









Wilkhahn's 3-D printed stool reworks supply chain dynamics PAGE 30

GREENSOURCE

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Rethinking the Workplace



WHILE OPEN-PLAN offices are great in theory (a collaborative environment! a flattened hierarchy! lower benching costs!), most are miserable in reality. Noise, lack of privacy, and constant visual distractions are the most common culprits, with effects ranging from a decrease in productivity to information overload about coworkers' personal lives.

Judging from the raft of interior interventions introduced at June's NeoCon trade fair, the industry is catching on to these shortcomings. In this issue of *SNAP*, we look at some

of the fixes, such as privacy fabrics (page 8), glazing solutions (18), and movable walls (26). Shifting gears slightly: Our feature (14) examines three offices in adaptive reuse buildings, including one in a former **Schlitz Brewery**. The Case Study on **Etsy**'s nine-floor Brooklyn headquarters (12) concentrates on the company's quest to create a space that meets the stringent energy and material standards outlined in the Living Building Challenge (LBC).

Environmental design is explored elsewhere, too, including in the CEU on living walls (38) and the story on Hampshire College's **R.W. Kern Center** (62), another structure aiming for LBC certification.

We hope you enjoy this issue. And remember: Enter ARCHITECTURAL RECORD's annual product competition! We're accepting submissions through September 2. Visit recordproducts.architecturalrecord.com for details.

Warm wishes,

Julie Jaraska

JULIE TARASKA Editor

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TURN, TURN, TURN

A bronze sign from the famed Four Seasons (above) sold for nearly \$100,000 at auction, while Philip Johnson's three-sided banquette (right), which he occupied for many a lunch, fetched \$28,000.

Four Seasons' Auction Offers Modern Treasures

THE JULY 26 AUCTION of the furnishings of New York's shuttered Four Seasons eatery marked the end of an era. With more than 600 lots available, including chairs by Mies van der Rohe, sofas by Philip Johnson, tables by Eero Saarinen, and a host of pots, saucers, and other silver designed by Garth and Ada Louise Huxtable, it was a Modernist time capsule of sorts. And the event opened with a bang.

The first item—and the sale's top seller—was one of the restaurant's bronze signs with its iconic logo of trees in spring, summer, fall, and winter. It sold for \$96,000: nearly 20 times the estimate of \$5,000 to \$7,000. (In addition to the purchase price, items were subject to sales tax and a 20 percent buyer's fee.) The sign's proceeds went to the **Canadian Centre for Architecture**, founded by **Phyllis Lambert**. An architect and philanthropist, Lambert was integral in hiring van der Rohe to design the **Seagram Building** and Johnson for the Four Seasons, which was located at the skyscraper's base.

Auctioneer **Richard Wright** sold off everything from furniture to flatware, some of it at staggering prices: \$4,000 for a dozen martini glasses, \$6,000 for an equal number of ashtrays. Though the auction moved along slowly, with drawn-out bidding for almost every item many available in duplicate and triplicate—there were moments of levity. At one point, Four Seasons co-owner **Julian Niccolini**, wearing a hard hat, distributed cotton candy to the crowd, some of whom were establishment regulars who had come to bring home a piece of history. Later, a partial bronze sign—minus the logo—went up for bid. It had been stolen in the 1960s by a fraternity pledge who had kept it all



these years and called Niccolini and his business partner **Alex von Bidder** after hearing about the auction. "Let's help clean a good man's conscience," quipped Wright. It sold for \$40,000, with proceeds going to the Children's Health Fund.

Von Bidder's prediction—that Philip Johnson's three-sided banquette, the legendary table #32 where the architect had lunch almost daily, would fetch the highest price—was off by a long shot. It brought in a mere \$28,000. On the other hand, the curved banquette on permanent reserve for the billionaire founder of **Blackstone**, **Pete Peterson**, fetched \$50,000. "Who knows," von Bidder remarked, "maybe it was Pete who bought it?"

The funds raised will come in handy as Niccolini and von Bidder build out the next incarnation of the Four Seasons, currently being designed by Brazilian architect **Isay Weinfeld**. Though this iteration, located down the street at 280 Park Avenue, isn't expected to open for at least 18 months, "the memory of the Four Seasons will live on," said Niccolini. "The soul of the place: That is not on the auction block." —Josephine Minutillo

Inaugural London Design Biennale Reimagines *Utopia*

THOMAS MORE's *Utopia*, which envisions a society whose every social and political ill is resolved, provides the inspiration for the inaugural **London Design Biennale**. To be held September 7 to 27 at **Somerset House**, a cultural venue along the city's Strand, the event will feature exhibits from 36 nations, all focusing on how design can address such issues as pollution, migration, sustainability, and social inequality. A sculptural installation by the English duo **Edward Barber** and **Jay Osgerby** will anchor the event. Comprised of a trio of masts and rotating devices that respond to changes in the wind, *Forecast* plays off the Brits' weather obsession. It also marks the role wind played in driving their country's past and future. "Historically, Britain was a seafaring nation, and our cultural power and influence came from that," says Osgerby. "And now Britain has become the leader in offshore generation of wind electricity. So we're harnessing wind in a modern way."

In their entries, some countries will investigate their utopian ambitions from yesteryear. The Russian pavilion will feature unearthed blueprints for an unbuilt utopian Soviet city, while Tunisia's will remember the city-on-stilts designed decades ago by legendary architect and urban planner **Yona Friedman**. The ongoing migration crisis will also be a focus. Israel will propose a system of distributing aid in conflict zones—inspired by the blades of sycamore seeds—while French designer **Benjamin Loyauté** plans to screen a film he made about life in war-torn Syria and what he calls "the geopolitics of design."

The Biennale, running in conjunction with the annual London Design Festival, will also serve to cap off Somerset House's yearlong celebration of the 500th anniversary of *Utopia*'s publishing. —*Jake Biddle*



BLOWN AWAY

A kinetic sculpture with a weathervane and other apparatuses, Edward Barber and Jay Osgerby's *Forecast* represents the wind's role in Britain's legacy as a maritime nation and its future as a provider of renewable energy.

GRAPH

-OH d

Perforation Perfection

I-Drive 360 Parking Deck, Orlando, FL Owner: I-Drive Live 360 Architect: Finfrock, Apopka, FL General contractor: Finfrock, Apopka, FL Installing contractor: Mullets Aluminum Products, Sarasota, Profiles: 7.2 Corrugated perforated Color: Musket Gray

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Dave Landis, architectural/technical sales manager, Petersen Aluminum

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MANUFACTURER: Formica

PERFORMANCE: Seventy percent of this recycled-leather veneer's fibers are derived from leather scraps reclaimed from shoes, car seats, and tanneries.

PRICE RANGE: \$-\$\$

APPLICATIONS: Available in three finishes and 18 colors, dECOleather comes in 4 by 8' sheets and can be used on interior surfaces, walls, and furniture. FORMICA.COM

(SNAP #200)

2. GEMSTONE COLLECTION

GEMISTONE COLLECTION

MANUFACTURER: Boral Roofing PERFORMANCE: These recyclable concrete roof tiles come in multiple profiles and six Southwest-inspired hues. PRICE RANGE: \$\$

APPLICATIONS: The noncom-

bustible Gemstone tiles hold a Class A fire rating and can withstand winds up to 150 mph; they also can contribute to LEED certification.

= ECO-FRIENDLY ATTRIBUTES

BORALAMERICA.COM (SNAP #201)

68

3. PRIVASEE

MANUFACTURER: NanaWall PERFORMANCE: A special interlayer allows this movable glass wall system to achieve a sound transmission class (STC) of 36—better than that of most fixed-glass partitions.

PRICE RANGE: \$\$-\$\$\$ APPLICATIONS: Panels for the single-track PrivaSEE are offered in heights up to 10'6" and widths up to 4'1". NANAWALL.COM (SNAP #202)



MANUFACTURER: Carnegie Fabrics

PERFORMANCE: This doublecloth Trevira CS polyester privacy fabric has a vertical design and a feel akin to Egyptian cotton's.

PRICE RANGE: \$\$

APPLICATIONS: Meeting healthcare codes such as NFPA 701 for flame retardancy, Ombre comes in a 72" width and a choice of four colorways.

CARNEGIEFABRICS.COM (SNAP #203)

KEY \$=value, **\$\$**=mid-range, **\$\$\$**=high-end









5. HOUDINI CHANNEL GLASS

MANUFACTURER: Bendheim PERFORMANCE: This U-shaped, low-iron glass provides privacy, reduces glare, and allows up to 85% light transmission.

PRICE RANGE: \$\$

APPLICATIONS: Ideal for daylighting applications, the product can have 9 to 19" face sizes, with lengths up to 23"; tempered forms are available for higher wind loads.

BENDHEIM.COM (SNAP #204)

CLUBHOUSE

6.

MANUFACTURER: Allsteel PERFORMANCE: Available in seven configurations and two heights, this freestanding aluminum structure provides a semiprivate meeting space. PRICE RANGE: \$\$-\$\$\$ APPLICATIONS: The standard Clubhouse module features soft seating and a frame fitted with translucent screens; add-ons include work surfaces, media walls, and electrical integration. ALLSTEELOFFICE.COM (SNAP #205)

7. LUMINOUS PATTERNS

MANUFACTURER: Philips PERFORMANCE: This solution for illuminated architectural surfaces comprises creating a custom pattern for a client, laser-cutting and/or digitally printing it onto steel panels, and then fitting the panels with Color Kinetics Flex LEDs. PRICE RANGE: \$-\$\$ APPLICATIONS: Luminous Patterns is ideal for hospitality and retail uses. PHILIPS.COM (SNAP #206)



MANUFACTURER: MoistureShield

PERFORMANCE: These composite deck boards with a wood-grain finish and 95% recycled content absorb up to 35% less heat than conventional capped composites.

PRICE RANGE: \$-\$\$

(SNAP #207)

APPLICATIONS: This residential and commercial decking comes in three lengths of nominal boards and coordinating fascia boards. MOISTURESHIELD.COM





ETSY HEADQUARTERS, NEW YORK

Green Genes

CHALLENGE: Design a workplace whose very DNA reflects the company's commitment to sustainability and craft. **SOLUTION:** Utilize local makers, repurpose items found on-site, and aim to meet the stringent Living Building Challenge guidelines. SINCE ITS FOUNDING in 2005, Etsy has become the go-to online marketplace for handmade goods, with 1.6 million active sellers and 35 million items for sale. When the company outgrew its office in Brooklyn's Dumbo neighborhood—having gone from 50 employees to 500—it wanted the chance to design its own space. But there was no question that it would stay in the neighborhood. "We've always been a Brooklyn-based company," says Justine Chibuk, Etsy's capital projects manager. "So staying here was part of our brand identity."

The nine-floor headquarters, located around the corner from its old home, epitomizes the company's aesthetic. From the space's weathered mahogany stair treads (sourced from decades-old water towers on the roof) to its heavy sliding steel doors (which once closed off the various bridges linking the area's complex of structures), project architect Gensler remade and reused objects wherever possible. In fact, the landlord had planned to discard most of these leftovers (some from the previous tenants), but, says Gensler principal Amanda Carroll, "We had an immediate response: 'No, no, no! Please give us that. Your trash is our treasure.""

The latter is a fitting metaphor for the 200,000-square-foot project, given Etsy's dedication to sustainability and its employees' hacker-like mentality around reclamation. So in addition, the architects are aiming to achieve Living Building Challenge (LBC) certification for the new headquarters: one of the most stringent, holistic sustainable-

MAKER FARE

The analogue and the digital merge in Etsy's common areas, where spaces are arranged to support crafting and computing.



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SNAP 195



CASE STUDY: OFFICE

building imperatives. It bans the use of harmful materials in the structure and interiors as well as requires ethical sourcing, construction waste management, and net zero water and energy use, among other directives.

While LBC certification wasn't on the table at the beginning of the design process, Gensler saw that "what we needed in order to achieve LBC was aligning with what Etsy already did," says David Briefel, Gensler's director of sustainable design.

The rigorous process called on Etsy and Gensler to scrutinize more than 1,500 products-everything from insulation and furniture to a low-VOC intumescent paint. It also entailed nearly as many conversations with manufacturers to find products that matched LBC's requirements or to help makers adapt existing ones. For example, the architects worked with Lukas Lighting to swap the PVC in their fixtures for polypropylene. Some FitzFelt wall coverings, which artists will appropriate for various installations, had to be mounted to walls with hardware because the original glue-based backing wouldn't pass LBC muster.

Gensler also partnered with some longtime Etsy neighbors. Brooklyn-based studio First Third designed and made all the workstations, while IN.SEK created reclaimed planters and wood-and-concrete pendants that illuminate some common areas.

Gensler looked to make each floor a "fully

balanced ecosystem," says Carroll, with places for nourishment, stress relief, and, yes, work. Almost every floor has a kitchen where employees are encouraged to recycle and compost.

Quiet, plant-filled nooks with upholstered furniture are around many corners, and a variety of workspaces-from standing tables to focus and meeting rooms-encourage people to work where and how they please.

SITTING PRETTY

features numerous

Brooklyn makers like

common areas (right)

First Third, which

crafted employee lounge chairs for

and workstations.

The Etsy office

products from

On the roof deck, the architects installed a solar array that contributes about 1 percent of the company's energy. It's a gestural move, says Briefel, but it's meant to symbolize Etsy's commitment to 100 percent renewable electricity by 2020. It plans to achieve this with Etsy Solar, an initiative to help its sellers install solar panels on their roofs to offset the site's entire carbon footprint, accrued mostly by sellers shipping goods to buyers.

Not only is the headquarters a benchmark project for Gensler, proving that the firm can pursue LBC on such a grand scale, but it is a teaching tool, too. "A lot of these gestures are just really great ways to point out to people how sustainability functions," says Carroll. "There's a ripple effect, as it encourages better choices."



Gensler
ТҮРЕ
Office
PRODUCT
Lounge Chairs
MANUFACTURER
First Third
PERFORMANCE
Inspired by Midcentury

Modern designs, these handcrafted black walnut chairs can be upholstered in a range of eco-friendly fabrics by Maharam, Kvadrat, and Designtex, among others. APPLICATIONS Ideal for residential, commercial, and hospitality

spaces, these chairs have a classic form that can be dressed up or down depending on the choice of covering. PRICE RANGE \$\$\$ PARTSANDLABOR WORKSHOP.COM (SNAP #208)

KEY \$=value, **\$\$**=mid-range, **\$\$\$**=high-end

IN THIS PROJECT



DUNE PENDANT

MANUFACTURER: IN.SEK PERFORMANCE: These 15-watt LED pendants are fashioned from cast concrete and FSC-certified walnut. PRICE RANGE: \$-\$\$

APPLICATIONS: Handmade in Brooklyn, the pendants cast a soft glow, come in two heights (13 and 16 inches), and can be hung alone or in clusters.

INSEKSHOP.COM (SNAP #209)



8200 MORTISE LOCKSET

MANUFACTURER: Assa Abloy **PERFORMANCE:** Offered in a wide range of finishes and trims, this lock body has 58 easily changed functions (no need to open the case). **PRICE RANGE: \$\$**

APPLICATIONS: With its extrastrong steel case and stainless-steel one-piece latch, the ADA-compliant design suits offices, schools, hospitals, and government facilities alike. ASSAABLOY.COM (SNAP #210)



BIOBASED XOREL

MANUFACTURER: Carnegie **PERFORMANCE:** Woven from a high-performance, sugarcane-based yarn, this interior textile is as durable as the original Xorel but has a reduced carbon footprint. **PRICE RANGE: \$\$**

APPLICATIONS: Available in dozens of styles and colors, this finishing solution can be used for walls, panels, seating, headboards, movable panels, and lighting. **CARNEGIEFABRICS.COM**

(SNAP #211)



VERSA LIVING WALL SYSTEM

MANUFACTURER: GSky Plant Systems **PERFORMANCE:** This self-watering

living-wall kit includes 4-inch pots that fit into a tray system.

PRICE RANGE: \$\$\$

APPLICATIONS: The system, which comes with FSC-certified wood trim, was designed primarily for interiors but works outdoors in warmer climes as well. GSKY.COM (SNAP #212)

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SNAP 138

ADAPTIVE REUSE





WORK THE ANGLES ACDF Architecture converted a former Montreal train station and hotel into a software developer's office (above), creating colorful meeting spaces (above right) while preserving as many details as possible (right).

Second Time Around

Architects reconfigure industrial spaces to become next-generation workplaces.

BY SAM LUBELL

LIGHTSPEED

by the continued popularity of fashioning office space in adaptively reused buildings. There are many reasons for the preference, from the structure's historic character to the fact that repositioning an old building is cheaper and faster than creating one from the ground up. But along with these advantages come substantial challenges such as replacing outdated electrical systems, removing dangerous debris, and ensuring entrances and facilities comply with ADA standards.

NEW ISN'T ALWAYS BETTER, as evinced

But the effort is often worth it, as the following projects prove. Each maintains the glorious industrial bones of the old structure but updates the space physically and aesthetically, making it capable of supporting modern workers' needs. For the new headquarters of Lightspeed, a Montreal-based software developer, **ACDF Architecture** reinvigorated the third, fourth, and fifth floors of the city's **Viger train station** and hotel. The late 19thcentury château-style building, which had most recently served as municipal offices, had been vacant for most of the last decade.

ACDF's goal was to respect the past and "keep the building raw and authentic," says project architect Joan Renaud. That included maintaining the structure's 11- to 15-foot-tall ceilings and irregular floor layouts. But the Montreal practice also had to replace the building's rotten timbers and repair water damage. Only then could the firm update the electrical and mechanical systems, clean the brick walls, and level and





polish the concrete floors. (In the coming months, ACDF will also replace the shingle roof and windows, the latter with custom replicas of the original wood models fabricated by local specialist **Pro Domo**.)

Against that traditional backdrop, ACDF added pops of color and contemporary design touches. The firm created glossy geometric pavilions to serve as informal meeting spaces, outfitting each Russian birch plywood structure with **Formica** laminate and **Bolyü** carpet tiles. In the dining area, nicknamed the Pool, architects placed aqua-blue **Abete Laminati** and Formica tiles. Columnar fiberglass stools by **Etienne Hotte** lining the Pool's counters offer a front-row view to the merging of old and new.

95 EVERGREEN AVENUE

When asked to transform the former **Schlitz Brewery** in the Bushwick section of Brooklyn, New York, into a coffee shop and four floors' worth of flexible office spaces, local firm **Fogarty Finger** had a vision. "We weren't trying to design something that looked industrial," says project leader Harshad Pillai, of the 150,000-square-foot, LEED Silver building. "We wanted to design something that looked like it had always been there."

To that end, the team preserved the structure's concrete walls and floors as well as its exposed steel beams and trusses. But to illuminate the space, they installed steel-mullion **Traco** TR9000 and TR2800 windows and skylights, framing them with precast-concrete panels. To reduce energy and water use, the firm leveraged the existing photovoltaic panels and added thermally broken double-glaze windows, **AAON** RN Series HVAC equipment, and **Sloan** high-efficiency faucets and flushers.

One of the few insertions is a light installation lining the ceiling above and the wall behind the welcome desk. It's made of thousands of beer bottles that are backed by **Bartco** Linear T8 fluorescents and blackened steel



FRESH BREWED

An installation made with 8,370 beer bottles (above) marks the entrance to Fogarty Finger's 95 Evergreen (left), a top-to-bottom renovation of a former Schlitz Brewery in Brooklyn, New York.

ADAPTIVE REUSE





MODERN INDUSTRY The old and new comingle at Alibaba's San Francisco office in the iconic PacBell Building (above). Studio O+A opted for Midcentury Modern furnishings, updated mechanics, and a hand-painted plaster ceiling relief (left) based on an original mold found during the renovation. panels fabricated by **Custom Metal and Glass**. Because what says former brewery better than 8,370 bottles of beer on the wall?

ALIBABA

"We wanted to create this contrast," says **Studio O+A** principal Primo Orpilla of the new offices for Chinese e-commerce giant **Alibaba**, which are located on the 26th floor of San Francisco's **PacBell Building**. "We took what we might do in a tech office and combined it with a more refined look."

An abandoned 2013 attempt to turn the 8,000-square-foot space into condos left it with new energy-efficient mechanical and electrical systems (including condensing boilers for heating and four cooling towers), a new seismic system (using a core shear wall technique), and insulated **Skyline** windows. Most of the space's raw features, including oak floors and bare brick and concrete walls, had also been exposed.

Building on this palette, the San Francisco–based firm installed new wood paneling and a touch of decoration: a band of handpainted plaster—a riff on a design found in the space—that travels across the office's 20-foot-high ceilings. Midcentury **Knoll** and **Herman Miller** furniture populate the space, while **Roll & Hill** lighting fixtures, such as Halo chandeliers, add a dash of flash.

Here, as with Viger station and the Schlitz Brewery, the transformation from commercial to office space may appear seamless and simple, yet it's anything but. "We're paid to make things look uncomplicated," sums up Fogarty Finger's Pillai. And as companies increasingly desire malleable, reconfigurable offices, creating something new with an old structure may just be the best of both worlds.



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A CLEAR CHOICE With an energy-efficient glass envelope and roofing system, The Hague Central Station conserves resources while allowing the Dutch city's rail commuters and passers by to view all the action.

Crystal Palace

NOTHING STANDS still for long in The Hague Central Station. Commuters pour into the 215,000-squarefoot transit hub from buses and trains; trams whiz through on elevated tracks. In its redesign, Benthem Crouwel Architects (BCA) embraced the bustle of this southwest Dutch city, outfitting the structure with a glass roof and four glass facades that reveal all the activity within.

"We wanted the opposite of the old station, which was dark and closed," says project architect Pieter Van Rooij of the building's concrete predecessor. Choosing glass as the project's defining material allowed the Amsterdam-based firm to create visibility without sacrificing energy efficiency—the latter largely thanks to the structure's soaring, doubleglaze glass roof.

Colt International supplied the roof's 246 laminated glass panels, each measuring roughly 70 square feet wide by 1 ½ inches thick. Nestled in steel beams and arranged in a diagonal motif, the panels are interspersed with the company's glass Firelight flap ventilators that automatically open in warm weather, cooling the building and helping dissipate smoke and heat. The vents act as solar protection and provide noise abatement, too.

The number of travelers passing through the station is expected to double in the next decade, thanks to a planned linkup with a local rapid transit network and an Amsterdamto-Paris high-speed rail line. Benthem Crouwel's transparent design will no doubt prove even more important then, offering commuters air, light, and the ability to see where they're going...just when they need it most. *—Rebecca Seidel*



GLASS GRADIENTS

MANUFACTURER: Skyline Design **PERFORMANCE:** Playing with

geometry and opacity, the architectural glass collection features square and dot patterns etched or printed on tempered safety glass.

PRICE RANGE: \$\$\$

APPLICATIONS: Available in single- and two-tone options, the glass—which is suitable for partitions in homes and offices—ranges from 1/4 to 3/4 inch thick. SKYDESIGN.COM

KEY \$=value, \$\$=mid-range, \$\$\$=high-end

(SNAP #213)



GLASSBOARDS

MANUFACTURER: Carvart

PERFORMANCE: Part of Carvart's new Contract line of architectural glass for interiors, this family of low-iron temperedglass marker boards comes in five finishes and with writable and nonwritable surfaces. PRICE RANGE: \$\$

APPLICATIONS: With models available in frameless, floating, and low-profile designs, these boards suit conference rooms, offices, and educational settings.

CARVART.COM (SNAP #214)

= ECO-FRIENDLY ATTRIBUTES



THINSULATE CLIMATE **CONTROL 75**

MANUFACTURER: 3M **PERFORMANCE:** This low-E window film reduces glare by up to 17% and heat gain by up to 37%, boosting the insulation value of single-and double-pane windows.

PRICE RANGE: \$\$

APPLICATIONS: The LEED-compliant product blocks nearly 99.9% of the sun's ultraviolet rays and works with numerous types of clear and tinted glass. Зм.сом

(SNAP #215)



ULTRACLEAR FLOAT GLASS

MANUFACTURER: Guardian **PERFORMANCE:** The low iron-oxide content of this glass heightens its transparency and color, eliminating the greenish tint so common in float glass. PRICE RANGE: \$\$

APPLICATIONS: Available in thicknesses from 2mm to 15mm and sizes up to 130 by 204 inches, UltraClear is suitable for partitions, decorative surfaces, tabletops, display cases, and insulating glass units.

GUARDIANGLASS.COM (SNAP #216)

Radical Transparency

BEFORE P.C. HOOFTSTRAAT was transformed into a luxury shopping district, the Amsterdam street was a residential block of austere, neo-Gothic brick townhouses. So when real estate company Warenar set out to combine two of the houses into a single retail space, it turned to **MVRDV** for help. The Dutch architecture firm's solution? Create glass bricks and architraves for the new location that would mimic the townhouses' original facade.

"We told the client, 'Let's bring back what will be demolished but develop it further," says MVRDV cofounder Winy Maas.

To achieve that, MVRDV worked with **Delft University of Technology's Glass** and Transparency Laboratory, engineering consultants ABT, and contractor Wessels Zeist to create a building product that could withstand the demands of the project. The team conducted pressure, heat, and three-point bending tests on various prototypes, settling on a soda lime-silica glass formula. Then it enlisted Italian manufacturer **Poesia** to fabricate the solid glass bricks in three sizes.

Workmen used high-strength, UV-cured glue from Delo Industrial Adhesives to affix the bricks. They also sealed them with silicon strips to ensure the pieces would remain watertight.

The entirely transparent facade for Crystal Houses, as the building is now known, complements its traditional terra-cotta brickwork, even blending into those bricks as it climbs up the store's facade. The result has exceeded MVRDV's expectations, according to project architect Gijs Rikken, especially in how the glass responds to shifting levels of sunlight. "Depending on the weather," he says, "the facade is dressed in either icy blue, crystal white, or a shimmering green." How very apropros given the space's first resident: the couture house Chanel. -RS



SHEER GENIUS

Architects at MVRDV turned to a consortium of research, engineering, and construction entities to develop glass bricks in three sizes for the facade of the current Chanel boutique on Amsterdam's tony P.C. Hooftstraat.

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SNAP 52



Sarasota Jewel Box

MORE THAN 3,000 undulating jade-green tiles mark the entrance to the **Center for Asian Art** at the **John and Mable Ringling Museum of Art** in Sarasota, Florida. Aside from creating an eyecatching spectacle worthy of circus magnate Ringling, the glazed terra-cotta slabs serve as a hurricane-rated rainscreen that provides the building with fire protection and thermal insulation. The tiles also minimize heat gain.

But the facade's distinctive form didn't come quickly. **Machado Silvetti**, the Boston-based architecture firm that designed the addition as part of its comprehensive renovation of the Center for Asian Art, worked for three years with manufacturer **Boston Valley** to develop the custom tiles. "Collaborating was a learning experience, as Boston Valley has an active R&D wing and is always looking for new product applications," says Machado Silvetti principal Craig Mutter. The resulting trio of tiles—18- and 24-inch solid squares and a 24-inch portal version to frame windows—are mounted on the building's exterior utilizing Boston Valley's TerraClad rainscreen system.

Attaching the tiles proved to be one of the project's most painstaking aspects. Because Machado Silvetti's design called for the slabs to tilt at an 8-degree angle, the normally plumb TerraClad system had to tilt too, which slowed the installation time. "The grid was carefully laid out over the three faces," explains Boston Valley's Patricia Herby, "with the corner tiles the final ones to be fabricated and installed."

Exacting work, indeed, but the result, says Mutter, is "a beautiful 21st-century addition to a fantastical 1930s museum campus." — Braulio Agnese



GREEN SCREEN Machado Silvetti collaborated with manufacturer Boston Valley on the one-of-a-kind, terra-cotta tiles cladding the Center for Asian Art at the John and Mable Ringling Museum of Art in Sarasota, Florida. The covering protects the building from fire, rain, thermal shifts, and heat gain.



MICHAEL ARAM COLLECTION

MANUFACTURER: Artistic Tile **PERFORMANCE:** Jewelry and object designer Michael Aram draws upon three of his best-known patterns—Botanical Leaf, Gotham, and Molten—for this collection of ceramic tiles and liners.

PRICE RANGE: \$\$\$

APPLICATIONS: Fabricated in Japan and ideal for exterior and interior walls, the tiles come in three glazes: metallic bronze, silver, and gloss white.

ARTISTICTILE.COM (SNAP #217)



CONTOURZ

MANUFACTURER: Lunada Bay Tile **PERFORMANCE:** These 8-millimeterthick mix-and-match concrete wall tiles come in four 3-D forms, three flat field sizes, and two liner options.

PRICE RANGE: \$\$

APPLICATIONS: Suitable for wet and dry applications indoors and out, the tiles offered in 18 standard earth hues—feature an integrated sealer that protects them from staining.

LUNADABAYTILE.COM (SNAP #218)

= ECO-FRIENDLY ATTRIBUTES



LUXURY

MANUFACTURER: Florim USA PERFORMANCE: Not only does this large-format, colored-body porcelain tile mimic the look of marble, limestone, and Marfil stone, but it's also offered in lengths of 24 and 32 inches.

PRICE RANGE: \$\$\$

APPLICATIONS: Available in two finishes, five colors, and 10 sizes, Luxury is suitable for dry floor and wall applications in commercial and residential interiors.

FLORIMUSA.COM (SNAP #219)



STARDUST

MANUFACTURER: Walker Zanger PERFORMANCE: Made of volcanic basalt and cut by water jet, these 1-centimeter-thick mosaics offer patterns inspired by Midcentury textiles and 1970s glam. PRICE RANGE: \$\$\$

APPLICATIONS: The seven designs destined for residential bathrooms, backsplashes, and vertical commercial surfaces—have metallic glazes that accentuate their tactility. WALKERZANGER.COM

(SNAP #220)

Chef's Table

KEY \$=value, **\$\$**=mid-range, **\$\$\$**=high-end

USUALLY, COOKING AND EATING occur in separate spaces. But what if a meal could be prepared at the dining table? This is what Kram/Weisshaar wondered when Italian tile manufacturer Iris Ceramica asked the Swedish–German design studio to consider new uses for SapienStone, a scratch-, stain-, and temperature-resistant porcelain product.

Partnering with chef **Massimo Bottura**, owner of the Michelin three-star Osteria Francescana, Kram/Weisshaar developed the SmartSlab table from a new composite material that the designers say "acts simultaneously as circuit board, structure, and surface." Hidden beneath the 6-millimeter-thick SapienStone top are two induction cooktops at one end, four heating elements along both sides, and five thermoelectric Peltier devices down the center to chill beverages. Two touch controls at the cooking end—opposite to where the power cord exits a table leg—control everything.

When the table debuted in April at Milan's Salone del Mobile design fair, it proved an instant hit. Now the designers are working with Iris Ceramica to bring it to market as a customizable product. (In addition to SapienStone and electronics, the table has a foam core, an aluminum spine, and a recycled-plastic bottom.) SmartSlab could also have more than cooking in its future. Different electronics could turn it into a device-charging surface, for instance. But for now, the designers are adhering to food writer M.F.K. Fisher's dictum: "First, we eat, then we do everything else." —BA





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SNAP 26





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WALLS + PARTITIONS



Open Classroom

THE FLOW OF people and ideas is central to the teaching philosophy at Sanders Memorial Elementary in Land O' Lakes, Florida. So to facilitate such movement, the magnet school installed 16-foot-long **NanaWall** FoldFlat glass partitions in 27 classrooms. The choice makes it possible to open the walls for multiclass collaborations and close them for more concentrated instruction.

"We wanted adaptability, and that's what led us to movable, transparent walls," says George Tharin, project architect at **Williamson Dacar Associates**, which renovated the building in 2015. The partitions have a sound transmission class of 53 when closed—a level roughly equivalent to the soundblocking capability of an 8-inch-thick concrete wall with a $\frac{1}{2}$ -inch-thick layer of drywall glued to it.

The floor-to-ceiling glass keeps students visually connected to one another and to the school's common areas. But a new, unexpected use for the folding doors has emerged. Teachers instinctively began scribbling on them—as they do with whiteboards—in vibrant, colorful script and wiping them clean at the end of the day. Now the evidence of the design scheme's success is literally written on the wall. —*Kelly Beamon*



COME TOGETHER Teachers at Sanders Elementary School in Land O'Lakes, Florida, can now more easily collaborate with other classes—or break out into a larger space—thanks to the NanaWall FoldFlat glass partitions outfitting many of the magnet school's classrooms (from top).



EDGE WALL

MANUFACTURER: 3form PERFORMANCE: These easy-toinstall recycled-resin wall treatments come in four standard configurations as well as customizable options.

PRICE RANGE: \$\$

APPLICATIONS: Ideal for long corridors and for adding visual interest to walls in smaller spaces, Edge is available with double-sided patterns, in thousands of colors, and in myriad textures, finishes, diffusions, and interlayer options.

3-FORM.COM (SNAP #221)

KEY \$=value, \$\$=mid-range, \$\$\$=high-end



WRAP SCREENS

MANUFACTURER: Kirei USA PERFORMANCE: These reconfigurable, sound-absorbing partitions are made from 60 percent recycled plastic. PRICE RANGE: \$\$-\$\$\$

APPLICATIONS: Offered in five shapes, the paneling could be used to isolate a single desk, create work teams, or segment educational spaces. Sizes range from 50 by 55 inches to 191 ½ by 65 inches. KIREIUSA.COM

(SNAP #222)

= ECO-FRIENDLY ATTRIBUTES

LINEACUBE

MANUFACTURER: Maars Living Walls PERFORMANCE: This glass-wall system with its own LED lighting, ventilation, acoustic insulation, and power sources creates a freestanding room within an open floor plan.

PRICE RANGE: \$\$-\$\$\$ APPLICATIONS: Available in widths up to 13 feet and heights up to 10 feet, LineaCube answers the workplace demand for quiet, private work- and meeting spaces.

MAARSLIVINGWALLS.COM (SNAP #223)



EVOKE ARCHITECTURAL WALL

MANUFACTURER: KI PERFORMANCE: An alternative to drywall, these preassembled and reconfigurable panels can be painted, printed, or wrapped to suit any decor. PRICE RANGE: \$\$

APPLICATIONS: With a high soundtransmission classification of 50, these recyclable walls of steel shell construction can withstand the demands of office, retail, and hospitality.

KI.COM (SNAP #224)

The Gilded Cage

IN SEOUL'S HIGH-END Gangnam shopping district, eyecatching retail wins enthusiastic customers. So for the interior of skincare company **Sulwhasoo**'s flagship store, Shanghai-based firm **Neri & Hu Design and Research Office** built delicate dividing "walls" of brass latticework.

The installation, which references a lantern, makes a striking statement—and respectfully updates the store's original design, by Korean firm **IROJE KHM**. "Throughout Asian history," notes Neri & Hu principal Lyndon Neri, "the lantern leads you through the dark, showing you the way." Indeed: Here the network of grids, which rests on wide timber floorboards, carves out customer pathways through the five-story space. The grids form entryways, too, and occasionally rise up to intermingle with wooden counters and serve as display areas.

The brass pipe—72 miles' worth—was manufactured in sections and welded over the course of four months. In order to create precise drawings of the end designs, workers drew all the framing locations on the floor and created 3-D models of the pipes. From there, they were able to divide the volume into lengths that could be made in a factory.

When asked why the structure works so well as an attentiongetter, principal Rossana Hu replies: "We aspired to create a space that captures the customer as she approaches the building, creates an experience that unfolds during her journey through the store, and leaves a strong impression long after she has left." —*KB*



INSIDE THE BOX Neri & Hu, based in Shanghai, used 72 miles of brass pipe to create an open latticework structure that helps guide shoppers through the five-story Seoul flagship of the Sulwhasoo skincare company.

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PRINTSTOOL IS AS MUCH a process as it is a product. The fully customizable seat, which can be 3-D printed by the purchaser in his facility or in any of manufacturer **Wilkhahn**'s showrooms around the globe, reimagines the creation and delivery of furniture.

The stool grew out of a research project conducted by Munich-based industrial designer Thorsten Franck. Searching for a material that would allow him to create with the least amount of waste, he came across fused deposition modeling (FDM), an additive manufacturing technology in which a plastic filament is heated, softened, and extruded through a nozzle. The nozzle goes round and round, building up the piece's layers in accordance with the directions on a CNC file. "It was a new language of forming," says the designer of the combination of machinery, code, and material, which he harnessed to produce a prototype stool. Interested in creating a commerical version of the piece, Franck approached Wilkhahn, a furniture maker known for technical experimentation. Together they devised Printstool. Featuring a leather-topped plywood seat, the dynamic stool has a body made from lignin: a durable plant-based material. Customers can configure the stool online, choosing from two heights, three seat hues, and five body styles and colors. Each stool takes five to 15 hours to print, depending on the machine and complexity. U.S. production of the stools will be available as early as first quarter 2017, according to company CEO Simone Vingerhoets-Ziesmann.

Although some might deride 3-D printing a stool as a marketing gimmick, Franck begs to differ. "For the first time, we have an opensource global furniture production system," he says. "Furniture can be a data file rather than a finished design." — Julie Taraska



SIT ON IT

Printstool is created on demand via fused deposition modeling (top), a 3-D printing technique wherein layers of materials are slowly built up to form the final product. The finished stools (above) are topped with leather seats.



TEK PIER

MANUFACTURER: Teknion

PERFORMANCE: This wall-integrated monitor and portable solid-surface worktable combination may be adjusted in height (from 24 to 43 inches) and in monitor viewing angle (up to 30 degrees movement on each side).

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

APPLICATIONS: Designed for agile offices, Tek Pier has a demountable monitor that supports full tech integration, including power, USB ports, and video connectivity. TEKNION.COM

KEY \$=value, **\$\$**=mid-range, **\$\$\$**=high-end

(SNAP #225)

BASSLINE

MANUFACTURER: Turnstone PERFORMANCE: This collection of occasional tables can be customized with a top in any size, shape, or material, even the customer's own.

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

APPLICATIONS: Offered in over a halfdozen shapes, Bassline can be tailored to formal and informal offices, retail, and hospitality settings. Tables range from 18 to 72 inches long and 18 to 36 inches wide. MYTURNSTONE.COM

(SNAP #226)



KEYN

MANUFACTURER: Herman Miller PERFORMANCE: Made with four pieces of material, this chair with a sliding seat allows users to lean back up to 10 degrees.

PRICE RANGE: \$\$

APPLICATIONS: Keyn can serve as either desk or occasional chair in offices and hospitality settings. The piece, available with multiple pad and upholstery options (two-tone and leather among them), comes in a choice of two bases.

HERMANMILLER.COM (SNAP #227)



NOMAD

MANUFACTURER: Nienkämper PERFORMANCE: Featuring a shared central power and data channel, this benching system with mobile screens and tabletop dividers allows workers to rezone as needed. PRICE RANGE: \$\$-\$\$\$

APPLICATIONS: Add-ons for this office solution include integrated storage cabinets, whiteboards, and monitor screens. Also available are adjustable-height surfaces. NIENKAMPER.COM (SNAP #228)

Quick-Change Artist

AS URBAN POPULATIONS increase, apartments are shrinking. But Boston-based **Ori** found a solution: an interior-space system that allows microunits to function like larger dwellings. Developed at the **MIT Media Lab** and shaped by designer **Yves Béhar** and his **fuseproject** team, Ori's closet-size product can be moved and reconfigured via app and interface controller, converting a studio from bedroom to workspace to den in no time.

Available with seven components as well as customizable finishes, the Ori system is definitely furniture. But it's also smarthome technology that, unlike similar Internet of Things systems **Nest** or **Amazon Echo**, is dynamic and interactive. Actuators move the unit and components, while sensors prevent collisions or accidental bed closings.

The central idea, says Béhar, is ease of use. The app enables the programming of "scenes"—arrangements, lighting levels, and schedules—and can be connected to other smart-home systems. The setup can be as complex as desired, but the primary interaction is meant to be physical: There's a touch-control interface, and the system can be moved manually in the case of a power outage.

Looking to the future, Ori also could also be configured to address commercial and office-place needs, says company CEO Hassier Larrea, noting it could transform a private desk area into a collaborative meeting environment. "What Ori offers is openplatform solutions," he says. "At the end of the day, it's just about rethinking space." — Braulio Agnese





OUT OF THE CLOSET

The Ori furniture system (above) physically transforms to a bedroom, workspace, or den according to the user's needs. A touch-control interface (left) and app allow users to save personal configurations.

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SNAP 6







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INTERIOR LIGHTING



Mine Craft

A NEW LIGHTING installation is revealing hitherto-unseen colors in the **Saalfeld Fairy Grottoes**, an underground shale mine turned tourist attraction in Thuringia, a region in central Germany. To bring out the nuanced tones of the mineral formations, artist Rolf Zavelberg of the Cologne-based lighting studio **Aktivraum** chose to illuminate them with **Soraa**'s GU10 LED MR16 lamps.

"The lighting does not overpower the natural beauty of the grottoes but enhances it," says Zavelberg, noting how the fixtures highlight the shale's hues, which range from brown and ocher to green and blue. The Soraa MR16s use a triphosphor-coated violet diode to achieve the effect, with the units' folded prismatic optics producing narrow, uniform beams of white light with a 95 CRI.

Zavelberg specified three color temperatures—3000K, 4000K, and 5000K—to provide optimal viewing light for the mine's color spectrum. A variety of beam angles and optical accessories, such as Soraa's SNAP filters and lenses for 10-degree spots, dramatize the geological structures by creating contrasts in light and shadow. "We use light as a paint box," Zavelberg says of the approach. "The fixtures are our colors, and the optics are our paintbrushes." — Alice Liao



SPECIAL EFFECTS Artist Rolf Zavelberg used what he calls "light as a paint box" to draw out the delicate hues of the mineral formations in Saalfeld Fairy Grottoes, a former shale mine in Thuringia, Germany.


LED REPLACEMENT LAMP

MANUFACTURER: Foreverlamp PERFORMANCE: This plug-and-play retrofit solution for 1000-watt metal halide applications delivers 4,500 lumens at 400 watts and lasts more than 50,000 hours. PRICE RANGE: \$

APPLICATIONS: Designed for use with

probe- and pulse-start ballasts, the lamp dims with a driver and is suited for warehouse, retail, recreational, and other commercial applications.

FOREVERLAMPUS.COM (SNAP #229)

KEY \$=value, **\$\$**=mid-range, **\$\$\$**=high-end



SALIOT

MANUFACTURER: Minebea Co. PERFORMANCE: Bluetooth Smart CSRmesh technology allows for smartphone control of up to 100 of these LED track fixtures, which can pan, tilt, and rotate a full 360 degrees.

PRICE RANGE: \$\$\$

APPLICATIONS: With a light distribution angle that can be adjusted from 10 to 30 degrees, SALIOT is ideal for retail and other scenarios in which individual fixtures require constant rejiggering. MINEBEA.CO.JP

(SNAP #230)

= ECO-FRIENDLY ATTRIBUTES



INVISILED PRO 3

MANUFACTURER: WAC Lighting **PERFORMANCE:** This foldable LED tape has an ultrathin ½" profile and uses just 5 watts to deliver 475 lumens per foot.

PRICE RANGE: \$\$

APPLICATIONS: Available in 2700K, 3000K, 3500K, and 4500K color temperatures, InvisiLED is suited for under-cabinet, cove, and accent installations. It has a minimum 1' and maximum 20' run length; it also can be field cut every 6" at the end of a run. WACLIGHTING.COM

(SNAP #231)



MESH

MANUFACTURER: Luceplan PERFORMANCE: A wall control unit allows individual sections of this 65-watt, 2700K LED pendant to be individually dimmed. The lights are connected via a network of steel cables that offer a view through the fixture.

PRICE RANGE: \$\$\$

APPLICATIONS: With its 39 %" diameter, Mesh makes a statement in residential and hospitality applications.

LUCEPLAN.COM (SNAP #232)

The City of (LED) Light

RECENT RENOVATIONS of two historic institutions in Paris, the **Musée Bourdelle** and **Musée Rodin**, resulted in cutting-edge lighting upgrades. The new solid-state LED systems will not only reap energy savings but will also better illuminate the art on display.

At the Bourdelle, former home and atelier of sculptor Antoine Bourdelle, new lighting chosen by local firm **Berthon + Kravtsova** capitalizes on LEDs' improved optics and lumen output. Designers Julia Kravtsova and Vara Stefanova utilized ceiling-mount **ERCO** Light Board, Logotec, Parscan,



and Pollux fixtures to emphasize the works, provide ambient light, and ensure viewers' visual comfort. In the Great Hall, where the ceiling reaches a breathtaking 32 feet, lenses tightly focus accent lighting for optimally viewing sculptures from all sides, while wall washers and floodlights cast a soft, uniform light.

For the Rodin, housed in the **Hôtel Biron** since 1919, local designer **Stéphanie Daniel** responded to the building's abundant natural light with a lighting plan programmed to adjust color temperature and brightness throughout the day. Managed on **Zumtobel**'s Litenet system, the track-mount spotlights have static 4000K white LEDs for illuminating paintings and bronze sculptures and 2700K to 6500K tunable white LEDs for marble and plaster pieces. Zumtobel LED Microtool modules in the display cases also change their output throughout the day, "giving visitors the impression that the work is only illuminated by daylight," says Daniel. —*AL*



THE ENLIGHTENMENT Julia Kravtsova and Vyara Stefanova deployed five types of ERCO LED fixtures to bathe Paris's Musée Bourdelle (left) in uniform, glare-free light. Stéphanie Daniel opted for Zumtobel's tunable white IYON LED spotlight and Litenet lighting management system for the city's Musée Rodin (above).

A Mixed Bag

Fortunes vary for manufacturers located along the Midwest's northern edge. By J. MICHAEL WELTON



OVERALL, manufacturing in the Midwest is ticking upward, but with pockets of surging growth alongside areas still languishing after the Great Recession.

Michigan is out in front and aims to stay there. "Automobile manufacturing is still important to the state," says Mike Johnston, vice president of government affairs at **Michigan Manufacturers Association**, but "seven jobs are created in the supply chain for every one created in the automobile plant."

In Jenison, Michigan, that trend is playing out at **Pleotint**, a manufacturer of self-tinting glass, which is up 35 percent in volume over last year's. "Five years ago, low-E and tinted low-E represented less than 1 percent of our total products," says Chad Simkins, vice president for sales and marketing. "Today they account for 30 percent, with the glass going into commercial and residential buildings all over the world."

Across Lake Superior, Minnesota hasn't fared quite so well. "We're still down a third of our 425-person workforce," says John Madsen, Minnesota general manager at **Dayton Rogers**, an OEM supplier to the aerospace, automotive, and medical industries. **Coldspring**, a maker of cladding and pavers in Cold Spring, Minnesota, also remains below prerecession employment levels despite an order backlog. "We're being more careful in the hiring process, looking for people with the right long-term fit," explains Greg Flint, vice president of operations and strategy.

In Wisconsin, manufacturing has been steadily growing, although challenges—including a strong dollar and the slowdown in Chinese manufacturing lie ahead. In the last two years alone, construction products and services contributed \$15.3 billion to the state's GNP, says Lee Swindall, vice president of sector strategy development at **Wisconsin Economic Development Corporation**.

Such stories are further proof that despite setbacks, Midwest manufacturing has not peaked just yet.

Michigan, Minnesota, and Wisconsin

MANUFACTURER: Coldspring LOCATION: Cold Spring, Minnesota PRODUCTS: Granite, limestone, and sandstone cladding, paving, signage, and site furnishings; bronze signage and sculptures. FOUNDED: 1898 EMPLOYEES: 900+ PRICE RANGE: \$-\$\$\$ COLDSPRINGUSA.COM





 Sage Electrochromics
LOCATION: Faribault,
Minnesota
PRODUCTS: Electrochromic glass for windows, skylights, and curtain walls in doubleand triple-insulating units.
FOUNDED: 1989
EMPLOYEES: 210
PRICE RANGE: \$\$
SAGEGLASS.COM

MANUFACTURER:

2 MANUFACTURER:

Schweiss Doors
LOCATION: Hector, Minnesota
PRODUCTS: Hydraulic and bifold
lift-strap doors; designer
doors for agricultural, aviation,
commercial, industrial, and
residential uses.
FOUNDED: 1980
EMPLOYEES: 62
PRICE RANGE: \$-\$\$\$
SCHWEISSDOORS.COM





ANUFACTURER: Major Industries LOCATION: Wausau, Wisconsin PRODUCTS: Custom and pre-engineered skylights, wall systems, canopies, mixed glazed skylights, translucent panel systems, and polycarbonate multiwall systems. FOUNDED: 1980 EMPLOYEES: 75 PRICE RANGE: \$-\$\$\$ MAJORSKYLIGHTS.COM



MANUFACTURER: Madrax Bicycle
Security Solutions
LOCATION: Waunakee, Wisconsin
PRODUCTS: Bicycle lockers, corrals, shelters, and parking racks.
FOUNDED: 1989
EMPLOYEES: 60
PRICE RANGE: \$-\$\$\$
MADRAX.COM





MANUFACTURER: Dow Corning Corporation LOCATION: Midland, Michigan PRODUCTS: Silicones and silicon-based technology; high-performance building solutions. FOUNDED: 1943 EMPLOYEES: 11,000 worldwide;

6,000 in the Americas PRICE RANGE: \$\$ DOWCORNING.COM/ CONSTRUCTION



7 MANUFACTURER: Guardian Industries Corporation LOCATION: Auburn Hills, Michigan PRODUCTS: Commercial, residential, interior, and automotive glass; roofing, railing, ceiling, and building products. FOUNDED: 1932 EMPLOYEES: 17,000 PRICE RANGE: \$-\$\$\$ GUARDIAN.COM



8 MANUFACTURER: Pleotint LOCATION: Jenison, Michigan PRODUCT: Self-tinting glass FOUNDED: 1998 EMPLOYEES: 140 PRICE RANGE: \$ SUNTUITIVE.COM



MANUFACTURER: Azon COCATION: Kalamazoo, Michigan PRODUCTS: Grout for containment tanks, cracks, and joints; thermal barriers for commercial aluminum windows, doors, storefronts, and curtain walls. FOUNDED: 1977 EMPLOYEES: 100

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



MICHIGAN

Manufacturing is still a force in the Wolverine State, with the industry exporting

\$50 BILLION

ingeousiinzeigi

In 2014, manufacturers accounted for 13.5 percent of state employment: the **fourth-highest** percentage in the U.S., behind Indiana, Wisconsin, and Iowa, respectively.

13.5%

SOURCE: NATIONAL ASSOCIATION OF MANUFACTURERS, BUREAU OF ECONOMIC ANALYSIS

MINNESOTA



Three of the **nation's largest window manufacturers** are headquartered in Minnesota: Andersen Windows in Bayport, Marvin Windows and Doors in Warroad, and Sage Electrochromics in Faribault.

The North Star State exported

\$18.9 BILLION

in manufactured goods in 2015, **down 5 percent** from the year before but better than the average 6 percent decline nationwide.

SOURCE: MINNESOTA DEPARTMENT OF EMPLOYMENT AND ECONOMIC DEVELOPMENT

WISCONSIN

Fabricated metal products is the largest manufacturing category in the Badger State. In 2014, it provided

73,586 јовѕ

that paid an average of **\$50,432 per year**.

The number of manufacturing jobs grew

7.3%

in Wisconsin from 2010 to 2014, compared to a national average of 5.8 percent.

SOURCE: INWISCONSIN.COM

CONTINUING EDUCATION: LIVING WALLS

FROM ARCHITECTURAL RECORD



BLOOMING SPONGE

The Rubens at the Palace hotel hosts London's largest living wall (above from left), with 10,000 ferns and herbaceous plants. It is irrigated by runoff from the hotel roof.

The Cultivated Facade

Greenery on buildings is gaining traction, but the trend needs validation.

FACADES ARE A building's most visible element, and adding plants offers entirely new dimensions of texture, symbolism, and seasonal dynamism. As French botanist and green-wall pioneer Patrick Blanc has said, "A simple wall can become something poetic." Of course, poems can be tragic, and the risk of failure that comes with vegetating facades has tempered many architects' enthusiasm. To put it bluntly, green walls can die.

Katia Perini, an instructor at the University of Genoa's architecture school and an expert in green walls, says the perception of risk has slowed their acceptance. "As architects, we're not used to having to relate to a growing material. If you use concrete or steel, you know how it will work. In the case of vegetation, everything can change," says Perini.

A steady uptick in green-wall installations shows that architects are getting past anxiety. Researchers, green-wall providers, and architects say the mainstreaming of planted roofs, marked growth in interior green walls, and accumulated insight from exterior projects to date are all engendering greater comfort with planted facades. These champions also see rising awareness of green-wall benefits—from sound and thermal insulation and the provision of habitats for bugs and birds to cleaner air and the generalized sense of well-being known as biophilia. "The combination of all these benefits is starting to get traction. Green walls are now something that people are taking seriously," says Gary Grant, a principal with the London-based Green Infrastructure Consultancy.

It still takes "the right developer" to push forward a project, says Grant, because green walls are not cheap. But he sees a clear trend toward integration of green walls and says the excitement they offer justifies the expense. "When people want something, they find the money."

TWO FACES OF THE GREEN WALL

Engineered green walls take two forms. One type, which academics like Perini refer to as green facades, grows climbing vines and ivy on cables or scaffolds, forming a living screen over a built facade. While plants have crawled up walls for millennia, the modern green



facade took shape in Berlin in the 1980s and 1990s, where eco-minded incentives spurred the installation of more than 2.5 million square feet of such screens.

The other green walls—living walls—are dense vertical gardens whose plants seem to burst out of a building's skin. These consist of preplanted panels or modules affixed to a structural wall or frame, the first of which were developed by Blanc, the botanist, in



the 1990s. They gained global fame in 2005 with his 8,600-square-foot installation at Ateliers Jean Nouvel's Musée du quai Branly in Paris. Blanc's plants grow hydroponically within a water-soaked mesh fabric, while competing systems employ lightweight soils (akin to the growth media developed for green roofs) in fabric pockets or trays. All require continuous irrigation and infusions of nutrients and fertilizer.

Living walls' verdant and varied plantings offer a far more diverse palette of textures and colors. This

design power and biodiversity can be expensive, however. Living walls can reach \$125 per square foot, according to Perini. That is three to 10 times the cost of green facades and, she says, living walls also require more maintenance.

Grant and other green-wall designers say both types are improving as their creators learn what plants thrive under which conditions. The designers say they are also better educating clients, steering them away from projects facing higher risks of horticulture failure. As Grant puts it, green walls will not always be green. Plants with southern exposure in London, for example, will die back under summer heat. "They may not look their best all the time. It's about managing expectations," says Grant.

JUNGLE WALLS IN THE TROPICS

Green walls are at their greenest and most dramatic in verdant Southeast Asia. Climate helps in locations such as Singapore and Malaysia, where relatively high

CONTINUING EDUCATION: LIVING WALLS

FROM ARCHITECTURAL RECORD



ENGINEERED ECOSYSTEM Plant selections and

continuity of vegetation from the ground up maximize the diversity of birds, butterflies, and other fauna finding refuge at the DiGi data center in Malaysia.

humidity and narrower temperature swings put less stress on plants and demand less of irrigation systems.

For Malaysian architect and ecologist Ken Yeang, who started planting facades in the 1980s, green walls are first and foremost about engineering ecosystems. Yeang employs flora that supports local fauna, and stresses habitat connectivity to maximize ecosystem value.

Yeang wrapped a vegetated wall around a data center near Kuala Lumpur. The project, completed in 2010 for cellular provider DiGi Telecommunications, includes about 16,000 square feet of plants that angle up from the ground at one corner and zigzag around the structure. Continuous greenery, the architect says, makes the building an extension of the surrounding habitat. The living wall is also used creatively to improve

other building functions. For example, air intakes lie behind the living wall, filtering out particulates and providing what Yeang calls a "small degree" of precooling.

The architect makes no apologies for the pruning, replacement of dead plants, and other maintenance required. "I tell the owners that it's like having your own garden, where you must cut the grass and look after the flowers. They must be committed to looking after the garden," he says.

More recent projects in Southeast Asia blend planted facades, terraces, and roofs to literally drape structures in greenery. In contrast to DiGi, where a band of living wall visually complements the otherwise rectilinear facade, the organic-inorganic frontier almost disappears in these projects.

Twin skyscrapers under construction in Kuala Lumpur, another of many collabora-

tions between Nouvel and Blanc, will be splashed with growing greens across most of the buildings' respective 49 and 43 stories. Video released by Hong Kong-based developer Wing Tai shows living walls at the penthouse levels, while flowering plants climb stainless-steel cables to adorn the bulk of the towers' facades. One newspaper described the effect as "jungle-themed."

"Jungle" certainly evokes the work of Singapore-based WOHA, whose buildings appear enveloped in greenery, as well as recent projects by Vietnamese architect Vo Trong Nghia. Take the 380,000-square-foot Sheraton Phu Quoc Resort, designed for Starwood Hotels by Nghia's Ho Chi Minh City-based firm and scheduled to open in July 2017. In renderings, the structure nearly dissolves into its wooded surroundings under a coating of vegetation.

GREENFALL

Vietnamese architect Vo Trong Nghia's design for the Sheraton Phu Quoc Resort combines an extensive green roof with the "Greenfall" facade of vines and a steel trellis that he used on a 2013 Hanoi house renovation.

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GROUNDED AMBITION

Early plans for overhauling Portland's Edith Green–Wendell Wyatt Federal Building (left) anticipated 200-foot-high vegetated panels shading the western facade. The renovation, completed in 2013, instead used aluminum rods for shading amid concerns about the proposed living walls' cost and viability under wind and sun. Vines growing up the facade from ground level (above) retain a green design element.

VERTICAL GREEN IN PORTLAND

Making green walls practical at higher latitudes is a taller order. Larger seasonal shifts and extreme weather stress plants, and they test the irrigation systems required to sustain living walls. One region showing progress even so is the Pacific Northwest.

Despite their reputation for moderate climates, cities like Seattle and Portland freeze in winter and their summers can be bone-dry. "We've gone 90 to 110 days without rain in recent summers," notes Brian Heather, managing partner at SolTerra Systems, a Portland-based design-build developer with a penchant for living walls. Heather says that SolTerra has gained

a great deal of knowledge since creating

a proprietary living-wall system in 2009, especially about irrigating big walls. Irrigation systems must automatically drain during cold snaps to protect water lines from bursting, and they must anticipate gravity and wind to distribute water evenly. "You can end up with a lot more water at the bottom of the wall than at the top," he says.

In 2010, concerns about irrigation helped torpedo 200-foot-high green walls proposed for the extensive overhaul of the 1970s Edith Green–Wendell Wyatt Federal Building in Portland. Initial plans called for vertical fins adorned with plants to shade the 18-story office tower's western facade from intense midday sun and heat. But doubts about the viability and cost of maintaining living walls in that harsh environment killed the original green-wall plan.

Cutler Anderson Architects and SERA Architects, who designed the renovation, ultimately used aluminum rods to shade the facade. But they retained a vegetated fringe at the bottom by sending vines up the rods from ground-level planters. The climbers have thrived since the project's 2013 completion and add "a lot of visual interest," according to Amy Chomowicz, an urban planner in Portland's Bureau of Environmental Services. "The vines must be at least 30 feet high," she says.

SolTerra, meanwhile, is now scaling up its own living walls after "years of trial and error," says Heather. They feature in SolTerra's first completed development and in almost all the 12 more under construction or at the permitting or design stage. Its 18-unit Woodlawn development in Portland, an apartment building with ground-level commercial space completed last year, teems with 3,500 plants covering most of its unglazed vertical surfaces.

Green walls head skyward in the next SolTerra projects, including an office project under construction in the firm's hometown. It will feature a 70-foot-high, 40-foot-wide living wall mural. Heather says green walls embody the ecology and wellness-oriented marketing strategy behind SolTerra's LEED Platinum developments. Rental revenue is running 40 percent higher than was projected, he says, and the walls are worth the cost: "There's a huge amount of payback for our company from incorporating sustainable features, the living walls in particular."

APH

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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
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- Maximum Length of Panels: 40'
- Compression Extrusion Thickness: .056"
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CONTINUING EDUCATION: LIVING WALLS

FROM ARCHITECTURAL RECORD



DESIGN-GROW-BUILD

Portland, Oregonbased developer SolTerra employs proprietary living walls as a marketing symbol; 1,100 square feet of vertical vegetation surrounds its LEED Platinumcertified Woodlawn development (above from left).

LIVING INFRASTRUCTURE

Green walls may ultimately follow the trajectory of green-roof adoption, combating a broad array of urban ills such as flooding, overheating, and air pollution. Grant, from the Green Infrastructure Consultancy, took an early stab at putting walls to work against stormwater surges in a 2013 installation at London's Rubens at the Palace hotel.

Greening the roof was not structurally viable for the century-old building, so Grant designed a 38,000-square-foot living wall—



the largest in London—to turn the Rubens's previously unadorned brick face into a living sponge. Two 2,600-gallon cisterns buffer the runoff, then pump it to the wall's ferns and herbaceous plants.

Planner Amy Chomowitz, who champions green roofs, spearheaded a more direct stormwater wall at the Portland Expo Center in Oregon. The city commissioned local landscape architect GreenWorks to fashion custom planters—arrayed across the building's north wall—to filter runoff from its 9,400-square-foot roof.

Completed in 2014, the living wall's 20-foot-long planters overflow with ferns, salal, and other rainforest natives. A mallard pair took up residence this spring. Irrigation sustains the rainforestlike scene through the summer, evoking the flora of the nearby Columbia Gorge.

Mike Faha, GreenWorks' founding principal, says the StormWall employs the same media typically used to soak up water on large green roofs planted with desert sedums and bunch grasses. But here the growth media is four to five times deeper, maximizing water retention.

Tim Kurtz, a city engineer tracking data on the StormWall, estimates that it reduces peak flows by 50 to 70 percent during big storms. "It's definitely having an impact," says Kurtz. If implemented at a large scale, he predicts, such walls could reduce the number of times rainfall overwhelms sewers and wastewater-treatment plants.

Green walls can also treat the urban heat island (UHI) effect whereby solar radiation absorbed by roads and buildings makes cities hotter than surrounding rural areas. UHI is not just a future threat associated with climate change. In Melbourne, where UHI effects increase air temperature as much as 45 degrees Fahrenheit, a 2009 heat wave caused a 62 percent spike in human mortality.

Vegetative surfaces provide shade and reduce heat through the transpiration of water vapor. Researchers at Australia's University of Melbourne and Monash University identified important roles for green walls in a recent review of strategies for mitigating UHI. Economical green facades, they write, could cool large swathes of the city where limited open space precludes tree planting.

Trees can block ventilation and become counterproductive in tight city spaces. According to the Australian researchers, living walls—which cost more but will probably deliver more cooling—could be placed strategically to target these hot spots.

MAINSTREAM GREEN

Green walls are beginning to get credit for their ecological and societal benefits under development codes that increasingly mandate green screening. SolTerra is taking advantage of Seattle's Green Factor landscaping mandates, which award developers extra points for building green walls to encourage innovation.

However, researchers say better quantification of green-wall benefits is needed to underpin incentives such as Seattle's and spur investment by developers. While green roofs have proven their ability to pay for themselves through energy savings, stormwater mitigation, and an extended roof lifetime, a dearth of data on green walls means they remain largely driven by aesthetic whim.



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FROM ARCHITECTURAL RECORD



STORMWALL

Runoff from the Portland Expo Center's roof filters through a 30-by-60-foot array of planters en route to city drains. The StormWall slows the runoff much as a green roof does, while giving the adjoining space a rainforestlike feel. University of Genoa instructor Perini took an early stab at a cost-benefit study in 2013, modeling south-facing green facades and living walls for a hypothetical four-story Genoa office building. Using data drawn from the academic literature, she estimated property value appreciation and energy savings worth a combined \$4,200 per year for a living wall and about \$2,300 per year for a green facade. The green facade paid for itself. The living wall, with its higher installation and maintenance costs, did not.

However, Perini says the study was deliberately conservative since it relied on other researchers' data. For more accuracy, the instructor and her colleagues built Genoa's first living wall and have been studying it since the end of 2014. She has yet to disclose the wall's performance but hints that the data put living walls in a better light. "We do hope to demonstrate that living walls can be economically sustainable," says Perini.

Some of the less tangible benefits of green walls, such as biophilia, may be hard to quantify, but their value is easily observed. SolTerra's Heather recounts watching a couple with a young child outside the Woodlawn development, pointing up to a bird nesting in the living facade. "The wall adds to the neighborhood," he says. "It is something that people take much more pride in than they do a traditional building."

PETER FAIRLEY, A JOURNALIST BASED IN BRITISH COLUMBIA, COVERS ENVIRONMENTAL ISSUES FOR MULTIPLE PUBLICATIONS INCLUDING *TECHNOLOGY REVIEW* AND NATURE.

Continuing Education



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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 continuingeducation.bnpmedia.com.

Learning Objectives

- 1 Outline the ecological benefits of green walls and other types of green infrastructure.
- 2 Describe the different types of green walls.
- 3 Explain how each type is installed and characterize their maintenance requirements.
- 4 Discuss available data regarding the costs of green walls.

AIA/CES Course #K1607A

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SNAP 38

MANUFACTURERS' SPOTLIGHT SECTION

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Containing 70 percent recycled fibers, Formica's dECOleather veneer (crocodile, above) is available in 18 colors and three finishes and can be used on interior surfaces, walls, and furniture. (SNAP #233)

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Doors, Windows

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

Electrical, Lighting

Pages 50, 52

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

Equipment

Electrical and tech goods for a broad range of uses, including audiovisual, multimedia, and controller systems. Also covers elevators and appliances.

Page 50 Interior Finishes, Furnishings

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

Landscaping, Sitework

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

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Page 54

Materials

Basic products used in construction, such as lumber, concrete, and masonry units. Includes paint, coatings, and structural materials and fittings.

Page 52 Mechanical Systems, HVAC, Plumbing

Page 54

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

Roofing, Siding, Thermal & Moisture Protection

Pages 54, 56

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

Specialty Products

Page 56

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

architecturalrecord.com | july/august 2016 | snap | **49**

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DOORS, WINDOWS

SLEEKLINE CANOPY SYSTEM USES MAKROLON® POLYCARBONATE SHEET

Covestro LLC

Sleekline canopy systems combines design flexibility with exceptional affordability. The low profile Makrolon[®] polycarbonate glazed panel system is durable, sustainable, and aesthetically pleasing for today's urban landscape.

www.sheets.covestro.com www.duro-gard.com

SNAP 234

DOORS, WINDOWS

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 19 ft high, 200 ft wide • Distinctive looks, rugged protection

www.mobilFlex.com 800.501.3539



ADJUSTABLE CONCEALED HINGES ŚŚŚ

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 lowfrequency applications)

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



DOORS, WINDOWS

SKYLIGHT SHADINGS \$\$ | GREEN

Crown Shade Company

Flat and angled skylights can now be automatically covered with the push of a button. Crown's single and twin motor tensioning shade systems cover the largest openings with high-performance fabrics. **Product Application**

• Commercial buildings; residential buildings;

angled windows Performance Data

- Fabrics contribute toward GREENGUARD/LEED
- certification
- Fully customizable for each application

www.crownshadeco.com 800.445.5557 | Jared Grodnitzky

SNAP 240

CLEAR SOLUTION FOR ALL 45-MIN. APPLICATIONS NEW I S

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

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- ASTM E-119 with hose stream
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WR

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DOORS, WINDOWS

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Schweiss Doors, Moving Walls

Schweiss Doors manufactures unique custom doors. One-piece hydraulic doors and patented Lift-Strap opening/closing bifold doors.

Product Application

- Moving doors and walls • You think it, they build it
- Custom-designed storefronts and more
- **Performance Data**
- Faster, safer operation
- Zero lost headroom
- · Superior design that keeps working

www.schweissdoors.com

507.426.8273 | schweiss@schweissdoors.com

DOORS, WINDOWS

SNAP 237

HIGH-PERFORMANCE SKYLIGHTS FOR ANY BUDGET WR I GREEN

Major Industries, Inc.

Guardian 275® translucent panel skylights from Major Industries allow natural light to illuminate interior spaces without the annoying hot-spots and glare of traditional glass systems.

Product Application

- Great for offices, schools and libraries where too much sunlight can cause excessive glare and eyestrain.
- Lightweight great for retrofit applications.
- **Performance Data**
- Panels available in 2.75" and 4" thicknesses, and can be insulated for enhanced thermal performance.

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SNAP 239 ELECTRICAL, LIGHTING

SUSPENDERS LIGHTING SYSTEM NEW | GREEN | WR

SONNEMAN - A Way of Light

Suspenders[™] is a delicately scaled, modular system of interconnected elements and suspended LED luminaries.

- Residential
- Commercial
- Hospitality

Performance Data

 Customized as individual LED sculptures or as a tiered web of infinite variety.

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SNAP 236

DOORS, WINDOWS



AWARD WINNING ACOUSTICS!

Microperf Acousticore 519 & 525 *Acoustical Panels*

Innovative Product Blends Beautiful Finish with Superior Performance

Microperf Acousticore 519 & 525 wall and ceiling panels are unmatched in performance, discrete aesthetics, and structural integrity, and represent an entirely new class of sound-absorbent panels. Engineered to offer superior acoustic benefits, the panels offer seamless integration of acoustic materials into all types of projects. The core of every panel is sintered resin-reinforced glass wool Soundply[™], and several different materials are available, such as wood veneer, vinyl, high pressure laminate, and even painted interior surfaces.

Product Features:

- Exceptional acoustic performance
- Uncompromised aesthetics
- Hang like traditional wall panels with Z-clips
- Lightweight, impact-resistant and rigid
- Low reactivity to temperature and humidity change
- Fire retardant ASTM E-84 Class A
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ELECTRICAL, LIGHTING

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AIA Expo

makes it easy

SNAP 242

EQUIPMENT

NEW 24-VOLT LED POST ACCENT LIGHT GREEN | \$\$ | NEW

Feeney Inc

All-weather, energy efficient LED post accent light with decorative powder-coated aluminum sconce. special light-diffusing polycarbonate lens, remote dimming capability and a variety of color options **Product Application**

- Use on DesignRail® and other railing systems · Residential, commercial, institutional settings
- Performance Data
- High CRI (85) LEDs for excellent color rendering, 1.36 watts, 118 lumens, rated 50,000 hrs • 24 volt DC, fully weatherproof plug-&-go components,
- 13 color options
- www.feeney6.com, ph:1-800-888-2418 | Trang S., tsoriano@feeneyinc.com

NEW IDEAS

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The new IDEA[™] line provides optimal touch performance, and is the best screen on the market for interactivity. New standard features include a magnetic surface and thin frame. **Product Application**

- Erasable
- Compatible with any dry erase marker
- **Performance Data**

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www.da-lite.com/NewIDEAs

Hotspot free



SNAP 244

FUNCTIONAL & PHENOMENAL FLOOR

Liquid Elements, a brand of The Stonhard Group

Polish imaginatively combines the durability of concrete with a smart, contemporary, mottled look. Polished is a stronger, safer and superior design alternative to stained or polished concrete Product Application

· Ideal for retail spaces, restaurants, and walkways. Available in five colors, both in a matte and gloss finish.

Performance Data

- Easy to clean and UV resistant
- Does not require waxing or polishing liquidelements.com

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LED RECESSED DOWNLIGHT **ZUMTOBEL**

PANOS delivers unparalleled LED lighting quality, efficiency and precision with compound material construction inspired by space technology - no housing required.

Product Applications

- Google Headquarters, London, United Kingdom
- Maison Ullens Boutique, Paris, France
- Leica Camera Headquarters, Wetzlar, Germany

Performance Data

- Easy installation twice as fast to install as traditional downlights with housing
- Superior efficacy of up to 125+ lumens per watt

zumtobel.us 845-691-6262 info.us@zumtobelgroup.com



ELECTRICAL, LIGHTING

SNAP 243

SNAP 245

EQUIPMENT

SERIES 3000 DOCK LIFT- UPDATED & EXPANDED

Advance Lifts, Inc

Advance Lifts Inc. The nations #1 dock lift builder has recently updated and expanded their 3000 series of pit mounted dock lifts.

Product Application

• This newly expanded line brings lower lowered heights and a significant cost reduction to dock lifts with capacities between 8,000 and 20,000 pounds.

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LANDSCAPING, SITEWORK

GRASS PAVEMENT

WR I 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

SNAP 247

LANDSCAPING, SITEWORK

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Steel framed band shells and amphitheater structures by ICON can take any shape in any size. **Product Application**

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- Educational Institutions
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SNAP 246

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Landscape Forms takes an important step in empowering outdoor experience with a family of mobile device charging stations that let people plug in and re-charge outdoors. This landscape-changing solution supports connectivity with three smartly designed models. All provide access to standard power and USB outlets, and all beautifully complement Landscape Forms site furniture solutions. Outdoor Power by Legrand takes power to places it's never been before.

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TRAVEL

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The New! Lofty[™] Series is elevated in its appearance, combing modern lines and charming character for a luxurv feel.

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• Auditoriums, restaurants, bars, conference rooms,

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• Theaters, gymnasiums, houses of worship, airports

new class of sound-absorbent panels.

Ceiling Panels are superior in performance, discrete

aesthetics, & structural integrity. They are an entirely

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- Schools and Universities
- Commercial Buildings
- Performance Data
- Five-year e-Steele™ finish warranty

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Acoustical Surfaces, Inc.

Product Application

Performance Data

www.acousticalsurfaces.com

schools

stores



LANDSCAPING, SITEWORK

SNAP 250

MATERIALS

SNAP 252

IN-SINK DRAIN SYSTEM

\$\$ | GREEN | NEW **Just Manufacturing**

Integra Drain - seamlessly welded to sink, creates and

integral drain in-sink system, without additional parts or rings. Reduces leak potential. Includes basket strainer and tailpiece.

- **Product Application**
- Commercial and residential applications Performance Data
- Integral seamless sanitary drain system
- Heavy-gauge stainless strainer

 Shown with JPGO-9000 single-handle kitchen faucet with pull-out spray

www.justmfg.com/integra-drain 847.678.5150 | Specifier Services



SNAP 251

MATERIALS

3135EC ECLIPSE SOFT-CLOSE UNDERMOUNT NEW

Accuride International

Tough enough for commercial use, model 3135EC Eclipse Undermount Easy-Close slide delivers flawless movement, easy adjustment, and superior softclose action for jobs up to 30" wide.

Performance Data

- Reliable soft-close action
- Multiple drawer front adjustment for easy installation
- Up to 100 lb. load rating • ADA compliant with 4.8 lbs. of pull force
- Quiet operation

accuride.com/eclipse



SNAP 253

SNAP 254

INSULATED METAL VERTICAL JOINT

CENTRIA's Formawall® Insulated Metal Panel System is now enhanced with the Formawall Insulated Metal Vertical (IMV) Joint. Designed with CENTRIA's Advanced Thermal and Moisture Protection (ATMP®) technology, Formawall IMV Joint provides the most advanced protection from air and water penetration. The Formawall IMV Joint also is engineered to be weathertight. Its innovative all-metal joinery replaces traditional gaskets at the end joints for the ultimate thermal barrier. The result is a continuous. contemporary facade that gives your projects a sophisticated modern aesthetic.

Performance Data

- Surface Finish:
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- Available in matching panel color, or custom reveal color.



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ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

GREEN I SS

Petersen Aluminum Corporation

PAC Tite-Loc Metal Roofing Panels offer superior water resistance and durability. Mechanically seamed in the field for smooth installation and lasting performance.

Product Application

• Jefferson County Western Health Care Center, Midfield.

Performance Data

- Available in 38 colors on steel and 36 on aluminum
- 30-year non-prorated finish warranty

Weathertightness warranty available

PAC-CLAD.com







CENTRIA



- Optional 1", 2" and 3" Reveal Width
 - Color:

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION ARCHITECTURAL PRECAST CONCRETE CLADDING PANELS GREEN I WR

Easi-Set Worldwide Licensed Precasters

SlenderWall is an Ultra Hi-Performance 28 lb/sf award winning architectural precast concrete with integral heavy-gauge steel-stud frame building envelope panel system. Wind-load tested to 226 mph. **Product Application**

- Johns Hopkins Hospital, Baltimore, MD
- BioInnovation Center, New Orleans, LA
- Westin Luxury Hotel, Virginia Beach, VA
- US Army Legal Headquarters, Ft. Belvoir, VA
- **Performance Data**
- Factory-installed continuous closed-cell foam insulation - compliant with all IECC/ASHRE energy codes www.SlenderWall.com

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NDER A COMPLETE BUILDING PANEL **INSIDE AND OUT**



SNAP 255

METAL ROOFING

AL











JUST (1) LOWER BACK INJURY

Or

(1) SMASHED METATARSAL

OR





(1) TORN ROTATOR CUFF

CAN COST MORE THAN (1) DOCK LIFT

 PROTECT WORKERS
Save Money
Increase Efficience
Iso 9001:2008 Certified
Iso 9001:2008 Certified
Iso 9001:2008 Certified

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

DRI-DESIGN TAPERED SERIES WALL PANEL SYSTEM

WR **Dri-Design**

Dri-Design Tapered Series Panels have the ability to create a unique effect of rich texture, giving buildings their own individual identity.

Product Application

- · Millwood Library Edmonton, Canada
- Tapered Series Panels painted aluminum
- Tapered Series Panels can be angled in any direction with varying depths and degree of slope

Performance Data

 Create a dynamic, one-of-a-kind surface on nearly any façade, without the need to modify the substrate or weather barrier.

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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 Applications

- Showers of all types including barrier-free and ADA
- Use w/large-format tile for contemporary designs
- New construction, renovation

Performance Data

- High capacity, 36 GPM drainage
- Waterproof with NobleSeal[®] TS
- U.S. Patents #8,474,068. Patents Pending Canada & EP Pub. #2354339

www.noblecompany.com



SNAP 259

DECK SYSTEM FOR BLEACHERS AND GRANDSTANDS

WR I NEW

Sturdisteel

Tongue & Groove "no through-bolt" decking systems feature a closed deck that provides increased rigidity, a reduction in deflection, and allows the aluminum boards to act as one. solid deck. **Product Application**

• I-Beam permanent grandstands

- · Leg truss permanent grandstands
- Angle frame bleachers
- **Performance Data**
- Containment of trash & debris
- · Accommodates various rise & tread spacing
- · Accommodates stadium chair seating

www.sturdisteel.com

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SPECIALTY PRODUCTS

SPECIALTY PRODUCTS

FOLDING STAIRWAY

Precision Ladders, LLC

Automatic Super Simplex Folding Stairway opens and unfolds at the press of a button. New patent-pending stair can be operated from above or below for ceiling heights up to 16 ft.

Product Application

- University of Memphis Clock Tower, Memphis, TN
- I-78 Toll Plaza, Blackwood, NJ • Fort Saskatchewan Hospital, Edmonton, Alberta

• 500-lb load rating with actual shear of rivets tested to 1,175 lb; steel frame, extruded aluminum treads



Anti-Slip Stair Treads & Nosings

Wooster Products, Inc.

Anti-Slip Safety Stair and Walkway Products for new construction and renovation. Brand names include Supergrit, Spectra, Alumogrit, Stairmasterand NITEGLOW.

Product Application

- Commercial and residential buildings
- Transit systems

Booth: 3904

DeckExpo

Stadiums and ballparks

Performance Data

- Indoor and 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 261

SPECIALTY PRODUCTS

SNAP 260

STAINLESS STEEL CABLE RAILING WR I NEW

Atlantis Rail Systems

Stainless steel cable railing systems for unobstructed indoor or outdoor, commercial or residential designs and pre-engineered for quick and easy installations. **Product Application**

- Federal Jacks Restaurant & Brew Pub, Kennebunk, ME
- Enclave Development, Fargo, ND
- The Bluff Top Trail, Dana Point, CA
- **Performance Data**
- Low maintenance, grade 316L stainless steel
- Variety of modular components for every design
- Variety of modular components for every design

www.atlantisrail.com 800.541.6829 | info@atlantisrail.com

SPECIALTY PRODUCTS



Smart Vent® Products, Inc. Flex-Wall™

Smart Vent has expanded it's line of ICC-ES Certified Foundation Flood Vents to bring you the most advanced dry floodproofing solution on the market. **Product Application**

- · Commercial buildings in flood zones benefit from eliminating the need for off-site storage and fees. **Performance Data**
- Rapid deployment in minutes
- Can be sized to fit any opening
- Lavered Keylar® structural webbing
- Coated urethane water retention laver

smartvent.com 877.441.8368

SNAP 262



ŚŚ I NEW

SNAP 257

- **Performance Data**

www.precisionladders.com 800.225.7814 | Steve Fugate

DATES + EVENTS

NEW AND UPCOMING EXHIBITION

Tracing Displacement and Shelter NEW YORK CITY

October 1, 2016-January 22, 2017 This upcoming exhibit at MoMA will explore how architects and designers have considered the meaning of shelter in light of global refugee emergencies. Works on display examine such $trends \,as the strengthening \,of \,national \,borders$ in response to influxes of migrants and the growing need for affordable, adaptable, mobile housing for transient populations (currently estimated at over 60 million worldwide). For more information, visit moma.org.

ONGOING EXHIBITIONS

Young Architects Project NEW YORK CITY

Through August 28, 2016

The 17th edition of a long-running exhibition at MoMA PS1 highlights the work of young architecture firms. This year, Escobedo Soliz Studio of Mexico City won the global competition to design a temporary outdoor installation that provides shade, seating, and water in the courtyard of PS1, in Long Island City. Called Weaving the Courtyard, the canopy-like pavilion hosts concerts and other events as part of the museum's Warm Up series for the duration of the summer. For more information, visit momaps1.org/warmup.

Extraordinary Playscapes BOSTON

Through September 5, 2016

Curated by Design Museum Foundation, Extraordinary Playscapes explores contemporary playground design, making a case for the importance of free play to healthy childhood development, thriving communities, and social equity. The exhibition features a project that reimagined a defunct ambulance as a children's playground at a Malawi, Africa, hospital; examples of how Danish design integrates nature and play; and innovative playcentered design on the Boston waterfront. Extraordinary Playscapes offers interactive installations, videos, scale models, and hands-on elements that allow visitors to explore the art, history, and science behind play. For more information, visit architects.org/bsaspace.

Roberto Burle Marx: Brazilian Modernist NEW YORK CITY

Through September 18, 2016

The Brazilian artist and landscape architect Roberto Burle Marx (1909–94) undertook such projects as the mosaic pavements on the seaside avenue of Rio de Janeiro's Copacabana Beach and the multitude of gardens that embellish Brasilia (one of several large-scale projects he executed in collaboration with the legendary Oscar Niemeyer). This exhibition at the Jewish Museum explores the richness and breadth of the $artist's \, oeuvre-from \, landscape \, architecture \, to$ painting, from sculpture to theater design, and from tapestries to jewelry. For more information, visit thejewishmuseum.org.

Atmosphere for Enjoyment NEW YORK CITY

Through September 25, 2016

Artist Harry Bertoia might fairly be called the maestro of the metal rod. Best known for his wiremesh Diamond chair, he discovered in the 1960s that when metal rods are struck together, they create a lush, resonant sound. Bertoia then began exploring the potential relationship between sculpture and sound, eventually creating a significant oeuvre that would crown his life's work. Referred to collectively as Sonambients, these sculptures are interactive, kinetic, and audible forms composed of bundled metal rods that, when agitated by wind or human touch, collide and set off radiant tones. Atmosphere for Enjoyment, at the Museum of Arts and Design, explores the Sonambients, their installation in Bertoia's stone barn, and their legacy as sound art. For more information, visit madmuseum.org.

Eye for Design

NEW YORK CITY

Through October 2, 2016 Eye for Design showcases catalogues produced by the Museum of Arts and Design between the 1950s and 1970s. Designed by graphic artists including Emil Antonucci, John J. Reiss, and Linda Hinrichs, the catalogues and other printed exhibition-related ephemera highlight a lesserrecognized aspect of 20th-century graphic design history while defining MAD's place in the design community of New York during that time. For more information, visit madmuseum.org.

Thom Browne Selects NEW YORK CITY

Through October 2, 2016

For the next edition of Cooper Hewitt's Selects series, fashion designer Thom Browne explores ideas of reflection and individuality with, aptly, an installation including more than 50 of the museum's historic and contemporary mirrors and frames. The exhibition is the 13th of the series in which prominent designers, artists, and architects are invited to mine and interpret the museum's collection of 210,000-plus objects. For more information, visit cooperhewitt.org.

Hippie Modernism: The Struggle for Utopia

BLOOMFIELD HILLS, MICHIGAN Through October 9, 2016

Presenting a broad range of art forms and artifacts of the era, Hippie Modernism: The Struggle for Utopia features experimental furniture, alternative living structures, immersive and participatory media environments, alternative publications and ephemera, and experimental film. The exhibition, taking place at the Walker Art Center, covers one of the most vibrant and inventive periods of the not-too-distant past: one that continues to resonate culturally today. For more information, visit cranbrookart.edu/ museum/exhibition.

KieranTimberlake: Drawn + Quartered PHILADELPHIA

Through October 14, 2016

On view at the Harvey and Irwin Kroiz Gallery and the subject's office, *KieranTimberlake*: Drawn + Quartered is an architecture exhibit that surveys the execution of line and prototype in the firm's design process. Presented by KieranTimberlake and the Architectural Archives of the University

of Pennsylvania, the exhibit includes drawings, scale models, and mock-up experiments. For more information, visit kierantimberlake.com.

15th International Architecture Exhibition: Reporting from the Front VENICE

Through November 27, 2016

Taking place in the Arsenale, the Giardini public park, and various other venues in Venice, this annual blockbuster show features success stories in which architecture helped expand the possible. Designed to attract a broad audience. Reporting from the Front explores what it's like to improve the quality of life while working within the margins, under tough circumstances, and facing pressing challenges. In a collective effort to better the built environment, the exhibition asks, What does it take to be on the cutting edge and to conquer new fields? For more information, visit labiennale.org.

Narcissus Garden at Johnson's Glass House NEW CANAAN, CONNECTICUT

Through November 30, 2016 To celebrate the 110th anniversary of the great architect's birth and the 10th anniversary of his

most famous residence's being opened to the public, Philip Johnson's Glass House hosts an installation by Japanese artist Yayoi Kusama. *Narcissus Garden*, initially created for the 33rd Venice Art Biennale in 1966, will be incorporated into the 49-acre site around the Glass House. The piece consists of 1,300 steel spheres floating on a newly restored pond, providing a dramatic view leading up to the house. For more information, visit theglasshouse.org.

Form/Unformed: Design from 1960 to the Present DALLAS

Through December 31, 2016

Showcasing more than 30 works drawn largely from the Dallas Museum of Art's collection dating from the 1960s to the present, this exhibition reveals the transformation of ideology and forms that have shaped international design in the last half century. From the technological and formal ideals of modernism to the influence of the handmade object, the pieces reflect increasingly complex and vibrant relationships between concepts of function, aesthetics, and material expression. Featured are designs by Verner Panton, Frank Gehry, Aldo Rossi, Ettore Sottsass, Robert Venturi, Donald Judd, Zaha Hadid, Louise Campbell, and Fernando and Humberto Campana. For more information, visit dma.org.

FESTIVALS, CONFERENCES, **AND COLLOQUIA**

London Design Festival 2016 LONDON

September 17-25, 2016

First staged in 2003, the London Design Festival has become one of the world's largest conferences for design of all kinds. This year's festival, oriented around the theme Design Is in the Detail, will feature innovative experiments like a wide wooden structure by Alison Brooks Architects called *The Smile* and an installation about contemporary urban living presented by

MINI. There will also be numerous partnership events, networking opportunities, and panels on trends in engineering and design. For more information, visit londondesignfestival.com.

International Bauhaus Colloquium WEIMAR, GERMANY

October 26-29, 2016

The 13th International Bauhaus Colloquium at the Bauhaus-Universität Weimar is entitled Dust and Data. It will reflect on the almost 100-year history of the Bauhaus at its original sites—Weimar, Dessau, and Berlin—as well as the history of its international reception and migration. Because the conference is a historiographical laboratory of sorts and a barometer of shifting political landscapes, the 2016 iteration will celebrate this legacy by examining both architectural history and methods in order to address contemporary political transformations. For more information, visit bauhaus-kolloquium.de.

ARCHITECTURAL RECORD Innovation Conference East NEW YORK CITY

November 3, 2016

Join RECORD for a single-day conference on architecture and making in the postdigital age. Innovation East (the East Coast counterpart to the summer conference in San Francisco) will bring together imaginative and forward-looking figures to exchange ideas about the built world of today and the future. Speakers and participants will range from principals of large firms to materials experts to architects practicing outside the discipline. Attendees will leave the conference inspired by brave and original approaches to some of the most relevant problems in the industry. For more information, visit ariceast com

World Architecture Festival 2016 BERLIN

November 16–18, 2016

In addition to awarding prizes for building projects both completed and proposed, this year's World Architecture Festival will include a robust roster of seminar speakers—Richard Rogers and Moshe Safdie included—who will touch on large-scale housing-related topics: housing in dense cities, housing for refugees, housing and luxury, housing and energy efficiency, and more. There will also be panels focused specifically on the revitalization of post-Wall Berlin and architecture tours of the area running on all three days of the festival. Additionally, there will be on-site "live crits" at which architects and designers can receive feedback on their project ideas in real time. Visit worldarchitecturefestival.com.

COMPETITION

AIANY COTE Awards 2016

Submission deadline: September 16, 2016 Established in 2014 by the New York chapter of the AIA's Committee on the Environment, this awards program recognizes results-oriented projects that are socially and environmentally responsible, promote sustainable design in the urban context, and reveal the process behind innovation. Visit aianycoteawards.org.

TRADE SHOW NEWS



Turned On at Lightfair 2016

Lighting and technology converged at the annual trade fair, with aesthetics and sensors stealing the show.

AT THIS YEAR'S Lightfair International (LFI), the lighting industry finally settled into a new normal: the calm after a decade's worth of rapid (and occasionally chaotic) innovation driven by the large-scale migration to LED light sources. The latest edition of the fair and convention, held from April 24 to 28 in San Diego, was one of the largest yet, with 617 international exhibitors showcasing their goods and services.

The LFI Innovation Awards set the tone. The edge-lit **Philips** Gardco SoftView LED parking-garage luminaire won product of the year, with judges from the **International Association of Lighting Designers** (IALD) and the **Illuminating Engineering Society** (IES) citing its good looks, glare control, and 4 percent uplight among the deciding factors. Offering multiple distribution, mounting, and color-temperature options, the luminaire also features response sensors and remote programming. **DMF Lighting**'s Energy Starcertified OneFrame DRDHNJD recessed downlight received the best technical innovation prize. Said to be the first LED housing designed for multifamily buildings, assisted living facilities, and college dorms, the fixture can be mounted horizontally or vertically. It has a CRI of 93+ and comes with a floating height module to ensure perfect alignment with ceiling thicknesses of up to 2 inches.











Other Innovation honorees included **Amerlux**'s pedestrian-scale Lunetta luminaire, an outdoor fixture whose top cap comes equipped with recessed LEDs that provide glare-free illumination, and **Eaton**'s solid-state Ephesus All-Field LED sports light. The latter, an effective replacement for a 1,000W metal halide luminaire, delivers either 550W/61,000 lumens or 750W/83,000 lumens of professional-quality illumination for municipal and college venues.

"The convergence of light and technology marked every dimension of LFI 2016," claimed Jeffrey L. Portman Sr., vice chairman, president, and chief operating officer of LFI managing partner AmericasMart Atlanta. **Minebea**'s SALIOT exemplified the trend. Available in spotlight and universal downlight versions with 2700K to 5000K color temperature options, the fixture comes with a smartphone app that can adjust its angle, pan, tilt, dimming intensity, and zoom.

BRIGHT IDEAS

New workplace lightingsolutions include (clockwise from top right) Rubik from Mark Architectural Lighting, Nova modular suspension system from Edge Lighting, and BeveLED from USAI. Other notable fixtures are Eaton's Ephesus All-Field LED, Amerlux's Lunetta luminaire, and DMF Lighting's OneFrame DRDHNJD downlight.





TRADE SHOW NEWS

The technology has expanded into the workplace, with products like the Nova modular suspension system (by Edge Lighting) offering slim linear units with infinite configurations and a simple plug-in function of L, X, T, and Y connectors. Marrying Armstrong's popular ceiling panels with the shallow housing of **USAI**'s BeveLED downlight, the BeveLED Connect seamlessly integrates light into a ceiling's grid intersections. Plus the low-profile Rubika dynamic, recessed luminaire by Mark Architectural Lighting and available through Acuity Brands—comes in four versions, among them grayscale and a tunable white that maintains the body's circadian rhythms, slowly shifting its hue like sunlight, from 2700K to 6500K throughout the day. Tunable white LEDs also appeared in various health care luminaires, including Hubbell Lighting's MediMode 2-by-4-foot recessed tropher, which can serve as an ambient, exam, and reading fixture as well as a nightlight.

Continuing to push LED technology beyond illumination, numerous companies debuted broad-reaching connectivity through lighting, with an eye toward retail, urban, and workplace applications. The **Philips** Day-Brite LED Linear Suspended LBX luminaire integrates with indoor positioning systems to provide services to and garner information from customers via phone apps, while the firm's CityTouch software (installed in over 30 countries) allows for the remote management of urban streetlight infrastructure. **Current**, powered by **GE**—a start-up within the multinational electricity corporation combines GE's solar, LED, EV-charging, and storage businesses to offer a holistic energy solution for commercial, industrial, and municipal customers. By pairing LEDs with sensors and proprietary and third-party software, the company is looking to not only reduce energy but also drive new business initiatives from meeting-room management to customer targeting in retail stores. Partners for the venture include **AT&T**, **Intel**, **Qualcomm**, and **Genetec**.

In a digital world, lighting is fast becoming critical in the energy and data management of the 21st-century built environment; it's also becoming an instrument for its humanization. If LFI 2016 was any indication, the conversation will continue to evolve—and LFI will serve as an essential forum for sharing ideas and solutions. *—Linda Lentz*





MULTITASKERS

Besides illuminating a store, the Day-Brite LED Linear Suspended LBX luminaire by Philips (above) integrates with retail software to gather customer information and serve up coupons. Hubbell Lighting's MediMode tropher (left) features tunable white LEDs; the fixture's four functions ambient, exam, reading, and nightlight-can be controlled with a combination of wall switch and handheld device.





ANABELA CHAN

Based in London and Paris, Chan studied architecture at the Royal College of Art and worked for both Lord Richard Rodgersand avant-garde designer Alexander McQueen before founding her eponymous haute-couture jewelry line in 2013. anabelachan.com



JERRY HELLING As president and creative director ofBernhardt Design, Helling oversees all the North Carolinabased brand's furnishings and textiles. He also founded several ongoing design-education and mentoring initiatives such as ICFF Studio. bernhardt design.com



CURIOSITY DROVE Jerry Helling to Anabela Chan's doorstep. "I was in London and passed by this jewelry boutique in Ham Yard Hotel each day," says Helling, president and creative director of Bernhardt Design. "Every detail was perfect: the architecture, the curation, even the taxidermy and lithography. So I thought, I am going to be really rude and find out who the hell designed this store and everything in it."

It just so happened that the person who had—Chan—was minding the shop that day. Hailing from a family of cinematographers, the 31-year-old trained as an architect and designed embroidery for haute-couture houses before turning her hand to jewelry. The two got to talking, and Helling realized what he'd stumbled upon. "I rarely meet someone that talented on so many fronts," he says. "So I decided that we had to do something together."

That something turned out to be the Anabela Chan Collection for Bernhardt Textiles. Objects such as a butterfly wing, a tourmaline stone, and peacocks ("inspirations from my own jewelry work," Chan calls them) prompted the five upholstery offerings, including Feather (above). Though it was her first textile collection, Chan took to the process. Her main challenge, she says, was learning to make her patterns more abstract. "Much of my work is descriptive and direct," she explains. "So it was about how to translate my attention to detail into a different medium."

Although he never expected otherwise, Helling is thrilled with the results. "Textile design is almost a perfect parallel to jewelry design," he points out. "You start with one element and then you change texture, repeat, size, scale, and color to build a story. So I knew her collection would be amazing." (SNAP #270)

GREENSOURCE



ROOM WITH A VIEW Triple-pane glass windows insulate Hampshire College's R.W. Kern Center, affording occupants vistas of the rolling landscape (above). The rooftop array of solar panels (right) was sized to provide all the structure's energy.

Live and Learn

The R.W. Kern Center aims for Living Building Challenge certification, giving form to Hampshire College's progressive mission.

BY DAVID SOKOL

FOR ALL THE DIGITAL resources at high schoolers' fingertips to help them choose a college, Jonathan Lash says real-life visits still make or break final decisions. So in 2011, when this former head of sustainability organization World Resources Institute was appointed president of Hampshire College in Amherst, Massachusetts, he suggested that a central facility replace the faraway farmhouse serving as admissions office. The campaign gained momentum, Lash says, after he proposed that the building also aim for Living Building Challenge (LBC) certification, arguably the most stringent of green building standards. Designed by **Bruner/Cott Architects and Planners**, the resulting 17,000-square-foot R.W. Kern Center houses admissions and financial-aid offices and a café, too. Notably, it is also poised to become only the 12th building ever to earn LBC status.

LBC comprises seven groups of criteria—called petals—ranging from energy performance and social equity to materials and beauty. As such, says Lash, "the LBC protocol embodies our values of ethical citizenship and our students' passion for environmental leadership." A building seeking certification must meet all seven of the program's criteria.

Despite Hampshire's location—in the Berkshire Mountains, where winter can be protracted—Bruner/Cott achieved the LBC's criteria for the Energy petal in





relatively short order. The Cambridge, Massachusettsbased design team organized the Kern Center into a pair of two-story wings that meet at a glass pavilion, and then covered that trio of volumes with a broad, south-facing roof mounted with 100 kilowatts of **SunPower** photovoltaics. "Early in modeling we found that by oversizing the roof, we could get 25 percent ahead of net positive," says principal Jason Forney of the project's energy use.

Yet efficiency played as important a role in the achievement as electricity production. The center's exterior wall assembly, for example, comprises 12 inches of blown **Nu-Wool** dense-pack cellulose insulation, and its fenestration includes triple glazing by **Solar Seal**. Compared to a normal wall cavity, the superinsulated envelope dramatically reduces heating and cooling loads.

Bruner/Cott also embraced a systemic approach to LBC's Water petal, for which net zero is standard. Rainwater from the angled roof flows into a pair of 5,000-gallon **Arrow Concrete** rainwater cisterns installed partly aboveground and then undergoes debris removal by **Conservation Technology** and **Poly-Mart** systems. It also is filtered through carbon and UV systems from **Harmsco** and **Viqua**, respectively.

The resulting liquid goes to handwashing, café uses, cleaning, and irrigation, since the building-wide **Clivus** composting toilets require no water. Graywater produced from the **Elkay** and **Kohler** sinks located in restrooms, custodial closets, and kitchen filters through an indoor planter system to constructed wetlands, which also collect precipitation not captured by the roof. The Materials petal was also uniquely demanding. It requires sourcing of local materials—proximity depends on weight—that are manufactured responsibly and don't appear on the Red List (of materials known to contain harmful chemicals). Bruner/Cott architectural designer Christopher Nielson explains that for the Kern Center, the approach was "to limit the number of products to what was absolutely necessary." Adds Bruner/Cott senior associate Jason Jewhurst: "We also aimed for double uses. If we use a wood structure that is beautiful to look at and wonderful to touch, then there's no need to source a finish."

As a result of this multitasking mind-set, **Nordic**'s glued-laminated timber remains exposed as columns, beams, and second-floor decking. In a similar vein, the team selected garnet schist quarried from **Ashfield Stone** and **J.S. Lane & Son** for the exterior cladding and as aggregate in its poured-concrete ground floor.

In the case of equipment, Bruner/Cott worked with such companies as **Greengate** and **Myers Power Systems**— respectively, makers of the center's lightswitching and emergency-lighting inverter—to dissect their products for Red List compliance, responsible industry practices, and appropriate sourcing.

"LBC certification got many people here excited about a new building, and it will very quickly communicate who we are to prospective students," says Lash of the final product. "For me, there was a second epiphany over this process, which was that a certified building could help us achieve our mission as a teaching institution."



NATURAL BEAUTY

Composting systems at the R.W. Kern Center (top) digest all human wastes, significantly reducing water use, while the water treatment room—located beyond— has a window left open so visitors can view the equipment. Building systems are exposed throughout, even in the central common room (above).

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