MAGAZINE Spring 2006 Volume 29, Number 1

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WATER ELEMENTS

Arizona-style Landscaping

Renovation of Beinecke Plaza

Bill Richardson Sr., Stone Sculptor

Twin Creeks Science and Education **Center**



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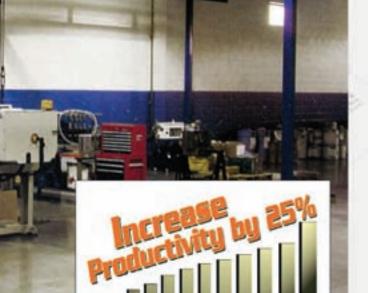
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ON THE COVER:

Water elements are in high demand for both residential and commercial applications. This small stream features Fond du Lac outcroppings with Mountain River Jax accent stones.

> Photo courtesy of Buechel Stone Corporation

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If nature hasn't been kind enough to create a waterfall, stream or pond on your property, you need not fret; designers have ingenious ways to incorporate water elements into interior and exterior applications for residential and commercial use.

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By Jodi Paper

The vast majority of Arizona is extremely dry and may receive as little as six to eight inches of rain each year. Because of this droughtlike climate, the promotion of lawns and other vast expanses of greenery that would require moisture to thrive are minimal. Whereas in most parts of this country, grass forms the basis for a landscape design, here, stone has become a popular medium, and often, the central material.

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More than 135 years ago, Henry Hobson Richardson's sprawling, rough-hewn, 360,000-square-foot stone edifice was celebrated as Modern Architecture and the epitome of building technology. Find out more about the building that, at the time, set the international benchmark for health care architecture, and its fate in the modern day world.

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Building Store and the second second

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By M. W. Penn

After 40 years of snow plow abuse, freeze-thaw cycles and a decrease of water drainage, Beinecke Plaza underwent a major renovation. Discover the intricacies of refurbishing the granite-paved university quadrangle that is at the same time the roof of rare book and manuscript storage.

38 A Life in Stone By Brett Martin

Bill Richardson Sr. knows stone. From "master mason extraordinaire" to renowned sculptor, successful business owner to respected teacher, he's made a life - and helped create the Las Vegas-area landscape - by working with stone.

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By Jennie Farnsworth

Although the designers of the U.S. National Park Service's Twin Creeks Science and Education Center encountered a few initial obstacles, the team rises above, turning the impediments into assets.

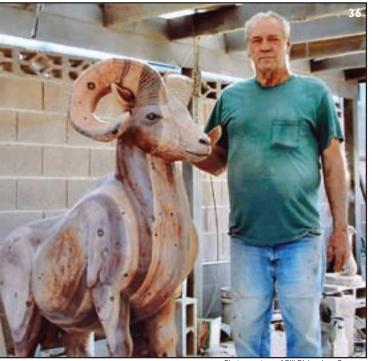


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A Natural Fit

Robert Goodrich President, W. S. Goodrich Inc.

RANITE POSTS, BLUESTONE water features, sandstone pavers, quartzite flagging, dry laid fieldstone walls, and cobblestone garden accents - all are upscale landscaping products that were at one time only found in the most exclusive homes.

Over the last few years, two conditions have brought about a radical change to this philosophy. First, there are a far greater number of homes being built in the upper price range. Not only do these homes beg for granite countertops, but they also need much more landscaping than a concrete walkway leading to a wooden stairway. Homes of this caliber need extensive landscaping to complement their architectural designs.

A second area where landscaping is being used more is in the mid-range homes, whether they are new residential construction or existing homes. No longer are homeowners settling for two or three small shrubs planted in the front yard. Few things add more to the dollar value of a home - or to your own personal satisfaction - than natural stone.

As an example, take the business trends of our masonry supply yard, located in Southeastern New Hampshire. Ten years ago, our list of the "Top 40" contractors consisted of 35 mason contractors, whose main focus was building fireplaces and stone veneers, with an occasional walkway or patio job. The remaining five were landscape contractors, working mostly on high-end homes. Today, our "Top 40" list is made up of 15 landscape contractors and 25 mason contractors, who are now doing much more in the area of landscaping.

This shift is even more dramatic when you take into account the rest of our customers. During the spring, summer and fall, our yard is filled everyday with pickups and dump trucks towing trailers, which are there only to purchase landscaping products.

Also, more garden centers in our area are using stone in their displays. They are finding stone walls and walkways help sell flowers, just as we have found that adding flowers, shrubs and trees to our displays helps sell stone. They're a natural fit.

The housing market has been hot for the last few years, which translates into an increased use of landscaping material. However, even if the housing market slows down, landscape products should continue to increase in sales. Unlike building a new fireplace, which is more often done when the house is initially built, landscaping can be easily added at any time to increase the appeal and value of a home.

We built a house five years ago, but just recently finished the final phase of landscaping. I say final phase, but I am sure that within the next year or so we will be right back at it, adding something new.

In the following pages, we cover just a handful of the wonderful ways that natural stone can accentuate various styles of landscaping and architectural designs. We hope the articles inspire you to create new and exciting ways to implement the wonder of natural stone into your surroundings or next project.



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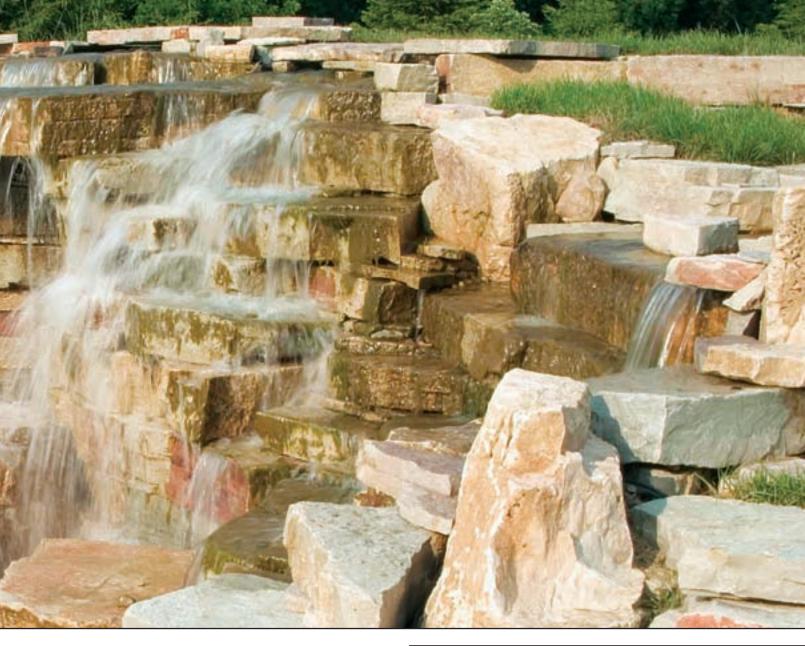
WATER ELEMENTS:

Utilizing NATURAL STONE

By Mark Haverstock

UR BLUE PLANET stands out in the void of space by a single, unique difference – the presence of water. This life-sustaining element enables a variety of life forms to exist together to create the regenerative biosphere we call Earth.

People seem to be inexplicably drawn by this substance that covers approximately 80 percent of our Earth and makes up about 66 percent of our bodies' composition. Maybe that's why we enjoy those vacations at the beach, water sports, boating and fishing. Or could it be the serenity



we feel when contemplating a peaceful pond or babbling brook? Some even claim to be inspired when around bodies of water, like Hemingway who caught both trout and inspiration on a river in Michigan.

As humans, we are made of water, we are born of water, and we depend on water for our existence. If it isn't possible to be at the water, we bring it nearer to us, in the form of ponds, pools, fountains and other water elements. Natural stone is often incorporated into the design and construction of these features, and rightly so. Stone has a longstanding bond with water, ABOVE: Natural waterfall featuring Chilton Weathered Edge outcroppings. Photo courtesy of Buechel Stone Corporation

RIGHT: Hot tub waterfall at Grand Timber Lodge, Breckenridge, Colo. Photo courtesy of Siloam Stone Inc.

from the majestic falls of the Niagara to the whitewater rapids of the Colorado River.

Stone and Water

Most varieties of natural stone are suitable for use in water elements, but some in particular are chosen for their appearance and characteristics. For example, Mount Moriah's quartzite is known for its strength and durability in outdoor applications. Its uncom-



monly large, irregularly shaped, flat stone chunks create massive, vivid, quartzite backdrops, enhancing any landscape or waterfall setting.

Though common sandstone isn't usually perceived as viable material for water features, Siloam Stone Inc. supplies a hardy version of this attractive stone. "Ours is very low porosity and has excellent erosion and freeze-thaw resistance, so it works quite well with water applications, as well as water contact," said Matt Mueller, Siloam Stone's general manager. "The city of Breckenridge, Colo., did quite a bit of work with our stone on their river walk. It comes in contact with the Blue River, which would represent some of the most severe seasonal conditions."

The particular sandstone that Siloam Stone supplies is quarried from the Dakota Formation, which is fairly unique. It runs from the Dakotas, along the Rocky Mountains, all the way south to New Mexico. This formation is particularly high density and has some unique properties. "It's not soft like the typical sandstone most people would envision. This particular type of sandstone is quite hard and has a minimal water absorption - about 3 percent porosity," Mueller said. "It holds up extremely well to the erosion that exists with water flow across the stone. It just won't come apart like common sandstone when it gets wet."

RIGHT: Small stream featuring Fond du Lac outcroppings with Mountain River Jax accent stones.

Photo courtesy of Buechel Stone Corporation

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Buechel Stone Corporation's Chilton and Fond du Lac stone product lines are their bestsellers for landscaping and water element applications. "It depends on the application," said Scott Buechel, executive vice president of Buechel Stone. "Most people are using our outcropping because it gives them the most natural look." For waterfalls, pool and pond surrounds, flagstone and rough uncut shapes are popular in thicknesses ranging from one to two inches, all the way up to three feet.

Because of material costs and transportation, some customers are choosing veneer stone as an option for parts of pond applications, backed by concrete block or poured masonry with a waterresistant treatment. "When you're looking at full-sized stone at five square feet to the ton as opposed to the full masonry at 40 square feet to the ton, or a thin veneer, which is going to be roughly 160 square feet to the ton - you'll get a lot more coverage with thin veneer," Buechel said. "At that point, they can put some bigger

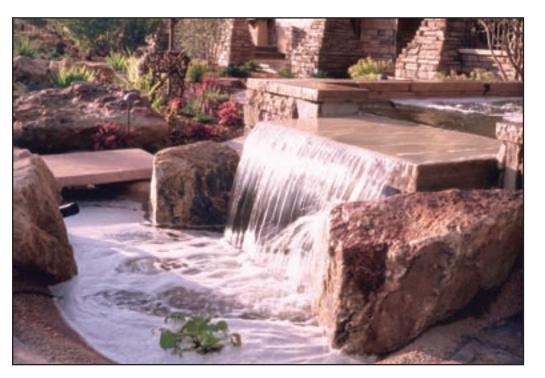
pieces in as features to give it the water drop and things like that that they're looking for."

Pond and Water Garden Design

When it comes to commercial or backyard ponds and water gardens, there's virtually no limit to what stone you can use – Niagara dolomite, granite, sandstone, Pennsylvania bluestone, field stone – just about any ledgestone, according to Deb Fry, co-owner of Select Stone Company. "Outcrops are really a nice feature – the big, chunky stones that come out of the ground," she said. "Water washed or smoother weathered ABOVE: Waterfall and pond combination combining Chilton outcroppings with granite cobblestones.

Photo courtesy of Buechel Stone Corporation

BELOW: Waterfall at private residence in Parker, Colo., a Parade of Homes winner. Photo courtesy of Designs by Sundown



stones are a better choice than sharp stones or those crushed for driveway use."

Basic steps in building ponds and water gardens are similar laying out the space, excavation, lining the pond, and adding natural stone features. Other factors to consider include filtration and water flow. "Skimmers are extremely popular filtration devices," Fry said. "The water is drawn off the surface into a chamber; from there it might be sent to a waterfall filter, so you get dual filtration." Typically most homeowners that want a decentsized water garden choose 4,000-5,000 gallon/hour pumps.

The differences lie in the individual features, which depend on the creativity of the designer and the artistic talents of the mason or installer. The

NATURAL STONE

most common mistake customers said they made when they built their first pond was making it too small. "They become addicted. They tend to increase the number of ponds or increase the size of the existing one," Fry said. For vendors, ponds can also lead to future sales. "A thousand dollars spent on a water garden can, over a five-year period, produce revenue totaling \$5,900-\$10,000 in other products that go with it – patio, gazebo, furniture and statuary," stated Mike Whise-

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ABOVE: A pond surrounded by Chilton Garden Stone. Photo courtesy of Buechel Stone Corp.

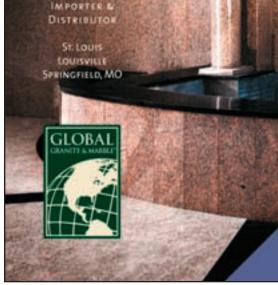
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ABSTRACTS IN STONE AND WATER

Alan Hochman, a self-taught artist, has been designing, creating and installing contemporary stone fountains and water pieces for more than 10 years. The experience of creating by removing, knowing that there is no going back once a chunk is gone, was so exhilarating for Hochman that he quit a successful business career to carve stone.

Approaching his projects with an open mind, Hochman sees himself as an equal partner with the stones and his tools. "When carving his pieces I always have an idea in mind that I feel comes from the stone itself. But as things unfold, as the shape changes through the work, new ideas come," he said. "Also, there is that 'whoops' thing – the unexpected break or piece that falls off and takes the piece in a new direction."

Most of his stone comes from New Mexico, although he also uses stone from California, Colorado, Nevada, Texas and New York. According to Hochman, his favorite varieties are:

- Travertine, because of its varied and inspiring patterns and colors;
- Seven Springs Onyx, because of the intense reds from the jasper in it; and
- Soapstone, because it's easy to work and polishes into deep colors.

Hochman prefers stone/ water sculptures to nonwater sculptures. "I love the way that the water and stone together create something that's alive, that has movement and energy, and changes over time," he explained. "I haven't done a non-water piece since the first time I did one with water. Someday I might do a stone-only sculpture, but not right now."

Additional information about his work and photos can be found at www.stone andwater.com.





ABOVE: Baumhower ducksteps. Landscape architecture – Designs by Sundown. Photo courtesy of Siloam Stone

TOP LEFT: Secret Green sculpture by Alan Hochman Photo courtesy of Alan Hochman & Julia Patterson

BOTTOM LEFT: Perfect Balance, Vista Grande travertine sculpture by Alan Hochman Photo courtesy of Alan Hochman & Julia Patterson nand of Whiz-Q Stone. "A pond becomes a lifestyle, not just a product. It's something people like to go out and experience."

Creating Your Own Ecosystem

According to Whisenand, natural stone plays an important part in maintaining a healthy pond environment, as well as contributing to its overall appearance. "We use stone and gravel inside the liner to build



the ecosystem – beneficial bacteria grows on the stone," he said. "That's what helps to keep the pond clear. Fish, plants, stone and gravel are all key elements in having a balanced ecosystem, just like a natural pond where you see clear water and a stream." The only kind of stone not used is limestone because it can negatively affect the pH balance of the water.

Plants help maintain a balance by taking some of the

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1-800-726-2292 28092 Forbes Road • Laguna Niguel CA 92677-1288 www.lompocstone.com • email:stoneinfo@lompocstone.com TOP: Koi are the most popular choice of pond fish. Photo courtesy of Select Stone Company

RIGHT: Celestial Momentum, travertine sculpture by Alan Hochman Photo courtesy of Alan Hochman & Julia Patterson

nutrients out of the water that would feed the green algae. "We recommend less invasive varieties that won't take over the pond – tropicals, night bloomer lilies and others," Whisenand explained. Covering as much as 60 percent of the surface area with lilies in the summertime provides shade for fish and helps to keep the water cooler.

As for fish, Koi are the choice of many pond owners. "They're popular because they're very friendly fish; you can hand feed them," Fry said. "They're colorful - you can't find other pond fish of such color and markings" Other varieties commonly used in ponds include goldfish, fantail goldfish, shubunkin and comets. During the winter, the fish hibernate and don't require feeding. You just need something to maintain an opening in the ice, if present, and a foot or more of water below the freeze zone in colder climates.

Fountains

A popular alternative to the conventional fountain is to use a piece of natural stone as the vehicle to distribute the water. "Basalt columns are a wonderful water feature tool that people can drop into a little well, put a grate on top, and they have a fountain that looks like a million bucks," said Dave Thoensen, general manager of Bourget Flagstone Company in Santa Monica, Calif. Their typical stone fountains are built on a





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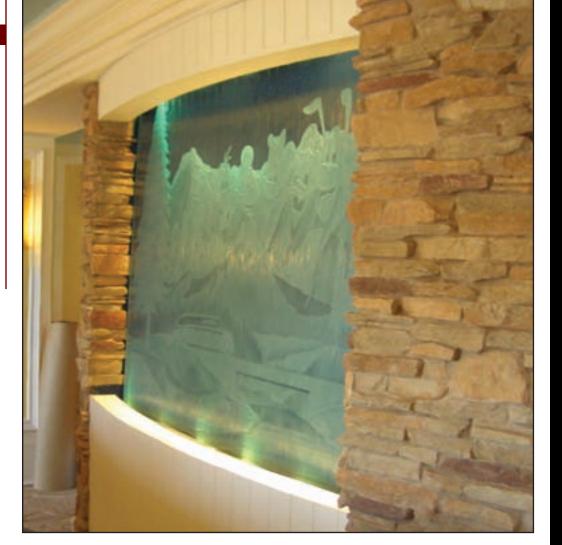
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ABOVE: This feature at Disney's Saratoga Springs Resort shows an encapsulated look surrounded by a natural stone facial Photo courtesy of Bluworld

OPPOSITE PAGE: WaterWall feature built into a custom granite recess at the top and bottom, located at Mc Donald's franchise in Raleigh, NC. Photo courtesy of Bluworld reservoir, in the form of a 24 x 24-inch pre-manufactured concrete box. Seal the inside, put a pump on the outside for easy access or replacement, and cover the grating with small rocks and it's ready to run. The unit is selfcontained, recirculating the water as it falls down the side of the stone.

Bourget also features the abstract works of sculptor Alan Hochman (see the sidebar, "Abstracts in Stone and Water" on page 14). "They're carved from different kinds of stone - I don't think he uses the same design twice," Thoensen said. "He bores a hole through the center, puts a small reservoir at the top, so that the water flows down the face of the stone on all four sides." The stone is then placed on top of the stand in a stainless steel reservoir that he makes.

Indoor Waterfalls

Bluworld's water products celebrate the relationship between man and water by promoting the artistic quality of real flowing water, as well as capturing a piece of its magnificence and awe. More than 80 percent of their creations for clients are constructed indoors, accenting both traditional and modern décor. They integrate natural stone, along with more modern elements like etched glass and stainless steel, into their designs.

Why specialize in waterfalls? "I think the number one reason is the look and the feel," said Rob Morton of Bluworld. "We call it art in motion. They're a good artistic piece you can add to residential or commercial space, and then you add the calming effect of the running water."

Designers at Bluworld have created hundreds of custom

REFERENCES

Bluworld 635 W. Michigan St. Orlando, FL 32805 (407) 426-7674 www.bluworldusa.com

Bourget Flagstone Company 1810 Colorado Ave. Santa Monica, CA 90404 (310) 829-4010 www.bourgetbros.com/flagstone

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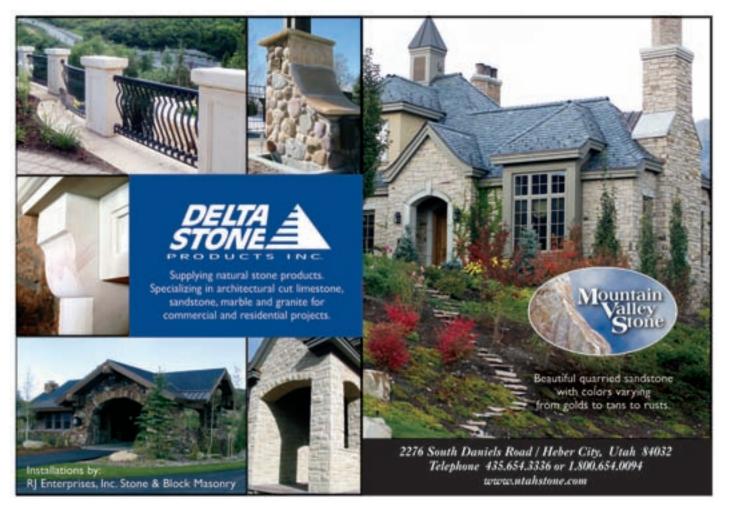
Whiz-Q Stone 4501 East Loop 820 South Ft. Worth, TX 76119 (817) 429-0822 www.whiz-q.com water elements for both residential and commercial settings, with several featured at popular vacation destinations in Orlando. After entering Disney's Saratoga Springs Resort lobby, you'll see a waterfall built around a custom hand-etched piece of clear glass featuring some of the popular Disney characters. The entire assembly is recessed into a knee wall, and then recessed into the header above, creating a free-floating effect. Flanking both sides are natural stone walls that pick up some of the design and color of the stone around the reception desk and other areas around the lobby.

On International Drive near Universal Studios, Homewood Suites features a water wall of natural slate. "The water actually comes out of the round black object at the top," Morton explained. "It gives an even flow down the wall."

Hidden Assets

With both waterfalls and fountains, there's a growing trend to dispense with the bodies of open water, especially in public areas where liability may be a factor. "It's a huge growth area right now. We make the waterfall and the stream, but it flows into a bed of gravel," Whisenand said. "There is not a pond, so you can have it in front of a doctor's office, a daycare facility or wherever you want it." This technique allows for the water flow and sound, without the body of water to maintain or cause a potential hazard for onlookers. 🔶





20 BUILDING STONE MAGAZINE

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STONE Finds Its MELODY

By Jodi Paper



or Michael Dollin of Urban Earth Design in Phoenix, stone is a part of the earth's palate, and therefore a key ingredient in building upon its surface. Originally from Cincinnati, Dollin came to Arizona with, as he puts it, a "go west, young man" attitude. As a biology major at the University of Cincinnati, he wanted to combine his interests in life, living systems and ecology with the artistic pursuits so important to him - namely drawing, painting and drumming. While the drumming probably comes in less handy on the job than his other preferences of media, for Dollin there

is a kind of backbeat to landscape architecture; the land itself is the rhythm, the stones that come out of the ground are the various instruments used to build upon that rhythm to create a medley bigger and greater than the sum of its parts.

The Arizona landscape consists of both desert and mountainous regions. While there are areas that may receive upwards of 30 inches of precipitation per year, the vast majority of the state is extremely dry and may receive as little as six to eight inches. Because of this drought-like climate, the promotion of lawns and other vast expanses of greenery that would require moisture to thrive ABOVE: Six-inch wide slate planks set within a random pattern of slate Photo courtesy of Margaret Joplin

LEFT: Flagstone, exposed aggregate colored concrete (red), with colored concrete with acid wash finish (red) in background Photo courtesy of Margaret Joplin RIGHT: A cut native Arizona sandstone fountain of the ASU Foundation Building evokes the rugged sculpted canyon environments of Arizona and adds the refreshing presence of water. Photo courtesy of Shelagh Murphy & Urban Earth Design LLC

is minimal. Landscape architects must look for the most efficient ways in which to put the more plentiful natural resources to use. Whereas in most parts of this country, grass forms the basis for a landscape design, here, stone has become a popular medium, and often, the central material.

Home to a wide variety of stone – the Grand Canyon alone contains at least a dozen different types of rock – it perhaps comes as no surprise that quarrying is a major industry in Arizona. From flagstone to granite, paving stone to boulders, it is only natural that all this stone, in all of its varying forms and styles, is instrumental to the artful, utilitarian – and yes, musical – world of Arizona landscaping.

Enduring Colors, Sizes and Shapes

Sarah Dawe and her husband, Charles, are the owners of Anasazi Stone Company Inc. in Scottsdale, Ariz. Their familyowned business has grown out of what had been mostly a tile supply company that merely dabbled in flagstone. Their shift from tile to stone occurred as the Dawes witnessed a major change in the landscaping industry. While tile is extremely useful, and in many cases ideal for indoor use, outside it just isn't practical. And though manmade materials like concrete and pavement were the oft and typically utilized choice for areas of outdoor development, flagstone provided a fresher, more natural looking alternative.

The Dawes soon found the demand for flagstone growing,



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BELOW: The ASU Foundation entry opens to the east in a gesture to bridge the site with the alumni lawn to the south. Fingers of the lawn transition into a dry retention basin where surface select granite boulders lay atop decomposed granite to provide the under story for a mesquite bosque. Photo courtesy of Bill Timmerman & Urban Earth Design LLC while the existing quarries from which they received their materials struggled to keep their supplies from diminishing. The Dawes decided to take matters into their own hands and soon transformed their tile business into what it is today: one of the largest quarriers, fabricators and suppliers of natural stone in Arizona, specializing in the custom quarrying of Coconino sandstone slabs and blocks.

Among Anasazi Stone Company's most popular selections are the Classic Oak, Apache and Rosa colors. Sarah Dawe's favorite, however, is the Hualapai Chocolate flagstone, indigenous to Northern Arizona. The stone is not as abundant as other varieties, and therefore more expensive, but its smooth surface and rich, warm color make it worth the extra cost.

Also a unique stone native to Arizona is the Chrysocolla, a copper-bearing ore. Copper mines are plentiful in the state – about 65 percent of the copper mined in the United States comes from Arizona. As copper oxidizes, it turns blue and green, lending colorful streaks to the stones in which the mineral is present.

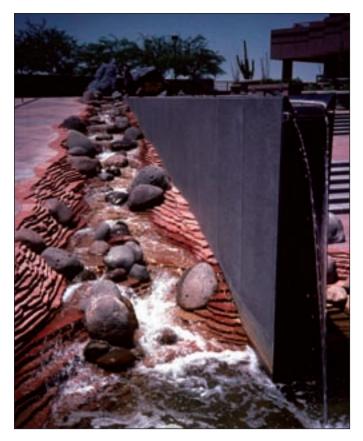
Arizona Moss rock is yet another indigenous stone. More of a specialty material than a standard installation, Arizona Moss rock – surface flagstone speckled with dried moss – is chopped into a building stone and can be used in many applications including stacked walls and pathways. Steve Rogers, vice



president of The Rock Yard Inc., with locations in Chandler and Payson, believes that Arizona Moss rock may currently be the most popular natural stone used for landscaping because it is versatile and has more of a "high mountain, rustic look."

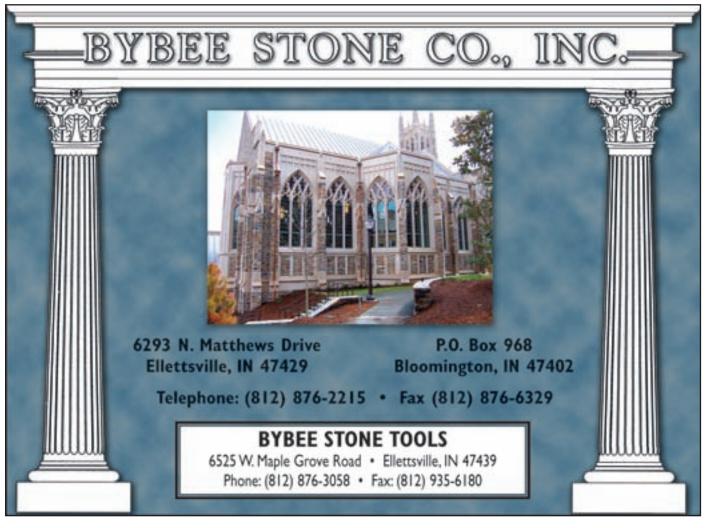
Though not nearly as popular as Moss rock, Rogers notes a growing demand for boulders as well. In the mid-90s, boulders were selling for \$8 per ton. Now, depending on where they come from and the quality of their surfaces, boulders can cost anywhere from \$160 to \$200 per ton.

Once thought of as a nuisance, boulders are, in a way, nature's sculptures. For Margaret Joplin, a landscape architect who



The Salt River Project fountain consists of a black granite runnel juxtaposed with a naturalistic stream that flows full for five minutes each hour, then subsides to a trickle. A boulder cluster above contains a pool that represents the lakes and dams of Arizona's high country. Photo courtesy of Michael Dollin & Urban Earth

Design LLC

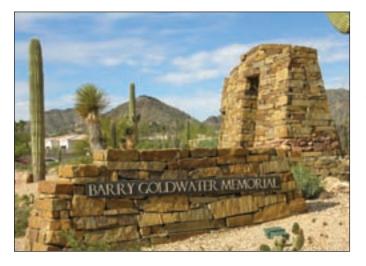


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BELOW TOP: The Goldwater Memorial entry sign, made of multi-blend rustic ranch stone provided by Anasazi Stone, invites visitors to explore the memorial garden.

Photo courtesy of Laura Thelen & Urban Earth Design LLC

BELOW BOTTOM: Close-up of slate planks. Photo courtesy of Margaret Joplin





established Design Collaborations Ltd. in Tucson in 1990, the role boulders play in a good landscape design is twofold: they fill a space and give it artistic meaning.

Joplin's firm collaborates with clients in commercial, community and residential capacities, focusing on public art and outdoor spaces. When asked, she is hard-pressed to come up with any one stone she would deem her favorite. For Joplin, it is the beauty and versatility of the wide range of materials, and the ability to know where to use them, that draws her enthusiasm. She cites examples of residential projects involving the rich use of brick and adobe, combined with different styles of stone to create unique inlaid patterns. Slate, cut into one- to four-inch planks, might be used to build a floor outdoors, set in a way similar to how one might install hardwood flooring indoors.

In designing driveways or pathways, Joplin likes to use onequarter minus decomposed granite treated with a polymer for extra durability and sustainability. She finds it fits in particularly well with a natural looking environment. It has an earthy, dirt-like appearance with the durability of asphalt. And this form of granite may be more conducive to a tighter budget than other materials - decomposed granite may cost around \$2 per square foot, whereas concrete can run upwards of \$6 per square foot. Dollin, too, recommends the use of crushed granite in this capacity. With Arizona's intense heat, he finds this type of ground cover, which often has a rose color, does not get as hot as asphalt, nor does it carry a glare from the bright sun, as would the much lighter tone of concrete.

Within the realm of landscape design, concrete does have its place. Pools, for example, are an excellent scope in which to incorporate the material, though not without a little natural stone added in for good measure, of course. Concrete and ground natural stone are combined to create a product called "ancient stone." Full of tiny air pockets, the material is less dense than straight-up concrete, thus preventing the ground from getting too hot. Where flagstone and sandstone are more susceptible to decay, ancient stone holds up extremely well to pool chemicals and erosion. Those who prefer to build their pool out of a "purer" material are wise to choose a tumbled stone for its matte quality, as polished stone can be more slippery.

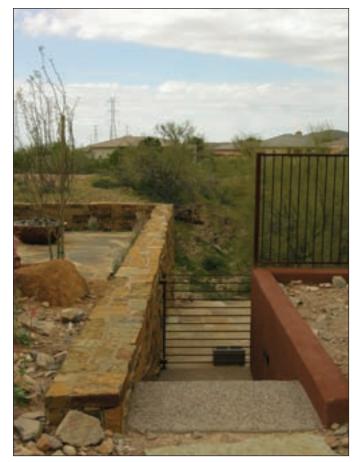
Trendy Options

A fairly recent trend in landscape design is the incorporation of what Dollin refers to as "outdoor rooms." Outdoor rooms are a contemporary way to integrate entertaining and utility with the landscape. For designers and homeowners who want to reach beyond the traditional, the dry climate of Arizona is conducive to their endeavors. Whether one wants to create an outdoor fireplace, bar or kitchen, the right stone plays an integral role - if not the integral role – in successfully developing the project.

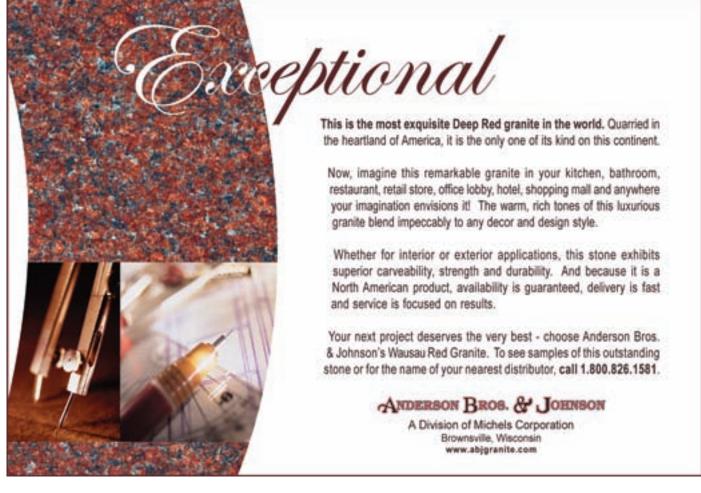
Material options are greater for creating a vertical surface, like a fireplace or an oven, as it will never need to bear the weight of pedestrian traffic. Travertine works well in this capacity, particularly in fireplaces.

For outdoor kitchen areas, Rogers has seen an increase in the popularity of earth stone ovens. The various models are built out of a type of fire-clay product, but all have stone hearths and contain a cooking stone surface. The ovens are generally finished in natural stone. And because stone serves a more aesthetic function here, just about any type or style can be utilized. Earth stone ovens are available for indoor and outdoor use, both in gas-burning and wood-burning versions. Rogers finds that, while many prefer to use a gas-burning version in their indoor kitchens, a woodburning stove makes for a more ideal setup outside.

The beauty of landscape architecture is in its ability to combine the artistic with the practical, the aesthetic with the functional. And one couldn't ask for an environment more conducive than Arizona for the implementation of stone in new and innovative ways.



LEFT: This dry stack stone wall reaches out toward the existing desert wash. Exposed aggregate steps form the access from the wash to the upper lawn. Photo courtesy of Sunni Jackson and Urban Earth Design LLC



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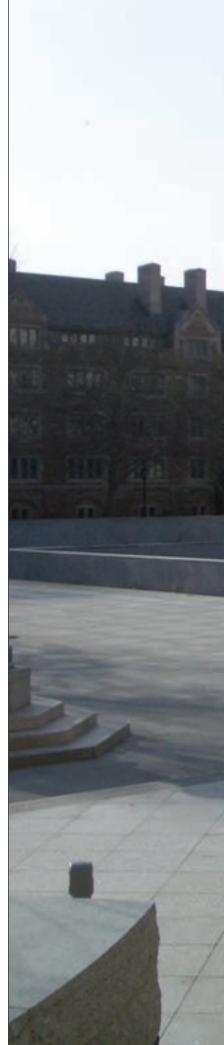
By M. W. Penn

RIGHT: Beinecke Library's translucent Vermont Montclair Danby marble facade makes a stark contrast to the red brick buildings of Berkeley College. Photo courtesy of E. F. Prokop

n New Haven, Conn., a city known for beautiful architecture, Hewitt Quadrangle on the northern edge of Yale University's Old Campus is especially graced. The granitepaved quad is bordered by four stunning buildings: the Beinecke Rare Book and Manuscript Library, Commons Dining Hall, Woolsev Hall and Woodbridge Hall. Glimpses of nearby Yale Law School and Sterling Law Library are framed in side passages, and the buildings of Berkeley College can be seen to the south, the warmer stone and red brick of the last three complexes adding contrast to Hewitt Quadrangle's cool gray granite paving.

Beinecke Plaza is the section of Hewitt Quadrangle bordering the front of the Beinecke Rare Book and Manuscript Library, an architectural surprise along its western perimeter. The exterior of Beinecke Library is composed of translucent panels of heavily veined Vermont Montclair Danby marble slabs, 1-1/4 inches thick; the facade of the building is arranged in classic proportions, 15 panels long by 10 panels deep by five panels high, with the longest side bordering the plaza.

Designed by Gordon Bunshaft of Skidmore, Owings & Merrill LLP and constructed in 1963, Beinecke is the largest building in the



pring 2006

BUILDING STONE MAGAZINE 29



ABOVE: A well that opens to Beinecke Library's underlying stacks forms a sunken courtyard. The courtyard contains three, white Imperial Danby marble sculptures by Isamu Noguchi. *Photo courtesy of E. F. Prokop*

RIGHT: Beinecke Plaza is the section of Hewitt Quadrangle that borders the front of Beinecke Library. On this portion of the plaza, the old stone was replaced with new 52-inch granite pavers from the original quarry. world reserved exclusively for the preservation of rare books and manuscripts. The library exhibits 180,000 volumes in a central glass tower, while the remaining collection of approximately 400,000 volumes is stored in three floors of specially designed underground book stacks and work areas that extend under the plaza. In this section of the quad, a granite wall surrounds a well opening to the first level of the underlying stacks, forming a sunken courtyard enclosed by windows. The sunken courtyard contains three marble sculptures - a pyramid, circle and cube - by Isamu Noguchi, representing the earth, sun and chance, respectively. Noguchi called the

sculpture court the "Garden of the Library."

Moving clockwise around the perimeter of Hewitt Quadrangle, the next imposing architectural feature is the solemn beaux-art colonnade of the Yale Commons. Built at the turn of the nineteenth century to celebrate Yale's 200th birthday, Commons was the major oncampus dining facility in the decades before construction of the residential colleges. It is still a busy breakfast and lunch stop for students. Commons is connected to Woolsey Hall through Memorial Hall rotunda, a graceful domed space and a muchused pedestrian shortcut that

forms the northeast corner of the quadrangle.

A grand concert hall with a seating capacity of 2,700, Woolsey Hall forms the eastern border of the quadrangle and is the venue for performances by Yale's symphony orchestras, choirs and organists, as well as for concerts presented by the many famous musicians who frequently perform at Yale. The two limestone classics, Commons and Woolsey, and the more delicate, French Renaissance Woodbridge Hall to the south are known as the Bicentennial Buildings. Woodbridge Hall is named for one of the founders of Yale and houses the





THIS PAGE: Black Peribonka was used in the original drainage system and had precedence on the plaza. The Peribonka Quarry in Quebec. Photo courtesy of Granicor

OPPOSITE PAGE: Much of the plaza's original 52-inch square pavers were quartered and resurfaced with a Gem Stone #8 finish, then reused on this upper portion of the plaza. Photo courtesy of E. F. Prokop administrative offices of the university president. Together, the three Centennial Buildings lend nineteenth century dignity to Hewitt Quadrangle.

In 2003, 40 years after the construction of the Beinecke Library, the physical condition of the plaza had become a source of concern. The original roof slab of the underground library stacks was flat, with drainage designed to take place across the surface of the granite paving stones; a system of peripheral gutters outlined in contrasting Black Peribonka granite removed water from the edges. Four decades later, many of the original paving stones had been pushed out of alignment, primarily due to heavy equipment used for mechanical snow removal. The pavers and walls that surrounded the plaza were also scarred by the



plows, and the Black Peribonka border was damaged in several locations.

Because of the damage, the surface was no longer impermeable. Water seeped through to the membrane that covered the flat slab roof and collected there, raising concern about the future safety of the storage and work areas below. Water was also wicking into the walls that defined the sunken courtyard. In the end, a complete renovation of the plaza was deemed necessary to prevent future damage; the work was to include redesigning the drainage system, replacing the damaged granite pavers and, at the same time, remodeling the upper portion of the quadrangle in front of the rotunda.

Though the decision to replace the roof was the primary reason for undertaking a major renovation of the plaza, other needs were also addressed during the renovation process. The quadrangle is more than a beautiful space; it serves as an important campus crossroad. The terminus for a busy college walkway and a nexus of Woolsey Hall/Commons traffic, it is an outdoor area that students and faculty use constantly. Architects and planners wanted to add to the ambiance of the space by creating a comfortable venue outside Woolsey Hall for people to pause and to congregate.

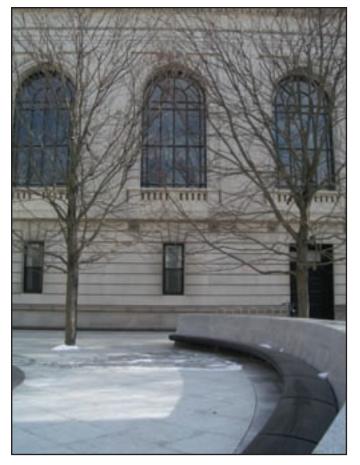
There was also a need to improve handicap access to the central domed Memorial Hall rotunda, a busy passageway that hovers three steps above Beinecke Plaza's lower plane. An access ramp constructed decades ago was functional but never bore the aspect of an integral part of the space. The





landscape architects in charge of this aspect of the renovation, Olin Partnership of Philadelphia, instead incorporate a gentle elevation change along the eastern edge of the quadrangle into their design.

To begin the work, the surface of the plaza was removed down to the waterproofing and the substructure redesigned to become part of the drainage system. The engineering firm Simpson, Gumpertz and Hager was in charge of redesigning the system. A no-fines concrete mix, which contains voids and air spaces that allow drainage to pass through the material, was the new structural base of the plaza. Underlying sloping and catchments were configured to direct water away from the roof of the library.



Once the granite was removed, 15,582 square feet of the original 52-inch square pavers were shipped to Granicor in Quebec for re-fabrication. The pavers were cleaned, quartered and resurfaced with a Gem Stone #8 finish for reuse on the upper portion of the plaza. That portion is now a pedestal system of two-foot squares placed on the diagonal and is 100 percent recycled stone. On the lower portion of the plaza, 35,000 square feet of the old stone was replaced with new 52-inch pavers from the original quarry. These paving stones also have a Gem Stone #8 finish and are slightly rougher than the original stones.

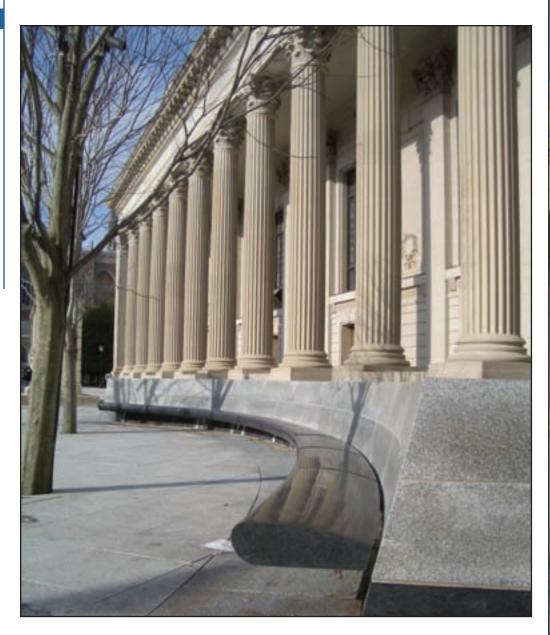
A common method of finishing granite paving stone is by flaming – heating the surface

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ABOVE: Benches were constructed of four vertical segments of split-face stone: an initial stratum of Woodbury Granite is followed by a strip of Black Peribonka which forms the seat; a second strip of Woodbury is topped with a Woodbury cap.

RIGHT: On the lower portion of the plaza the old stone was replaced with new 52-inch pavers of Woodbury Granite from the original quarry. The paving stones have a Gem Stone #8 finish and are slightly rougher than the original stones. The three Centennial Buildings and the upper plaza are in the background. quickly to cause it to expand and explode; however, micro fissures can form during this process. Rather than using this traditional method, Gem Stone etches pavers with high-pressure, 30,000 PSI water jets. The Gem Stone process can control the roughness of the finish by both the distance of the jet to the stone and by the speed of oscillation of the slab and the jet. Additionally, water processing doesn't dull the color of the stone surface, so the rich gray and white of the stone is preserved.

The vast majority of the vertical wall panels were also removed, cleaned and reinstalled over a new waterproof membrane, and the stairs descending to the marble court were replaced.

To address the inevitable damage of mechanical snow removal - ploughs and shovels hitting the edges of pavers and causing the same damage that the renovation sought to repair - a snow melt system was installed. The system consists of approximately 22 miles of oneinch tubing set at three-inch intervals at the top of the concrete and beneath the setting mortar. A glycol solution runs through the tubes, fed out when the system is triggered by temperature and humidity levels. Snow on the surface melts and





drains through new catchments underneath the more than 60,000 square feet of paving.

Other additions to the plaza include a pair of monumental elliptical benches on either side of the entrance to Memorial Hall and neighboring honey locust and yellowwood trees to provide shade. The benches are constructed of blocks of Woodbury Granite and Black Peribonka, incorporating materials that had precedence on the plaza. They consist of four vertical segments of split-face stone: an initial stratum of Woodbury

ABOVE: Alexander Calder's sculpture "Gallows and Lollipops" and monumental elliptical benches add ambience to the upper portion of the plaza, a pedestal system of two-foot squares of recycled Vermont Woodbury granite. Photo courtesy of E. F. Prokop

RIGHT: Glimpses of nearby Yale Law School and Sterling Law add contrast to Hewitt Quadrangle's cool gray Vermont Woodbury granite paving. Photo courtesy of E. F. Prokop Granite is followed by a strip of Black Peribonka; a second strip of Woodbury is topped with a Woodbury cap. The new trees are planted in the solid ground below the upper plaza, and great care was taken to insure that the root systems would remain separate from the paving. Grates span the planting trenches nine inches above the planting soil and the paving stones in this area are set above the grate. The new handicap route designed by Olin elegantly incorporates a slope gentle enough to not require handrails and forms a

graceful walkway along the lower wall of Woolsey Hall.

In a tribute to those who pioneered higher education in a new world and sought to preserve the legacy of past generations, the names of Yale's founders are inscribed just below the cornice of Woodbridge Hall. On the east side of the building, a quotation from the Aeneid reads, in translation, "They ennobled life through the arts and made others mindful of them," a fitting sentiment to grace the newly transformed outdoor plaza and to the pro-active restoration project. ◆

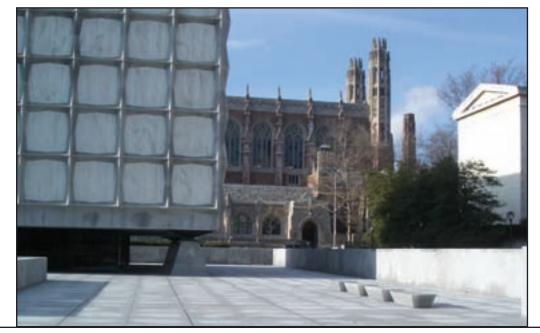
REFERENCES

Charney Architects 1140 Chapel St. New Haven, CT 06511 (203) 773-5057 info@charneyarchitects.com

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A LIFE in STONE

PORTRAIT OF A MASON AND ARTIST

By Brett Martin

B ill Richardson Sr. knows stone. From "master mason extraordinaire" to renowned sculptor, successful business owner to respected teacher, he's made a life – and helped create the Las Vegasarea landscape – by working with stone.

"Anything involving stone, I enjoy working with," Richardson said. "It's been a good trade."

While Richardson is quick to say that the stone industry has been good to him, he's also given plenty back. He introduced his sons to the industry – both of whom are now master masons – and has trained hundreds of others. He's also a fierce advocate for professionalism and quality workmanship in the art of laying stone.

Now, in his fifth decade of working with stone, Richardson's interests have evolved from laying stone to carving it. He's

Photo courtesy of Carl Neitzert



become an accomplished sculptor whose works are featured in the city hall of his hometown, Henderson, Nev., and in the Southern Nevada Veterans Memorial Cemetery in Boulder City, Nev.

Heart of an Artist

Even when Richardson was a bricklayer, well before he started working with stone, he exhibited artistic qualities.

"He's always been artistic," said his wife, Virginia Richardson. She said sculpting hasn't changed his blue-collar roots, joking that, "He looks more like a bricklayer than an artist."

With no formal training, Richardson doesn't sketch out his ideas or make models or prototypes before sculpting. "If I did all of that, I'd be tired by the time it came to carving," he said. Instead, he takes some measurements, then starts chiseling.

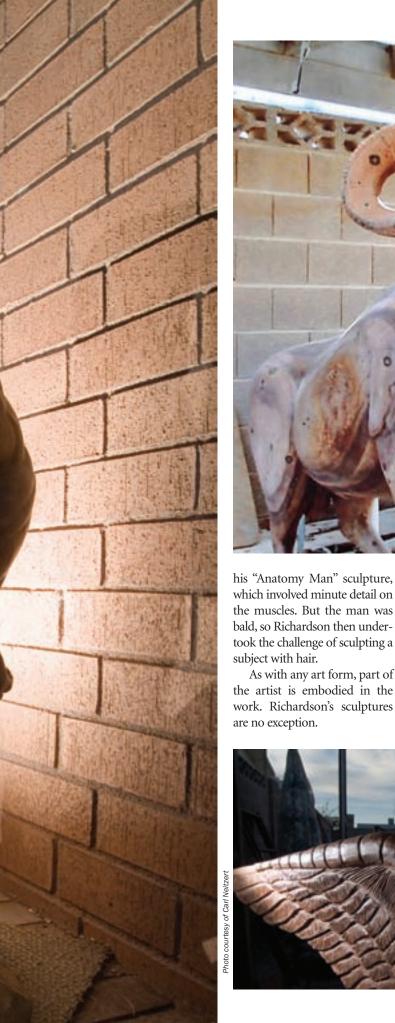
"I see what I want to do, and I just do it on the stone," Richardson explained. "It seems to work well for me."

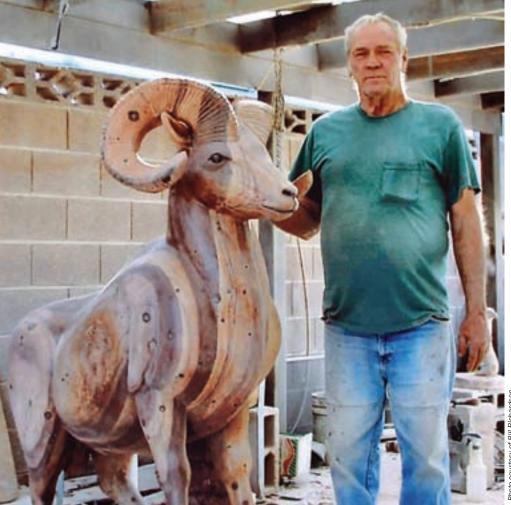
While his approach may be unconventional, it's proven successful. Not only has he earned the praise of his peers, he won the Craft Award from the International Masonry Institute (IMI) in Annapolis, Md., in 2003 for a series of sculptures, including his first piece, a bust of a Native American.

"I'm just amazed at what he's done," said Matthew Redabaugh, special projects coordinator for the IMI, who gave Richardson his only training – a four-hour class. "There's a lot of talent there. Raw talent."

Redabaugh – also an IMI Craft Award winner – is impressed with Richardson's desire to continually challenge himself. For example, Richardson spent nearly 1,000 hours on







"He really is a very unique guy. There's just something gen-

uine about him, and it comes through in his work," Redabaugh said. "The end result is like folk art. He has no formal training, but the honesty comes through."

As with any art form, part of

Richardson also took an artistic approach to business, said his







All photos this page courtesy of Bill Richardson



son, Bill Richardson, Jr., foreman for Hendonson Masonry in Henderson, Nev. He said his father typically charged less than his competitors, even when he could have increased his fees and made more money.

"He doesn't base anything on money," he said. "That's the artist side of him."

His other son, Kenny Richardson, superintendent for Marnell Masonry in Las Vegas, agrees, saying that despite being encouraged to actively sell his sculptures, his father has refused.

"He says, 'If someone comes by and sees it and wants to buy it, I'll sell it," Kenny said. "He's just that way. It's not about the money."

In masonry, as in sculpting, Richardson places his emphasis on craftsmanship, not monetary gain, which is precisely what he instills in the apprentices he's trained.

"I tell them upfront, 'If you're in it for the money, go rob banks. If you're in it for the trade, do a great job and enjoy it. The main thing is quality," he said.

A Sculptor's Journey

Richardson's road to sculpting began more than 40 years ago. In 1964, he was operating forklifts on a military site in

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Cumberland Mountain Stone Co. • 389 Flagstone Lane • Crossville, Tennessee 38557 Phone: (800) 334-7719 • Telefax: (931) 484-6329 Nevada where the U.S. government tested bombs. One day, a mason contractor mentioned that he needed an apprentice. Richardson volunteered and embarked on a new career.

He started out doing block work at a time when speed and production were the two most important criteria, and quickly became one of the fastest blocklayers. After some time, he realized that wasn't what he wanted to do, so he started laying brick, and then stone. "I felt a calling in stone," he said.

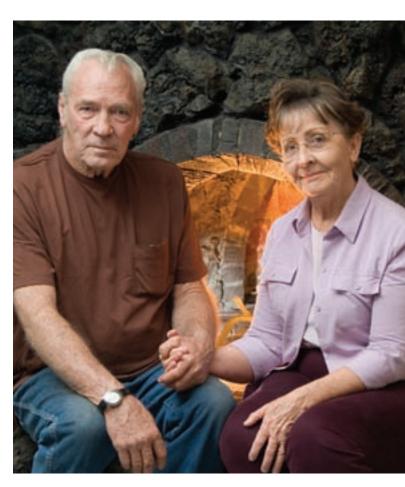
Over the ensuing years, he started his own company, Richardson Masonry, as well as worked for other contractors. An industry expert, he also traveled around the country teaching about stone veneer and cutting stone. All the while, Richardson continued to increase his own knowledgebase.

"Once you start fitting stone, you start learning the characteristics of the stone and how to cut it," he said.

Placing a high priority on learning, Richardson studied how ancient cultures used stone. He traveled to Peru to research Inca stonework, as well as to Mexico to study stone structures created by the Aztecs and Mayans. Richardson was impressed and influenced by the Inca's ability to fit stones tightly together without mortar.

He soon established a reputation for his own ability to fit tight joints. When he worked on the interior and exterior of the Las Vegas Strip's Mirage Hotel and Casino, one of his favorite projects, he used travertine stone from Montana with tight joints.

"I went through 60 guys on that job to get a dozen-man crew. I ended up with a good group," Richardson said, noting that his two sons made the cut. "It's hard to get someone who







can cut stone that close and get the product in."

His extensive studying of stone, coupled with years of masonry experience, enabled him to fit joints as tight as 1/4-inch.

"To fit stone like that, you really have to understand the characteristics of stone, how to cut it and how to fit it," he said.

Eight years ago, he took Redabaugh's sculpting class and got hooked. He started sculpting with granite, and then switched to Las Vegas rock, which has 20 percent quartzite. Richardson said he prefers the rock, which he now uses almost exclusively, for its nice grain and color. It also lasts as long as granite.

Remarkably, Richardson successfully merged his knowledge of ancient civilizations with his passion for stone carving. After





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studying Mayan hieroglyphic writing for a few months, he learned enough to carve the words "Sculptor Bill" in hieroglyphics into the base of a Mayan chief sculpture. "It makes the piece more interesting," he said.

Striving to be the Best

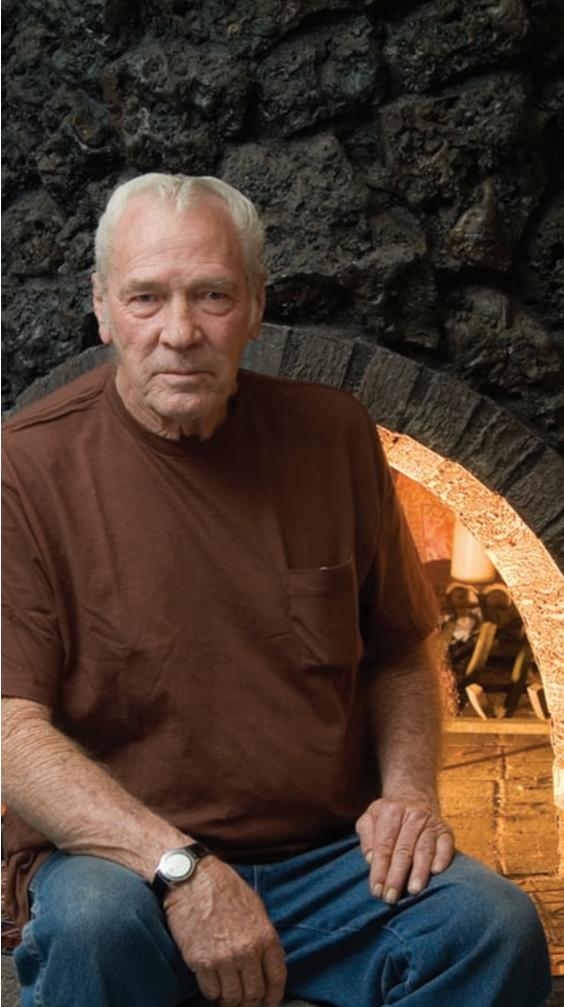
Whether working as a mason or a sculptor, Richardson has always wanted to be the best at his craft. "Whatever he does, he goes all out. That's one of the things I admire about him," said Bill, adding that he inherited some of his father's traits. "Whatever I do, I want to be the best at it and that's what I strive for. I guess I got that from my dad."

The elder Richardson started Richardson Masonry to teach his sons the trade. Both sons started working for their father in their teens and quickly learned the art of masonry. Not surprisingly, the sons use the same word to describe their father's work philosophy – quality.

"The main thing I learned from my dad is that quality is first. He always wanted something to be proud of and something the customer would like," Kenny said. "I wouldn't say striving to be a perfectionist, but he wanted us to do a good job and take pride in our work."

The trio made an impressive team. Customers praised their work and their ability to interact well on projects, even though the Richardsons rarely talked as they worked.

"The most important thing I learned from my dad was how to work. He emphasized the quality. He taught me a good work ethic and to enjoy what I did," said Bill. "My dad is an excellent teacher. He has a lot of







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45 South Main Street • Barre Vermont 05641 Toll-Free 1-800-451-4349 • In Vermont call 476-7221 www.trowandholden.com patience, but at the same time, you know what he expects."

As a testament to his patience, he didn't get upset when he was trimming a fireplace hearth and his nephew, setting stone on the wall above him, dropped a 10pound stone on his head.

"I guess that's part of the trade," he said. "I don't get mad very easily."

After a few years, Richardson decided his sons needed better benefits and a different work experience, so all three went to work for Bill Daley Masonry in Las Vegas.

"My dad would say, 'I want you kids to know more than me. You learned everything I know and you learned from others. You should know more than I do," Bill said.

Regardless of where Richardson went, he continued to earn admiration for his exceptional work.

"He always has a way of coming across to achieve the results we want. He jumps in and makes it happen. He understands what needs to be done and gives it the aesthetic look that we want," said Rae Price, FASLA, principle at Peridian International, a Newport Beach, Calif.-based landscape design company that has hired Richardson for projects over the last 15 years. "What I like is his ability to accept any challenge."

A Legacy in Stone

Richardson is not the first member of his extended family to claim the title of artist. His grandmother was a talented oil painter, and his brother was an artist for Walt Disney, art professor at the University of Alabama, and worked intelligence for Howard Hughes when he lived in Las Vegas. But Richardson is



the first family member to earn accolades for his work in stone.

As Richardson, who turned 68 in February, secures his reputation in sculpture, he leaves behind a legacy in masonry. He spoke from the heart when he said that today's master masons have a responsibility to "hold the value of the industry."

Stone carving is far from extinct. Through competition among commercial and residential owners for more elaborate stonework, the craft is getting a renewed interest and increased exposure. Richardson spent most of his career working on these high-end residential projects, including one for casino and hotel mogul Steve Wynn. He also performed his artistic achievements on several local casinos, allowing him to see his work as he drives around town.

"That's what's nice – seeing your work all over," he said.

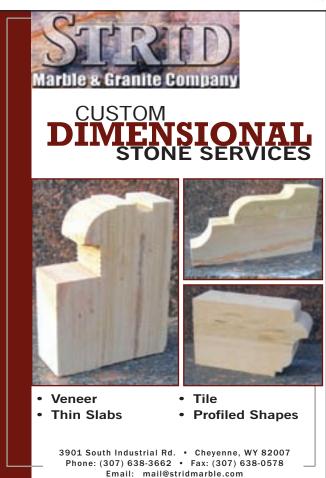
While Richardson still visits job sites to help teach younger masons the trade, offer advice, and keep in contact with his colleagues, his primary focus is now on sculpting.

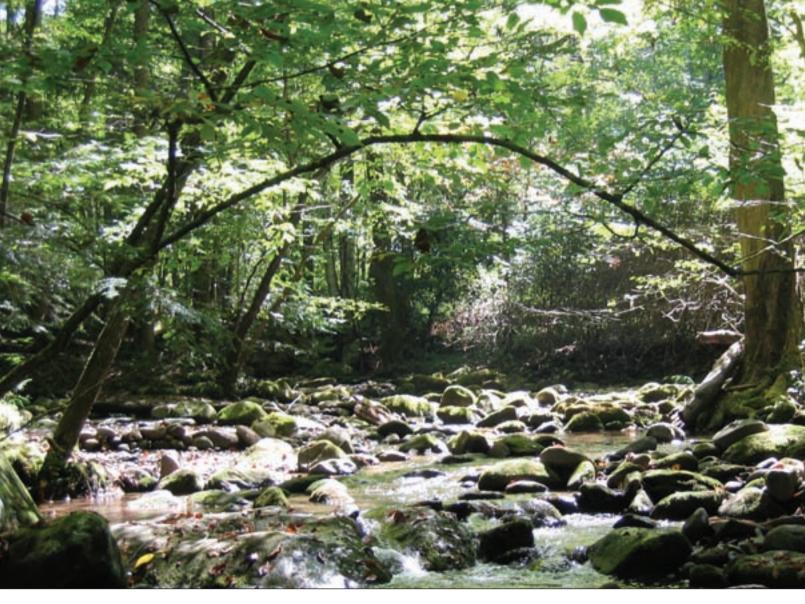
"Watching him work, and then seeing the other things he's done, such as the sculptures, really impresses me," said Price, who is particularly impressed with a sculpture of a mason chipping himself out of stone. "His sculpture work is absolutely phenomenal."

After having his work on display at a local art gallery, Richardson has been honored by having some of his pieces exhibited at the Henderson City Hall. His sculptures, including "Moses" and "Big Horn Sheep," set the landscape for the downtown.

"Everybody loves his pieces. I've seen kids just stare at them. I know I'm in awe of what he's done," said Lisa Sich, Henderson City Hall accountant for redevelopment, who helped bring art to the downtown area. "He's just a wonderful, wonderful artist. I can't imagine our city hall without these pieces."







Turning Lemons Into LEMONADE

By Jennie Farnsworth

ften the most eloquent and well thought out plans can encounter detours; however, obstacles can sometimes provide divine intervention to travel a different, more inspired, path. Such is the case with the U.S. National Park Service's (NPS) Twin Creeks Science and Education Center, designed by Lord, Aeck & Sargent of Atlanta, located within the Great Smoky Mountains National Park.

Scheduled for completion by year-end, Twin Creeks will allow interdisciplinary collaboration among researchers, including taxonomists, biologists, botanists and ecologists, as well as other government agencies, partner colleges, universities and museums. A "first of its kind" for

NPS, this revolutionary, 15,000square-foot research facility will also provide the necessary laboratory space for Discover Life in America's All Taxa Biodiversity Inventory (ATBI) project, an ecological effort to inventory and categorize the estimated 100,000 species within the halfmillion-acre park.

The Plan

From day one, NPS knew that the environment-friendly researchers needed an equally environment-friendly building and tapped the architectural firm Lord, Aeck & Sargent to make it happen. Leading Lord, Aeck & Sargent's sustainable design initiative, Jim Nicolow, AIA, LEED AP, stated that NPS wished to create an environmen-





TOP LEFT: A nearby stream shows the large amount of natural stone present in the area. Photo courtesy of Lord, Aech & Sargent

TOP RIGHT: This rendering shows the integration of the Twin Creeks research facility, with its cobblestone base, within its surroundings of boulders and natural stone landscaping.

Illustration courtesy of Barbara Ratner

LEFT: The Great Smoky Mountains National Park spans a half-million acres and contains more than 100,000 species of living organisms. Photo courtesy of the U.S. National Park Service

tally appropriate structure that also could be modeled for future facilities in the National Park System.

While departments are encouraged to evaluate the environmental impact of a project and consider green building strategies, NPS is not required to seek LEED certification, the U.S. Green Building Council's standard for high performance, sustainable design. However, during the initial threeor four-day collaboration, the two groups decided that not only would Twin Creeks include numerous sustainable design strategies, but they would also target LEED certification. Nicolow and the design team included a wide array of environmentally responsible design strategies, including daylight harvesting, natural storm water management,

AT RIGHT: An elevation map of the Great Smoky Mountains National Park. Photo courtesy of the U.S. National Park Service natural ventilation, high recycled content building materials, lowemitting finishes, an electric vehicle charging station and more.

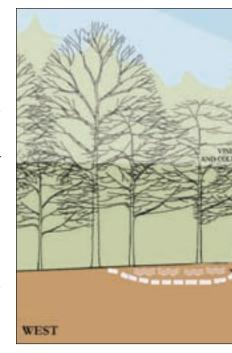
"Twin Creek's daylighting strategies, environmentally responsible design features, parametric thermal modeling and building envelope optimization have resulted in the design of a building that will consume considerably less energy than a traditional codecompliant building," Nicolow said. "At the same time, the National Park Service will gain a healthy, productive research environment for the building's users."

The Lemons

According to Meg Needle, project manager for Lord, Aeck & Sargent, the site of Twin Creeks was chosen due to its close proximity to an existing farmstead, which was converted into a makeshift research facility within the park. Upon further investigation of the site, they discovered the sloping area was the remnants of an enormous landslide that occurred thousands of years ago. Instead of finding some sort of solid surface to build upon, the team found a matrix of organic soils and loose cobble, approximately a hundred feet deep, where the building was to be constructed.

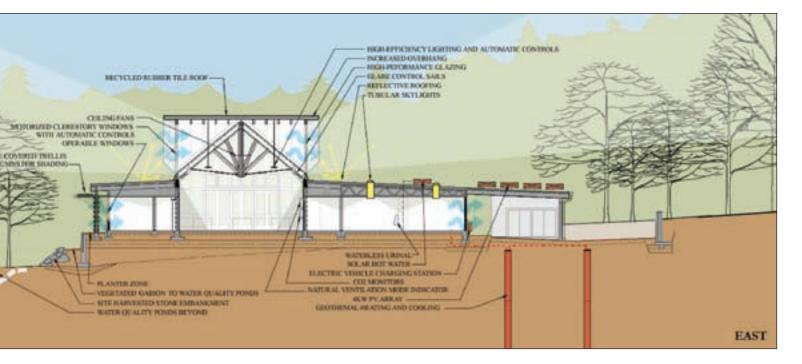
"There's no bedrock, but it's just this matrix all the way down," Nicolow said. "When we had the geo-technical test pits dug, they said what we were going to run into are stones ranging from the size of footballs to the size of Volkswagen Bugs."

Due to the widespread use of natural materials in the vicinity, including the dry-stacked natural



stonewall leading up to the area and the prevalence of stone masonry buildings in the region, the collaborative team had already planned on integrating stone into the design. While the geological

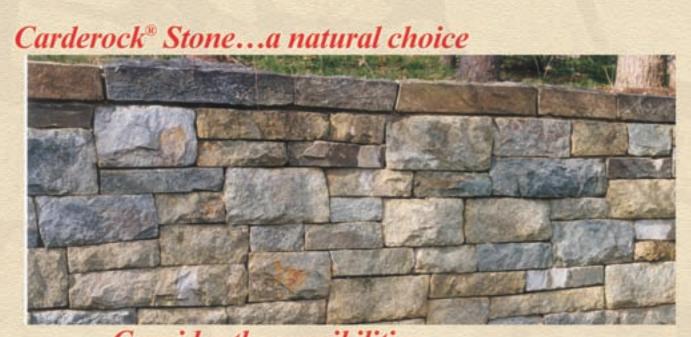




discovery made the use of stone that much more appealing, it certainly raised a few issues that required a reevaluation.

"We realized a couple of things with the geo-technical

report," Nicolow said. "One was there were a lot of rocks; the other was that there were a lot of organic soils that wouldn't support a building very well." The most cost-effective solution was to undercut and come back with an engineered fill – digging out not only to get a flat spot to build, but also to provide an engineered base. This underABOVE: Details of the Twin Creeks facility. Illustration courtesy of Lord, Aech & Sargent



Consider the possibilities...

Tri - State Stone[®] & Building Supply, Inc. 8200 Seven Locks Road Bethesda, Maryland 20817 U.S.A. 301-365-2100 www.carderock.com BELOW: Lord, Aeck & Sargent chose to harvest the boulders onsite to stabilize the embankment, as well as emphasize them in the surrounding landscaping. Photo courtesy of Lord, Aech & Sargent

OPPOSITE PAGE: A stonewall leading up to the Twin Creeks building site. Photo courtesy of Lord, Aech & Sargent cutting for the building pad would yield many rocks and boulders in addition to soil.

"When we realized we had a whole lot of rocks, we just had to make lemonade out of lemons and make use of the rocks," Nicolow said.

The Lemonade

Rather than trying to find a way to dispose of the boulders, the team and general contractor Hedges Construction decided to knock out two problems with one stone. First, the boulders were harvested and utilized as a gravity embankment to stabilize the site's slope - three feet high in the front and 10 feet at its highest point in the back. This not only assisted in supporting the structure, but also added to the environmentally friendly ideals that fueled the building's design; the team would not have to remove or dispose of the boulders, and the civil engineers could utilize materials already located on-site for some of the stabilization.

The design team also used the boulders to create a natural storm water treatment system.

"There's a cascading storm water system off the front of the building where the rainwater that falls off the roof comes down into a planter zone," Nicolow said. "It's created by a stone-clad retaining wall and has a series of scuppers, so once that is saturated, the water falls over into a swale created by the boulder embankment. That is then channeled into three cascading water quality ponds. There is a prized trout stream adjacent to the building, so [NPS] wanted to make sure that the storm water conditions were similar to predevelopment conditions following construction of the new facility."

The site's stones not only lend themselves to utilitarian purposes, but are also pivotal to the aesthetics of the Twin Creeks site. The boulders that were initially considered a potential source of problems have become a uniting tie throughout the landscape and exterior of the building. The visitor walking paths leading to the Twin Creeks facility flow around the existing features and topography, winding around the massive stones. While it's the flora and fauna that are the main focus within the building, the boulders create a feature attraction all their own in the surrounding landscape.

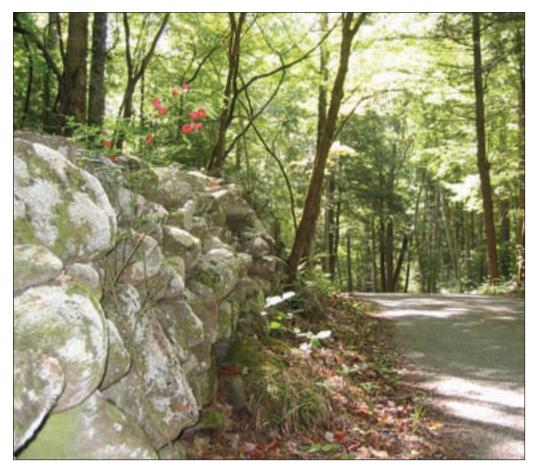
Needle stated that the design team specified a contractor's option to use smaller stones harvested from materials excavated for the building foundation in the cobble masonry veneer. However, the sorting of the site stone to identify material suitable

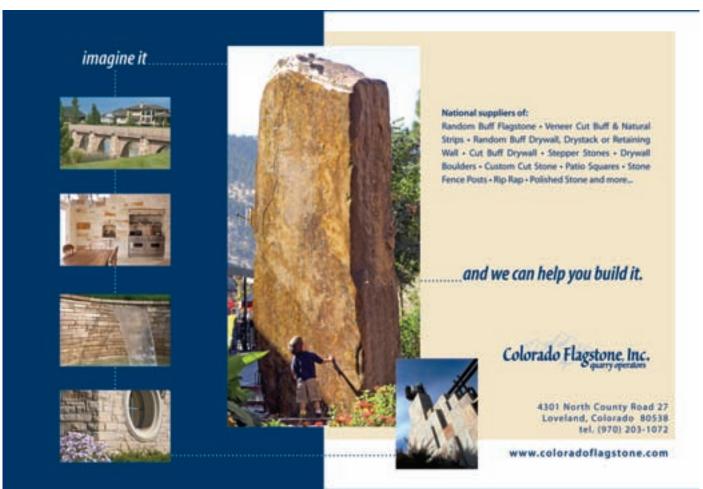


for the veneer walls proved too labor-intensive. Instead, the mason contractor, Olen Ford Masonry of Knoxville, Tenn., chose to purchase a regional cobblestone that matches the site's natural palette from Smokey Mountain Stone, a local quarry, which will cover the lower half of the structure's veneer.

"The idea was to really have it feel indigenous to the place," Nicolow said.

In the end, just as the researchers inside the building are learning new ways to understand and integrate humankind's existence within its precious natural ecosystem, thanks to the perseverance of the NPS and Lord, Aeck & Sargent collaborative team, the Twin Creeks facility and land-scape will echo this sentiment outside as well.

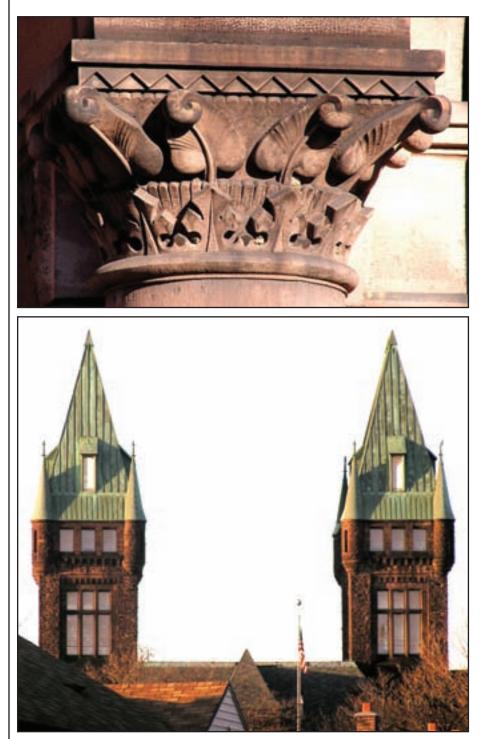




Historical Feature

Romanesquing the Stone

By Christina B. Farnsworth • Photos courtesy of Chuck LaChiusa



PRHAPS IT WAS THE TRAUMA of the Civil War or maybe the dawn of scientific psychiatry, but the 1870s were America's glory years of grand, expansive asylums. In stark contrast to the historic Colonial habit of imprisoning the "crazies," these refuges for the unbalanced were conceived and constructed as monuments to society's compassion. Who better to express the wealth, strength and progressive wisdom of the Empire State than America's grand master of stone, architect Henry Hobson Richardson?

Today, little more than a century after Richardson's Buffalo State Asylum for the Insane, now the Buffalo Psychiatric Center, became the international benchmark of health care architecture, states no longer take pride in treating the mentally ill. The building itself, now nearly empty, inspires "spooky photo" Web sites, and few realize that Richardson, then a hotshot 24-year-old, established a new American architecture in the local Medina sandstone. Fewer still realize that this sprawling, rough-hewn, 360,000square-foot stone edifice was originally celebrated as Modern Architecture and the epitome of building technology.

Richardson spent the Civil War studying in Europe as the second U.S. student ever accepted to the prestigious L'Ecole Des Beaux-Arts in Paris. Medieval Romanesque 11th- and 12th-century stonework in the English Norman style entranced him. Inspired by the vocabulary of stone columns, arches and carving, Richardson introduced the style that still bears his name: Richardson Romanesque. Rugged stone



arches, strong horizontal lines and design symmetry now synonymous with city halls and county courthouses as well as homes were originally his unique hallmarks.

In 1864, Dr. James White proposed a modern asylum for Buffalo. Following the humanitarian tenets of Dr. Thomas Kirkbride, each of 600 patients, grouped by diagnosis and illness severity, would have a private room in an interconnecting pavilion. Kirkbride's insistence on iron fire doors was one design feature that advanced building standards. The complex featured indoor plumbing at a time when most private residences sported outhouses. Kirkbride's therapies included gardens designed to be soothing and therapeutic. Patient gardeners produced the hospital's fruits and vegetables and sold the surplus at market. Thomas Hurd, an early historian of American mental institutions, admired the Buffalo complex as the grandest architectural expression of the Kirkbride system, and former U.S. President Millard Fillmore attended the Masonic groundbreaking ceremonies in June 1871.

Built with local, reddish-colored Grimsby Medina sandstone, Richardson conceived the hospital as a place of holistic healing with 10 connected pavilions, five each on either side of a monumental administration building. Some have compared the design's plan to the V-formation of a flock of geese in flight. It was the largest project of his career, taking nearly a quarter century to complete, and he had been dead and buried for nine years before it was done.

The most prominent elements of the four-story central building are its identical twin towers. Three-quarters of Richardson's designs incorporate a tower, but the Asylum is one of the very few – only 15 percent, to be exact – designed with multiple towers. Each is 185-feet tall with four corner turrets and steep copper roofs punctuated with dormers. The towers were never finished inside, nor intended to be used for any particular function except their striking exterior design.

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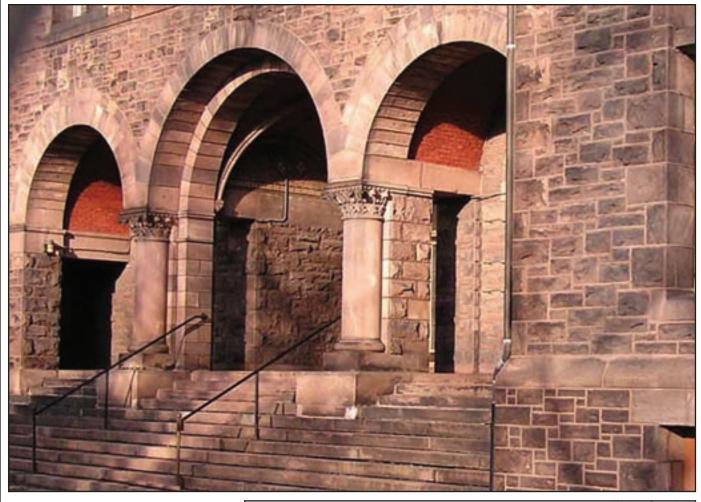
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Historical Feature



A neighbor of Richardson, Frederick Law Olmstead and his partner Calvert Vaux designed the 200-acre landscape. Best known for New York's Central Park, the pair designed the grounds to complement the building's architecture and orchestrated the landscape to visually focus attention to the towers.

Though only half completed, the first patients entered the hospital in 1880. Now, listed as both a National Register of Historic Places site (and on that organization's list of 11 most endangered buildings) and a National Historic Landmark, it survives but does not thrive. Three pavilions built in brick as an economy measure were demolished in 1969. The hospital closed as a residential treatment facility in 1974.

The stone exteriors are still an inspiring example of Richardson's design and the masons' art. Sadly, today the complex is only partially used, and much of Olmsted and Vaux's renowned therapeu-



tic gardens are parking lots. Though the slate roof is now asphalt, the stone repointed and the towers illuminated, this beautiful and legally protected stone edifice seeks new purpose. New York State

funded \$80 million for rehab and restoration but has so far spent only \$1 million, according to Tim Tielman, executive director of the Campaign for Buffalo History, Architecture and Culture.



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Industry News

Building Stone Institute's 2006 Convention

The Building Stone Institute (BSI) 2006 Convention will be held in San Diego, March 1-5, 2006.

"The convention is a golden opportunity for each member to utilize the greatest reason to be a member in the BSI, and that is to network with your fellow members," said Brenda Edwards, BSI president.

The BSI is excited to introduce a two-track program this year. At times throughout the seminar program, members will be able to select between two different programs. Program topics include: natural stone trends, immigration law, residential ornamental stone products, silicosis, material handling, branding, resins, customer service, equipment development and adhesives.

BSI members will also have a wonderful opportunity to take part in the annual golf outing at the Steele Canyon Golf Course, a guided walking and shopping tour of historic San Diego, a video scavenger hunt, a progressive dinner in the Gaslamp Quarter, as well as services at the luxurious Regency Spa.

"San Diego offers so many wonderful activities," Edwards said. "Whatever your interests are, you are certain to enjoy this year's convention."

For more information, visit www.building stoneinstitute.org, or call (866) 786-6313.

Rolling Rock Building Stone Launches New Product Line

Rolling Rock Building Stone Inc. announced the launch of a new natural adhered stone veneer product line, part of its RealStone Veneer[™] brand. The Platinum Series[™] is made exclusively at the newly constructed production facility on the Rolling Rock Building Stone's main complex located outside of Boyertown, Pa.

This new line will expand the RealStone Veneer brand to envelop architectural styles that have long been extremely popular. Now, many of the proprietary products that Rolling Rock Building Stone has quarried and marketed for decades are available in an adhered natural thin stone veneer. The 10 introductory colors available are Brookfield Buff[®], Huntington Gray[®], Clover Creek[™], Washington[™], Alverson Limestone[®] Irregular and Ashlar Blend, as well as North Country Quartzite[™] Ashlar, Oak Island Quartzite[™] Ashlar, Crystal Lake[®] Ashlar, and Wissahickon Schist[™] Ashlar.

Rolling Rock Building Stone produces non-architectural dimension stone in sandstone, quartzite, gneiss, dolomite and limestone. Its product list includes building stone veneer, thin stone veneer, landscaping stone and related items. All products are available nationally through a network of authorized dealers and distributors. The company owns quarries and maintains offices in Pennsylvania and New York. All New York assets are held by a solely owned subsidiary, Greystone Quarries Inc.

Gallegos Corporation Wins Safety Award

Liberty Mutual Insurance Company awarded The Gallegos Corporation (TGC) its highest commendation, The Gold Award, for its safe job sites. As a matter of fact, over the past year, TGC's safety record beats the national average by 80 percent (from the Bureau of Labor Statistics, Department of Labor). With a peak workforce of more than 500 trade workers, the company has lost only three work days due to injuries or accidents from September 2004 to September 2005.

"It's hard to beat the national average, especially when you take into account the various trades of work The Gallegos Corporation does," said Chris Volz, technical consultant for the loss prevention department at Liberty Mutual. "It's a tremendous accomplishment. The last time we gave out this award was three years ago."

Volz stated that statistics on the company's overall performance show lost time claim frequency has decreased by 50 percent; loss rate of payroll has decreased by 54 percent; disability day rate has decreased by 79 percent; and claim frequency has decreased by 29 percent.

The Gallegos Corporation takes the health and safety of its employees very seriously, said Mike Haller, the company's safety director. Over the past six years, the company has done a lot to increase safety on their job sites, including employee safety training programs, controlling material handling, a safety incentive/recognition program, random safety audits and a zero-industry culture. Each of the 450 field employees is essential to an effective safety program.

"I am really proud of our crews for not only logging a million man hours over the last year, but taking on projects in areas where we have never worked, and for doing all this with very few accidents, and no major injuries," said Gerald Gallegos, CEO and founder of TGC.

Gallegos founded TGC in 1970 as a specialty stone masonry company. In 1980, TGC was integral in building Beaver Creek Village, part of the secluded, alpine-style Beaver Creek resort near Vail, Colo. Since that time, the company has expanded trades and now also specializes in distinctive residential and commercial projects, including quality plaster and stucco, concrete, marble and granite work, and stone sales.

The Gallegos Corporation is headquartered in Vail, Colo., and has offices in Denver, Telluride and Aspen, Colo.; Sun Valley, Idaho; Lake Tahoe, Calif.; and Bozeman, Mont.

Global Granite & Marble Opens New Missouri Location

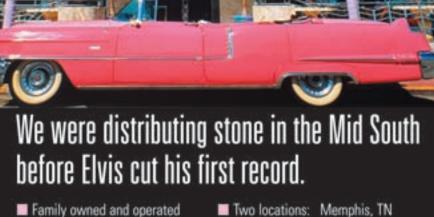
A variety of natural stone from around the world is now available at the new Global Granite & Marble stone selection center in Nixa, Mo. The St. Louis-based importer of fine natural stone opened the center in response to high demand from custom homebuilders and new commercial ventures in southwest Missouri.

The stone selection center represents the third location for Global Granite & Marble, which imports granite, marble, slate, travertine and a variety of other stone slabs from more than 30 countries, including Brazil, Italy, India and Spain. The firm's other locations are in St. Louis and Louisville, Ky.

The general manager of the Nixa facility is David Brotherton. A Global Granite & Marble employee since 2004, Brotherton previously managed the company's St. Louis natural stone tile division. He holds a master's degree in business administration from the University of Iowa and a bachelor's degree in applied physics from Saint Louis University. Industry assignments have taken him to Brazil and Egypt, where he worked directly with international stone suppliers.

"Based on Global Granite & Marble's existing customer relationships with many local fabricators, the Springfield area was a natural choice for a third company location," Brotherton said. "Plus, southwest Missouri is a great strategic fit for expanding our Midwest distribution network."

More than 1,000 slabs in more than 100 colors eventually will be showcased at the center, with current inventory totaling 500 granite slabs in 80 different colors. The choice jumps to 6,000 slabs in more than 300 different colors because of the extensive selection found only a few hours away at the St. Louis warehouse. Slab deliveries to the Springfield area can be made within days. The Nixa center also features stone tile, trims and accessories such as custom



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sink basins and lazy Susans. A variety of natural stone cleaning and maintenance products also are for sale.

Orange County Great Park Competition Selects Master Designer

Corporation Board of Directors enthusiastically selected Ken Smith Landscape Architect of New York, a world-renowned landscape design firm, as master designer of the Orange County Great Park. Ken Smith and his team will be charged with the overall responsibility of creating the master design for the Orange County Great Park. Ken Smith team's most famous designs include the East Pines Master Plan and the U.S.S. Intrepid Sea, Space and Air Museum, both in New York, and Third Street Light Rail Project in San Francisco.

Ken Smith earned the support of two jury panels assembled to judge the designs

of landscape architect firms competing to be master designer of the Orange County Great Park in an intense eight-month competitive process. The jurors, all distinguished leading architects, designers and academics, were passionate about Smith's conceptual originality and use of dominant features.

Smith's design includes a canyon joining the Agua Chinon corridor with a lake. An amphitheatre faces east across the lake. The design retains the old runway as a linear monument to the Marine history with fighter planes stationed along its entire length. Orange bicycles would be used as a mode of transportation throughout the park, and three large hot air balloons will be an attraction for visitors to see the entire park from above.

Smith's design also responded to the public's needs and desires. More than 3,380 individuals from around the county participated in an online poll and nearly 1,700 individual comments, of which 20 percent were from Irvine residents, were positive

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responses to Ken Smith's proposal. Smith's design captured the public's imagination with lakes, an amphitheatre, sports park, museums and a natural grove.

"I wholeheartedly and enthusiastically support both the public's preference and that of the distinguished jury design panel to select Ken Smith Landscape Architect as master designer of the Orange County Great Park," said Larry Agran, chair of the Orange County Great Park Corporation. "I will do everything in my power to make sure the Orange County Great Park is the most extraordinary park to be built in the 21st century."

Ken Smith Landscape Architect was one of 38 world-renowned design firms invited to compete for the honor of becoming the Master Designer of the Orange County Great Park. Twenty-four firms responded. From this, the Orange County Great Park Board of Directors chose seven semi-finalists based on the recommendations of an expert jury. In late September, the seven firms presented their designs to the Orange County Great Park Board of Directors and to the public. More than 3,380 members of the public reviewed the designs in an online poll or on display at Irvine City Hall. After formal presentations, the public participation process, and recommendations of a second jury panel, the Orange County Great Park Board chose three semi-finalists. Ken Smith Landscape Architect was one of the semi-finalists.

The Orange County Great Park staff will immediately begin contract negotiations with Ken Smith Landscape Architect. Following negotiations, the firm will begin work on the master design, which will include building and structural themes, scale of the elements, building materials, lighting, a landscape pallet and planting schemes, gateways and edge treatments, signage and way finding, and pedestrian and vehicular circulation patterns.

A groundbreaking ceremony is slated for Spring 2006.

The 1,347-acre Orange County Great Park will be a major metropolitan park and the focal point of redevelopment of the larger 4,700-acre former Marine Corps Air Station El Toro located in Irvine, Calif., and designated for closure more than a decade ago. The Great Park will include extensive natural areas in addition to recreational and cultural uses. The remaining 3,700-acre area will be revitalized by the Lennar Corporation and will include residential, educational, commercial, and retail uses as well as other supporting facilities.

For more information about the Orange County Great Park, visit www.ocgp.org.

Minnesota Rocks!

The International Stone Carving Symposium will hold an extraordinary stone event in St. Paul, Minn., May 21-June 30, 2006.

This unique event will shine a public spotlight on the art of creating stone sculptures, as a group of master stone carvers from Minnesota and around the world gather in St. Paul to create stone sculptures in a 7,000- to 10,000-square-foot, open-air studio. Located at St. Paul College, the studio will give passers-by and visitors an opportunity to witness the creativity and discipline involved in creating a work of art.

Artists representing Japan, Germany, Mexico, China, Zimbabwe, Finland and Egypt will take part in this event, along with six stone sculptors from Minnesota. Each artist will work with a block of stone from a Minnesota quarry. At the end of the symposium, the artists will have created approximately 13 works of art for placement in public places, including Saint Anthony Village and throughout St. Paul.

Minnesota holds some of the earth's oldest and most valuable stone. Morton gneiss, from the southwest corner of the state, is 3.5 billion years old. Younger granite can be found around St. Cloud, while limestone and dolomite is found around Mankato and in the Mississippi River Valley. Whatever the age, whatever the origin, Minnesota stone is sought after for buildings and art around the world.

This event is presented by Public Art St. Paul, in collaboration with the stone indus-



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Industry News

try of Minnesota and the sister cities of St. Paul and other Minnesota communities. The Minnesota Ceramic Tile and Allied Trades provided initial program funding.

For more information, visit www.public artstpaul.org.

National Landscape Architecture Month

The American Society of Landscape Architects (ASLA) has declared April 2006 National Landscape Architecture Month. This year's theme is "Discover Landscape Architecture."

National Landscape Architecture Month is an opportunity for ASLA chapters across the country to reach out and inform people about landscape architecture as a viable profession, as a means to help create a sustainable environment, as a way to help encourage healthier lifestyles, and as a way to beautify residential areas.

"Over the years, landscape architecture has evolved to touch so many areas of planning and design. It's important that we help shed light on the many benefits of landscape architecture, while letting potential professionals know what opportunities they may have for practicing in this very worthwhile field," said Dennis Carmichael, FASLA, president of the ASLA. "Landscape architecture has so much to offer, as a profession and as a means to help improve our environment and communities."

April was selected as National Landscape Architecture Month because it encompasses the birthday of Frederick Law Olmsted (April 26), the founder of the American landscape architecture profession, and Earth Day (April 22).

Founded in 1899, the ASLA is the national professional association for landscape architects, representing more than 16,000 members. Landscape architecture is a comprehensive discipline of land analysis, planning, design, management, preservation and rehabilitation. The ASLA promotes the landscape architecture profession and advances the practice through advocacy, education, communication and fellowship.

For more information, visit www. asla.org, or call (202) 216-2371. ◆

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- 49 Cee Jay Tool, Inc. P.O. Box 7698 Loveland, CO 80537 Phone: 970.962.9594 FAX: 970.962.9074 www.ceejaytool.com
- 7 Champlain Stone, LTD P.O. Box 650 Warrensburg, NY 12885 Phone: 518.623.2902 FAX: 518.623.3088 www.champlainstone.com
- 55 Colorado Flagstone, Inc. P.O. Box 63 Masonville, CO 80541 Phone: 970.203.1072 FAX: 970.669.8836 www.coloflag@aol.com
- 37 Connecticut Stone Supplies, Inc. 138 Woodmont Road Milford, CT 06460 Phone: 203.882.1000 FAX: 203.882.1991 www.ConnecticutStone.com
- 63 Culp & Son, L.P. 2230 County Road 335 Burnet, TX 78611 Phone: 512.496.6828 FAX: 512.756.2387 E-mail: daculp@starband.net www.culpandson.com
- 43 Cumberland Mountain Stone, Co. 389 Flagstone Lane P.O. Box 297 Crossville, TN 38557 Phone: 800.334.7719 FAX: 931.484.6329
- 23 Dakota Granite, Co. 14964 484th Ave. PO Box 1351 Milbank, SD 57252 Phone: 800.843.3333 FAX: 800.338-5346
- IFC Delaware Quarries 6603 Route 202 P.O. Box 778 New Hope, PA 18938 Phone: 800.533.4954 FAX: 215.862.1680 www.delawarequarries.com

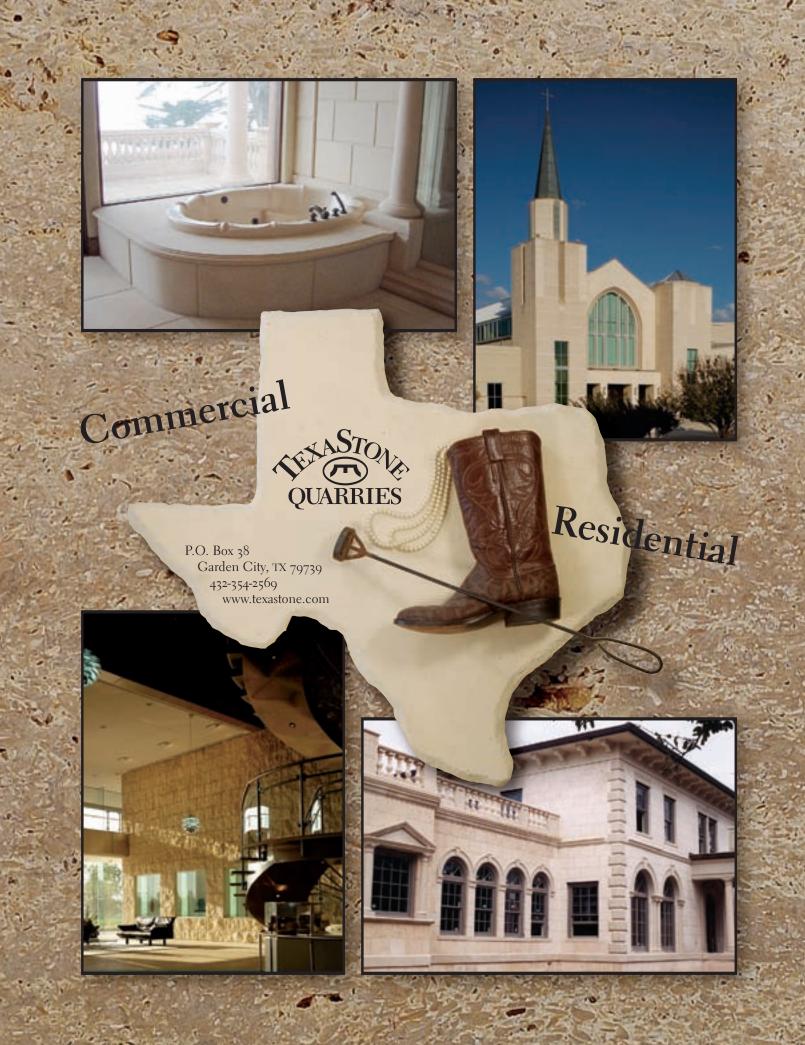
- **19 Delta Stone** 2276 South Daniels Road Heber City, UT 84032 Phone: 435.654.3336 FAX: 435.654.3337 www.deltastoneproducts.com
- 45 Eden Stone Company W4520 Lime Road Eden, WI 53019 Phone: 920.477.2521 FAX: 920.477.7000 www.edenstone.net

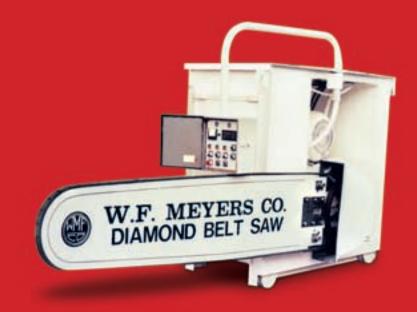
15 Featherock 20219 Bahama Street Chatsworth, CA 91311 Phone: 800.423.3037 FAX: 818.882.9643

- **33 Fynn Stone Quarry** RR2, Box 2228 Lakewood, PA 18439 Phone: 570.446.0844 FAX: 570.448.2014 www.flynn-stone-quarry.com
- 5 Gallegos Corp. P.O. Box 821 Vail, CO 81658 Phone: 970.926-3737 FAX: 970.926.3727 www.GallegosCorp.com
- 13 Global Granite & Marble 10330 Page Industrial Court St. Louis, M0 63132 Phone: 866.480.4931 E-mail: Samk@globalgranite.com www.globalgranite.com
- 1 GranQuartz L.P. P.O. Box 2206 Tucker, GA 30085 Phone: 770.621.5200 FAX: 770.621.9771 www.granquartz.com
- 15 Lompoc Stone 28092 Forbes Road Laguna Niguel, CA 92677-1288 Phone: 800.726.2292 FAX: 949.347.2151 stoneinfo@lompocstone.com www.lompocstone.com
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11 Northern Stone Supply, Inc. P.O. Box 249 Oakley, ID 83346 Phone: 208.862.3353 FAX: 208.862.3846

- 63 SAS Forks P.O. Box 260 East 1039 State Hwy 34 Luxemburg, WI 54217 Phone: 888.795.1747 FAX: 920.845.2309 E-mail: buyit@sasforks.com www.SASFORKS.com
- 57 Siloam Stone, Inc. 315 N. 7th Street Canon City, CO 81212 Phone: 719.275.4275 FAX: 719.275.9050 siloam@ris.net www.siloamstone.com
- 59 Silverado Building Materials 9297 Jackson Road Sacramento, CA 95826 Phone: 916.361.7374 FAX: 916.361.8929 www.silveradoonline.com
- 61 Sinko International 7915 Silverton Ave. Suite 304 San Diego, CA 92126 Phone: 858.790.0230 FAX: 858.790.0231 E-mail: info@sinko.us www.sinko.us
- 3 Spartan Tool Company P.O. Box 6078 Elberton, GA 30635 Phone:706.498.3145 FAX: 706.213.9111
- 49 Strid Marble and Granite 3901 S. Industrial Rd Cheyenne, WY 82007 Phone: 307.638.3662 FAX: 307.638.0578
- IBC TexaStone Quarries P.O. Box 38 Garden City, TX 79739-0038 Phone: 432.354.2569 FAX: 432.354.2669 www.texastone.com
- 53 Tri State Stone & Building Supply, Inc. 8200 Seven Locks Road P.O. Box 34300 Bethesda, MD 20827 Phone: 301.365.5100 FAX: 301.365.5524 www.carderock.com
- 47 Trow & Holden 45 South Main Street P.O. Box 475 Barre, VT 05641 Phone: 800.451.4349 FAX: 802.476.7025 www.trowandholden.com
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