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Photo courtesy of Eiteljorg Museum of American Indians & Western Art



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Stone helps architects and designers bring the indoors out when creating luxurious natural living spaces.

Photo courtesy of Geoscape

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Passion for Natural Stone

I RECENTLY RETURNED from the Building Stone Institute's (BSI) 2008 Annual Convention held at Caesar's Palace in Las Vegas. The designers did their utmost to simulate ancient Rome throughout that expansive property. Since the BSI 2007 Fall Study Tour included a thorough tour of the real architecture and design of Rome, Italy, Caesar's provided the perfect complement to link these two key BSI member events. In this issue, we focus on that same type of integration of concepts, ideas and products that translate into design success.

As many of my BSI colleagues enjoyed the sunshine of Las Vegas while bemoaning the cold that gripped many parts of the country, in our warmer climate areas an annual tradition was taking place – spring training. To paraphrase a popular old tune, "In the spring, a young man's fancy likely turns to..." baseball! Minnesota Twins fans will surely be interested in our article spotlighting their new ballpark.

As we put winter behind us, we decided to turn the focus of this issue inside out – outdoors, that is. Those already dreaming of relaxing and/or entertaining in the coming months should enjoy our feature on outdoor living spaces. And readers who gravitate toward learning more about the successful integration of design and installation will appreciate Linda Erbele's and Gail Snyder's articles.

During our Annual Convention, the industry's leading quarry owners/operators, fabricators, dealers, importers, exporters, carvers, restorers, designers and installers gathered for extensive information sharing and networking. Throughout the various sessions, we were encouraged many times to approach our industry challenges with a fresh outlook, with zeal and vigor. As always, the convention served as an opportunity to network with key individuals in the stone business, to gain new insight, to explore a different perspective. Yes, I did come away renewed.

I hope that through this issue, we can spark your imagination and transfer to you some of the passion we feel about natural stone. No other material surpasses natural stone for its beauty, sustainability, practicality, functionality and elegance. If you are interested in learning more about the benefits of utilizing natural stone, we invite you to visit our Web site at www.buildingstone-institute.org. Here you can learn more about our support of our members' efforts to continually increase the quality of service, quality of products and demand for natural stone. And, as always, should you have questions about our programs, products and services, or for technical expertise regarding any aspect of composition, application or installation of natural stone, please feel free to contact our office at 1-866-STONE13 (847-695-0170) and we will do our best to address your issues. ♦



Bob Barden
2008 President, Building Stone Institute
Barden Stone Inc.
Memphis, Tenn.

BUILDING STONE INSTITUTE

Margie Lechowicz, **Executive Vice President**
551 TOLLGATE ROAD, SUITE C
ELGIN, IL 60123
Tel: 847.695.0170
Fax: 847.695.0174
Web: www.buildingstoneinstitute.org
E-mail: margie@buildingstoneinstitute.org

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PUBLICATION MANAGEMENT

LIONHEART PUBLISHING, INC.

506 ROSWELL STREET, SUITE 220
MARIETTA, GA 30060

Tel: 770.431.0867

Toll Free: 888.303.5639

Fax: 770.432.6969

Web: www.lionhrtpub.com

President John Llewellyn
E-mail: llewellyn@lionhrtpub.com

Editor Brooke Schmidt
E-mail: brooke@lionhrtpub.com

Feature Writers Richard Bennett
Lorayne Bryan
Linda M. Erbele
Christina B. Farnsworth
Mark Haverstock
Jennifer Maciejewski
Gail Snyder
K. K. Snyder

Art Director Alan Brubaker
E-mail: albrubaker@lionhrtpub.com

Production Designer Christopher John
E-mail: chrisjohn@lionhrtpub.com

Online Projects Manager Patton McGinley
E-mail: patton@lionhrtpub.com

Advertising Sales Art Shaeffer
E-mail: art@lionhrtpub.com

Advertising Sales Aileen Kronke
E-mail: aileen@lionhrtpub.com

Advertising Sales Marvin Diamond
E-mail: marvin@lionhrtpub.com

International Media Sales Anthony Fitzgerald
Tel: +44.1488.680623
Fax: +44.870.199.2491
E-mail: mail@afitzgerald.co.uk

Reprints/Subscriptions Kelly Millwood
E-mail: kelly@lionhrtpub.com

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A NATURAL CHOICE

Landscaping Trends

By Jennifer Maciejewski

FOR MANY LANDSCAPE ARCHITECTS, natural stone remains the obvious choice when they are selecting materials for their site designs. Locally quarried stones complement the area's ecological colors and textures, while imported varieties offer architects an array of eye-catching options in every shade and style.

Although a developer's budget constraints can require architects to limit the use of natural stones to high-profile areas, such as portals and pergolas, other developers, especially those hoping to achieve Leadership in Energy and Environmental Design (LEED) certification, often embrace the widespread use of locally available natural stone. An extremely long material life cycle and the minimal maintenance requirement for stone can contribute substantially to the sustainability of a project.

Going Green

Due in large part to LEED building requirements, landscape architects across the country now scour quarries within 500 miles of the site to find local, sustainable materials for their projects.

"The intent there is to reduce the cost of transportation and consumption of fossil fuels," says Barth Hendrickson, associate



Photo courtesy of Brian Clark & Associates

partner and director of landscape architecture and planning for Browning Day Mullins Dierdorf Architects (BDMD) in Indianapolis, Ind., "and the money stays within a local region, which boosts business for local stone suppliers. That's not to say that you're not going to choose at some point to get stone from overseas, for example, which we've done also. But there's an overriding trend to explore what local materials would be available, and even the reuse of materials and stone."

The Indianapolis Museum of Art relied heavily on Indiana's native limestone and brownstone in both its building con-

struction and landscaping. "It really helped us create a seamless connection between the building and the site," Hendrickson says. "We used the brownstone for a retaining wall for a very large sugar maple tree and for seat walls on the natural side of the property, which is across the ravine from Oldfields Lilly House and Gardens, and that transitions into a more formal area of the museum proper where we used limestone."

In South Dakota, the four stones most prevalent in the native landscape include quartzite, fieldstone, limestone and granite, and their presence is often found in both the

ABOVE: The Jasper quartzite on the first two stories of Cherapa Place in Sioux Falls, S.D., is repeated in formal landscaping elements such as a riverside patio and bollards for signage.

OPPOSITE CLOCKWISE FROM TOP: Designers for Indiana's Eiteljorg Museum used a color and stone palette that harkens back to the Southwest.

The Indianapolis Museum of Art relied heavily on Indiana's native brownstone in its landscaping.

A granite water feature in San Ramon, Calif.

RIGHT: Veteran's Memorial Park in Sioux Falls features this ceremonial pergola made out of recycled native quartzite.

OPPOSITE RIGHT: Veined pink Minnesota stone and brown russet German sandstone complement the burnt orange hues used in much of the art at the Eiteljorg Museum of American Indians & Western Art.

Photo courtesy of Craig Dewitz/Brian Clark & Associates



buildings and the formal landscaping alike.

For example, not only are the first two stories of Cherapa Place in Sioux Falls, S.D., built out of Jasper quartzite, but the stone occurs naturally along the

river near the property, as well as in the waterfalls located a mile north. To tie everything together the landscape architects at Brian Clark & Associates in Sioux Falls incorporated the quartzite into the formal landscaping to make seat walls to enclose a patio that overlooks the river, create bollards for monument signage and serve as the bases for three sculptures.

“We like to use natural materials because we feel that they blend in with the native materials and what’s been used historically,” notes Chad Kucker, landscape architect for Brian Clark & Associates. “A lot of our historic buildings in town are made out of quartzite, and even the brick ones have quartzite foundations. It really ties in with the heritage of the area.”

Instead of drawing inspiration from the native materials on the site, Kucker incorporated the city of Sioux Falls’ stockpile of salvaged stones into the design of Veteran’s Memorial Park, which features a ring of bollards, a detention pond surrounded by stone outcroppings, a ceremonial pergola made out of recycled native quartzite, and a plaza and memorial pier.

“All of the stone on that project was salvaged from curb sections or old cobbles from old roads,” Kucker says. “The city has been saving it for years, and they provided that at no cost; we just had to pay for the labor. We did a lot of thinking of how we could make those materials have a high impact without spending a lot of money on it.”

Outside Influences

While LEED’s project requirements led to a rise in the use of locally available stones in recent years, landscape architects continue to tap the vast resources found in quarries worldwide as projects call for it.

For instance, when BDMD designed the landscape for the Eiteljorg Museum of American Indians & Western Art in Indianapolis, they had one goal in mind: bringing the look and feel of the Southwest to Midwest. Eiteljorg is one of only two museums east of the Mississippi that showcases both Native American and Western art, culture and history. Harrison Eiteljorg, the museum’s founder, wanted the museum to capture the unusual aesthetic and diversity of the West, both inside and out.



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Since the color tones found in the brownstone and limestone native to Indiana don't create the desired effect, Jonathan Hess of BDMD needed to explore other quarries to find natural stones in shades that complement the burnt orange used in much of the art. Ultimately, Hess selected veined pink Minnesota stone, supplied by the Vetter Stone Company, and brown russet German sandstone, supplied by Carl Schilling Stoneworks. While neither was mined in the Southwest, the pinkish-orange hues of the dolomitic limestone and the brownish-purple tones of the sandstone combine to evoke the feeling of the region.

"That rich orange tone is something very different than you experience in the Midwest," Hendrickson says. "We focused on



Photo courtesy of Eiteljorg Museum of American Indians & Western Art



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LEFT: Not only does the Plaza at Gale Ranch bring a sense of nature to the bustling San Ramon corner, but the granite fountain uses a tenth of the water and energy of a comparable water-jet fountain, making it more economical and sustainable to operate over the long term.

BELOW: Due to its durability, granite continues to reign supreme as the primary material used in urban areas such as San Ramon, Calif.

OPPOSITE RIGHT: The Plaza at Gale Ranch in San Ramon, Calif., proved ideal for a 150-foot-long fountain, which uses a million pounds of granite to create a series of broken waterfalls.

creating a landscape and building that really worked together using the color and the stone palette to hearken back to the Southwest. When you go in this place, it feels like you just walked into an Anasazi piece of architecture.”

Just as BDMD brought the essence of the Southwest to Indianapolis, David Gates, landscape architect and founder of Gates & Associates in San Ramon, Calif., works to bring natural influences into urban environments. For instance, Gates will cut an egg-shaped rock that’s four-foot in diameter in half to create two rocks with flat bottoms and then cut off the top. “We call them turtles, and we place them randomly in retail centers or in plazas,



Photo courtesy of Gates & Associates

and they're benches," Gates says. "We group them so that four or five people can sit, but it's natural. It looks soft, not horribly man-made or overly rigid.

"We're not just trying to replicate natural systems," Gates continues. "We're taking a natural element and sculpting it. It's a good way to bring nature into the urban environment but still make it usable. As opposed to pure nature and pure manmade, it's half and half, and I think that's a trend you're going to see a lot more of."

Whatever the project, granite continues to reign supreme as the primary material used in urban areas due to its durability. If a vandal tags it with graffiti, an acetylene torch will cause the paint to come right off. Plus, it is virtually bullet proof.



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RIGHT: Natural stones remain popular materials to use in landscape design because they stand the test of time.

BELOW: Sedges and fescues that grow around rocks at Alhambra Creek help to hold the soil.

Photo courtesy of Gates & Associates



In addition to the turtles, Gates uses natural stone to create community icons at key intersections, whether it's an engraved monolith in the median that alerts motorists that they're entering the city limits or a sculpted boulder used as a portal into a local park. A busy intersection, the Plaza at Gale Ranch in San Ramon, proved ideal for a 150-foot-long foun-

tain, which uses a million pounds of granite to create a series of broken waterfalls. Not only does it bring a sense of nature to the bustling downtown corner, but the granite fountain uses a tenth of the water and energy of a comparable water-jet fountain, making it more economical and sustainable to operate over the long term.

A Timeless Look

While the granite structures bring a natural feel to an urban environment, other stones continue to prove popular as developers attempt to give their projects a timeless feel. "A lot of what we're doing now is reinventing the past," Gates says. "Instead of putting in a big shopping center with a parking lot, we're recreating Main Streets. We're recreating town squares and village greens, and in the planning and landscape architectural process, there's a look to the past. We're trying to design them historically... using the same local materials that were in the original village green."

For instance, the white granite mined in Cape Ann permeates New England's historic towns, roads and curbs. Dave Rinas, sales manager for K2 Stone Quarries on Vancouver Island in British Columbia, notes that he's seen an increase in the sale of stone cob-

bles, as more designers are using the material to give a project's walkways a European feel.

"Stone has been there for hundreds of years," Gates continues. "If we look at the economics of the stock market and wars overseas, it's a little frightening today. We want to be comfortable; we want to feel secure and permanent. Stone hearkens to the past, and it brings us the sense of the good times from way back when. It's timeless."

Due to its timeless quality, stone remains the ideal material for giving new construction an established feel, especially when the project involves a park. "We recently got an inquiry from an artist who is using large slabs to imitate natural outcroppings of rock on three sites in and around the city of Vancouver," Rinas says. "They're trying to make new parks look old."

And since more and more communities now require developers to incorporate additional green space into their projects in order to address water quality and conservation concerns, the trend is likely to continue. Instead of allowing the rainwater to flow straight from a home or business' downspout and into a storm drain that leads to a creek, the developers must find a way to slow the water down, whether by steering it to flow into a retention pond or by running it over



Photo courtesy of Gates & Associates

RIGHT: At Alhambra Creek in Martinez, Calif., cobbles and river rock work to minimize erosion as rain water drains into a detention basin. Boulders with cut bottoms and tops placed along the edge of the sidewalk give joggers and dog walkers a place to sit and enjoy the natural scenery.



Photo courtesy of Gates & Associates

water-loving grasses and shrubs before it reaches the creek.

As a result, the development's landscape architects are using stone in order to make the space both functional and usable, much like what David Gates & Associates did with the Alhambra Creek project in Martinez, Calif. Cobbles and river rock placed at the base of the swale work to minimize erosion as the rain water drains into a detention basin, the sedges and fescues that grow around the rocks also help to hold the soil, and boulders with cut bottoms and tops placed

along the edge of the sidewalk give joggers and dog walkers a place to sit and enjoy the natural scenery.

But its timeless look is only part of the equation. Natural stones, especially durable ones such as granite, remain popular materials to use in landscape design because they stand the test of time. While a concrete fountain poured in the 1960s would definitely show its age today, a stepped stone fountain would still look as attractive as it did on the day it was installed, and the same is true

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Photo courtesy of Gates & Associates.



LEFT: Natural stone provides a recurring theme throughout the Cañada College campus.

BELOW: At Cañada College in Redwood City, Calif., the landscape architects at Gates & Associates designed an updated look for campus that includes this 200-foot-long, five-foot-high wall built out of stacked flagstone, the end of which features a fountain created with stepped stone boulders.

once a ranch, the architect relied heavily on natural materials in the landscape's design in order to incorporate a bit of the property's history and character into the campus.

A 200-foot-long, five-foot-high wall built out of stacked flagstone serves as the college's entrance, the end of which features a fountain made of stepped stone boulders. Although they're different colors, the natural stone provides a recurring theme throughout the campus. Not only is it used as bollards to provide natural barriers along roadways to prevent students from driving their vehicles off the road and across the landscap-

with other high-visibility features in a project.

With Cañada College in Redwood City, Calif., the landscape architects at Gates & Associates designed an updated look for campus that maintains a timeless appeal while remaining durable enough to withstand the test of time. Since the college was

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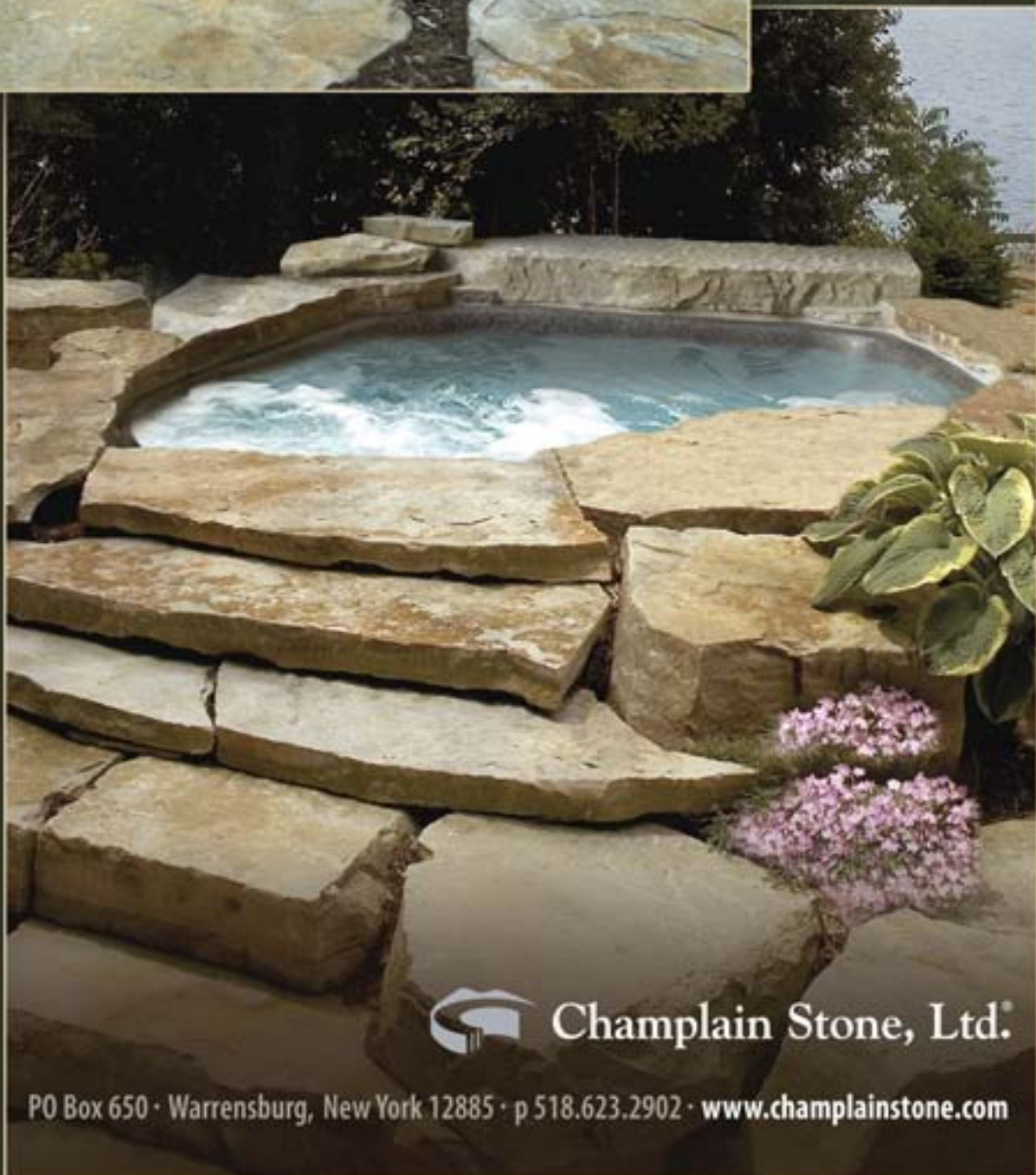
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RIGHT: Designers chose natural stone for Cañada College's landscape because of its timeless quality; it simply won't go out of style.

ing, but a large slab serves as both a retaining wall on the side of a hill and a sign for the name of the college, and a polished granite slab houses the campus directory.

"The [college] brand is all out of stone, and for all the same reasons," Gates says. "It's timeless, it's a natural material, it's vandal-proof, and it won't go out of style." ♦

A true generalist, freelance writer Jennifer Maciejewski writes about anything that piques her curiosity. She can be reached at jm@jenmacie.com.

Photo courtesy of Gates & Associates



RESOURCES

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Chad Kucker
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Creating Outdoor Living Spaces with Stone

By Mark Haverstock

AN OUTDOOR room is not just a garden or a yard. It's like taking your living room or dining room outside – with a little added weatherproofing. Given the skyrocketing prices of land and the shrinking of lot sizes, backyards and gardens are now becoming premium living spaces.

Practical considerations are also driving the outdoor room trend. Fifty percent of Americans are spending more time at home than they were five years ago, according to a national consumer survey conducted by the Propane Education and Research Council (PERC). With increasing energy prices and greater attention toward conservation, outdoor spaces become more attractive. Rooms beyond a home's exterior walls don't need to be heated or cooled, except perhaps when they're being used. They also don't require expensive and time-consuming renovations.

According to John Shippy, principal of Geoscape in Rancho



Photo courtesy of Erin Bogan, McHale Landscape Design

Santa Margarita, Calif., construction of these outdoor structures is at an all-time high in southern California. "All the new architecture that's being designed as far as custom homes and private residences – they're turning the inside out toward the landscape," he says. "There are interior courtyards, pavilions and casitas. We're building twice the number of structures we built just a few years ago."

Arlington, Va., Residence

When it comes to outdoor living spaces, McHale Landscape Design of Upper Marlboro, Md., does everything from design through building and after care. "Our firm has in-house masonry crews, construction crews, landscape crews, horticulturists and maintenance account managers that take care of maintaining our clients' properties," says

ABOVE: Antique blend stone creates a functional outdoor living space.

OPPOSITE LEFT: A reflecting pond, home to Koi, acts as both entry foyer to the garden and a link between the house and garage.

Photo courtesy of Erin Bogan, McHale Landscape Design



LEFT AND BELOW: This Arlington, Va., residence welcomes guests from the outside in.

Daniel Robey, registered landscape architect. “We make it easy for the client – a single source so they don’t have to act as a general contractor.”

One stellar example of McHale’s work is an outdoor space added to a residence in Arlington, Va. The location features a spectacular view of the Potomac River and portions of Washington, D.C., including the Gothic-style National Cathedral. The majority of the stone used

Photo courtesy of Erin Bogan, McHale Landscape Design



for the project is antique blend from western Maryland. "It's a different look when compared to the Pennsylvania fieldstone that is commonly used for veneer," Robey says. "This variety was chosen because it better matched the home's architecture and the trim." Carnation Rose flagstone, imported from India, was also incorporated into the project. "The two stones work nicely together again," he explains, "to complement the color scheme on the house."

Framed by a pergola, this outdoor space contains three areas that interact well together. A 10 x 12 foot space adjoins the outdoor fireplace, which includes a kitchen area with grill, soapstone sink and counter. The 12 x 14 foot dining area is a few steps away from the fireplace, and a 10-foot wide passage sits behind the seating area. Just outside lies a 10-foot high waterfall, cascading into a freeform gunite swim spa.

The design for this project reflects knowledge of the property, the family and their needs. "It's all in how it interacts with them and their environment," Robey says. "If the husband is at the grill, he can watch his kids swimming. If the whole family is sitting at the dining table, they can see the waterfall as it flows into the swim spa." The fireplace and the water feature lend some screening and noise buffering too – they're right above George Washington Parkway, which goes along the Potomac River. Behind the water feature, landscape crews used several truckloads of Pennsylvania fieldstone boulders

RIGHT: A stunning natural stone fireplace adds not only function to this outdoor space, but also acts as a noise buffer. The residence sits just above a busy parkway.

to level out the slope and block some undesired views.

"I love incorporating stone into projects because you have so much flexibility with it – both in the colors and textures," Robey continues. "If the house has a more formal feel, we can use a variety of stone and cut it on all four sides and make it more of an ashlar pattern. If the project has more of a rural feel or is sited on a wooded lot, we can use fieldstone to make a more natural and irregular pattern. Besides longevity, stone is very low maintenance and it links so well with



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ABOVE: Inspired by outdoor cafés in Europe, the dining court is the central space in the composition of most outdoor rooms.

the transition from the interior to the exterior environment.”

Connecticut Country House

This American Society of Landscape Architects (ASLA) Design Award winner located in Westport, Conn., involved a complete house renovation, both inside and out. It started as a 1930s colonial style home,

complete with Florida room. The client specified that the makeover follow a Shaker modern theme. “Plans for a house often take shape before the landscape is considered, but in this particular project, the inside and outside were thought about as one whole,” says lead designer and project manager Bruce G. Eckerson of Wesley Stout Associates in New Canaan, Conn.

MAKING A PLAN

More and more people think about taking their lifestyle outside, especially when spring comes. If you’re thinking about how to create the right environment to transfer your life outdoors, consider this advice from Geoscape’s John Shippy.

- 1 Let your style lead the way in defining an outdoor room. Whether your taste is rustic with an old world charm, classic with sophisticated architectural accents or linear with a modern edge, odds are that it can be integrated into your outdoor environment.
- 2 The more accessible your space is, the more you will use it. So put function first.
- 3 If the area will be a central point in your outdoor lifestyle, consider built-in heating to accommodate weather changes.
- 4 No other single element sets the mood as well as lighting. Recessed lighting, chandeliers, niche lighting and sconces – all controlled on dimmer switches – create the perfect ambient glow.
- 5 To complement your outdoor life style, include music. Place the speakers out in the yard, directing the sound toward the house. Not only will this create a fuller sound, but it will also help keep peace with your neighbors.
- 6 Install your television with easy visibility and minimal sun exposure to eliminate glare. Consider installing cabinetry to protect equipment.



LEFT: In this project, the outdoor living room is an intimate family space directly accessible from the master bedroom and exercise studio. The fireplace surround is made of reclaimed granite curbing.

Like a fine piece of Shaker furniture, the outdoor spaces are joined in a simple way that reveals a unified vision.

The topography of the site went from low to high, front to back, respectively. Rooms were carved from the hillside behind the house, with stone retaining walls placed strategically in the modified outdoor space. "The dining court relates to a lot of the public rooms of the house, the family room, the kitchen, living room – all of those open out onto that space," Eckerson

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Photo courtesy of Jack Coyler



LEFT: Cast glass pavers lead up the entry steps to the Lunada Bay residence reflection pool.

Natural stone was used to create space and to transition from one space to another, as backdrop, as floor or as design element. “For the most part, anything vertical was made out of old reclaimed stone, typical of old farmhouses in the region,” Eckerson says. “We contrasted it with newly quarried granite to give somewhat of a dichotomy between new and old, traditional and modern. The inside of the house was done in a very modern fashion – a traditional skin covering, a very contemporary interior.”

Lunada Bay Residence

The Lunada Bay residence in Palos Verdes Peninsula, Calif., is another ASLA award winner. In this project, water is the thread that connects all the elements of this outdoor living space: a shallow pond reflects the sky, water spills over stone walls, a channel cut into the courtyard directs visitors to the front door, water flows over a granite trough and disappears – all leading to a grand view of the bay. “When we’re designing the project, we’re trying to create spaces that are unique and capture the essence of the place, whether it’s on the edge of the ocean, in an oak forest or in a dense neighborhood,” says Pamela Palmer, principal-in-charge and lead designer for Artecho in Venice, Calif. “We try to make the most of the space capturing distant views of ocean and sky.”

explains. “We were able to take advantage of the grade change to create space that extended the house into the landscape.” Cantilevered stairs of Green County Granite at the corner of the court ascend to the swimming pool set at the highest level of the garden – a simple rectangle framed by apple trees on one side and stainless steel railing on the right. An outdoor shower anchored to a piece of reclaimed granite curbstone and a topiary garden are located to the left of this terrace.

Adjacent to the pool is the play lawn and outdoor living room. This outdoor living room is directly accessible to the master bedroom suite and exercise room. A large outdoor fireplace with a surround of reclaimed granite curbing anchors this exterior space and provides a focal point for gatherings on cool evenings. On warm days, furniture in this area can be reoriented toward the pool to enjoy the sun.

The first thing Palmer keeps in mind is the orientation of the areas – that they’re appropriate for the time of day and year. “We try to create places on any property that will have spaces that

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you can use any time. We're in southern California, so we are lucky in that respect," she says. "We do a lot of work on the coast and you have to provide some protection from the breezes. What we try to do is to create outdoor spaces that are visually dramatic, inviting, as well as comfortable."

The four outdoor living areas include a courtyard with fireplace, an ocean terrace, dining space and kitchen. Stone materials are integrated into all, beginning with the entry courtyard paved with Nova Gold limestone. Kentia palms are planted in 8 x 8 foot planters carved into the bedrock. The large

OUTDOOR LIVING TRENDS

Outdoor living areas are here to stay, but designers tend to have their own take on future trends. "The most positive trends are those that tend to be environmentally friendly – have the project fit in," says Pamela Palmer with Artechco in Venice, Calif. "We're always trying to be site-specific with our projects. One example is planting appropriately to a site, using plants indigenous to the area as well as drought tolerant plants."

For Bruce G. Eckerson, lead designer and project manager of Wesley Stout Associates in New Canaan, Conn., the outdoor kitchen is and will continue to be king. "The wife may have design control of the interior, but the husband often stakes his claim outside," he says. "The barbecue is typically the man's domain; he gets to have his dream barbecue outside, and it's a place for him and his friends to hang out. It's an element that's often close to the kitchen so it's easy to access in the colder months."

Geoscape's John Shippy in Rancho Santa Margarita, Calif., sees the line between inside and outside continuing to blur. "We're blowing out whole wall sections – 15 to 20 feet – and building massive bifold and pocket doors to fully connect to the outside," he says. "You can have a great room, and we'll take the whole back side of it and remove the whole wall. That will then connect onto the patio space. Whether it's the fireplace or the pool, it looks like its coming right up into the living area."

You can take it with you. "Everything that people have inside they will want to have outside," says Daniel Robey of Maryland's McHale Landscape Design, "including examples such as gourmet cooking appliances, weatherproof TVs, outdoor furnishings or weather rated lamps. Our goal is to create a seamless transition from the interior to the exterior with all the nice finishes they have on the inside extending to the outside."

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Photo courtesy of Jack Coyler

ABOVE: On this ocean terrace, the east-west light line connects a raised spa to a sunken seating area with a fire table. On a moonlit night, the light line mimics the surf.

fireplace at the end of the courtyard utilizes some of the Palos Verdes stone excavated from this site, as well as Nova Blue limestone for the hearth and trim. Palos Verdes stone is also used as stepping stones throughout the property, as facing on some walls and in the side garden.

The kitchen has a built-in barbecue alongside a sink and countertop of Nova Blue limestone. Adjacent to the kitchen is a dining area that includes a carved granite fountain. At the back of the house is an ocean terrace paved in Nova Gold limestone, positioned on a bluff above the bay. The terrace

includes a spa and a recessed fire pit surrounded by Nova Blue limestone.

The fire pit was a product of adapting the client's wishes to the existing environment. "What we ended up doing is a sunken linear fire pit," says Palmer. "It was sunken below grade so it didn't

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CONSTRUCTION DETAILS

It's All About The People!

When a moisture related problem arises on a construction project, it is usually a "people problem." Even when material failure is involved, the problem is still a "people problem." People make the materials, and people choose the materials for construction projects.

The two groups of people that we are talking about are the specifiers and the manufacturers. The specifier is responsible for choosing the appropriate material for a construction detail. The manufacturer is responsible for manufacturing a high quality product and "representing" this product accurately and honestly.



Herein lies the problem. One or both of these parties may fail each other (and the construction industry in general). The specifier may misinterpret good information provided by the manufacturer, or the manufacturer, knowingly or unknowingly, may misrepresent his product. The result is a detail failure. In the case of moisture management, you will have a leak and all the negatives that may be associated with it, up to and including structural failure.

Specifying the wrong material happens; people make mistakes. Because specifiers are people, they can make an honest mistake. In many cases, when this happens, the construction process catches the mistake:

- In plan reviews.
- In the bidding process – other professionals see the mistake and report it to the specifier.
- In the construction phase – again other professionals see the mistake and report it to the specifier.

The result is the specifier is a little embarrassed but grateful. A revision is sent out and no harm is done.

When the system fails, an incorrectly specified material is included in the final construction detail; it under-performs or outright fails and moisture problems result. The other scenario, and unfortunately the more common, is the specifier was provided information or was relying on the manufacturer to provide good information on a material, and it did not happen. The phrase in an architectural spec "install as to manufacturer's specifications" is a perfectly good and reasonable statement "if" the manufacturer's specifications are accurate and inclusive.

A very important part of this process is whether or not unusual details that exist on a particular project are addressed by the manufacturer's existing detail drawings. If not, the specifier's directive to "install as to manufacturer's specifications" is without value. Unusual construction details that are not thoroughly addressed by the specifier or the manufacturer's existing detail drawings become problem details. Unfortunately, these are the details that are not commonly addressed by the specifier, manufacturer or the installer of the specified material. Who should be responsible for these details?

Success or failure of a construction system is in the detail drawings. But for most manufacturers, success is in the square footage or volume they sell. All manufacturers want to sell volume, and dollar volume is not in the detail or detail drawings.

The very thing that specifiers look to manufacturers to provide is exactly what they have the least financial incentive to provide: "detail drawings." Anticipating, producing, distributing and monitoring accuracy of detail drawings is not easy or free. In a manufacturing company, this can only be done effectively by someone who is thoroughly familiar with a wide range of construction products and practices required to complete a successful detail. This type of person needs to be in upper management and in a position to readily commit the company's resources to this effort.

But Masonry Technology (MTI) decided to break with tradition, spend the money and meet the customers' needs for accurate detail drawings and educational material. MTI already had a management leader in place with years of construction experience. MTI's founder and owner began his career as a concrete laborer in 1969, working his way up to supervisory positions. He also spent several years in construction forensics in the roofing and waterproofing industry.

In 2006, MTI expanded its plant, adding a cutting-edge audiovisual communications suite as a major component. MTI sought and hired a nationally recognized leader in educational technology to direct this technology unit.

MTI can now create details in-house under the supervision of an expert in the entrapped moisture field. But graphic details, based on customer needs, are just the beginning! MTI can create a vast array of educational material in a wide variety of formats, both electronic and print, and they can customize it to each customer's individual needs and projects. It can be created quickly and delivered electronically. Not only do you get accurate information that your project needs and deserves, you get it when and where you need it – even if that means delivering detail drawings or installation videos to your job site via your smartphone. MTI, the right people, the right place!



Photo courtesy of Pamela Palmer, Arrecho



LEFT: Shadows of Kentia palms are projected onto the pavement of the courtyard in this outdoor living space. A north-south channel of water guides visitors to the front door and from the house back to the outdoor fireplace.

take up a lot of space and it had a linear fire instead of the round pit and seating area originally proposed by the client. But it worked perfectly; because it was sunken it had protection from the wind and you could see the view as well. They get what they wanted – but they initially didn't know they wanted what they got.”

Medina Residence

John Shippy, principal of Geoscape, loves the versatility and permanence of stone. “Most stone is far more resilient to the sun and other conditions outdoors as



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RIGHT: A tranquil pool incorporates Amberwood veneer and sits adjacent to the outdoor fireplace.



Photo courtesy of Geoscape and White Space

compared to man-made products," he says. "They stand the test of time; they have a timeless beauty that's only hindered by a designer's limited imagination and the installer's ability to capture its true potential. You could take a stone that's totally overused, to a point where you think it is dated, but a talented designer can put a new spin on it and make that stone beautiful again."

The outdoor living area Shippy designed for this project is a pavilion off the family room and dining room. The house is a rustic Italian design. "If you look to the left, it is open to the pool and the bar area," he explains. "The water you see to the left of the fireplace is a spa independent of the pool."

Much of the stone used in this project is Amberwood, a variety of stone from Oklahoma. The fireplace – surrounded by four olive trees – is full of the ledgerstone and plaster. The floor is a mix of materials. On the upper level, it's Amberwood. As it steps down, the floor is walnut travertine with a chamfered edge.

A full entertainment bar, 16 x 18 feet, features ledger, rectangles and squares of Amberwood, which were tumbled to give a more rustic appearance. To the right is a pool that offers the feeling of being indoors while open to the outdoor environment. Behind the pool sits a restroom with built-in lockers and shower.

Shippy says a project always starts with the client and family. He first establishes the basics: lifestyle? tastes? ages? Next he goes into the details: are there any spe-

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Photo courtesy of Geospace and White Space



ABOVE RIGHT: A fireplace featuring Amberwood stone adds warmth to this outdoor living area.

BELOW: A 280-square-foot outdoor entertainment bar opens to the pool.

cial pieces they want to incorporate into the design, such as family heirlooms? “Then I go into how the elements affect the area. The sunlight, the wind, how does it throw shadows, how is it lit up at night – now we’re getting into the artistic elements,” he explains. “When I think of the artistic part,

I think beyond the function and space plan. What’s the emotional connection? The truth is there are so many ways to make an outdoor living space beautiful.” ♦

Mark Haverstock is a freelance writer in Boardman, Ohio. He has published more than 500 magazine articles on a variety of topics.



Photo courtesy of Geospace and White Space

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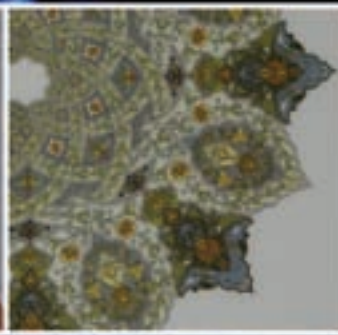
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FEELING MINNESOTA

Minnesota Twins Ballpark

By Richard Bennett and Lorayne Bryan



Photo courtesy of HOK Sport

BASEBALL IS AT THE HEART AND SOUL of the American experience. The teams and players of our youth become etched into our collective consciousness. The stadiums serve as cathedrals for our personal passions and shrines for our communal sense of nostalgia. Ballparks become synonymous with cities and eras, taking on the personalities of the people and the characteristics of the times. Serving as historical and architectural timelines, they connect the romance of the past to the aura of the present and the promise of the future.

Glorious relics such as Wrigley Field and Fenway Park, laden with the ghosts and traditions of baseball-past, link modern generations to legendary venues like New York's Polo Grounds, Pittsburgh's Forbes Field, Chicago's Comiskey Park and Brooklyn's Ebbets Field – ancient sports grounds lost now to memory and photographic archives whose exposed steel beam designs and obstructed sightlines reflected the industrial might and pride of early 20th-century America. As the nation changed so did baseball. Franchises followed the shifting demographic and economic bases from the cities to the suburbs, expanding from the East into the West and later the South. The new ballparks reflected the reallocation of social and cultural influences. Cookie-cutter (named for their oval shape and uniformed similarities) and domed multipurpose designs, favored from the

1960s through the 1980s, allowed a broader array of configuration applications, providing features and benefits crucial to communities hosting not only professional baseball, but football, soccer, motocross, concerts and other events.

Gradually fan sentiment for a return to the intimacy and charm of the old parks, lost in the pragmatic pursuit of function over aesthetic, resulted in a construction trend toward “retro” designs. First popularized in the 1990s by Baltimore's Camden Yards, new stadiums with an old look and feel have become the blueprint for the optimal convergence of “throw-back” structural characteristics and modern amenities.

In Minneapolis, the Major League Baseball Minnesota Twins franchise revealed plans recently for ground to be broken on a new ballpark design with a look and feel uniquely Minnesota. The aptly named “Minnesota Twins Ballpark,” designed by HOK Sport, the internationally acclaimed architectural firm specializing in public assembly spaces, boldly incorporates popular “retro” design features with native building materials and “green” designation attributes to lead the way in the continuing evolution of American sports venue construction.

“This is a ballpark for the ages. We tried to look forward ... It's about being state-of-the-art, it's about being fan-friendly. It's a ballpark that will be remembered, I think, in a way that will separate it from everything else,” states Earl Santee, principal in charge of the Twins Ballpark project and senior principal at HOK Sport.

A HOMETOWN AFFAIR

The Minnesota Twins' new stadium will be the third home for the Twins since the team's inception. Named for the twin cities of Minneapolis and St. Paul, the original joint recipients of the franchise awarded in 1960 (the franchise designation was later changed to Minnesota), the Twins called Metropolitan Stadium (the Met) home from 1961–1981 before moving to the Metrodome in 1982. At both sites the Twins shared the facilities with their cross-town National Football League (NFL) cousins the Minnesota Vikings.

The new ballpark constitutes the first exclusive home of the Twins organization, and, in keeping with that theme, the project is almost singularly a hometown family affair.

With the notable exception of the HOK design, the endeavor boasts a strong Minnesota lineup. The Pohlrad family, owners of the team, has deep business and family roots in Minneapolis. The M. A. Mortenson Company, in charge of the construction of the new park, is a Minneapolis-based, multi-generational family operation as well. The Vetter Stone Company of nearby Mankato, Minn., suppliers of the indigenous limestone central to the exterior façade of the design, is another family owned-and-operated business. This triad of family businesses in conjunction with The Ballpark Authority, a public agency charged by the state with ownership and management of the stadium, ensures that the entire operation from inception to fruition bears the footprint of the Minnesota regional community.

“It is an honor to be the builder of the new Minnesota Twins ballpark that will provide a superb, outdoor baseball experi-

OPPOSITE: The eloquent blending of steel, glass and limestone in the new Minnesota Twins Ballpark's exterior façade will create a dramatic equilibrium of human design and natural elements.

ence for generations of Twins fans everywhere,” says Ken Sorensen, vice president of the Minnesota office of Mortenson Construction. “Mortenson has built signature sports facilities across the country. Yet the opportunity to build another world-class professional sports venue in our hometown is a special privilege, and it comes with our unwavering commitment to making this project a success for all partners.”

The Minnesota Twins Ballpark is an overt departure from the Twins previous home, the Metrodome, in several conspicuous aspects. The Metrodome complex encompasses 20 acres and is anchored by a 60,000-seat (48,000-seat baseball configuration) enclosed multipurpose dome shared with the N.F.L. Vikings, the University of Min-


nesota Golden Gophers sports teams and a diversity of entertainment events. The Twins new home utilizes a snug eight acres to house a 40,000-seat, outdoor, single-function stadium designed solely for baseball. Located in the entertainment district of northwest downtown Minneapolis next door to the Target Center, home to arts, theater, and the National Basketball Association (NBA) Timberwolves, the HOK-conceived design is an invitation to the eye and a celebration of light, airy spaciousness.

The stadium has a classic crescent-shaped grandstand with overhanging canopy extending from home plate to both the left-field and right-field foul poles. Though double decked and featuring 3,000 club seats (compared to 243 at the Metrodome), the




majority of the 40,000 seats are located in the lower grandstand section. Larger-than-normal concourses were designed to accommodate crowd flow for this fan-friendly characteristic with the lower main walkway at 40 feet wide and the upper passages ranging from 26 to 44 feet wide. The essential benefit of the expansive lower level seating is the superb sightlines afforded by the closer distance of the seats from and above the playing field. As in Chicago’s hallowed Wrigley Field, the foul territory at the Twins Ballpark begins tight around home plate and grows even tighter as the grandstand narrows closer to the field along the outfield foul lines, guaranteeing an increase in souvenir foul balls hit into the stands.

Another retro trait with fan appeal is the lower level of the seats in relation to the playing surface. In most of the cookie-cutter and domed stadiums, the lower seating sections were generally several feet above the ground; the Metrodome’s first row of seating was 12 feet above ground level. The lowest grandstand seats in the new park are 6 inches above the field. These lower and closer seats create an interactive effect for the fans distinct from previous viewing experiences. In many cases fans will find themselves at eye level with the players and umpires. The quantity of quality seating in close proximity to the action ensures fans the maximum ball-game sensory experience of tastes, smells, sights and sounds.

Left field features two seating levels stretching from the foul pole to centerfield. A massive scoreboard with video screen and a single outfield light tower dominate the centerfield area. This solitary lighting source, though unnecessary, was added



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to complement the lighting embedded into the grandstand canopy eaves. A line of home-grown Minnesota pine trees are tucked beneath the scoreboard to provide the centerfield backdrop. Right field offers a single lower section of bleacher seating. The openness above this area affords a breathtaking view of the Minneapolis skyline from most seating vantage points. "Minneapolis' downtown skyline will provide dazzling views beyond the outfield, creating a wonderful connection to the city," Santee raves. The cityscape combined with the uniformity of the grandstand's gradually sloping decks and the nearly proportional measurements of the foul lines (339 feet left field / 328 feet right field) creates a stimulating visual symmetry of earth, sky and horizon.

The eloquent blending of steel, glass and limestone in the park's exterior façade creates a similarly dramatic equilibrium of human design and natural elements. "The new ballpark will reflect Minnesota's dynamic blend of urban sophistication and outdoor vitality," says Santee, explaining the project's ultimate goal. HOK devised the outer walls of the stadium to incorporate the familiar regional stone's random array of striking contours, textures and colors. The illuminating effect is orchestrated by design to imitate the exposed limestone deposits common to the Minnesota banks of the Mississippi River. In addition, a special dimension will recall a hometown tradition dating back to the earliest days of baseball's youth. Gaps and hedges will be carved into the exterior limestone facing to create old-fashioned knotholes for viewing the game from outside the walls.

The Mankato Kasota limestone chosen for the project by Mortenson Construction is quarried in the town of Mankato just south of Minneapolis. This area of southern Minnesota boasts large accumulations of Ordovician-era sedimentary rock and is known as the Oneota Dolostone Formation. The limestone from this formation has a finely grained texture, is yellow-gold-tan in color and consists of high concentrations of dolomite. Dolomite is a sedimentary carbonate rock and mineral that because of its strength, durability and resistance to weathering is a popular building stone. Tracings of iron cause its yellowish-brown, earth-tone coloring. Limestone of this makeup dating from the Ordovician period (450-500

m.y.) is additionally strengthened due to the lack of fossilized content in its stratum.

Vetter Stone Company of Mankato will supply 100,000 square feet, or more than 100 truckloads, of this highly regarded stone cut into four-inch-thick fitted panels for use in the construction of the Twins new ballpark. By comparison, Vetter supplied 27,000 square feet, or 27 truckloads, of limestone for the construction of the Pittsburgh Pirates PNC Park and seven truckloads for the facing of the Bank One Ballpark in Phoenix. Vetter quarries from this region have produced quality limestone for building projects worldwide, with clients as diverse as the U.S. embassy in Moscow and the Smithsonian National Museum of the American Indian in Wash-

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ington, D.C., but it was the powerful utilization of their limestone with coloring effects in the HOK-designed PNC Park in Pittsburgh that set the precedent for the impressive display of the Twins project.

A visual masterpiece was created by producing a vivid contrast between the golden shaded limestone of the PNC Park exterior and the deep blue shading of the exposed steel beams and arena seats. Like PNC Park, The Minnesota Twins Ballpark project endeavors to blend into the surrounding community and complement the neighboring architecture. As in Pittsburgh, the cumulative effect of such diversified components as a downtown location, an outdoor venue, a retro/modern structural design, creative use of lime-

stone's natural coloring and texture, and city skyline views creates a sensory dichotomy of intimacy and expanse. Achieving this balance of small-market features and large-market benefits is critically important to the success of smaller-market sports organizations and communities, and is a goal of the HOK-designed, Minnesota-led Twins Ballpark project.

Another goal of the Twins project important to both the Minneapolis and world communities is obtaining a Leadership in Energy and Environmental Design (LEED) certification from the U.S. Green Building Council. The LEED certification verifies a commitment to the concept, process and practice of green building. Green building is a construction method involving the efficient utilization of natural resources, building materials and energy. The idea is to increase the efficiency of resource consumption of buildings while decreasing their negative effects on both the human condition and the environment. A primary aim of green building is to achieve standards compliance with aesthetic sensibilities. Standards and guidelines regulating construction or renovation siting, design, operations and maintenance are created by the U. S. Green Building Council's Green Building Rating System. The emphasis is on the entire lifecycle of a structure, with environmentally friendly sustainability the end goal.

The Twins ballpark design alone puts the project within range of the points required for LEED certification. Its reliance on regional limestone and other building inventory meets the dual standards for the use of green building materials extracted or manufactured locally to minimize the energy invested in

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their transportation. Its downtown site selection assures the standard of rehabilitating an existing site. Locating in the entertainment district accomplishes the standard of accessing and maximizing existing public transit and parking. Three walking bridges will funnel fans to the entrance of the park. "This project creates a new standard in urban integration," explains Santee. "The ballpark connects with fans whether they arrive by foot, bike, bus, car, light rail or commuter rail."

In a gesture that revalidates the project's commitment to LEED certification, an additional \$2.5 million was recently diverted to ensure total compliance of standards. The additional funding is earmarked for improvements in environmentally compliant and sustainable facilitation of heating, ventilation, energy and water systems. Though it does not count towards LEED certification, one benefit of the project's commitment to green innovation is passed directly to the fans. The Minnesota Twins Ballpark will boast a major league record 667 restrooms with women holding a 401-266 advantage. ♦

Richard Bennett and Lorayne Bryan are Atlanta-based freelance writers.

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Spectacular Sandstone

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By Linda M. Erbele



Photo courtesy of Loukonen Bros. Stone

STONE CROSSING
When Woodmont Developers began planning its Stone Crossing residential development in Colorado Springs, Colo., they knew it needed to be very special to separate it from the competition. The plan called for 244 single family homes on 117 acres with approximately 22 percent open space. They went to Bill Wenk, president of Wenk Associates Landscape Architects.

“That area is called the Black Forest,” explains Wenk. Located in the foothills of the front range of the Rockies, there are pine forests, open meadows and mountain views. “We wanted to keep that rustic quality of stone outcroppings,” Wenk adds. Siloam Stone in Canon City, Colo., had exactly the look called for in the project. “Their stratified stone allows us to create ledges and terraces that define the project entry and create park space, similar to the stone formations that are common in the area.”

The landscaping sites were not going to be small, so Wenk created small models out of foam-core board, numbered each piece, then scanned photos of each into a digital file to create a three dimensional plan. Even with a plan, though, the look of



each area depends on the individual stones that are used. “You have to improvise to incorporate the idiosyncrasies of each stone,” says Wenk. “You really want to celebrate the unique character of every piece.” The result at Stone Crossing is truly distinguished

while blending in with the natural terrain. Wenk has high praise for the contractors who made reality out of the plans.

The design called for waterfalls, lakes and bridges, and a gazebo in the recreation area patio. “It’s a beautiful setting and

ABOVE: Sandstone creates a rustic quality at this community entrance.

OPPOSITE LEFT: University of Colorado’s School of Law in Boulder includes 1,700 tons of stone.

Photo courtesy of Wenk Associates Landscape Architects



Photo courtesy of Wenk Associates Landscape Architects

they've done a terrific job building the amenities," explains Bobby Ingels, construction manager for the project. The entire community is linked by trails and parks. Such a large project wasn't without its challenges, of

course. "It took many semi-loads of rock," says Ingels, describing stones that were so large that often a truck could only bring in two or three at a time. "It took a lot of manpower and heavy equipment. There was a lot of

planning and connectivity to it." That same planning has been extended to covenants in the development that specify Siloam Stone for any retaining walls or landscaping done by homeowners, in order to maintain the harmony of beauty throughout the community.

Colorado Plaza

Creating a pattern that has a consistent but varied look was also one of the challenges for the masonry installers at Colorado Plaza in Santa Monica, Calif. As part of a multi-million dollar renovation program, Tishman Speyer Properties wanted to create a park-like atmosphere at the public areas, which connected shops, service areas and restaurants in this business/commercial development. Calling it an "urban

ABOVE: Sandstone creates a distinguished look while blending in with natural terrain.

RIGHT: Stratified stone allowed designers of Stone Crossing to create park space, similar to the stone formations that are common in the area.

OPPOSITE RIGHT: To complete the Stone Crossing project, sandstone was delivered in many semi-truckloads. Often a truck could only bring in two or three stones at a time, says construction manager Bobby Ingels.



Photo courtesy of Wenk Associates Landscape Architects

oasis,” they decided on the natural beauty of sandstone to create warmth and tie the area together. Hobart Stone Dealers in Binghamton, N.Y., was chosen for its distinctive bluestone – a type of sandstone – in four colors: brown, blue-gray, green and rust.

“The pavers were all natural cleft two foot by two foot by one inch,” says Jim Hobart, president/CEO of Hobart Stone Dealers. “The selected color and pattern repeats itself throughout the 100,000 square feet supplied.” Each paver was given a number that corresponded to its color and was loaded onto a pallet with same-numbered pavers, so that the installers could simply repeat



Photo courtesy of Wenk Associates Landscape Architects

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LEFT: Colorado Plaza in Santa Monica, Calif., features distinctive bluestone – a type of sandstone – in four colors: brown, blue-gray, green and rust.

the sequence of numbers. “Selecting the natural cleft from the contractor’s color range and assembling the repeating pattern of colors was a real challenge because of quantity, time frame and color selection,” Hobart explains. “We sorted through 400,000 square feet of two by twos to yield the 100,000 required.”

In addition, the project required several hundred feet of six-inch thick monolithic flamed bluestone steps. These blocks had to be carefully selected for color to ensure the same range of colors that would complement the natural cleft pavers. In addition, there was another several hundred feet of lawn and garden edging, also monolithic flamed blue stone with hand-chiseled edges. Then there were hundreds of feet of two-inch thick flamed bluestone stair treads with hand rockered-edges. Half-inch thick bluestone treads were used as risers. “The machine-split, half-inch ledge cut risers complemented the several hundred tons of wall stone throughout the project,” Hobart says. “This job required us to produce and ship over 75 rail containers of bluestone components in just under four months.” This averaged an extra rail container per day, on top of the company’s normal rate of six to eight rail cars a day.

“This did challenge our shipping department,” admits Hobart, who says the group’s commitment and team effort

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RIGHT: Local sandstone was used to create a gently cascading waterfall some 40 feet across, widening to 100 feet as it meets the river in North Shore Riverfront Park, Pittsburgh.

Photo courtesy of EDAW



resulted in the shipment being completed ahead of schedule. Hobart can't say enough good things about his employees. Shortly after the completion of this job, a devastating fire wiped out the company's 15,000-square-foot shop. "Two and a half months later, when we were 75 percent complete with a new shop and equipment," he says, "a historic flood left us with six to eight feet of nasty flood water inside." The company did not have flood insurance because there had never been water in the area before. "We lost over \$2.5 million uninsured," he notes. "Throughout this time, 95 percent of all job schedules remained on time. Our committed and dedicated employees yielded us the ability to remain in business. We have a bond with our employees now, better than ever. We all watched our business be destroyed and built it back together."

The Water Steps

In the 1990s, Pittsburgh was another city seeking a park atmosphere. The city had both a new baseball field and football stadium under construction, and city leaders determined that a park should fill the almost 3,000 feet of riverfront between the two. Dennis Carmichael, principal at EDAW of Alexandria, Va. was in charge of design. He created a gently cascading waterfall some 40 feet across at the top widening to 100 feet as

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ABOVE: A random ashlar pattern in varying hues of Colorado Buff, Lyons Red and Lykins sandstone gives the Cherry Hills Community Church in Highland Ranch, Colo., a distinct design.

it meets the river in what became North Shore Riverfront Park. And he chose sandstone as the medium. "It's an abstraction of the natural waterfalls that occur along streams as they enter the Allegheny River," Carmichael says. The sandstone, supplied by Raducz Stone Corporation, was quarried just 30 miles from the site.

The waterfall cascades gently over a series of four to five ledges, dropping a total of about 16 feet as it crosses the 150 feet from the beginning to the river's edge. "It involved 482 different sizes of stone, and 6,000 cubic feet of material for the project," says Frank Raducz, owner of Raducz Stone.

The project was difficult to design on paper, explains Carmichael, so they built both a computer model and a clay model, then presented photographs of the clay model to the general contractor, Joseph B. Fay of Fussellton, Pa. "We tried to make it as affordable as possible," Carmichael says. Specifications about the various sandstone shapes needed were sent to the quarry, so they could be pre-cut into a series of regular shapes, to minimize field cutting. On site, he says, it was similar to a child's play set, only on a giant scale. All the blocks just needed to be assembled into shape.

The park and fountain, known locally as "the water steps," is one of Pittsburgh's truly stunning and most visited sites. Lights were installed at the base of steps, "emphasizing the cascades and not the flat pools," says Carmichael. "It can be seen from downtown Pittsburgh, and it's quite spectacular at night."

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Cherry Hills Community Church

Careful work by the employees is important to Loukonen Brothers Stone in Longmont, Colo. "Everything we produce is taken out by hand," explains President Mike Loukonen. "You lose 40 to 50 percent of your product when you use big equipment." John Loukonen first purchased the quarry in 1895, and four generations of Loukonens have worked here, with the fifth generation beginning now.

The quality of the product is outstanding according to Todd Berich, president of Berich Masonry in Englewood, Colo. Berich worked with Loukonen

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RIGHT: This residential water feature includes a sandstone wall.



Photo courtesy of Loukonen Bros. Stone

Brothers Stone on a recent project whose resulting success was directly attributable to teamwork. The Cherry Hills Community Church in Highland Ranch, Colo., was built in 2005 utilizing a random ashlar pattern on both the outside and inside of this unusually designed chapel. Loukonen sandstones were used in the varying hues of Colorado Buff, Lyons Red and Lykins.

The front of the church consists of a wall that is split entirely by a line of windows, with a cross built into the design. The center section, completely outlined by the windows, is essentially a free-standing wall inside the larger wall. It is a poured-in-place sheer wall with the sandstone veneered on top. Rather than the normal four-foot by four-foot sample panel, this project utilized a 10 by 10-foot pattern panel for the masons to create on the walls. A masonry technology flashing system was utilized to prevent any moisture between the rock and the wall. "This was a really beautiful application," says Loukonen. "The old-world design of this church is really unique."

Another unique aspect, according to Berich is that the architect called the general contractor in on the design process. "They wanted to know everything, from flashing details to helping with the

stone. We went with them to the quarry and showed them what was available." Berich says one reward of early involvement by all parties is that manpower is allocated and scheduled as needed.

"The whole process was collaborative between the architect, the general contractor, the owner and the masonry con-

tractor. That's what brought it in on time and within budget. They took a bit of a risk, inviting the subs in to collaborate," he says. "They actually carried it through to the end and it worked for them. It was a real honor to be a part of it, one of the highlights of our year." ♦

Linda Erbele is an Atlanta-based freelance writer.

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NEW USES FOR AN OLD STONE

Rally 'Round the Flag

By Gail Snyder



Photo courtesy of Silverado Building Materials

IN 1991, THE AMERICAN INSTITUTE of Architects recognized Frank Lloyd Wright, controversial architect of the early 20th century, as “the greatest American architect of our time.” Wright espoused “organic architecture,” meaning design and structure that promoted harmony between man and nature by using the natural materials of the immediate, surrounding environment. One can understand why flagstone, a plentiful and widely available material, emerged in many of his most acclaimed works: the flagstone floors in the cantilevered Fallingwater, the flagstone patio in sand and grass at Kentuck Knob and the terraces of his Taliesin Estate.

Quarried throughout the United States and the world (such as along the west coast of Ireland), the abundance of flagstone and its widespread locations for quarrying make it the perfect fit for followers of Wright’s organic architectural theories, but most of its growing popularity stems from its attainability and flexibility. In fact, as the trend for the use of natural materials in the construction of our living spaces grows, flagstone is expanding its horizons. No longer limited to the role of patio paver, walkway step or landscaping stone, this flat rock is now appearing in both interior and



Photo courtesy of Earthworks Inc.

exterior scenarios. In pool decks, barbecue grills, floors, kitchen interiors, countertops, driveways, fences, roofing, potting benches, even furniture, flagstone is making a new name for itself, but what is it really?

A Rock by Any Other Name

“A flagstone is any natural bed material that is quarried in layers, usually anywhere from 3/4” thin up to 2/12” to 3” thick. The difference between sandstone and limestone is really not a big one and a tremendous amount of both is available,” explains Russ Stout, sales manager for Earthworks Inc., in Perryville, Mo. “For example, in the northern areas of the United

States, such as the Wisconsin region, you’ll find an abundance of limestone flag. In the Oklahoma region, there is a tremendous amount of sandstone flag. There is also some volcanic flag in Mexico, and granite flagging material as well.”

Flagstone is *not* slate, though the layperson commonly confuses it with same. While like flagstone, slate is a sedimentary rock; it is a foliated, metamorphic rock commonly composed of clay and volcanic ash. Flagstone, on the other hand, is an essentially quartz sedimentary stone that is quarried and split into layers for multiple uses. Terminology is largely determined by locale, according to Liz Serven, manager of Silverado

ABOVE: This patio was created with flagstone pavers, a traditional and popular use for the natural stone.

OPPOSITE: Flagstone makes a bold statement in this residential landscape design.

Masonry Design Center in Sacramento, Calif., and a member of the Building Stone Institute's board of directors. For example, the word *fieldstone* is used (typically along America's eastern coast) to denote a boulder-like building stone. However, in the West, fieldstone is a mossy flagstone, sometimes called moss rock, Cold Water Canyon Flag or Nevada Moss Flag. The terms "flagstone" and "sandstone" are also often used interchangeably because of flagstone's predominant composition of sandstone mixed with feldspar and quartz, fused with calcium, silica and iron oxide.

These binding materials and the location of the quarry determine the variable structural stamina and shades of flagstone. The lands of Arizona, for exam-

ple, hold an abundance of flagstone, usually in reds and buffs that cut well, yet are known for durability. The New Mexico buffs tinged with shades of tan and brown are beautiful but more difficult to find in stone yards, and the Pennsylvania Blue Flagstone reflects the color of its concen-

trated granite and feldspar content. Colorado flagstones primarily vary from buffs to reds, with some stones tinged with a golden hue. Because of the many possible combinations of binding ingredients these stones may also be pink, peach, chocolate, green, gold, beige and white.

RIGHT AND BELOW RIGHT: Designer and sculptor Dwayne Scott Cranford creates flagstone furniture, revealing how durable and functional this natural stone can be.



Photo courtesy of Dwayne Scott Cranford



Photo courtesy of Dwayne Scott Cranford

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Some of the quarried pieces contain the fossilized tracks of ancient insects and that the interior rooms of European castles of the Middle Ages contain flagstone flooring and clad walls (walls embedded with flagstone mosaics). In fact, as the movement toward using natural materials continues, flagstone can be an economical option. "The budget conscious can do a mosaic look on their walls and get greater coverage and a better bang for their dollar with flagstone versus using a thick ledge stone or a building stone," Ser-ven explains. While the mineral makeup of flagstone allows for a varied palette, the mineral content also dictates other properties that must be considered in order to choose the correct flagstone for a project.

TAKE A SEAT DESIGNER CREATES FLAGSTONE FURNITURE

Several years ago, Dwayne Scott Cranford, designer and sculptor, was staying busy with gallery shows around the country featuring his steel sculpture, when a relaxing moment inspired a new product. "I was sitting in my patio furniture one day and noticed how cheaply made it was, and I thought about how I had to store it for most of the year," he says. "I wanted to come up with a functional but artistic type of patio furniture, and I always had an infatuation with somehow incorporating stone with steel. So I started working with the idea and made it what it is today."

Today, the end product is durable and unique furniture of stone and steel or stone and powder-coated aluminum (available in numerous colors), which is most popular in coastal areas because it weathers the elements better than powder-coated steel. Using special tools, Cranford drills into the rock and permanently attaches it to the metal using a stainless steel insert bonded within the stone. The artist uses granite, jade and marble, but he particularly enjoys using flagstone. "Flagstone is flat already, so I don't have to cut it, although I do cut it to shape. It also had to have a certain strength, so I mainly use buff, blonde and red flagstone from Colorado and a gray flagstone sourced from Idaho," he says.

The often asked question is, but is it comfortable? "It's surprisingly comfortable," says Cranford. "If it wasn't, I wouldn't be selling it, and if I wasn't selling it, I wouldn't be making it." In fact, Cranford receives orders from around the country and has seen his handcrafted furniture (including tables, chairs, swivel chairs, patio sets, benches, coffee tables, loungers and ottomans) used on houseboats, in tree houses, in breakfast nooks, sunrooms and foyers. A chiropractor has even approved the furniture for its ergonomic comfort.

The furniture, though made with ancient stone, has a modern flair, and luckily, can survive almost any storm. A chair with arms, for example, weighs about 180 pounds. "People ask how they can move it around, but that's the whole point of it. For 12 months out of the year, you can leave it outside, no matter where you live. The most maintenance you have is to maybe hose it off. The stone is already about 2.4 billion years old, so what does it matter?" Cranford says.

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RIGHT: Pennsylvania Bluestone creates a natural-looking walkway when cut into flagstone.

OPPOSITE RIGHT: Flagstone adds color and depth to a covered patio feature.



Photo courtesy of Earthworks Inc.

How to Choose

The form and function of a project should be the primary consideration when selecting the right flagstone. For example, a flagstone that works well in one climate may be totally unsuitable for another. "One thing you want to take into consideration is its pre-saw cycles," Stout says. "You don't want to use a soft limestone content or soft sandstone content flag material in a very active pre-saw environment where separation of the bedding seams may occur. And, you wouldn't want to take a highly absorbent material and do an install in Chicago where hard freezes would cause separation or deterioration of the stone. You have to be more selective in your different market areas and consider what the climate conditions are. For example, we've

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recently completed some drive-ways, which require a specific type of durable flagstone. You would do a sand set or lay it in a mortar bed on those applications.”

So how does a do-it-yourselfer or even professional installer select the right pallets of stone for a specific job? Talk to a qualified stone salesman who is schooled in the intricacies of quarry operations and factors such as water absorption, stone content and sedimentary/layering properties. Also, discuss your project in terms of where you plan to place the stone, the climate and the installation type – in sand, cement or mortar for example. “A typical installation is on sand versus concrete,” Serven says, “so they will need to know how they are applying it before they speak to a dealer. The quartzites are the hardest and the sandstones are very soft, which means that the sandstones will stain faster than the quartzites.”

The idea of staining opens up what appears to be a big controversy in the world of flagstone.

To Seal or Not to Seal?

That is the question that, according to flagstone vendors, is asked on a daily basis, and the answer is in hot dispute. Some vendors are awaiting not only a comprehensive article, but an entire book on that subject. “You’ll talk to one stone person and they’ll say seal everything. Another one will say, ‘Let stone be stone. Don’t seal it, let it breathe, and allow it to operate the way God meant it to,’” Stout says.

The decision may all boil down to personal preference and application type. In high-traffic, new construction areas, where a sand fit will be used in a pathway for example, Stout recommends using polymeric sand and sealing the stones. “That way you aren’t tracking sand into the interior of the building or home during new



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Photo courtesy of Silverado Building Materials



ABOVE: A low-maintenance option for pathways, walkways and even poolside surrounds, flagstone adds beauty to any outdoor space.

construction, because over time, it's going to bond itself up anyway and this just accelerates that process. If you want a wet look to make the color of the stone stand out, apply a wet-look sealer to it. It depends on what your likes and dislikes are," he states.

Natural stone with a weathered patina is the low maintenance option for pathways, walkways, even meditation areas that can easily be managed year-round

with nothing more than occasional water wash. However, Serven highly recommends using a sealer in entertainment scenarios such as outdoor kitchens. Here a sealer doesn't guarantee against stains, but allows some time for a quick clean-up from a grease splatter or a red wine spill. "The best way to make the decision is to ask yourself, 'Why am I sealing it?'" she says.

Whatever the decision may be, flagstone experts Hans Clausser and David Clausser of www.the-flagstone-experts.com advise waiting at least two weeks after project completion to allow moisture evaporation before applying sealer to a flagstone project. Then use a sealer that allows moisture out, but not in. Above all, they recommend never succumbing to the temptation to use urethane sealers because they don't allow the stone to breathe. Plus, urethanes leech the alkaline from concrete, causing nasty gray blotches on the stone.

stone will cover approximately 120 square feet per ton. Flagstone also has a natural cleft, or surface irregularity, so the product is measured from the highest point of the natural clefting to the bottom with a standard variation of plus or minus a quarter of an inch, an important fact to know during the selection process.

The irregular, mosaic shapes of quarried flagstone are the most popular and probably more economical, but even the mosaic shapes must be cut for applications such as stairways and walkways to give the enhancing puzzle-fit appearance. For this reason, before finalizing a project, one should lay out the existing stone pieces and determine the pattern to minimize the need for cutting. Pre-planning by matching adjacent stones means that irregular stones will have to be cut once, maybe twice, or possibly not at all.

But is it Green?

The use of natural building materials may reflect the national effort to create environment-friendly buildings and homes. Of course, flagstone is a natural material, but whether it's really "green" depends on how it is quarried, fabricated and shipped. The concept of "organic architecture" is somewhat mitigated when materials have been transported for long distances using the energy and fuel consumption required for same.

"Most flagstone is a localized material, but everybody wants what they don't have, so it is shipped from all over the United States and beyond," Stout says. And many other considerations come into play such as whether the quarries are accredited, permitted and bonded; and whether they are following state and national guidelines with a reclamation process on file. Once

Coverage and the Cutting Edge

"Because stone naturally varies in color, thickness, size and shape, it's very important to know the thickness allowances that you're looking for," Serven advises. "A masonry dealer can help you determine the quantity for a project, because in the industry there are standard coverages for most stone." Usually figured on a per-ton basis, an inch and a half flag-



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Photo courtesy of Loukonen Bros. Stone

ABOVE: This red flagstone walkway adds color to an otherwise neutral palette.

installed, however, you can't take the green out of natural stone.

To Each His Own

Flagstone has another characteristic that makes it all the more in demand: its one-of-a-kind properties. "Because stone varies in color, thickness, shape and size, we do not pick a pallet of stone for customers even if they've selected the variety they like from the showroom floor. Everybody has to pick their own pallet," explains Serven. For every stun-

ning project – a wall, a patio, a driveway or even furniture – builders and homeowners will know that when using flagstone, the exact look will never be duplicated. "In the quarrying process, we may get down another 50 feet and the stone totally changes color," Stout remarks. "One thing about flagstone is that when you get a piece of it, it is unique. There's not another one like it, I promise you." ♦

Gail Snyder is an Atlanta-based freelance writer.

RESOURCES

Earthworks Inc.

Russ Stout
Perryville, Mo.
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www.ewgroupinc.com

Silverado Masonry Design Center

Liz Serven
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TED BAKER, LANDSCAPE ARCHITECT,
GROWS UP LOVING STONE

Nurtured by Nature

By K. K. Snyder

Photos courtesy of Ted Baker Landscape Architecture



TED BAKER ADMITTEDLY HAS BEEN ROMANCING STONE since he was a child, even referring to the natural material as his “mistress.” But what this renowned South Florida landscape architect does with stone is not hidden behind closed doors like some kind of geological secret; the results of this love affair are magnificent – and out in the open for all to enjoy.

Baker, 67, started working at his father’s landscaping and nursery business when he was only 10 years old. Making a whopping 10 cents an hour, he soon developed an interest in working with natural materials, watching his father create with stone on various landscaping and garden sites.

FLORIDA SEES THE (GREEN) LIGHT

Baker recalls family trips in the 1950s to Hickory Run State Park, where he spent hours on a boulder field, a moraine from a glacier that oozed into Pennsylvania hundreds of thousands of years ago. "I remember standing in a huge field with beautifully rounded stones," he says of the field that was being studied by archeologists and geologists. "That was an awesome experience. I loved looking at how stone was used in that particular park and others we visited; stone became really cool."

By the late '50s, Baker was bored to tears with the liberal arts path he had chosen in college. "There had been some talking about this thing called 'landscape architecture,'" recalls Baker of the then-new field. "If you think professionals struggle for recognition today, you can imagine what it was like back then when it was brand new."

With an interest in art and a love for plants, Baker left a \$48 an hour job in banking and went to California to complete undergraduate studies in landscape architecture at Cal Poly at Pomona. The warm weather and an opportunity to play college football were both factors in that decision. Following graduation, he returned to New Jersey, but soon tired of the cold weather.

In 1968, Baker made South Florida his new home and has since led his company, Ted Baker Landscape Architecture, in the completion of a range of projects, including residences and estates, recreational facilities, mixed-use, commercial and retail sites, office buildings and office parks, streetscape and community enhancements, roadway beautification, and multi-family housing, for which he has garnered dozens of awards.

For 13 years Baker shared his knowledge and talent with up and coming landscape architects through his role as an instructor in the graduate landscape architecture program at Florida International University, where he received his own graduate education in the field. In addition, Baker completed graduate studies in landscape planning and ecology at the Graduate School of Design at Harvard University.

Baker believes the industry has changed through the years, noting that the once exclusive American Society of Landscape Architects now appears to accept a wide range of mem-

bers, a lenience Baker recognized while serving on a committee established by the society itself to gather feedback. "You used to have to complete an apprenticeship before becoming a member," he bemoans. "Today you can be a paver manufacturer and become a member."

Baker is also concerned that creativity in his profession in being stifled, noting that corporate compliance does not lend itself to the creative juices necessary to succeed in this line of work. "It's become a boutique. Architectural landscaping firms have a hard time surviving. The profession has become very corporatized, with management versus

While the use of stone may be as old as time, it has taken on a new respect in light of recent green building recommendations as a natural product lending itself well to energy management efforts, says landscape architect Ted Baker.

The green building movement in Florida has seen stone help with water retention solutions on rooftop gardens, reducing energy loss in buildings. This is a huge plus in locations where land is at a premium. "Those types of materials, those byproducts of stone, might have significant applications in some of the green building processes," Baker says.

Those byproducts range from gravel and crushed stone to decomposed granite and stone chips, all of which are used ornamentally, especially in places such as Arizona and New Mexico, Baker says. The materials are also used in green efforts such as controlling erosion in landscapes.

Exploding mica, schist and other soft stones makes them good material for insulation, adds Baker, sharing another green use for stone. "Stone doesn't decompose quickly, so it has good properties of insulation," he says.



ABOVE: This glass-tiled planter adds a pop of blue to one of Ted Baker's landscape designs.

OPPOSITE TOP: A lake front natural stone terrace designed by Ted Baker.

OPPOSITE BOTTOM: Cut coral (limestone) and gravel pavement at Kitchen Garden.



PAY IT FORWARD

Landscape architect Ted Baker, a veteran in the industry, voices concern about the modern-day landscape architecture atmosphere.

“Not enough [landscape architects] go out and serve their community,” says Baker, who undertakes a pro bono design project each year for a non-profit group. The annual project is selected based on need and community impact. “They all want to make money and don’t want to do community service, like working with the Boy Scouts on a landscape project or speaking to students or other groups about the importance of landscape design.”

Baker, whose parents were very active in their community, has handed that same philosophy down to his own children. “That’s the way I was raised... it was a model I saw in their actions. It was a respect I was taught to have.”

A Ronald McDonald House near Jackson Memorial Hospital in Miami was Baker’s first pro bono project. Another was a master landscape plan for the revitalization of an inner city facility in a particularly depressed area of Miami. Baker has also given of his landscape design talents to a number of Habitat for Humanity projects.

“Some people are not able to afford to hire a landscape architect,” he says. “The question becomes what responsibility do we have to our peers?”

staff. That particular change does not bode well for such a creative profession.

“I think of landscape architecture more along the lines of a sculptor or painter,” he continues. “When you saddle the creative energy of people with the stifling structure of a corporation, it creates a problem in my view. A lot of firms are headed in that direction; becoming more of a business and losing the panache, the romance, the passion. I understand the reasons for that, but I don’t think it’s good for them.”

Many of today’s landscape designs, especially in Baker’s area of the country, are more

LEFT: Ted Baker thinks of landscape architecture from the perspective of a sculptor or painter, as evidenced by this natural stone terrace and arbor.



“slick” than those he oversees, Baker says. He contends that the results are as glaring as the difference between stainless steel and gravel. He encourages others to explore beyond the design parameters they are used to working within, beyond those materials considered “safe.” Instead he encourages pushing the envelope and creating “gutsy” designs by incorporating natural stone products.

Baker believes most landscape architects tend to rely on a vocabulary of materials that they’ve consistently used over time. “We’re all creatures of habit and find things that we like,” he says. “I think there are standards people subscribe to that, to me, might be contradictory to cutting-edge or gutsy designs.”

What about new materials? What are the new kinds of stone being quarried? What are new ways stone can be used? Baker puts these questions forth to make his point, encouraging landscape designers and architects to think outside the box.

“There are a lot of different ways of using materials to express ideas about a

ABOVE: This planter wall was created from slate veneer.



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Designer Profile



ABOVE: Natural stones and plantings create a streambed.

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place that can be pretty intriguing and gutsy in a way,” says Baker, recalling the old stone walls in the Harvard Forest on that university’s campus – walls that were present before the school, when the area was used for farming. “People need to express and explore... more than they do.”

Baker’s romance with natural stone is evident in nearly every project he touches. “There’s no façade to [natural stone]. It’s natural and doesn’t put on airs. It is what it is, with all its colors, textures and visual qualities that lend themselves to beautiful walls, steps and seat walls. I’ll continue to use natural stone because of these many qualities.” ♦

K.K. Snyder is a freelance writer and editor based in Albany, Ga. She can be reached at kkondeadline@hotmail.com.

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RENEWING WIDOW'S BEQUEST WINS 2002 TUCKER AWARD

Restored for a New Century

By Christina B. Farnsworth



Photo courtesy of Joe Angeles/WUSTL

GOTHIC STYLE STONE defined the aspirations of academia in the early 1900s and Washington University, St. Louis (sometimes called the Princeton of the Midwest), was second to none.

The University's 100-year-old Graham Chapel marks the high water point of Gothic Collegial construction. Built between 1907 and 1909, the chapel was a gift to the university and a memorial to Christine Blair Graham's husband, paper magnate Benjamin Brown Graham.

Benjamin Brown Graham was prominent in St. Louis. Born in Ohio in 1840, Graham moved to St. Louis at 15 years of age and rose through the city's business community. As president of his firm, he made Graham Paper Company into a major distributor for American, Canadian, Mexican, South American and Australian paper product factories. He served as a director of Merchant's National Bank and St. Louis Union Trust Company, president of St. Louis Mercantile Library,

ABOVE: At the turn of this century, Graham Chapel at Washington University, St. Louis underwent extensive and award-winning renovations.

OPPOSITE RIGHT: A window at Graham Chapel features intricate detailing.



Photo courtesy of WUSTL

and became a charter member of the University Club.

Graham Chapel has hosted lectures and some 100 weddings a year. But even the best built buildings require occasional renewal, and well-loved buildings demand care from the best. So at the turn of this century Chicago architects Vinci/Hamp handed off execution of the chapel's renovation and a 500-square-foot single-level addition to St. Louis based, nationally prominent Leonard Masonry. The company's exquisite results (completed in 1998) won one of eight 2002 Tucker Awards.

Among the many mesmerizing features of the Graham Chapel are its English stained-glass windows. The building's granite, limestone and marble were selected to meet the windows' high standards of those. And all that stone held its own in power and beauty for nearly 100 years.

Architects and masons faced two challenges: first was to building a 500-square-foot, one-level facility amid heavy student pedestrian traffic and frequent events. Second was replicating the Gothic Collegiate style popular a century ago with new stone matching the

pitch, size and color of the existing granite and limestone. The goal was to make the structure look like it, too, had been built circa 1907. Of course the passage of time layered the building with other challenges for both Leonard Masonry and Vinci/Hamp. Changes from wiring additions, chipped stones, deferred maintenance and maybe even a little neglect had also left their mark.

As with most stone renovations, matching materials came first. Leonard Masonry found a near-perfect match to the existing three-foot thick granite walls at an Ironton quarry in Southern Missouri. No one is sure, but the experts suspected this quarry was the original source.

Leonard Masonry's skilled masons knew exactly how to meld the two buildings, both installing new granite among the stones of the old building and transplanting old details and material to the new building. They moved an arched doorway detailed with gargoyles from the original building to the new addition. Replicating the original V-grooved limestone installation was also no mean feat: the V-grooves ran different directions, so every step required extensive field verification and time-

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Historical Feature

BELOW: Renovations from cleaning limestone walls to refinishing an elaborate wood-beamed ceiling freshened the old Graham Chapel.

consuming hand planning. Then, of course, came matching the interior marble flooring.

Renovations from cleaning limestone walls to refinishing an elaborate wood-beamed ceiling freshened the old chapel. Improvements including expanded balcony seating, an elevator for accessibility, new restrooms, modern lighting and sound systems, and mechanical upgrades, assured functional systems meet the expectations of the new century.



And if all that doesn't sound quite demanding enough, think about scheduling construction and renovation around weekly pipe organ tunings, regular services, concerts, lectures and weddings. The university's weekly Assembly Series has brought more than 800 prominent people in politics, academia, religion, the arts, and the sciences to Washington University since 1949.

Both architects and contractors proved up to the challenge. Founded in 1959, Leonard Masonry is the largest masonry contractor in St. Louis and among the largest in the United States. The company is a four-generation, family-owned business. It has been St. Louis' mason of choice for many landmark structures including the Missouri Temple for the Church of Jesus Christ of Latter Day Saints and Anheuser-Busch Hall at the Washington University School of Law.

Many of the craftsmen the firm employs learned from fathers and uncles. Much of the work is handwork with a set and hammer on the job, the way it has always been done.

The architects have some history, too. John Vinci founded his Chicago firm in 1969, partnering in 1995 with Philip Hamp to form Vinci/Hamp Architects. The firm's restoration resume includes Louis Sullivan's Chicago Stock Exchange Trading Room, Frank Lloyd Wright's Home and Studio in Oak Park, the Illinois State Capitol in Springfield and numerous projects for the Art Institute of Chicago. Hamp has taught historic preservation at the University of Illinois - Chicago.

All in all, this Gothic Collegiate treasure received just the right facelift and expansion for its next 100 years. ♦

Christina B. Farnsworth is an award-winning real estate writer and author who divides her time between Tucson, Ariz., and Washington, D.C.

RESOURCES

Leonard Masonry

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314-731-5500
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Vinci/Hamp Architects Inc.

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Stonemark Natural Stone Countertops First to Receive GREENGUARD Certifications

Innovative Stone announced that its brand of stain-resistant, natural stone countertops, Stonemark by Innovative Stone, has received two environmental health and safety certifications from the GREENGUARD Environmental Institute (GEI). The certifications include the GREENGUARD Indoor Air Quality Certification and the GREENGUARD For Children & Schools Certification. Stonemark has become the first brand of 100% natural stone countertops to be GREENGUARD certified.

Stonemark countertops are protected by PermaShield, Innovative Stone's anti-staining technology. Through independent laboratory testing, PermaShield has been found to "make granite surfaces more sanitary, easier-to-clean and help to inhibit the growth of odor and stain-causing bacteria" on countertops.

GEI is a non-profit organization that establishes chemical emissions standards for indoor products, environments and buildings. The GREENGUARD Certification Program identifies acceptable levels of chemical emissions, determines the most rigorous testing procedures and then certi-

NATURALLY, STONE IS THE GENUINE CHOICE

BY JIM OWENS

From the ancient Egyptian pyramids to modern buildings, genuine natural stone has long been a durable choice for any such project. Projects utilizing natural stone exist in every American city and in every country in the world. In the United States, for example, many college campuses are made up of all natural stone buildings, generally selected because of its versatility, affordability, ease of shaping, proven durability and genuine beauty. Many government buildings (including the majority of state and federal buildings located throughout the country), religious facilities, museums, office buildings and many other types of projects are also constructed of natural stone. Why? Because these buildings, like those on college campuses, are expected to last through several generations. The natural stone industry can look back at these projects, some of which are more than 100 years old, and be proud of their contribution to architecture and the quality of life.

Residential architecture has also benefited from the use of natural stone over the years. More and more homeowners and contractors are turning to natural stone, not only for the exterior skin of their homes, but also for countertops, fireplaces (long a staple of the industry) and other interior treatments.

In recent years many "cast," "engineered" and "manufactured" products have been introduced to the market under a variety of trade names, most containing the word "stone." Through large numbers of producers and suppliers and equally large advertising budgets, the market share for these materials has been on the increase. Claims made for these products vary, but all have recurring themes. Chief among them: a particular "engineered" product is "just like" whatever natural stone it is trying to emulate.

These "just like" claims typically include not only the look of the product, but also the durability. Some companies even claim that their products are more durable because they are man-made, thus the manufacturing processes are more controlled. "More controlled than what," remains the question. Are they more controlled than, say, God's processes when He made the natural stone? That's generally left to the imagination of the reader. However, the presence of the word "stone" in many of the trade names and ads for these products can confuse architects and owners into thinking that they are, in fact, using natural stone.

Marketing materials for manufactured products often boast that the products are less expensive than natural stone. As evidence, producers point to buildings that used

their materials and state that the owners saved 20 percent or more of the total cost of the building by using their product instead of the natural stone which, in some cases, was used on all of the surrounding buildings. However, with current technology this is not always the case. New computer-operated equipment introduced by various manufacturers has made the use of natural stone more economical than ever before. Further, the design of the building can also impact the cost factors. For example, if there are several different profiles on the project, natural stone is often not only competitive but less expensive, as the cast producers may be unable to efficiently recycle their molds to effectively reduce their costs. Other factors might include current market conditions at the time the project is bid.

With natural stones, no coloring agents will fade and no reinforcement rods will rust. Most natural stone products are virtually maintenance-free, requiring only periodic re-pointing of joints and, if necessary and desired, periodic cleaning. Further, natural stone for most projects comes to the job cut to fit and ready to set. Often, cast products are furnished in standard lengths and have to be cut on the job, adding labor expenses for the mason contractor/installer.

Finally, the proven long-term beauty and durability of natural stone is unmatched. As noted, the natural stone industry can boast of government, educational, religious and residential projects. A look at these showcases that natural stone blends into a pleasing match with buildings nearby and continues to maintain its natural beauty. While the cast industry can claim their products are durable, natural stone has history on its side.

Certain situations may call for a cast product instead of natural stone. However, architects, owners and others faced with choosing a product should not simply assume natural stone is unaffordable. Check with potential suppliers, contractors and/or trade associations representing both natural and man-made products. Remember that the initial cost of any product is but one factor. Consider whether you'd really rather have "cheaper" than "genuine." Keep in mind potential extra maintenance and installation costs and remember the proven durability of natural stone. Then make an educated decision based on research. In the end, the life of your project – and its use and enjoyment by present and future generations – may depend on it.

Jim Owens is executive director of the Indiana Limestone Institute of America.

fies products and materials that meet the organization's stringent criteria. Certified products to the Children and Schools Standard are listed in the online product guide at no charge located at www.greenguard.org.

WinEstimator Releases DesignEst Pro

WinEstimator Inc., a global leader in estimating software development announced the release of DesignEst Pro. DesignEst Pro leverages building information model (BIM) technology to quickly produce both conceptual budgets and detailed cost estimates.

Steve Watt, president of WinEstimator stated, "As the adoption rate of 3D design tools like Autodesk's Revit Architecture 2008 continues to grow, it was a logical next step for us to tap into the content of the 3D model. DesignEst Pro uses that content for the purpose of enhancing the building model with the fourth and fifth dimensions, time and cost."

Ken Tometsko, director of operations, Autodesk AEC Division stated, "The release of WinEst DesignEst Pro is an important step in the growth of BIM, as it will help architects and designers leverage the data in their Revit model downstream for faster turn-around on estimates and change orders."

DesignEst Pro links the object and property library in Revit Architecture with the object and properties in a WinEst cost database, allowing both conceptual and detailed estimates to be developed as the building is being designed. This dynamic link provides support for unlimited what-if scenarios during the design phase of the project. As design alternatives are explored, the cost estimate is changed accordingly.

DesignEst Pro recognizes custom Revit objects that were not originally linked to the WinEst cost database and allows the user to link those objects on the fly.

DesignEst Pro requires Revit Architecture 2008 from Autodesk. Existing WinEst customers can use DesignEst Pro with version 10 of WinEst eTeam and WinEst Pro Plus. To learn more about DesignEst Pro, register for a free webinar at www.winest.com.

Independent Granite Fabricators Launch Granite Brand with Lifetime Warranty

The Artisan Group, an independent organization of the country's premier granite fabricators, has launched Artisan Stone Collection, which carries the industry's first comprehensive lifetime warranty. The Artisan Stone Collection is offered exclusively by Artisan Group and is now available in the United States and Canada.

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of colors from the basics to the most stunning exotic granites, all at affordable prices. Artisan Group's inspectors are located around the globe to insure quality by inspecting slabs before they leave the quarry. For more information visit www.artisan-stonecollection.com.

AIA Urges Congress to Consider Green Stimulus Proposals

As Congress and the Administration discuss additional proposals to stimulate the nation's economy, the American Institute of Architects (AIA) is advocating green incentives for homeowners, building owners, small businesses, retail establishments and education facilities. Details of the provisions were sent to Congress in a letter dated Jan. 24, 2008.

In 2005 the AIA adopted position statements to promote sustainable design and resource conservation to achieve a mini-

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The advertisement features a large, multi-story brick building with a central entrance and a dome. Below the building, there are images of stone landscaping, including a stone wall and a stone archway. The text "Garden to Gods" is visible on a stone wall. The company name "LOUKONEN" is prominently displayed in large, bold letters, followed by "BROS. STONE COMPANY" and contact information. The website address "www.loukonenbros.com" is at the bottom.

imum reduction of 50 percent of the current consumption level of fossil fuels used to construct and operate buildings by the year 2010.

AIA senior director, federal affairs, Andrew Goldberg, Assoc. AIA, said, "Because the design and construction industry accounts for nearly one in 10 dollars of United States GDP and creates millions of jobs while supporting millions of small businesses, the AIA believes that Congress and the president should help this vital sector put people back to work and provide solutions lower energy costs."

In particular, the AIA supports provisions to:

- **Extend and deepen tax incentives for green commercial and residential buildings**

The AIA supports extending existing tax incentives that are set to expire or have expired; deepening these incentives will spur more homeowners and developers to invest in green technologies and designs, which will create more green-collar jobs. In particular, the AIA supports extending the energy-efficient commercial buildings deduction for five years (through Dec. 31, 2013) and deepen it from \$1.80/sf to \$2.25/sf; and extending the credit for energy-efficiency improvements to existing homes to 2009, while increasing the cap to \$1000 from the current \$500.

- **Provide for accelerated depreciation of energy-efficient business equipment**

The AIA supports providing accelerated depreciation of equipment, which will create an immediate incentive for purchasing new technologies. In addition, the AIA supports provisions that provide additional incentives for small businesses that invest in new equipment, such as expanding the Section 179 deduction; and for all businesses that invest in energy efficient products, such as energy-efficient windows and HVAC systems.

UNDERSTAND BUILDING INFORMATION MODELING

BY CHUCK EASTMAN

For all of history, design and construction of building have relied on drawings for representing the work to be done. They were defined as contracts. Legal documents were assessed by building codes and used to manage the facility afterward. But there are two strategic limitations of drawings: (1) they require multiple views to depict a 3D object in adequate detail for construction, making them highly redundant and open to errors; (2) they are stored as lines, arcs and text that is only interpretable by some people; they cannot be interpreted by computers.

Building information modeling (BIM) involves representing a design as objects – generic or product-specific, solid shapes or void-space oriented (like the shape of a room) – that carry their geometry and attributes. The geometry may be 2D or 3D. The objects may be abstract and conceptual or construction detailed. Composed together these objects define a building model. If an object is changed or moved, it need only be acted on once. BIM design tools then allow for extracting different views from a building model for drawing production and other uses. These different views are automatically consistent – in the sense that the objects are all of a consistent size, location and specification – since each object instance is defined only once. Drawing consistency eliminates many errors.

Modern BIM design tools go further. They define objects parametrically. That is, the objects are defined as parameters and relations to other objects, so that if a related object changes, this one will also. Parametric objects automatically re-build themselves according to the rules embedded in them. The rules may be simple, requiring a window to be wholly within a wall, or complex defining size ranges and detailing.

Why BIM is Important

Because 3D objects are machine readable, spatial conflicts in a building model can be checked automatically. Because of this capability, at both the design and shop drawing levels, errors and change orders due to internal errors are greatly reduced. As a building representation, BIM technology is far superior to drawings.

But the larger implications are not just consistent drawings and clash detection. Because building models are machine readable, it becomes practical to use that data in many other ways: to generate bills of material that can be used for cost estimation or

automatic ordering and tracking, for energy, lighting, acoustic or other analyses – not as post facto checking if an almost finished design is "OK," but rather to provide feedback while designing. Building models allow for better integration of many processes, allowing the kind of tracking and control that computers allow in manufacturing and local grocery or department stores, tracking every item from creation to delivery. Many of the uses of BIM data are waiting to be discovered and developed.

While building modeling first gained popularity because it was the only way to get blob buildings and exotic forms constructed, big payoffs can be gained for even simple buildings. Building models can save costs, save construction time and support better building performance and control. Building models can potentially beneficially impact all parties in the construction process – designers, engineers, contractors, fabricators, facility operators. In this sense, BIM is similar to the automation of manufacturing in the 1980s, when most manufacturing industries first adopted 3D modeling and digital representations.

These capabilities also facilitate much improved coordination and collaboration. Designing a building once for contract drawings, then developing a set of detailed drawings for shop fabrication later is recognized as wasteful and inefficient. Design-build and other forms of architect-contractor teaming have been recognized as more efficient in terms of cost, time and reduction of litigation. A 3D model is easier for all parties to interpret and visualize. Design or fabrication work can be coordinated in person or at a distance using Web conferencing tools such as Webex and GoToMeeting.

Will BIM Become Standard?

BIM tools are as different from CADD tools as slide rules are different from computers. BIM supports online simulation of a design, online simulation of construction – called 4D CAD. The BIM processes provide better building products at lower costs to the owner. Early case studies have shown these benefits by users who have applied BIM well. It will certainly become the standard for construction within most of our lifetimes.

For more information, visit U.S. General Services Administration at www.gsa.gov/bim.

Chuck Eastman is a professor of architecture and computing at Georgia Institute of Technology and director of the AEC Integration Laboratory.

Index to Advertisers

- **Give homeowners a “Green Tax Credit”**

The AIA supports providing a tax credit of \$2500 for the purchase of a new or significantly refurbished energy-efficient home. This will help increase demand in the housing market and create an incentive for builders and homeowners to invest in green technologies.

- **Extend the 15-year recovery for retail improvement, restaurant and leasehold property**

The AIA backs extending the 15-year depreciation period for changes to existing restaurant and leasehold properties and including new construction, which would provide an immediate incentive for retailers and restaurateurs to invest in sustainable design and construction, creating jobs in the construction industry.

- **Fund the construction and modernization of green schools**

Providing grants to local educational agencies (LEAs) to build or renovate schools that are more energy-efficient will achieve three goals simultaneously: it will create jobs in the design and construction industry; it will help create better schools for students in which to learn; and it will help save energy and lower energy bills for school districts.

New Web Site for Stone Professionals

Weblogix LLC, opened the doors to its latest Web site for the stone industry. The site, www.usedstoneequipment.com, features real time auctions for used equipment, new equipment and tooling for the stone fabrication industry. The site also features equipment financing solutions, machine installation assistance and discussion forums for stone professionals to share information, tips and advice.

Weblogix is a Nevada based e-commerce solutions company. The company focuses on industry specific auction houses for many different industries. ♦

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CHRONICLES IN STONE



The Ida Cason Callaway Memorial Chapel at Callaway Gardens in Pine Mountain, Ga., designed by architect Edward Moulthrop, mimics 16th- and 17th-century English Gothic rural chapels. The native quartzite fieldstone walls and North Georgia Cherokee flagstone floor give the chapel an organic look. All materials except the sloping Vermont slate roof and the limestone arches are native Georgia materials. To learn more about Callaway Gardens, visit www.callawaygardens.com.

*“Architecture is one part science,
one part craft and two parts art.”*

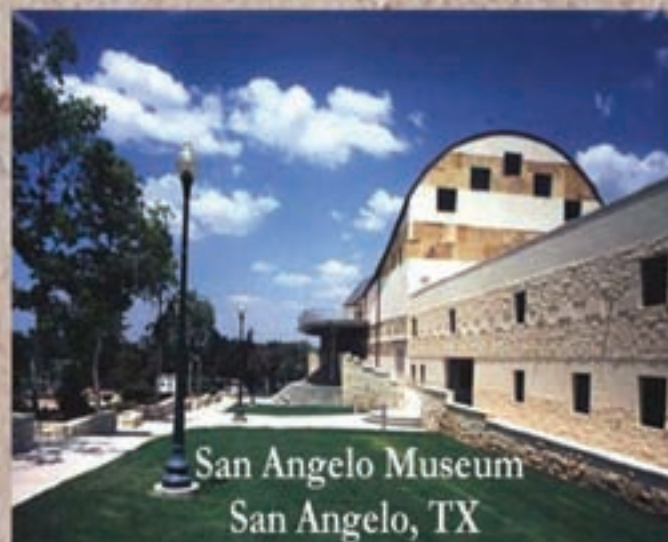
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