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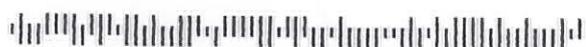
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THE MAGAZINE OF
SUSTAINABLE DESIGN
STARTS ON PAGE 49

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**ROGER THOMAS'S LATEST
COLLECTION FOR ROCKY
MOUNTAIN HARDWARE PAGE 41**

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THAT'S ENTERTAINMENT!

The architecture
of performance spaces

PAGE 18

OLD INTO NEW

Retired aircraft reborn
as metal tiles

PAGE 34

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Richard W. Long
New School of Architecture & Design
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SEPTEMBER/OCTOBER 2014



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CLOCKWISE FROM ABOVE The atrium of the Reed College Performing Arts Building doubles as a theater space. Excel Dryer's XleratorEco is made in the USA. The J30 auditorium seating from Sedia Systems offers sleek profiles and tablet arms.

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P. 166

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P. 18

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"That's Entertainment!"
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Time for Learning



FALL IS SYNONYMOUS with the start of the school year, so in this issue of *SNAP*, we're touching on K-12 and higher education in both direct and indirect ways: This edition's **Case Study** (page 26) highlights a slick white box of an architecture gallery that was inserted into a Brutalist building on Toronto's Ryerson University campus; the **Education Solutions** section (28) follows, with new and noteworthy school-appropriate products ranging from auditorium seating to colorful acoustical ceilings. The **Flooring** (32), **Materials** (34), **Paints & Coatings** (38), and **Hardware & Access Control** (40) sections all offer ideas for the learning environment as well.

Cultural and performing arts settings enrich education, too. In the feature story "**That's Entertainment!**" (18), writer David Sokol looks at the architecture of three performance- and theater-space projects: the Polonsky Shakespeare Center in Brooklyn; the pop-up TED Talks theater in Vancouver, British Columbia; and the Reed College Performing Arts Building in Portland, Oregon. And in the **Profile** (23), architect Phil Freelon tells us about the recently opened National Center for Civil and Human Rights in Atlanta, which his firm designed prior to merging with Perkins+Will.

Autumn is also the season when many of us sharpen our knowledge of sustainability through the programming and exhibits at the Greenbuild Conference and Expo. For an overview of this installment, taking place in New Orleans in October, see our **Trade Show News** piece (165), which highlights a few education sessions, products, and the Net Zero Pavilion. (The latter, by the way, will feature a net-zero electricity home to be donated, after Greenbuild, to Brad Pitt's Make It Right foundation.)

Hope to see you in the Big Easy!

Sheila Kim

SHEILA KIM Editor

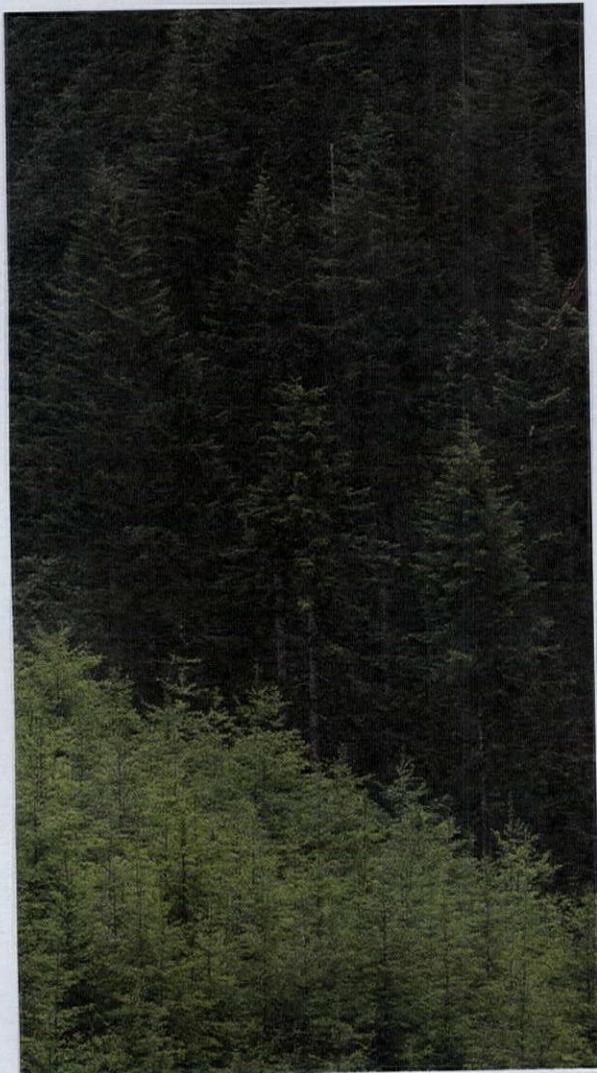
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IN THIS ISSUE

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Innovations in Multifamily Housing

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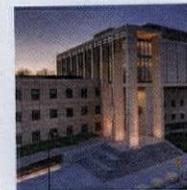
Photo: NanaWall Systems, CenterCal Properties



High-Performance Green Trends

Credit: 1 HSW, 1 GBCI CE Hour
Sponsored by ClimateMaster, Dow Corning, NanaWall Systems, and Tournesol Siteworks

Photo © Sean Airhart/NBBJ



Precast Concrete Life-Cycle Assessment and High-Performance Design

Credit: 1 HSW, 1 GBCI CE Hour
Sponsored by the Precast/Prestressed Concrete Institute

Photo: Bruce Darnotte



Designing Daylight Fixtures

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Innovative Green Concretes for Sustainable Construction

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Stone Wool Acoustical Ceilings

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Photo: Bison Innovative Products



Exterior Design Strategies for Placemaking Downtown

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Health and Transparency in Product Declarations

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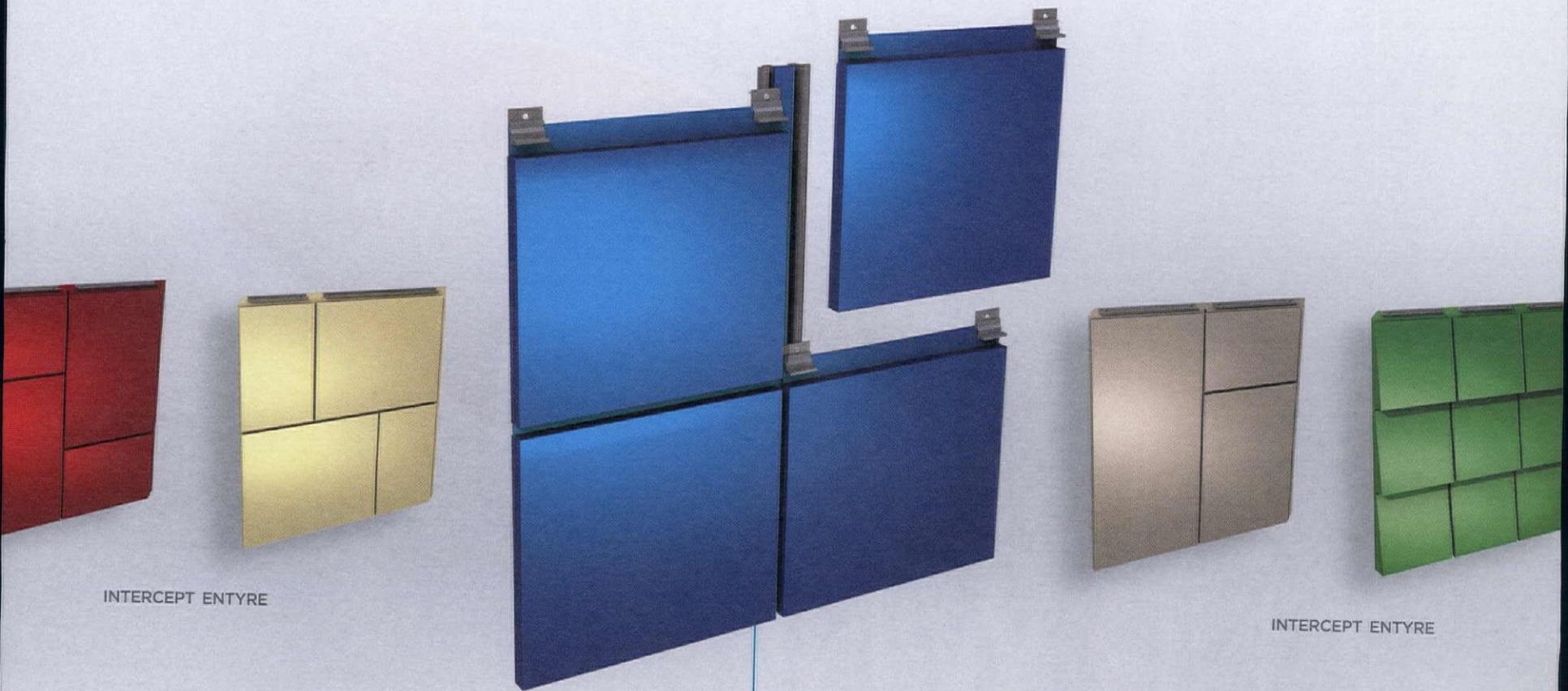
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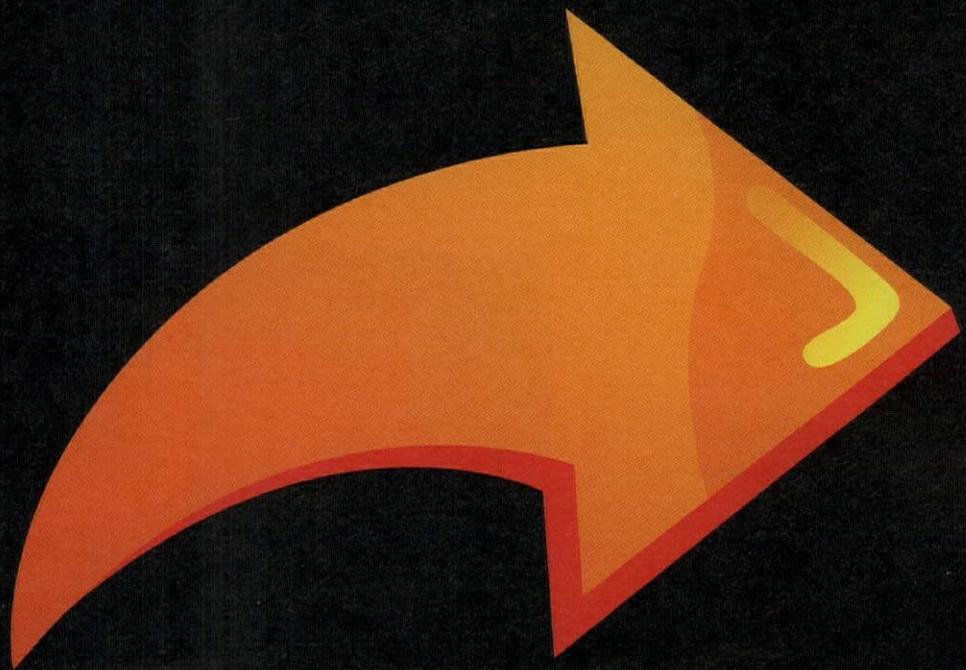


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in brief

“Brick is a beautiful material and it has done beautiful work in many places; it still does because it’s a completely live material.”

—LOUIS KAHN AT PRATT INSTITUTE, 1973

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\$2.2 BILLION

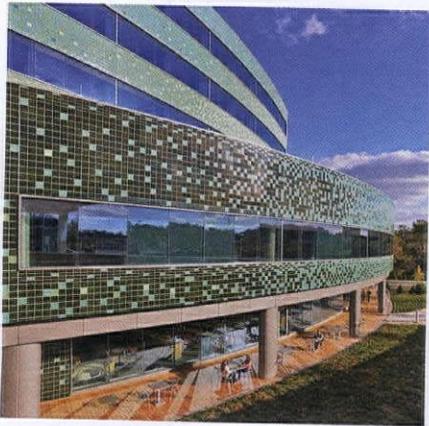
The overall market for 3-D printing products and services in 2012.

SOURCE: WIRED, MAY 2013

NEWS BRIEFS

(Not) Just Another Brick in the Wall

BOTH NOBLE AND utilitarian, the fired-clay brick has lent aesthetic appeal to almost every type of built environment, from outdoor plazas and bridges to houses and skyscrapers. To honor design that makes optimal use of the material, the **Brick Industry Association** presented its 25th annual Brick in Architecture Awards.



Forty projects from the United States and Canada won the distinctions of Best in Class, Gold, Silver, and Bronze, in the categories Commercial, Educational, Health Care, Municipal/Government, Paving & Landscape, Renovation/Restoration, and Single- and Multi-Family Residential.

One highlight was Mercy Health, West Hospital in Cincinnati, Best in Class winner for Health Care. Architects **AECOM** and **Champlin Architecture** created the facility’s dramatic curving facade whose hues of blue gradate to green. Another highlight: Fort Worth’s Sundance Square, Best in Class of the Commercial category. Designed by the team of **David M. Schwarz Architect**, **Bennett Benner Partners**, and **Michael Vergason Landscape Architects**, the project involved two major mixed-use buildings and a plaza with in-ground water features.

Serving as judges for the 2014 program were 12 practitioners from architecture, interior design, and planning firms, **Smith-GroupJJR** and **American Structurepoint** among them. To view the list of winners, visit the events page on gobrick.com. —STAFF



BRICKED UP Mercy Health, West Hospital by AECOM (top) features a curving facade of brick faces that gradate from blue to green tints. Though historic in appearance, the Westbrook (right) and the Commerce Building (above), erected on Sundance Square in Fort Worth, are both new constructions by David M. Schwarz Architect.



MAIN EVENT

Changes Afoot at GE Appliances

BACK IN JULY, in a warehouse at the fringes of the University of Louisville campus, **General Electric Appliances** unveiled the **FirstBuild Microfactory**, a research and development innovation center for major appliances. Two months after that launch, the century-old company is undergoing even more changes: on September 8, it announced that it is selling its appliance business to Swedish-based **Electrolux** for \$3.3 billion.

According to the *Wall Street Journal*, the sale will catapult Electrolux—also owner of Frigidaire—to the top of the U.S. major appliances market, meaning it will go head-to-head with the **Whirlpool Corporation**.

While the new microfactory’s future may be uncertain, “like GE, Electrolux values speed to market, especially given the intense competition in the appliance industry,” a spokesperson from GE Appliances told **SNAP**. “FirstBuild is going strong on the path we have laid out.”

The new unit crowd-sources ideas from an online community of designers, students, and laymen, for products that can be quickly released on the market through in-house testing and production. (continued)

EUREKA FirstBuild Microfactory was unveiled by GE Appliances this year as an ideas, development, testing, and production facility.

(GE Appliances continued)

On opening day, FirstBuild had all the trappings of a start-up: the large production floor was buzzing with the sound of machinery and 3-D printers. The venture has garnered support from businesses and institutions such as **MakerBot**, **Local Motors**, **TechShop**, and the **University of Louisville**.

Since its inception, the division's output has ranged from a microkitchen—contained within six linear feet—to a simple 3-D-printed device that allows a water pitcher to fill while a refrigerator door is closed. A recent innovation, the Green Bean, was revealed in September. This open-source module allows inventors to hack the microcomputer inside select GE machines and create their own appliance controls.

"There is no doubt that GE Appliances' current research and development activities will remain an important part of Electrolux Group," says an Electrolux spokesperson. "The addition of their R&D competence is an important aspect of the acquisition's rationale." —*Anna Fixsen*

Bathrooms Without Borders

AS THE AFTERMATH of Hurricane Katrina and Superstorm Sandy so painfully demonstrated, the post-disaster rebuilding process is often agonizingly slow, delayed by factors like red tape, logistical challenges, and sometimes-conflicting charitable intentions.

OFFICE OF DREAMS A "fantasy workplace" concept by LSU's Elena Proskurina (below) won the top award in the commercial category of this year's Sherwin-Williams STIR Student Design Challenge.



Aware of these realities and the key role a clean-water supply plays in restoring communities, plumbing-fixture manufacturer **Hansgrohe** took action after spring floods devastated portions of Bosnia-Herzegovina, Croatia, and Serbia. More than 1.6 million people were affected by landslides along the watershed formed by the Sava and Danube rivers. The company has a direct connection to the affected area as its global headquarters is in Bavaria, where the Danube originates; it also has a subsidiary, and therefore many employees, in Croatia.

Hansgrohe donated 1,000 bathroom mixers to the region. "It was important for us to provide quick and unbureaucratic help with our own products," says Dirk Rennau, the firm's southeastern Europe sales manager. "We were able to transport the faucets directly [to the countries] by truck." Aid organizations then delivered the fittings to individual households to have on hand when they're ready to rebuild.

Even when the floodwaters recede and damaged water-purification facilities go back online, sanitation concerns remain paramount, to keep typhoid and cholera at bay. "The recovery process includes providing people with fully functioning bathrooms again," says Hansgrohe board member Frank Semling. "Our mixers will help cover at least part of the costs for equipping new bathrooms." —*Lisa Caldwell*

Design Students STIR Up Cash Rewards

SHERWIN-WILLIAMS recently announced the winners of its fourth annual STIR Student Design Challenge. Entrants were required to design a residential or commercial concept



FUN IN THE SUN For their entry in the 2014 Solar Decathlon Europe, team Maison Reciprocity utilized prototype window and door frames by Ply Gem (left and above).



Hot House

THE CHALLENGE OF the 2014 Solar Decathlon Europe competition was succinctly stated: Conceive and build a full-scale, fully functioning house that uses only the sun as its power source. A total of 20 teams of university students and faculty members—representing a total of 16 countries—were given 18 months to complete their projects.

One entry, dubbed Maison Reciprocity, was developed jointly by **Appalachian State University** in Boone, North Carolina, and the **Université d'Angers**, in western France. Invoking the rowhouse as an architectural antecedent, the two-bedroom, two-bath structure was composed of a trio of prefabricated modules.

A number of building-product manufacturers contributed to the project. **Ply Gem** donated window and door frames; in keeping with the program's forward-thinking nature, the frames were (for now) prototypes, developed to be appealing both aesthetically and performance-wise. Once completed, they were set with **Eastman Chemical Company's** Heat Mirror insulating glass, resulting in energy-efficient, lightweight window and door assemblies.

"Innovation has been an important factor in shaping Ply Gem's 70-year history," says Lee Clark-Sellers, innovation officer of the Cary, North Carolina-based company. "We believe that investing in the bright young minds of the building world will enhance the future of this industry tremendously, both in terms of technological advances and sustainability." —*LC*

using a minimum of three Sherwin-Williams paint colors. Two winners were selected from among the hundreds of entries.

Cortni Stevenson of Texas Christian University won first place in the residential category. Her high-rise condominium design incorporated whimsical furniture, Art Deco elements, Brazilian street art, and Bauhaus architecture, while highlighting hues both vibrant and soothing: reds, greens, grays. Louisiana State University's **Elena Proskurina** captured first place in the commercial category for her fantasy workplace plan. Bringing together elements of science, art, and nature, it featured splashes of soothing colors such as coral pink, light blue, and various greens.

Judging the competition was Jackie Jordan, director of color marketing for Sherwin-Williams; Ernesto Garcia, principal of **Ernesto Garcia Interior Design**; and Tamara Bopp, director of interior design at **Hahnfeld Hoffer Stanford**.

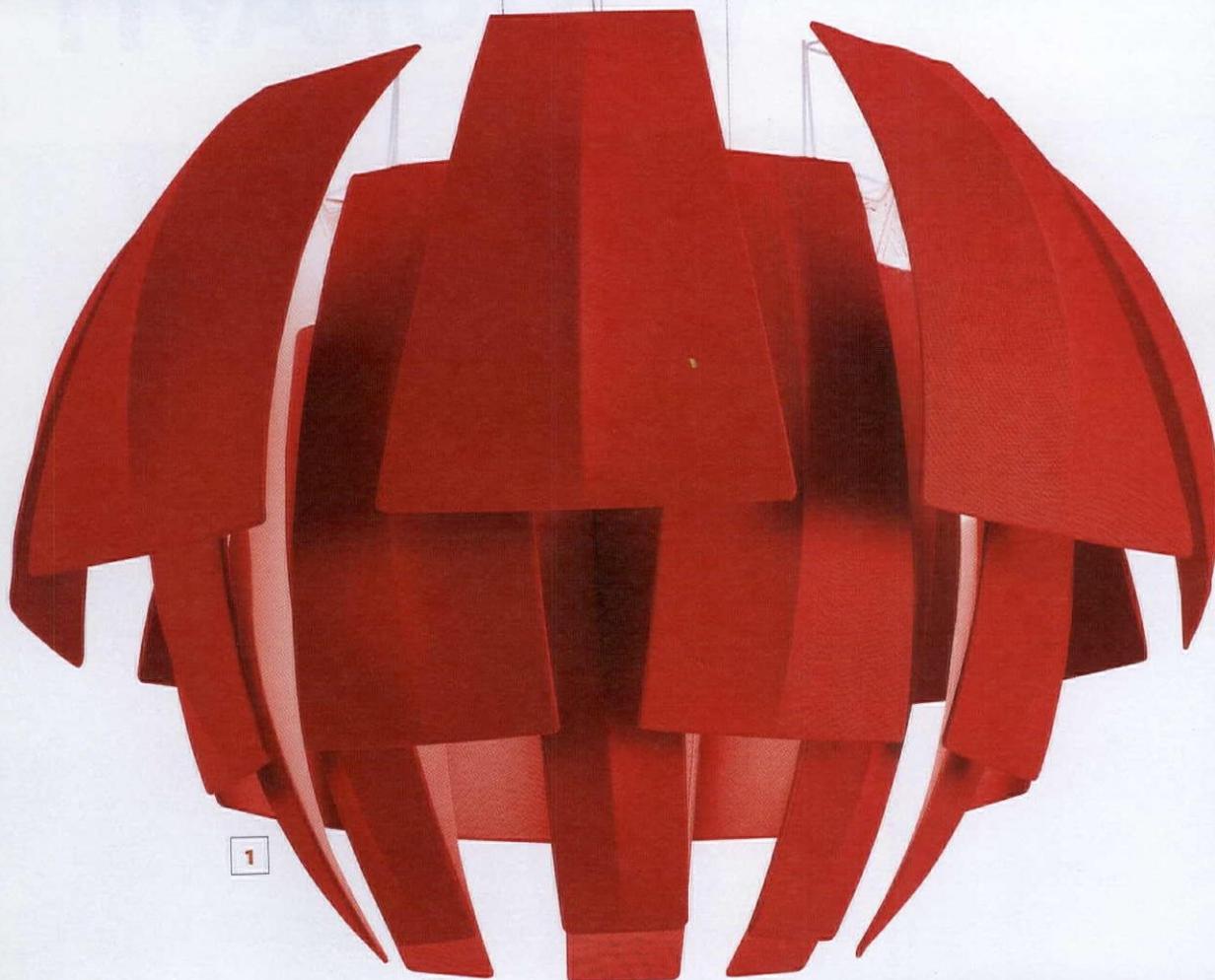
"[Both winners] showed exceptional skill and creativity and are well poised to contribute significantly to the design world," comments Jackie Jordan. —*Allison Craig*

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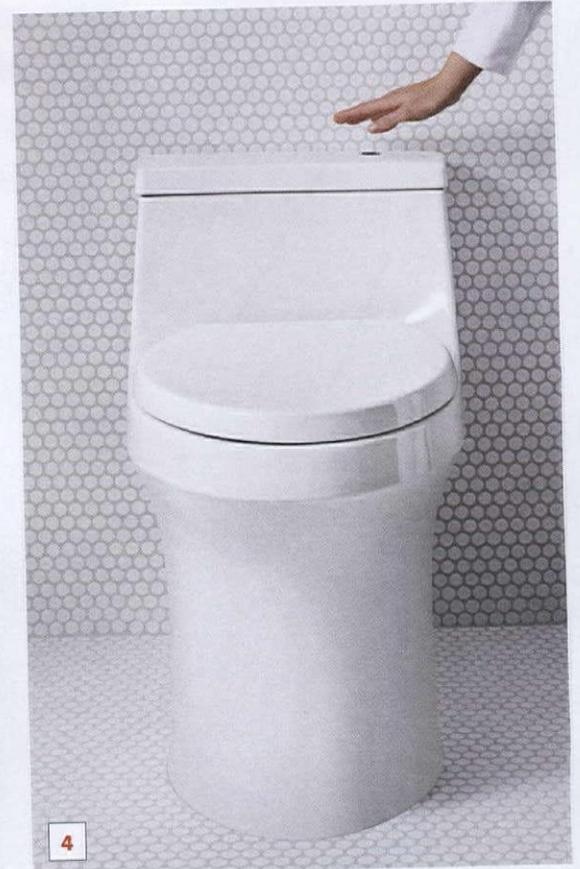
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1. PLUMAGE

MANUFACTURER: Axo Light
PERFORMANCE: The tiered fixture is composed of removable, washable, and fire-resistant Trevira CS fabric units. Halogen or fluorescent lamping.

PRICE RANGE: \$\$\$

APPLICATIONS: Well suited to residential, hospitality, and even office settings; available as a pendant or floor lamp.

AXOLIGHT.IT
 (SNAP #01)

2. SHADE POD

MANUFACTURER: Tuuci
PERFORMANCE: This shading device features a central mast that can support one to four square-shaped canopies. Constructed of Aluma-Teak or satin anodized aluminum.

PRICE RANGE: \$\$\$

APPLICATIONS: For covering large outdoor areas of more than 250 square feet.

TUUCI.COM
 (SNAP #02)

3. EMPIRE COLLECTION

MANUFACTURER: KnollTextiles
PERFORMANCE: The collection includes three high-performance polyester-nylon upholstery fabrics that are bleach cleanable and exceed 100,000 double rubs (Wyzenbeek).

PRICE RANGE: \$\$-\$\$\$

APPLICATIONS: Hospitality, health-care, education, and corporate settings.

KNOLLTEXTILES.COM
 (SNAP #03)

4. TOUCHLESS TOILET

MANUFACTURER: Kohler
PERFORMANCE: The touchless toilet for the home operates via an electromagnetic field that detects the user's hand above it. Battery powered.

PRICE RANGE: \$\$-\$\$\$

APPLICATIONS: Residential bathrooms; available on two models and as an add-on kit.

KOHLER.COM
 (SNAP #04)

KEY \$ = VALUE, \$\$ = MID-RANGE, \$\$\$ = HIGH-END

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5

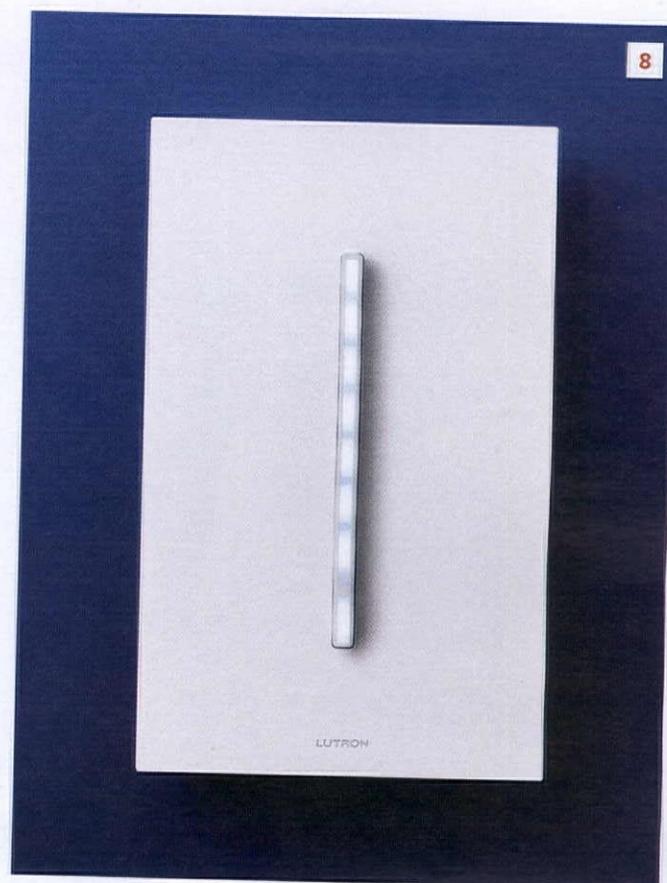
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6



PHILIPS



8

LUTRON

5. PLANAR 8

MANUFACTURER: Franke
PERFORMANCE: In the kitchen line is an 18-gauge stainless-steel undermount sink with sound-dampening pad; another option is the solid-brass Flex Semi-Professional faucet with a covered stainless-steel spring-driven hose.
PRICE RANGE: \$\$\$
APPLICATIONS: Residential and light commercial kitchens.
FRANKEKSD.COM
 (SNAP #05)

6. BREAKING FORM

MANUFACTURER: Mohawk Group
PERFORMANCE: The Mac Stopa-designed nylon carpet-tile collection features fluid patterns and geometric forms.
PRICE RANGE: \$\$
APPLICATIONS: Offered in a 12-by-36-inch format. Well suited to offices, hospitality, and other commercial settings.
MOHAWKGROUP.COM
 (SNAP #06)

7. SLIMSTYLE BR30

MANUFACTURER: Philips
PERFORMANCE: This LED floodlight is substantially sleeker and lighter than its bulky counterparts, making it easier to handle and install. Uses only 9.5 watts to emit 650 lumens.
PRICE RANGE: \$\$
APPLICATIONS: Indoor floodlight needs.
PHILIPS.COM
 (SNAP #07)

8. GRAFIK T

MANUFACTURER: Lutron
PERFORMANCE: Pressing the raised vertical bar on this architectural dimmer switch triggers an LED that indicates the fixture's brightness level.
PRICE RANGE: \$\$-\$\$\$
APPLICATIONS: Can control a single source or room as a stand-alone unit, or can be integrated into a whole building system.
LUTRON.COM
 (SNAP #08)

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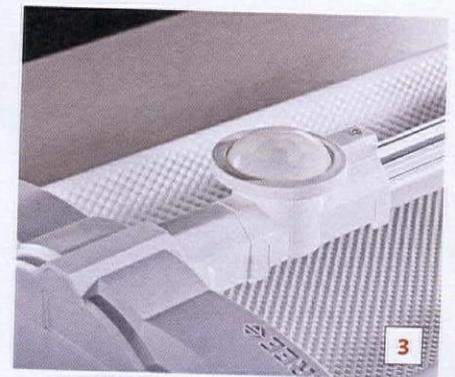
LEDs Get Connected

Increasingly innovative lighting technologies look to the future and provide more than illumination.

BY CRAIG DILOUIE



1. As LED lighting improves in quality, performance, and cost, manufacturers are developing intelligent systems that do more than light buildings. At the Boerhaave Museum in the Netherlands, an exhibition by and about Philips, the electronics giant, features overhead lights that interact with visitors' mobile phones and tablets to deliver display guides.
2. Xicato's intelligent XIM module has integrated sensors, controls, and diagnostic tools. It communicates with digital devices and computers via Echelon power-line communication technology.
3. Cree's SmartCast luminaire has integrated daylight and motion sensors.



WITH QUALITY and performance improving and cost decreasing by about 18 percent each year, light-emitting diode (LED) technology is well positioned for further adoption by the design community for general lighting. LED lighting's growing popularity is primarily due to its energy efficiency and longevity. However, as digital devices, these LEDs are inherently compatible with digital lighting control, and manufacturers have begun to develop new solutions with sensors and control intelligence embedded within luminaires or the LED module itself.

This intelligence opens up an array of capabilities that will enable owners to better manage a building's energy consumption, maintenance, and occupant comfort. These include greater design flexibility, automatic setup, integration with nonlighting sensors and controls, and the ability to generate and share information. Additionally, many of these

products utilize wireless controls—which facilitate installation, particularly in existing construction—and plug-load controls integrated into lighting-management systems. Following is a sampling of what's new.

Designed for commercial interiors, Cree SmartCast Technology and Philips DualLED luminaires with SpaceWise Technology feature luminaire-integrated occupancy and daylight sensors using two-way wireless (mesh network) communication, and push-button setup and commissioning via a handheld remote.

Acuity Brands' XPoint and xCella wireless lighting systems operate solo or combine with the company's other control products to create wireless or hybrid wired/wireless systems supported by floor-plan control, monitoring, and analytic software. XPoint is designed for lighting management and building-wide applications; xCella is for

self-configuring room-based lighting, HVAC, and plug-load control using battery-free switches and sensors with power-harvesting technology.

Cooper Lighting's LumaWatt platform is designed for roadway, parking-garage, and outdoor fixtures, and features integral and/or remote sensors, programming, and power metering. The system also monitors luminaire performance and detects failures.

LED producer Xicato, in collaboration with Eschelon, takes integration a step further by incorporating sensors, diagnostic tools, and the light source into a single module, the XIM.

Sensity's NetSense 2 streetlight platform enables data-intensive video sensing that can be used for security/surveillance, real-time parking availability, traffic reports, and snowfall-depth detection.

Looking ahead, Acuity Brands, GE, and

Philips all recently demonstrated LED systems that use visible light to communicate wayfinding, and target sales information by interacting with user smartphones and tablets via special apps. The first use being explored commercially is in big-box retail stores, but there is potential for other applications at, for instance, convention halls and museums. (Philips is currently showcasing this technology at the Boerhaave Museum in the Netherlands.)

The next stage in the LED phenomenon has already begun, and it just might redefine lighting as we've known it. ■

WHAT THE BEST BUILDINGS ARE WEARING



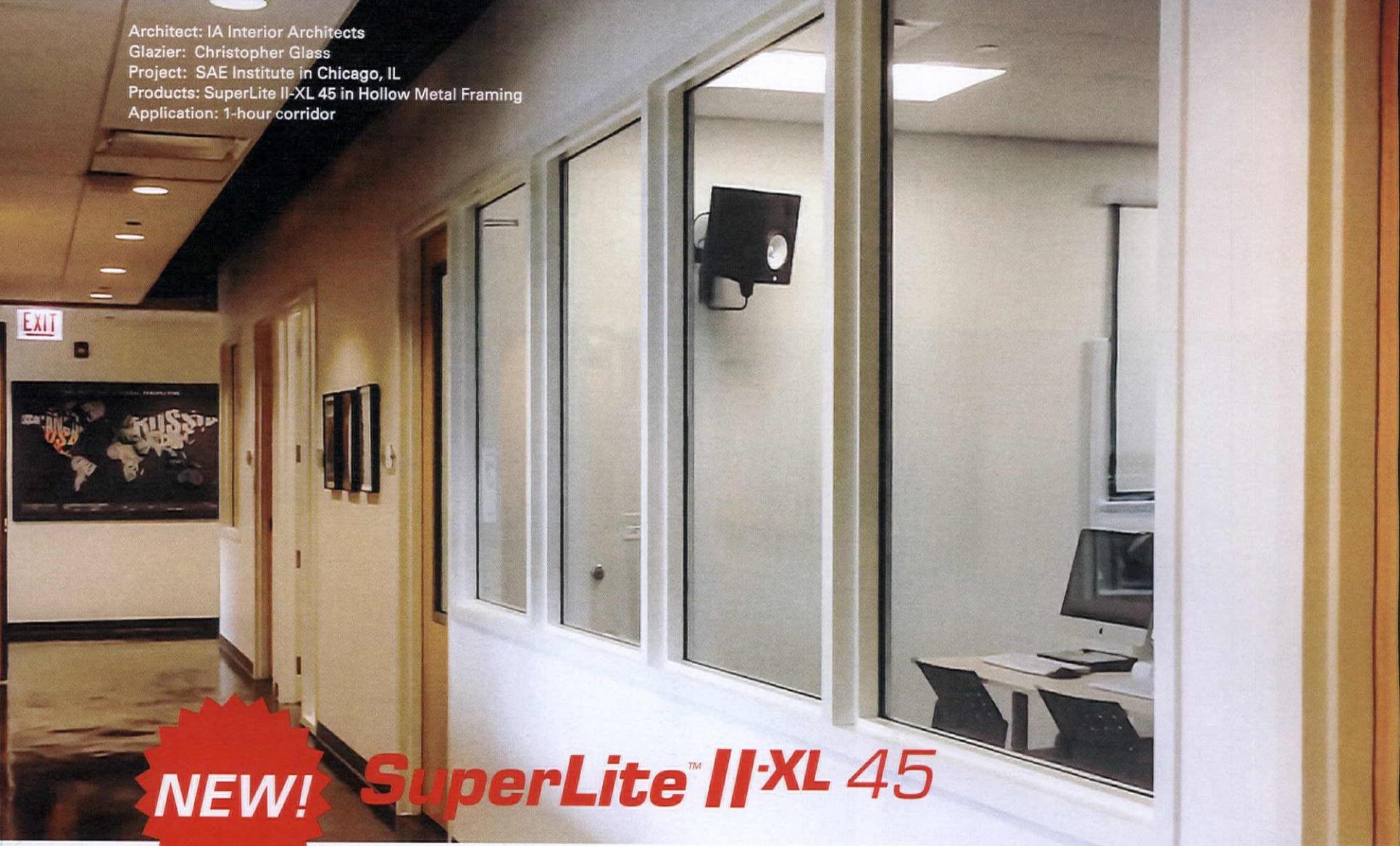
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SNAP 223





That's Entertainment!

No longer mere backdrops, the performance spaces of today play starring roles.

BY DAVID SOKOL

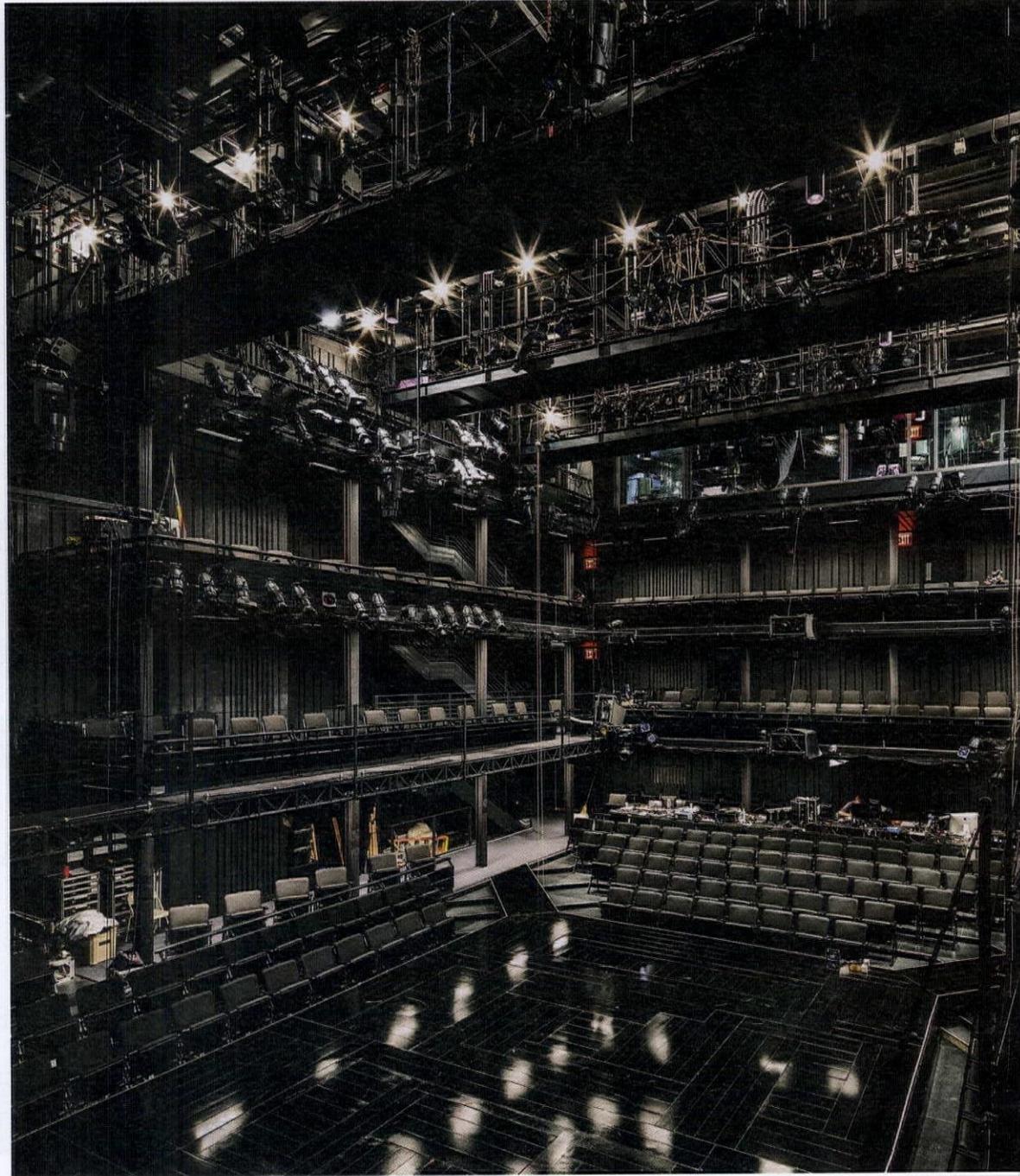


JUST OVER A DECADE ago, the Performing Arts Research Coalition released a landmark study trumpeting Americans' broad support for theater, dance, and music. The data showed not only surprisingly high turnout rates for performances but also a near-universal belief that this involvement augments local identity, cultural understanding, and childhood development. In the 10 years following, the architecture of performance spaces has reflected this popular belief, as new buildings and installations engage communities in increasingly accessible yet site-specific ways.

ALL THE WORLD'S A STAGE

"Shakespeare can be intimidating to many people," notes Geoffrey Lynch, a partner at **H3 Hardy Collaborative Architecture** in New York City. The firm recently completed the **Polonsky Shakespeare Center** in Brooklyn, the first permanent home of Theatre for a New Audience. Just as TFANA restages classical works to highlight their relevance to modern life, so H3 set out to inspire audiences to rethink their relationship to the Bard—and to ultimately help drive new memberships.

"Our goal was to make the lobby like a stage and eliminate the separation between it and the curious public," Lynch explains. This "disappearing act" was established via **Gartner Steel and Glass's** structure- and mullion-free, street-level curtain wall, framed on the side elevations by dark gray cladding from **Alpolic**. "Passersby slow a little and seem to make a note to come back. In fact," he points out, "Brooklyn subscribers are a huge addition to TFANA's audience."



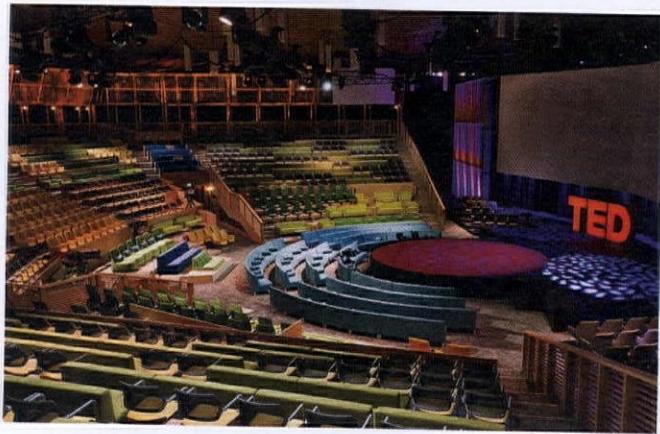
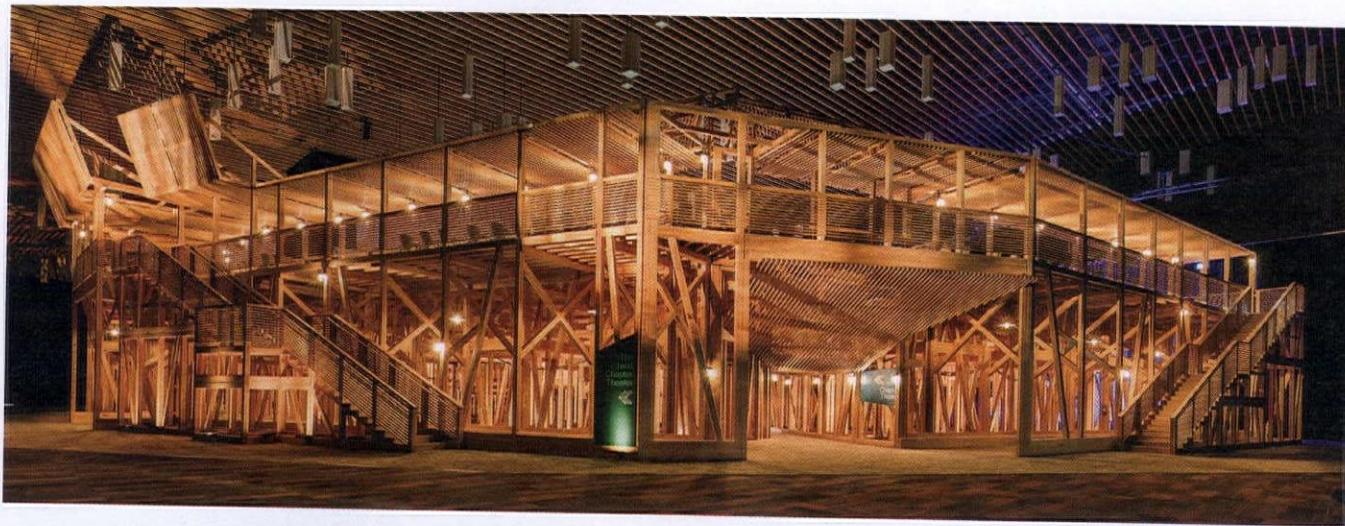
H3 further intrigues newcomers with the facility's inner sanctum—a 299-seat black-box theater with a stage of resilient wood flooring topped in **Duron** hardboard. The project team endeavored to foster intimacy between the audience and the dramatic material here through the seating: Those situated in balconies can gain a greater sense of closeness to the actors, for example, by moving their free-standing **Ducharme** seats up to the steel guardrails (fabricated by **United Iron and Eastern Millwork**). "You actually feel transported into the world of the play itself," Lynch observes.

STOKING THE CREATIVE FIRE

The performing arts enjoy widespread goodwill in part because they have kept pace with the times. One emblem of this evolution is the

THE BARD IN BROOKLYN (from left) The Polonsky Shakespeare Center cuts a public profile in Brooklyn, thanks to a highly transparent curtain wall. The black-box performance venue allocates 299 ganged and loose seats over three levels.

PHOTO CREDIT: FRANCIS DZIKOWSKI



TED SHED The popular conference will be held in the TED Theater “pop-up” structure (top), which can be erected annually within the Vancouver Convention Center or shipped to other locations. Composed of 60 modules, it seats 1,200 (above).

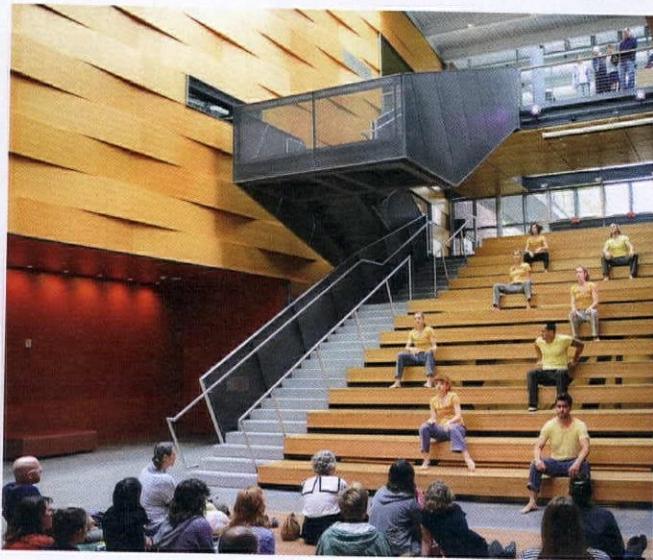
TED franchise (short for Technology, Entertainment and Design), whose enormously popular innovation-themed talks are, as David Rockwell calls them, “part theater and part festival.”

Rockwell Group completed a venue for the phenomenon’s annual conference: a pop-up structure, first erected this March, within a ballroom of the Vancouver Convention Center. “We conceived a giant ‘machine for talking’ that enhances the intimacy and conversational nature of a TED event,” Rockwell says. Following the example of Hans Scharoun’s Berlin Philharmonic hall, the theater offers more than 16 seating options—ringside benches, lounge groupings, and rows with benches and chairs combined, all sourced from **Steelcase**. This attention to individual preferences, the architect explains, makes participants more receptive to the information being exchanged on site.

The cradle for this seating arrangement is worthy of its own TED Talk. Working with fabricators at **Nussli**, Rockwell Group devised the theater as a series of modules that can be transported on flatbed trucks and carried through ballroom doors. Constructed from regionally sourced Douglas fir, the modules were CNC-milled by Vancouver-based **CutMyTimber** with only 2 percent wastage. “The framework became one of the most memorable, visual aspects of the theater,” Rockwell states. Indeed, plans to enclose the theater in a scrim were scrapped in favor of revealing the structure in its entirety.

A CREATIVE COMMONS

While local performances serve to engender a sense of community among patrons, the creatives who bring these events to life enjoy a particular kinship. The **Reed College Performing Arts Building**, designed by **Opis Architecture**, similarly strengthens ties among young artists. The 78,000-square-foot building in Portland, Oregon—



BRIGHT COLLEGE YEARS Douglas fir clads the atrium-cum-theater of the new Reed College Performing Arts Building (above). The walls of the studio theater (left) are accented in slats made from a campus oak tree felled by a storm.

housing the school’s theater, dance, and music programs—features a 200-seat studio theater, 100-seat choral rehearsal hall, and 100-seat black-box theater, along with instruction and practice rooms.

Opis configured these functions around a three-story atrium topped with a skylight from **DeaMor Associates**. The lobby’s **Plyboo** bleacher seating allows the space to double as another venue. So does its Douglas fir cladding from **Salem Wood Products**, as Opis associate John Shorb explains: “An angled fir wall ties together the entire atrium while also diffusing and absorbing sound where perforated. A single element beautifully fulfills the requirements of an in-depth acoustic study of the space, allowing it to be a lobby, performance space, or hangout.” One can imagine the performing arts evolving further, thanks to a cross-disciplinary convergence of Reed students—not to mention the cast of design players who brought them together. ■

PROGRAM NOTES

THE SHOW CAN GO ON THANKS TO THESE
BEHIND-THE-SCENES PLAYERS



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TX Series Themed-Architectural Track Heads employ Xicato LED phosphor modules, which can be specified in four color temperatures and offer a lifespan of more than 50,000 hours. The fixture’s reflectors are field-changeable to 20, 40, or 60 degrees.

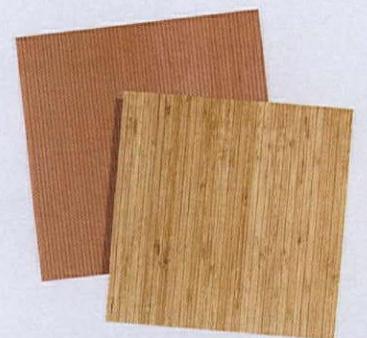
TSLIGHT.COM



BIRDAIR

The 2014 World Cup will be forever linked with the sound of caxirolas and the sight of Birdair. The company’s tensile systems roofed three stadia, among them Estadio Mineirão, which was completed with TiO₂-coated PTFE. Able to withstand temperatures from minus 100 to 500 degrees Fahrenheit, the Teflon-coated woven-fiberglass membrane resists UV rays and boasts self-cleaning properties.

BIRDAIR.COM



RULON INTERNATIONAL

Aluratone Micro Groove acoustical wood-veneer panels feature NRC ratings from 0.65 to 0.85, while the minuscule dimensions of the new product’s grooves enhance the wood grain’s visibility. NRC ratings can be boosted by sandwiching acoustical blanketing between panels.

RULONCO.COM

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Phil Freelon: Building on History

Managing and Design Director, Perkins+Will

TELL US ABOUT YOUR RECENTLY OPENED PROJECT, THE NATIONAL CENTER FOR CIVIL AND HUMAN RIGHTS IN ATLANTA.

The design intent was to convey the institution's vision and mission and tell the story of civil and human rights. Rather than just having visitors go through a series of thresholds, the exhibits flow from one space to the next. That goes for the outside, too—you get an introduction to the experience even before entering the building. Approaching it from the south side, for example, you encounter a sculptural water feature inscribed with quotes by Nelson Mandela and Margaret Mead.

WHAT DO YOU HAVE COMING UP?

The Smithsonian National Museum of African American History and Culture [NMAAHC], which will open on the National Mall in Washington, D.C., in spring 2016.

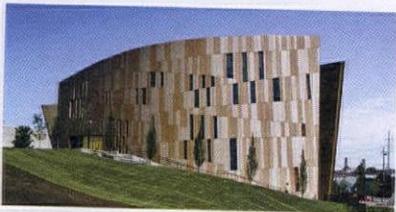


WHAT KINDS OF BUILDING MATERIALS DO YOU FAVOR?

It depends on the project, the context, and what's appropriate. We respond to the particulars of each site and client. On the Mall at the Smithsonian, we're using a custom cast-aluminum panel system with a bronze-like coating. At the Auburn Avenue Research Library in Atlanta, we're using brick.

WHAT WAS A MAIN MATERIAL ELEMENT AT THE NCCHR?

On the exterior, we used phenolic resin panels by Trespa, which are high-pressure laminate and wood-fiber composites. We're open to exploring materiality inside and outside, and letting the program drive those decisions.



In 1990, **PHIL FREELON** established the Freelon Group in Durham, North Carolina, and this year his firm merged with Perkins+Will. Notable projects include the Museum of the African Diaspora in San Francisco, the Harvey B. Gantt Center for African American Arts and Culture in Charlotte, and the forthcoming Smithsonian Museum of African American History and Culture. He was the 2009 recipient of the AIA Thomas Jefferson Award for Public Architecture.

396,773

The square footage of the Smithsonian NMAAHC, opening in 2016.

The architect stands in the main lobby of Atlanta's National Center for Civil and Human Rights. At his left is a mural of posters by Pentagram's Paula Scher.



PHOTO CREDIT: GREGORY MILLER (PORTRAIT); FREELON, ADJAYE, BONO/SMITHGROUP, IMAGING ATELIER (RENDERING); ALBERT VECERKA/ESTO (NCCHR)

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SNAP 227



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CASE STUDY: EDUCATION

BY ANNA FIXSEN

PAUL H. COCKER ARCHITECTURE GALLERY, TORONTO

A Study in Maximizing Space

PROBLEM: Create a pristine gallery in a drab Brutalist university building while adhering to the modest budget.

SOLUTION: When a slick white box replaces a dingy storage closet, the lobby and campus gain a showcase.

FOR THE RONALD THOM—designed Department of Architectural Science building at Toronto's Ryerson University, local firm Gow Hastings Architects was charged with inserting an architecture gallery into its lobby. "We wanted it to be a jewel within a box," says Valerie Gow, partner in charge, but the original space was—hopefully—a diamond in the rough: a dreary, concrete-block storage room. Fortunately, because the architects had overhauled the school's labs, critique spaces, and administrative offices, they were well versed in the heavy Brutalist geometries of the 1970s-era structure, and could employ similar strategies in creating a flexible, welcoming gallery.

To maximize space for the venue, the architects first tore down the storage room's non-load-bearing walls, borrowed footage from a studio behind it, and exposed the original concrete structural walls. Dated burnt-orange floor tiles were replaced with tiles of thin yet

durable white porcelain. "We wanted to keep things as light and crisp as possible," Gow explains. "We chose white walls and floors to create a blank canvas that any exhibition could work with."

The architects installed a versatile hanging display system that is not only designed to accommodate varying curatorial schemes but also serves as tracks for adjustable lights. Dramatic pivoting glass doors open the gallery to the nearby atrium, and the soffit is swathed in vivid red felt. Says Gow, "We wanted it to be warm and tactile."

Both architects and clients are pleased with the outcome, and in September 2013, the gallery hosted its first exhibition, highlighting the work of Spanish architects. "What was interesting about this project was that the clients themselves are architects," Gow points out. "Our meetings were similar to being in a design studio."



ARCHITECTS

Gow Hastings Architects

TYPE

Education

PRODUCT

Laminam Porcelain Tile

MANUFACTURER

Stonetile

PERFORMANCE

The large-format tile resists mold, chemicals, and graffiti.

APPLICATIONS

Suitable for floors

and walls in both interior and exterior environments. Can be installed over existing material.

PRICE RANGE \$

STONE-TILE.COM

(SNAP #11)

SIZING UP The architects increased the square footage of the gallery—formerly a supply closet—by borrowing space from a studio behind it. The new venue creates a dialogue with the dramatic angles of Ronald Thom's Brutalist architecture.

IN THIS PROJECT



CENTER-HUNG PIVOTS

MANUFACTURER: Rixson

PERFORMANCE: These pivots, which put less stress on the door frame, can support high-traffic interior doors of up to 250 pounds and up to 3 1/2 feet wide by 8 1/2 feet high. Made of 78% postconsumer recycled content.

PRICE RANGE: \$\$

APPLICATIONS: For most pivot door installations in both residential and commercial settings.

RIXSON.COM

(SNAP #12)



ADJUSTABLE TRACK LIGHTS

MANUFACTURER: Sistemalux

PERFORMANCE: Made of die-cast aluminum, these versatile 120-volt track luminaires can rotate 180 degrees.

PRICE RANGE: \$

APPLICATIONS: Ideal for indoor display and flood lighting.

SISTEMALUX.COM

(SNAP #13)



FELT

MANUFACTURER: Felt Studio

PERFORMANCE: The gallery walls are swathed with custom fire-engine-red felt panels; a natural fire retardant, the material also assists with sound absorption. Each unit is prefabricated to site specifications.

PRICE RANGE: \$\$

APPLICATIONS: Well suited to residential, commercial, and educational environments, the material can be tailored to fit an array of contexts and budgets.

FELTSTUDIO.COM

(SNAP #14)



HANGING SYSTEM

MANUFACTURER: Unistrut

PERFORMANCE: These hanging systems are grids that lend flexibility to otherwise unusable ceiling space. In the gallery installation, they act as lighting and display tracks. No welding required.

PRICE RANGE: \$\$

APPLICATIONS: Support for heavy equipment, lighting, catwalks, HVAC components, and exhibition display, the grids can also be used as a decorative element.

UNISTRUT.US

(SNAP #15)



YOU'RE INVITED

The porcelain-tile floor extends past dramatic pivot doors, creating a welcome mat of sorts. The exterior wall displays student work.

Getting Schooled

CORK RAILS HAVE BEEN fixtures on the K-12 landscape for decades. Now designers and parents alike are beginning to reconsider the wisdom of lining school hallways with high-maintenance strips that wear easily and amass a multitude of pointy thumbtacks, pushpins, and staples.

Enter AS Hanging Display Systems. The company, which provides presentation solutions for numerous museums, galleries, and commercial settings across the country, is now offering an alternative: the Casso Display Rail. Essentially an extruded aluminum track, the rail incorporates a clever trap mechanism that holds paper and thin-board items up to 1/8 inches thick. Both two-ply and four-ply matte boards are compatible. And most important of all, the product accomplishes its task without the need for a single sharp object.

Casso's clean lines are complemented by concealed mounting hardware, and because the rail is wider than most cork ones, it's well suited for retrofit applications. For more on this A+ education solution, visit ashanging.com. —Allison Craig



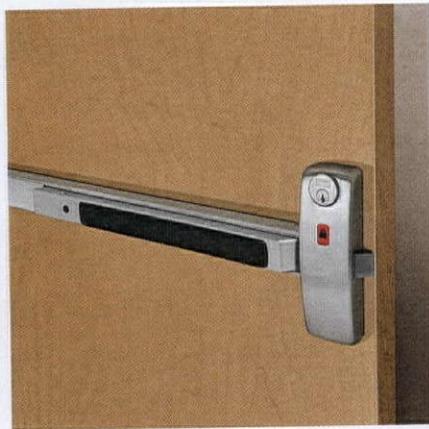
SHOW AND TELL The Casso Display Rail from AS Hanging Display Systems offers a safe, attractive alternative to traditional cork rails.

KEY \$ = VALUE, \$\$ = MID-RANGE, \$\$\$ = HIGH-END



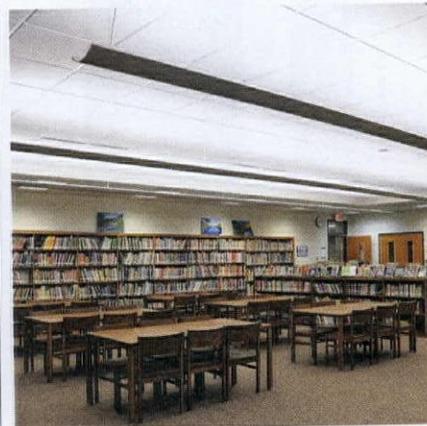
J30

MANUFACTURER: Sedia Systems
PERFORMANCE: A more refined auditorium chair, J30 is at home in today's modern interiors while offering comfort and such options as a concealed tablet arm.
PRICE RANGE: \$\$-\$\$\$
APPLICATIONS: Lecture and performance halls as well as public spaces.
SEDIASYSTEMS.COM
 (SNAP #16)



8816 SERIES LOCK INDICATOR

MANUFACTURER: Sargent
PERFORMANCE: Available on Sargent's 8816 Series rim exit devices, the indicator allows students, faculty, and other occupants to view the devices' locked or unlocked status without having to open the door, which may put people in harm's way. A chassis cover with a clear window protects the display from wear and abuse.
PRICE RANGE: \$\$\$
APPLICATIONS: Ideal for schools, office buildings, and hospitals.
SARGENTLOCK.COM
 (SNAP #17)



CURV LED

MANUFACTURER: Alera Lighting
PERFORMANCE: Curv's indirect distribution casts light on ceilings and walls, thus minimizing reflections on laptop, tablet, and smartphone screens. Available in three color temperatures and compatible with Hubbell Lighting's wiHUBB wireless-control technology.
PRICE RANGE: \$
APPLICATIONS: Well suited to education, office, health-care, and municipal buildings—anyplace needing efficient, glare-free lighting.
ALERALIGHTING.COM
 (SNAP #18)



INTERSECTED

MANUFACTURER: Mannington Commercial
PERFORMANCE: Intersected is an LVT (luxury vinyl tile) line that features color gradations, geometric shapes, and a sophisticated texture. Its patented Quantum Guard HP wear layer has an aluminum-oxide topcoat cured by an ultraviolet process that eliminates the need for polishing.
PRICE RANGE: \$\$\$
APPLICATIONS: Suitable for commercial traffic environments.
MANNINGTON.COM
 (SNAP #19)

SNAP BACK: EDUCATION SOLUTIONS



LINDSAY WILSON
Principal
Corgan
Dallas

"There is a lifestyle trend connected to design and customization that I think is driving a lot of the material choices we see. The 'design for all' approach that retailers like Target and Apple have made mainstream is influencing work and education settings today. The movement is that we are all entitled to beautiful, functional spaces. It's a great thing to see good design—and its impact on people—valued more highly in our culture today."



PAGE HUYETTE
Adjunct Assistant Professor
Montana State University
Bozeman, Montana

"Students have been demanding more collaborative spaces where everything is accessible and within reach. Their lifestyles are helping drive the trends of multi-use tables, mobile chairs, and quiet study spaces that are both functional and aesthetically pleasing. This is a shift away from the old study carrels that used to be standard in libraries across the country and a move toward an educational aesthetic that takes color, texture, and light into account."



TODD FERKING
Senior Associate
DLR Group
Seattle

"I think that education in general is dynamic and changing. Our clients in that market are looking for products that support learning and are healthy and durable. Also, learning spaces are much more collaborative and active these days. We are seeing a lot more digitally collaborative environments. Having products that allow the students to share and document their work with another student or an entire class is critical."

Giving Schools a Facelift



SOUND AND COLOR Armstrong is expanding design options with its new Colorations Ceiling System, which includes coordinated acoustic ceiling tiles, suspension systems, and trims in standard and custom hues.

FINDING BUILDING PRODUCTS for the educational setting that meet both practical and aesthetic goals is increasingly important. The best new schools are as photogenic as they are conducive to learning and study. Fortunately, manufacturers are responding.

NanaWall's Flex Space operable glass walls, for instance, offer a sleek, flexible way to optimize floor plans, allowing teachers to access shared resources and adapt spaces to changing group sizes and project-based learning activities. As a bonus, these walls can provide more natural daylight, which has been linked to increased learning.

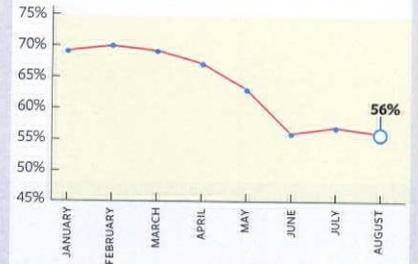
With its Mural Walls, **Rockwerx** has raised the bar for the next generation of school climbing exercises. These modular climbing surfaces can be customized with artwork, graphics, and scenery that transport students from the gymnasium to, say, the Grand Canyon.

Thanks to **Armstrong's** new Colorations Ceiling System, designers no longer have to choose between color and acoustics in the classroom. Colorations offers 13 standard hues and more than 1,000 made-to-order Sherwin-Williams colors, eliminating the need for painting in the field. —AC

SNAPSHOTS

ACOUSTICAL CEILINGS

SPEC RATE FOR EDUCATION PROJECTS OVER TIME (JANUARY TO AUGUST 2014)



SOURCE: MCGRAW HILL CONSTRUCTION RESEARCH + ANALYTICS

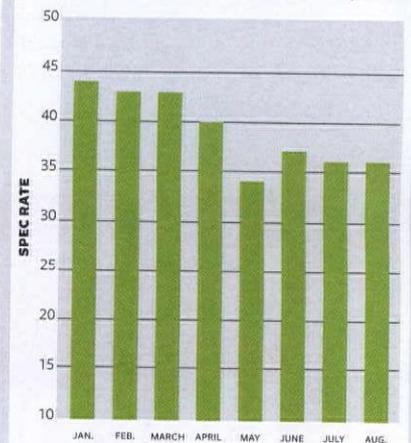
SNAP MATH

More than **\$13 billion** is currently being spent on the construction of schools in the United States.

SOURCE: SCHOOL PLANNING & MANAGEMENT MAGAZINE, FEBRUARY 2014

VISUAL DISPLAY AND DISPLAY CASES

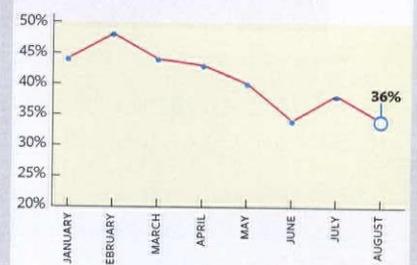
SPEC RATE FOR EDUCATION PROJECTS OVER TIME (JANUARY TO AUGUST 2014)



SOURCE: MCGRAW HILL CONSTRUCTION RESEARCH + ANALYTICS

RESILIENT FLOORING

SPEC RATE FOR EDUCATION PROJECTS OVER TIME (JANUARY TO AUGUST 2014)



SOURCE: MCGRAW HILL CONSTRUCTION RESEARCH + ANALYTICS

WOOD ATHLETIC-FLOORING MANUFACTURERS TO WATCH

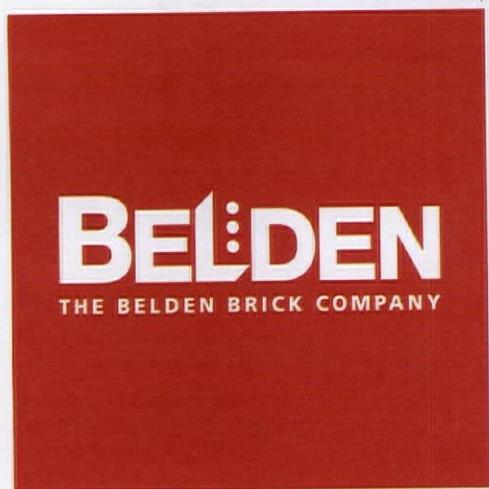
AACER FLOORING

ACTION FLOOR SYSTEMS

CONNOR SPORT COURT

SOURCE: DOWNLOADS FROM SWEETS.COM OVER A 12-MONTH PERIOD

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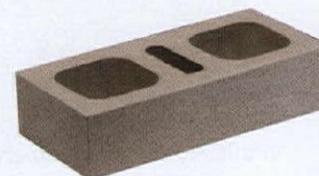
SNAP 229



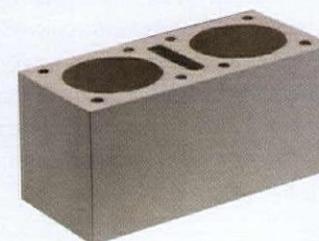
Ambassador - 3-5/8" x 2-1/4" x 15-5/8"



Double Monarch - 3-5/8" x 7-5/8" x 15-5/8"



6" Thru-Wall - 5-5/8" x 3-5/8" x 15-5/8"

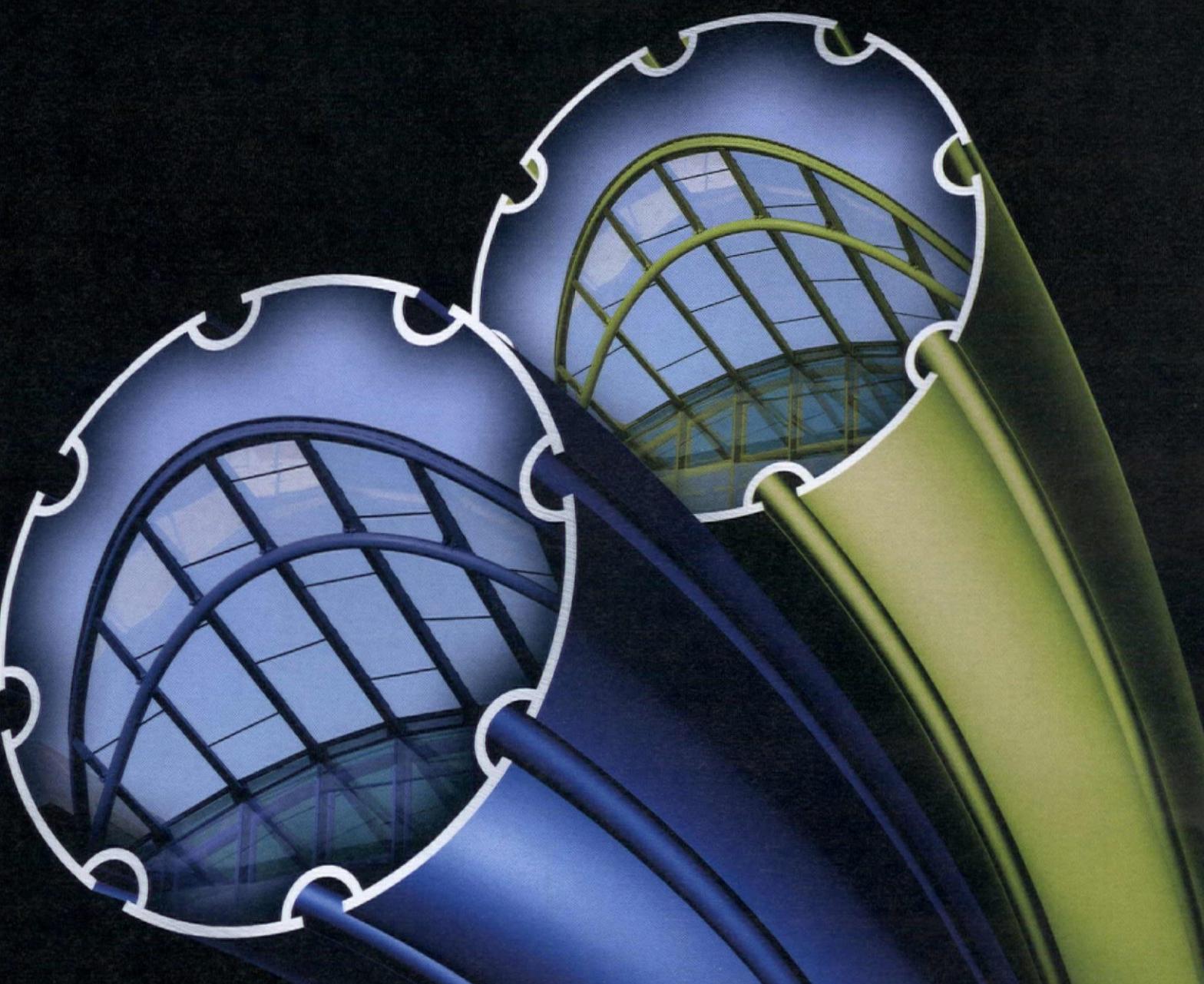


8" Double Thru-wall - 7-5/8" x 7-5/8" x 15-5/8"

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...y long time. **Get inspired at valsparinspireme.com**



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SNAP 230

Design Underfoot

DURABLE FLOORING MATERIALS are enjoying an aesthetic renaissance. In both solid-hardwood and engineered-wood floors, planks are getting wider to add impact to interiors, and classic woods—such as red and white oak—are being revitalized with hand-scraped textures. These format and pattern trends are now being mirrored in installation-friendly, resilient flooring products such as luxury vinyl tile, along with ceramic and porcelain tile.

Even humble concrete is enjoying a high-style moment. In its design of the McCann advertising agency's New York City offices, Gensler employed a not-so-brut use of *béton*. Says firm principal Brian Berry, "The project was viewed as a mash-up of high and low items, creating environments that are inviting, functional, and durable," citing the café and bar area as one such zone. "Marble, wood veneer, bronze, and leather elements contrast with the concrete floor, which we uncovered during the demolition phase. We cleaned, polished, and sealed the existing concrete, in the end achieving the appearance of an elegant terrazzo." —*Lisa Caldwell*



HIDDEN ASSETS After uncovering a concrete floor in McCann's New York City offices, Gensler repaired it and finished it to a fine luster.

KEY \$ = VALUE, \$\$ = MID-RANGE, \$\$\$ = HIGH-END



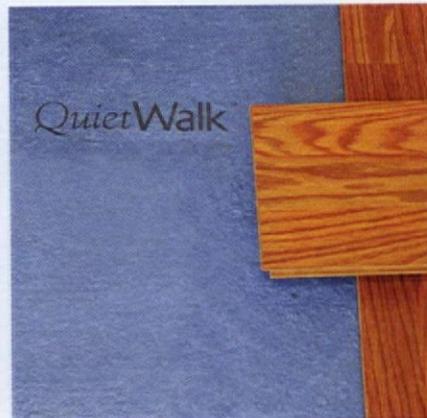
GRAIN + PIGMENT

MANUFACTURER: Shaw Contract Group
PERFORMANCE: FloorScore certified and LEED eligible.
PRICE RANGE: \$\$
APPLICATIONS: Featuring an adhesive-free tongue-and-groove installation system, this luxury vinyl plank has a 20-millimeter wear layer, making it suitable for heavy commercial traffic. The integrated pattern and color palettes allow for nuanced graphic treatments across the floor area.
SHAWCONTRACTGROUP.COM
 (SNAP #20)



INDUROSHINE

MANUFACTURER: W.R. Meadows
PERFORMANCE: Complies with SCAQMD maximum allowable VOC requirement. When dry, the film is USDA accepted.
PRICE RANGE: \$
APPLICATIONS: The polished concrete floor system provides both aesthetic control and enhanced dust resistance and cleanability. Satin, semigloss, and high-gloss finishes available.
WRMEADOWS.COM
 (SNAP #21)



QUIETWALK

MANUFACTURER: MP Global Products
PERFORMANCE: Meets or exceeds IIC, FIIC, and STC sound-rating standards. VOC-free. Adds 0.50 R-value to the flooring system. LEED compliant.
PRICE RANGE: \$
APPLICATIONS: The capillary structure of this recycled-textile underlayment cushions floating floors and absorbs both ambient and transferred sounds.
MPGLOBALPRODUCTS.COM
 (SNAP #22)



PRIME HARVEST OAK

MANUFACTURER: Armstrong
PERFORMANCE: The flooring's aluminum-oxide nano coating resists scratches, wear, and stains. It comes with a Lifetime Limited Residential warranty and a 10-Year Limited Commercial warranty.
PRICE RANGE: \$\$
APPLICATIONS: This collection of solid and engineered wood flooring is available in 12 colors, from a light bleached gray to a rich black-brown. Offered in 3- and 5-inch widths, the planks are finished in a high or low gloss.
ARMSTRONG.COM
 (SNAP #23)



SNAP BACK: FLOORING



NICK LOVELADY
Owner
Cupboards Kitchen
& Bath
Ashland, Alabama

“Flooring is no longer overlooked in the construction process. Why not have the floor be the focal point of a room? Almost every material has the potential to be a stunning stand-alone canvas. The intricate grains of woods, the symmetry of tile, and the limitless designs of vinyl only make it easier for an architect or designer to enhance, accent, or complement a space. Our clients are increasingly open-minded to new patterns and ideas, especially when we can deliver a quality product with a great story.”



CHRISTINA HART
Director of Hospitality
Interior Design
HOK
New York City

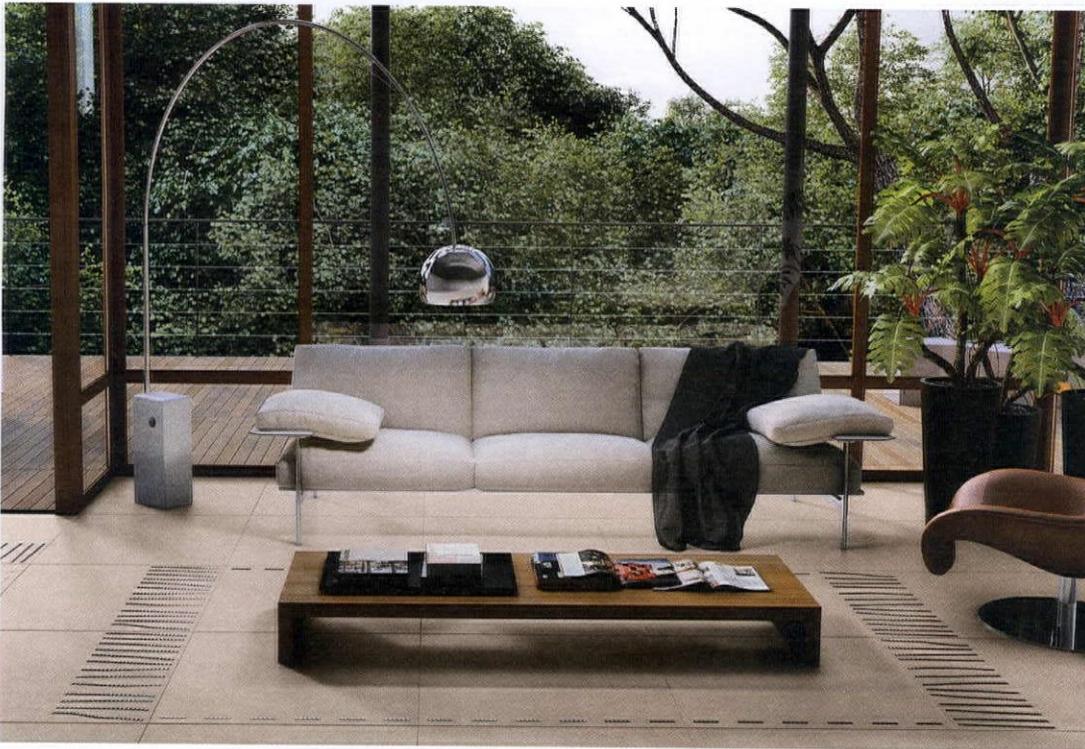
“I’m, well, floored by the options porcelain tile offers. These days porcelain can achieve the look of nearly any surface: wood, stone, and metal. Large-scale and rectangular formats can be used in place of pricier granite and marble.”



KARIN EDWARDS
Principal
Karin H. Edwards
Interiors
Des Moines

“Too many changes in floor types can ‘chop up’ a home’s flow. I like to choose one material for use throughout and a second as a surprising accent. I’ve had fun facing the risers between two elevations of wood flooring with faux marble and other patterned ceramics, then picking that same material up in fireplace hearths. We’re buying ceramic in 5-foot slabs—for long expanses without seams—and laser-cutting vent holds in the surface for grills.”

Pulling the Rug Out



FRINGE BENEFITS

With Bisazza’s Acromi collection of floor tiles, designers can mimic an area rug—and size it to fit furniture groupings or define pathways. Shown here is the Sahara style with fringe detail.

INTERIOR DESIGN PARTNERS Antonio Citterio and Patricia Viel have collaborated on a new porcelain floor-tile collection for **Bisazza**, the Italian tile manufacturer known for its unfettered mosaic artistry. The **Acromi** series, composed of three lines, is built on the artistic conceit of carpeting and rugs rendered in ceramic.

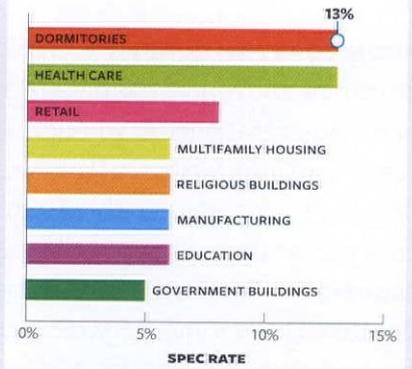
Not an imitation or replica of textiles, however, Acromi has a distinctly architectural influence. When designers work off the grout lines of the entire floor-tile layout—the plan, if you will—the area rug-like result is both an integrated part of a whole while

also an entity unto itself. Each line in the collection has its own contemporary aesthetic. The large-format porcelain ceramic tiles of Sahara are inlaid with enameled mosaic tesserae; the effect is akin to topstitching or embroidery, with smaller pieces adding texture and color to the composition. In the rectilinear Kirgil and Stripes design families, laser engraving accents porcelain field tiles.

The entire trio of designs can use the same decorative border to finish off the installation: a whimsical deco tile featuring a fringe motif. —LC

SNAPSHOTS

SOLID VINYL FLOOR TILE SPEC RATE BY PROJECT TYPE (SEPTEMBER 2013 TO AUGUST 2014)



SOURCE: MCGRAW HILL CONSTRUCTION RESEARCH + ANALYTICS

SNAP FACTS

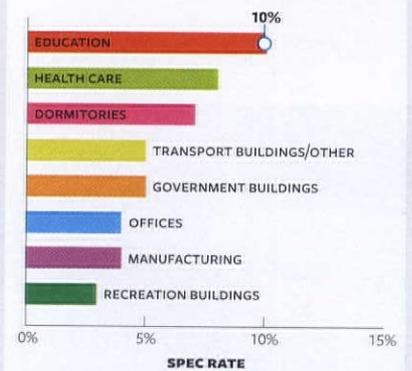
Growth in market share 2011 through 2013:

- 26% vinyl sheet and floor tile
- 20% ceramic tile
- 19% hardwood flooring

SOURCE: CATALINA RESEARCH, 2013

TERRAZZO FLOORING

SPEC RATE BY PROJECT TYPE
(SEPTEMBER 2013 TO AUGUST 2014)



SOURCE: MCGRAW HILL CONSTRUCTION RESEARCH + ANALYTICS

NEW MATH

9.3 BILLION

U.S. demand for hard-surface flooring will rise 5% per year to 9.3 billion square feet in 2017. Vinyl, now the largest product segment, will continue to grow the fastest, with tile and wood following.

SOURCE: FREEDONIA GROUP, 2013

WOOD FLOORING MANUFACTURERS TO WATCH

- ACTION FLOOR SYSTEMS
- AACER FLOORING
- CONNOR SPORT COURT

SOURCE: DOWNLOADS FROM SWEETS.COM OVER A 12-MONTH PERIOD

Old into New

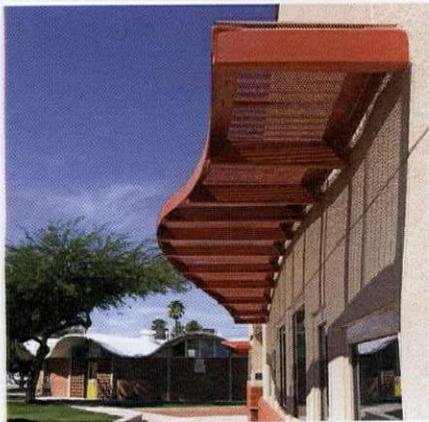
FROM COAST TO COAST, the creative class continues to rethink and repurpose discarded materials to achieve goals at once aesthetic and sustainable. For New York City's Marmara Park Avenue hotel, designer Joe Ginsberg is whitewashing old oak barn-wood to create an elegant lobby ceiling. John Whitmarsh, based in San Francisco, transforms worn shipping container panels into edgy, decorative tiles for use as backsplashes, wainscoting, and art. Brooklyn-based product designer William Harvey employs reclaimed aluminum in his sculptural hardware for DuVerre. "Using recycled materials doesn't make us Luddites," he points out. "We're at the forefront."

And in the heartland, two enterprising college grads are breathing new life into scrap aluminum salvaged from old military aircraft. Matan Gill and Garth Britzman founded Lincoln, Nebraska-based Flight Series Tiles, devising a simple method for smelting the old metal into ingots and slicing those into tiles suitable for cladding interior walls. An added benefit: because the product is handcrafted, notes Gill, "every tile is unique." —*J. Michael Welton*



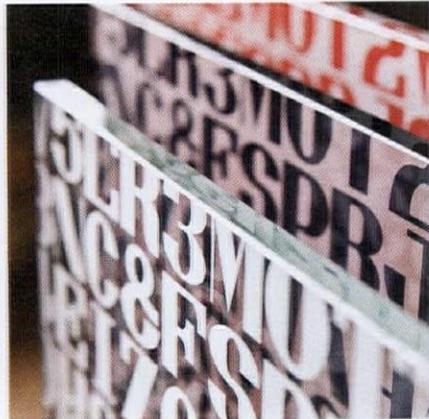
TAKING OFF Reclaimed aluminum, the material Garth Britzman and Matan Gill use for their Flight Series Tiles, is sourced from Tucson's so-called boneyard for military aircraft at an Air Force base.

KEY \$ = VALUE, \$\$ = MID-RANGE, \$\$\$ = HIGH-END



PERFORATED STEEL PANELS

MANUFACTURER: SteeLogic
PERFORMANCE: Manufactured and coated with SteeLogic's Symphony Kynar 500 or Hylar 5000 fluoropolymer finishes for durability and long life. The finishes are available in more than 30 standard colors and additional custom colors.
PRICE RANGE: \$\$
APPLICATIONS: SteeLogic offers perforated patterns to suit any decorative or functional requirement, including walls, canopies, and screens.
STEELOGIC.COM
 (SNAP #28)



ALEXANDER GIRARD COLLECTION

MANUFACTURER: Skyline Design
PERFORMANCE: The collection's 10 graphic patterns, conceived as textiles by the iconic designer and architect Alexander Girard, are rendered on architectural glass via a variety of techniques. Offered with transparent, translucent, or opaque effects.
PRICE RANGE: \$\$-\$\$\$
APPLICATIONS: The glass can be applied as interior walls and dividers.
SKYDESIGN.COM
 (SNAP #29)



CLASSTONE COMPACT SURFACES

MANUFACTURER: Neolith
PERFORMANCE: Composed of clays, feldspar, silica, and natural mineral oxides, the recyclable compact surface has near-zero porosity, making the product hygienic, stain resistant, easy to clean, and impervious to chemicals.
PRICE RANGE: \$\$-\$\$\$
APPLICATIONS: Well suited to kitchen and bath countertops, flooring, interior wall cladding, and exterior facades.
THESIZE.ES
 (SNAP #30)



LINEAR LINE COLLECTION

MANUFACTURER: Smith & Fong
PERFORMANCE: Carved in FSC-certified bamboo and free of urea formaldehyde, these 3/4-inch-thick panels are available pre- or unfinished. Each measures 4 by 8 feet.
PRICE RANGE: \$\$
APPLICATIONS: Suitable for any interior wall feature, the panel comes in six architecture-inspired styles, with a vertically fluted face layer that reveals a uniquely graphic inner core. These intersecting surfaces suggest the tactile quality of a woven textile.
PLYBOO.COM
 (SNAP #31)

SNAP BACK: MATERIALS



THOMAS SAYRE
Founding Principal
Clearscapes
Raleigh,
North Carolina

“We’re ‘earth-casting’: using the character of the earth to create inexpensive molds for large public sculptures and architectural elements. We make a shape in the ground, pour reinforced concrete into it, and pull the form out. Philosophically, it’s where the human hand meets the hand of nature. We’re using the earth but not the material. We’re sort of borrowing color and texture.”



JASON MONEY
Associate
Barlis Wedlick
Architects
New York City

“A lot of our projects incorporate both reclaimed and recycled materials for not only the environmental impact but also the quality of material and the emotional angle. These materials have a history shaped by use and weather, an appeal that goes beyond the materials themselves. Salvaged stone is particularly beautiful as its patina just can’t be reproduced in a new product.”



MARK SIMON
Partner
Centerbrook Architects and Planners
Centerbrook,
Connecticut

“Years ago we started using clients’ local lumber on small projects. At the University School in Hunting Valley, Ohio, we used the region’s white oak, and for Kroon Hall, home of the Yale School of Forestry and Environmental Studies, we used red oak. Those woods can be regrown and therefore replenished. Our clients love it.”

Glass Acts



IN LIVING COLOR In Lakewood, Colorado, artist Ivan Toth Depeña created *Color Field* at the Federal Center Station as an evolving, kaleidoscopic abstraction.



THINK OF IT AS a giant deconstructed kaleidoscope. At the Federal Center Station in Lakewood, Colorado, artist **Ivan Toth Depeña** installed a site-specific work called *Color Field*. It consists of 18 tree-like structures composed of the most common building materials—glass, steel, concrete, and LEDs—and makes for a colorful experience day or night.

The work casts changing light patterns across 100 feet of ramps, stairs, and walkways. Depeña found his inspiration in everything from the sun and the solar system to the play of light and shadows.

“I wanted to create a sculptural intervention that constantly evolves and has a direct relationship with the light of Colorado,” he says. Depeña varied the size and position of his laminated, tempered, and colored glass lenses from **Archetype Frameless Glass** to maximize their effect. “The owner of the company wanted to push the materials outside their traditional uses,” he adds.

“*Color Field* will not be the same in the morning as it will be in the afternoon, nor this week as it will be next month.” The earth, as it turns on its axis and circles the sun, will see to that. —*JMW*

SNAPSHOTS



SNAP FACT

An estimated **20% to 30%** of building-related construction and demolition debris is recovered for processing and recycling.

SOURCE: EPA

MECHANICALLY GRADED LUMBER MANUFACTURERS TO WATCH

INDOTEAK DESIGN

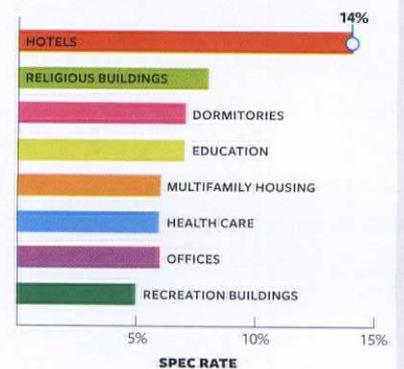
HOOVER TREATED WOOD PRODUCTS

RETHINK WOOD

SOURCE: DOWNLOADS FROM SWEETS.COM OVER A 12-MONTH PERIOD

NATURAL STONE

SPEC RATE BY PROJECT TYPE
(SEPTEMBER 2013 TO AUGUST 2014)



SOURCE: MCGRAW HILL CONSTRUCTION RESEARCH + ANALYTICS

SNAP MATH



By 2014, an estimated 40% to 48% of new nonresidential construction by value will be green, creating a **\$120 billion to \$145 billion opportunity**.

SOURCE: U.S. GREEN BUILDING COUNCIL

METAL WALL PANEL MANUFACTURERS TO WATCH

ALCOA ARCHITECTURAL PRODUCTS

ALUCOIL

CENTRIA

EMBURY COMPANY

SOURCE: DOWNLOADS FROM SWEETS.COM OVER A 12-MONTH PERIOD

A man in a suit is shown from the chest up, holding a smartphone in his right hand. He is looking upwards and to the right. The image is a negative space or cutout effect, where the man's silhouette is white against a background of a cityscape and a park. The cityscape includes several tall buildings, and the park has green grass and trees. The overall color palette is light blue and white.

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SNAP 231



The Big Picture

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Southern Illinois University Carbondale
White & Borgognani Architects, P.C.
Photo: David Landadio

Proactive Paint

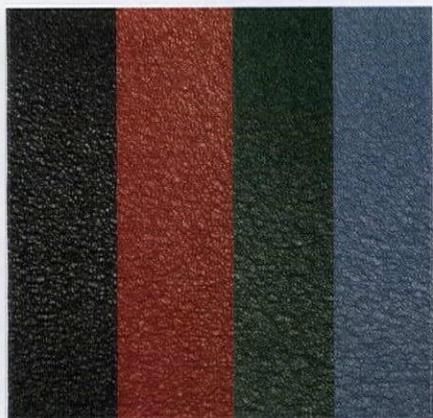
INCREASINGLY, ARCHITECTURAL coatings don't merely comply with environmental codes—they actively contribute to improving a space on a day-to-day basis. Case in point: Greenguard Gold-certified Harmony by Sherwin-Williams is a no-VOC, acrylic latex paint formulated to reduce airborne levels of formaldehyde, which common interior elements like carpeting, insulation, cabinets, and fabrics may emit. The paint also mitigates odors associated with cooking, smoking, and pets and can be tinted without compromising its zero-VOC status.

Some coatings are designed to combat surface bacteria. These often contain elemental silver which, along with other antimicrobial additives, must be approved by the EPA. Targeting the hygiene-centric health-care and food-service industries, antimicrobial paint is an expanding market dominated by a handful of manufacturers: according to San Francisco-based Grand View Research, AkzoNobel NV, Sherwin-Williams, Dow Microbial Control, and Diamond Vogel accounted for over 40 percent of the antimicrobial coatings produced in 2013. —*Lisa Caldwell*



BREATHE EASIER
Chemically sensitive individuals and health-care facilities are just two types of users that could benefit from the air-cleansing properties of Sherwin-Williams's Harmony paint.

KEY \$ = VALUE, \$\$ = MID-RANGE, \$\$\$ = HIGH-END



WEATHERXL CRINKLE FINISH

MANUFACTURER: Valspar

PERFORMANCE: This textured finish redirects light, enhancing the visual depth of flat surfaces. Its strong color-retention properties meets Energy Star's solar-reflection standards for steep-slope roofs.

PRICE RANGE: \$\$

APPLICATIONS: The highly durable silicone-polyester coating is suitable for use on aluminum, Galvalume, and hot-dipped galvanized steel. Available in 18 standard colors and custom hues as well.

VALSPARCOILEXTRUSION.COM
(SNAP #24)



REGAL SELECT EXTERIOR REVIVE

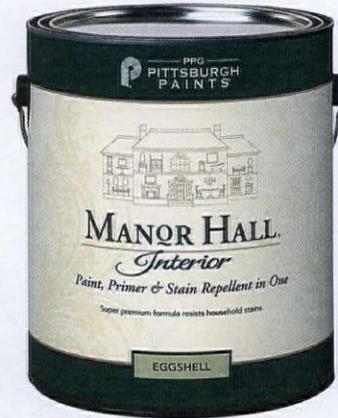
MANUFACTURER: Benjamin Moore

PERFORMANCE: Washable, mildew resistant, VOC compliant. NB: The manufacturer does not recommend painting vinyl siding in shades deeper than the original.

PRICE RANGE: \$\$\$

APPLICATIONS: Formulated for superior adhesion on vinyl siding, this acrylic resin coating can be applied with a brush, roller, or sprayer. As siding expands or contracts, the paint resists cracking and peeling.

BENJAMINMOORE.COM
(SNAP #25)



MANOR HALL INTERIOR PAINT

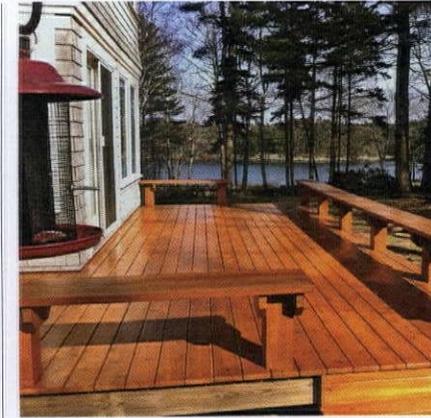
MANUFACTURER: PPG

PERFORMANCE: A scrub-cleanable, all-in-one coating offering paint, primer, and household-stain repellency with excellent burnish resistance.

PRICE RANGE: \$

APPLICATIONS: Suitable for high-humidity and -traffic areas. Recommended substrates include concrete/masonry block, ferrous metals, gypsum wallboard, plaster, and wood.

PPG.COM
(SNAP #26)



POLYWHEY EXTERIOR PENETRATING WOOD STAIN

MANUFACTURER: Vermont Natural Coatings

PERFORMANCE: The stain combines rich color with protection from water and UV light. Recycled whey replaces heavy metals as the bonding agent, making this finish LEED eligible.

PRICE RANGE: \$\$\$

APPLICATIONS: The exterior-use product can be applied to new pressure-treated and existing weathered wood. Available in four transparent and semitransparent colors.

VERMONTNATURALCOATINGS.COM
(SNAP #27)

SNAP BACK: PAINTS & COATINGS



JOSHUA ZINDER
Principal
Joshua Zinder
Architecture + Design
Princeton,
New Jersey

"In hospitality and increasingly in office design, we're seeing a movement back to the basics with more environmental sensitivity: a trend that has led to wider use of exposed concrete and raw wood. A greater effort is being made to enhance these surfaces with green paints and coatings rather than conceal them. Examples are soy-based concrete stains and no-VOC clear coatings. The effort pays off by bringing the authenticity back to architecture and design while reducing or eliminating harmful side effects."



JERRY CALDARI
Partner
Bromley Caldari
Architects
New York City

"We have been doing some renovations and enlargements to masonry buildings. For exteriors where we can't match brick color or where some stucco or coating has been applied to the masonry, there are two products we like a lot these days: Keim UniversalPutz rendering and Nawkaw Brick Veiling materials. The first is stucco-like and bonds with the substrate. The second is similar to paint but is not a film; it actually forms a chemical bond with the masonry surface."



JOHN CLAGETT
Principal
John Clagett
Architect
Englewood,
New Jersey

"Today's paints are unquestionably more chemically friendly than their lead-based predecessors, but the end product is often an aesthetic downer. It looks and feels like...what? Colored tape, rubber, plastic wrap. The finish seems opaque, unvarying, and artificial. I look forward to the day when water-based and other environmentally sound paints come close to matching the luminosity, richness, and subtle variations of their antecedents."

The Art of Science



AT THE PHILADELPHIA Museum of Art, the ornate bronze window frames and light grilles that Louis Comfort Tiffany designed in the 1920s were in sore need of restoration. Such a project, though, would inevitably be expensive as well as expansive.

To address this dilemma, an innovative partnership was formed among the institution's conservators, global chemicals manufacturer **Arkema**, and academic scientist **Tami Lasseter Clare**, a specialist in coatings research. The challenge was to create a long-lasting, colorfast coating that could stand up to punishing weather conditions and could be field-applied.



MUSEUM AS LAB

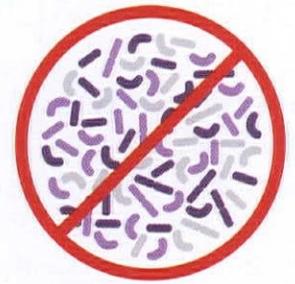
One aspect of Kynar Aquatec that appealed to the Philadelphia Museum of Art was the ease with which the level of gloss coating could be controlled.

The team's solution? The latex-based **Kynar Aquatec**, which meets these criteria and complies as well with ever-tightening environmental codes because it is water based. Seven years after the Tiffany masterpieces were treated, the project has been officially declared a success.

"The restoration returned the metalwork to an appearance very close to what it looked like when it was made in the '20s," notes Andrew Lins, chairman of the museum's conservation department. "The coating has required no maintenance whatsoever, which is a significant cost savings for us." —LC

SNAPSHOTS

NEW MATH



\$3.3 BILLION

By 2018, the global market for **antimicrobial coatings** will reach \$3.3 billion.

SOURCE: TRANSPARENCY MARKET RESEARCH

PAINT MANUFACTURERS TO WATCH

AKZO NOBEL PAINTS

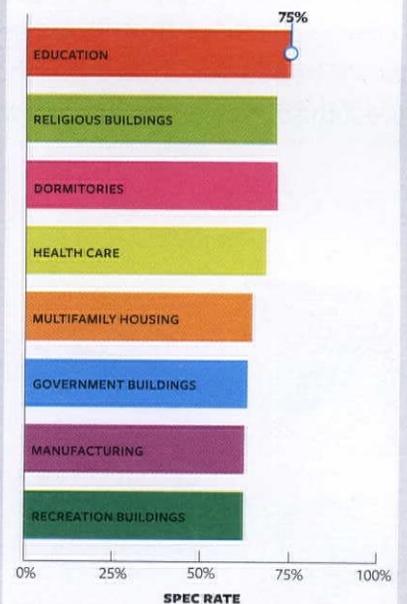
PPG ARCHITECTURAL COATINGS

SHERWIN-WILLIAMS

SOURCE: DOWNLOADS FROM SWEETS.COM OVER A 12-MONTH PERIOD

PAINTS AND COATINGS

SPEC RATE BY PROJECT TYPE
(SEPTEMBER 2013 TO AUGUST 2014)



SOURCE: MCGRAW HILL CONSTRUCTION RESEARCH + ANALYTICS

SNAP FACT

Indoor air quality is the leading application market for antimicrobial coatings, accounting in 2013 for 26.9% of the total volume.

SOURCE: GRAND VIEW RESEARCH

HIGH-PERFORMANCE COATING MANUFACTURERS TO WATCH

AKZO NOBEL PAINTS

CROSSFIELD PRODUCTS

DAVIS COLORS

SOURCE: DOWNLOADS FROM SWEETS.COM OVER A 12-MONTH PERIOD



Decent Exposure

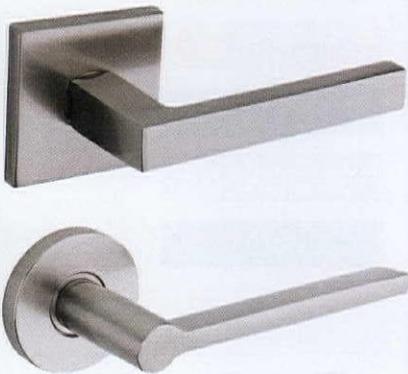
ARCHITECTS USUALLY FALL into one of two schools of thought: Some believe in concealing a building's inner workings, while others prefer to reveal functional elements in all their glory. Tom Kundig, a principal at Seattle-based Olson Kundig Architects, takes the latter approach. "The last thing we should do is hide how buildings function," he asserts, and in designing the 242 State Street art venue in San Francisco, the architect put that philosophy into practice.

For the one-story flexible space, Kundig designed a guillotine window wall that operates via a waxed raw-steel hardware system, whose works have the playful air of a Rube Goldberg contraption: Press the foot pedal and the safety mechanism unlocks, allowing the user to crank a hand wheel on the wall. The wheel's turning activates a series of gears and pulleys that raise the storefront, opening the building to the elements. Although unique to this project, it is a signature of sorts for the architect. "I like to celebrate the interplay between people and the places they inhabit," Kundig says. "The best way to do that is show how they can affect the buildings they interact with." —Sheila Kim



OPENING ACT At 242 State Street in San Francisco, Tom Kundig custom designed the exposed door-opening system that operates a 16-by-10-foot guillotine storefront (left). The hardware components (above) are constructed of waxed raw steel.

KEY \$ = VALUE, \$\$ = MID-RANGE, \$\$\$ = HIGH-END



SANTA MONICA DOOR SETS

MANUFACTURER: Baldwin Hardware

PERFORMANCE: The line offers five levers, four rosettes, a handle set with mortise or multipoint lock, and a square deadbolt. All are made of solid forged brass and come in 19 finishes ranging from distressed, oil-rubbed bronze to satin nickel.

PRICE RANGE: \$\$\$

APPLICATIONS: The minimalist designs suit entrances, corridors, patios, and French doors.

BALDWINHARDWARE.COM
(SNAP #32)



200PD SLIDING DOOR HARDWARE

MANUFACTURER: Johnson Hardware

PERFORMANCE: The system, which features heavy-duty four-wheel, ball-bearing hangers that assure smooth operation of sliding doors, support standard or multi-sliding-door configurations as well as pocket doors. Heavy-gauge steel components glide on nylon wheels.

PRICE RANGE: \$\$-\$\$\$

APPLICATIONS: Well suited to commercial and residential applications alike.

JOHNSONHARDWARE.COM
(SNAP #33)



SECURITRON R100-1H

MANUFACTURER: Securitron

PERFORMANCE: The surface-mount wireless reader can be installed directly on glass or stone entries—no drilling required. Via Assa Abloy's Aperio technology, the device links wirelessly to a new or existing access-control system; existing ID badges also work with it.

PRICE RANGE: \$\$

APPLICATIONS: Ideal for buildings that require a high level of security, R100 operates in a range of outdoor temperatures.

SECURITRON.COM
(SNAP #34)



DESIGNER SERIES

MANUFACTURER: CRL-Blumcraft

PERFORMANCE: CRL has designed a sleek panic-bar handle for use on modern glass entrances. The tubular steel bar, available in brushed or polished finish, curves on the door-facing side for a comfortable grip.

PRICE RANGE: \$\$

APPLICATIONS: On glass entrance doors of commercial buildings.

CRLAURENCE.COM
(SNAP #35)

SNAP BACK: HARDWARE & ACCESS CONTROL



COLIN BRICE
Principal
Mapos
New York City

“We’ve been investigating ways to eliminate hardware on cabinetry and interior doors when it suits the project. With a strategic extra half inch in the door or drawer face, you can create easy grabs with no visible hardware. This helps the budget, too. When we do use cabinetry hardware, we like working with FSB brand.”



KELLY GREGORY
Associate
David Baker Architects
San Francisco

“In a busy neighborhood, the entry-way needs to strike a balance between security and transparency. For 300 Ivy Street, a condo project in San Francisco, we created a custom glass-and-steel gate; it has enough heft to give residents a sense of safety yet is otherwise completely transparent, clearly connecting the entry courtyard with the neighborhood beyond.”



STEVEN DANIELPOUR
Principal
HOK
New York City

“Recently, clients asked us to project future trends for access control in pedestrian turnstiles so they could maintain their investment while embracing changing technology. It’s important to be aware of industry changes and trends, and to work early and closely with clients and their security consultants to ensure proper, fully coordinated implementation of access-control requirements.”

The Magic Flute



BRONZE FIGURES For the new Flute collection by Rocky Mountain Hardware, hospitality maven Roger Thomas drew inspiration from classical Greek columns.

MIDCENTURY MODERNISM may remain the decor du jour, but every now and then, aspects of classical architecture wedge their way in. One notable example is Flute, an elegant new collection from **Rocky Mountain Hardware**.

“When considering simplicity in design, I look to shapes like the cylinder,” explains the creator of the line and Wynn Design and Development’s executive vice president of design, **Roger Thomas**. “My favorite example of the cylinder—and the most romantic, I feel—is the fluted Corinthian column of 5th-century-B.C. Greece, which is the foundation of much of our 2,500 years of architecture.” Thomas’s rendition is scaled down, of course, to comfortably fit the hand.

The collection includes hardware for entry doors as well as cabinetry and drawer fronts. Round knobs of various sizes present a smooth face with a grooved perimeter; levers, pulls, and grips feature fluting all around the touchable surface areas. The ridges continue onto the faceplate of the door escutcheons, which can be fitted with a knob, lever-style, or combination thumb-latch-and-pull handle. Each of the series’s 14 pieces are hand cast in bronze (90 percent of which is postconsumer recycled) and come in any of 10 standard finishes, although Rocky Mountain also offers custom finish options. —SK

SNAPSHOTS

SNAP MATH

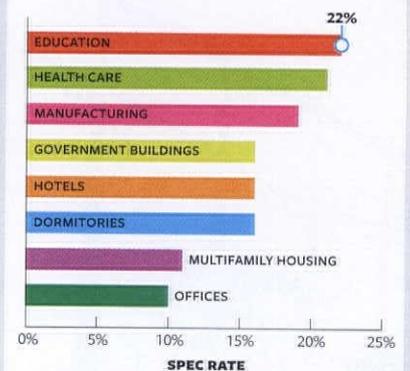
156

The average number of access systems implemented in 2013 by large companies (\$10 million or more in annual revenue); small operators averaged 42 systems and midsize firms, 60.

SOURCE: SECURITY SALES & INTEGRATION’S THE GOLD BOOK, 2014

ACCESS-CONTROL SYSTEMS

SPEC RATE BY PROJECT TYPE
(SEPTEMBER 2013 TO AUGUST 2014)



SOURCE: MCGRAW HILL CONSTRUCTION RESEARCH + ANALYTICS

DOOR HARDWARE MANUFACTURERS TO WATCH

ACTIVAR CONSTRUCTION PRODUCTS

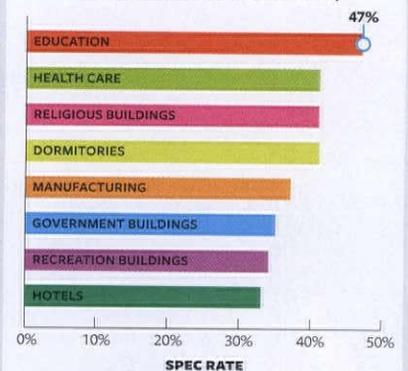
ASSA ABLOY

AMBA PRODUCTS

SOURCE: DOWNLOADS FROM SWEETS.COM OVER A 12-MONTH PERIOD

DOOR LOCKS

SPEC RATE BY PROJECT TYPE
(SEPTEMBER 2013 TO AUGUST 2014)



SOURCE: MCGRAW HILL CONSTRUCTION RESEARCH + ANALYTICS

CABINET AND DRAWER HARDWARE MANUFACTURERS TO WATCH

ROCKY MOUNTAIN HARDWARE

AMBA PRODUCTS

AMEROCK

SOURCE: DOWNLOADS FROM SWEETS.COM OVER A 12-MONTH PERIOD



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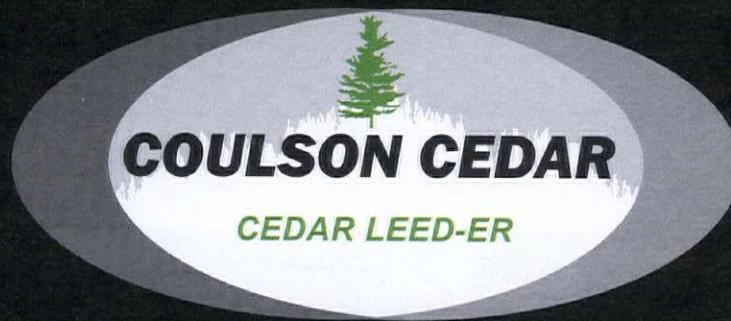
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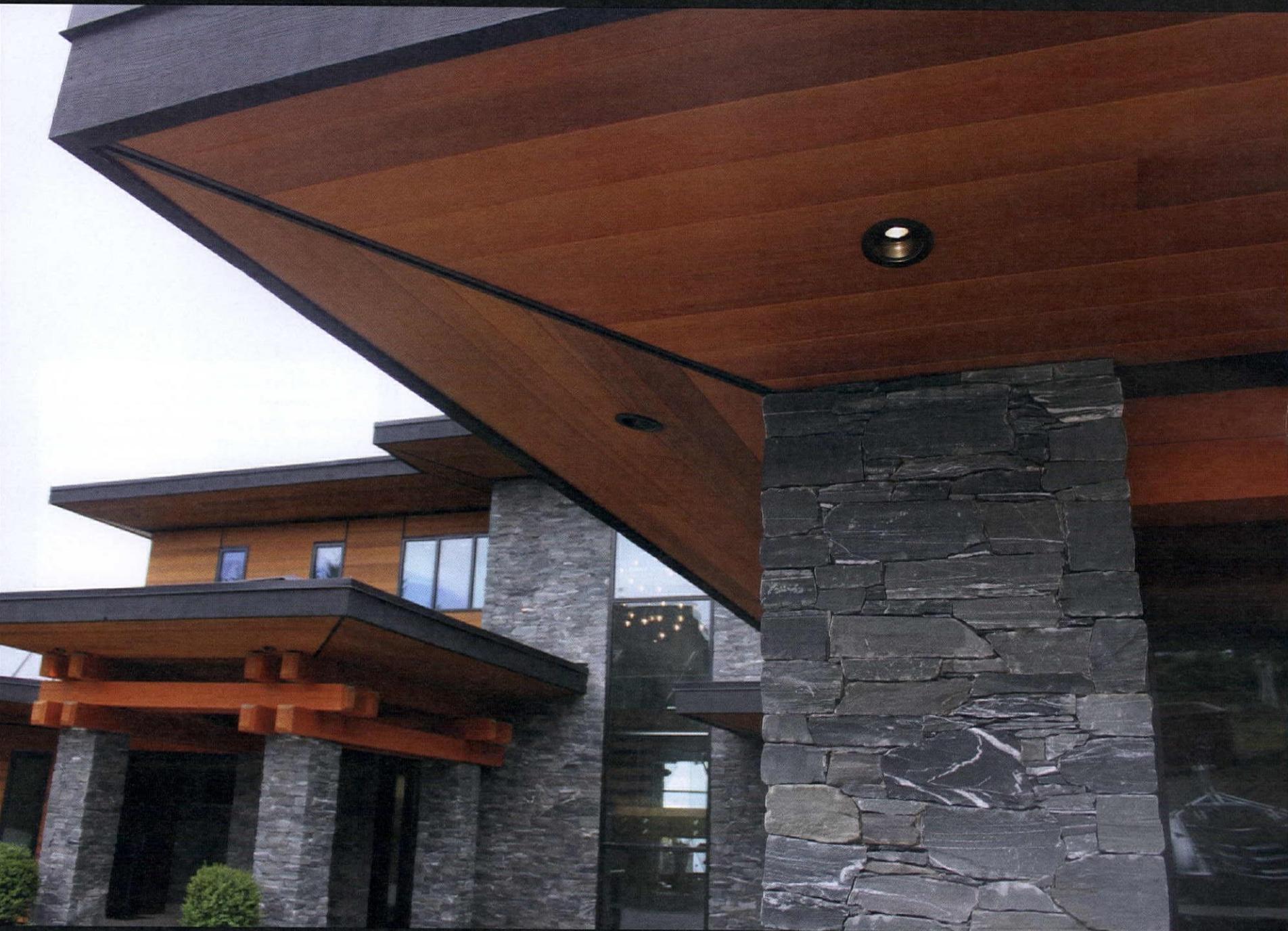
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The Greening of New England

Manufacturers and buildings in these states are now collaborating—for sustainable retrofits. BY J. MICHAEL WELTON



IN THE NORTHEAST, the recession has brought the construction and building materials industries closer than ever before.

When the economic downturn hit, most companies cut back on expenses and head count just to keep the lights on. A few years later, they're working on how to re-engage more efficiently, using research to place products and people in the areas where they count the most.

"It's not just a price game now," says Bryan Kucinski, management consultant at FMI Corporation. "It's about being in the right channel for maximum effectiveness." Often, that means retrofits and sustainability.

In chilly New England, energy efficiency and green products are now less a marketing tag line and more a holistic initiative. Builders are pressured by owners to look at life-cycle costs and the green movement.

Runtal North America in Ward Hill, Massachusetts, has been making radiators and electric and steam heaters in the United States for 27 years. Now it's on the cutting edge of sustainability. "We make the only Heat Recovery Ventilator and Energy Recovery Ventilator for the Passive House movement," says Owen Kantor, Runtal's vice president of marketing and sales.

Green is also the norm at Wasco, a Wells, Maine, firm that manufactures skylights and canopies. Among its recent projects was a retrofit for the Massachusetts Statehouse. "It was glazed with building-integrated photovoltaic glass," says CEO Jeff Frank.

At Excel Dryer in East Longmeadow, Massachusetts, restroom conversions from hand towels to XleratorEco dryers are in demand. "It dries without heat, so it consumes only one-third the energy that other dryers do, which was already 80% less than the competition," says Denis Gagnon, president and CEO.

Green and retrofitted, it's a bona fide 21st-century trend.

Connecticut, Maine, Massachusetts, New Hampshire, and Vermont



1 **MANUFACTURER:** Morin, a Kingspan Group Company
LOCATION: Bristol, Connecticut
PRODUCTS: Architectural metal roof and wall panels.
FOUNDED: 1968 **EMPLOYEES:** 100
PRICE RANGE: \$\$-\$\$\$ **MORINCORP.COM**



2 **MANUFACTURER:** C. Sherman Johnson Co.
LOCATION: East Haddam, Connecticut
PRODUCTS: Stainless-steel architectural hardware and fittings for cable railings; marine hardware.
FOUNDED: 1958 **EMPLOYEES:** 11
PRICE RANGE: \$-\$\$ **CSJOHNSON.COM**

3 **MANUFACTURER:** Excel Dryer
LOCATION: East Longmeadow, Massachusetts
PRODUCTS: Hand dryers, HEPA filtration systems, ADA-compliant kits, antimicrobial wall guards, custom digital-image dryer covers.



FOUNDED: 1964
EMPLOYEES: 50
PRICE RANGE: \$\$
EXCELDRYER.COM

4 **MANUFACTURER:** Walpole Outdoors
LOCATION: Walpole, Massachusetts
PRODUCTS: Outdoor structures, including fences, gates, pergolas, lantern and mail posts, lattice panels, trellises, outdoor furniture, and garden accessories.
FOUNDED: 1933 **EMPLOYEES:** 250-300
PRICE RANGE: \$\$ **WALPOLEWOODWORKERS.COM**



SNAPSHOTS

CONNECTICUT



Single-family home-building starts in the state **dropped by 11%** between July 2013 and July 2014, while multifamily home-building starts **increased by 11%** for the same time period.

Manufacturers employ **nearly 10%** of the workforce in Connecticut.

SOURCES: NATIONAL ASSOCIATION OF HOMEBUILDERS; NATIONAL ASSOCIATION OF MANUFACTURERS

NEW HAMPSHIRE

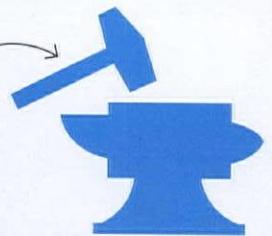
Construction employment in New Hampshire **dropped by 2.7%** between July 2013 and July 2014.

Computers and electronics was the top manufacturing sector in New Hampshire in 2011, followed by fabricated metal products and machinery.

SOURCES: U.S. BUREAU OF LABOR STATISTICS; U.S. BUREAU OF ECONOMIC ANALYSIS

MAINE

Fabricated-metal and wood-product manufacturing were among the top 10 manufacturing sectors in Maine.



SOURCES: NATIONAL ASSOCIATION OF HOMEBUILDERS; U.S. BUREAU OF ECONOMIC ANALYSIS

MASSACHUSETTS

\$41.6 BILLION

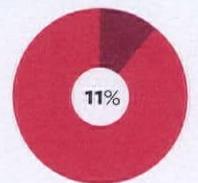
Manufacturing in the state accounted for **\$41.6 billion** of its total output in 2012.

Since 2009, the state's manufactured goods exports **grew 13.5%**.

SOURCE: NATIONAL ASSOCIATION OF MANUFACTURERS

VERMONT

In 2013, manufacturing accounted for **11%** of Vermont's total employment population, or 32,000 jobs.



Manufacturers in Vermont saw a **1.2% increase** in employment in 2013. These gains were across a variety of sectors, from rubber and plastics to lumber and transportation equipment.

SOURCES: VERMONT MANUFACTURING EXTENSION CENTER; VERMONT MANUFACTURERS REGISTER

7. HARDWICK
VERMONT

6. MANCHESTER
NEW HAMPSHIRE

8. WELLS
MAINE

5. WARD HILL
MASSACHUSETTS

4. WALPOLE
MASSACHUSETTS

3. E. LONGMEADOW
MASSACHUSETTS

1. BRISTOL
CONNECTICUT

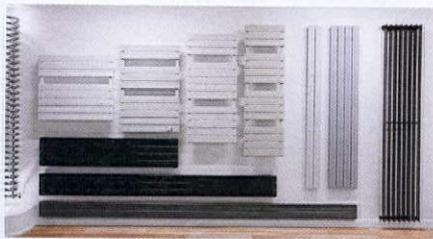
2. EAST HADDAM
CONNECTICUT

5 MANUFACTURER: Runtal North America
LOCATION: Ward Hill, Massachusetts

PRODUCTS: Decorative radiators for hot water (hydronic); electric and steam heating systems.

FOUNDED: 1955 **EMPLOYEES:** 84 **PRICE RANGE:** \$\$

RUNTALNORTHAMERICA.COM

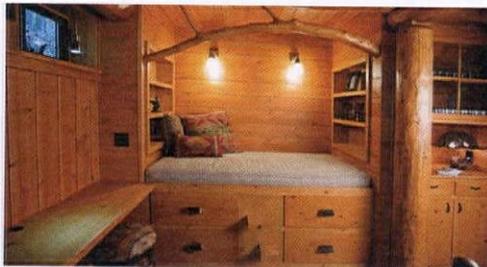


7 MANUFACTURER: Vermont Natural Coatings
LOCATION: Hardwick, Vermont

PRODUCTS: Furniture, floor, and exterior wood finishes.

FOUNDED: 2007 **EMPLOYEES:** 9 **PRICE RANGE:** \$\$

VERMONTNATURALCOATINGS.COM



6 MANUFACTURER: Kalwall Corporation
LOCATION: Manchester, New Hampshire

PRODUCTS: Translucent daylighting systems, wall systems, window-wall systems, unitized curtain walls, roofs, unit skylights, clear span structures, and canopies.

FOUNDED: 1955

EMPLOYEES: 400+

PRICE RANGE: \$-\$\$\$

KALWALL.COM



8 MANUFACTURER: Wasco Products
LOCATION: Wells, Maine

PRODUCTS: Unit and structural skylights, canopy systems, vertical wall systems, and fiber-optic daylighting.

FOUNDED: 1935

EMPLOYEES: 103

PRICE RANGE: \$\$

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SNAP 236



ALLEGION

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CASE STUDY



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OVERVIEW PAGE 51
Devastating natural disasters prompt architects to design preemptively.

Q&A PAGE 53
Paul Scialla discusses how Delos will create spaces that enhance occupants' health.

PRODUCTS PAGE 55
From carpeting to wood panels, 10 eco-friendly interior finish products.

CASE STUDIES PAGE 60
>NYC emergency housing prototype
>Longfellow Civic Center

REVISIT PAGE 68
The NRDC's New York City headquarters serves as a model for green office space.

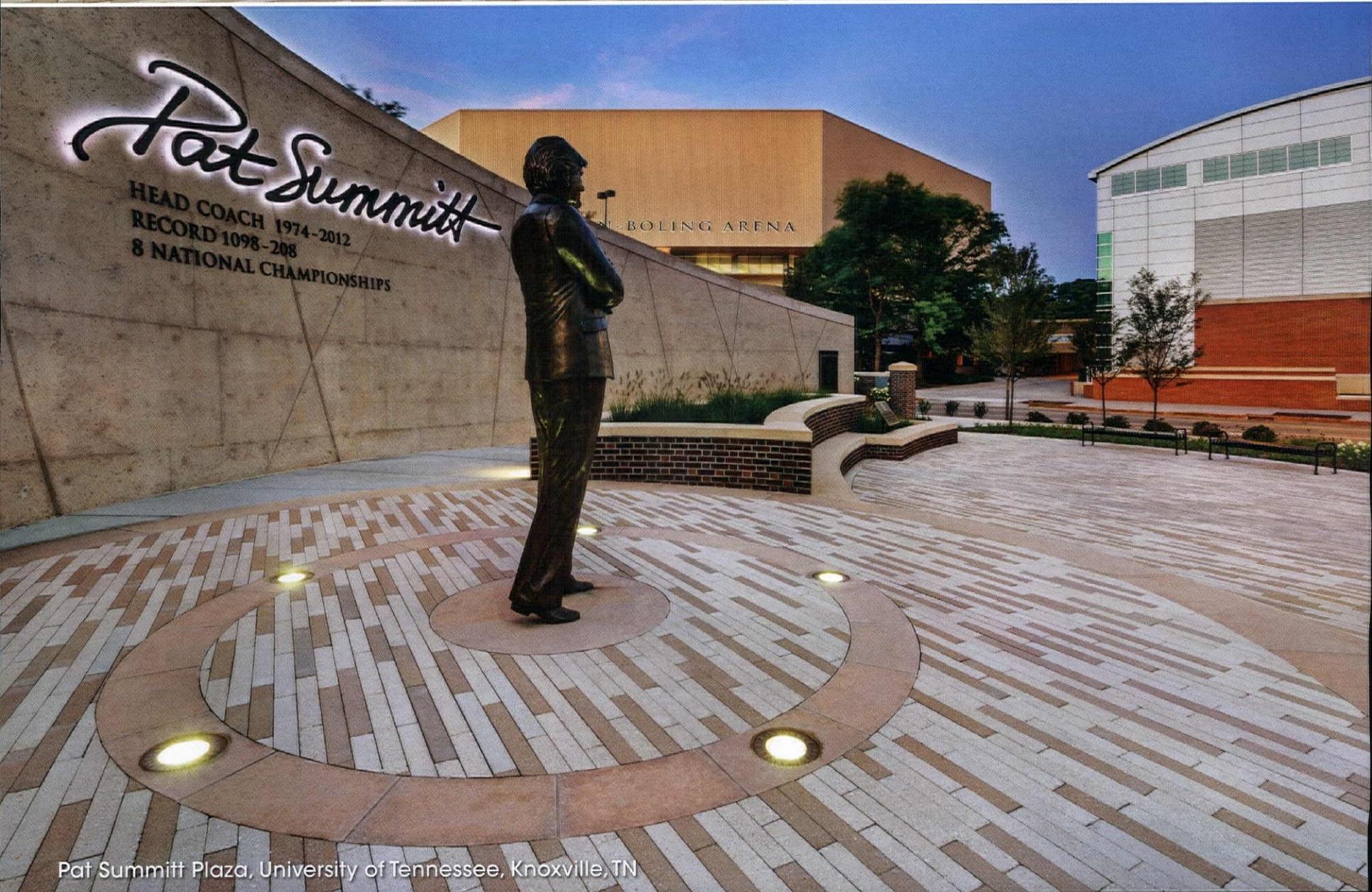
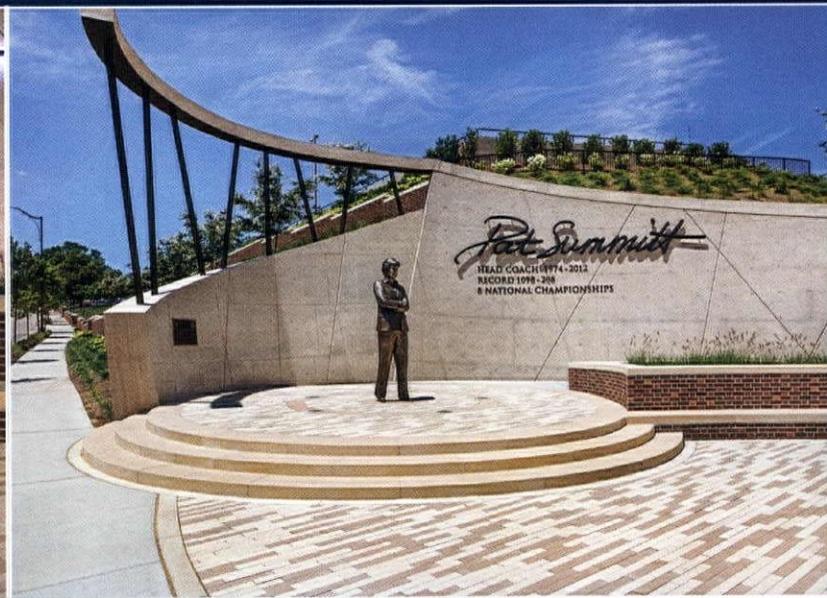
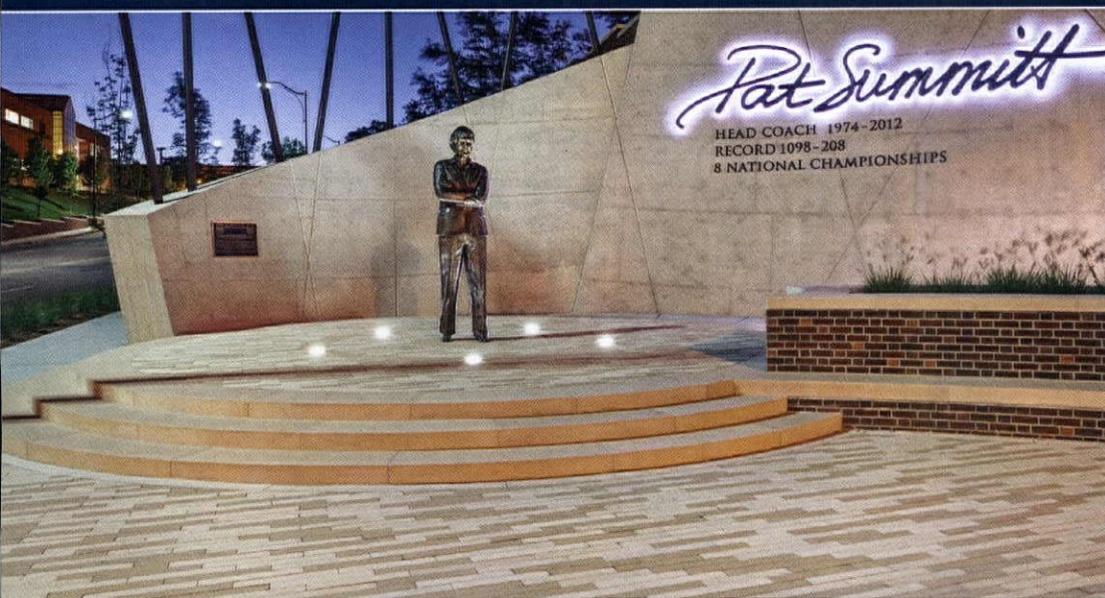
EARTHWATCH PAGE 70
Artist David LaChapelle's latest work re-creates industrial landscapes.

GreenSource

THE MAGAZINE OF SUSTAINABLE DESIGN

Designing for Resilience





Pat Summitt Plaza, University of Tennessee, Knoxville, TN

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“Even something like temporary housing we can make more comfortable and more beautiful.”

—SHIGERU BAN



IN THIS ISSUE

Beyond Resiliency: Braving the Next Storm

In recent years, and more acutely in the aftermath of Hurricane Sandy, the word “resiliency” has become firmly embedded in the language we use to discuss our response to natural disasters, whether it relates to housing, infrastructure, or economic recovery. The word only scratches the surface, however. In an interview this year with *Architectural Record*, our sister publication, Eric Cesal, the new executive director of Architecture for Humanity, argues that the term doesn’t adequately convey the larger mission. He asks how we can seek solutions to better fortify cities “in a way that allows them to grow and strengthen from the unknown rather than trying to wall ourselves off from increasingly unpredictable natural phenomena.”

Nearly a decade ago, when Hurricane Katrina devastated the Gulf Coast, the region was unprepared: a month after the storm, roughly 600,000 households remained displaced, according to the Data Center, an information resource for southeast Louisiana. The failure of both the federal and state government to respond to the storm is now legendary: slow and disorganized, it left about 114,000 households living in FEMA trailers, with the last household moving out of temporary housing in 2012. That was when advocacy organizations, like Brad Pitt’s Make It Right and Barnes & Noble founder Leonard Riggio’s Project Home Again, stepped in to build housing, while other local architecture firms—such as Es skew+Dumez+Ripple and

Waggonner & Ball Architects—participated in a number of restoration, civic, and infrastructure projects. It is fitting that Greenbuild, the annual conference on sustainability, will be held this month in the Big Easy, so attendees can see for themselves how effectively green design has been used in the rebuilding efforts.

By the time Sandy hit the East Coast in 2012, the response was much more immediate. At a conference in New York two months after the storm, HUD Secretary Shaun Donovan acknowledged the lessons learned from Katrina. “It is the reason we had vast resources in place ahead of Sandy’s landfall,” he said, “and we responded to the enormity of the devastation with a massive, multi-agency, multistate coordinated response.” Damage from Sandy spurred a number of initiatives, including Rebuild by Design, a joint project by HUD, NYU, and the Hurricane Sandy Rebuilding Task Force, to come up with design solutions to help protect the coastlines of cities at risk of damage from extreme weather patterns.

While these initiatives are critical, there is a growing need for architects to implement green and resilient strategies in their work. Achieving this, as our case studies in this issue demonstrate, requires government support and policy reform. As climate change continues to affect the environment, architects are compelled not only to think about how cities can bounce back from a natural disaster but also how they can be built more robustly to withstand the force of future storms. **GS**

TRENDING ONLINE

- HIGHER LEARNING**
A mixed-use building at Loyola University in Chicago—with a dormitory, offices, and labs—loops into a geothermal field.
- MODERN MAKEOVER**
H3 Hardy Collaboration Architecture is tapped to give a Colonial Shaker-style summer home, designed by Peabody & Stearns, a green renovation for the 21st century.
- GREENER PASTURES**
The Olmsted Center, the former Administration Building for the 1964-65 World’s Fair in Queens, New York, welcomes a new expansion by BSKK Architects, which employs sustainable strategies to manage flooding.

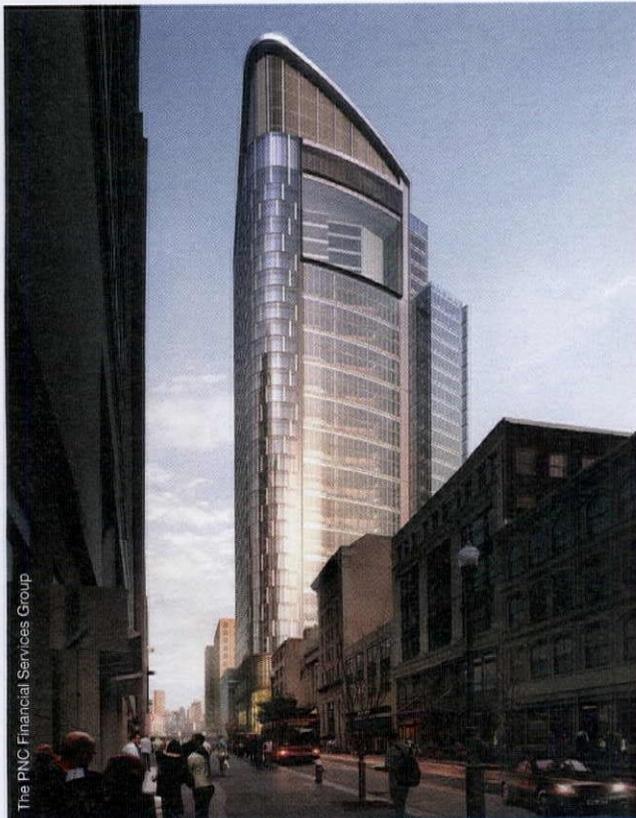
BIG Team’s “The BIG U” is one of the winning proposals in the Rebuild by Design competition.



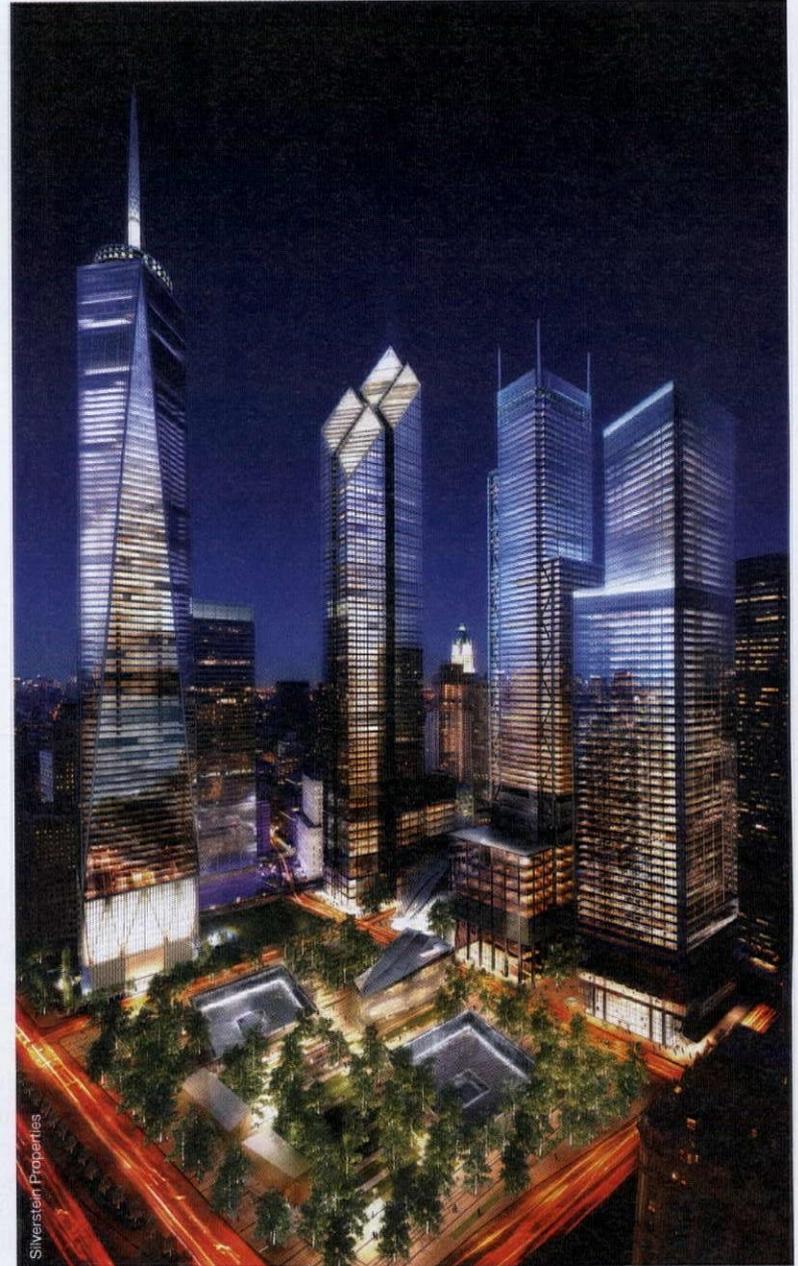
BY NICOLE ANDERSON



Marriott Marquis, Washington, DC
Marriott International, Quadrangle Development Corporation and Capstone Development—LEED Silver



The Tower at PNC Plaza
The PNC Financial Services Group—targeting beyond LEED Platinum



World Trade Center Towers 1-4
Silverstein Properties/Port Authority of New York—targeting LEED Gold

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Q&A

Building for Better Health

Paul Scialla is the founder and CEO of Delos, a New York-based research and consulting company focused on creating spaces that promote human health and well-being. Scialla draws on the 18 years he spent on Wall Street, including 10 as a partner at Goldman Sachs, where he ran the U.S. interest-rate cash-trading business.

BY JOANN GONCHAR, AIA

GREENSOURCE: Why did you establish Delos?

Paul Scialla: About five years ago, we were looking at the great things going on in the sustainability movement—advances that, for example, LEED was making in areas like daylighting and indoor air quality. And I wondered, how deep and how far can we take this intention? I got excited about the prospect of assembling thought leadership across medicine, science, architecture, and design, to see what we could do to introduce or continue to promote preventive medical strategies in the design of spaces. For my last few years with Goldman, I personally funded and spent time looking to push this envelope and explore what we could do with the built environment. I left Goldman about two years ago and took the reins of Delos full-time.

How does your Wall Street experience come into play in this new endeavor you call wellness real estate? The interesting thing from an economic standpoint is that you've got real estate, the largest asset class in the world, worth \$150 trillion, and you've got health and wellness, the fastest-growing and arguably the most important industry in the world, with \$2 trillion spent annually. I got excited about the social benefit of enhancing the indoor spaces where people are spending 90 percent of their time but also became interested in the opportunities that would result from merging the two asset classes.

A key Delos initiative is the development of the WELL Building Standard, now in its pilot phase and slated for official launch on October 20. You describe the standard as a "performance-focused system for certifying features of the built environment that affect human health." Can you explain what that means? It was important for us to work toward an output- and performance-based standard validated by physical and on-site testing. So when you think of a space



Delos founder and CEO Paul Scialla.

that has achieved WELL certification, you know that the air quality, water quality, and circadian lighting elements have been tested. We're focused on validating that the spatial conditions as they pertain to optimal human health have been met across the various categories of the WELL Building Standard.

What was the motivation in creating WELL? Did you feel the human health aspect was missing from existing certification systems like LEED? I wouldn't say things were missing; I would categorize WELL as a complement to LEED, which already addresses the human condition in several regards: materials, air exchange, daylighting. LEED is a baseline, a foundation that WELL is meant to build upon. We're already seeing several projects that have achieved or are pursuing both LEED and WELL certification. For instance, the headquarters in downtown Los Angeles for the real estate services and investment company CBRE was the first WELL-certified office in the world, and it also achieved LEED Gold. The William Jefferson Clinton Children's Center in Port-au-Prince, Haiti, is seeking both LEED Platinum and WELL certification. We've partnered with the U.S. Green Building Council in this regard. It's a wonderful thing to see how both these efforts can move the needle. 

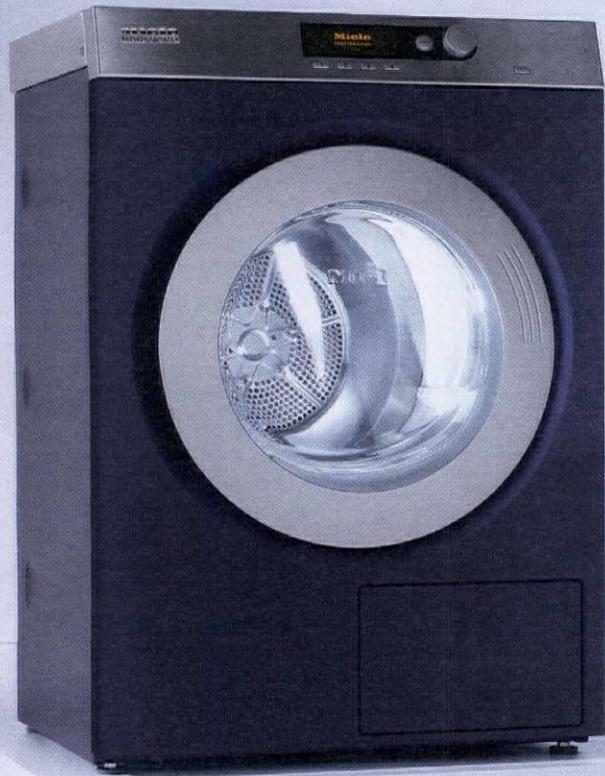
"I got excited about assembling thought leadership across medicine, science, architecture, and design to introduce preventive medical strategies into the design of spaces."

PAUL SCIALLA
Founder and CEO, Delos

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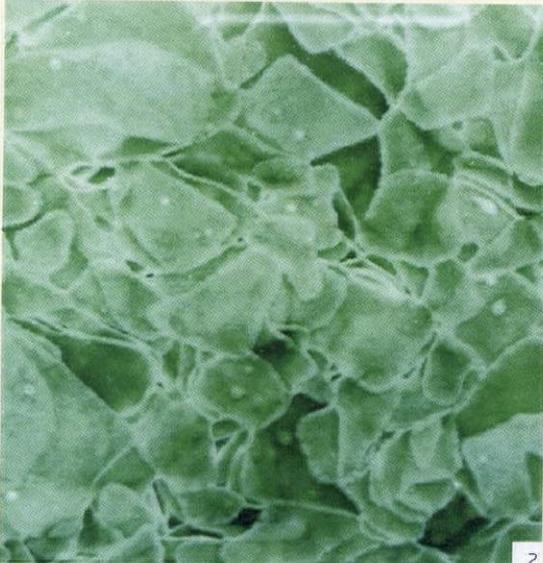
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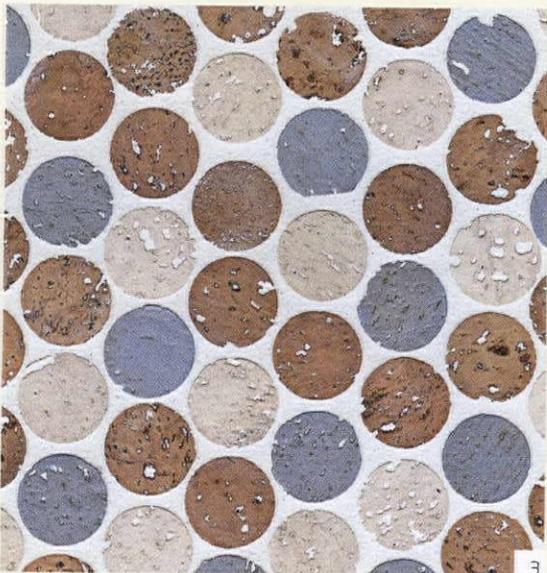


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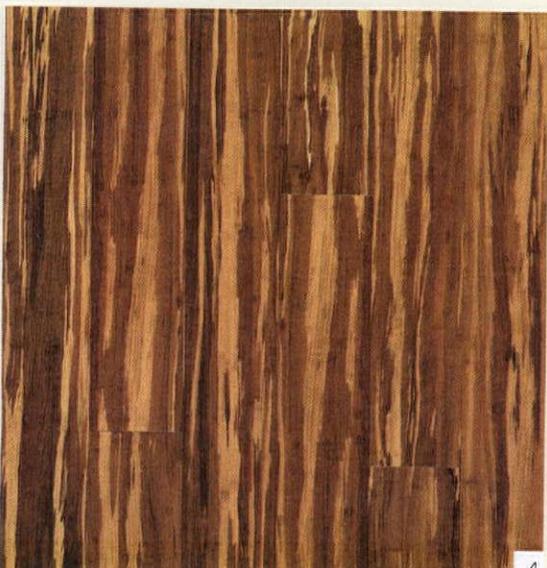
PRODUCTS



2



3



4



1

1 NexStep Cushion Tile

Bentley
City of Industry, CA
bentleymills.com
Bentley has introduced several new designs to its NexStep Cushion Tile line. Inspired by bespoke menswear, Paris Tweed (shown) brings to mind the classic color palette of luxury fabrics with defined textures and metallic yarns. Manufactured in a LEED-EBOM Gold-certified mill, the product is also Cradle-to-Cradle Silver certified, NSF 140 Platinum certified, and CRI Green Label Plus certified. Versatile enough for contract and hospitality environments, the tile comes in 18" by 36" and 24" square." **CIRCLE 41**

2 Heineken Bio-Glass

Coverings Etc
Miami
coveringsetc.com
Coverings Etc has added a new material option to its Bio-Glass collection of recycled glass sheets made with beer, wine, and water bottles gathered from recycling centers. Created with 100% upcycled Heineken beer bottles, the 3/4"-thick Heineken slabs are offered in a range of green tones and in polished or natural finishes. They can be used as floor tiles, wall details, countertops, and other decorative surfaces. The maximum size for a single sheet is 110" by 49". **CIRCLE 42**

3 Cork Mosaic Tile Color Mix

Habitus
New York City
habituscollection.com
Habitus's Cork Mosaic Tiles, made of recycled wine stoppers from Spain and Portugal, have been available in the U.S. for more than a decade. This year, the company branched out from natural finishes to custom colors from blue and orange to lavender and green tea. Available in two sizes—1" and 1 3/8" diameter—the 1/4"-thick cork chips can be installed on walls and floors with a mortar adhesive and grout finish. **CIRCLE 43**

4 Brio EL

USFContract
Dalton, GA
usfcontract.com
This year, USFContract unveiled Brio EL, its latest collection of strand bamboo flooring. Made from renewable Moso bamboo, the planks' high-density fiberboard core increases stability while an interlocking system eliminates the need for toxic adhesives. Brio EL is available in six colors, traditional and earth-tone hues among them. **CIRCLE 44**



5 Good Neighbor Paneling

**Viridian Reclaimed Wood
Portland, OR
viridianwood.com**

Viridian recently launched a line of FSC-certified recycled wood panels made with discarded backyard-fence boards. The cedar and redwood panels, all salvaged on the West Coast, are refurbished in Portland, where they are kiln dried and brushed. There are three options: fresh-sawn redwood (the cleanest look), weathered redwood (shown), and multi-tone (available in a variety of colors from reds and grays to whitewash, though Viridian tries to keep the color palette consistent for each order). All ½" thick, the panels range from 3" to 6" wide and 24" to 60" long.

CIRCLE 45

6 New Hand-Painted Series

**Fireclay Tile
Aromas, CA
fireclaytile.com**

After honing its expertise for nearly three decades, Fireclay Tile has acquired Kibak Tile, founded by Susanne Redfield. Adding her personal touch, Redfield has created three new designs for Fireclay Tile's Hand-Painted Collection: Contemporary, Moroccan, and Mediterranean. Composed of over 70% recycled content, the clay tiles employ a 16th-century wax-resist technique from Persia and are made of mixed materials such as post-consumer glass, granite dust, and porcelain. Fireclay's factories employ a number of sustainable practices, from water reclamation to rainwater capture systems.

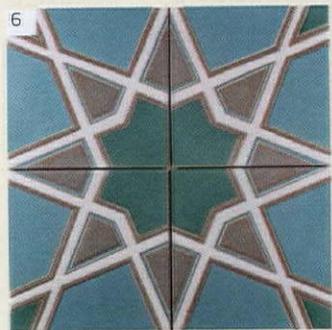
CIRCLE 46

7 Marmoleum Modular

**Forbo Flooring Systems
Krommenie, Netherlands
forbo-flooring.com**

Marmoleum Modular linoleum flooring from Forbo Flooring systems now comes in new colors and designs that go beyond the traditional linoleum applications, allowing its users to mix, match, and experiment with bold custom flooring environments. Available in 46 colors including pastels, neutrals, and marble-inspired patterns, Marmoleum comes in formats ranging from small (25" square) to extra-large (75" by 50"). Marmoleum is composed of 72% rapidly renewable natural sources and 43% natural materials.

CIRCLE 47



RUBBER STAIR TREADS & SHEET RUBBER



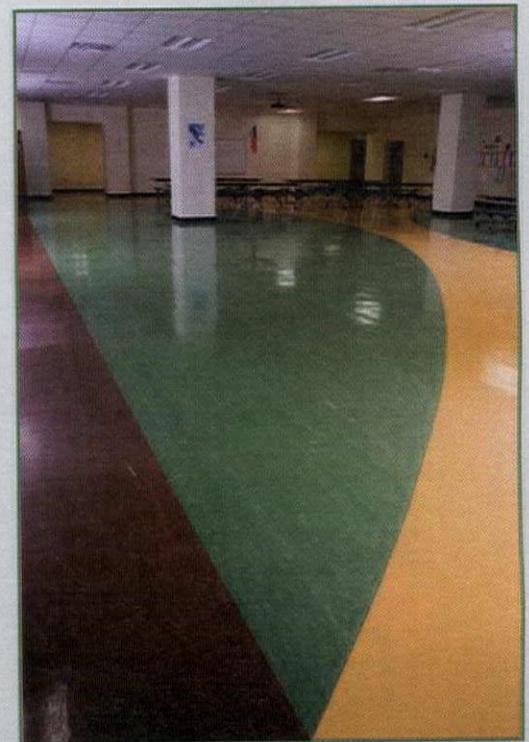
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8



9



10

8 Domus Mineral Paints

ROMA
Atlanta
romabio.com

ROMA's Domus Collection of carbon-free, potassium silicate paints has won numerous sustainability awards and is the first paint on the market to receive Cradle-to-Cradle certification. The paints, manufactured in Italy and distributed out of Atlanta, are VOC free, mold resistant, hypoallergenic, and odorless. One gallon covers twice the area of a gallon of acrylic paint. Interior finishes, available in superflat, matte, eggshell, and satin, can be tinted with 0% VOC colorants and natural earth oxides. Custom color matching is available. **CIRCLE 48**

9 Forbidden

Len-Tex
North Walpole, NH
lentexcorp.com

Len-Tex has added two new patterns to its Clean Vinyl Technology (CVT) line of ultra-low-emission wallcoverings. Both patterns, Aura and Forbidden (shown at left), are printed on Mylar for a shimmering effect ideal for hospitality or luxury projects. The wallcoverings, containing no phthalates, heavy metals, or ozone-depleting chemicals, are printed with water-based inks. They are all Scientific Certification Systems (SCS) Indoor Advantage Gold certified. **CIRCLE 49**

10 Fahrenheit Collection

Milliken & Company
Spartanburg, SC
milliken.com

This summer, Milliken introduced the Fahrenheit collection with 24 color-temperature options ranging from red-hot to icy blue. Front, a pattern featuring a cool palette of rhythmic stripes in textured loop construction, is available in 1-square-meter modular tiles. Milliken's carpet tiles are ideal for areas of heavy foot traffic like educational and office settings. Made from 31% recycled content, the tiles are available with high-friction, TractionBack coating, which eliminates the need for toxic adhesives, sealants, or primers. **CIRCLE 50**

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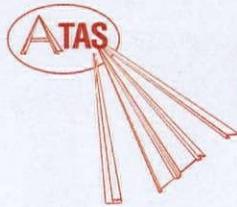


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Above:
Eureka Springs High School; Eureka, AR



- Belvedere Short Rib; Brite Red ■
- Rigid Wall; Rocky Grey ■
- Multi-Purpose; Slate Grey ■
- Multi-Purpose; Antique Patina ■



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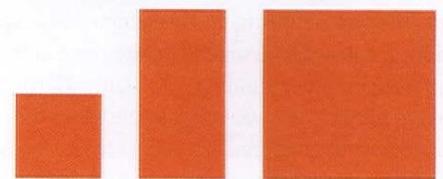


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CASE STUDY 01

Gimme Shelter

The New York City Office of Emergency Management begins testing its new architecture for disaster relief.

BY NICOLE ANDERSON AND ZACHARY EDELSON

It's nothing short of building a city within a city...overnight. That's the fundamental premise behind a new modular post-disaster housing unit designed by Brooklyn-based Garrison Architects, which was introduced by New York City officials early this summer. The premise is simple but ambitious: the housing will allow city residents to live in their own neighborhoods for months or years after a major disaster while their homes undergo repairs. The full-scale and operational prefabricated prototype—currently displayed in downtown Brooklyn's Cadman Plaza—is part of a lengthy quest to change how cities respond to disasters in the 21st century.

The critical problem is a total absence of emergency housing solutions in dense urban settings. Conventional approaches, such as the FEMA trailers of Hurricane Katrina infamy, are simply infeasible in major cities where space is at a premium. To address that issue, New York City's Office of Emergency Management (OEM) and Department of Design and Construction partnered with a slew of municipal, state, and federal organizations—including FEMA and the Army Corps of Engineers—to address the issue. American Manufactured Structures & Services tapped Garrison Architects to work with them in designing the prototype. "We built the prototype as an option to keep people close to home," explains Cynthia Barton, disaster housing recovery program manager at OEM. "We knew that if we could do this for New York City, it would become something that FEMA could have that is relevant for cities across the country." Former OEM commissioner Joseph F. Bruno called it "a local solution to a national problem," Barton recalls.

City agencies and federal organizations formulated a set of universal standards and specifications to govern the design of any future post-disaster urban housing in New York City. While the steely yellow-and-gray prototype exudes industrial toughness and is the first built to these rigorous performance standards, it represents only a preliminary step in disaster planning for cities.

"Most emergency housing has been incredibly expensive and time-consuming to construct because the planning required is essentially the same as for a regular building," says James Garrison, principal of Garrison Architects. "We want to raise the bar so the units are acceptable and fully functional for longer than a few weeks. The goal is to show that emergency housing can be built to the same standards and quality as any other housing."



ANDREW RUGGE/ARCH PHOTO

Garrison Architects' 2,100-square-foot modular post-disaster housing prototype is currently on display in Brooklyn outside the OEM offices.



TEAM

ARCHITECT Garrison Architects

Client Army Corps of Engineers

Owner New York City Office of Emergency Management

Engineers Mark Line Industries (off-site module fabrication); Anastos Engineering Associates (structural); Plus Group Consulting Engineering (p/e, sprinkler); Wohl & O'Mara (civil)

General Contractor American Manufactured Structures and Services

SOURCES

Light-Gauge Steel ClarkDietrich

Cladding Petersen Aluminum, PAC-CLAD

Glazing Integrity

EDPM Roofing Mule-Hide

Flooring APC Cork

Water Heater A.O. Smith

Toilets Toto

Hand Shower Speakman

The three-story prototype, composed of five modules, is currently arranged into three apartments stacked on top of one another: a 480-square-foot one-bedroom unit with an adjacent gallery and mechanical room on the ground floor, an 822-square-foot three-bedroom unit on the second level, and a 480-square-foot one-bedroom unit on the third floor. The cost came to approximately \$200 per square foot, though according to the architects, a mass-produced model would likely cost less. In addition to meeting strict ADA-accessibility, cost-effectiveness, and durability requirements, Garrison implemented several sustainable strategies in designing the modular prototype. Built with recyclable materials, each unit is outfitted with cork floors, using zero formaldehyde. Double-insulated walls reduce heat loss, while floor-to-ceiling balcony doors with integrated shading lessen solar-heat gain and increase ventilation. To further reduce energy consumption, the units are designed to include photovoltaic panels. Garrison employed a rainscreen system to prevent moisture from seeping into the exterior walls. Other small yet important steps were taken to enhance the overall performance of the units, such as installing LED lighting and low-flow toilets and faucets.

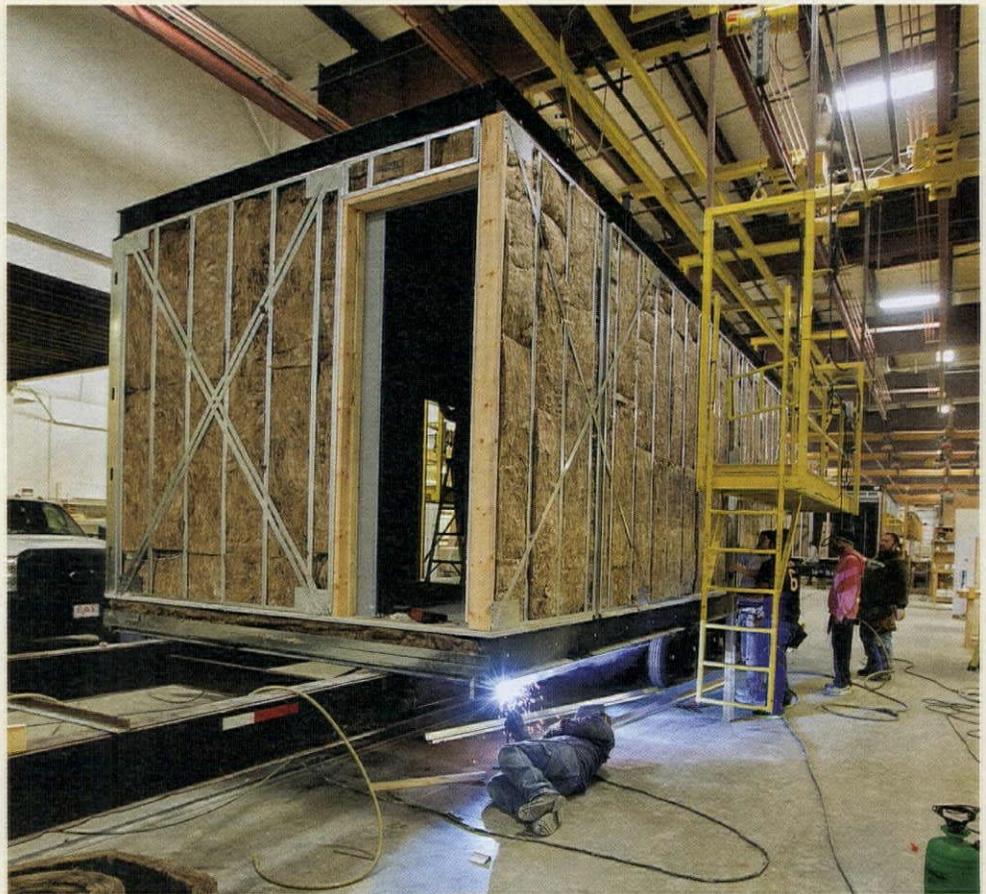
The existing prototype's prefabricated modules—available in units 28 1/2 feet long by 12 feet wide and 40 feet long by 12 feet wide—were assembled on-site in a mere 13 1/2 hours. In the event of an actual disaster, city officials would aim to have all “transitional settlements” up and running after four to eight weeks spent planning and installing supporting infrastructure for potable water, electrical energy, and waste removal. Diagrams provided by the city indicate that a range of potential configurations, including off-the-grid infrastructure capabilities, are also being explored.

Brooklyn-based Pratt Institute's Resiliency Adaptation Mitigation and Planning (RAMP) program has already collaborated with New York City officials in exploring how units such as these could be deployed in the storm surge—vulnerable neighborhood of Red Hook. The work of a recent RAMP studio, displayed in the housing prototype, considered everything from placing post-disaster units on waterfront piers and barges to infilling parks and public housing parking lots. The challenge, says Deborah Gans, Pratt professor and principal of Gans Studio, is finding sites for the interim housing where infrastructure is already in place, such as a public park or an empty lot.

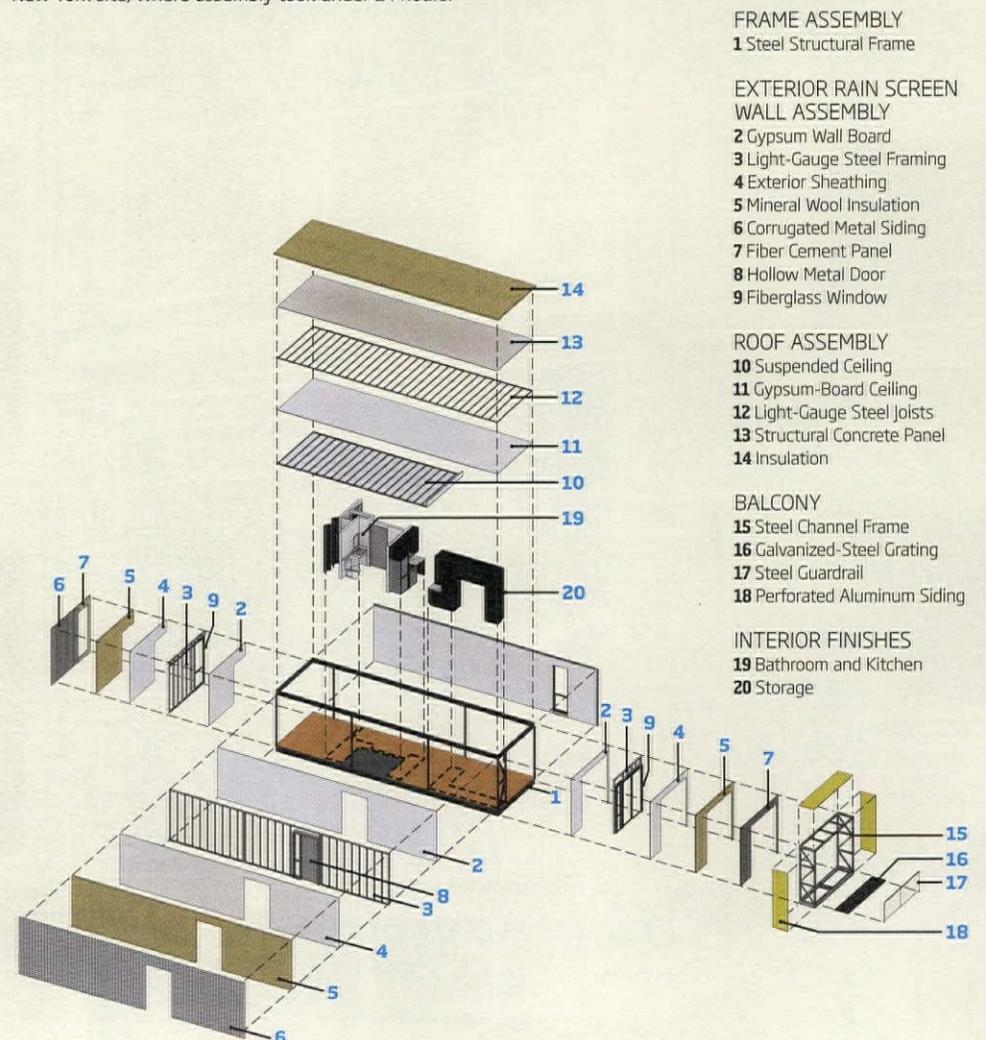
The city has also released an Urban Interim Neighborhood Design “playbook” that outlines a post-disaster design process in broad strokes. However, the playbook is too generalized to offer any insight into what that would entail in practice. For now, it seems city planners will address the detailed implementation of these units only in the weeks following a major disaster event.

In the meantime, the prototype sitting beside Cadman Plaza will undergo a year of testing from NYU Polytechnic School of Engineering, Pratt Institute, and intrepid city employees who will live in the units for five-day intervals. The prototype shows one possible design solution. “It is a representation of what you can get from the specifications,” says Barton. Once the trial year comes to a close, the prototype guidelines will be adapted in accordance with the feedback received from the temporary inhabitants.

If post-disaster housing such as this is embraced by large cities, which seems likely given the threat of climate change, then architects and planners can expect the opportunity to reconsider how those cities can function on an extraordinary scale when under extraordinary circumstances. The goal of the project is to not only provide a sustainable and comfortable emergency-housing option but also to come up with a more lasting solution to keep people close to home, and communities intact. Then, says Barton, “You make it feasible for personal and economic recovery to happen as smoothly and quickly as possible.” **GS**



Fabricated in Indiana, the five modules were transported to the New York site, where assembly took under 14 hours.



FRAME ASSEMBLY

- 1 Steel Structural Frame

EXTERIOR RAIN SCREEN WALL ASSEMBLY

- 2 Gypsum Wall Board
- 3 Light-Gauge Steel Framing
- 4 Exterior Sheathing
- 5 Mineral Wool Insulation
- 6 Corrugated Metal Siding
- 7 Fiber Cement Panel
- 8 Hollow Metal Door
- 9 Fiberglass Window

ROOF ASSEMBLY

- 10 Suspended Ceiling
- 11 Gypsum-Board Ceiling
- 12 Light-Gauge Steel Joists
- 13 Structural Concrete Panel
- 14 Insulation

BALCONY

- 15 Steel Channel Frame
- 16 Galvanized-Steel Grating
- 17 Steel Guardrail
- 18 Perforated Aluminum Siding

INTERIOR FINISHES

- 19 Bathroom and Kitchen
- 20 Storage

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SUCCESS STORY: THE HOTEL WILSHIRE, LOS ANGELES



In 2011, in the heart of Los Angeles' Miracle Mile, something truly amazing was born. Amidst the densely populated streets of Hollywood and Beverly Hills stood a relic. An old 1950s medical building destined to be turned into a pile of rubble. What happened next was nothing short of magical.

When real estate developers Michael Orwitz, Spence Mitchum and Justin Khorvash went looking for a location to create their Four Diamond boutique hotel, The Hotel Wilshire, even they couldn't have imagined the hidden gem they would find in this dilapidated six-story medical building. But, after assembling some of the best professionals in the hospitality business, it was clear that their endeavor was about to become a reality.

After finding a design team that shared their views on the importance of sustainability, they set their sights on making The Hotel Wilshire LEED Silver Certified. Which meant air quality, as well as occupant comfort, would be important factors.

Enter Mitsubishi Electric's VRF zoning systems. Mitchum had experience using the VRF zoning system with a previous boutique hotel. He knew the system's flexibility, performance and efficiency would play an important role in obtaining LEED certification for this 74-room boutique hotel.

The Mitsubishi Electric VRF zoning system proved to be a perfect fit. Twelve months after its opening, The Hotel Wilshire boasted a LEED Silver certification, 17 percent less energy use, and one of the best views in L.A. from its chic rooftop pool. Just the type of epic performance you'd expect from a star in the hospitality industry.

PROJECT SUMMARY

Dilapidated six-story building remodel:

- 55 Guest Rooms
- 19 Suites
- 1 Rooftop Penthouse Suite
- 1 Rooftop Pool Deck w/ 500 Sq Ft Patio

Equipment Installed:

- 4 PLFY Ceiling-recessed Indoor Units
- 47 PMFY Ceiling-recessed Cassette Indoor Units
- 39 PEFY Ceiling-concealed Indoor Units
- 7 PURY R2-Series Outdoor Units
- 7 Branch Circuit (BC) Controllers
- 90 PAC Simple MA Remote Controllers
- 2 AG-150A Centralized Controllers

Results:

- LEED Silver Certification. 17 percent less energy consumption. 19 percent cost savings. Four Diamond Ranking by AAA.



Get more details about The Hotel Wilshire and see how Mitsubishi Electric solved other HVAC design challenges at MitsubishiPro.com.



COOLING & HEATING

CASE STUDY 02

Sense and Sustainability

A hybrid public structure prepares a Gulf Coast community to ride out severe storms.

BY DAVID SOKOL



The Longfellow Civic Center sits atop a two-story parking garage.



The 32,000-square-foot steel-and-concrete parking garage, built to accommodate 122 cars, cost \$3.2 million.

After architects Allison and John Anderson moved, in 1995, to Bay St. Louis, a small town on the Mississippi coast, Allison established unabridged Architecture as a local sustainable-design resource. The couple designed consecutive residences in the community, one of which was swept away in 2005's Hurricane Katrina. The harrowing event only strengthened the Andersons' roots in the area, and unabridged—which John officially joined in 2007—has since participated in multiple reconstruction efforts.

One notable unabridged project in the storm's aftermath was a building in the downtown area that houses both a parking structure and the Longfellow Civic Center. It demonstrates how the studio's sustainability expertise and hometown commitment is reshaping the Gulf Coast. With its dual purposes, the building also exemplifies fragmentary recovery in the hard-hit region; separate property owners oversee parking and community events.

Pre-Katrina, a prison occupied a part of the site immediately north of an active rail corridor; floodwaters rendered it unsalvageable. In 2007, when Hancock County announced the new jail would be developed elsewhere, Bay St. Louis purchased the site for a dollar and redeveloped it for parking. Using funds it received in a HUD Community Development Block Grant (CDBG), the city tapped unabridged to design the \$3.2 million structure.

Completed in 2011, the structure for 122 cars is “unapologetically modern,” says Allison. The two-level garage's 32,000 square feet form a bar-shaped volume that runs parallel to the east–west rail line. A parking ramp projects from the north side of that bar, and a three-story elevator tower and flanking ceremonial stair jut boldly from its northeast corner. The structure's white-painted steel and cast concrete are plainly legible. Board-formed concrete surfaces finish the exterior of the elevator tower and the north-facing ramp, and cable guardrails line the edges of the parking decks and stairs. Should another storm of Katrina's intensity occur, the glazing can withstand up to 140-mile-per-hour winds and dangerous flying debris.

The garage's green strategies are clearly visible: there's the 12-kilowatt photovoltaic array that produces 45 percent of the building's electricity and the PV-powered lighting system, in which LEDs brighten and dim in response to motion sensors. Rainwater collected in a 10,000-gallon cistern irrigates native and adapted plants climbing up steel-mesh screens mounted to all four elevations.

The City of Bay St. Louis embraced unabridged's green approach, keen on the idea that sustainability translates to resilience. Because a large portion of the municipal fleet was lost in Hurricane Katrina, “they liked having a safe place to park their vehicles during a storm,” says Anderson. Also, the parking structure's PVs connect to a three-day battery, which gives city vehicles access to uninterrupted power afterward.

As the garage design phase was wrapping up in 2009, Hancock County, operator of the jail, exercised its right to erect Longfellow Civic Center on top of the garage. unabridged accommodated the extended scope, reengineering the parking structure accordingly. The architects extended the ceremonial stair to Longfellow's third-floor perch and wrapped porches around the east and south elevations of the hip-roofed volume without seeming historicist.

Hancock County facilities do not have to meet ASHRAE 90.1-2007. As with its modern aesthetic, Longfellow's higher energy performance is entirely the product of unabridged's efforts. Because the venue required acoustical isolation from the railroad, the design team created 10- and 16-foot-deep porch overhangs that intercept train noise, protect the interior from solar thermal gain, and shelter the porch from driving rain. Acoustical privacy further justified an R-17 building envelope and a highly reflective roof of structural insulated panels (SIP). Meter readings show that had ASHRAE standards been required, Longfellow would outperform them. 

With its scenic views of the waterfront and historic downtown, the civic center, completed in 2013, serves as a venue for weddings, art shows, and other events.



TEAM

ARCHITECT unabridged Architecture

Owners Hancock County Board of Supervisors (civic center); City of Bay St. Louis (parking garage)

Engineers Civic Center: Baldauf Herrin & Associates (structural), Canon Engineering (m/e/p); Parking Garage: Walker Parking Consultants (structural, m/e/p), Neel-Schaffer (civil)

Consultants The Landscape Studio (landscape); Oxford Acoustics (acoustical)

SOURCES

Curtain Wall Kawneer

Composite Deck TimberTech

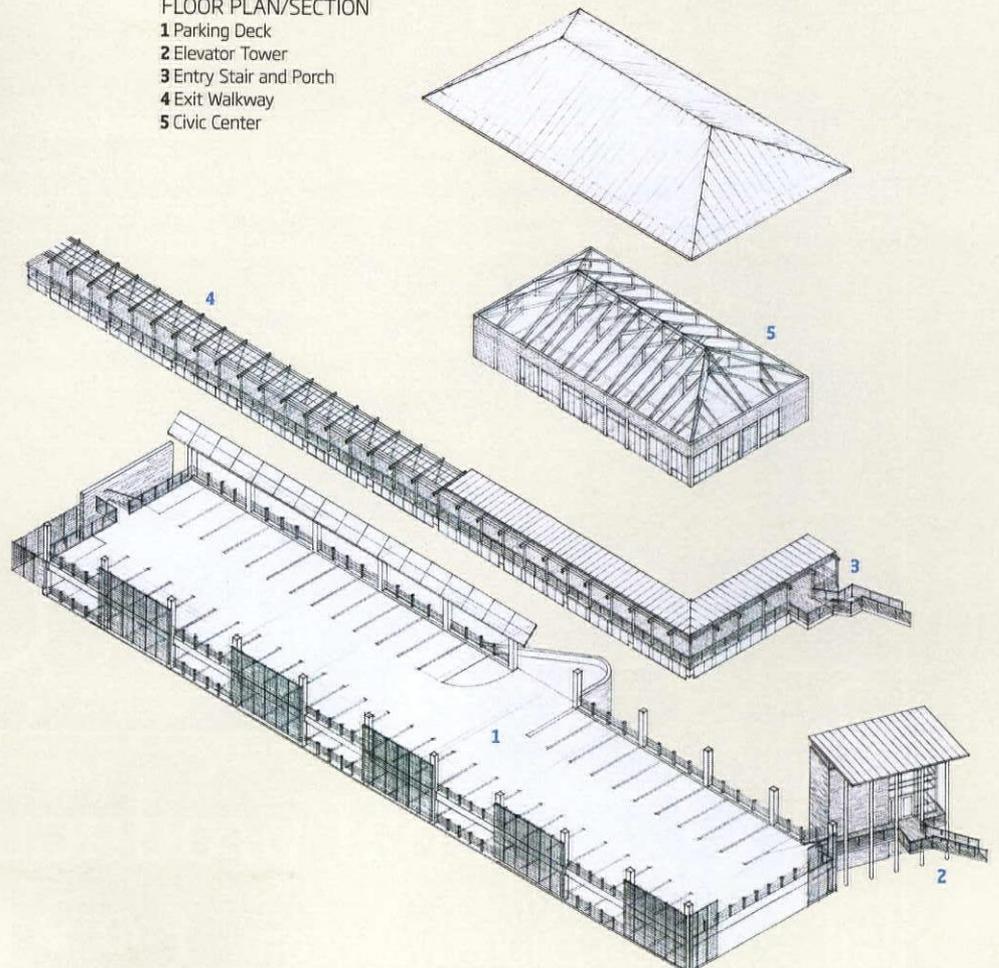
Metal Roofing Berridge

Paints and Stains Sherwin-Williams

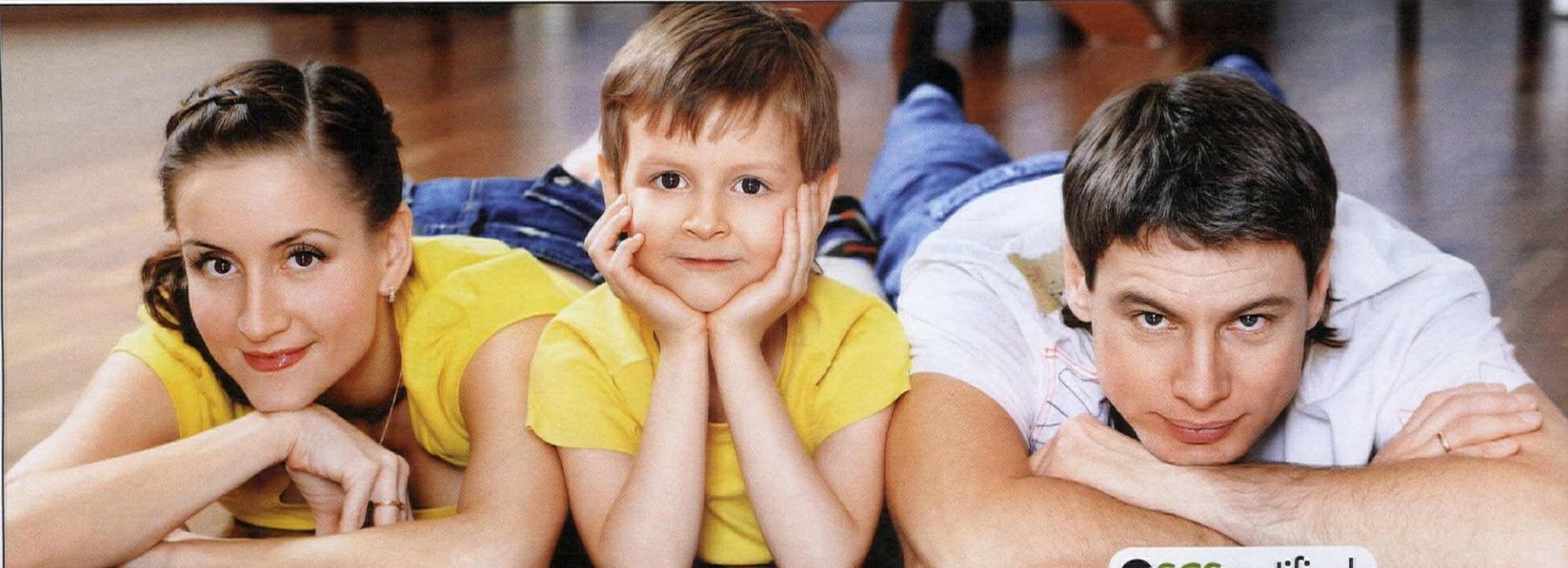
Elevator Schindler

FLOOR PLAN/SECTION

- 1 Parking Deck
- 2 Elevator Tower
- 3 Entry Stair and Porch
- 4 Exit Walkway
- 5 Civic Center



Porch overhangs intercept train noise and protect the interior from solar thermal gain.



the Brawn beneath the Beauty

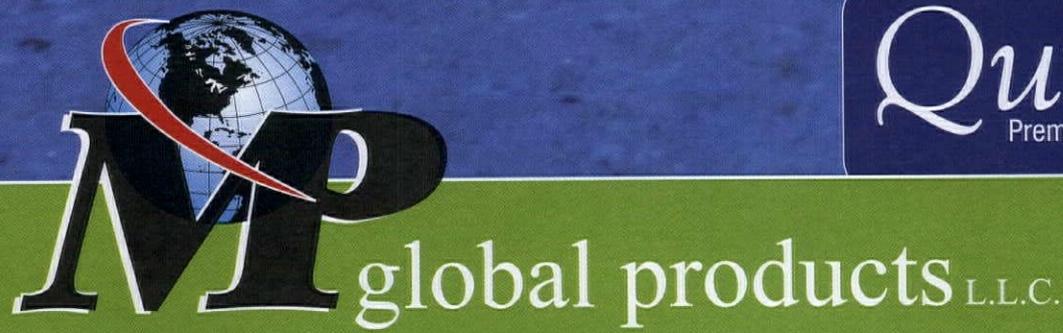


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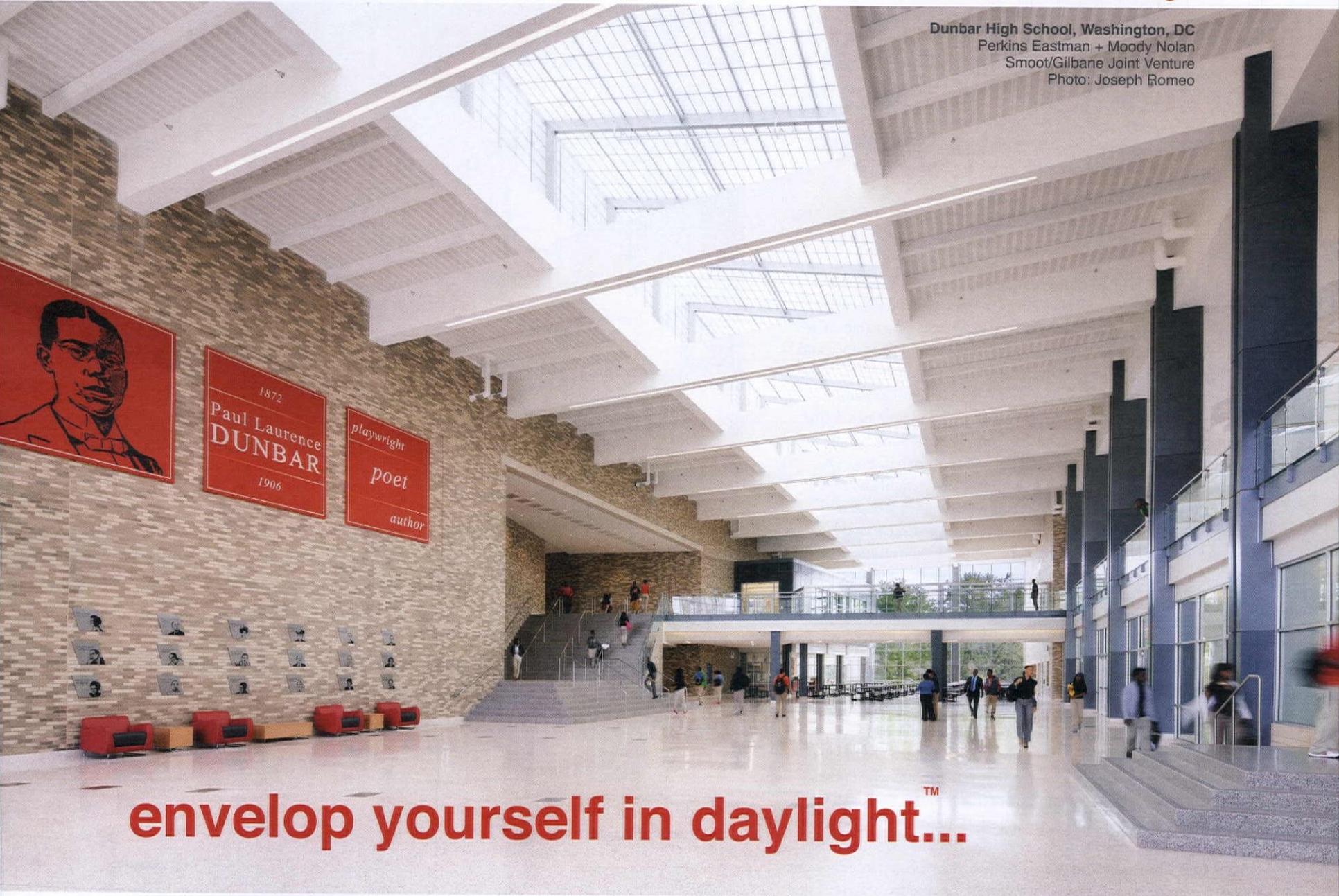


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REVISIT

In on the Ground Floor

A new floor in one of the first sustainably designed offices promises new benchmarks for the future.

BY ZACHARY EDELSON

The eighth floor of the building that houses the New York headquarters for the National Resources Defense Council (NRDC), in the city's Flatiron District, wasn't just a prototype of sustainable office design. When completed in 2010, it was a showroom, a laboratory, and a battleground for new ways to inhabit the workplace.

The space was designed by veterans of green design: Croxton Collaborative Architects. Twenty six years ago, Croxton helped define sustainable architecture when the firm completed two and half floors for the NRDC in the same 12-story, early-20th-century building. The design featured elements such as an emphasis on daylight and the monitoring of energy use. Since then, the NRDC has expanded to occupy a total of five floors. The organization has slated two more floors, currently sublet to other tenants, for future renovation.

While the original 1988 NRDC offices were green in many ways, the organization's workplace organization may seem archaic by today's standards, with its closed private offices for individual employees. The 2010 project aimed to change that. "The real issue was the culture," says Croxton Collaborative Architects president Randolph Croxton. Employees were accustomed to private offices. The eighth floor was "a cultural and technological change" toward flexible spaces that were more environmentally efficient and adapted to changing work patterns.

The logic of the new LEED Platinum design is evident. At the floor's center are team rooms and enclosed offices staff can use when privacy is needed. At the edge is circulation space that removes workstations from fluctuating temperatures near the envelope. In the middle are desks intended for use by employees visiting from the organization's other offices. The floor is linked to the offices above via an interior stair that lands on the eighth-floor lobby; this linking strategy will continue downwards to the not-yet-renovated seventh and sixth floors.

Not everyone at the NRDC was keen to surrender their private offices. But the architects framed the argument for their design in familiar terms: the switch from a conventional plan to an open plan was analogous to moving from a wasteful "suburban" model to "nature's model" of density and efficiency. By eliminating the "material burden" of paint, gypsum board, and other materials, the eighth floor achieves an embodied energy that is 95.7 percent less than a traditionally configured office space. An inwardly sloping ceiling with reflective surfacing, along with a lack of tall partitions, meant that 76 percent of regularly occupied office spaces are daylit and that the lighting power density is more than 40 percent better than code. The space also has excellent air quality, with 94 percent less formaldehyde and 49 percent fewer VOCs than maximum levels specified by LEED for Commercial Interiors 2.0.

Croxton Collaborative used technology and products that were readily available and affordable to ensure replicability. "There's no excuse anymore," for not implementing similar strategies, says

The eighth-floor lobby will eventually connect to the expanded offices on the lower two floors, which will undergo a renovation in the future.



TEAM

ARCHITECT AND INTERIOR DESIGN

Croxton Collaborative Architects

Engineers ETN A Consulting (structural); WSP Flack & Kurtz (MEP)

Consultants Construction Specifications

KEY PARAMETERS

LOCATION New York City

SOURCES

Glass PPG Solarban 70XL Starphire

Insulated panel/plastic Green Fiber Cocoon

Paints and stains Benjamin Moore Eco Spec

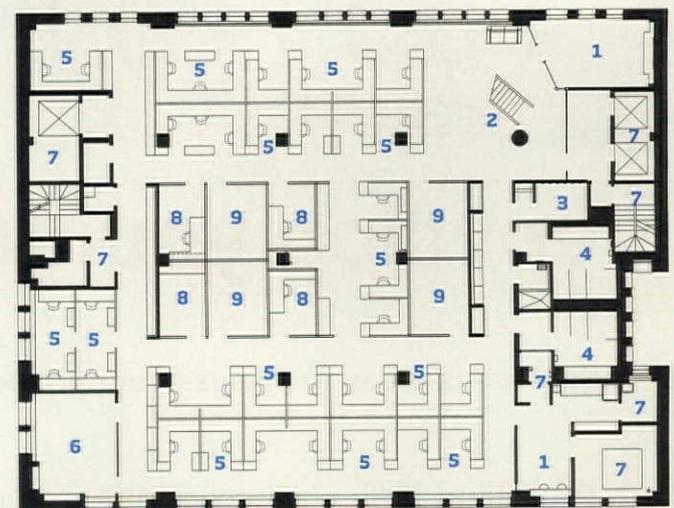
Flooring Expanko (cork); Hoover Plywood (subfloor)

Ceiling Tile Armstrong Ultima

Lighting Controls Lutron Ecosystem

FLOOR PLAN

- 1 Conference room
- 2 Reception area
- 3 Bike storage
- 4 Bathroom
- 5 Open workstations
- 6 Lounge
- 7 Utility
- 8 Office
- 9 Team room



Anthony Guerrero, NRDC facilities and administration director. Indeed, the organization has already incorporated these concepts into its other offices, such as those in Chicago recently designed by Studio Gang, which achieved Living Building Challenge certification.

In future expansions of the NYC offices, Croxton and Guerrero aim to achieve net-zero carbon and energy by using a mix of rooftop solar panels and purchased green power. While there are some panels already installed, the NRDC was also recently awarded a \$400,000 grant to develop a green roof at its Flatiron offices that would include trees, urban agriculture, and an apiary. **GS**



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EARTHWATCH

We've all passed them on the highway: towering oil refineries, their smokestacks billowing gray smoke, looking both majestic and ominous against the sky. With his recent series *Land Scape*, artist and commercial photographer David LaChapelle departs from his trademark portraits of celebrities and models to focus on our national dependence on oil, featuring representations of these mammoth structures in his signature glossy, color-saturated style. "The refineries are these things—these symbols of our use of fossil fuels—that have allowed the population and the planet to grow, but to a point where we are not really sustainable," says LaChapelle.

Land Scape grew out of an earlier series focusing on gas stations. For that project, the artist hand built models of the structures and photographed them in the Maui jungle. The images set a familiar scene, though one gone eerily awry: trees and plants loom over seemingly abandoned gas pumps and neon-lit minimarts. In thinking about the relationship between petroleum production and refineries, LaChapelle hit upon his next subject—what he calls "these monuments to the industrial revolution."

In building the oil-refinery models, LaChapelle used recycled materials, as he did for the gas station series. This time, he chose items already in his studio: packaging, hair curlers, plastic bottles. The California desert and coastline provided the setting for the shots. At first, the refineries appear powerful and glowing, shrouded in blazing colors; further inspection, however, reveals that the piping is made of plastic straws and the structure's apparatus of tin cans. "It is an illusion," says LaChapelle. "You think it's one thing, then you realize it is made of the products that are by-products of plastics coming from the refineries." 

CRITICAL POINT



SOUTHERN CALIFORNIA
Joshua Tree
LaChapelle's *Kings Dominion* was
photographed in the desert.

BY NICOLE ANDERSON

A PATH WITHOUT A FOOTPRINT




FSC
The mark of
responsible forestry
C-COC-001855
www.fsc.org

Lever Architecture. Photo by Jeremy Bittermann.

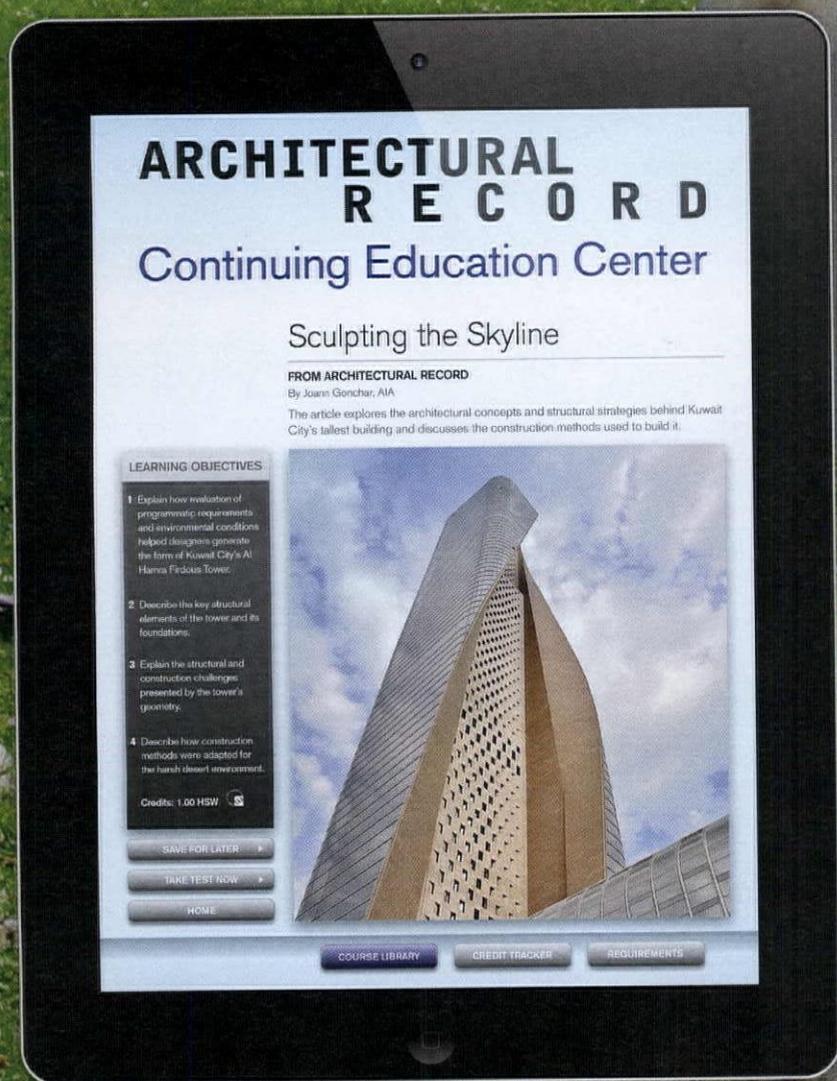
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ORIGINAL AND BUILT

The Wood Use Paradox

Can specifying wood for buildings contribute to forest sustainability?

Sponsored by reThink Wood | By Roxane Ward and Dave Patterson, RPF

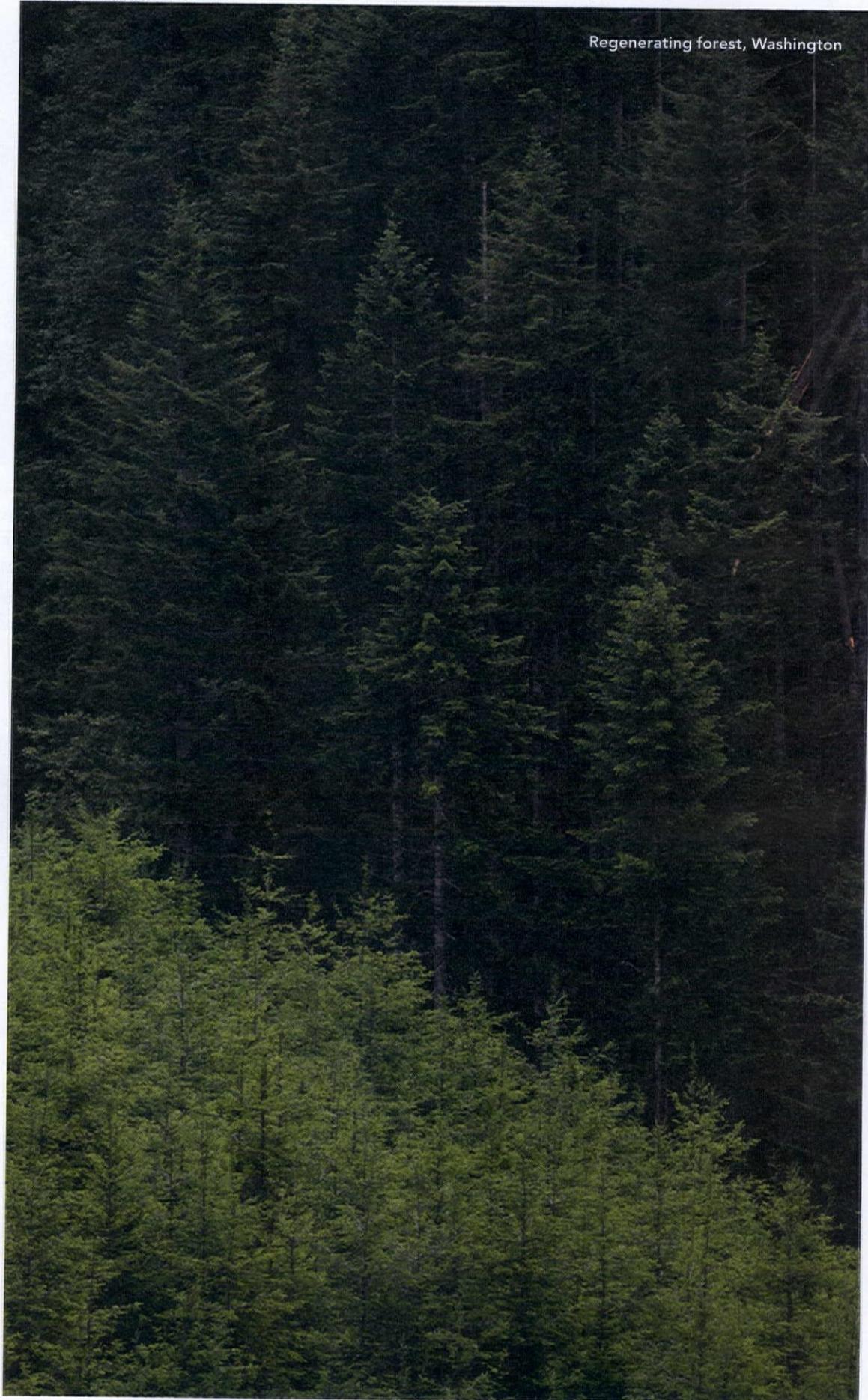
As green building has evolved beyond its initial emphasis on energy efficiency, greater attention has been given to the choice of structural materials and the degree to which they influence a building's environmental footprint. Increasingly, wood from sustainably managed forests is viewed as a responsible choice—for a number of reasons. Wood grows naturally by harnessing energy from the sun, absorbing carbon dioxide and releasing oxygen. It is renewable and a carbon sink, and outperforms other materials in terms of embodied energy, air and water pollution, and other impact indicators.¹

But what about the forest? The benefits above notwithstanding, how can building designers be sure that specifying wood doesn't negatively impact the North American forest resource?

As this course will demonstrate, the answer to that question has several elements. On one hand, North American forest practices are among the world's best and the amount of forested land, in both the U.S. and Canada, has been stable for decades. On the other, there are threats—such as deforestation due to urban development, climate change and increased wildfire, insect infestation and disease—which are broader than the forest industry and must be addressed at a societal level. Drawing from a wide range of research publications, the following pages will examine the current state of North American forests, modern forest practices and criteria for sustainability, and consider some of the challenges that could profoundly impact the future of the forest resource. In this context, the course will also discuss why strong markets for wood products provide an incentive for landowners, not only to invest in forest management, but to keep forested land forested even though greater profit can often be made by converting it to other uses.

Photo: Gary Darby, Weyerhaeuser

Regenerating forest, Washington



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CREDENTIAL MAINTENANCE

Learning Objectives

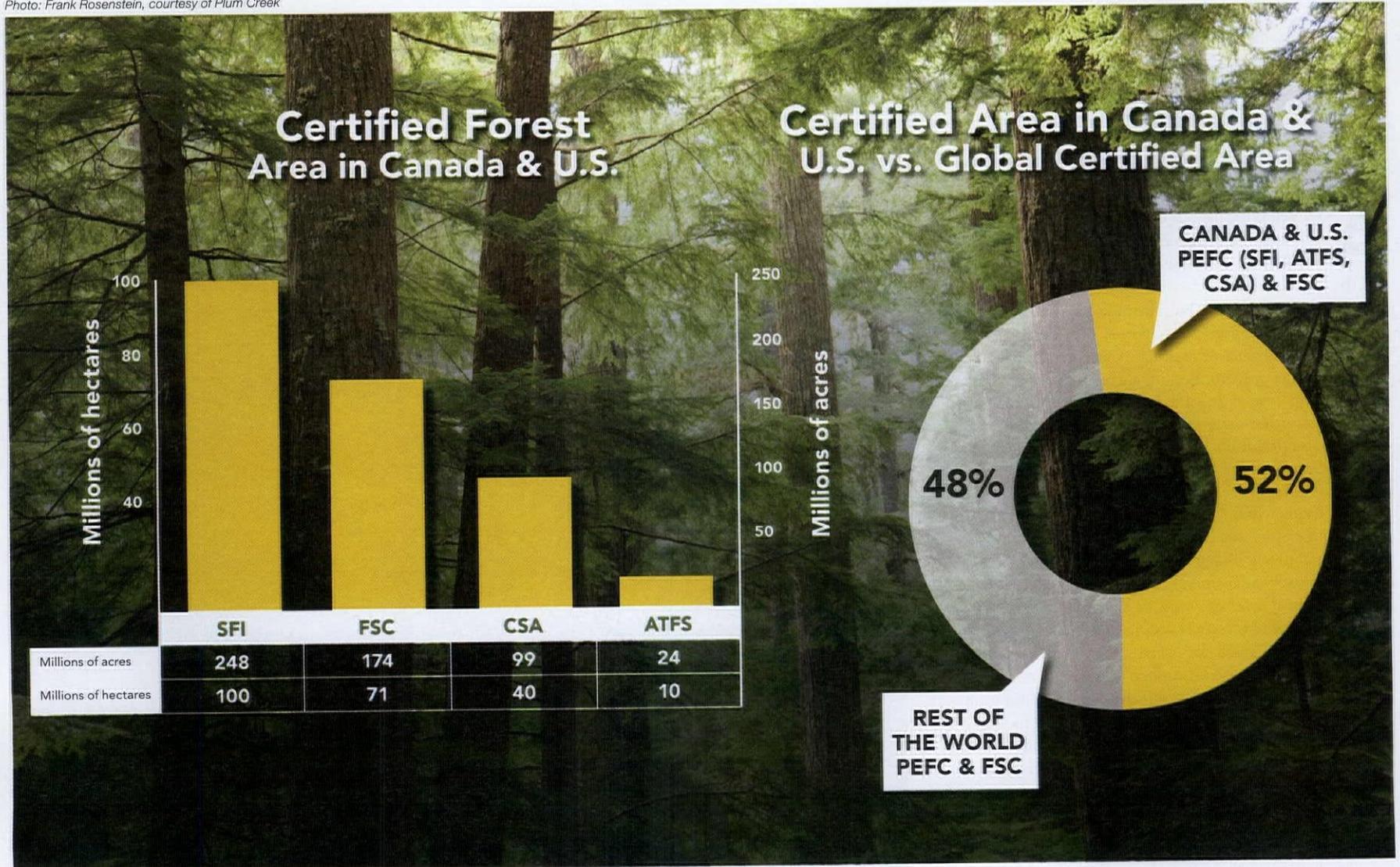
After reading this article, you should be able to:

1. Evaluate the use of wood as a construction material in the context of long-term forest sustainability as well as attributes such as low embodied energy and light carbon footprint.
2. Discuss forest sustainability measures such as biodiversity, soil and water quality, and harvest vs. net growth.
3. Examine the concept that using wood in buildings provides an incentive to landowners to keep forested lands forested instead of converting them to uses such as urban development.
4. Compare the carbon benefits of an unmanaged forest vs. a managed forest where timber is used for wood buildings.

To receive credit, you are required to read the entire article and pass the test. Go to ce.greensourcemag.com for complete text and to take the test for free.

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Photo: Frank Rosenstein, courtesy of Plum Creek



Forest certification credit: www.sfi-program.org, www.pefc.org, www.fsc.org, www.forestfoundation.org

Second growth working forest, Oregon

IS NORTH AMERICA RUNNING OUT OF FORESTS?

“On the whole, no evidence suggests that we are *using up* our forests. In fact, the total area of forests has been stable, and the volume of wood on them increasing.” — *National Report on Sustainable Forests – 2010*²

Until the early 1900s, settlers coming to North America cleared an average of 2.1 acres of forest per person to survive and grow food.³ Since then, the establishment of industrial agriculture and other changes in land use have mitigated the need for forest clearing and forest acreage has been stable for close to a century.

The U.S. reported an annual increase in forest area of 0.12 percent in the 1990s and 0.05 percent from 2000 to 2005, while Canada reported no change.⁴ In both countries, responsible forest management has resulted in more than 50 consecutive years of net forest growth that exceeds annual forest harvests.

United States

According to the *National Report on Sustainable Forests – 2010*, the U.S. has approximately 751 million acres of forest area, which is about one third of the country’s total land area. “This stability is in spite of a nearly three-fold increase in population over the same period and is in marked contrast with many countries where wide-scale deforestation remains a pressing concern.”

Forty-three percent of U.S. forests are owned by entities such as national, state and local governments; the rest are owned by private landowners, including more than 22 million family forest owners. The fact that

Deforestation is the permanent conversion of forest land to non-forest land uses. Around the world, it is a major issue and contributor to global warming. In the U.S. and Canada, the rate of deforestation has been virtually zero for decades⁵; however, the value of forest land in agriculture and real estate maintains pressure to convert.

net forest growth has outpaced the amount of wood harvested for decades supports the idea that landowners who depend economically on the resource have a strong incentive for their sustainable management. This aligns with global forest data, which indicates that forest products and industrial roundwood demands provide the revenue and policy incentives to support sustainable forest management.⁶ However, with urban development and other uses increasingly vying for land, an issue going forward will be making sure that landowners continue to have reasons to keep forested lands forested.

Canada

Canada has 766 million acres of forestland,⁷ which is about 90 percent of the forested area it had before European settlement. Ninety-three percent of the forest is publicly owned and managed by provincial, federal and territorial governments. The remaining 7 percent is on private property belonging to more than 450,000 private landowners.

Wood supply is the term used to describe the estimated volume of timber that can be harvested from an area while meeting environmental, economic and social objectives. Governments regulate harvest levels on public lands by specifying an annual allowable cut.

TOOLS FOR ACCOUNTABILITY

Although types of ownership vary, forest management in the U.S. and Canada operates under layers of federal, state/provincial and local regulations and guidelines that foresters and harvesting professionals must follow to protect water quality, wildlife habitat, soil and other resources. Laws addressing safety and workers’ rights also govern forestry activities. Training, continuing education and certification for loggers and foresters support continuous improvement as well as the use of forestry best management practices (BMPs). Government agencies monitor forest management activities for compliance with regulations.

Forest Certification

While forestry is practiced in keeping with regulations and guidelines that consider environmental, economic and social values for that particular country, voluntary forest certification allows forest companies to demonstrate the effectiveness of their practices by having them independently assessed against sustainability standards.

Wood is the only building material that has third-party certification programs in place to demonstrate

that products being sold have come from a responsibly managed resource. As of August 2013, more than 500 million acres of forest in the U.S. and Canada were certified under one of the four internationally recognized programs used in North America: the Forest Stewardship Council (FSC), Sustainable Forestry Initiative (SFI), Canadian Standards Association's Sustainable Forest Management Standards (CSA), and American Tree Farm System (ATFS). This represents more than half of the world's certified forests.

According to the National Association of State Foresters, "credible forest certification programs include the following fundamental elements: independent governance, multi-stakeholder standard, independent certification, complaints/appeals process, open participation and transparency. [...] While in different manners, the ATFS, FSC, and SFI systems include the fundamental elements of credibility and make positive contributions to forest sustainability."⁸ Similarly, the World Business Council on Sustainable Development released a statement supporting an inclusive approach that recognizes these programs as well as CSA (and others).

The FSC, SFI, CSA and ATFS programs all depend on third-party audits where independent auditors measure the planning, procedures, systems and performance of on-the-ground forest operations against the predetermined standard. The audits, performed by experienced, independent foresters, biologists, socio-economists or other professionals, are conducted by certification bodies accredited to award certificates under each of the programs. A certificate is issued if a forest operation is found to be in conformance with the specified forest certification standard.⁹

DEFINING FOREST SUSTAINABILITY

Forest sustainability was first described in the book *Sylvicultura oeconomica* by German author Hans Carl von Carlowitz, published in 1713—and, while our understanding of what constitutes sustainability has evolved significantly in 300 years, it has long been a cornerstone of forest management. Von Carlowitz's work planted the seed for what we now know as sustainable development, defined in the landmark 1987 report of the World Commission on Environment and Development (the 'Brundtland Report') as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

The United Nations Food and Agriculture Organization (UNFAO) defines sustainable forest management as "the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biological diversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological economic and social functions, at local, national and global levels, and that does not cause damage on other ecosystems."

In the U.S. and Canada, forest sustainability is measured against criteria and indicators that represent the full range of forest values, including biodiversity, ecosystem condition and productivity, soil and water, global ecological cycles, economic and social benefits, and social responsibility. Sustainability criteria and indicators form the basis of individual country regulations as well as third-party sustainable forest certification programs.

THE ART AND SCIENCE OF FOREST MANAGEMENT

There is a good reason forestry is often described as a blending of art and science. Foresters must follow the laws, regulations and best practices of forestry and apply forest science and the results of ongoing research. They must also nurture the art of recognizing the unique features of a specific forest and site and develop the management design that will meet diverse environmental, economic and social interests, including the needs and objectives of the landowner.

The blending of art and science that occurs in forest management is similar to what occurs in a building project. Like the multi-disciplinary team that designs and constructs buildings, sustainable forest management involves a team that includes foresters, engineers, biologists, hydrologists, surveyors and loggers that plan and care for the forest. In both cases, members of the team must address the technical requirements and obligations of their profession while taking into consideration the tastes and desires of the project partners and owners. In the case of forestry, this includes caring for the forest while meeting the needs of landowners, the environment and their community.

PLANNING FORESTS OF THE FUTURE

Although approaches differ, effective multi-decade planning is a fundamental part of forest sustainability.

On national forests in the U.S., for example, conformance with the National Forest Management Act (NFMA) requires the development of a comprehensive plan, utilizing substantial public involvement and sound science to guide management decisions.

In Canada, where most forests are publicly owned, integrated land-use planning seeks to balance the economic, social and cultural opportunities in a forested area while maintaining the well-being of the forest. The public gets a say in decisions about how the land and its resources are managed; forest companies must solicit public input on their forest management plans, which must be approved by government agencies.

Through the use of diverse silviculture practices, foresters tend to the forest, ensuring regeneration, growth and forest health, and providing benefits that support a full range of forest values. For example, forest management practices are often selected to mimic natural disturbances and the cycles of nature that are associated with a specific region, forest type or species. Natural disturbances, including windstorms, hurricanes,

ice storms, forest fires and insect or disease outbreaks, are a fact of life in the forest. To mimic these events, foresters may vary the size of the openings created by forest management, the intensity of management, the retention of wildlife reserve areas, and the frequency with which management occurs.

FOREST REGENERATION

Following harvest, forests can be regenerated either naturally or through planting or seeding. One is not inherently better than the other. Rather, the choice of method varies based on factors that include biology of the tree species, availability of on-site seed sources, site ecology, type of harvest system employed and objectives for the site.

In Canada, where forest regeneration is required by law on public lands, about 67 percent of the total harvest area is regenerated naturally and the rest through planting or seeding.

ENSURING HEALTHY FOREST GROWTH

After planting new trees, foresters use a variety of practices to support and encourage healthy forest growth, including understory thinning as well as understory planting and weeding. These treatments are applied to sustain ecosystem health and function, improve stand quality and produce desirable tree qualities that provide important economic and ecological values. They can also help to reduce the risk of wildfire in forests where previous fire prevention and other factors have resulted in an excess buildup of woody debris.

To control competing vegetation or brush, foresters use a variety of tools including chemical (e.g., herbicides), manual (e.g., saws and axes) and biological (e.g., sheep).

When properly used, herbicides can be an appropriate tool in a sustainably managed forest. In stands of pine and spruce, for example, pioneer plant species such as raspberry and trembling aspen thrive on disturbed sites with open growing conditions (i.e., following harvest), easily outcompeting newly planted seedlings for nutrients, light and water. Similar to a garden, weeds that are not controlled will take over and prevent the growth of desired species.

According to the U.S. Environmental Protection Agency (EPA), commercial and government use of herbicides (which includes forestry) accounts for 9 percent of use nationwide, while home and garden use accounts for 13 percent and the agricultural sector accounts for 78 percent.¹⁰



Photo: naturallywood.com



IS THERE A NEED TO 'GREEN' THE FOREST SECTOR?

"Forestry is the art and science of creating, using and conserving forests. The forestry profession was a pioneer in developing techniques for sustainable management and, later, techniques for the multiple use of forests. More recently, broad holistic concepts such as ecosystem management and landscape management have been developed, tested and applied. These are all elements of the sustainability and sustainable management of a wide variety of renewable resources. [...] Although the term "sustainable forest management" is synonymous with "good forestry," forestry and forest management are sometimes viewed as potentially damaging to the environment. This fear is justified where unscientific or illegal forest practices are used, but the argument that there is a need to "green the forest sector" appears to give too little credit to forestry's core concepts."

*Excerpted from the State of the World's Forests 2012
United Nations Food and Agriculture Organization*

All pesticides applied in the U.S. must be registered with the EPA and must carry federally approved labels describing permitted uses and appropriate protection measures. To be registered, pesticides must be tested for effects on humans and the environment, and applicators of pesticides on forest land must also comply with state laws. In Canada, the Pest Management Regulatory Agency (PMRA) of Health Canada reviews and regulates all pesticide use under the federal Pest Control Products Act. Such registration indicates that, based on extensive expert review of all available scientific evidence, registered products have no potential for significant effects on human or environmental health when used as directed.

Photo: Ontario Ministry of Natural Resources



This photo shows a clearcut in Ontario, Canada. Note the buffer zone of standing trees left around the lake to protect water quality, and the wildlife retention areas (patches of standing trees) in the middle.

PROTECTING SOIL AND WATER QUALITY

Soil is made up of broken rock particles that have been altered by physical, chemical and biological processes. It's an obvious and essential component of forest ecosystems, providing both a base for trees, plants and organisms, and the minerals and nutrients needed for their growth. In a forest, soil is held together by the root structures of trees and plants, and protected from erosion by tree trunks, forest floor vegetation and woody and leafy debris.

In forestry (as in agriculture), soil is the base resource; the medium that supports the ecosystem. It is therefore essential that soil be protected from damage and erosion.

For example, to avoid compacting sensitive (wet) soil, foresters may use heavy equipment in the winter when the ground is frozen instead of summer when it's soft, or use cable logging techniques instead of ground-based equipment.

Protecting against erosion is necessary, not only for the forest, but to keep soil from entering water bodies where it could be detrimental to fish habitat. Strategies involve avoiding sensitive areas (such as unstable slopes) and road construction techniques that include seeding the road with grass, creating diversion ditches and adding water bars (diagonal channels that prevent water from flowing down the length of the road).

CONSERVING BIODIVERSITY

Biological diversity, or biodiversity, refers to the variety of species and ecosystems on earth and their ecological systems. An important indicator of forest sustainability, it enables organisms and ecosystems to respond to and adapt to environmental change.

Conserving biodiversity is an essential part of forest sustainability and involves strategies at different scales.

At the landscape level, networks of parks and protected areas conserve a range of biologically and ecologically diverse ecosystems. Tens of millions of acres of North America's forests are protected within wilderness areas and parks and through regional and local programs. Forests with special ecological attributes are also protected by established conservation easements developed through the work of local land trusts.¹¹

From a forest management perspective, conserving biodiversity involves strategies that create a diversity of ecosystem conditions through space and time, to provide

diverse habitat for native species of plants and animals across the landscape. Among other things, this may include selecting harvest, renewal and tending treatments that maintain existing tree species diversity, maintaining mapped areas of standing trees within a harvested site, or planning harvest patterns based on wildlife habitat management objectives.

CHALLENGING PRECONCEPTIONS

This course has touched on a variety of criteria for forest sustainability. Another is public discourse. Frank discussion regarding the status of North American forests, how they're managed and the challenges they face is necessary to maintaining the many values they provide. In that spirit, this section addresses some of the most common concerns about forests and the forest industry.

True or false: Leaving the forest alone has the greatest climate change benefit

There is growing awareness among building designers that using wood can reduce a building's carbon footprint, provided it comes from a sustainably managed forest. At the core of wood's carbon benefit is the fact that as trees grow they absorb carbon dioxide (CO₂) from the atmosphere, release the oxygen (O₂) and incorporate the carbon into their wood, leaves or needles, roots and surrounding soil. (Wood material is approximately 50 percent carbon by dry weight.)

"Wood products are manufactured from renewable raw material; they are reusable and biodegradable, and they continue to store carbon throughout their lifetime. These characteristics make wood an excellent alternative to many of the materials that are now widely used in construction and consumer goods, which leave a much larger 'carbon footprint' and include concrete, steel, aluminium and plastic. Increasing production and consumption of wood products will therefore be part of a sustainable future."

*State of the World's Forests – 2012
United Nations Food and Agriculture Organization*

CLEARCUTTING: APPROPRIATE SILVICULTURAL TOOL OR 'ALL THAT IS WRONG' WITH THE FOREST INDUSTRY?

In many conversations about forestry, clearcutting is held up as the beacon signalling 'all that is wrong' with the industry. This negative social reaction is an important consideration for foresters, especially those managing public lands.

Clearcutting is used when the young trees of a species need an abundance of sunlight to germinate and to compete successfully with grasses and other plants. It is usually used to grow tree species that historically found open sunlight by following large natural disturbances such as windstorms or wildfire. It provides the direct sunlight needed to effectively grow some native species, while helping to create a mix of forest ages across the landscape, including the young forests preferred by certain wildlife.

Over time, one of three things then happens:

- ▶ When the trees get older, they start to decay and slowly release the stored carbon.
- ▶ The forest succumbs to wildfire, insects or disease and releases the carbon quickly.
- ▶ The trees are harvested and manufactured into products, which continue to store much of the carbon. In the case of wood buildings, the carbon is kept out of the atmosphere for the lifetime of the structure—or longer if the wood is reclaimed at the end of the building's service life and either re-used or remanufactured into other products.

Unless the area is converted to another use, the cycle begins again as the forest regenerates and young seedlings once again begin absorbing CO₂.

The other important aspect to wood's relatively light carbon footprint is the fact that wood products require less energy to manufacture than other major building materials,¹² and most of that comes from renewable biomass (i.e., sawdust, bark and other residual fiber) instead of fossil fuels. In the U.S., biomass fuels provided 78 percent of the energy required at wood product facilities in 2010.¹³ In Canada, bioenergy accounts for 58 percent of the energy used by the entire forest industry.¹⁴

Photo: Sandy McKellar



A variety of tree species and age classes across the landscape

Photo: Mahlum Architects, courtesy of W.G. Clark Construction



THE WOOD IN A BUILDING IS 50 PERCENT CARBON BY DRY WEIGHT¹⁷

To highlight the carbon benefit of wood buildings, U.S. WoodWorks and the Canadian Wood Council partnered with research organization FPInnovations to develop a carbon calculator (available at www.woodworks.org). Based on widely available research,¹⁸ the calculator estimates the amount of carbon stored in a wood building, the greenhouse gas emissions avoided by not using steel or concrete, and how many minutes it takes North American forests to grow that volume of wood.

This student housing project at the University of Washington includes five buildings, each with five stories of wood over a concrete podium. With close to 2.5 million board feet (equivalent) of wood, the calculator estimates the following:

- Carbon stored in the wood:** 4,466 metric tons of CO₂
- Avoided greenhouse gas emissions:** 9,492 metric tons of CO₂
- Time it takes North American forests to grow this much wood:** 17 minutes

Using the EPA's Greenhouse Gas Equivalencies Calculator, these carbon benefits equate to taking 2,666 cars off the road for a year or the energy to operate a home for 1,186 years.

Although useful as an illustration of wood's climate change mitigation potential, these results are estimates only, as a detailed life cycle assessment would be required to provide this analysis for a specific building.

A great deal of research has been undertaken to determine how forests can be managed to maximize their carbon benefits. According to a new report from the Society of American Foresters,¹³ numerous studies of forest carbon relationships show that a policy of active and responsible forest management is more effective in capturing and storing atmospheric carbon than a policy of hands-off management that precludes periodic harvests and use of wood products.

While acknowledging that it is not appropriate to manage every forested acre with a sole focus on carbon mitigation, the report's authors conclude (among other things), that:

- ▶ Wood products used in place of more energy-intensive materials, such as metals, concrete and plastic reduce carbon emissions, store carbon, and can provide additional biomass that can be substituted for fossil fuels to produce energy.
- ▶ Sustainably managed forests can provide greater carbon mitigation benefits than unmanaged forests, while delivering a wide range of environmental and social benefits including timber and biomass resources, jobs and economic opportunities, clean water, wildlife habitat, and recreation.

As with all aspects of forestry, choosing not to manage also has consequences, and this also impacts carbon.

Young, healthy forests are carbon sinks because they're actively absorbing carbon dioxide as they grow. As forests mature, they generally become carbon cycle-neutral because primary productivity declines. Many continue to store substantial amounts of carbon indefinitely—old growth forests in the U.S. and Canada represent significant carbon sinks—but the probability of massive carbon loss also increases. Where forests are killed by large-scale natural disturbances (such as wildfires and insect or disease infestations), they emit their stored carbon without providing the benefits available through product and energy substitution.

According to the UNFAO, "Several aspects of the forest industry's activities are not adequately captured by looking at only the emissions and sequestration accomplished in the value chain. For example, the use of wood-based building materials avoids emissions of 483 million tonnes of CO₂ equivalent a year, via substitution effects. In addition, by displacing fossil fuels, the burning of used products at the end of the life cycle avoids the emission of more than 25 million tonnes of CO₂ equivalent per year, which could be increased to 135 million tonnes per year by diverting material from landfills.

See endnotes in the online version of this article.

▶ Continues at ce.greensourcemag.com



The Engineering of Art

Artists who use public space as their canvas often depend on structural experts to help them realize their visions.

BY JOANN GONCHAR, AIA, WITH ZACHARY EDELSON



THE ARTIST TOILING in solitude has long been a romantic ideal. But it rarely holds in reality, especially for those who work at the civic scale, making pieces that straddle the blurry boundary between art and architecture. These artists seldom work alone, typically relying on a host of collaborators to realize their visions, including studio assistants, fabricators, and even city officials. Frequently, they also need engineers—not only to ensure the works' structural soundness and the public's safety, but also to understand or refine the response of their pieces to the surrounding environment.

Engineers who work with artists say it can provide a particularly satisfying challenge, especially when it involves unconventional materials. There are rarely codes or prescriptive design standards that apply to such structures; instead, they must depend on the fundamentals of engineering physics.

Public Anemone

The collaboration between the Seattle office of Arup and Boston-based artist Janet Echelman illustrates this reliance on “first principles” of engineering, as Cormac Deavy, an Arup principal, puts it. Echelman's installations, often made of woven net, respond to the forces of nature, including wind, sun, and water. Her most recently completed piece—*Skies Painted with Unnumbered Sparks*—was installed for about two weeks in March outside the Vancouver Convention Center, marking the 30th anniversary of the Technology, Entertainment and Design (TED) Talks and the event's move to British Columbia from its previous home in Long Beach, California.

The work, which resembles an airborne sea anemone, ripples and undulates against the sky. It animates the public space below with its constantly changing form and an interactive feature, devised with the help of Google, that allows visitors to control its lighting with their mobile devices.

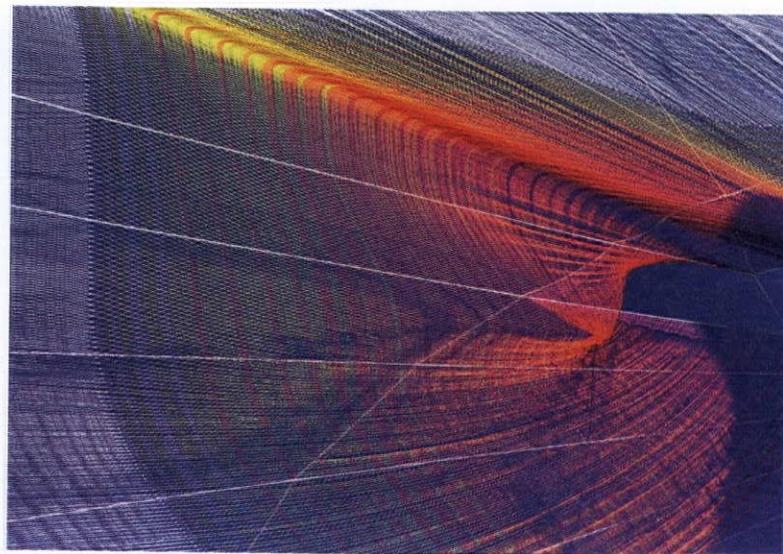
Spanning a plaza between the convention center and a hotel across the street, *Unnumbered Sparks* consists of a structural net made of polyethylene rope that's about 1.5 inches in diameter, and a draped net of polyester twine held together by 8,600 hand- and machine-tied knots. At 745 feet long, it is more than twice the size of any of Echelman's earlier pieces. However, Echelman maintains that bigger isn't necessarily better. “Everything is about the proportional relationship between the human body and the spatial context,” she says, adding, “It is about finding the right scale for the right place.”

Although size, in and of itself, was not one of Echelman's goals, *Unnumbered Sparks* turns out to be the largest “prestressed” rope structure in the world, according to Clayton

Binkley, an Arup senior engineer. (The piece is prestressed, he explains, because tension has been applied to the structural net during installation in addition to the loads created by the work's own weight.) Complexities accompany this distinction, since the magnitude of the forces in the rope net are proportional to the square of the span.

Working closely with Echelman's studio, in a highly iterative process, Arup studied various aspects of the piece, such as the size and number of panels making up each section of the draped net. Echelman and her team used custom software developed for her by Autodesk, and Arup, in turn, used the data generated by the tool for its analyses, which included evaluating the distribution of stresses over both the draped net and the cover net, as well as modeling the sculpture's response to the wind. Often they would rely on algorithms that Arup developed specifically for Echelman's work.

Based on these investigations, Arup provided the artist with design parameters, including a weight limit. With such information, she could make some areas of netting more dense and others more open. The structural consideration that governed the design was actually how much wind *Unnumbered Sparks* would catch—a quantity dependent on the net's surface area—rather

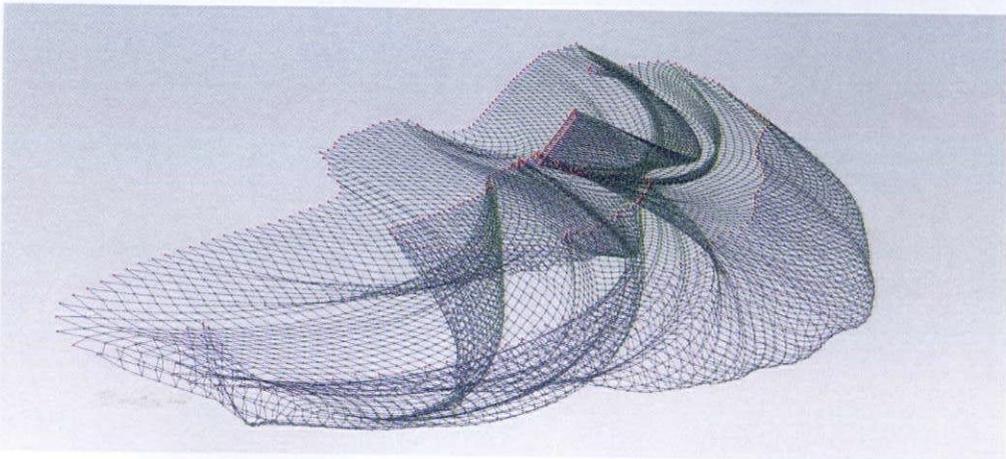
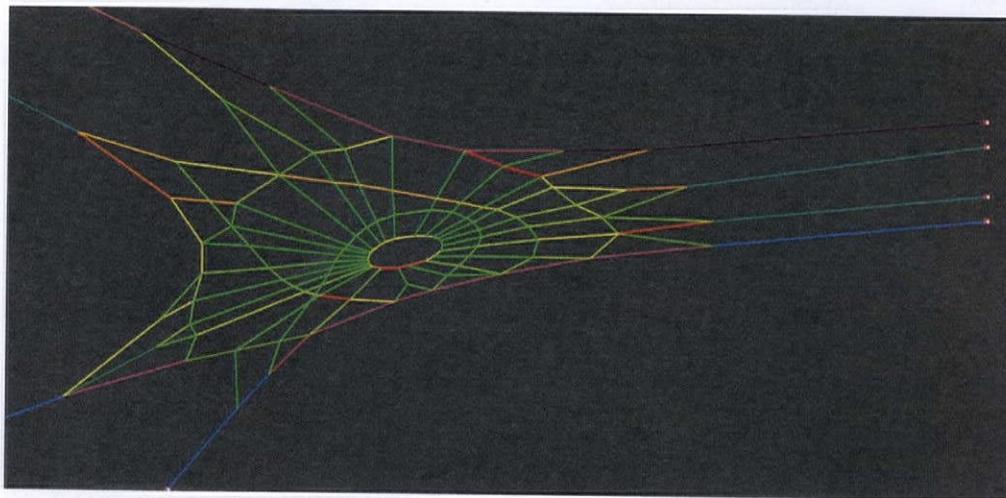


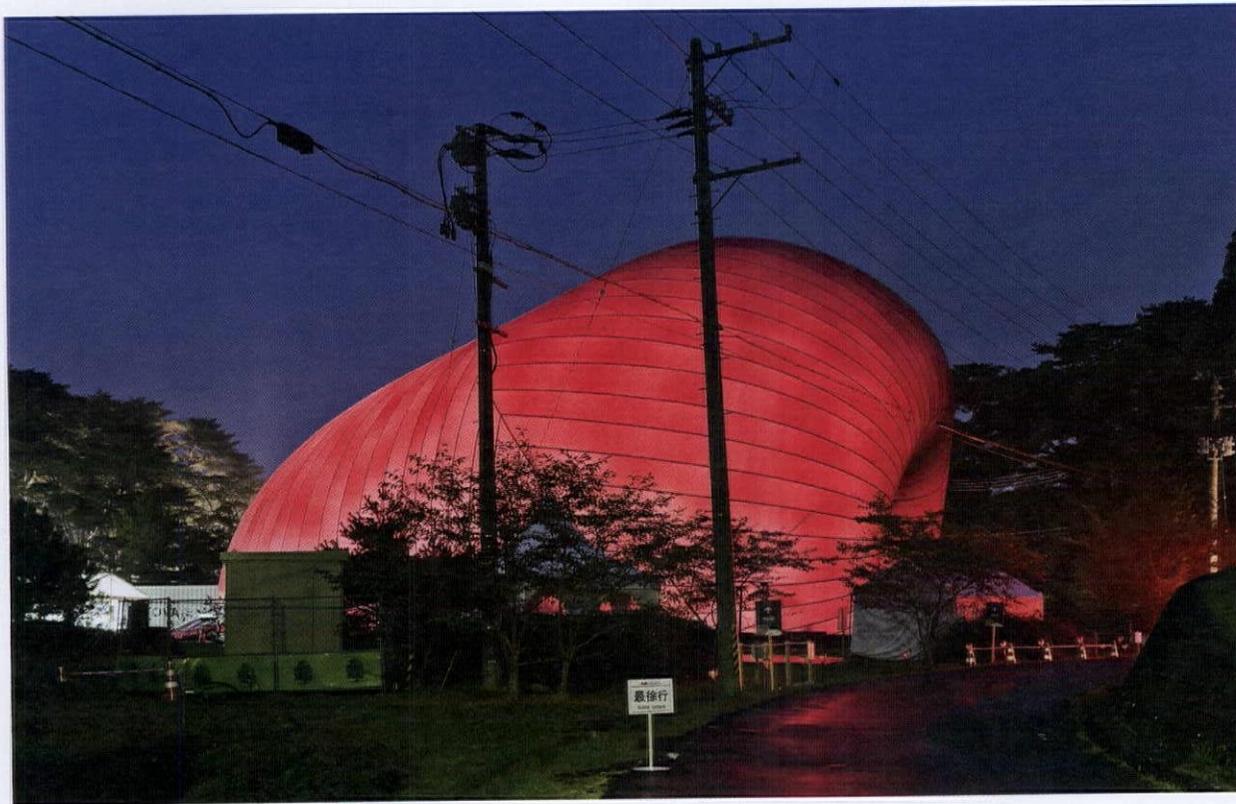
than how heavy it was. But weight provided a metric that was easier to work with than twice area was, explains Binkley.

The final sculpture weighed in at about 3,200 pounds, which included its moorings to the convention center and the hotel, devised by local engineers Glotman Simpson. These connections—five sets of eyelets and shackles for each building—tied into the existing structures' columns with steel plates and epoxy, and were designed to withstand 200,000 pounds of wind force, a load that

NEARLY 1 MILLION feet of braided fiber, which is held together by 8,600 machine- and hand-tied knots, went into *Unnumbered Sparks*. The piece ripples and undulates in the wind, appearing lighter than air even though it weighs about 3,200 pounds.

SKIES PAINTED WITH UNNUMBERED SPARKS, VANCOUVER, B.C. Janet Echelman's 745-foot-long sculpture, installed for about two weeks in March outside the Vancouver Convention Center (opposite), is the largest prestressed rope structure in the world, according to engineers at Arup. It consists of a structural net of polyethylene rope and a draped net of polyester twine. Among the analyses that engineers performed were iterative studies of the stresses in the structural net (above right)—with the goal of achieving a uniform distribution—and explorations of the deformations of the draped net (right) from wind.





ARK NOVA, MATSUSHIMA, JAPAN Conceived as a performance venue that would tour the region of Japan devastated by the 2011 Tohoku earthquake and tsunami, Ark Nova (above and left) was first deployed last fall in Matsushima. The inflatable 500-seat hall, designed by Anish Kapoor and Arata Isozaki, is enclosed by 22,000 square feet of PVC-coated polyester. The normally opaque eggplant-colored membrane becomes nearly translucent when light shines through it. The welded seams between sections of the skin are revealed on the interior during the day (opposite) and on the outside at night, when Ark Nova is illuminated from within.

firm principal Rob Simpson considered the “worst-case” scenario.

The anchorage details, as well as the structural net, will need to be modified if *Unnumbered Sparks* is installed elsewhere—a possibility that Echelman says she is exploring with several cities, both in the United States and internationally.

Plum Commission

Wind loads were also a critical concern for Ark Nova, an inflatable and movable concert hall designed by London-based sculptor Anish Kapoor and Tokyo-based architect Arata Isozaki. First deployed for a music festival held last fall in Matsushima, Japan, the bloblike but engaging form of eggplant-colored PVC-coated polyester was conceived as a performance venue that would tour the region affected by the 2011 Tohoku earthquake and tsunami.

Mitigating the response of the roughly 500-seat hall to the wind was particularly tricky, since the 318,000-cubic-foot volume has a “toroidal” form—one that turns in on itself—creating a diagonal tube that penetrates the interior. Wind flowing through this tube accelerates and can produce suction, explains Christopher Hornzee-Jones, director of Aerotrope, a London-based aeronautical and structural-engineering firm that has consulted on Kapoor’s projects for more than a decade.

To counteract uplift forces, Aerotrope studied several possibilities for securing the hall, including ground anchors and water-filled containers as ballast. Hornzee-Jones preferred the latter solution, because it would be simple to transport the containers once they were emptied. But, due to concerns about the containers’ performance during an earthquake, the team finally settled on a more conventional ballast system of steel plates. “We didn’t have the development time to prove that it would all be okay,” he says, “though I am sure it could be done.”

According to Hornzee-Jones, the fabric itself can withstand high forces sustained for a short amount of time, such as those produced by gusts. But one concern over the long term, he says, is creep: deformation that increases over time when stress is maintained on a material. To mitigate this phenomenon, Ark Nova’s inflation pressure is kept at a level adequate to maintain its form but low enough to limit the permanent stresses on the membrane.

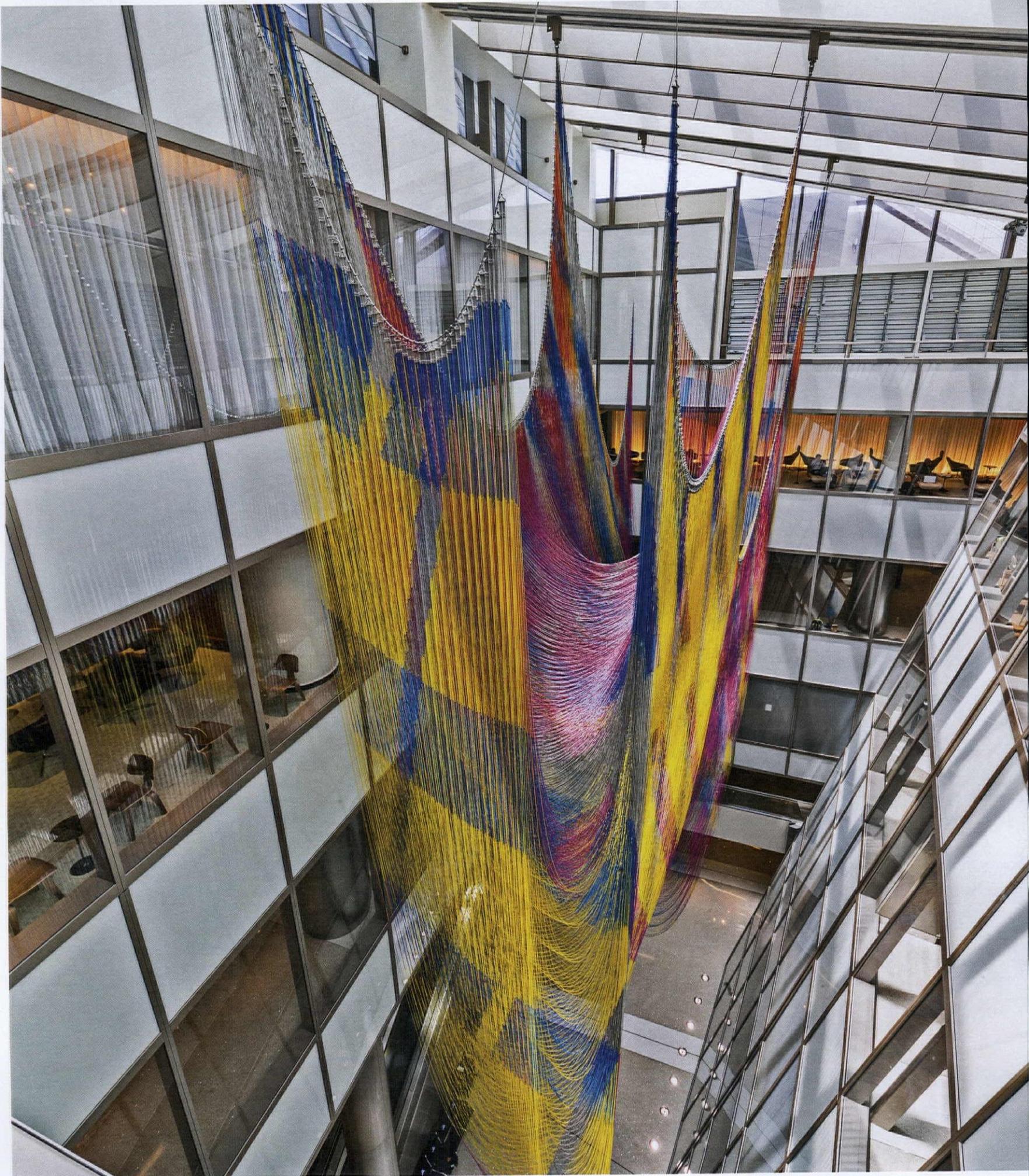
Critical to the perception of the concert hall’s shape is the articulation provided by the seams between sections of membrane fabric. These are particularly evident from the inside during the day, when sunlight shining through the skin makes it almost translucent.





CONTINUING EDUCATION: ART AND ARCHITECTURE

FROM ARCHITECTURAL RECORD



Aerotrope, along with Tensys, a firm that specializes in tensile structures, worked out the layout of the seams with Kapoor and Isozaki before sending the final geometry and detailed engineering studies to MakMax, the fabricator in Japan. MakMax generated the cutting files and welded the pieces together to create a single membrane with a surface area of 22,000 square feet.

Last October, after the festival in Matsushima ended, Ark Nova was deflated and folded in a packing sequence carefully worked out to avoid damaging the membrane. The resulting bundle, which Hornzee-Jones describes as “a several-ton brick,” now awaits deployment this coming fall at a yet-to-be-announced location elsewhere in the Tohoku region.

Just Bead It

Not all civic-scale installations are exposed to the elements, as Ark Nova and *Unnumbered Sparks* were. *Air Garden*, a permanent piece completed last fall by Los Angeles-based design and fabrication practice Ball-Nogues Studio, is sheltered from the wind and rain. Made of thousands of stainless-steel-bead chains—the type that are often used as light pulls—the sculpture is installed inside the Tom Bradley International Terminal at the Los Angeles International Airport, extending 95 feet below a skylight.

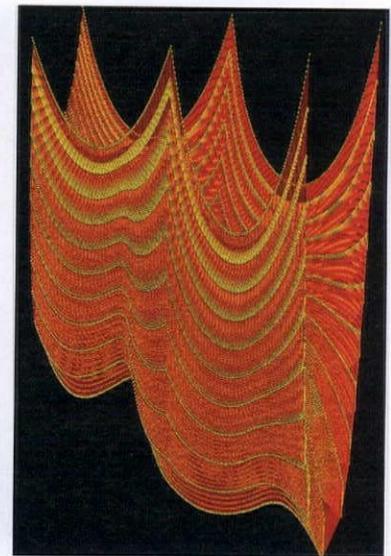
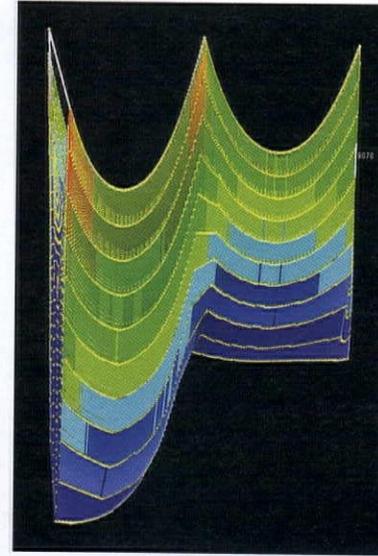
But even though architects Benjamin Ball and Gaston Nogues did not have to consider the impact of weather on their piece, the design process and structural analysis of *Air Garden* were far from straightforward. The colorful bead chains hang from six cables that

in turn are suspended directly from the skylight’s structural elements, an arrangement that creates difficult-to-analyze double catenaries. The almost 6,000-pound sculpture “is entirely soft in tension, like a big wet rag,” says Ball. “If you move one point, the whole thing changes.”

The result is considerably more appealing than a wet rag: *Air Garden* is a diaphanous veil with moiré patterns that shift depending on one’s vantage point and the quality of light coming through the skylight. In order to predict these effects during design, Ball and Nogues use proprietary software created specially for them, as well as visualization tricks that help the designers cope with the resolution limitations of a computer screen. “The size of a pixel is greater than the width of a bead chain,” Ball points out.

To determine how best to attach the piece to the skylight and understand the loads and stresses in each of the bead chains and cables, Ball-Nogues worked closely with the Los Angeles office of engineering firm Buro Happold. Using a method of numerical analysis known as “dynamic relaxation,” the firm also helped the designers fine-tune *Air Garden*’s ultimate geometry. The technique can be used to determine, for example, how much the individual bead chains will stretch due to gravity, how weight would be redistributed as a result, and how long each chain should be, explains Ron Elad, an associate principal in Buro Happold’s L.A. office.

Elad emphasizes that even before this step, *Air Garden*’s form was nearly set. “The architecture and design tools get very close to the final solution,” he says. What’s more,



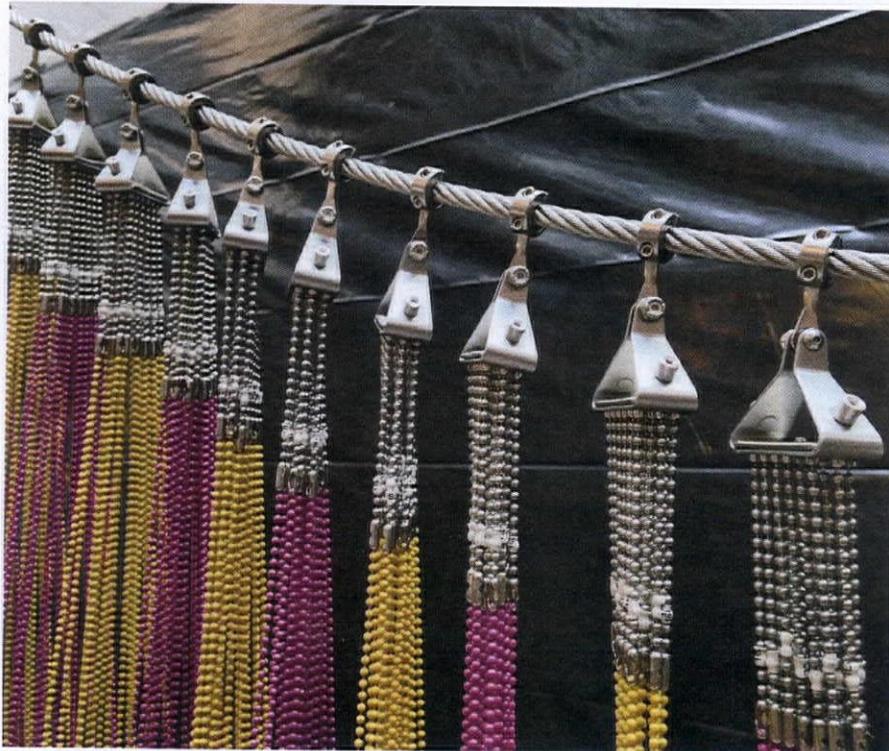
the piece is the product of themes that Ball-Nogues has been exploring for several years. “They select a material and technology that they want to work with and continue to refine them, each time pushing them more and more.” But that, Elad says, is what he finds so satisfying about working with Ball-Nogues and artists in general: “It is an opportunity to show the care we take to create elegant solutions.”

Elad’s sentiments echo those of Aero-trope’s director Hornzee-Jones, who maintains that with artwork, “it is absolutely crucial the details all come out right, even if it means they essentially disappear.” He seems to have no qualms, however, about his efforts being almost invisible. “It’s when the engineering disappears,” he says, “that you end up with art.” ■

MODEL SUBJECT Engineers from Buro Happold created a finite-element-analysis model of *Air Garden*. An axonometric view (above) created from this model reveals the amount and complexity of the data analyzed. Among the studies that the engineers performed for Ball-Nogues was an examination of the forces acting on the bead chains (above left). Stress increases near the supports, since the uppermost sections of the bead chains must carry the weight of those below.

AIR GARDEN, LOS ANGELES

Ball-Nogues Studio’s installation for the Los Angeles International Airport extends 95 feet below a skylight to just 13 feet above the floor (opposite). The almost 6,000-pound sculpture is made of thousands of stainless-steel bead chains suspended from six cables (one at right) that in turn are hung from the skylight’s structural members.



CONTINUING EDUCATION

To earn one AIA learning unit (LU), including one hour of health, safety, and welfare (HSW) credit, read “The Engineering of Art” and complete the test at architecturalrecord.com. Upon passing the test, you will receive a certificate of completion, and your credit will be automatically reported to the AIA. Additional information regarding credit-reporting and continuing-education requirements can be found online at ce.construction.com.

Learning Objectives

- 1 Describe the role of structural engineers in several recently completed, high-profile public art projects.
- 2 Describe the types of analyses engineers performed for these projects and identify some of the tools used for these analyses.
- 3 Explain some of the stresses each piece is subject to from wind, gravity, and other forces.
- 4 Define fundamental structural-engineering terms such as “creep” and “prestressed.”

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SNAP 280

What's on the Outside Counts

A BEVY OF treatments—from metal and wood exterior cladding to membrane structures, glazed assemblies, and high-performance paint—offer both function and beauty, making them popular choices in building design today. Architects and specifiers wanting to get up to speed on these materials, products, and design trends can check out the following credits on ceu.construction.com.

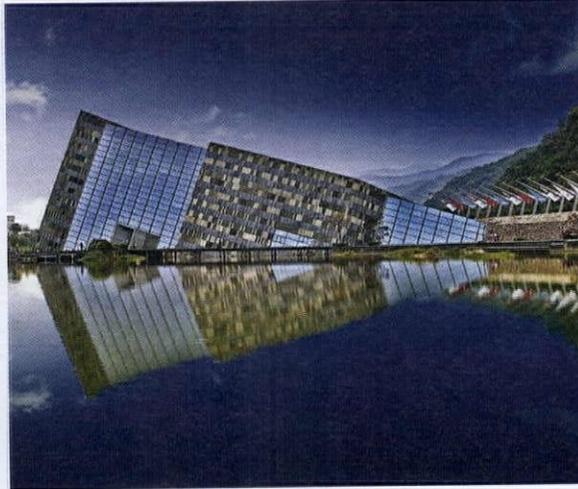
SNAPSHOT

GLASS & GLAZING

SPEC RATE BY PROJECT TYPE (SEPTEMBER 2013 TO AUGUST 2014)

RELIGIOUS BUILDINGS	54%
EDUCATION	54%
HEALTH CARE	54%
DORMITORIES	50%
HOTELS	47%
GOVERNMENT BUILDINGS	46%

SOURCE: MCGRAW HILL CONSTRUCTION RESEARCH + ANALYTICS



GLAZE UPON THIS Artech Architects designed Lanyang Museum in Yilan County, Taiwan, with interlacing glass volumes.

1

PLANT TOUR: SINGLE-SOURCE GLASS FABRICATION

Architectural glass offers a range of aesthetics, performance, and limitations. This focus on the fabrication of glass enclosure systems provides architects with an understanding of the processes involved and how they allow for specification and erection of buildings incorporating glass. (Sponsored by Viracon)

—CREDIT 1.00 HSW; 1 GBCI CE HOUR



RAISE THE ROOF Shepley Bulfinch created a high-end, interim dining hall inside a membrane structure at Harvard University.

2

INTERIM EXECUTIVE DINING FACILITY: A SMART BUSINESS DECISION FOR THE B SCHOOL

This case study highlights how a frame-supported membrane structure can be a temporary solution but still offer the appearance and functionality of a permanent facility. (Sponsored by Sprung Instant Structures and Kitchens To Go)

—CREDIT 1.00 HSW



HEAVY METAL The Bridges Center in Memphis, designed by Buildingstudio, features a distinctive metal enclosure.

3

METAL PANEL CLADDINGS: VARIED EXPRESSION, CONSISTENT PERFORMANCE

Metal claddings and insulated metal panels offer a number of advantages—and aesthetic possibilities—for architects and their clients. This course outlines the wide array of available products and their key attributes. (Sponsored by MBCI)

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NICE FINISH Technologically advanced high-performance coatings bridge the gap between traditional paint and industrial-grade coatings.

4

HIGH-PERFORMANCE COATINGS FOR COMMERCIAL APPLICATIONS

Today's coatings are engineered to protect assets, enhance appearance, and maximize long-term value for clients. This course examines the differing features of high-performance and traditional coatings. (Sponsored by Sherwin-Williams)

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TREE HOUSE A school designed by McFarland Marceau for the Saanich Indian School Board is clad in western red cedar siding.

5

GROWING BOLDER: SPECIFYING WESTERN RED CEDAR FOR ARCHITECTURAL APPLICATIONS

With the growing use of this wood species in architecture, it's important to look at its grades and standards and the ways these affect appearance and durability. (Sponsored by Western Red Cedar Lumber Association)

—CREDIT 1.00 HSW; 1 GBCI CE HOUR



CURVE APPEAL

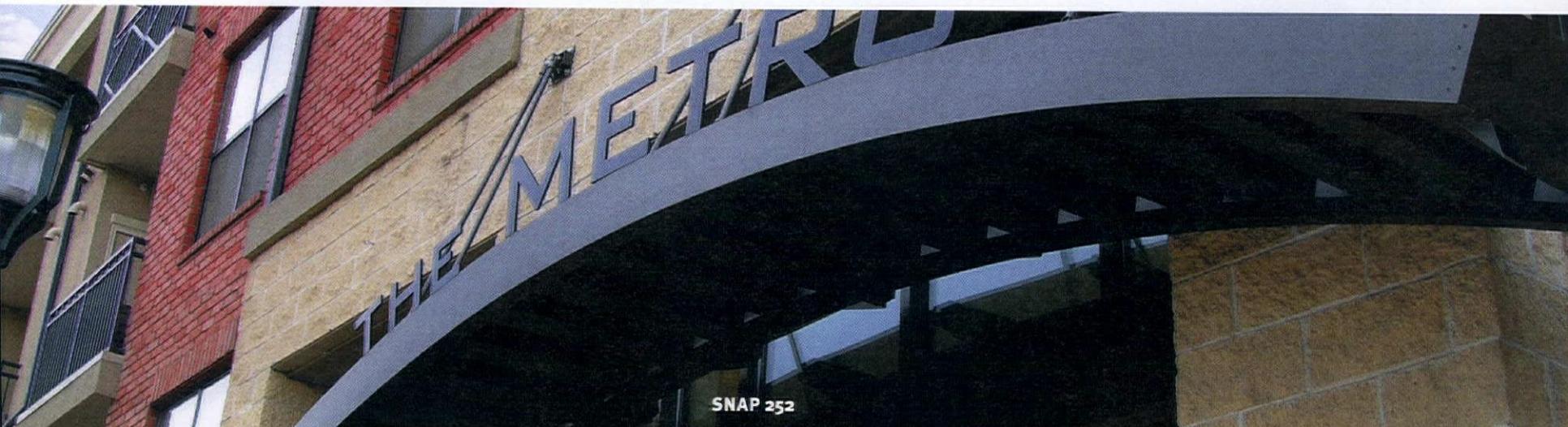
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SNAP 253

The Sweets Spot

SNAP asks **Al Esteves**, a designer and drafter at **Steffian Bradley Architects** in Boston, to weigh in on the latest product buzz in his city and the projects he's working on. We share what's trending in his region on sweets.com.

FIRM IN FOCUS: STEFFIAN BRADLEY ARCHITECTS



AL ESTEVES

DESIGNER/DRAFTER,
STEFFIAN BRADLEY ARCHITECTS,
BOSTON

VITAL STATS

FIRM TYPE: ARCHITECTURE

YEAR FOUNDED: 1932

PRINCIPALS: KURT ROCKSTROH, AIA;
JANE KRALIK, DON DENG, AIA; ROBERT
HEUMENN, AIA; STEPHEN VAN NESS,
AIA; RONALD VESTRI, AIA; SPENCER
WARNACKE, AIA; ET AL.

FIRM LOCATIONS: BOSTON;
ENFIELD, CONNECTICUT; LONDON,
UNITED KINGDOM; GUANGZHOU

FIRM SIZE: 100+

WHAT DID YOU SEARCH FOR RECENTLY ON THE SWEETS NETWORK? A flush-face, clip-in control joint cover for a 30,000-square-foot oncology and orthopedics facility. Since it's a health-care project, we were trying to minimize potential dust or bacteria and maximize ease of cleaning. I was able to home in on a product from Balco that met the criteria.

WHAT OTHER PRODUCTS HAVE YOU SPECIFIED FOR RECENT PROJECTS? We recently finished construction documents for the oncology and orthopedics project, and some of the products we are specifying for it include 3form's translucent resin panel system (to be LED back-lit), Corian solid surfaces, Armstrong Axiom perimeter trim, and Nora rubber tile. The Dana-Farber/Brigham and Women's Cancer Center

in Milford, Massachusetts, was a health-care project of a similar scale at 54,000 square feet. Some of the products we specified here were decorative glazing from Carvart, modular carpet from Shaw, Benjamin Moore paints, porcelain tile from Dal Tile, and laminates from Nevamar, Pionite, and Formica.

WHAT ARE SOME OF YOUR FAVORITE MATERIALS AND PRODUCTS IN GENERAL? I like seeing the effects that different types of lighting can create, from light shelves and recessed to pendants. I am a big fan of strip LED lighting, which we have used for feature panels. I also like the options that 3form offers for higher-end millwork, such as in reception desks.

WHAT ARE SOME PRODUCT TRENDS YOU'RE SEEING IN THE BOSTON AREA? Boston's long and rich history poses

some unique challenges such as buildings with small footprints. A lot of the products that we are seeing are directly related to the program and enhance collaboration and flexibility of space, such as movable partitions, modular furniture, and adjustable storage. Because of the city's density and tall buildings, most of its new construction features full glazing on facades with transom lights in interiors to help transmit natural light deeper into the floor plate.

ARE THERE ANY PRODUCTS THAT YOU SEE AS THE NEXT BIG THING? In my opinion, there isn't one next big thing, but many different ones that

The 54,000-square-foot Dana-Farber/Brigham and Women's Cancer Center at Milford Regional Medical Center in Massachusetts.



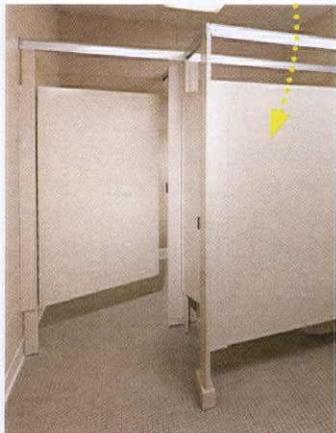
are reacting to the sustainable design movement. I have seen a tremendous growth in the digital fabrication market that can be expected to work its way into more architectural projects as it becomes more affordable. Solar panels are being designed for wider applications and not restricted to roofs. Products such as interactive displays keep getting smarter and people want to be ever more connected. —Anna Fixsen

S What's trending on sweets.com, including a look at top company searches from the Boston area.

WHAT'S TRENDING IN SOLID-SURFACING FABRICATIONS (OVER A 12-MONTH PERIOD)

INPRO

DUPONT CORIAN
SAMSUNG STARON



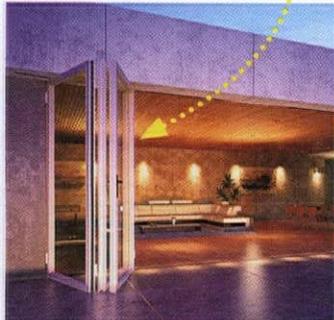
Solid-surface privacy partitions from Inpro.

WHAT'S TRENDING IN OPERABLE PARTITIONS (OVER A 12-MONTH PERIOD)

HUFCOR

NANAWALL SYSTEMS

PANELFOLD
JELD-WEN
BESAM
MODERNFOLD
INTERNATIONAL DOOR



FoldFlat doors from Nanawall Systems.

MOST SEARCHED MANUFACTURERS BY MASSACHUSETTS USERS (OVER A 12-MONTH PERIOD)

WIREMOLD

C.R. LAURENCE
OTIS ELEVATOR
PEMCO



Vista Architectural Columns by Wiremold.

WHAT'S TRENDING IN LIGHTING (OVER A 12-MONTH PERIOD)

INTENSE LIGHTING

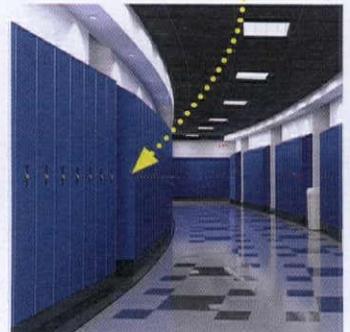
BOCK LIGHTING
JESSUP MANUFACTURING COMPANY
VIVID LEDS
NILAND COMPANY
BEACON INDUSTRIES



Ceileo recessed LED downlight from Beacon Products.

TOP SEARCH TERMS IN MASSACHUSETTS (OVER A 12-MONTH PERIOD)

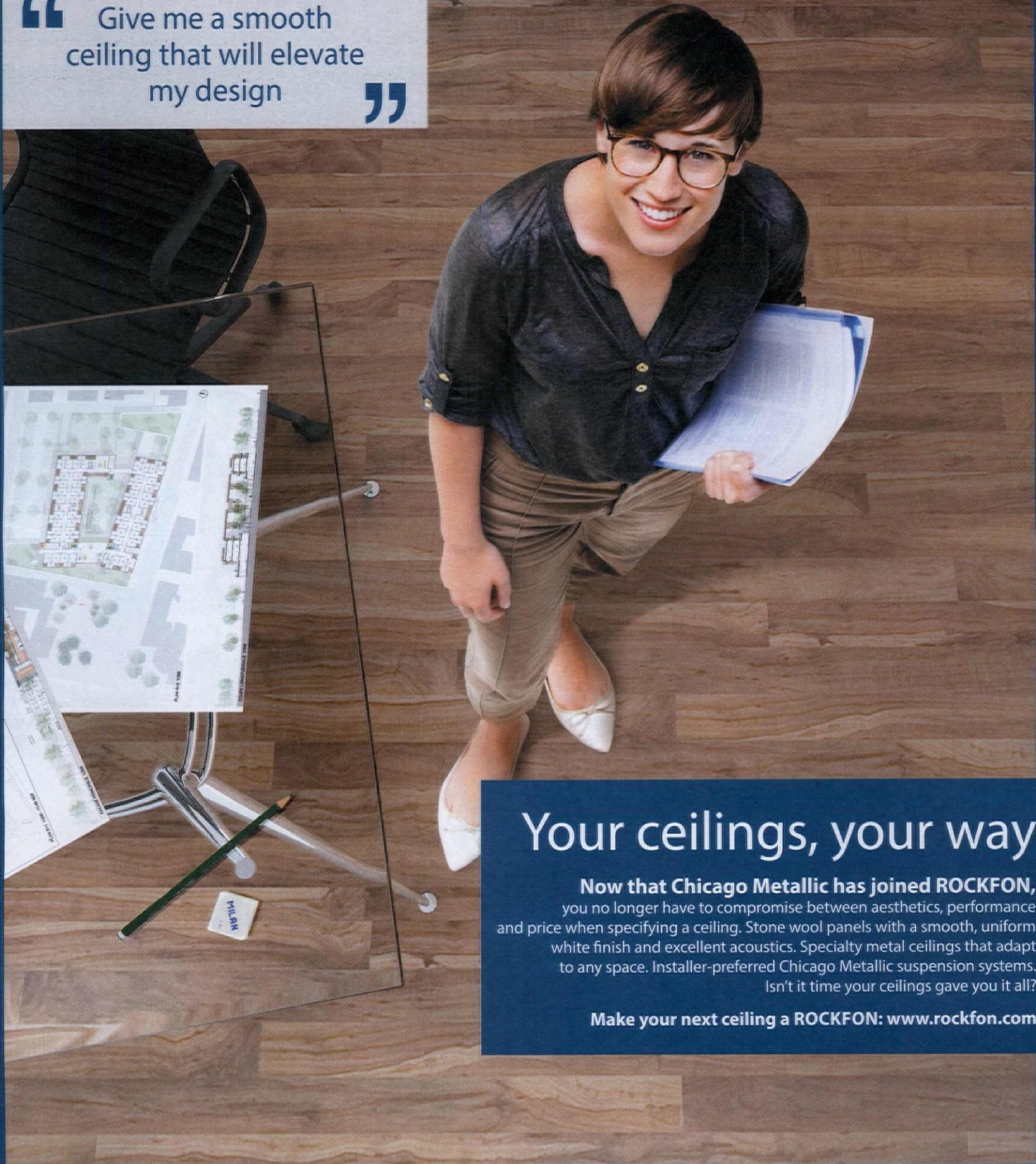
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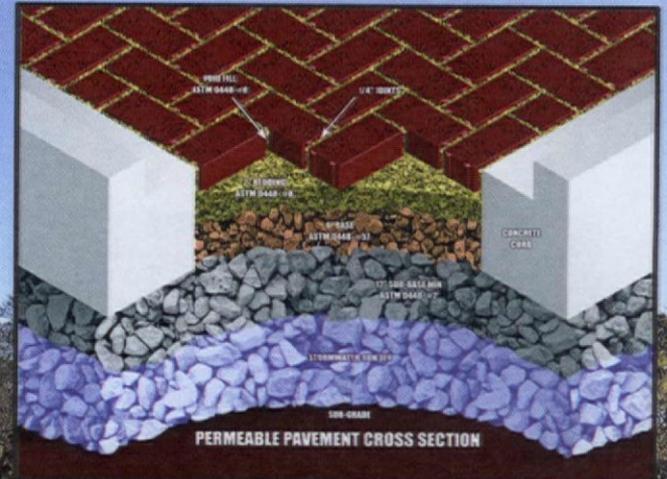


SNAP 254

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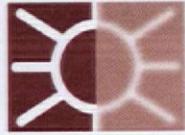
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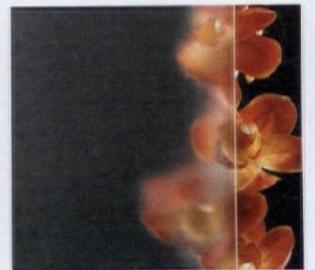
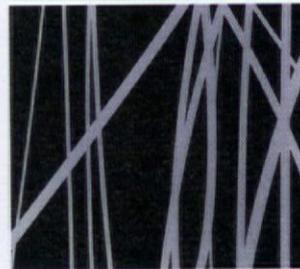
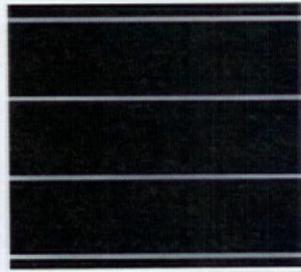
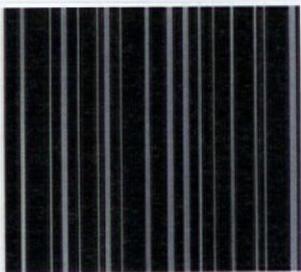


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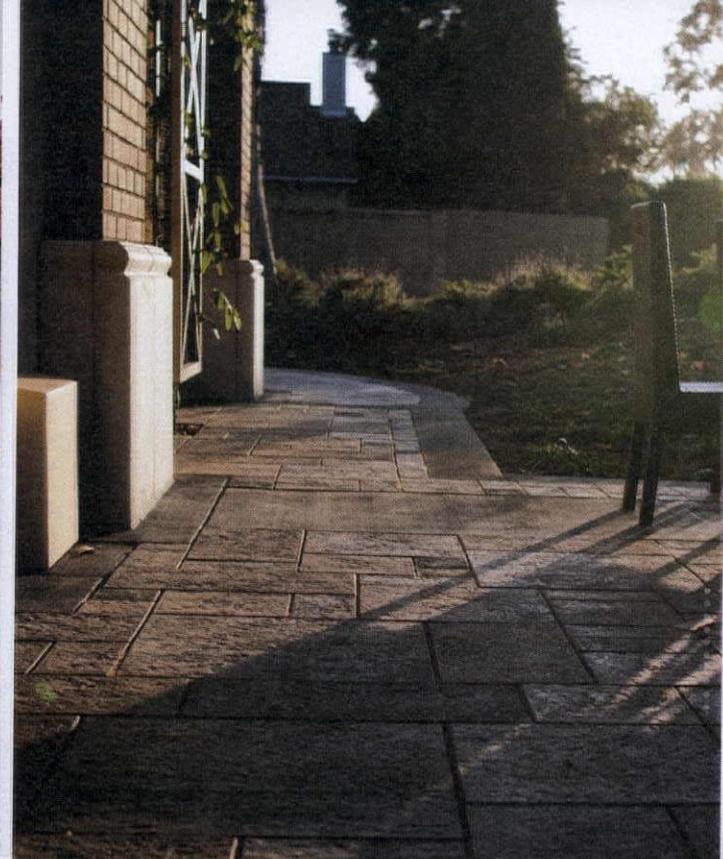


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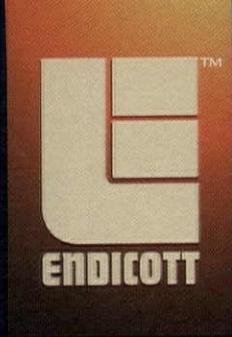
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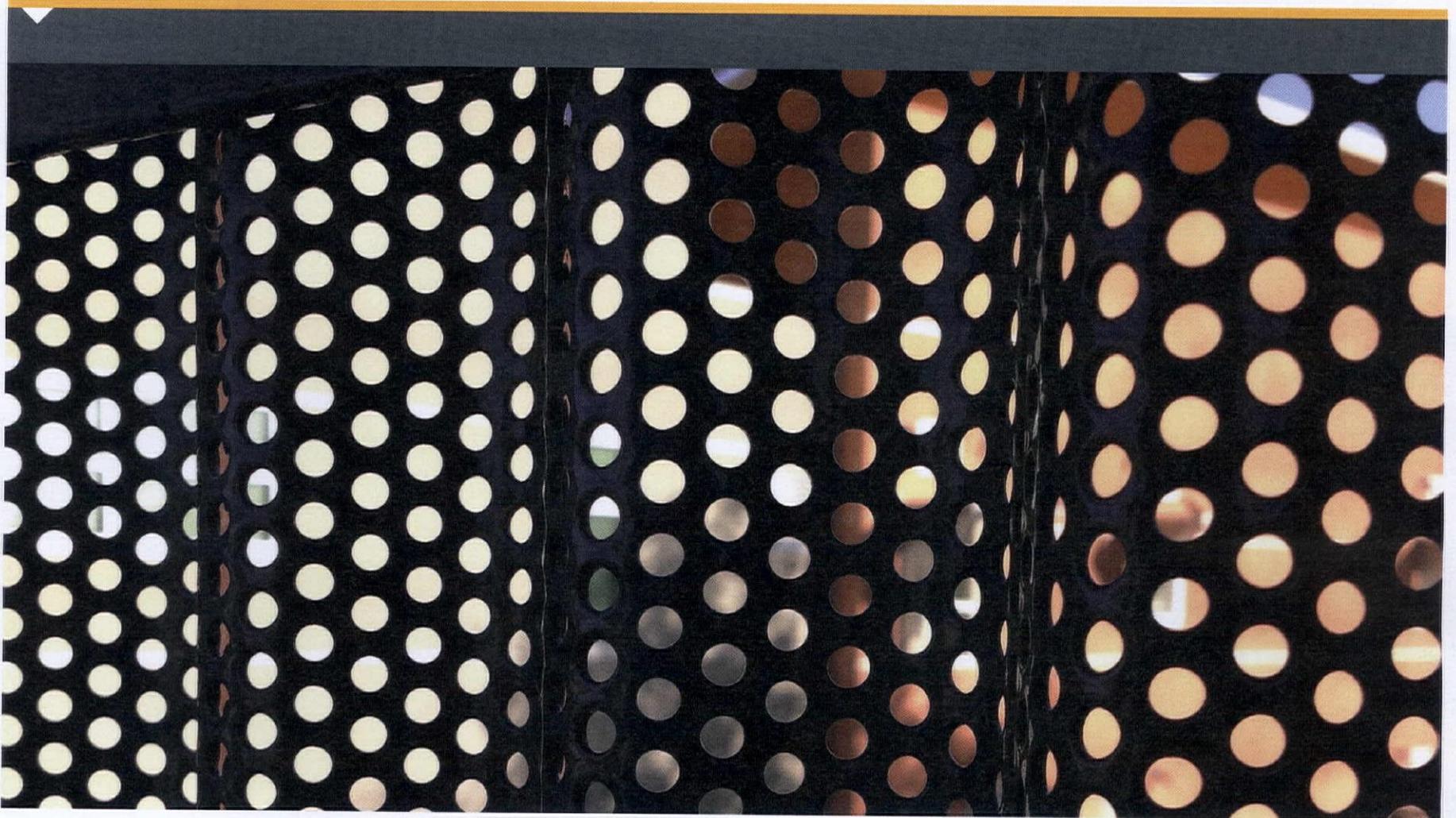
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SNAP 258

MANUFACTURERS' SPOTLIGHT SECTION

Look to these pages for products brought to you directly from manufacturers. You'll find the information you need to make SNAP decisions: price, performance data, product application, and contact information. Use the reader service card in the issue or go online at sweets.com to request further details.



Steelogic's perforated steel panels are available in custom colors, and can be used for decorative or functional elements. (SNAP #28)

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Materials Pgs. 99-100

Basic products, such as lumber, concrete, and masonry units used in construction. Includes paint, coatings, structural materials and fittings, and products designed for more generic use in multiple applications.

Roofing, Siding, Thermal & Moisture Protection Pgs. 105-110

Products for constructing the building envelope, such as exterior wall and roof panels, sheathing, thermal insulation, and waterproofing.

Interior Finishes, Furnishings Pgs. 115-116

Products for finishing and furnishing building interiors, such as flooring, wall coverings, ceilings, furniture, shelving systems, coat racks, and window treatments.

Doors, Windows Pgs. 121-124

Doors, windows, storefronts, entrances, glazed curtain walls, skylights, translucent wall and roof assemblies.

Electrical, Lighting Pgs. 131

Products for generating, transmitting, distributing, and transforming electrical energy, such as light fixtures and power supplies. Includes intercommunication equipment.

Mechanical Systems, HVAC, Plumbing Pgs. 135

Products for conditioning, moving, holding, and otherwise controlling air, water, and other fluids. Includes plumbing products, fans, ventilators, and boilers.

Landscaping, Sitework Pgs. 137

Exterior improvement products, such as site furniture, bicycle racks, bollards, pavers, landscape edging, and exterior green walls. Also includes trellis systems, gazebos, and other site structures.

Specialty Products Pgs. 143-150

Products for special applications, or products that may apply to more than one category, such as railing systems, fencing, gates, ladders, columns, signage, awnings, and canopies.

Equipment Pgs. 153

Equipment for a broad range of applications, such as A/V and multimedia, conveyance, such as elevators, and household use, including appliances.

KLIK® ledpod

- Can be used in curved and helical railing
- Tamper resistant
- Low Voltage
- Fits a range of diameters for Guard or Handrail



WAGNER™

ARCHITECTURAL SYSTEMS

10600 W Brown Deer Rd
Milwaukee, WI 53224
(888) 243 6914
ars@mailwagner.com
wagnerarchitectural.com

SNAP 259

PRODUCT SPOTLIGHTS

MATERIALS	PGS.	99-100
Roofing, Siding, Thermal & Moisture Protection	Pgs.	105-110
Interior Finishes, Furnishings	Pgs.	115-116
Doors, Windows	Pgs.	121-124
Electrical, Lighting	Pgs.	131
Mechanical Systems, HVAC, Plumbing	Pgs.	135
Landscaping, Sitework	Pgs.	137
Specialty Products	Pgs.	143-150
Equipment	Pgs.	153

MATERIALS

QUALITY CLAY MASONRY UNITS

WR

Endicott Clay Products Co.

Clay masonry units.

Product Application

- TCF Stadium, Minneapolis, MN
- Charles Lakin Campus, Council Bluffs, IA
- Lucas Oil Stadium, Indianapolis, IN

Performance Data

- Meets or exceeds ASTM standards
- Backed by large BIM catalog

www.endicott.com
402.729.3315 | Gary Davis



SNAP 103

PERFECT PAVER PALETTE

\$\$\$

Belden Clay Pavers

The Belden Brick Company offers you more options in clay pavers than anyone in the world. You can choose from the widest palette of colors, textures and sizes.

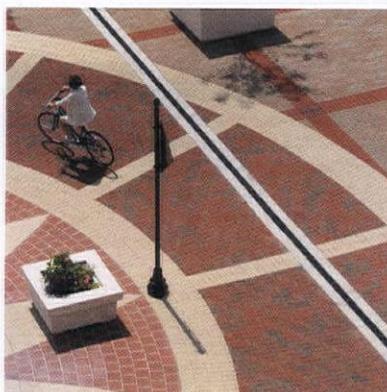
Product Application

- Carmel City Center
- Architect: Pedcor Design Group, LLC
- General contractor: Smock Fansler Corp

Performance Data

- An ISO 9001:2008 Registered Quality Management System
- An ISO 14001:2004 Environmental Management System

www.beldenbrick.com
330.456.0031



SNAP 101

USE THE CARD AND WIN!



Request free product information in a SNAP with our convenient mail-in postcard and be entered to WIN one of five \$100 VISA gift cards. Easy, Fast, Smart.

Drawings are random. Winners will be drawn 90 days after publication. NO PURCHASE NECESSARY. A PURCHASE WILL NOT IMPROVE YOUR CHANCES OF WINNING. TO ENTER: Mail or fax the reader service card found in SNAP or visit sweets.com for the SNAP reader service center and select products. To submit an entry by mail, mail an index card with your name, address, email address and daytime phone number to: "SNAP Reader Service Contact, Reader Service Card Processing Center, P.O. Box 5148, Buffalo, NY 14209-9993. There will be 5 winners for each issue drawn from entries received. Retail value of the VISA gift card is \$100. View complete rules at construction.com/sweets/snap/contest/.

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Enter now on Sweets.com

Earns Lounge and Ottoman by Herman Miller

MakerBot 3D Printer

Modern Fan

Architect Book Set

Sweets

Easily search thousands of products. Updated daily.

MATERIALS

CURTAIN WALL INSULATION

SS

Thermafiber® Inc.
(an Owens Corning company)

FireSpan® 40 and 90: Thermafiber FireSpan products are designed to provide life-saving fire protection in curtain wall and perimeter fire containment systems.

Performance Data

- Fire resistant to temperatures above 2,000°F (1,093°C)
- Non-combustible
- Controls noise and sound



www.thermafiber.com
888.834.2371

SNAP 102

MATERIALS

INSULATED CONCRETE FORMS

NUDURA Corporation

ICFs from NUDURA provide an innovative and efficient way to build or renovate. Building with NUDURA ICFs allows homes to be built faster, stronger, more energy efficient and environmentally friendly.

Performance Data

- Disaster resilient construction
- Maximum energy efficiency
- Industry-leading innovation



www.nudura.com
866.468.6299

SNAP 100

MATERIALS

PERMEABLE & PLANTABLE CONCRETE PAVEMENT SYSTEM

GREEN | WR

Soil Retention Products, Inc.

Drivable Grass® is the premier permeable, flexible and plantable concrete pavement system that has been used successfully for a wide variety of applications, ranging from pathways to fire lanes.

Product Application

- DIY: pathways, driveways, trash can pads, etc.
- Commercial: fire lanes, access lanes, parking lots, etc.

Performance Data

- Live load testing
- Hydraulic performance testing
- 5,000-psi concrete



www.soilretention.com
800.346.7995 | dreynaga@soilretention.com

Booth: 633 ASLA SNAP 104

MATERIALS

DYNAMIC GLASS

WR | GREEN | NEW

View

View Dynamic Glass seamlessly transitions through four variable tints to provide views without heat or glare.

Product Application

- Humber River Hospital, Toronto, ON, Canada
- Marine Corps Air Station, Miramar, CA
- Hilton Universal City, Los Angeles, CA

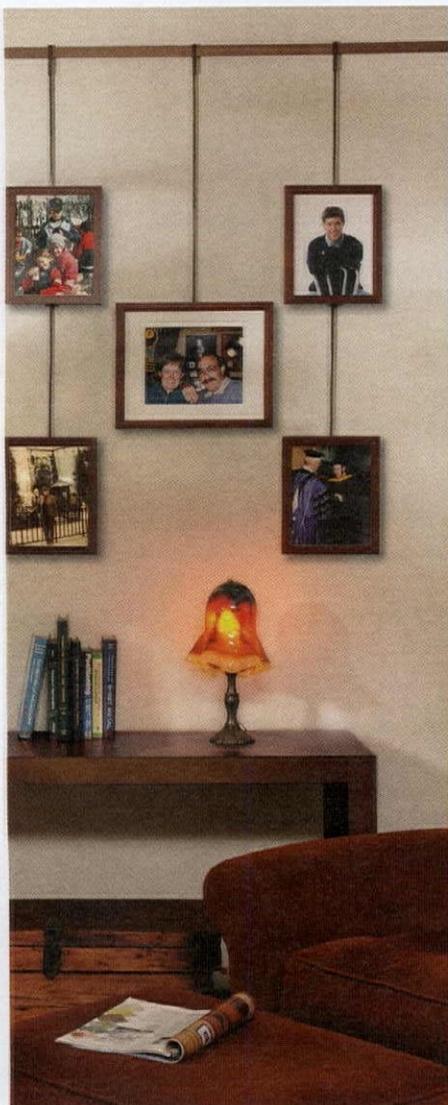
Performance Data

- Continuous views without excess heat or glare
- Increased daylight and comfort with intelligent controls and energy savings



viewglass.com
408.263.9200 | Jeff Kersten

Booth: 3427 Greenbuild SNAP 105



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INCORPORATED

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800-234-7614
www.walkerdisplay.com

SNAP 272

MATERIALS

UNIQUE METAL WALL SYSTEMS

ATAS International, Inc.

ATAS offers a variety of horizontal and vertical wall panels; mix and match colors and profiles to create visual impact with interesting patterns and designs.

Product Application

- Belvedere Wall Panel Series includes 5 varying profiles
- Available in multiple metals and gauges
- Featured: Eureka Springs High School in Eureka Springs, AR

Performance Data

- The Belvedere Series wall panels are structural in nature and may be installed either on solid substrate or open framing

www.atas.com
800.468.1441 | Liz Valori



Booth: 1412 Greenbuild SNAP 106

MATERIALS

COLORS FOR CONCRETE

\$ | GREEN

Davis Colors

Davis Colors are added to the concrete mix for a permanent, durable, natural color finish.

Product Application

- Cast-in-place, decorative
- Masonry, pavers, stone, mortar
- Anything made of concrete

Performance Data

- ASTM C979
- Lightfast, alkali resistant and weather resistant

www.daviscolors.com
323.269.7311 | Architectural Service Dept



SNAP 107

ECHO BARRIER®

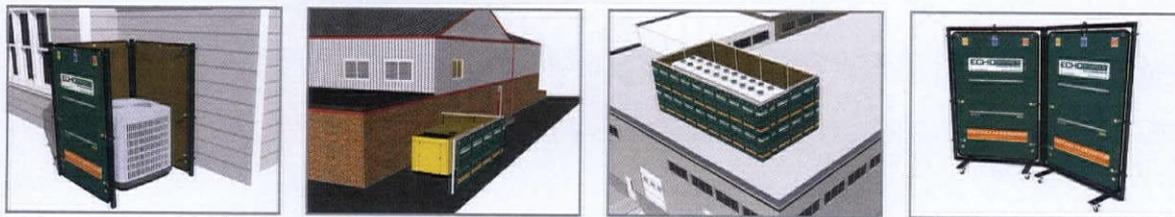
Environmentally Sound

The Industry's **FIRST** Reusable, Indoor/Outdoor Noise Barrier/Absorber

Echo Barrier is a temporary, reusable outdoor noise barrier. It is designed to fit on all types of temporary or permanent fencing. Echo Barrier absorbs sound while remaining quick to install, light to carry, and tough to last. Echo Barrier can enhance your company's reputation, extend site operating hours and improve working conditions.

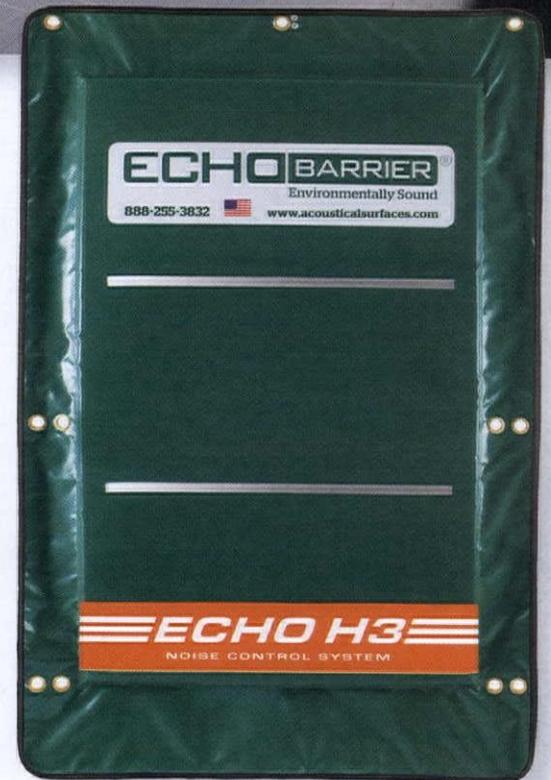
Echo Barrier offers high-performance noise reduction for construction & demolition sites, rail maintenance & replacement, music, sports and other public events, road construction, utility/maintenance sites, loading and unloading areas, outdoor gun ranges, and many other applications.

Echo Barrier's Amazing Versatility



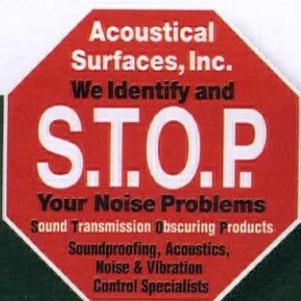
PRODUCT FEATURES:

- Superior acoustic performance
- Reusable
- Industrial durability
- Simple and quick installation system
- Lightweight for easy handling
- Unique roll-up design for compact storage and transportation
- Alternate colors available
- Ability to add branding or messages
- Weatherproof – does not absorb water
- Fire resistant



The Future is Quieter...

Quiet Sites
Fewer Complaints
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Seamless integration into your design

Because your building is the focal point, not the fire escape.



**Complete Engineered Aluminum Solutions for
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Counter Balanced Ladder



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Engineered Stairs



JOMY Inc.
Louisville, CO 80027

www.jomy.com
Nationwide Shipping Available

(800) 255-2591
info@jomy.com

SNAP 250



STOCK TRASH ENCLOSURES

Ametco's Shadow 100 Design trash enclosures which are now in stock come in a number of different sizes starting at 8 foot x 8 foot x 7 feet high can be shipped within one week. The width and depth of the enclosure can vary on 4 foot increments and include 8, 12, or 16 foot double swing gates with posts, hinges, cane bolt and slide bolts. The enclosure can be 1, 2, 3 or 4 sided. All enclosures are hot dipped galvanized steel with a polyester powder coating. The enclosures are stocked in bronze mat and silver. Custom size and color can be fabricated to meet your requirement in 8-10 weeks.

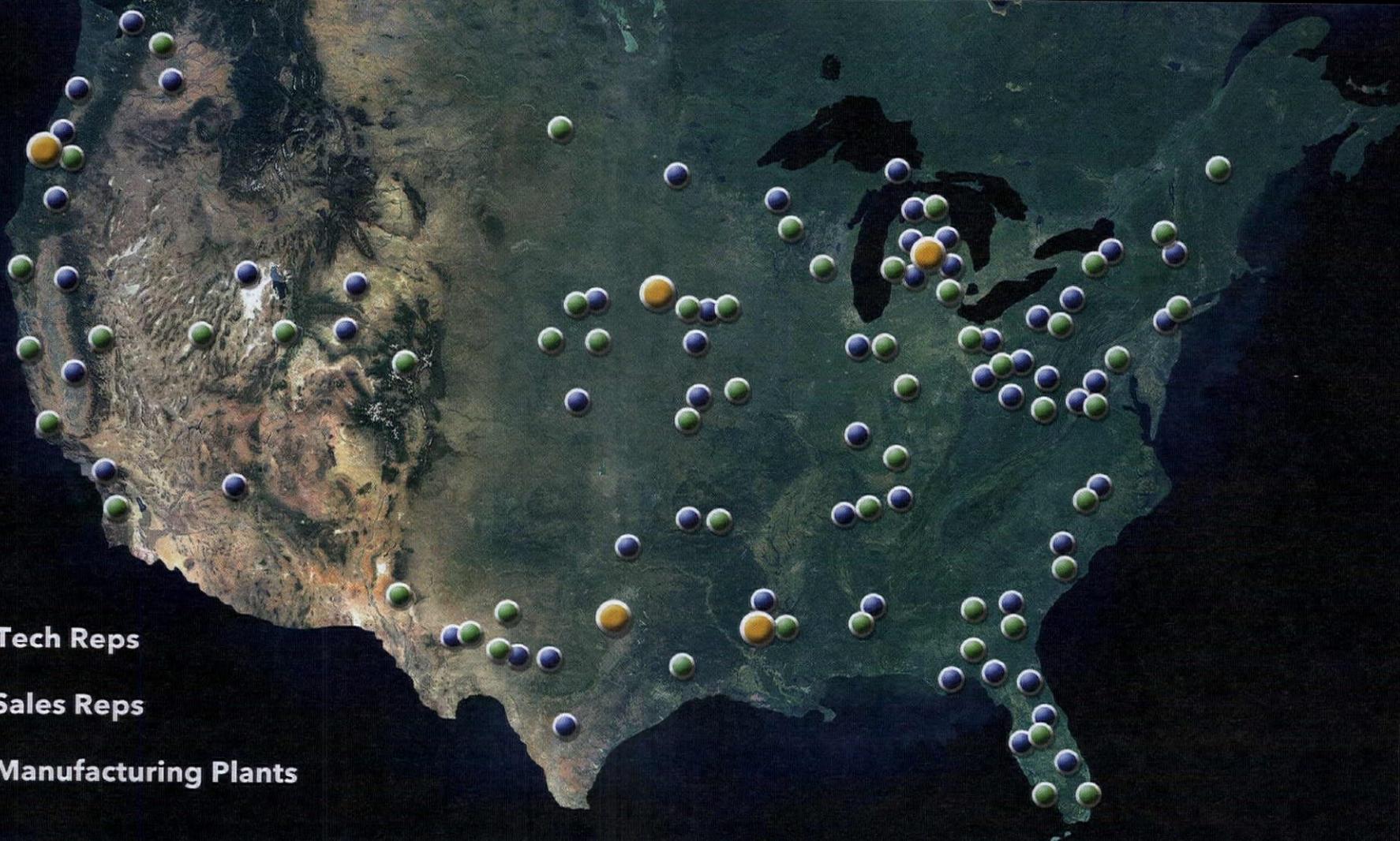


Visit Ametco's web site at www.ametco.com



4326 Hamann Parkway
P.O. Box 1210
Willoughby, Ohio 44096
Web Site www.ametco.com

Phone (440) 951-4300
Fax (440) 951-2542
Toll Free 800-362-1360
E-Mail ametco@ametco.com



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● Manufacturing Plants

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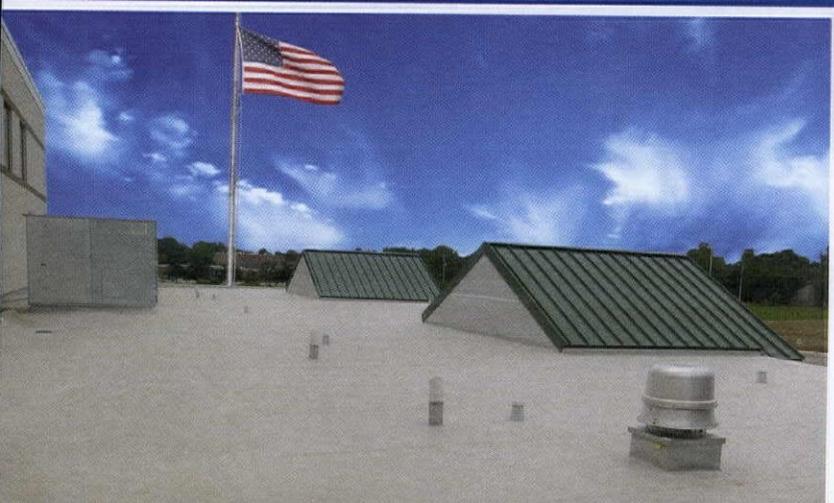
Duro-Last has a strong commitment to provide best-in-class services. We do this with strategically placed Quality Assurance Technical Representatives for service and inspections, a fully staffed Engineering Services Department and an ongoing investment in facilities, people, equipment and code approvals. We also pride ourselves in manufacturing top-notch products, and through custom prefabrication, and a complete line of compatible accessories, we offer both Time Off the Roof[™] and Edge-to-Edge & Deck-to-Sky[™] solutions.



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your success.***



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THE WORLD'S BEST ROOF[®]

"Duro-Last" and the "World's Best Roof" are registered marks owned by Duro-Last, Inc.
Keeping America Covered_TOTR_8.21.14_1

PRODUCT SPOTLIGHTS

Materials	Pgs. 99-100
ROOFING, SIDING, THERMAL & MOISTURE PROTECTION ... PGS. 105-110	
Interior Finishes, Furnishings	Pgs. 115-116
Doors, Windows	Pgs. 121-124
Electrical, Lighting	Pgs. 131
Mechanical Systems, HVAC, Plumbing	Pgs. 135
Landscaping, Sitework	Pgs. 137
Specialty Products	Pgs. 143-150
Equipment	Pgs. 153

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

COMPOSITE ROOF DECK PANELS

WR | GREEN

Tectum Inc.

Tectum Roof Deck composite panels provide a Tectum Acoustical interior with either XPS or EPS insulation & a nailable OSB. Install over wood or steel.

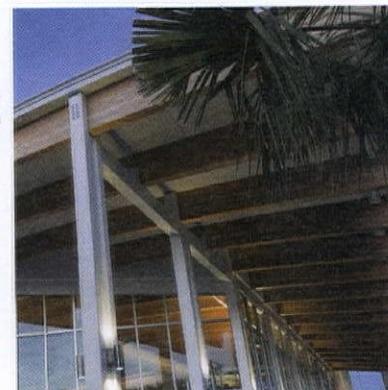
Product Application

- Schools, gymnasiums and public spaces
- Worship facilities and theaters
- Pools, ice rinks and high-humidity environments

Performance Data

- Helps meet ANSI S12.60 for classroom acoustics
- An NRC of up to 1.0
- Light reflectance of up to .75

www.tectum.com
888.977.9691 | Steve Udolph



SNAP 116

ROOFING, SIDING

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

MULTIPURPOSE METAL WALL PANEL

WR | GREEN | NEW

Berridge Manufacturing Company

Berridge HS-8 and HS-12 are versatile, flat wall panels with a reveal at panel interlock. Standard with stucco embossed texture.

Performance Data

- Horizontal or vertical wide rib appearance
- Interlock with Berridge HR-16 wall panel
- Lengths up to 40 ft
- 8-in. or 12-in. exposure, 7/8-in. profile height
- Smooth panels

www.berridge.com
210.650.3050 | sales@berridge.com



Booth: 1710 METALCON SNAP 121

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

GREEN ROOF PAVER

Hanover Architectural Products

Hanover's Glacier White Roof Paver with Tudor® finish provides an SRI value of 85 helping to reduce the heat consumption of the structure below while creating an aesthetically appealing roof plaza.

Product Application

- Georgia Technical University, Atlanta, GA
- Pennsylvania State University School of Law, University Park, PA
- Alta Condominiums, Washington, DC

Performance Data

- Meets or exceeds all ASTM requirements
- Reflectance 0.69, emittance 0.94, SRI 85

www.hanoverpavers.com
800.426.4242 | info@hanoverpavers.com



Booth: 1860 Greenbuild SNAP 123

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

MASONRY CAVITY WALL DRAINAGE

\$\$ | GREEN

Mortar Net Solutions

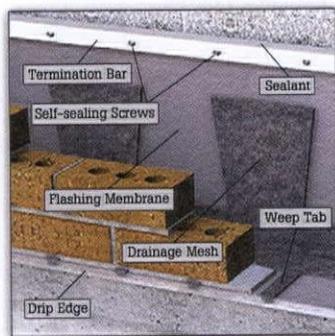
Patented TotalFlash® Cavity Wall Drainage Solution is a complete flashing system for masonry cavity walls. 5-ft panels.

Product Application

- Kansas University School of Pharmacy, Lawrence, KS
- Sarasota Fire Station, Sarasota, FL
- Fresenius Medical Center, Salem, OH

Performance Data

- Includes flashing membrane, termination bar, drainage mesh, drip edge & weep tabs
- 4 flashing membranes, 2 term bars, 6 drip edges



TotalFlash

www.mortarnet.com
800.664.6638 | Steven Fecho

SNAP 111

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

CLAD WITH UNLIMITED POSSIBILITIES

WR

Dri-Design

Dri-Design is an advanced and sophisticated Metal Wall Panel System...made simple.

Product Application

- Longwater Place, Norwell, MA
- Painted aluminum panels
- Fastest, easiest application on the market

Performance Data

- True dry-joint rainscreen system
- Exceeds performance specifications of AAMA 508-07 and Dade County

www.dri-design.com
616.355.2970 | sales@dri-design.com



Booth: 3039 Greenbuild SNAP 112

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

TRACK TOP GASKET

\$\$ | GREEN | NEW

Specified Technologies Inc.



No estimating and installation guesswork; inspect any time

SpeedFlex® Track Top Gasket (TTG) is an intumescent cover for the ceiling track, providing fire, smoke and acoustical ratings for head-of-wall joints between gypsum walls and concrete floor slabs.

Product Application

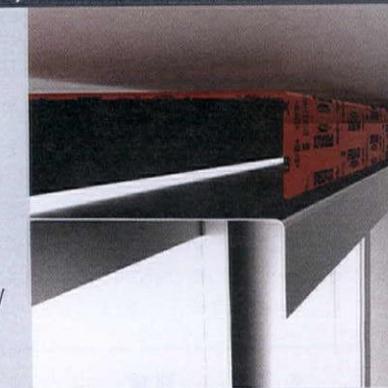
- Headsum-to-flat joints
- Gypsum to flat concrete slab
- Non-rated acoustical walls or fire/smoke-rated walls

Allows for 100% movement

Performance Data

- L Ratings per UL2079 for use in smoke barrier construction; UL classified
- Acoustical standards ASTM E90, ASTM C919 up to 56 STC
- Fire standards ASTM E1966, ANSI/UL2079, CAN/ULC S115 for 1- and 2-hr assembly rating

www.stifirestop.com
908.526.8000 | Danielle DeGerolamo



Compatible with all ceiling tracks

SNAP 208

All products in this section are accessible on sweets.com.

\$\$\$= Premium cost | \$\$= Mid-range cost | \$= Value-oriented cost | WR= Wide range of price points | NC= No charge
G= Product marketed as green | NEW= Released in the past 12 months

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

THIN-PROFILE INSULATION

\$\$\$ | GREEN | NEW

Dow Corning Corporation

High-performance, silicon-aerogel-based Dow Corning® HPI-1000 Building Insulation Blanket combats thermal bridging in space-confined applications.

Product Application

- CIBC Pan Am/Parapan Am Aquatics Centre & Field House (PAAC), Toronto, Ontario, Canada
- Stadium Place, West Tower ("The NOLO"), downtown Seattle, WA

Performance Data

- R-9.8 per inch
- Fire resistant, hydrophobic, easy to use

dowcorning.com/HPInsulation
989.496.8447



SNAP 113

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

BOOST PERFORMANCE WITH COMMERCIAL ROOF BOARD

Georgia-Pacific Gypsum

Enhanced DensDeck® Prime Roof Board is one of the most versatile commercial roof boards on the market.

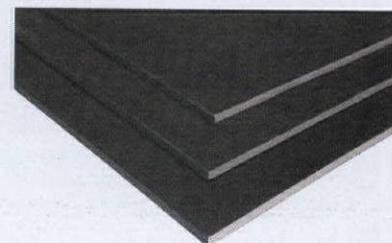
Product Application

- 90-day limited warranty when applied vertically on parapet walls (limited to 1/2-in. and 5/8-in. products only)

Performance Data

- 24% better bond strength when using solvent-based adhesives (avg. based on 60 sq ft/gal. coverage rates)

www.DensDeck.com
800.225.6119



SNAP 114

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

METAL ROOFING

GREEN | \$\$

Petersen Aluminum Corporation

SNAP-CLAD Metal Roofing Panels feature architectural aesthetics and structural performance. They are corrective leveled for superior flatness.

Product Application

- Madison, TN fire station
- LEED Gold certification

Performance Data

- Available in 38 colors on steel and 37 on aluminum
- 20-year non-prorated finish warranty
- Labor-saving one-piece design

www.PAC-CLAD.com
800.722.2523



SNAP 115

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

INNOVATIVE ROOFING SYSTEM

\$\$\$ | GREEN

Duro-Last Roofing Inc.

Duro-Fleece® Roofing System.

Product Application

- Whittier Law Library, Costa Mesa, CA
- Neurogena corporate offices
- Thousand Oaks Mall, Thousand Oaks, CA
- Ideal for adhered applications

Performance Data

- Highly reflective roof membrane that complies w/ LEED and other energy-efficiency programs
- Combines Duro-Last's proven membrane performance w/ fleece backing

www.duro-last.com
800.248.0280 | John Deal



SNAP 108

Walkway Canopies to Compliment ANY Job

Roll-formed w-pan and flat pan covers provide protection as well as aesthetic value to any project. Ballew's manufactures these covers in 3 locations: Greer, SC, Southaven, MS, and Oklahoma City, OK. All aluminum has a baked on



enamel finish for longevity and colorfastness. Pans are available in white, ivory, bronze, brown, gray, clay, black, and **clear-anodized**. Structural gutter is available in the same colors in addition to terra cotta and ivy green. All units are supported with comprehensive engineering data which may be viewed in detail at www.ballews.com or a stamped copy of Ballew's Design Manual may be requested and mailed.



Ballew's Aluminum Products, Inc.
1-800-231-6666
www.ballews.com

SNAP 265

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

STEEL SIDING FEATURING PVDF RESIN-BASED COATING

\$\$\$ | NEW | GREEN

Alside

Satinwood Select™ steel siding features Kynar® PVDF resin-based coating that preserves the steel core and creates a luxurious color that resists chalking, pitting, chipping and premature aging.

Performance Data

- Superior scratch resistance
- Won't absorb moisture
- No caulking, scraping or painting required
- 100% recyclable
- Simple to install

www.alside.com
800.922.6009 | khill@alside.com



SNAP 117

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Sweetstales

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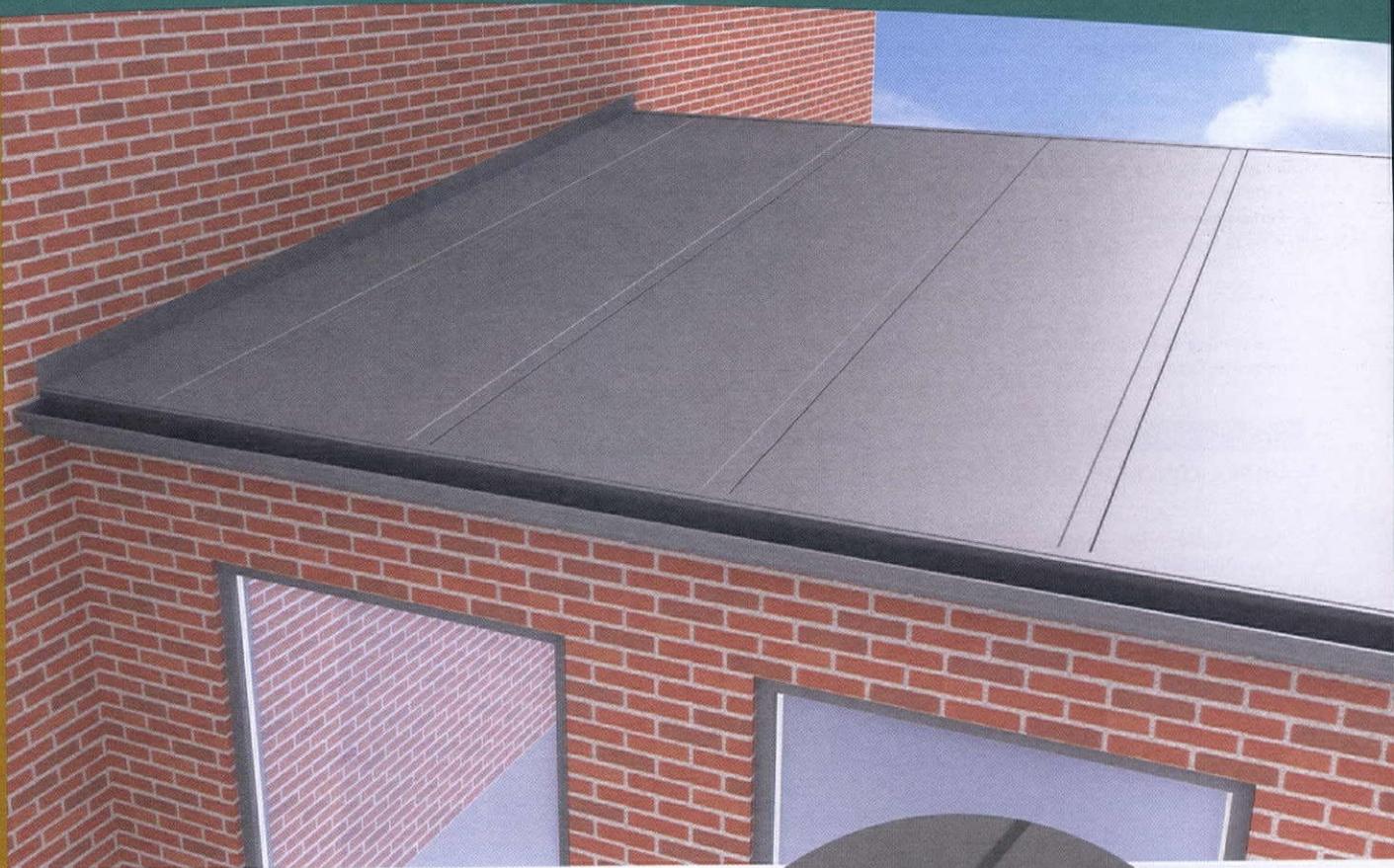
Thermal and Moisture Protection Roof and Wall Panels

Division 7 Thermal and Moisture Protection Specification Section 07411 - Manufactured Roof Panels

The Overly Evolution metal wall and roof system is without raised batten or standing seams and exposed fasteners. The system consists of a hidden drain channel, compression bar, cover cap and cladding sheets. The smooth, contemporary design appears monolithic when viewed from just a short distance. It's an 'Evolution' to all the standard metal wall and roof systems available throughout the history of the industry.

Applications

The Overly Evolution system can be installed on sloped roofs and vertical walls. Panels can be curved and/or tapered for barrel vaults and domes or spherical shapes. The system features hidden fasteners and an internal drainage component which removes any moisture that migrates into the system and skillfully designed joints which allow for expansion and contraction. The system is the exterior exposed component of a wall/roof composite assembly. Several composite assemblies are available ranging from thin to thick as determined by aesthetic preferences or as necessary to meet performance requirements such as thermal, structural and fire ratings.

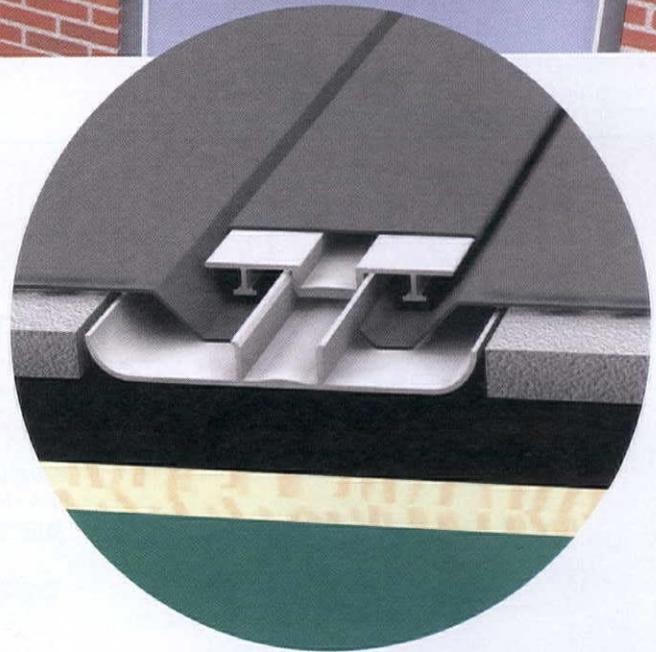


Materials

- Aluminum Alloy 3003-H14, Standard Thickness 18 gauge (.040")–16 gauge (.050") available in painted K500 finishes, brushed and mill finishes
- Stainless Steel type 304 and type 316, 24 gauge (.024")–20 gauge (.036") available in 2B, 2D, #4 and several custom directional and non-directional finishes
- Titanium Grade 1, gauges .018"–.024" available in standard mill or matte finishes
- Zinc, gauge .028"–.032" available in natural or pre-weathered finishes
- Recycled content varies upon material selected. 100% recyclability of all metal components

System Design Data

- Width of Compression Cover: 2.75"
- Minimum/Maximum Spacing between Compression Covers: 12"–48"
- Maximum Length of Panels: 40'
- Compression Extrusion Thickness: .056"
- Channel Extrusion Thickness: .056"
- Test data in accordance with ASTM E 283, ASTM E 330, ASTM E 331 and UL 580 (Class 90 available upon request)



It's more than metal...*it's personal.*

OVERLY

MANUFACTURING COMPANY

P.O. Box 70
Greensburg, PA 15601-0070 USA
Phone: (724) 834-7300
Fax: (724) 830-2877
E-mail: overly@overly.com
Website: www.overly.com

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

INSULATED CURTAIN WALL SPANDREL

\$\$ | GREEN | NEW

Dow Corning Corporation

Dow Corning® Architectural Insulation Modules combine the convenience and aesthetics of curtain wall construction with energy-saving high-performance insulation.

Product Application

- Uptown Bay City, Bay City, MI
- University of Alaska Fairbanks, Fairbanks, AK

Performance Data

- Up to R-50 in 2-in. thickness



Photo courtesy of Perkins+Will

dowcorning.com/hpinsulation
989.496.8447

SNAP 118

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

METAL SNOW GUARDS FOR METAL ROOFS

\$

East Coast Roof Specialties

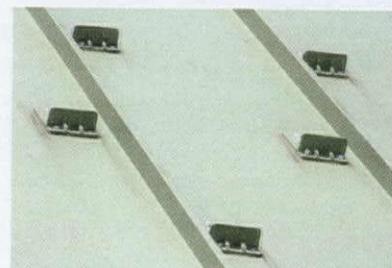
Ice-Brakes are cast aluminum pad style snow guards intended for installation on metal roofs. Available in economical mill finish as well as 18 powder-coated colors that coordinate with most roofs.

Product Application

- Installed without roof penetrations using high-quality adhesive

Performance Data

- Low-profile design minimizes roof shadow
- Adhesive tests hold in excess of 1,200 lb per sq in.
- Made in the USA



www.icebrakes.com
860.379.9072

SNAP 119

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

UNDER-CONCRETE-SLAB GAS/MOISTURE BARRIERS

Raven Industries – Engineered Films

VaporBlock® Plus™ seven-layer co-extruded EVOH gas and moisture barrier is designed to provide unmatched impact strength, ultra-low perm and superior resistance to gas and moisture transmission.

Product Application

- Underslab radon & methane barrier
- Underslab VOCs gas barrier
- Underslab moisture barrier

Performance Data

- Blocks over 100 times more radon, methane & VOCs than Class "A" polyethylene barriers
- Meets and exceeds ASTM E1745 Class A requirements

www.RavenEFD.com
800.635.3456 | efdconstruction@ravenind.com

GAS & MOISTURE BARRIER



- Ultra Low Permeance
- Superior Puncture Resistance
- Backed by Industry Testing

SNAP 120

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

SINGLE-PLY ROOFING SYSTEM

\$\$ | GREEN

Duro-Last Roofing Inc.

Ideal for any flat or low-sloped application. Extremely durable, watertight, highly reflective, resistant to chemicals, fire, high winds. Virtually maintenance-free.

Product Application

- DPI Specialty Foods, Henderson, CO
- Tube Specialties, Troutville, OR

Performance Data

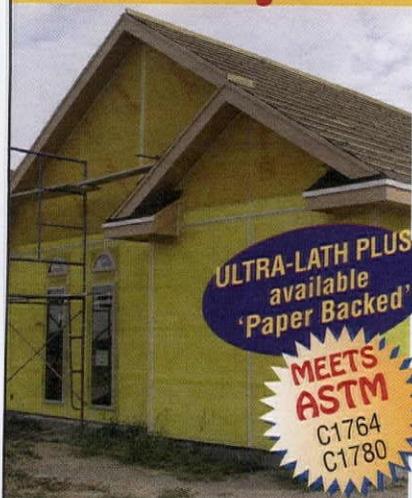
- Custom-fabricated flashings for watertight rooftop transitions; roofing membranes precision-fabricated or delivered as rolled goods

www.duro-last.com
800.248.0280 | John Deal



SNAP 109

The Specifier's Choice.



ULTRA-LATH PLUS available 'Paper Backed' MEETS ASTM C1764 C1780

ULTRA-LATH PLUS™ RUSTPROOF PLASTIC LATH

Perfect for rustproofing your installation and lowering installed costs...plastic Ultra-Lath Plus™ MEETS ASTM. It's the heavy-duty alternative to metal laths!

- Safe on hands, easier to use than metal
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- **NEW!** 1/4" self-furred



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SNAP 267

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

ULTIMATE REDUNDANT WATERPROOFING

\$\$ | GREEN | NEW

Epro Services, Inc.

System III MBB and LWBB.

Product Application

- WLRT Station, Calgary, AB Canada
- Burton Way Apartments, Los Angeles, CA
- Tazman Apartments, San Jose, CA

Performance Data

- Monolithic composite
- Self sealing

www.eproserv.com
800.882.1896



SNAP 122

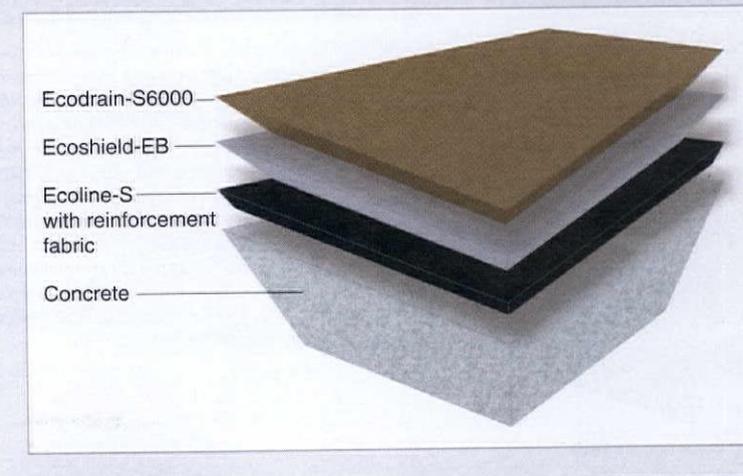
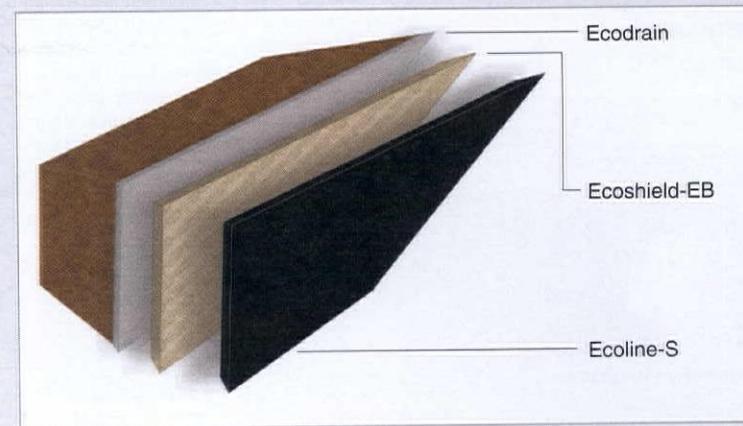
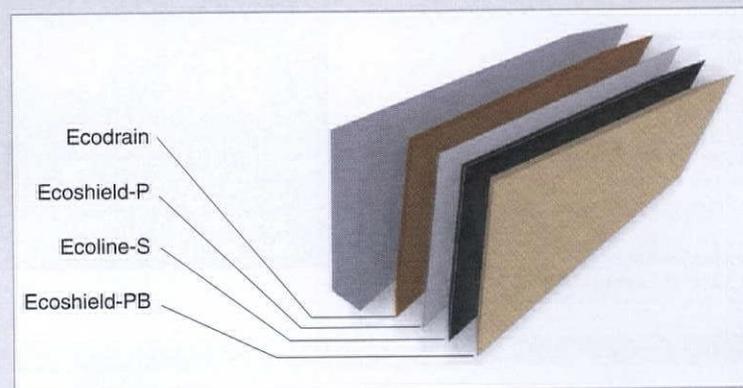
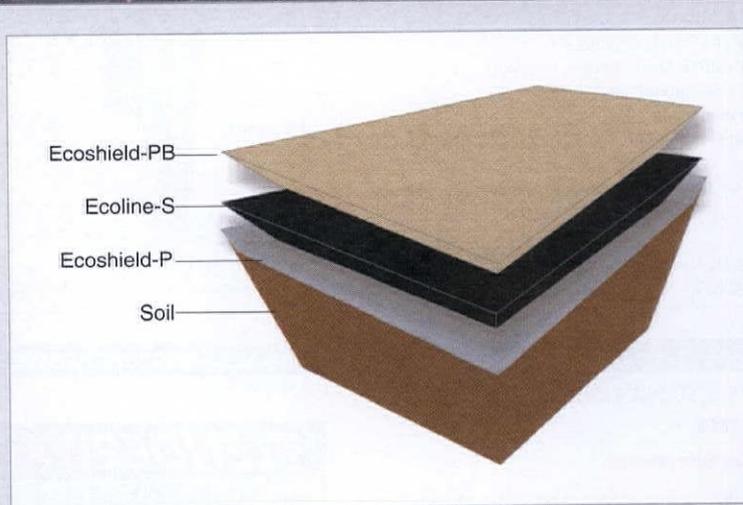
USE THE CARD AND WIN!



Request free product information in a SNAP with our convenient mail-in postcard and be entered to WIN one of five \$100 VISA gift cards. Easy, Fast, Smart.

Drawings are random. Winners will be drawn 90 days after publication. NO PURCHASE NECESSARY. A PURCHASE WILL NOT IMPROVE YOUR CHANCES OF WINNING. TO ENTER: Mail or fax the reader service card found in SNAP or visit sweets.com for the SNAP reader service center and select products. To submit an entry by mail, mail an index card with your name, address, email address and daytime phone number to: "SNAP Reader Service Center," Reader Service Card Processing Center, P.O. Box 5148, Buffalo, NY 14205-9988. There will be 5 winners for each issue drawn from entries received. Retail value of the VISA gift card is \$100. View complete rules at construction.com/events/snap/contest.

Epro's Fully Integrated Field Installed Composite Waterproofing System Provides the Most Protection, Fastest Installation, Lowest Cost and Best Warranty in the Industry Today!



Four New Field Installed Systems Available ...

- System III CWB Concrete / CMU Wall Waterproofing
- System III RDB Roof / Deck Waterproofing
- System III MBB Waterproofing / Gas Barrier
- System III LWB Blindside Waterproofing / Gas Barrier

Excellent Strength and Chemical Resistance - the result of the unique field installed composite system design utilizing HDPE.

Seamless - The highly flexible spray or fluid applied membrane forms a monolithic barrier.

Exceptional Adhesion - The sprayed or fluid applied membrane bonds tenaciously to almost any substrate in almost any condition including green concrete or a damp substrate.

Self Sealing - The bentonite layers seal at any penetration of the system.

Redundant Protection - Multiple waterproofing protection courses and drainage plane.



800-882-1896 • www.eproserv.com

• Visit us at The World Of Concrete Show, Booth #S-10948

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

EXPOSED INTERIORS

\$ | NEW

Hunter Panels

Hunter Xci 286 polyiso insulation panels for exposed interior walls or ceilings per NFPA 286.

Product Application

- American Fiju, Louisville, KY
- Bridgestone Arena Tunnel, Nashville, TN
- Fed Ex Shipping Center, Billings, MT

Performance Data

- Available in thicknesses 1 in. - 3.1 in. with R-values of 6.3 - 19.5
- Both sides reinforced foil, one side white, one side reflective, either can be left exposed

www.hunterxci.com

888.746.1114 | Mary Schenker



SNAP 110

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

WATER VAPOR PROTECTION SYSTEM

WR

Reef Industries, Inc.

Griffolyn® Water Vapor Protection System.

Product Application

- Roof deck
- Wall system
- Under slab
- Crawl space

Performance Data

- Prevents corrosion, staining, mildew growth and other water-based damage in roof deck assemblies
- Keeps moisture from entering wall cavities through air leaks

www.reefindustries.com

800.231.6074 | Mike McElhany

GRIFFOLYN® VAPOR RETARDER SYSTEM



SNAP 124

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

ARCHITECTURAL CONCRETE CLADDING

WR | GREEN

Easi-Set Worldwide

Ultra Hi-Performance Slenderwall is a 28 lb/sf award-winning architectural precast concrete and steel-stud exterior panel system wind-load tested to 226 mph.

Product Application

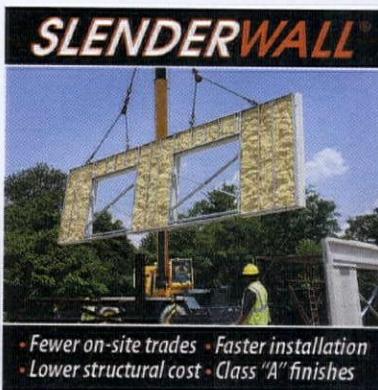
- BioInnovation Center, New Orleans, LA
- Johns Hopkins Hospital, Baltimore, MD
- Westin Luxury Hotel, Virginia Beach, VA

Performance Data

- Continuous closed-cell foam insulation and optional factory-installed windows
- H2Out Pressure Equalized Joint Rainscreen

www.slenderwall.com

800.547.4045 | Arthur Miles



SNAP 125

SEARCH & WIN
10 WINNERS OVER \$20,000 IN PRIZES

ENTER NOW ON SWEETS.COM
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ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

LIVING WALLS THAT WORK

\$\$ | GREEN | NEW

LiveWall, LLC



Perfect for growing a broad variety of plants

Designed with a healthy regard for plants, LiveWall® is the planted wall system that achieves simplicity and sustainability in harmony with nature. LiveWall is the result of four years of R&D by professionals who created LiveRoof®, the superior green roof system. LiveWall supports plants as nature intended—roots growing down, stems and leaves growing up. With unsurpassed versatility to grow a diversity of plant types, LiveWall transforms ordinary walls into inspiring vertical landscapes. LiveWall provides industry-leading support with free commercial infrastructure design. Request a free Architectural Guide from LiveWall.com/designguide, code SNAP 14W.

Product Application

- Restaurant/hospitality—grow fresh herbs and produce
- Healthcare/rehab—plant therapy, healing
- Education—improved concentration and learning opportunities

Performance Data

- Free commercial infrastructure design, support
- Four years of R&D—proven to perform
- Natural orientation—promotes plant health
- Rain-like irrigation—promotes plant health

www.livewall.com

877.554.4065



Indoor and outdoor system options

SNAP 209

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

INNOVATIVE INSULATED METAL WALL PANEL SERIES

CENTRIA Building Products



Types X & Y Reveal Graphix Series Panels

CENTRIA's Formawall® Graphix™ Series with Directional Reveals is a single insulated metal panel that can be customized to look like up to 24 smaller ones. With the ability to combine horizontal, vertical and even diagonal reveals in a single panel, the unique patterns you can create are virtually unlimited and easy to install. CENTRIA's Formawall Graphix Series with Directional Reveals is designed with Advanced Thermal and Moisture Protection (ATMP®) technology to provide the most advanced protection from air and water penetration and maximum thermal performance. With Formawall Graphix Series with Directional Reveals, the palette of possibilities is limited only by where you draw the line.

Product Application

- Features a steel face and liner
- Foamed-in-place insulation
- Easy installation using pressure-equalized, vented and dry-sealed joinery

Performance Data

- Chance for air and water infiltration is reduced
- Complex aesthetic façade that is easy to install
- Provides long-term protection with minimal maintenance
- Advanced Thermal and Moisture Protection

CENTRIperformance.com/graphix

800.250.8675



Type XY & Sloped Reveal Graphix Series Panels

Booth: 1212

Greenbuild

SNAP 210



CALL NOW 1-800-635-3456

www.RavenEFD.com

VaporBlock[®] Plus[™]

UNDERSLAB VAPOR RETARDER / GAS BARRIER

Stop RADON

METHANE

and VOCs



GET THE FACTS.

When it comes to relying on the integrity of a barrier product for gas and moisture protection in your building design, get the facts, don't take products at face value for this critical task. Raven Industries manufacturers all products through our stringent ISO 9001:2008 certified management system. We tightly control the processes through an internal accredited laboratory, as well as extensive independent testing to substantiate our product performance.



VaporBlock[®]

UNDERSLAB VAPOR RETARDER

High performance multi-layer vapor barrier, made from 100% virgin resins, standard and ultra low-perm available.

- Perms <0.01 After Conditioning
- Leading Puncture Resistance
- Exceeds ASTM E 1745, Class A.



VaporBlock G[™]

UNDERSLAB VAPOR RETARDER / BARRIER
CONTAINS RECYCLED CONTENT

Sustainable alternative to regular polyethylene barriers, multi-layer vapor barrier with post-consumer content.

- Eco-Friendly Recycled Resins
- Qualifies for Additional LEED Credits
- Exceeds ASTM E 1745, Class A.



VaporBlock[®] Plus[™]

UNDERSLAB VAPOR RETARDER / GAS BARRIER

Seven-layer underslab gas/moisture barrier produced with 100% premium polyethylene and EVOH barrier resins.

- Barrier to Methane, Radon, & VOCs
- EVOH Blocks 100x More Gas
- Exceeds ASTM E 1745, Class A.

RAVEN
ENGINEERED FILMS

Phone: 605-335-0174 or 800-635-3456

Web: www.RavenEFD.com/snap

Email: efdconstruction@ravenind.com

Scan to learn more about barriers at the Raven site.



ISO 9001:2008
CERTIFIED MANAGEMENT SYSTEM





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the cost
of money.
So do we.**



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flashing
panels

That's why we
created the
TotalFlash®
Masonry Cavity
Wall Drainage
Solution.

Use TotalFlash
and cut flashing
system installation
time by
up to 50%.

Faster installation.
Lower cost of
money.

**TotalFlash®, the industry's only complete
flashing system for masonry cavity walls.**

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or email kcleveringa@mortarnet.com



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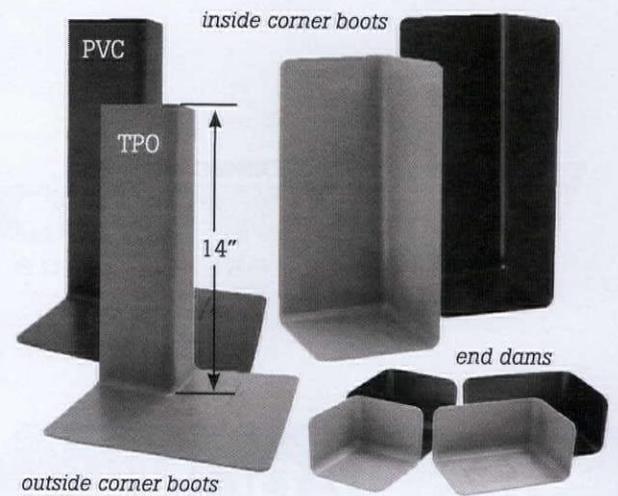
TotalFlash®

SNAP 305



Scan here to see installation videos

CompleteFlash



**The only corner boots that extend
above standard flashing**

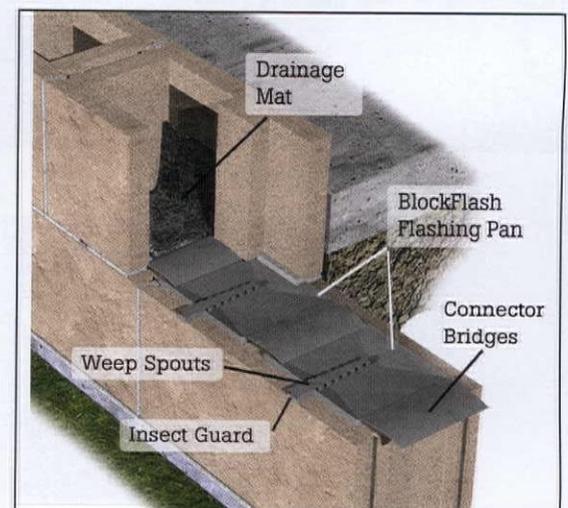
- > Fast installation
- > Highly puncture resistant to prevent leaks
- > Eliminate most field fabrication

*Inside and outside corner boots, right, left and univer-
sal end dams available.*

*For free CompleteFlash samples, call 219-850-4505,
or email kcleveringa@mortarnet.com*

SNAP 306

BlockFlash®



**The perfect flashing system for
C.M.U. walls designed without
a visible drip edge**

- > Collects and channels water out of the wall
- > Up to 50% faster installation & 10X stronger bond than
through-wall flashing
- > Drainage mesh prevents mortar damming
- > Factory-installed insect guards keep bugs out

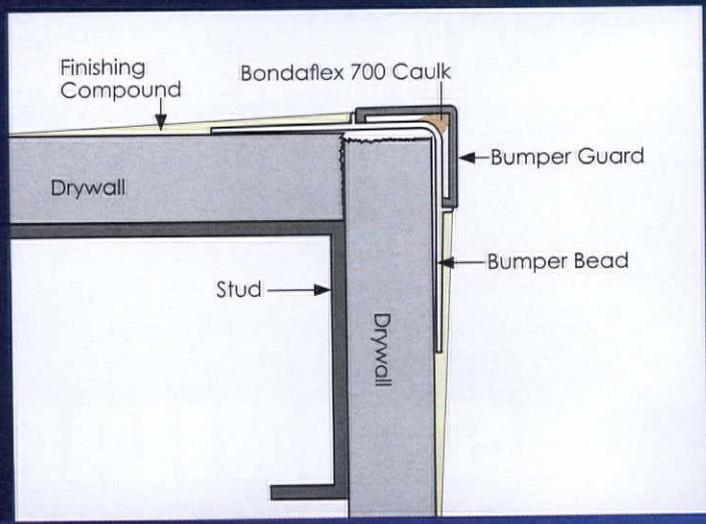
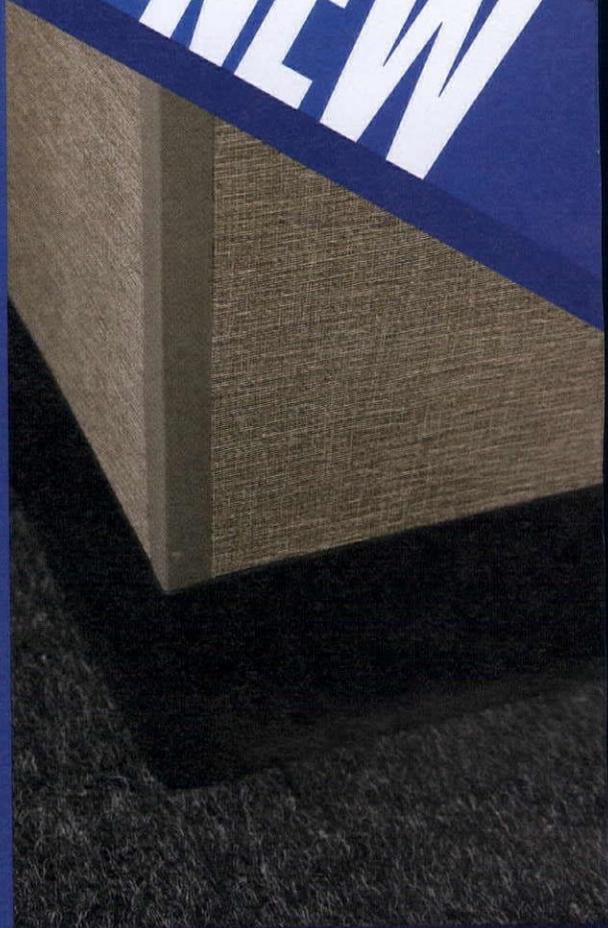
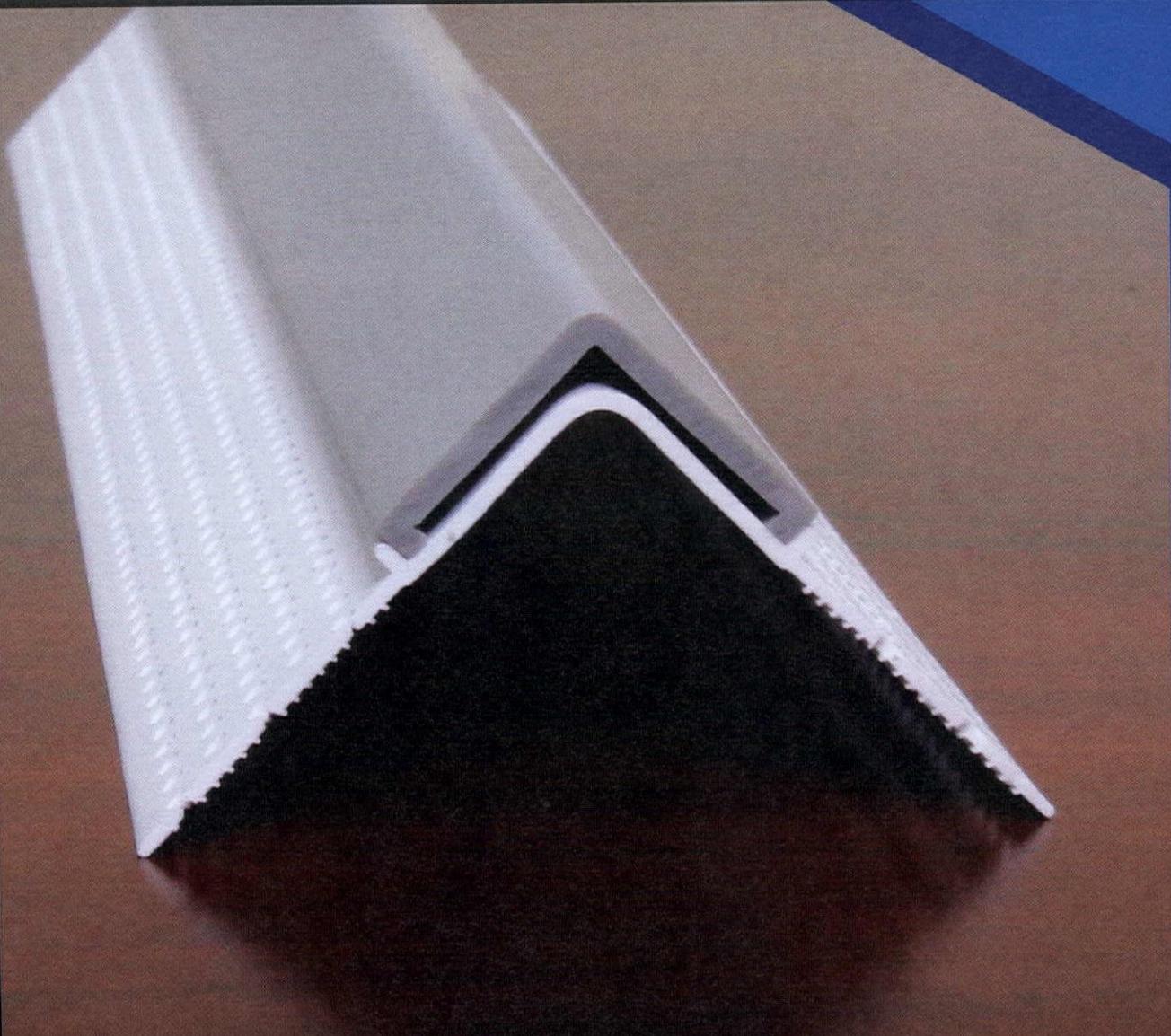
*For free BlockFlash® samples, call 219-850-4505,
or email kcleveringa@mortarnet.com*

SNAP 307

IT HAS ARRIVED

Flush Corner Guard. Floor-to-ceiling **superior** impact protection.

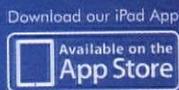
NEW



Flush Corner Guard

The corner protection system designers, specifiers, and architects have been waiting for has arrived. Aesthetically considered, Flush Corner Guards eliminate gaps & bulges that plague traditional corner guards. Designed & engineered to withstand extreme impact, Flush Corner Guard utilizes the properties of rigid vinyl. Vinyl out-paces the competition on price and performance. Request a sample today and upgrade your specs.

SNAP 261



1-800-874-2333
www.trim-tex.com



WHAT THE BEST DRESSED SCHOOLS ARE WEARING THIS SEASON.

*Stonres™ RTZ in Canvas and Mystic
Manufactured & Installed by Stonhard*

Seamless, safe, resilient clean floors provide long term, sustainable protection and create inspiring learning environments. Stonhard manufactures and installs seamless floors for schools, healthcare and commercial environments. Performance, design and a single source warranty too.

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PRODUCT SPOTLIGHTS

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Landscaping, Sitework.....	Pgs. 137
Specialty Products	Pgs. 143-150
Equipment.....	Pgs. 153

INTERIOR FINISHES, FURNISHINGS

SEAMLESS HIGH-DESIGN FLOOR SYSTEMS

\$\$

Stonhard

Stontec URF is a seamless, chemical-, stain- and impact-resistant, urethane-based floor system with a decorative flake-infused design. A designer's choice.

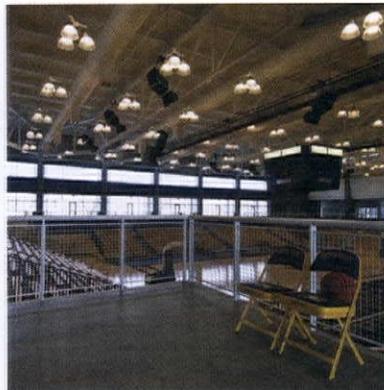
Product Application

- Stadiums and entertainment venues
- Restaurant, food court and concessions
- Box suites, locker rooms and concourses

Performance Data

- Seamless, easy to clean and high performing
- Stands up to heavy traffic and continuous use

www.stonhard.com
800.257.7953



SNAP 127

INTERIOR FINISHES, FURNISHINGS

MODULAR ENTRANCE MATTING

GREEN | NEW

Turtle Plastics

The Linear Look® Modular Matting: 100% recycled PVC plastic with tufted carpet inserts.

Product Application

- Entrances to commercial buildings, banks, grocery stores, big box stores, office buildings, schools
- Boeing Enterprises entrance
- 5th Third Bank vestibules, OH, MI branches

Performance Data

- Slip resistant and easy to clean: high-end look
- Resistant to weather, oils and chemicals

www.turtleplastics.com
440.282.8008 | Michele Norton



SNAP 126

INTERIOR FINISHES, FURNISHINGS

WINDOW SHADES PROVIDE PRIVACY & DAYLIGHT

WR

Draper, Inc.

Draper's Bottom-Up FlexShade™ maximizes daylighting while providing privacy and protecting surfaces near the windows from glare and excess heat. Shade fabric raises from the bottom of the window.

Product Application

- Warrior Hall at Texas A&M University, Central Texas, Killeen, TX

Performance Data

- Manual clutch XD or motorized operation
- Motorized dual roller configuration avail.
- Brackets, fascia or surface headbox installation
- Standard sizes through 12 ft x 12 ft

www.draperinc.com
800.238.7999 | Jeff Miller: jmill@draperinc.com



SNAP 128

INTERIOR FINISHES, FURNISHINGS

FLUSH CORNER GUARD PROTECTION SYSTEM

\$ | NEW

Trim-Tex Drywall Accessories

This new flush-fitting corner protection system provides high-impact corner protection from floor to ceiling. The unique design allows the corner guard to be installed flush with the wall.

Product Application

- Ideal for condos, offices, hospitality, healthcare facilities, retail spaces and other high-traffic environments
- Visually blends with the wall and environment

Performance Data

- Match any interior finish
- Easy to cut to exact lengths
- Allows baseboards to fit flush with the wall

www.trim-tex.com
800.874.2333



SNAP 129

INTERIOR FINISHES, FURNISHINGS

BENCHES, COAT HOOKS & RACKS

GOF Ltd./A.J. Binns

A.J. Binns manufactures a complete line of coat hooks, hangers, shelving and seating.

Product Application

- Changing rooms and educational, medical and athletic facilities, etc.

Performance Data

- Functional, adaptable and particularly durable
- Contemporary styling with no length restrictions
- Designed to eliminate potential injury

www.binnsgef.com
802.655.7502



SNAP 130

INTERIOR FINISHES, FURNISHINGS

ACOUSTICAL CLOUDS

ROCKFON

Rockfon® Island™ frameless, stone wool ceiling products expand designers' creative options in achieving acoustic comfort where sound can be overwhelming to occupants.

Product Application

- Open-plan offices, restaurants, waiting rooms and call centers

Performance Data

- High sound absorption contributes to acoustic comfort
- Fast and easy to install
- Ideally suited for acoustical corrections

www.rockfon.com
800.323.7164



SNAP 131

INTERIOR FINISHES, FURNISHINGS

VANITY BRACKETS

\$

Rangine Corporation/Rakks

Rakks inside-wall support brackets are screwed to the stud before installation of the drywall. Visit their website for more information on their full line of counter supports and shelving hardware.

Performance Data

- Supplied with wooden strips on the front faces to provide for the convenient mounting, or removal, of laminated or solid surface pane
- Customized made-to-order available

www.rakks.com
800.826.6006 | David Greenberg



SNAP 132

All products in this section are accessible on sweets.com.

\$\$\$= Premium cost | \$\$= Mid-range cost | \$= Value-oriented cost | WR= Wide range of price points | NC= No charge
G= Product marketed as green | NEW= Released in the past 12 months

INTERIOR FINISHES, FURNISHINGS

ARCHITECTURAL SHELVING

WR | GREEN

E-Z Shelving Systems, Inc.

Heavy-duty shelving with clean lines for work, storage and display.

Product Application

- NASA
- Apple
- Yahoo
- Trader Joe's
- The Mayo Clinic
- Yale School of Medicine
- The Andy Warhol Museum
- California College of the Arts



SNAP 133

e-zshelving.com
800.353.1331 | info@e-zshelving.com

INTERIOR FINISHES, FURNISHINGS

ENDLESS DESIGN POSSIBILITIES

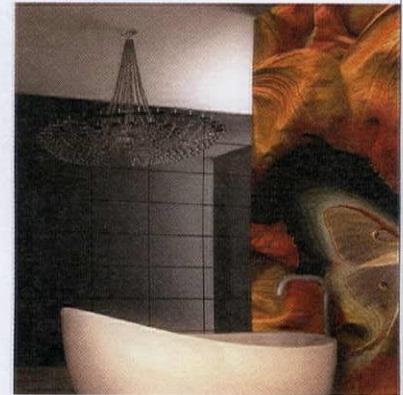
GREEN | NEW

AGC Glass Company North America

Start KLEAR and go anywhere with AGC KRYSTAL IMAGES™—simply the highest resolution, clearest custom-printed laminated glass available.

Performance Data

- Ultra-transparent KRYSTAL KLEAR® glass
- Ultra high-definition printing technology
- Industry's clearest glass stays true to spec



SNAP 134

us.agc.com
800.251.0441 | Alice.Dickerson@us.agc.com

INTERIOR FINISHES, FURNISHINGS

GLASS TREADS & LANDINGS

\$\$\$ | GREEN

Nathan Allan Glass Studios Inc.

Leading designer and manufacturer of innovative glass solutions for architects and interior designers who seek to make a statement in their projects.

Product Application

- Stair treads, landings, flooring

Performance Data

- All products are engineered
- Individual glass layers are safety tempered
- Glass layers are laminated together
- Exclusive slip-resistant surface exceeding ADA requirements



Booth: 1229 Healthcare Design SNAP 135

www.nathanallan.com
604.535.8849 | Barry Allan, bm@nathanallan.com

INTERIOR FINISHES, FURNISHINGS

TRANSLUCENT LINEAR PANELS

NEW

Armstrong Ceiling & Wall Systems

Infusions Blades – Concepts offer a unique, wave-shaped design in playful translucent panels that interact with light to enhance the aesthetics of any space. Available in 35 colors and patterns.

Product Application

- Hospitality, retail
- Higher education, office
- Transportation

Performance Data

- Fast, easy installation
- Class A fire performance
- Seismic tested and approved



SNAP 136

www.armstrong.com/commceilingsna/
717.396.5671 | coneill@armstrong.com

INTERIOR FINISHES, FURNISHINGS

COLORFUL ACOUSTICAL CEILINGS

NEW

Armstrong Ceiling & Wall Systems

Colorations Integrated Ceiling Systems provide a complete acoustical ceiling solution in 13 standard or custom-painted colors with coordinating ceiling panels, suspension system and trim.

Product Application

- Focus, collaboration, privacy spaces
- Offices, healthcare, education

Performance Data

- Excellent acoustics (both NRC and CAC)
- High recycled content (68%)



SNAP 137

www.armstrong.com/commceilingsna/
717.396.5671 | coneill@armstrong.com

INTERIOR FINISHES, FURNISHINGS

TURN BATH TOWELS INTO A WARM LUXURY

GREEN

Amba Products Custom SIRIO Towel Warmers

Custom dual-purpose radiator functions as a towel warmer and space heater. Keep your towels warm, dry and mold/mildew free.

Product Application

- Innovative Italian heating systems with no liquid
- High-grade stainless steel in a variety of finishes
- All custom models are ETL certified

Performance Data

- Width: 16 3/4 in. – 75 3/4 in.
- BTUs: 266 – 3355
- Watts: 78 – 984
- Temp range: 131 – 167°F



SNAP 138

www.ambaproducts.com
404.350.9738 | Fred Salati

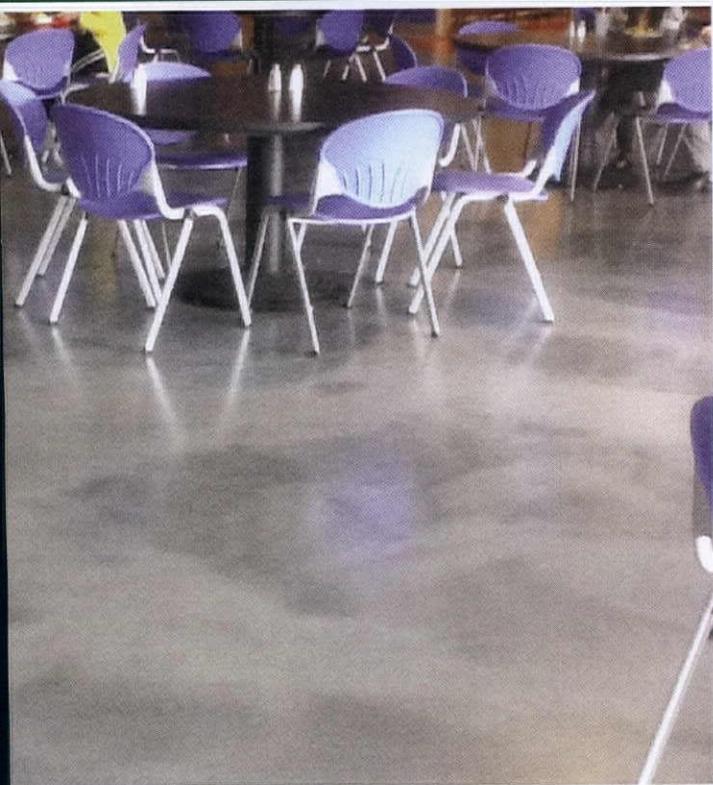
USE THE CARD
AND WIN!



Request free product information in a SNAP with our convenient mail-in postcard and be entered to WIN one of five \$100 VISA gift cards. Easy, Fast, Smart.

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See us at Booth #327
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SOLAR SHADES ARE JUST THE BEGINNING

SWFcontract™, the commercial arm of Springs Window Fashions, is the leading full-line manufacturer of window treatments for commercial applications, providing daylighting, shading, and motorization solutions for every requirement.

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Bali Classics™ 1" Aluminum Mini Blinds.

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Company

Bali

GRABER

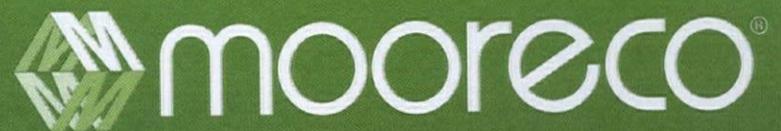
SWFcontract™

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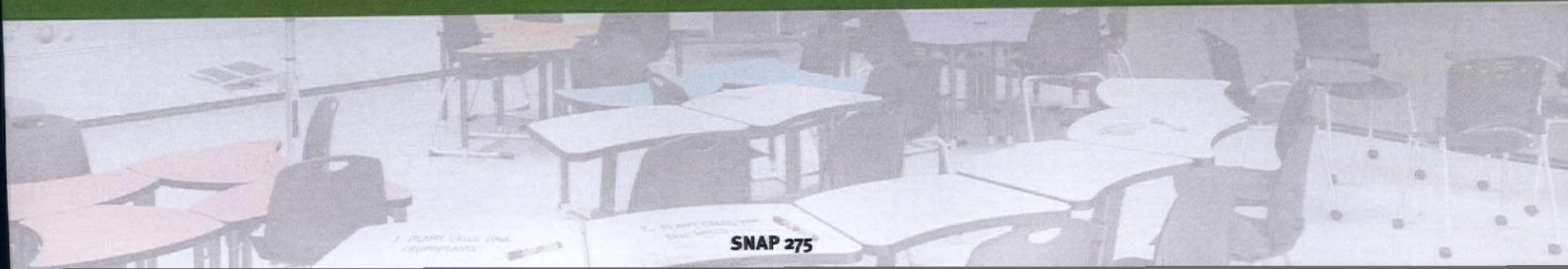
SNAP 274



MooreCo is your resource for all of your commercial furniture, educational furniture, technology, A/V and visual communication products to make the flexible space you need for your classrooms, training rooms or conference areas. Learn more at www.moorecoinc.com



Shown above: Shapes Configurable Student Desking, Cloud 9 Desks and Tables, Up-Rite Student Sit/Stand Desks, Trend Podium Teacher's Desk, Comfort Stacking Stools, Alumni Integrity Rib Back 4-Leg Stack Chairs, Alumni Integrity Smooth Back Cantilever Stack Chairs, Circulation Stack Chairs w/ Tablet Arm, Circulation Task Chair, iTeach® 2 Mobile Electric Stand with OneBoard® Interactive Whiteboard, Sharewall®, Sharewall® Track System, Alpha Cart, HG Projector Wall Mount, A La Cart Charging Cart for iPads & Chromebooks.





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ASSA ABLOY

An architect's vision often leads to majestic and imaginative new designs. That's why they count on RIXSON, the company that makes it possible for their buildings to be adorned with highly impressive openings.

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Left to Right:
Electromagnetic Door Holder/Release,
Offset Pivot, Floor Closer, Checkmate®
Stops and Holders

For more information, scan the QR code above or visit www.rixson.com

ASSA ABLOY, the global leader
in door opening solutions

PRODUCT SPOTLIGHTS

Materials	Pgs. 99-100
Roofing, Siding, Thermal & Moisture Protection	Pgs. 105-110
Interior Finishes, Furnishings	Pgs. 115-116
DOORS, WINDOWS	PGS. 121-124
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Mechanical Systems, HVAC, Plumbing	Pgs. 135
Landscaping, Sitework	Pgs. 137
Specialty Products	Pgs. 143-150
Equipment	Pgs. 153

DOORS, WINDOWS

CLEAR SOLUTION FOR ALL 45-MIN. APPLICATIONS

NEW | \$

SAFTI FIRST Fire Rated Glazing Solutions

There's nearly clear – then there's clear. SuperLite II-XL 45 offers the best clear solution for all 45-minute applications at a better price than ceramics. Proudly USA-made.

Product Application

- Doors
- Windows, sidelites, transoms

Performance Data

- ASTM E-119 with hose stream
- CPSC Cat. II safety
- 40 STC
- UL/WHI listed in large sizes

www.safti.com/best45

888.653.3333



SNAP 139

DOORS, WINDOWS

CLOSURE SYSTEMS

MobilFlex Folding & Rolling Closures Inc.

MobilFlex provides imaginative options for a wide range of storefront entrance and space delineators.

Product Application

- Malls, window protection, banks, schools, hospitals, airports, ships, reception desks

Performance Data

- Any layout, any radius curve
- Large spans – up to 18 ft high, 200 ft wide
- Distinctive looks, rugged protection



www.mobilflex.com
800.501.3539

SNAP 140

DOORS, WINDOWS

TOP-ROLLING SERVICE WINDOW

\$\$\$ | NEW

Nissen & Co., Inc.

Series ET Top Roller Service Window.

Product Application

- Food service
- Hospitals
- Schools and more

Performance Data

- Top-hung on nylon ball-bearing rollers for ease of operation
- No bottom track in opening eliminates obstructions on counter surface



SNAP 141

www.nissenco.com
626.579.5666

DOORS, WINDOWS

ADJUSTABLE CONCEALED HINGES

\$\$\$

SIMONSWERK North America, Inc.

The TECTUS 3-way adjustable concealed hinge series for doors offers designers and architects an entire range of hinges for different architectural openings.

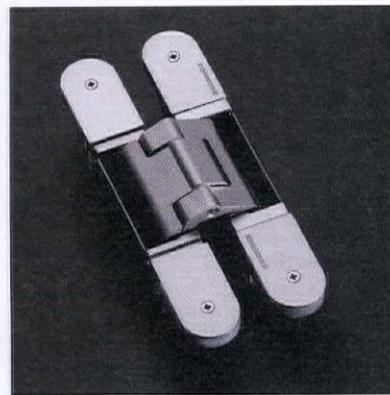
Product Application

- Hospitality – Armani Hotel, Burj Khalifa, Dubai, U.A.E.
- Residential – 2012 Olympic Village, London, U.K.
- Retail – Apple Retail Stores, global

Performance Data

- Maintenance-free slide bearings for doors up to 300 kg/660 lb
- Designed for high-frequency use (not limited to low-frequency applications)

www.simonswerk-usa.com
262.472.9500 | info@simonswerk.com



SNAP 142

DOORS, WINDOWS

ONE-PIECE HYDRAULIC DESIGNER DOORS

Schweiss Doors

Schweiss Doors, Moving Walls. Schweiss Doors manufactures custom designer doors like this one-piece hydraulic door for Under Armour in Maryland.

Product Application

- Moving doors and walls
- Custom-designed storefronts and more

Performance Data

- One-piece hydraulic doors
- Faster, safer operation
- Zero lost headroom
- Superior design that keeps working

www.schweissdoors.com
800.746.8273 | schweiss@schweissdoors.com



SNAP 143

DOORS, WINDOWS

MEETING FUTURE REQUIREMENTS TODAY

Revere Building Products

Exceptional craftsmanship and remarkable energy-saving performance—Berkshire Elite is everything you're looking for in a quality replacement window, and more.

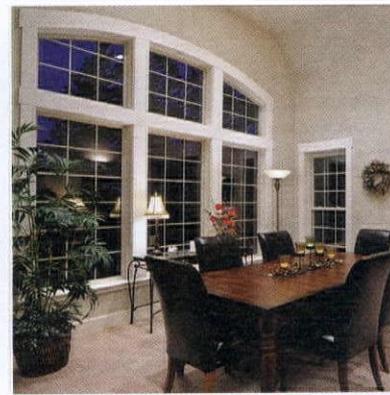
Product Application

- Residential or light commercial
- Replacement/retrofit

Performance Data

- Fusion-welded, multi-chambered construction
- Berkshire Elite windows meet future Energy Star performance requirements today!

www.RevereBuildingProducts.com



SNAP 144

DOORS, WINDOWS

WINDOW WALLS

WR | GREEN

Duratherm Window Corporation

Custom hardwood window wall systems for residential and commercial installations.

Product Application

- Barnes Museum and Art Education Center
- Monticello Visitor Center
- Mercersburg Performing Arts Center

Performance Data

- Sustainably harvested lumber for LEED
- NWDA tested; commercial grade
- Hurricane/impact performance class: Wind Zone 3, Missile Level D

www.durathermwindow.com
800.996.5558 | Timothy Downing



SNAP 145

All products in this section are accessible on sweets.com.

\$\$\$= Premium cost | \$\$= Mid-range cost | \$= Value-oriented cost | WR = Wide range of price points | NC= No charge
G = Product marketed as green | NEW = Released in the past 12 months

DOORS, WINDOWS

FIRE-RATED GLASS APP

NC | NEW

SAFTI FIRST Fire Rated Glazing Solutions

The free mySAFTI App helps you select the correct fire-rated glass and framing products w/ an interactive product selector, using an Apple or Android device.

Performance Data

- Architects, specifiers and glazing professionals can make their selection based on fire rating or applications



www.safti.com/iphone
888.653.3333

SNAP 146

DOORS, WINDOWS

THERMAL ALUMINUM WINDOWS

EFCO Corporation

EFCO HX32 Series high-performance thermal aluminum single-hung/tilt windows manage hot and cold environmental fluctuations without sacrificing structural capabilities.

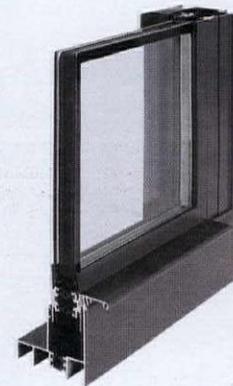
Product Application

- Commercial buildings – supports LEED® and green building practices
- Government and educational buildings
- Multifamily housing

Performance Data

- 3-1/4-in. frame depth, architectural rating of AW50
- U-factors as low as .35 with 1-in. low-E glass

www.efcorp.com
800.221.4169 | Eric Enloe



SNAP 147

DOORS, WINDOWS

GLARE-FREE TRANSLUCENT SKYLIGHTS

GREEN

Major Industries, Inc.

Guardian 275® translucent panel skylights are light-weight, provide enhanced thermal performance and offer occupants diffuse, glare-free natural light.

Product Application

- Skylights, wall systems and canopies available
- Specialty applications available – blast/hurricane protection, removable and more

Performance Data

- Center of panel U-factors as low as .06 w/ 4-in. system/.08 with 2.75-in. system
- Control solar heat gain and block over 99% of UV

www.majorskylights.com
888.759.2678



SNAP 148

DOORS, WINDOWS

WIRELESS, WI-FI-BASED ELECTRONIC LOCK

NEW | \$ | GREEN

Allegion

Schlage NDE Series wireless locks with ENGAGE™ Technology are designed to be easy to install, manage and use.

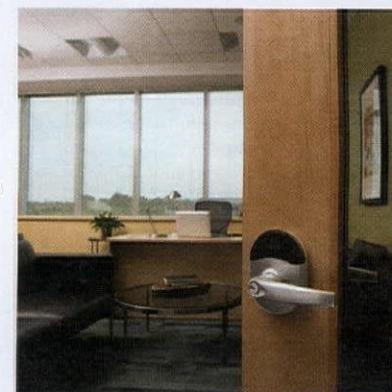
Product Application

- Interior office doors, common area doors and sensitive storage spaces
- Great for renovation projects

Performance Data

- Smaller, more aesthetic wireless design
- Fits ND/standard cylindrical prep
- Simplified access and credential management; your phone is your key

Allegion.com/us
888.657.3641



SNAP 149

DOORS, WINDOWS

FLOOD PROTECTION FOR ANY LOCATION

WR

Walz & Krenzer, Inc.

Flood barriers and watertight closures since 1939.

Product Application

- Chemical facilities
- Nuclear plants
- Any building at all

Performance Data

- Any size
- Any location

www.floodbarriers.com
203.267.5712 | Melissa Shepstone



SNAP 150

DOORS, WINDOWS

HURRICANE FOUR-FOLD DOORS

NEW

International Door, Inc.

Miami Dade tested and approved for pressure rating and missile impact criteria.

Product Application

- Fire stations
- Multi-modal facilities
- Municipal facilities
- Rail car maintenance facilities
- Special-purpose openings

Performance Data

- Pressure rated to +/- 65 PSF or greater
- Missile impact rated
- Miami Dade Testing Criteria TAS 201, 202 and 203

www.international-door.com
734.459.3000



SNAP 151

DOORS, WINDOWS

INTERIOR GLASS CONFERENCE ROOM ENCLOSURE

WR | GREEN

Space Plus, a division of The Sliding Door Company

Flexible, innovative, interior glass door solutions including sliders, stationary partitions, swing doors and frameless barn doors.

Product Application

- Commercial offices
- Hospitality and healthcare
- Multi-unit and public buildings

Performance Data

- Lightweight, high-quality material. Various frame finishes and glass types. ADA compliant.

spaceplus.com
818.997.7855 | bzb@slidingdoorco.com



SNAP 152

DOORS, WINDOWS

LIGHT-DUTY PIVOTS

\$\$

Rixson

Rixson light-duty pivots 173 and 176 bring high-end door control to lightweight low-frequency doors.

Product Application

- Light-duty applications
- Ideal for commercial tenant spaces and high-end residential applications

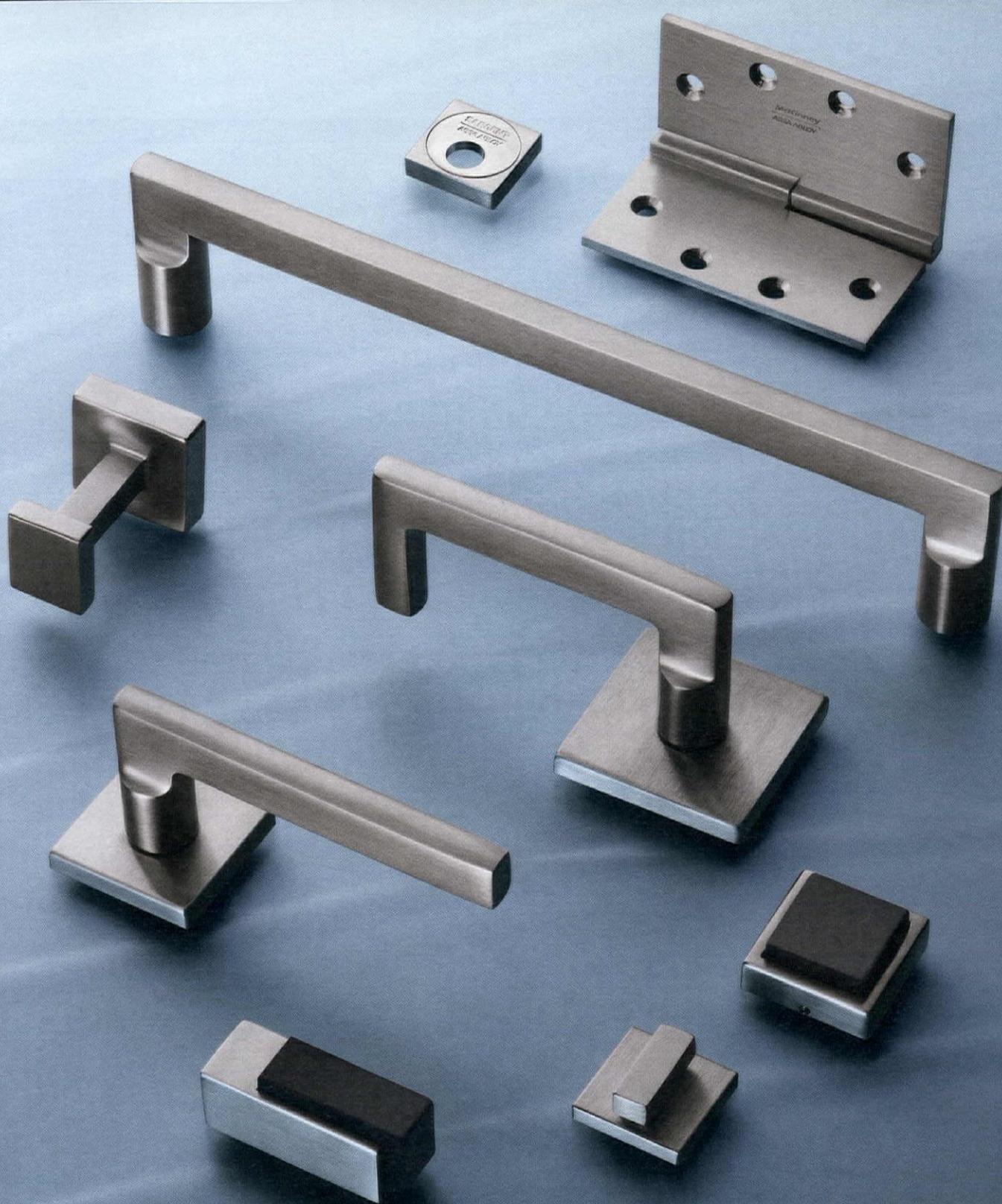
Performance Data

- Interior doors up to 150 lb
- 173 for offset applications; 176 for center hung

www.Rixson.com
704.233.1586 | Lana Kirkpatrick



SNAP 153



Scan this Microsoft® Tag using your mobile phone. Download the free mobile app at <http://gettag.mobi>

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Sweet Suites

United in beauty, ASSA ABLOY presents complementary levers, pulls, stops and hinges to enhance the design of your commercial interiors.

Learn more at suites7.thegooddesignstudio.com

the good design studio

The Good Design Studio, your resource for beautiful doors, frames, & hardware from ASSA ABLOY Group brands. Be inspired. Visit www.thegooddesignstudio.com.

SNAP 277

Corbin
Russwin

McKinney

ROCKWOOD®

SARGENT

The global leader in
door opening solutions

DOORS, WINDOWS

CAST IRON DOOR CLOSER

\$\$\$

Norton Door Controls

Ideal for high-use openings, the Norton 9500 Series Cast Iron door closer offers durability, flexibility and strength.

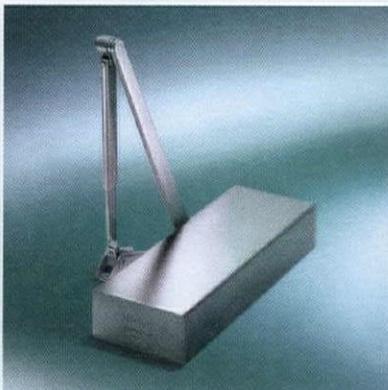
Product Application

- Forged standard and heavy-duty arms
- Adjustable spring sizes 1-6
- Closer mounting installation bracket standard

Performance Data

- Exceeds 20 million cycles (witnessed and verified by UL)
- 25-year limited warranty

www.nortondoortcontrols.com
704.233.1586 | Lana Kirkpatrick



SNAP 154

DOORS, WINDOWS

ALUMINUM FULL-VIEW DOORS

\$\$\$

Amarr Garage Doors

2-in. heavy-duty doors for a clean, bright look for any facility. Door widths avail. up to 24 ft 2 in., in 1-in. increments. Optional aluminum panels, full-view glass, anodized and powder coat colors.

Product Application

- Service stations, fire stations, restaurants, sports complexes, automotive showrooms and repair centers

Performance Data

- Eco-friendly – provides maximum natural light and visibility to help reduce electric light requirements
- Heavy-duty (Model 3550) and light-duty (Model 3500) options

www.amarr.com
800.503.3667



SNAP 155

DOORS, WINDOWS

DO YOU DREAM IN DAYLIGHT?

\$\$\$ | GREEN

Bayer Material Science

Makrolon polycarbonate sheets provide clear advantages over glass in architectural glazing, such as break resistance and design freedom.

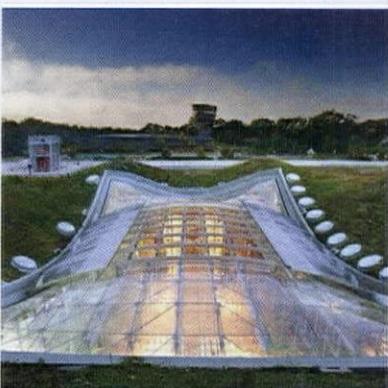
Product Application

- California Academy of Sciences, San Francisco, CA
- Sparks High School, Sparks, NV
- Canada Place, Vancouver, Canada

Performance Data

- Abrasion resistance and weatherability
- 15-year warranty for Makrolon 15

www.sheffieldplastics.com
877.413.7957 | Cindy Race



SNAP 156

DOORS, WINDOWS

IN-FLOOR ELECTROMECHANICAL SWING DOOR OPERATOR

WR

Tormax Technologies, Inc.

Fully concealed in-floor operator was designed for rigorous conditions of commercial use for doors weighing up to 1,000 lb.

Product Application

- Buildings that meet the Historic Preservation Society guidelines

Performance Data

- Solid glass, wood, metal, fiberglass and/or arched doors
- Elevated design for convenience, comfort, safety
- Eco-friendly, 110-VAC electromechanical operator

www.tormaxusa.com
888.685.3707



SNAP 157

DOORS, WINDOWS

ANTIBACTERIAL FINGER PROTECTION FOR DOORS

\$\$

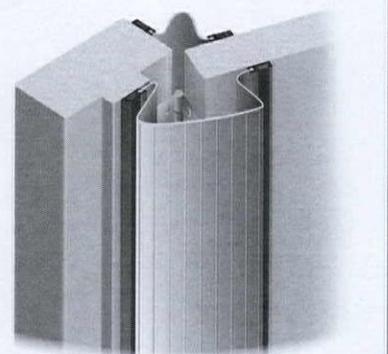
Zero International

BioWall™: A non-toxic antibacterial-infused rubber that inhibits and suppresses bacteria, mold, microorganisms. Long-lasting technology is resistant to abrasion, washing chemicals and UV exposure.

Product Application

- Hospitals and medical offices
- Schools and playrooms
- Wherever sanitary finger protection is required

www.zerointernational.com
718.585.3230 | Jerry Heid



SNAP 158

DOORS, WINDOWS

SLIDING DOOR HARDWARE

Specialty Doors

World's largest selection of sliding door hardware.

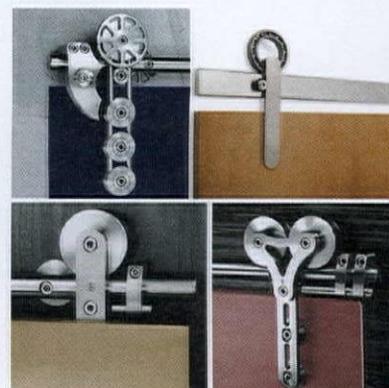
Product Application

- Hotels, lofts, bathrooms, spas, offices, residential

Performance Data

- Saves 14 sq ft of floor space over swinging door
- Any door, frameless glass, wood, metal

www.barndoorhardware.com
866.815.8151 | Tom Gross



SNAP 159

DOORS, WINDOWS

HURRICANE FOUR-FOLD DOORS

NEW

International Door, Inc.

Miami Dade tested and approved for pressure rating and missile impact criteria.

Product Application

- Fire stations
- Multi-modal facilities
- Municipal facilities
- Rail car maintenance facilities
- Special-purpose openings

Performance Data

- Pressure rated to +/- 65 PSF or greater
- Missile impact rated
- Miami Dade Testing Criteria TAS 201, 202 and 203

www.international-door.com
734.459.3000



SNAP 160

SEARCH & WIN

10 WINNERS OVER \$20,000 IN PRIZES

Sweetstales

ENTER NOW ON SWEETS.COM
See official rules on sweets.com

MakerBot 3D Printer

Modern Fan



THE NEW STANDARD IN COMMERCIAL ENTRANCES

MANUFACTURED BY CRL - U.S. ALUMINUM

ENTRANCES, FRAMES, STOREFRONTS, AND CURTAIN WALL SYSTEMS

Designed to appeal and engineered to perform, **CRL-U.S. Aluminum** Entrance Doors set the standard for commercial entrances. Our systems are consistently built to the highest industry standards, ensuring years of reliable service.

WHAT YOU CAN EXPECT IN EVERY U.S. ALUMINUM DOOR:

BETTER PERFORMANCE

- **Corner-Loc™:** Patent pending corner construction technology features precision alignment tabs, a robust mechanical fastening system, and robotically applied welds; yielding the most durable door assembly on the market.
- **Lifetime warranty** on corner construction.

FASTER DELIVERY

- Others claim shorter lead times, we opted to remove them altogether.
- Doors and Frames are in stock, ready to buy or ship.

EASIER INSTALLATION

- **Adjustable Leveling Screw:** Top rail of every door has an adjustable leveling screw to compensate for minor variances in door openings after installation.
- **Preset Glass Setting Blocks:** Eliminates any confusion regarding proper placement of setting blocks.

COMPLETE PROJECT SOLUTIONS

- Complete your opening with stock inventories of matching Frames, Storefronts, Curtain Walls, and thermally broken options, creating cohesive, performance-driven building fronts.

For over five decades, C.R. Laurence has developed a reputation for innovative products, unparalleled service, and complete project support worldwide. That wealth of experience, coupled with the largest selection of architectural systems, enables you to design, create, and build with complete confidence.



C.R. LAURENCE COMPANY

crlaurence.com | usalum.com | crl-arch.com

JAB402_9/14

WON-DOOR

Cross Corridor **FIREGUARD™**



FireGuard Cross Corridor in Lieu of Swing Type Doors for Cost and Space Savings

- Wide open corridors
- No exposed hardware
- Low maintenance
- Integrated pocket cover door
- "Green" self-supporting track system
- Meets all egress requirements
- Up to 60 percent pocket depth reduction



WWW.WONDOOR.COM
SALES@WONDOOR.COM

FLOOD PROTECTION WITHOUT BEING THERE

Automatically Deploys When Needed

Introducing two **NEW** innovative products to our flood protection line

AutoSeal Rolling Door



AutoRising Flood Gate



Both products are **watertight & deploy at pre-determined water levels**

Contact the experts at Walz & Krenzer for all your flood barrier, watertight and blast closure needs.



Walz & Krenzer, Inc.

91 Willenbrock Rd., Unit B4, Oxford, CT 06478 • www.floodbarriers.com
Tel: 203-267-5712 • Fax: 203-267-5716 • E-mail: sales@wkdoors.com

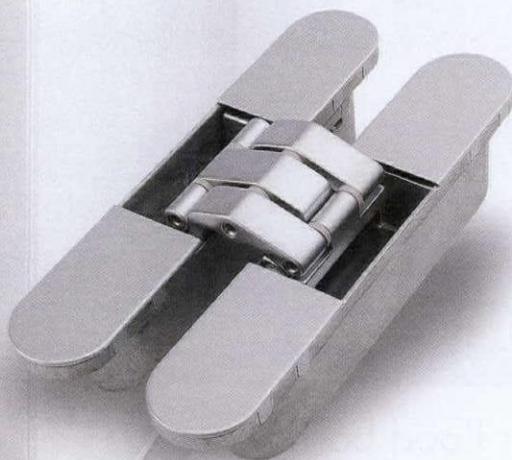
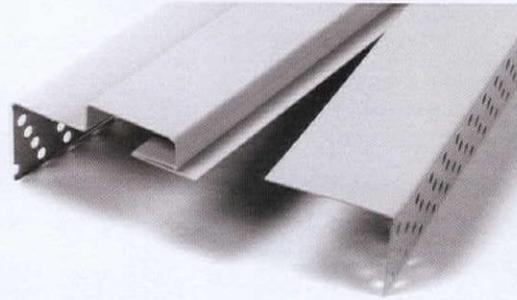
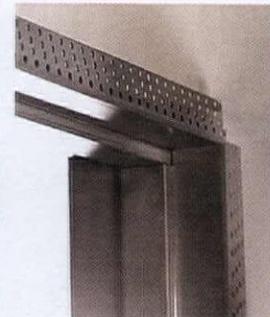
CLEAN LINES! ... The Flush Finish Door Jamb System

**Trimless doors...
Make a statement,
clean lines, flush finish...
Give your project
a clean cut edge!**

EZYjamb®

- HOMES
- CONDOMINIUMS
- PENTHOUSES
- SHOWROOMS
- HEALTHCARE

EZY-Jamb is a split type Jamb manufactured from cold rolled steel to produce a strong and secure assembly. EZY-Jamb comes with perforated sides for flush finishing which produces a contemporary flush finish door jamb with clean lines and inconspicuous detail. The unique design of EZY-Jamb combines visual appeal, strength and versatility.



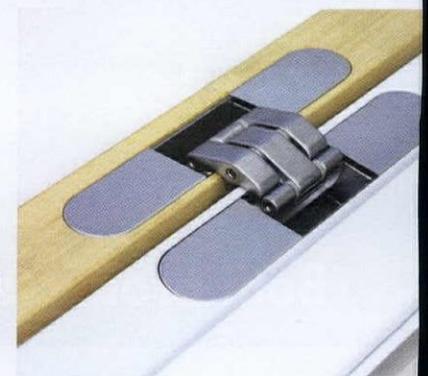
ROCYork

Invisible Hinge

Make your door hinges disappear with the all new Rocyork concealed door hinge from Ezy-Jamb!

Featuring:

- 6 way adjustment
- Powder coated finish
- Up to 175lbs per pair
- European design.



EZYjamb®

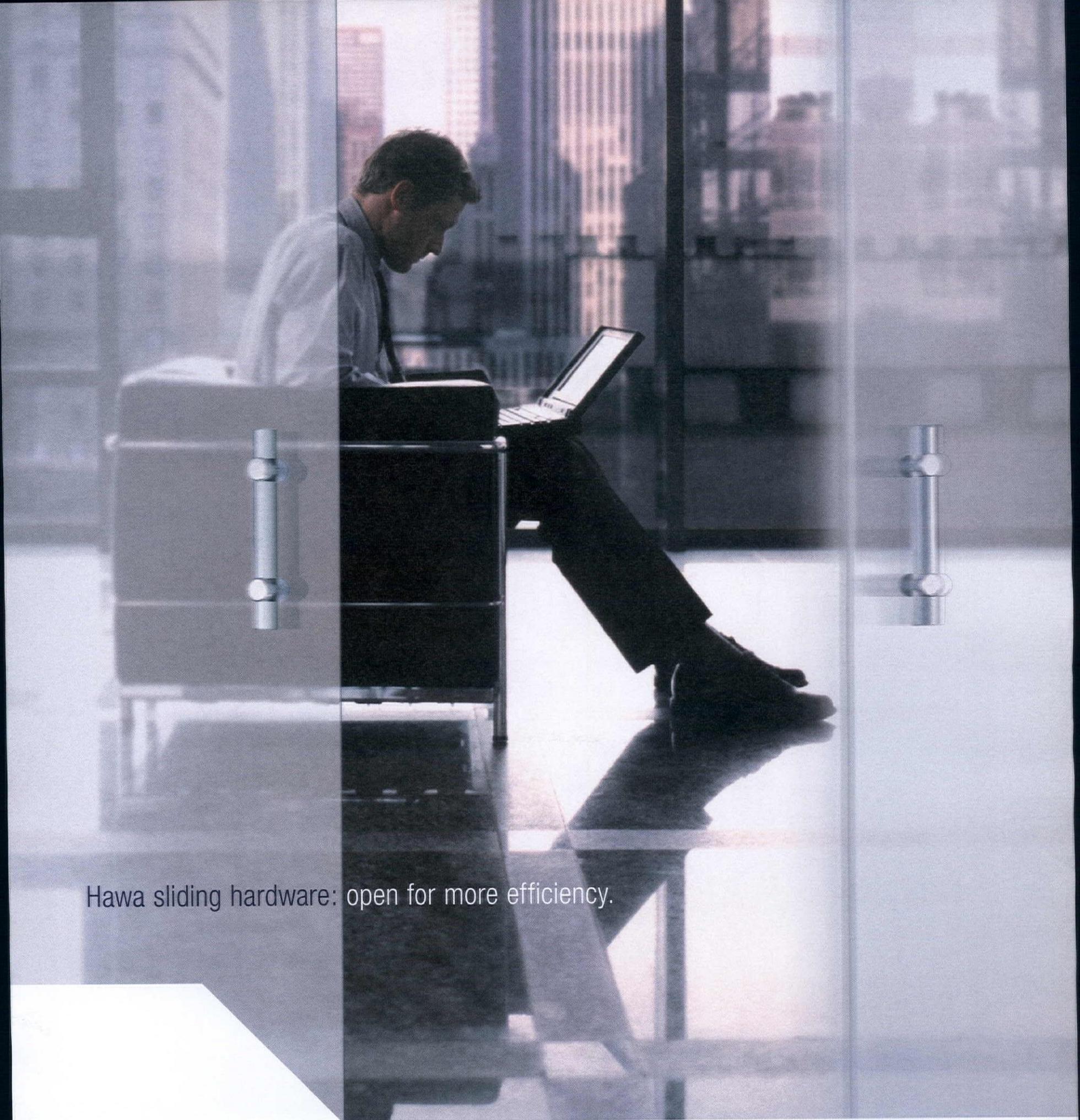
MANUFACTURED BY:

STUDCO BUILDING SYSTEMS US, LLC
Email: sales@ezyjamb.com

PHONE: 800.675.8023

STUDCO
BUILDING SYSTEMS

SNAP 300



Hawa sliding hardware: open for more efficiency.

Urban growth, coupled with the increasing demands of our society, is turning space into a luxury commodity in many locations. Hawa AG recognized this trend early on. That is why we have been developing hardware systems and solutions for many years, helping architects, designers, craftsmen and users to create, use and partition rooms with greater efficiency, without imposing any restrictions on the room with regard to your creativity.

Hawa Americas Inc., Dallas, Texas, Phone +1 214 760 9054, Fax +1 214 760 8627, www.hawa.com

SNAP 263

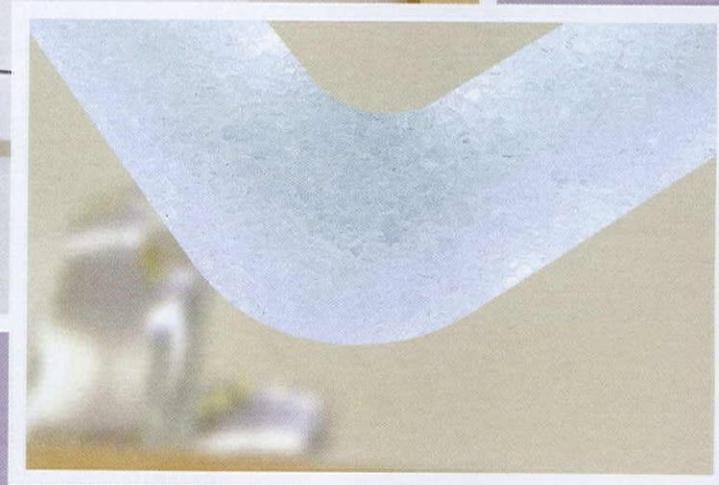


MIRROR-LUX[®]

ANDROMEDA



The Andromeda is an elegant vanity mirror backlit with the latest in LED technology. Warm light gleaming through crystallized glass inserts creates a dazzling visual effect. This contemporary design piece offers a fully functional mirror with long life LED lighting, eliminating the need for lamp replacement.



FINEST IN CUSTOM BACKLIT MIRRORS

AAMSCO LIGHTING, INC.

100 Lamp Light Circle • Summerville, SC 29483 • 1-800-221-9092 • Fax 843-278-0001

www.aamsco.com



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Doors, Windows	Pgs. 121-124
ELECTRICAL, LIGHTING	PGS. 131
Mechanical Systems, HVAC, Plumbing	Pgs. 135
Landscaping, Sitework	Pgs. 137
Specialty Products	Pgs. 143-150
Equipment	Pgs. 153

ELECTRICAL, LIGHTING

CONTEMPORARY CEILING FANS

\$\$\$ | GREEN | NEW

The Modern Fan Co.

A collection of contemporary ceiling fans aimed at the professional specifier and design-minded homeowner alike.

Product Application

- 50 UN Plaza Fed Bldg (San Francisco, CA)
- LA Fitness (multiple locations)
- Skechers (multiple locations)

Performance Data

- Contract-quality construction
- Highly efficient contribution to thermal comfort
- De-stratification and circulation of air

www.modernfan.com

541.482.8545



SNAP 162

ELECTRICAL, LIGHTING

FIBER OPTIC DAYLIGHTING

\$\$\$ | GREEN

Wasco Products, Inc. - Parans

Sunlight is captured by Parans receivers outside. Optical fibers transfer the sunlight through the building structure and natural sunlight flows out of the Parans Solar Luminaires. Here comes the sun!

Product Application

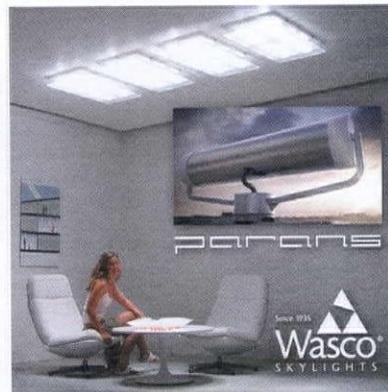
- Offices and conference rooms
- Hospitals and other large buildings
- Public buildings, shopping malls

Performance Data

- Flicker-free natural sunlight, full visible spectrum
- Filters non-visible radiation, reducing need for cooling

www.wascoskylights.com

800.388.0293



Booth: 1216

Greenbuild

SNAP 164

ELECTRICAL, LIGHTING

PATHFINDER SYSTEM

The Wagner Companies

The new Ledpod® Pathfinder system integrates motion sensors into LED handrail for zoned illumination control. This allows the system to remain in a dimmed state until a pedestrian enters the area.

Product Application

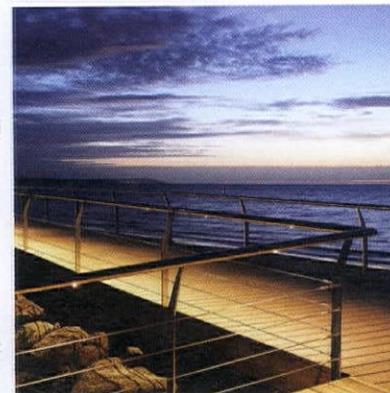
- Bridges
- Hand railing
- Bus stops

Performance Data

- Full automatic operation
- Bi-directional pedestrian pathway illumination
- 100% illumination of pathway when people are present

www.wagnerarchitectural.com

414.716.8401



SNAP 161

ELECTRICAL, LIGHTING

MULTIFUNCTIONAL A/V CEILING BOX

Legrand

Innovative AV Ceiling Boxes provide capacity, internal cooling, projector support and can also interface with building control systems.

Product Application

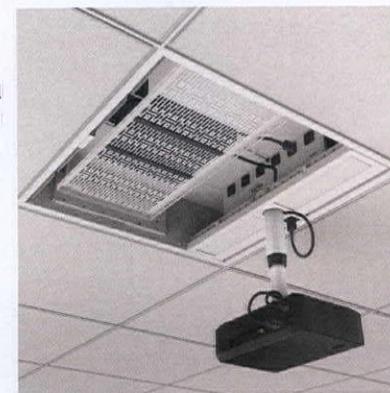
- Conference rooms
- Classrooms
- Training facilities

Performance Data

- Controllable internal receptacles
- Can be serviced or modified while mounted in ceiling

www.legrand.us

877.295.3472



SNAP 163

ELECTRICAL, LIGHTING

DEMAND CONTROL VENTILATION FOR KITCHEN EXHAUST

\$\$\$ | NEW

CaptiveAire Systems

Automatically modulates exhaust and supply fans for commercial kitchens based on actual cooking load. Modulating fan speeds saves energy compared to fans running on high speed for entire operation.

Performance Data

- Microprocessor-based control
- LCD interface for fan control, system configuration and diagnostic information
- Use of VFD and temp sensors in exhaust duct to modulate fans

www.captiveaire.com

800.334.9256



SNAP 165

ELECTRICAL, LIGHTING

LED RAIL LIGHT KITS

NEW | \$\$

Feeney, Inc.

Weatherproof, energy-efficient LED lighting kits for DesignRail® railings with high-bond installation adhesive strips and special snap-on light-diffusing lenses

Product Application

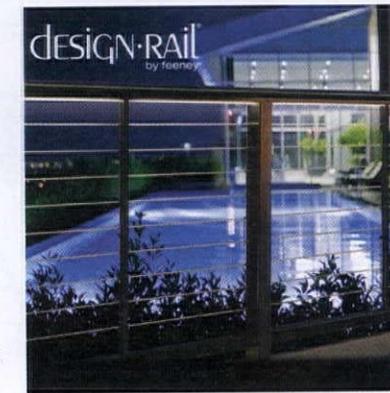
- Fits all DesignRail® alum. railings
- Residential, commercial, institutional
- Outdoor lighting accent & low-light area visual aid

Performance Data

- High CRI (80) LEDs, better color rendering, up to 50,000 hours
- 24 volt DC, fully weatherproof, plug & go components

feeneyinc.com/Architectural/DesignRail

800.888.2418 | Contact: Trang Nguyen-Soriano



SNAP 166

USE THE CARD AND WIN!



Request free product information in a SNAP with our convenient mail-in postcard and be entered to WIN one of five \$100 VISA gift cards. Easy, Fast, Smart.

Drawings are random. Winners will be drawn 90 days after publication. NO PURCHASE NECESSARY. A PURCHASE WILL NOT IMPROVE YOUR CHANCES OF WINNING. TO ENTER: Mail or fax the reader service card found in SNAP or visit sweets.com for the SNAP reader service center and select products. To submit an entry by mail, mail an index card with your name, address, email address and daytime phone number to: "SNAP Reader Service Contest," Reader Service Card Processing Center, P.O. Box 5148, Buffalo, NY 14205-0000. There will be 5 winners for each issue drawn from entries received. Retail value of the VISA gift card is \$100. View complete rules at construction.com/sweets/snap/contest.

All products in this section are accessible on sweets.com.

\$\$\$= Premium cost | \$\$= Mid-range cost | \$= Value-oriented cost | WR= Wide range of price points | NC= No charge

G= Product marketed as green | NEW= Released in the past 12 months

Sniff Out the Savings

Ask about Our
FREE Energy Saving Analysis!

Wasco has the industry's most extensive line
of green, energy efficient, daylight solutions.



Lumira® Aerogel – highest performing
daylighting product available today



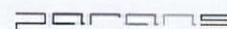
EcoSky³ – Meets IECC 2012 requirements
in all climate zones



SageGlass® – Electronically tintable glass



Schott ASI® – Photo voltaic modules



Parans® – Fiber optic daylighting. Full-
spectrum natural daylight, no heat gain



Solera® – Translucent insulated glass

SOLERA

Solera® with Lumira® – Dramatically
improves thermal performance



eMax³ – For residential units, meets the
version 6.0 Energy Star program for all
climate zones



**FREE PARANS
SOLAR LIGHTING SYSTEM!**

Visit Us at Greenbuild Booth 1216
for Your Chance to WIN!

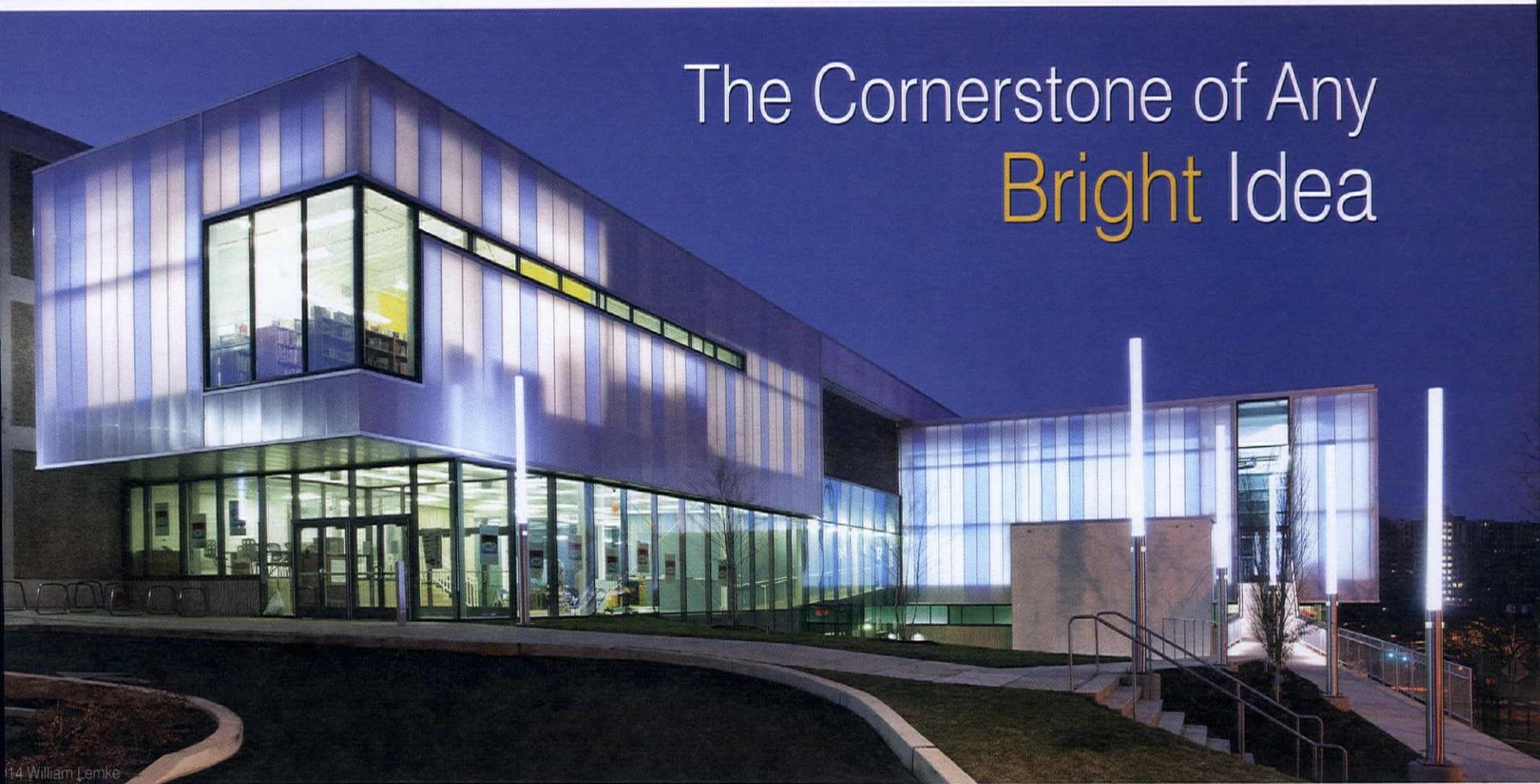
SNAP 281



800-388-0293

www.wascoskylights.com

The Cornerstone of Any Bright Idea

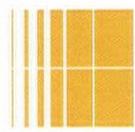


Translucent Building Envelope Solutions

UniQuad® - a unitized insulated translucent panel system developed for high-performance building envelopes. This comprehensive system offers exceptional design versatility that allows you to combine the performance you need with the look you want.

- Unitized System - Fast, Cost-Effective Install
- Long-Span Capability
- Bi-Color Design Options
- Scalable Performance Options
- RST - Removable Skin Technology

CPIDAYLIGHTING.COM | 847.816.1060
info@cpidaylighting.com

 **UniQuad®**
Unitized Daylighting System



 **CPI**
DAYLIGHTING
Quality Comes to Light®



Faster, Thinner Floor Warming



Schluter®-DITRA-HEAT

Electric floor warming system with integrated uncoupling

Floor warming systems have become very popular. Heating tiled floors increases the need for uncoupling to prevent cracked tiles and grout. Use DITRA-HEAT to get both – warm floors and uncoupling – in a single layer.



- Heating and uncoupling in a single layer
- No self-levelers required to encapsulate heating cables (no need to wait for curing)
- Place the heating cables exactly where they are needed, without clips or fasteners
- Combines the flexibility of loose cable with the ease of installation of a mat system
- 120 V and 240 V options
- Programmable and non-programmable thermostats available

www.schluter.com | 800-472-4588

SNAP 284

Connect with us!



PRODUCT SPOTLIGHTS

Materials	Pgs.	99-100
Roofing, Siding, Thermal & Moisture Protection	Pgs.	105-110
Interior Finishes, Furnishings	Pgs.	115-116
Doors, Windows	Pgs.	121-124
Electrical, Lighting	Pgs.	131
MECHANICAL SYSTEMS, HVAC, PLUMBING	PGS.	135
Landscaping, Sitework	Pgs.	137
Specialty Products	Pgs.	143-150
Equipment	Pgs.	153

MECHANICAL SYSTEMS, HVAC, PLUMBING

HANDS-FREE LAVATORY SINK PACKAGE

\$\$ | GREEN | NEW

Just Manufacturing

Commercial-grade stainless steel ADA-compliant "hands-free" public lavatory sink packages. Includes sensor faucet, soap dispenser, hand dryer and grab bar.

Product Application

- Ideal for heavy/light commercial applications
- Intended for public lavatory areas
- ADA-compliant sinks, "hands-free" accessories

Performance Data

- 18-gauge, type 304 stainless steel
- Size and depth meet stringent standards



www.justmfg.com
847.678.5150 | Customer Service

SNAP 167

MECHANICAL SYSTEMS, HVAC, PLUMBING

WEATHER-TIGHT ROOF PENETRATIONS

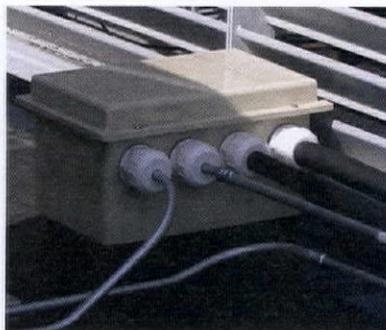
\$\$

Alta Products, LLC

Designed and patented by Peter Sigrist with 20+ years of "on the roof" HVAC and mechanical experience. This is truly a drop-in solution for consolidating multiple roof penetrations in one doghouse.

Product Application

- Housing is powder-coated (UV-protected) aluminum
- .080 thick welded aluminum housing and curb
- Full thermal break
- Stainless steel fasteners



www.AltaProductsLLC.com
206.409.1237 | John Applegate

SNAP 168

MECHANICAL SYSTEMS, HVAC, PLUMBING

LEAK-PROOF CARRIER TRANSPORTATION

NEW | \$\$

Aerocom Systems, Inc.

Stop pneumatic tube system contamination and eliminate infectious control worries with Aerocom's Leak-Proof Carrier.

Performance Data

- Manufactured with glass powder and antimicrobial metal ions to ensure durability, effectiveness and no wash deterioration
- RFID available



www.aerocomusa.com
678.513.9660 | Ron Miller

Booth: 1733 | Healthcare Design | SNAP 169

USE THE CARD AND WIN!



Request free product information in a SNAP with our convenient mail-in postcard and be entered to WIN one of five \$100 VISA gift cards. Easy, Fast, Smart.

Drawings are random. Winners will be drawn 90 days after publication. NO PURCHASE NECESSARY. A PURCHASE WILL NOT IMPROVE YOUR CHANCES OF WINNING. TO ENTER: Mail or fax the reader service card found in SNAP or visit sweets.com for the SNAP reader service center and select products. To submit an entry by mail, mail an index card with your name, address, email address and daytime phone number to: "SNAP Reader Service Contest," Reader Service Card Processing Center, P.O. Box 5148, Buffalo, NY 14205-9993. There will be 5 winners for each issue drawn from entries received. Retail value of the VISA gift card is \$100. View complete rules at construction.com/sweets/snap/contest/.



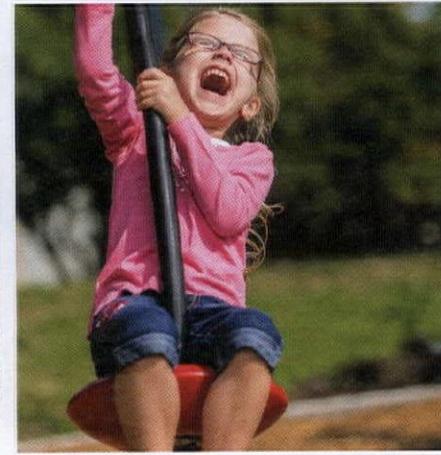
I can fly!



Kids of all abilities will experience the thrill of flying with ZipKrooz™! Unlike other playground zip lines, ZipKrooz has built-in elevation and offers a smooth, two-way ride for nonstop safe zooming fun. Even more, ZipKrooz provides an inclusive play experience with its multiple configurations and standard or assisted seat options. Kids are lining up for ZipKrooz! Find your local playground consultant at playlsi.com, or call **888.438.6574** or **763.972.5200**.

Better playgrounds. Better world.®

LS
**landscape
structures®**



PRODUCT SPOTLIGHTS

Materials	Pgs.	99-100
Roofing, Siding, Thermal & Moisture Protection	Pgs.	105-110
Interior Finishes, Furnishings	Pgs.	115-116
Doors, Windows	Pgs.	121-124
Electrical, Lighting	Pgs.	131
Mechanical Systems, HVAC, Plumbing	Pgs.	135
LANDSCAPING, SITEWORK	PGS.	137
Specialty Products	Pgs.	143-150
Equipment	Pgs.	153

LANDSCAPING, SITEWORK

CAST IRON TREE GRATES

GREEN

EJ

Tree grates manufactured by EJ are durable, functional and architecturally appealing. Designs available with expandable tree openings to allow for tree growth.

Product Application

- Streetscape project: Ghirardelli Sq., San Francisco, CA
- Streetscape redev't: Atlantic Station, Atlanta, GA

Performance Data

- ADA compliant
- 85% recycled content, Made in the USA

www.treegrate.com
800.887.8440 | Jessica Spencer



Booth: 1203 ASLA **SNAP 170**

LANDSCAPING, SITEWORK

GRASS PAVEMENT

WR | GREEN

Invisible Structures

Grass flexible plastic porous pavement.

Product Application

- Fire lanes
- Overflow parking lots
- Access roads

Performance Data

- 5,721 psi compressive strength
- 100% grass coverage



www.invisiblestructures.com
800.233.1510 | Dustin Glist

SNAP 171

USE THE CARD
AND WIN!



Request free product information in a SNAP with our convenient mail-in postcard and be entered to WIN one of five \$100 VISA gift cards. Easy, Fast, Smart.

Drawings are random. Winners will be drawn 90 days after publication. NO PURCHASE NECESSARY. A PURCHASE WILL NOT IMPROVE YOUR CHANCES OF WINNING. TO ENTER: Mail or fax the reader service card found in SNAP or visit sweets.com for the SNAP reader service center and select products. To submit an entry by mail, mail an index card with your name, address, email address and daytime phone number to: "SNAP Reader Service Contest," Reader Service Card Processing Center, P.O. Box 5148, Buffalo, NY 14206-9998. There will be 5 winners for each issue drawn from entries received. Retail value of the VISA gift card is \$100. View complete rules at construction.com/sweets/snap/contest.

Sweetstakes

Enter to win one of over \$20,000 in prizes!

Over \$5000 in cash prizes

See official rules on sweets.com

Enter now on Sweets.com

Prizes include:

- Eames Lounge and Ottoman by Herman Miller
- MakerBot 3D Printer
- Modern Fan
- Architect Book Set

Over \$5000 in cash prizes

See official rules on sweets.com

Enter now on Sweets.com

Sweets
Easily search thousands of products. Updated daily.

A Variety of Flavors

For a B.I.G. Design Impact!



303
Flavors
to Choose
From!
Is Yours
Next?

Many people call themselves custom booth manufacturers and occasionally they do produce a special booth or two. However when it comes to constant day-in day-out, year-after-year production of custom designed booths, no one can touch the experience, depth and quality of B.I.G. Call today for your copy of the B.I.G. Catalog of 303 booths.

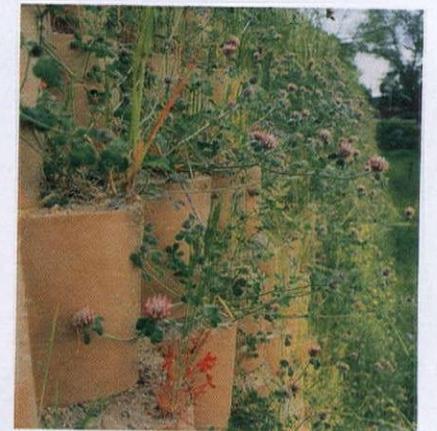


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DESIGN IT GREEN

Naturally-Vegetated
Retaining Walls



GEOWEB[®] RETAINING WALL SYSTEM

Enhance your landscape design with structurally-stable, vegetated retaining walls. GEOWEB[®] walls retain structural integrity even in poor base conditions. A green solution that blends naturally with the environment, GEOWEB[®] vegetated walls minimize runoff and contribute to green building credits.

Gravity & Geosynthetic-Reinforced • Steepened Embankments
Vegetated Channel Structures • Change-In-Grade Landscape Walls

PRESTO


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GLOBAL LEADER • GLOBAL PARTNER

Presto Geosystems[®] • 800-548-3424 or 920-738-1328 • www.prestogeo.com

SNAP 287



CONTACT US for our Free GEOWEB[®] MSE Wall Software Program

OGi Metal Grilles & Screens: The solution to many of your architectural needs

VISIT US AT
ASLA
ANNUAL MEETING
& EXPO NOV.21-24
DENVER 2014
BOOTH 1441

Product Features

- Manufactured from aluminum
(shown here)
- Also available in carbon or stainless steel
- Aesthetically appealing while providing enhanced security
- Offers ventilation with open air designs
- Multiple styles and designs available
- Various finishes available
 - Powder coat, galvanized, liquid PVDF, electropolished
 - Anodized and a custom 3-step process were used on this project
(contact the factory for details)
- Made in the USA

grilles & screens

All Photos:
Sun Metro Rapid Transit System
El Paso, TX - EG020



OGi Architectural Metal Solutions
an Ohio Gratings Company

5299 Southway Street SW □ Canton, OH 44706 □ www.ohiogratings.com
1-800-321-9800 □ Fax 330-477-7872





CANDELA

landscapeforms®

High design. High performance LED
lighting for the urban streetscape.

Designed by Gonzalo Milá.



SANTA & COLE

Find us at landscapeforms.com or
contact us toll free at 800.290.6240.

DESIGN. CULTURE. CRAFT.

SNAP 289



Make a Clean Getaway



Sinks, dryers, toilets, and now...doors

The age of the touchless public restroom has arrived. Now visitors can have a totally hands-off experience, thanks to the Norton 5600 Series Low Energy Power Operator. This easy to install and adjust option is operated by the Norton wave to open wall switch. Wave goodbye to germs and say hello to cleanliness with the Norton 5600 Series.

To learn how, visit nortondoorcontrols.com



Scan this Microsoft® Tag using your mobile phone. Download the free mobile app at <http://gettag.mobi>

ASSA ABLOY, the global leader in door opening solutions

Norton®
ASSA ABLOY

PRODUCT SPOTLIGHTS

Materials	Pgs. 99-100
Roofing, Siding, Thermal & Moisture Protection	Pgs. 105-110
Interior Finishes, Furnishings	Pgs. 115-116
Doors, Windows	Pgs. 121-124
Electrical, Lighting	Pgs. 131
Mechanical Systems, HVAC, Plumbing	Pgs. 135
Landscaping, Sitework	Pgs. 137
SPECIALTY PRODUCTS	PGS. 143-150
Equipment	Pgs. 153

SPECIALTY PRODUCTS

CUSTOM-DESIGNED GUARD HOUSE

\$\$ | GREEN

Little Buildings, Inc.

Fully customizable, factory-assembled buildings incorporating your architectural specifications and designs. Available with restrooms, elevated platforms, bullet-resistant and LEED components.

Product Application

- Government: Navy, IRS, bullet-resistant guardhouses
- Commercial: security/control booth, smoking rooms
- Education: ticket booth, bus stop, cashier

Performance Data

- Totally assembled: just set, connect and use
- Made in USA, shipped worldwide

www.littlebuildingsinc.com
888.552.6684 | Jim Sudomier



SNAP 172

SPECIALTY PRODUCTS

DESIGNER COMMERCIAL ELECTRIC INFRARED HEATERS

\$\$\$ | GREEN | NEW

Solaira™ Heating Technologies

Solaira quartz electric infrared heaters are engineered for architecturally sensitive indoor/outdoor zones, convert 91% of the energy into instant, directional, controllable comfort heating.

Product Application

- Fenway Park outdoor suites, Boston, MA
- New York Palace Hotel, NY
- New York Presbyterian Hospital, NY

Performance Data

- High performance, 91% radiant efficiency
- Weatherproof, modular, controllable

www.solairaheaters.com
866.321.8373 | Joe Ponzio, ext. 22



SNAP 173

SPECIALTY PRODUCTS

CELEBRATING 50 YEARS OF SAUNAS

WR

Finlandia Sauna Products, Inc.

They manufacture authentic saunas, no infrarads. They offer precut packages, modular rooms and heaters.

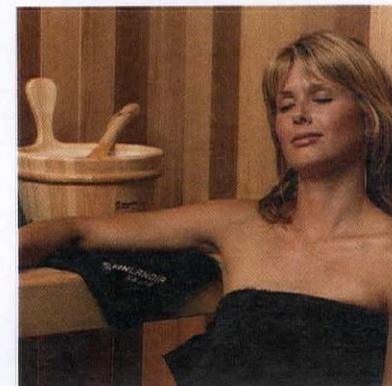
Product Application

- Any available space
- Residential or commercial
- New construction or remodeling

Performance Data

- Uses 1-in. x 4-in. paneling
- Markets four all-clear western softwoods

www.finlandiasauna.com
800.354.3342 | Tim Atkinson or Reino Tarkiainen



SNAP 174

SPECIALTY PRODUCTS

ACOUSTICAL BARRIERS

\$\$ | GREEN | NEW

George Koch Sons

Concealed Fastener Acoustical Barrier Panel System. New innovative design is ideal for high-profile architectural applications installed either vertically or horizontally.

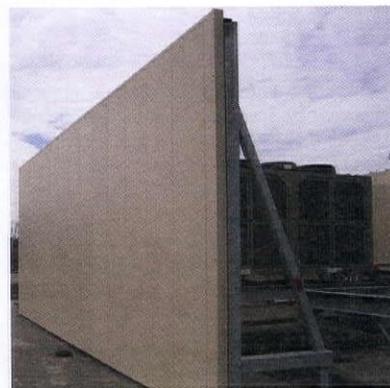
Product Application

- HVAC equipment roof screens
- Power generation barriers and enclosures
- Transportation barriers

Performance Data

- Sound transmission loss: STC 42
- Noise reduction coefficient: 1.0

www.kochllc.com/acoustical-solutions
888.873.5624 | Dan Hostetler



SNAP 175

SPECIALTY PRODUCTS

DETENTION SURFACE PADDING

\$\$\$ | GREEN

Padded Surfaces by B&E Inc.

Surface padding system for use in jail cells, time-out rooms and psychiatric rooms where violent behavior may result in injury.

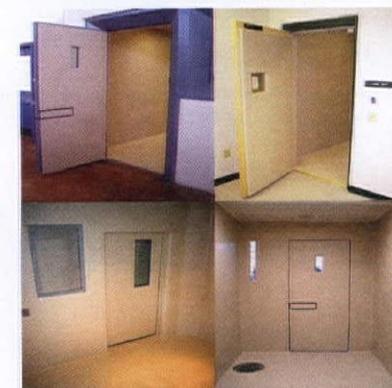
Product Application

- Correctional: jails, prisons, courthouses
- Healthcare: psychiatric, behavioral health, adolescent
- Educational: time-out rooms

Performance Data

- Class A flame spread
- UL listed

www.paddedsurfaces.com
317.243.2233 | Mark Spray



SNAP 176

SPECIALTY PRODUCTS

CUSTOM SKYLIGHT SYSTEMS

Super Sky Products Enterprises, LLC

Aluminum framed skylight systems designed to add and enhance natural daylighting. Financially sound business with over 11,000 projects completed worldwide.

Product Application

- Glass, hurricane/impact rated, blast compliant
- Point supported, photovoltaic, polycarbonate systems
- Repair/renovation

Performance Data

- Miami-Dade County approved
- LEED point contribution

www.supersky.com
262.242.2000 | supersky@supersky.com



SNAP 177

SPECIALTY PRODUCTS

WIRE MESH PARTITION

\$\$

ACORN Wire and Iron Works

Since 1913 has been providing security and storage solutions. Standard 130A woven wire diamond mesh, 10-gauge steel.

Product Application

- Postal distribution centers
- Bonded warehouses
- Courts
- Lockdown areas

www.acornwire.com
312.243.6414



SNAP 178

All products in this section are accessible on sweets.com.

\$\$\$= Premium cost | \$\$= Mid-range cost | \$= Value-oriented cost | WR= Wide range of price points | NC= No charge
G= Product marketed as green | NEW= Released in the past 12 months

SPECIALTY PRODUCTS

A BETTER WAY TO DAYLIGHT

WR | GREEN

Kalwall Corporation

Kalwall's Window Wall Systems integrate translucent panels with their high-performance E-Series windows to provide unparalleled daylighting with superior thermal performance.

Performance Data

- Wall Systems certified to TAS 201, 202, 203 and ASTM E1886 & E1996 (Large Missile D)
- U-values panel options from 0.53-0.05 | VT ranges from 3%-50% | SHGCs from 1.0-0.4

www.kalwall.com
800.258.9777



SNAP 179

SPECIALTY PRODUCTS

INNOVATION IN ICF TECHNOLOGY

NEW | GREEN

NUDURA Corporation

The One Series by NUDURA is the industry's only multi-link form offering builders and architects unmatched versatility for projects designed using ICFs.

Product Application

- Design versatility for multistory apps, including elevators, stairwells and other areas that require non-combustible products

Performance Data

- Eliminates the need for multiple trades
- Allows designers to use ICFs throughout the entire building

www.nudura.com/oneseries
866.468.6299



SNAP 180

SPECIALTY PRODUCTS

LINEAR SHOWER DRAIN

Noble Company

FreeStyle Linear Drain's clamping collar ensures a watertight installation. Single-piece construction, low profile and a flat bottom simplify installation.

Product Application

- Showers of all types including barrier-free and ADA
- Use w/ large-format tile for contemporary designs
- New construction, renovation

Performance Data

- U.S. Patent # 8,474,068. Patents Pending Canada & EP Pub. # 2354339
- High capacity, 36 GPM drainage
- Waterproof w/ NobleSeal® TS

www.noblecompany.com
800.878.5788



SNAP 181

SPECIALTY PRODUCTS

ANTI-SLIP SAFETY PRODUCTS

\$

Wooster Products Inc.

Stair nosings, anti-slip.

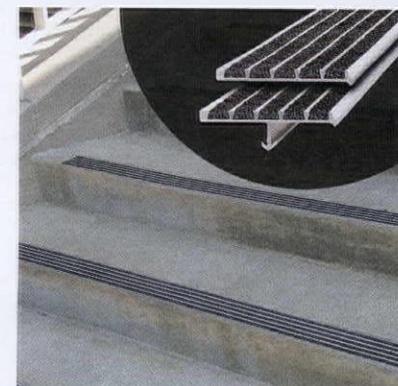
Product Application

- New and existing buildings
- Indoor and outside use
- Anti-slip stair nosings

Performance Data

- ADA, OSHA, IBC and IFC compliant
- Long lasting, high quality

www.wooster-products.com
800.321.4936 | Sales



SNAP 182

SPECIALTY PRODUCTS

THE SOUND OF SILENCE

\$\$

Freudenberg Nonwovens

SoundTex Acoustical Nonwoven: Thin acoustical fleece backer for metal and wooden perforated ceilings.

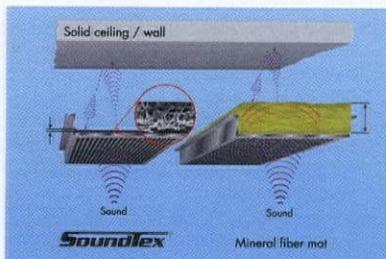
Product Application

- Airports/transportation hubs
- Museums/convention centers
- Restaurants/office buildings

Performance Data

- Very thin (only 0.2 mm)
- Sound absorption (up to 0.75 NRC)

www.freudenberg-nw.com
919.620.7074 | Bill Mordecai



SNAP 183

SPECIALTY PRODUCTS

GIVE YOUR SIGNAGE A GLOW WITH ILLUMINATED LETTERS

WR | GREEN

A.R.K. Ramos

At A.R.K. Ramos they hear time and again that their fabricated reverse channel letter prices can't be beat. Pair that with unmatched quality and you have an unbeatable combination. Contact them today.

Performance Data

- Custom and standard letter styles available
- They utilize energy-efficient LEDs and drivers

www.arkramos.com
800.725.7266 | Courtney Ramos-Fincher



SNAP 184

SPECIALTY PRODUCTS

ALUMINUM WALKWAY COVERS

Superior Metal Products

Extruded systems, painted or anodized, fit a wide range of architectural designs.

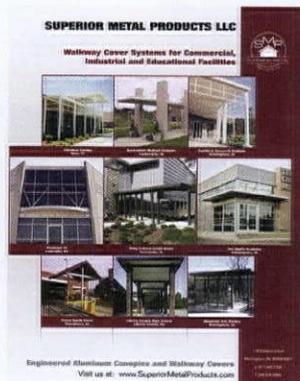
Product Application

- A complete line of rollformed and extruded aluminum canopies and walkway covers

Performance Data

- Load tables for extruded components
- Typical application & canopy configuration
- Structural components: columns, beams, fascia
- Standard colors & optional anodized finishes

www.superiormetalproducts.com
877.445.1200



SNAP 185

SPECIALTY PRODUCTS

EYEBROW LOADING DOCK CANOPIES

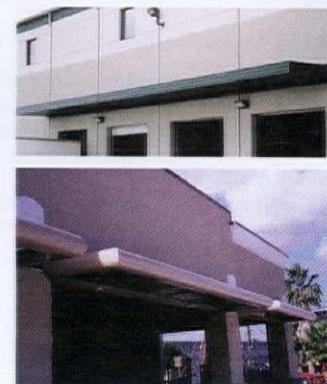
Childers Carports & Structures, Inc.

Eyebrow canopies' unique design totally eliminates the use of sag rod or valance hangers. Provides a minimum 30-psf live load and a 25-psf horizontal wind load. Canopies are pre-eng and pre-fab.

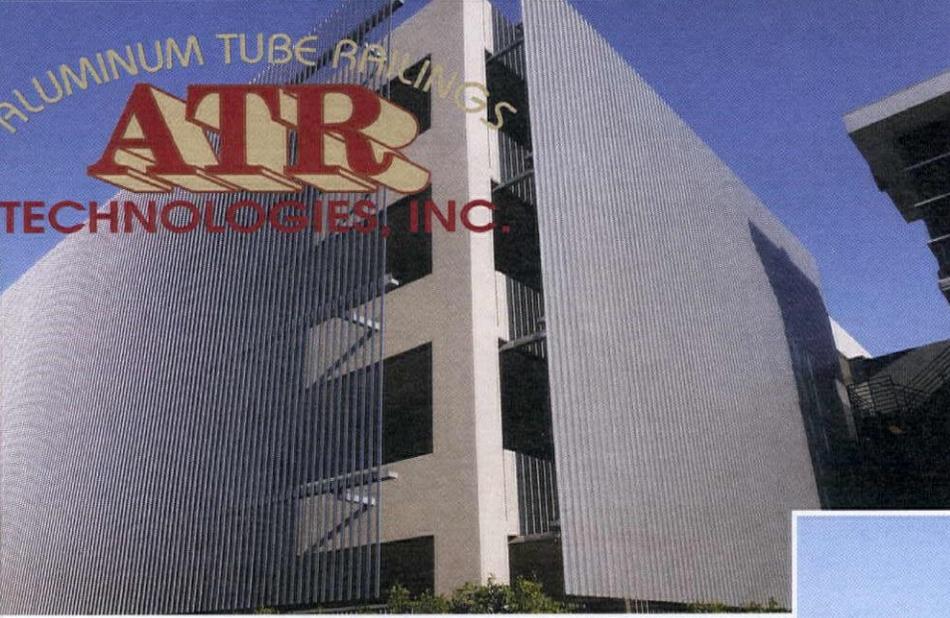
Performance Data

- Deck and trim items available prefinished
- Available in widths (depths) 4 to 10 ft
- Manufactured from hot-dipped galvanized & galvalume steel for a low-maintenance system

www.childersonline.com
713.460.2181



SNAP 186



In 2013, ATR Technologies, Inc. celebrated 50 years of our products being used and respected in the construction industry. While our family owned company is best known for aluminum railing systems, we also produce many other architectural products, such as, trellises, louvers, and facades. Above, we are highlighting recent parking structures where ATR Technologies, Inc. produced and installed the architectural louver facades.

All of our product lines are manufactured from virtually maintenance free aluminum. Finish options include anodize, baked enamel, and powder coat. Organic finishes are available in almost any color including metallic colors.

Shown below are some of the aluminum railing systems produced for projects all over the country.



**ATR Technologies, Incorporated, 805 Towne Center Drive, Pomona, CA 91767
1-800-423-4148 Fax 909-399-9724 www.atr-technologies.com Lic# 679259**
BIM models, CADD drawings, specifications and more photographs are available on the website.



SPECIALTY PRODUCTS

ANTI-SLIP STAIR TREADS & NOSINGS

Wooster Products, Inc.

Anti-Slip Safety Stair & Walkway Products for new construction and renovation. Brand names include Supergrit, Spectra, Alumogrit, Stairmaster and NITEGLOW.

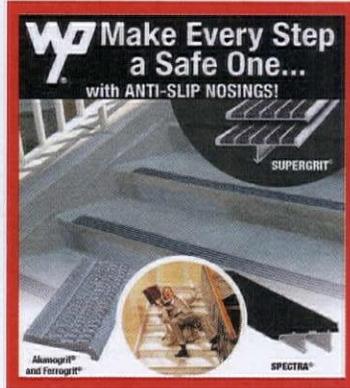
Product Application

- Commercial & residential buildings
- Transit systems
- Stadiums & ballparks

Performance Data

- Indoor & outdoor use
- ADA, New York MEA, IBC and IFC compliant
- Available in a variety of profiles and colors

www.wooster-products.com
800.321.4936



SNAP 187

SPECIALTY PRODUCTS

DETECTABLE WARNING SURFACES

ADA Solutions, Inc.

ADA Solutions, Inc. is a leading manufacturer of detectable warning surfaces, aiding the visually impaired for over two decades.

Product Application

- Curb ramps, pedestrian crossings, transit platforms
- New construction or existing concrete
- Wet set, surface applied, radius tactile

Performance Data

- Meets ADAAG, PROWAG, CA Title 24 requirements
- Durable, UV stable, slip resistant

www.adatile.com
800.372.0519 | info@adatile.com



SNAP 188

SPECIALTY PRODUCTS

CONTEMPORARY GUARD BOOTH FOR HARSH WEATHER

B.I.G. Enterprises, Inc.

Features all galvanized steel construction w/ Centria exterior metal panels, B.I.G.'s exclusive paint finish w/ 3,500 hour-tested salt spray for punishing climates, awning-style windows w/ dual-panes.

Product Application

- NASA Goddard Space Flight Center
- Top-secret installations
- Corporate entrances

Performance Data

- Bullet and blast resistant
- CBRN protection available

www.bigbooth.com
626.448.1449 | Dave King



SNAP 189

SPECIALTY PRODUCTS

DECORATIVE GRILLES

\$\$\$ | GREEN | NEW

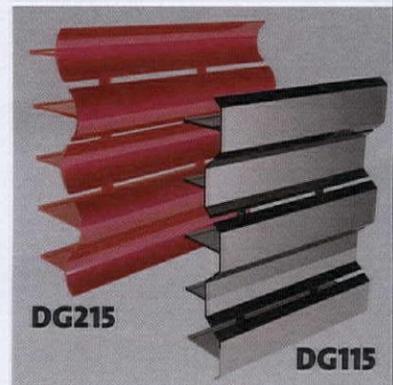
Ogi Architectural Metal Solutions – an Ohio Gratings Company

DG Products are made from fixed aluminum blades and are ideal for applications that require visual screening, enhanced security or architectural accents.

Performance Data

- Manufactured using 6000 series aluminum alloy
- Lightweight, economical and weather-resistant construction
- Made in the USA

www.ohiogratings.com
800.321.9800 | Jason Richter



Booth: 1441 ASLA SNAP 190

SPECIALTY PRODUCTS

STAINLESS STEEL GUARD SHELTER OR VALET STAND

B.I.G. Enterprises, Inc.

Soaring, wing-shaped stainless steel roof. The entire booth is sheathed in sleek metal, and fronted with an ultra-contemporary window grid.

Product Application

- Hartsfield-Jackson Atlanta International Airport

Performance Data

- Bullet and blast resistant
- CBRN protection available

www.bigbooth.com
626.448.1449 | Dave King



SNAP 191

SPECIALTY PRODUCTS

FLOATING COUNTER SUPPORT

WR | GREEN

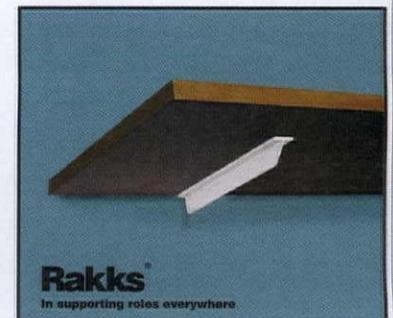
Rangine/Rakks

Rakks inside-wall support brackets are screwed to the stud before installation of drywall. Contact Rangine/Rakks for more information on their full line of counter supports and shelving hardware.

Performance Data

- Heavy duty aluminum construction can support counters and shelves from 12-30 inches deep; and can carry weight up to 300 pounds

www.rakks.com
800.826.6006 | David Greenberg



SNAP 192

SPECIALTY PRODUCTS

FABRIC SHADE STRUCTURES

Hendee Enterprises, Inc.

Hendee offers standard and custom shade structure applications ranging from fabric awnings/canopies to tensile fabric structures. All production is done in its 100,000-sq-ft manufacturing facility.

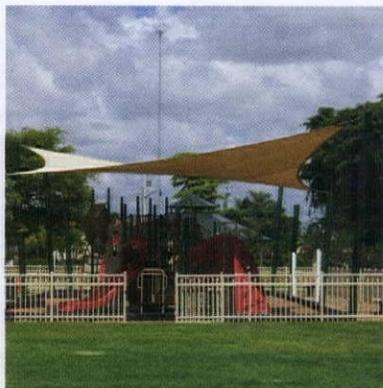
Product Application

- Design-build capabilities
- Turnkey production solutions
- Experience working with architects, national retail chains and municipalities

Performance Data

- Engineered to meet local building code requirements
- 10-year structural warranty on product offerings

www.hendee.com
800.231.7275 | sunveil@hendee.com



SNAP 193

SPECIALTY PRODUCTS

LUMINESCENT EGRESS PATHWAY MARKINGS

GREEN | NEW | WR

Bright Path Lighting, Inc.

UL 1994 listed photoluminescent egress stairwell path markings for high-rise buildings in compliance with 2009 IBC & IFC and NFPA 101 Life Safety Codes.

Product Application

- High-rise buildings, stairwells
- Emergency egress pathway marking
- Hospitals, hotels, office buildings, universities

Performance Data

- LEED, green building concepts
- Non-electrical, non-hazardous
- 100% reliable, durable
- Low maintenance, easy installation; 10-yr wty

www.bplighting.com
877.343.7300 | Laura Davis



Lights on



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SNAP 194

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When you find yourself paying more attention to an elevator's walls than where you're going, chances are Fuller Phoenix is responsible. We invented drop dead beautiful, back-painted, glass panel systems for walls and ceilings over 25 years ago and we're still turning heads today.

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Special-Lite, Inc.

Special-Lite® Toilet Partitions, fabricated from FRP for strength & corrosion resistance, are ideal for rest-rooms expected to endure heavy use & willful abuse.

Product Application

- Schools, stadiums
- Parks, rest areas
- Retail facilities

Performance Data

- Sealed FRP panels are lightweight yet durable
- Anodized aluminum edges and pilaster shoes resist corrosion

www.special-lite.com
800.821.6531 | info@special-lite.com



SNAP 195

SPECIALTY PRODUCTS

HYBRID SUPPORT BRACKETS

\$\$ | NEW

A&M Hardware, Inc.

Hybrid Brackets can be used as either a surface-mounted or concealed (floating) bracket. Lighter than A&M Hardware's other brackets, they offer maximum clearance while providing strength.

Product Application

- Commercial, schools, hospitals
- Residential, new construction, remodeling

Performance Data

- Load limit range of 400 lb to 2,200 lb per pair
- 1- or 1.5-in. tubular vertical arm
- 12-, 18- or 24-in. support arm
- Black or white krinkle powder coat

www.AandMHardware.com
888.647.0200 | Mike Bright



SNAP 196

SPECIALTY PRODUCTS

EXTRUDED ALUMINUM VENTS

\$ | GREEN

Sunvent Industries div. of Sytro Sales Corp.

FL vents allow simple installation in existing walls where a fine finish is a requisite. EX vents are the answer where a superior heavy-duty vent is required.

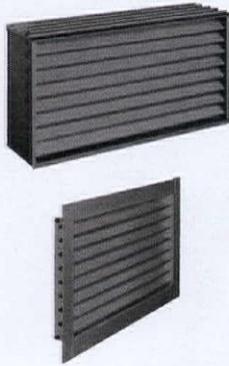
Product Application

- Douglas County High School, Douglasville, GA
- Bridgeside Place, Fort Lauderdale, FL
- University View, College Park, MD

Performance Data

- Heavy-duty extruded aluminum
- Custom sizes readily available with quick delivery

www.sunventindustries.com
800.325.4115 | info@sunventindustries.com



SNAP 197

SPECIALTY PRODUCTS

STANDARD & CUSTOM METAL PRESS BOXES

WR

Sturdisteel

For new or existing facilities, Sturdisteel's modular design construction ensures a completed building in a fraction of the time.

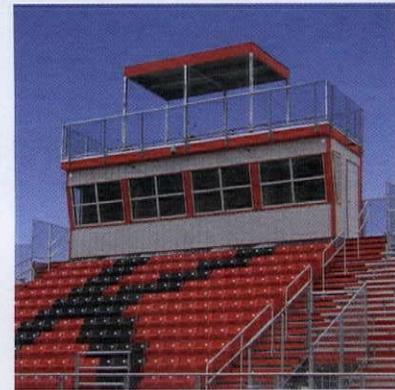
Product Application

- High schools & colleges
- Arenas & rodeos
- Motorsports

Performance Data

- 26-gauge type R metal panels
- Non-combustible steel framing
- Pre-wired for local power connection

www.sturdisteel.com
800.433.3116 | info@sturdisteel.com



SNAP 198

SPECIALTY PRODUCTS

ILLUMINATED CLOSET RAIL

WR

Efficient-Tec International, LLC

Custom-made designer aluminum closet rail for the distinguished wardrobe features both up-lighting and down-lighting to illuminate clothing and entire closet.

Product Application

- Hospitality guestroom closets and coat rooms
- Residential custom-designed closets
- Retail specialty clothing stores

Performance Data

- 300+ lumens per ft, warm and daylight white options
- 4.4 watts per ft, 24V power supply included
- Switch options include occupancy sensor or touch pad

www.eti-s3.com
214.416.9405 | quotes@eti-s3.com



SNAP 199

SPECIALTY PRODUCTS

FIXED-ACCESS, SHIP & CAGE LADDERS

WR | GREEN

O'Keeffe's Aluminum Ladders

Manufacturing quality USA building products with fast lead times and competitive pricing for over 75 years.

Performance Data

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www.okeeffes.com
888.653.3333 | Diana San Diego



SNAP 200

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The enhanced 3832EC provides flawless movement, reliable performance and features to speed installation. The Easy-Close action helps prevent slamming.

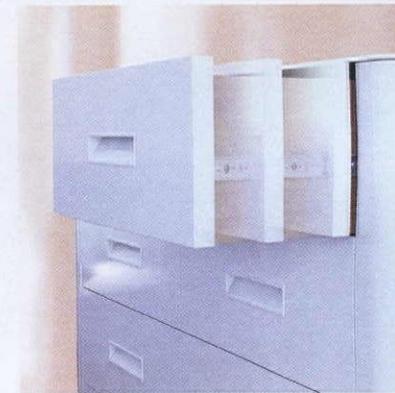
Product Application

- School and laboratory casework
- Medical or commercial casework
- Residential cabinetry or casework

Performance Data

- 100-lb load capacity
- Lengths 14 in. to 28 in.; zinc or black finish

www.accuride.com
562.903.0200 | Claudia Tuttle



SNAP 201

No machine room. No control room. All you need is a hoistway.

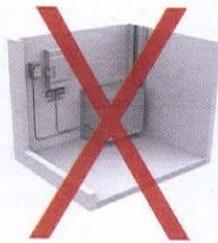
What will you do with the extra room?

Otis is proud to introduce two great new choices for design freedom.

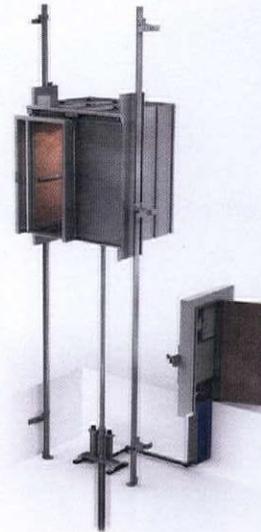
The Gen2 and HydroFit elevator systems require no machine room and no control room. With this extra room, you now have an array of new possibilities for your building.



GEN2



No machine room
No control room



HydroFit

Both Gen2 and HydroFit are produced in Otis' new Florence, SC facility. These innovative products offer the following benefits:



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Green Technology



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SNAP 293

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SNAP 294

SPECIALTY PRODUCTS

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WR

Atlantis Rail Systems

Stainless steel cable railing systems for unobstructed indoor or outdoor designs and pre-engineered for quick and easy installations.

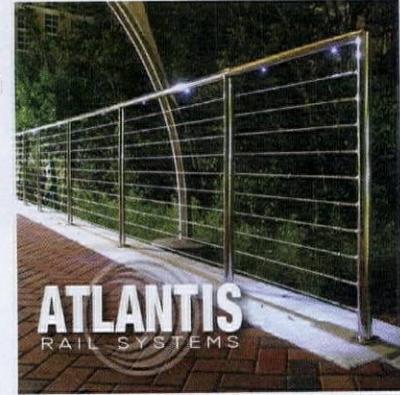
Product Application

- Federal Jacks Restaurant & Brew Pub, Kennebunk, ME
- Gumbo Limbo Nature Center, Boca Raton, FL
- The Bluff Top Trail, Dana Point, CA

Performance Data

- Low maintenance, grade 316 stainless steel
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www.atlantisrail.com
800.541.6829 | Sales



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ArmorCore Bullet-Resistant Fiberglass Panels are the most cost-effective solution for real protection in architectural applications such as banks, safe rooms, courthouses and training facilities.

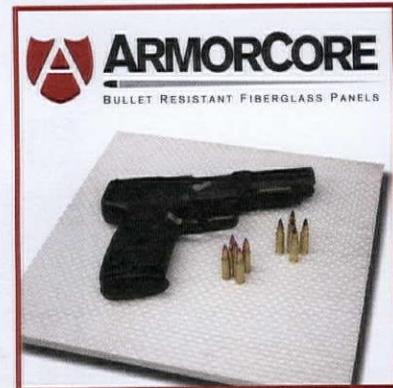
Product Application

- Easily installed in wall & furniture systems
- Bullet, blast & shrapnel protection
- Safety against flying debris in storms

Performance Data

- UL752 Standard for Bullet-Resisting Equipment
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www.armorcore.com
866.688.3088 | Justin Clark



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Performance Data

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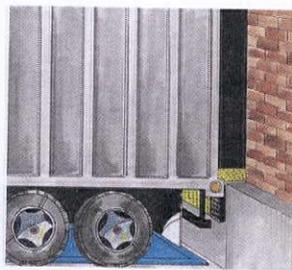
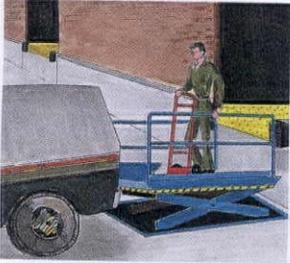


SPECIALIZED
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SNAP 205

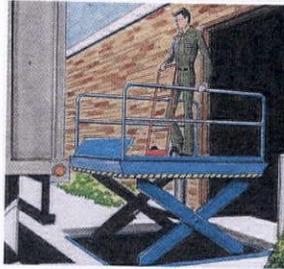
Why Use Dock Lifts

At a RAISED CONCRETE DOCK . . .



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At a GROUND LEVEL BUILDING . . .



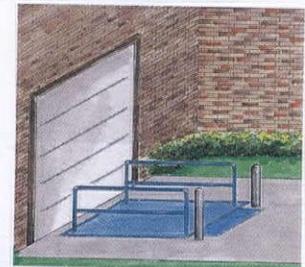
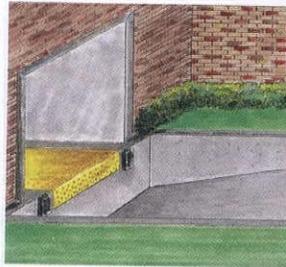
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REPLACES DANGEROUS CONCRETE RAMPS . . .

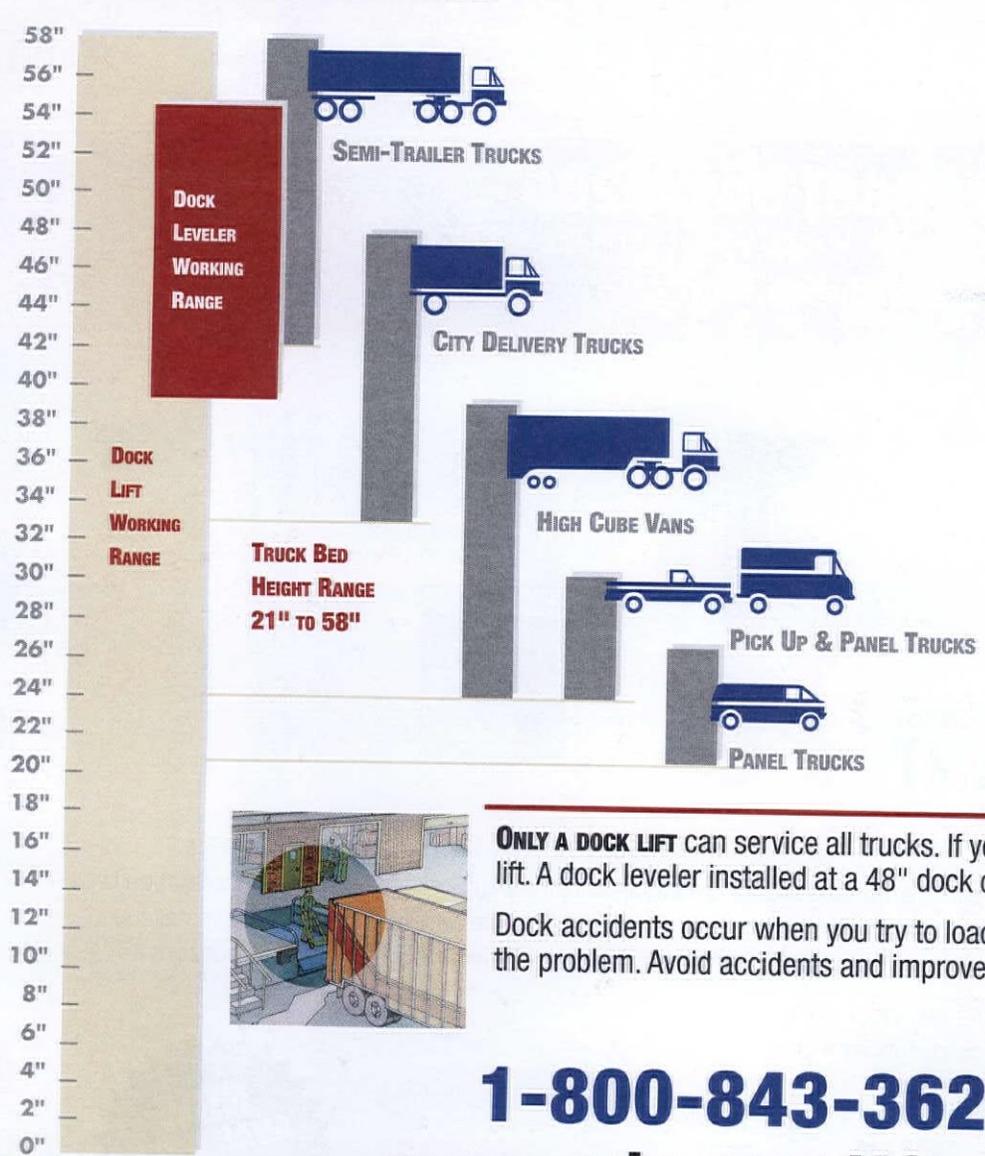


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www.advancelifts.com

SNAP 295



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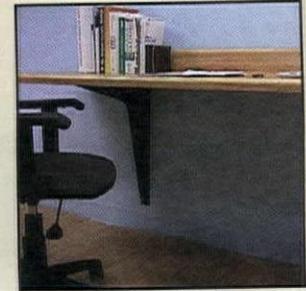
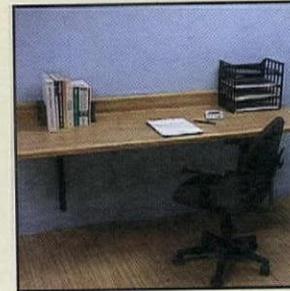


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AND 1.0"**

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Performance Data

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www.insideadvantage.com
800.253.1301



SNAP 206

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Performance Data

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www.advancelifts.com
800.843.3625 | Michael Renken



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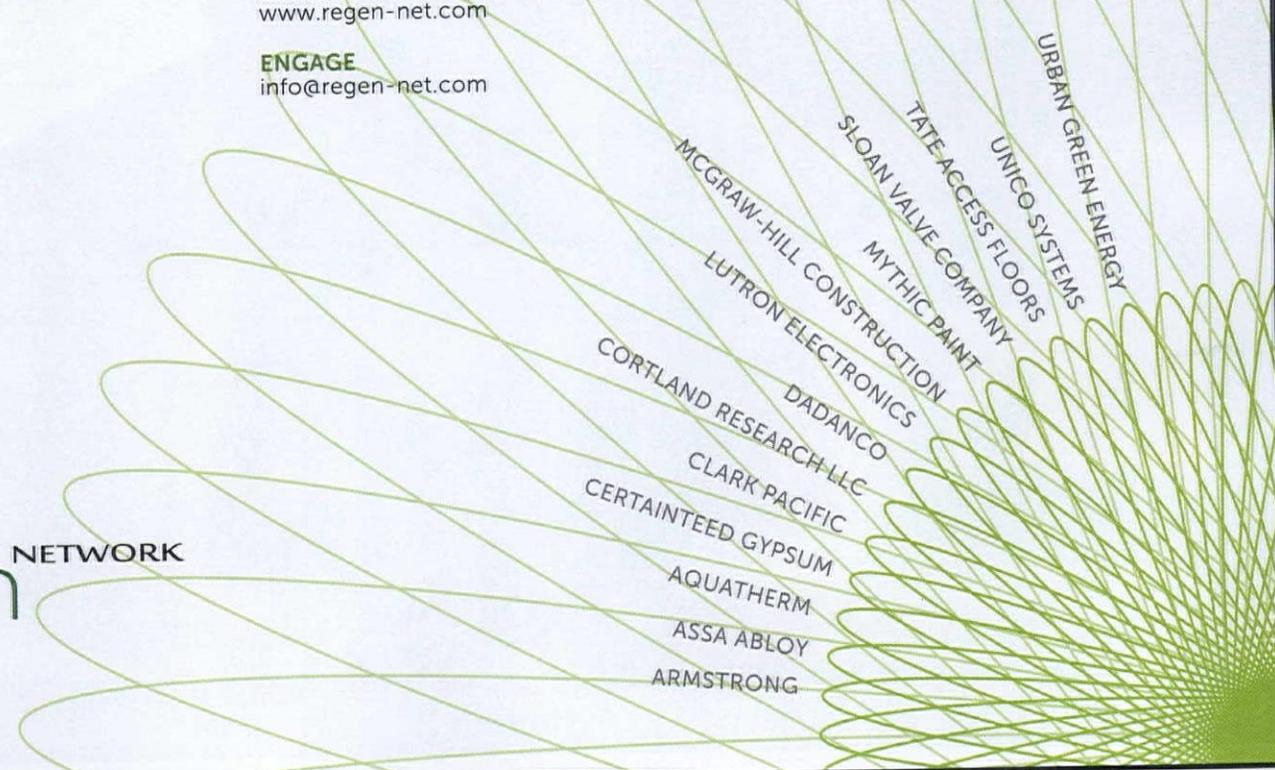
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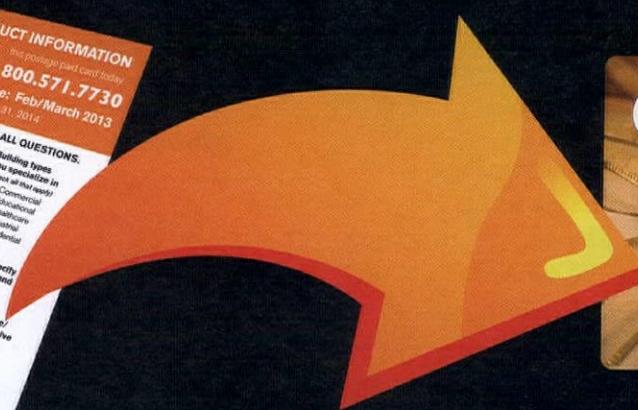
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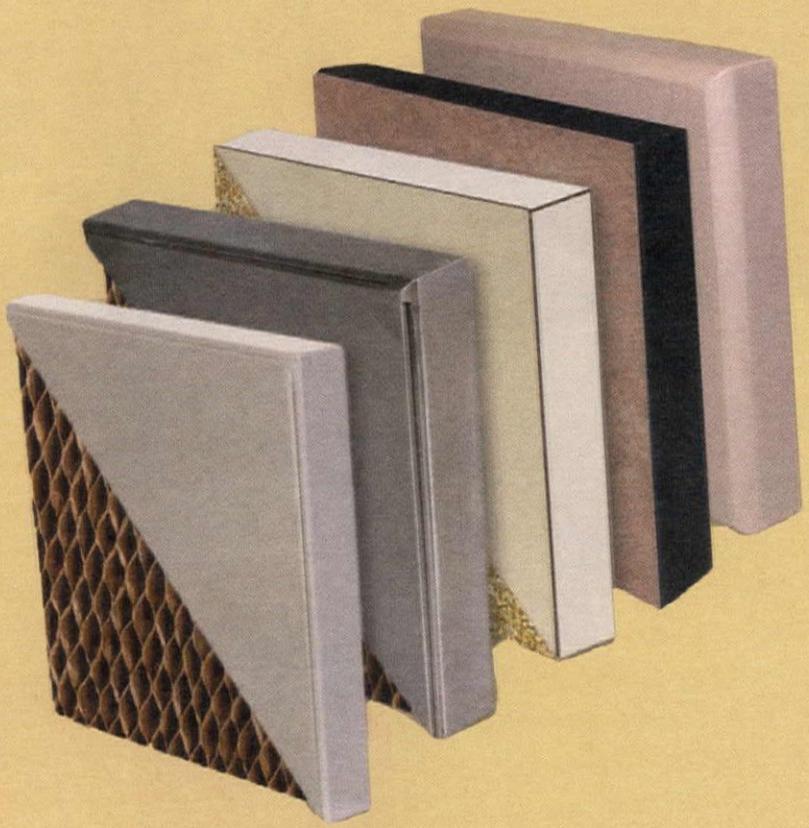
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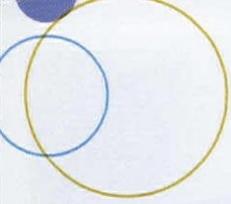
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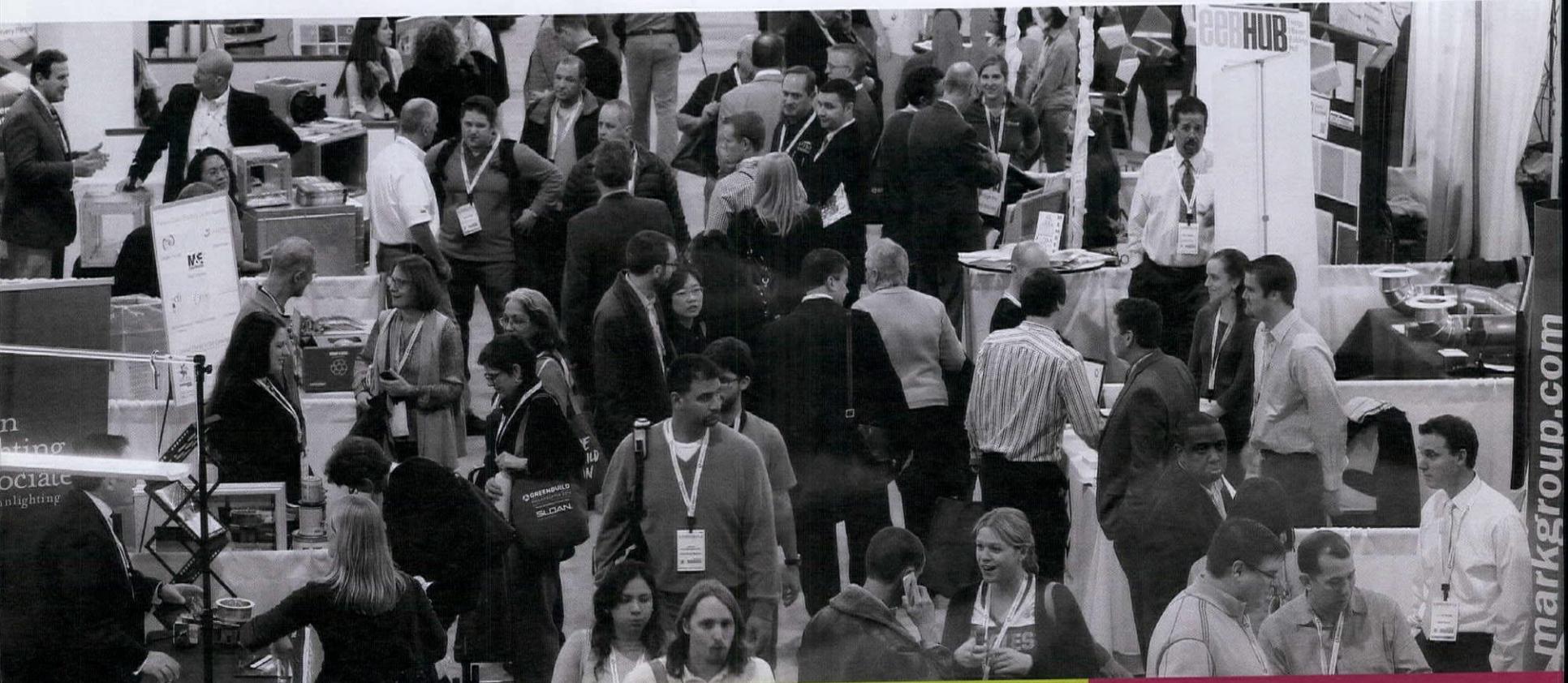


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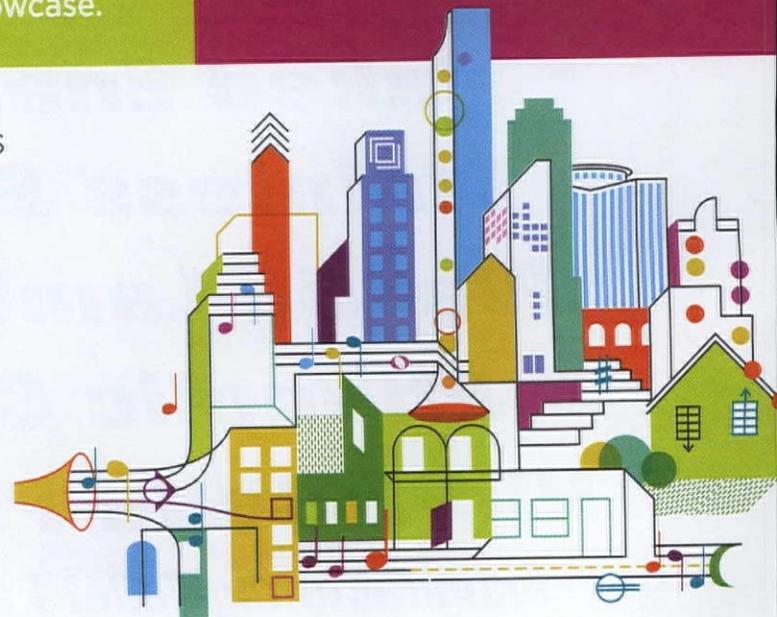
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EXHIBITIONS

Encounters

DALLAS

Through October 31, 2014

Held at the Dallas Center for Architecture, *Encounters* is an interactive retrospective of the work of Luis Vidal + architects about the 10 years leading to their plan's realization of the new Terminal 2: The Queen's Terminal at Heathrow Airport. The project, which just opened its doors in June, is the world's first airport terminal to be awarded BREEAM Excellent rating for its sustainable building design. Featuring 80 projects spanning 18 cities, *Encounters* takes the viewer through a conceptual map of Luis Vidal and his collaborators' work. For more information, visit dallasca.com.

IDEA Office: Thinking the Future of Auschwitz

LOS ANGELES

October 24—November 30, 2014

Thinking the Future of Auschwitz, at the SCI-Arc Gallery, is an architectural proposal for the future of the Nazi concentration camp in Poland. While the original concentration camp and Polish State Museum at Auschwitz continues to present a narrated, didactic experience, the proposal transforms the extermination camp at Auschwitz-Birkenau into a Biblical black hole. The project tests architecture's own particular agency in the 21st century, and contributes significantly to an expanded discourse on the conventions of catastrophe. For more information, visit sciarc.edu.

"Make a Joyful Noise": Renaissance Art and Music at Florence Cathedral

ATLANTA

October 25, 2014—January 11, 2015

Three marble panels from Italian sculptor Luca della Robbia's famed organ loft created for Florence Cathedral will travel to the High Museum of Art—their first time in the U.S. The High's exhibition will place these panels in an environment that evokes the one they were originally created for by displaying them with other musical objects, including hand-decorated choir books from the cathedral and a lectern designed to hold them. For more information, visit high.org.

Hudson Yards: New York's Future is Rising

NEW YORK CITY

Through November 2014

New York City's future is rising in the heart of Manhattan, where the High Line ends and midtown begins. Hudson Yards, the largest private real-estate development in U.S. history, will redefine the New York skyline. While more than 24 million people are projected to visit Hudson Yards every year when it is completed, this interactive exhibition offers the public a unique opportunity to learn about the city's newest neighborhood today. At the Time Warner Center. For more information, visit hudsonyardsnewyork.com.

Uneven Growth: Tactical Urbanisms for Expanding Megacities

NEW YORK CITY

November 22, 2014—May 10, 2015

As the world's population approaches 8 billion, city authorities, urban planners and designers, and many others will have to join forces to ensure expanding megacities remain habitable. To engage this international debate, *Uneven Growth* at the Museum of Modern Art will present the work of six interdisciplinary teams examining new architectural possibilities for six global metropolises. The resulting proposals

will show how emergent forms of tactical urbanism can respond to issues in near-future urban contexts. For more information, visit moma.org.

Fujiko Nakaya: Veil

NEW CANAAN, CONNECTICUT

Through November 30, 2014

The first site-specific work of art to engage the iconic Glass House itself, *Fujiko Nakaya: Veil* features the work of Nakaya, a Japanese artist who has produced fog sculptures and environments internationally. The exhibition wraps the Glass House in a veil of dense mist that comes and goes. For approximately 10 to 15 minutes each hour, the Glass House seems to vanish, only to return as the fog dissipates. For more information, visit theglasshouse.org.

Infra Eco Logi Urbanism

NEW HAVEN, CONNECTICUT

Through November 30, 2014

Opening at the Yale School of Architecture, this exhibition brings together research and design work by the experimental Canadian architecture practice RVTR to explore possible urban and architectural futures in a post-metropolitan world. *Infra Eco Logi Urbanism* looks at the Great Lakes Megaregion of North America (GLM) to envision the kinds of systems that could best serve a cluster of cities in an age of renewable energy, new mobility, and urban growth. For more information, visit architecture.yale.edu.

Drawing Ambience: Alvin Boyarsky and the Architectural Association

ST. LOUIS

Through January 4, 2015

As longtime chair of the Architectural Association in London, and one of the most influential figures in 20th-century design education, Alvin Boyarsky argued that architecture was not only a profession, but also an artistic venture—an open, wide-ranging practice that comprises drawing and publication as much as it engages design and construction. The Mildred Lane Kemper Art Museum at Washington University presents the first public museum exhibition of drawings from Boyarsky's private collection. For more information, visit wustl.edu.

Provocations: The Architecture and Design of Heatherwick Studio

DALLAS

Through January 4, 2015

The first North American presentation by a museum of the work of Thomas Heatherwick and his studio, *Provocations* examines the range of Heatherwick Studio's practice. The exhibition focuses on the design concepts behind early projects such as the handbag designed for Longchamp and the rotation-molded "Spun" chairs, as well as current large architectural projects in the UK, South Africa, Abu Dhabi, Singapore, and China. At the Nasher Sculpture Center. For more information, visit nashersculpturecenter.org.

Maggie's Centres: A Blueprint for Cancer Care

PITTSBURGH

Through January 5, 2015

Maggie's Centres: A Blueprint for Cancer Care at the Carnegie Museum of Art offers a look into how some of the world's most influential architects including Frank Gehry, Piers Gough, Steven Holl, Rem Koolhaas, and Richard Rogers, have addressed the everyday challenges of people undergoing treatment for cancer. The exhibition showcases the remarkable family of healthcare buildings known as Maggie's Centres, situated across the United Kingdom. The

exhibition includes models, photographs, original drawings, and videos relating to five of the Centres. For more information, visit cmoa.org.

Assembled Realities: Jeff Chien-Hsing Liao's New York

NEW YORK CITY

Through February 15, 2015

A portrait of New York as seen through more than 40 large-scale panoramic photographs of the city's urban landscape, *Assembled Realities* will feature work by Taiwanese artist Jeff Chien-Hsing Liao, who came to New York at age 18 to study photography. Pushing the boundaries of traditional documentary photography, Liao (born in 1977) creates large-scale panoramas by combining multiple exposures of the same location taken over the course of several hours. At the Museum of the City of New York. For more information, visit mcity.org.

Designing for Disaster

WASHINGTON, D.C.

Through August 2, 2015

From earthquakes to hurricanes, flooding, and rising sea levels, natural disasters can strike anywhere and anytime. In light of this reality, the National Building Museum presents the multimedia exhibition *Designing for Disaster*, a call to action for preparedness on the part of design professionals, local authorities, homeowners, and school kids. The exhibition explores strategies local leaders are pursuing to reduce risks and build more resilient communities. For more information, visit nbm.org.

LECTURES, CONFERENCES, AND SYMPOSIA

The Accidental Preservationist: Artists, Artisans, Outliers & the Future of Historic Preservation

NEW YORK CITY

October 17, 2014

A multidisciplinary symposium exploring the influence of non-traditional practitioners of historic preservation on architectural revitalization throughout the United States, *The Accidental Preservationist* will engage individuals from across the United States who don't necessarily call themselves preservationists but whose work and passions link them to old architecture and cityscapes. At the Roosevelt House Public Policy Institute at Hunter College. For more information, visit fitchfoundation.org.

Architecture and Design Film Festival

NEW YORK CITY

October 15–19, 2014

Now in its sixth season, the Architecture & Design Film Festival, the nation's largest film festival devoted to the subject of architecture and design, returns to Tribeca Cinemas with a special lineup of more than 25 films curated from around the world. Film subjects include artist Eileen Gray, Polish neon design, the maker movement, urban farming, Michael Graves, and women in architecture. This year's festival also boasts an impressive panel of distinguished speakers, lively Q&A's and, as always, great parties. For more information, visit adfilmfest.com.

ULI Fall Meeting

NEW YORK CITY

October 21–23, 2014

The Urban Land Institute's annual fall meeting typically draws 6,500 to 7,000 of the world's foremost real-estate experts, all of whom convene to ex-

change ideas and insights on the "next new thing" for the industry. The 2014 meeting at the Javits Convention Center will add new information to a topic we've explored for the past couple of years—rethinking urban development for the 21st century in response to demographic, social, economic, environmental, and technological trends. Headlining the event are keynote speakers Jamie Dimon, chairman and CEO of JPMorgan Chase & Co., and Walter Isaacson, president and CEO of the Aspen Institute, former editor of *Time* and former CEO of CNN. For more information, visit fall.uli.org.

Greenbuild International Conference and Expo

NEW ORLEANS

October 22–24, 2014

Greenbuild is the world's largest conference and exposition dedicated to sustainable building. Featuring three days of speakers, networking opportunities, showcases, LEED workshops, and tours of green buildings in New Orleans, Greenbuild will offer a place for thousands to gather and commit to the green movement. At the Morial Convention Center. For more information, visit greenbuildexpo.com.

COMPETITIONS

Breaking New Ground

Registration opens October 2014

Breaking New Ground is an international design and ideas competition that addresses the urgent affordable-housing needs of farmworker and service-worker families in the Coachella Valley in southeastern California. Efforts to improve living conditions suffer from a lack of funding and coordination. The competition seeks to address this by harnessing the power of design to envision new precedents, mechanisms, and policies for affordable-housing implementation and development, with implications for California and the nation. For more information, visit breaknewground.org.

Museum of Science Fiction Exhibit Design Competition

Registration deadline: October 31, 2014

The Museum of Science Fiction is proud to announce an exhibit-design competition for its 2015 Preview Museum, which is to be located in the Washington, D.C., metro area. The competition is open to students, architects, and designers from around the world. The museum plans to construct a 4,000-square-foot preview space in 2015 as an intermediary step in its efforts toward establishing a permanent museum dedicated to science fiction's history across the arts. Designs should emphasize the multiuse aspect of the space and incorporate creative ways to reconfigure the exhibits to provide open space for events, ideas for interactive environments, and ways to incorporate technology. For more information, visit museumofsciencefiction.org.

Ceramics of Italy Tile Competition

Submission deadline: February 3, 2015

Now in its 22nd year, this contest is open to North American architects and designers who use Italian ceramic tiles in their institutional, residential, commercial, and hospitality spaces. From corporate headquarters with ventilated porcelain facades and hospitals utilizing antibacterial ceramic floors to summer homes using decorative ceramics, Ceramics of Italy is looking for all types of inspiring projects featuring Italian ceramics. For more information, visit tilecompetition.com.

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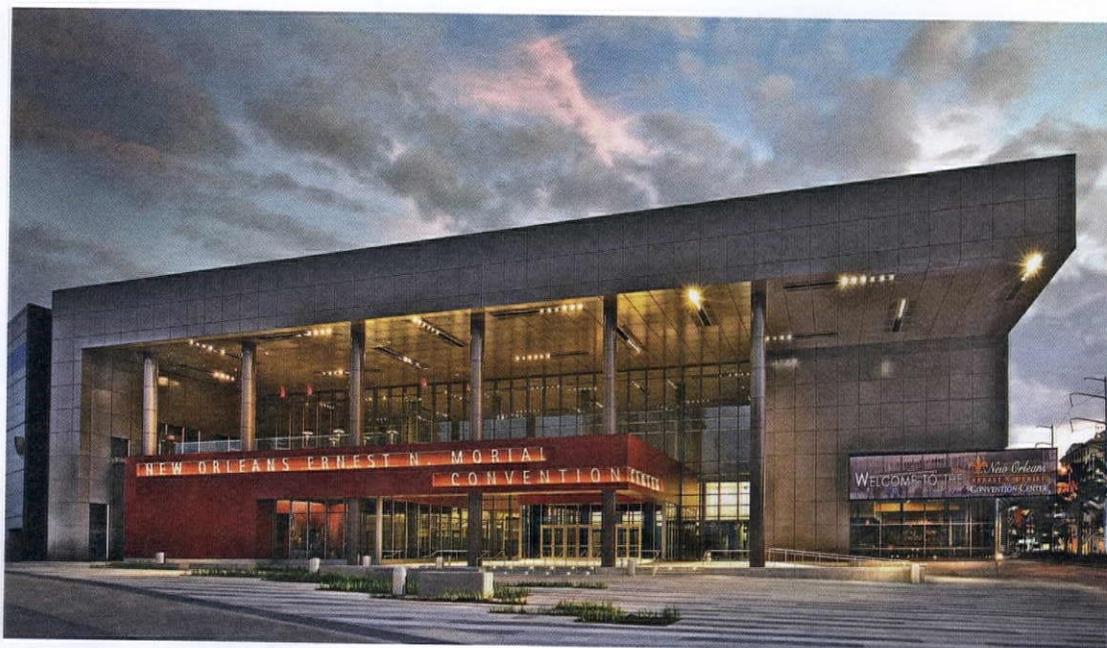
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Coming Full Circle in the Crescent City

Greenbuild 2014 spotlights resiliency, net-zero design, and products that support the most recent LEED update.



THIS OCTOBER, the architecture and design community convenes in New Orleans for the 21st Greenbuild Conference and Expo, the annual event centering on sustainability and resiliency. Hosted by the U.S. Green Building Council, it is being held (perhaps fittingly) in the city equated with Hurricane Katrina, the 2005 disaster that cost lives and caused \$125 billion worth of damage along the Gulf Coast.

The city's Ernest N. Morial Convention Center, pressed into service as an unofficial shelter for displaced residents during and after the storm, is hosting the product expo, workshops, plenaries, and CEU courses, many of which will, naturally, promote resilient-design themes. The CEU "Designing for Resilience in the 21st Century" (October 22) will look at ways the AIA and Architecture for Humanity are working toward the Rockefeller 100 Resilient Cities Challenge to improve standards of design, finance, and insurance. "Using Resiliency Budget Dashboards to Guide the Investment Dance" (October 23) will focus on tools that help prioritize social, environmental, and economic factors in project development. Regional building practices will also factor into education sessions like "Leading Southern Cities Ramp Up on Building Efficiency" (October 22), which examines the potential impact future policies and programs will have on architects, engineers, and building operators working on existing projects in Houston, Atlanta, and Orlando.

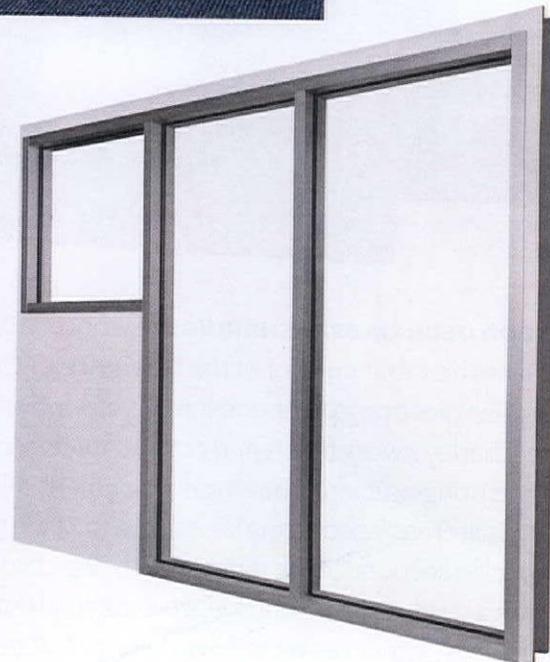
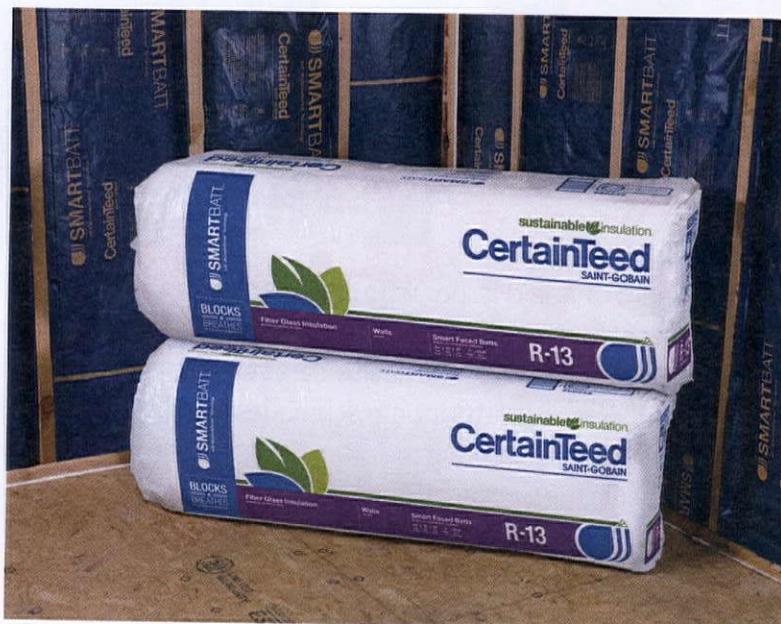
As in previous years, the exposition floor will showcase new and recent AEC products aimed at supporting healthy and resilient buildings. Some highlights: **CertainTeed** is debuting SmartBatt kraft-faced fiberglass batt insulation with MoistureSense Technology. A "smart" vapor retarder, the material responds to humidity, preventing moisture from seeping into residential wall cavities when the level is low and letting walls breathe when it's high. With the new InFrame Interior Framing

System, **Kawneer** is promoting user comfort and daylighting. Drawing on the company's expertise in windows, the nonthermal system can support greater expanses of glass for interior walls, in turn allowing more natural light to penetrate the building core of new projects and retrofits alike. At last year's show in Philadelphia, **Construction Specialties** soft-launched a new door concept, but this time the actual product is being displayed. Acrovyn Doors by Design utilizes a 1/8-inch-thick opaque surface material that can be customized with graphics to create high-impact visuals on vertical surfaces—and is made of a PETG compound containing no PVC, PBTs, or halogenated or brominated fire retardants.

Finally, the inaugural **Net Zero Zone** will feature booths that will generate and store energy independent of city power grids. In addition to a product pavilion and networking lounge, the Net Zero Zone will house an outdoor display that will showcase the pavilion's on-site power generation, storage, and distribution. —Emily Hooper



GREENSPEAK (clockwise from top) The Ernest N. Morial Convention Center in New Orleans will be the site of this year's Greenbuild expo. Construction Specialties will be displaying Acrovyn by Design, a wall and door customization product. Kawneer will showcase its InFrame interior glass-wall system. CertainTeed's latest SmartBatt insulation features a smart vapor retarder.





PARTNERS IN DESIGN

BY INGRID SPENCER



TODD OLDHAM

Founder of the namesake studio, Oldham has enjoyed a multi-faceted career in design, from fashion and interiors to furniture and photography. As steward of the Charley Harper archives, he represents the estate with licensing.

toddoldhamstudio.com



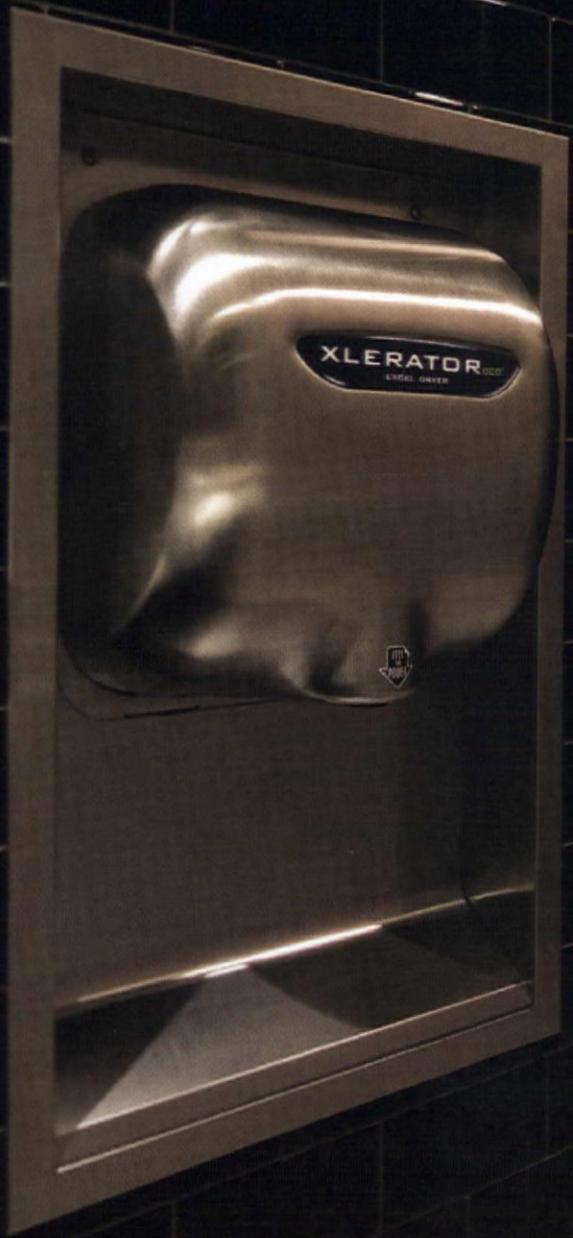
SUSAN LYONS

Lyons has come full circle with DesignTex. She started out as VP of design and marketing, then left for a stint at Herman Miller, as creative director for materials. Lyons returned in 2012 to be DesignTex's president.

designtex.com



TODD OLDHAM SEES SHARING the work of his friend and hero Charley Harper, who died in 2007, as a public service—a notion that makes his job as curator of the **DesignTex + Charley Harper** collection all the sweeter. The line of 12 high-performance wall coverings and textiles brings Harper's simple yet sophisticated wildlife illustrations to the health-care sector. "There is a beautiful syncopation to Charley's work that is perfectly adaptable to the advanced weaving and printing techniques DesignTex does so well," says Oldham, "and bringing it into a healing environment will offer people a respite." Among the offerings is Space for All Species (top), a nonwoven PVC-alternative covering based on a 1964 tile mural by Harper in the Cincinnati Federal Building. Designers can also opt to print specific sections of the mural, which depicts over a hundred animals. Beguiled by the Wild (above), a polyurethane upholstery fabric with a stain-resistant and bleach-cleanable coating, is based on a 1994 artwork of animals and foliage. "It's a small, focused collection," says DesignTex president Susan Lyons. "But because of Charley's incredibly rich archive, the possibilities are endless." (SNAP #39)



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