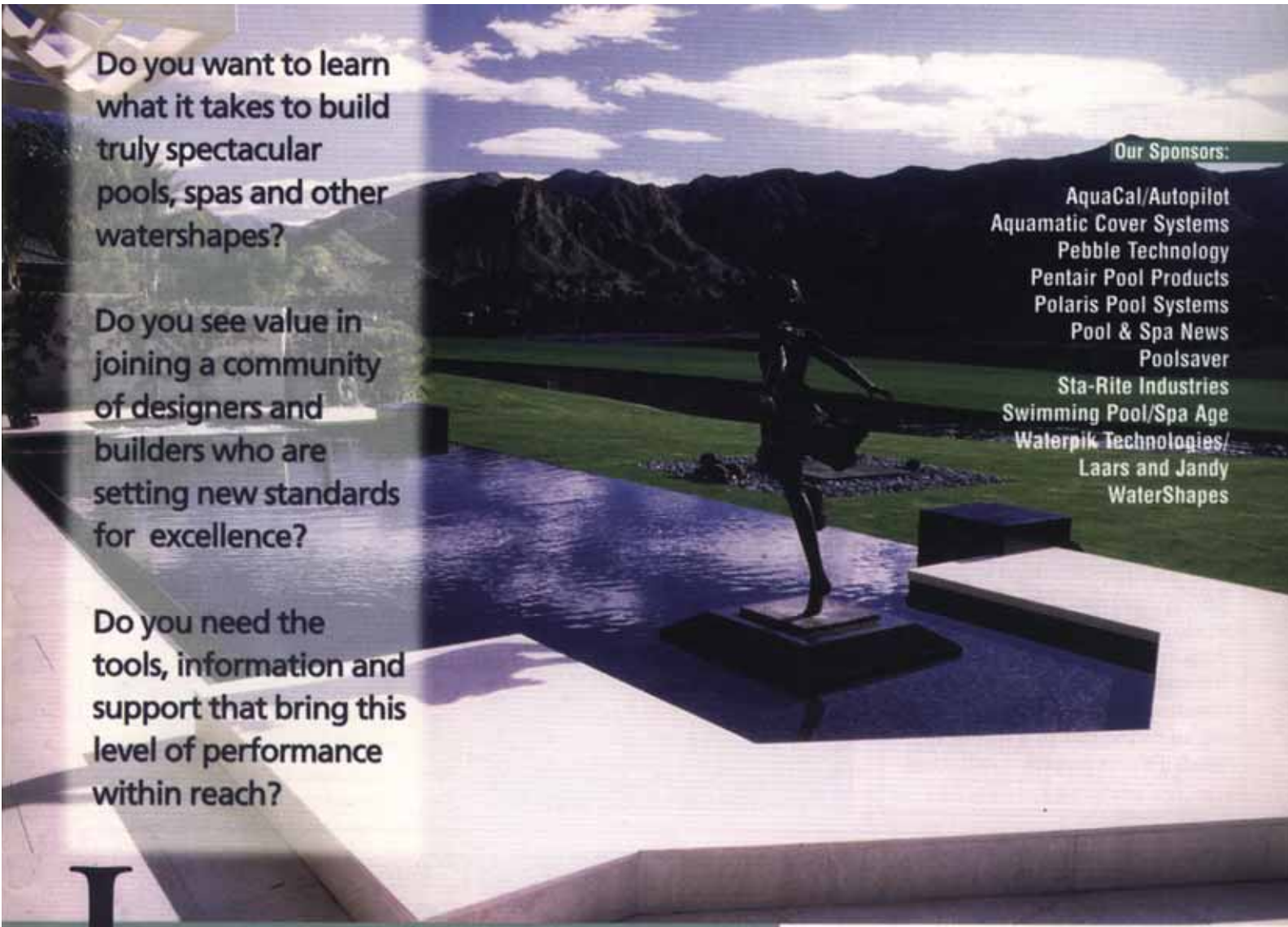
The easiest way to do this is to remind them that there may be local building codes requiring certain features on any garden structure. (The rules may vary widely depending on where you live, so it pays to check in with local building departments.)

If that doesn't work and the structure is of a size or design that makes construction skill an issue, it's time to talk about things like structural integrity or earthquake-resistant foundations and any other factors you see as taking the project out of the realm of the do-it-yourselfer and placing it in a professional's hands.

But be realistic: Make them aware of these issues and your concerns before you offer a bid or put too much effort into creating blueprints. I have had many clients take me all the way through the design and blueprint process only to discover that the project is just too expensive.

By the same token, that doesn't mean that you should shy away from budget discussions or shouldn't give them ballpark figures to chew on. I start talking about money as early in the process as

Continued on page 68



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Continued from page 66

possible, explaining everything so they understand what's involved and why things cost what they do.

In doing so, I cover everything from the simplest option to the most complicated. I tell them, for example, that the arbor or other structure they see at a garden center may be the least-expensive alternative, while the most expensive might be a large, steel-reinforced structure with a wood façade. This gives them points of reference and will help them, if you've been convincing, decide that the redwood arbor they can get for a song is probably not the right long-term choice.

Experience tells me that most people have no idea what landscaping costs, so as a result they allocate the least amount of their construction budget to plants and garden structures. That said, the easiest way to dissuade them from building something themselves or cutting quality corners is to explain to them the potential for a garden structure to be a battering ram during an earthquake or a missile in high winds if it's not properly constructed!

Table

Botanical Name	Common Name
Full Coverage:	
Distictis buccinatoria	Blood-Red Trumpet Vine
Distictis "Rivers"	Purple Trumpet Vine
Pandorea jasminoides	Bower Vine
Wisteria	
Lonicera	Honeysuckle
Bougainvillea (if kept away from the house)	
Gelsemium sempervirens	Carolina Jessamine
Jasminum	Jasmine
Trachelospermum jasminoides	Star Jasmine
Hydrangea anomala	Climbing Hydrangea (colder climates)
Climbing roses (if kept away from play areas)	
Less Coverage:	
Passiflora	Passion Flower
Clematis	

What to Plant?

I don't have the room here to cover all the possibilities for garden structures you could build – and I don't think I could do so even in a year's worth of columns. One thing I can say is that the answers to the questions posed above will lead you in a specific, individual direction for each of your clients – and the possibilities really are endless.

To show what I mean about the broad range of options you have, let's take a look at just one arbor option – something you intend to cover with a vine of some sort. (This happens to be my personal favorite.)

You can plant and grow vines on just about any type of structure, but you will reap the greatest aesthetic benefits of growing vines on those with open tops. So what sort of vine should you pick?

Bougainvillea is a common choice: It will cover a rooftop and mound up with lots of flowers. But I'd consider other options as well, because Bougainvillea brings up a long-term safety issue and can become a fire hazard if it gets too woody and becomes too mounded. It's like stacking a pile of kindling on the roof!

What else? Well, since we're talking about building something to protect people from the sun, you can be fairly well assured that whatever you build, you can plant something on the posts of the structure that will grow up and cover it because it will have great sun exposure.

The table shown here lists some great vines to plant on garden structures. I picked these because I've had the greatest success with them through the years, but there's much more to explore. If none are of interest to your clients, check with your local nursery or garden guide or e-mail me for suggestions.

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

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WATERSHAPES

BY STEPHANIE ROSE

Safe Arbor

Contrary to the impression that might be given by the headline, this isn't an article about building arbors that are safe. Rather, it's about how you can protect your clients and their guests from the sun by building beautiful structures in their yards. (Safety is part of the discussion, but not its focus.)

I bring this up because many clients put piles of money into building spectacular pools but fail to give much thought to their surroundings. That's a shame, because those surroundings almost certainly will be seen much more than the pools will be used in the course of the average year.

Several things need to be considered here along with a pool: Have you, for example, set up a convenient place for your clients to sit in the shade and watch the kids playing in the water? Will they be able to converse with guests who are lounging in the pool at times when they don't feel like getting in themselves? Is there a way for them to relax or meditate near the watershape without being blasted by the heat and sun?

By considering these issues early and making your clients aware that you have thought about more than building just a watershape, you'll help build their confidence in you and incline them to increase the budget to address the issues you raise.

As a practical matter, most homeowners capable of digging holes and swinging hammers think they can build these structures without the help of a licensed contractor. It's your job to convince them otherwise.

Choices and Questions

As we all become more aware of the dangers of UV exposure and the need to protect ourselves, arbors and other garden structures are becoming more and more important and popular as a means of sheltering skin from potential damage.

You might plant a shade tree near the watershape, but your client's yard may not lend itself to this type of landscaping – or they just might want a solid structure instead of a plant for this purpose. The possibilities literally are endless when it comes to approaching these sun-exposure issues.

You could build a structure that has a solid roof and provides total coverage, for instance, or a decorative arbor that's meant to stand alone, or an arbor with open slats that will support vines. To guide your clients in these decisions, you need to consider these factors:

❑ *What is the style of the garden?* There are many options here, and arbors fit right into most of them from the wildest to the most formal.

❑ *What is the proximity of the structure to the watershape?* If the arbor is intended as a shaded place from which to watch the kids in the pool, placing a garden structure clear across the yard will make it inconvenient – and a waste of your clients' money.

❑ *What is the style of the house?* Building a bamboo structure next to a colonial house would probably be a little too eclectic for most tastes. It would be better to carry the existing style of the house into the arbor and find specific design elements on the house that can be "borrowed" for the garden structure.

❑ *How much space is available to house such a structure?* If all you have is a 10-by-10-foot seating area, the arbor might only shelter a couple of chairs and a side table or maybe just a single lounge chair. With unlimited space, obviously, your options might be limitless as well.

Continued on page 66

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