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A NEW LINE OF DANISH CLASSICS PAGE 8

FREE RANGE
Design solutions that support movement for all PAGE 38

DESIGN MIAMI
Architectural structures become collectible PAGE 68
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ENVIRONMENTAL DESIGN
A prototype Responsive Street Furniture audostation (top left) issues directions to sight-impaired users. Kengo Kuma's Oribe teahouse (top right) shimmered at Design Miami. The Fractal Emboss fabric from Carnegie (left) adds an architectural element to wallcoverings and upholstery.
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Feeling Groovy

**MY TODDLER** loves going to the doctor. And why wouldn’t she? It’s the place where she gets to play with a toy train set in the waiting room and take home a ton of stickers when she leaves.

But when she came down with pneumonia last month, it all changed. Suddenly, all things medical became, as she said, “scary.” The X-ray machine that took images of her lungs? Scary. The ENT who peered down her throat? Scary. Even the beeps and blares of the hospital’s intercom: Scary, scary, scary.

I can’t say I blame her. When you’re ill, it’s the unfamiliar and institutional that sets your mind racing. It’s a phenomenon that we examine in this issue of SNAP, looking at ways architects and healthcare providers can help put patients at ease.

We start with the design of hospital entrances and thresholds (page 20) and switch gears to Studio Dental’s mobile practice (page 15). Our Product Specs on Healthcare (page 26) and Accessible Design Solutions (page 38) also cover wares that can lend comfort to the patient experience.

Elsewhere in the book, we examine the Great Recession’s effects on Rust Belt manufacturers (page 40) and offer a bit of Design Miami eye candy in a wrap-up of the show and its architect-designed pavilions (page 68).

As always, send your thoughts to me at taraskaj@bnpmedia.com. In the meantime, my wishes for a happy and healthy winter.

*Julie Taraska*
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in brief

The first Chilean and fourth South American to receive the Pritzker Prize, Aravena uses simple solutions to address complex social challenges. Fittingly, he considers his Santiago-based firm, ELEMENTAL, cofounded in 2001, as a "do tank." "In a think tank, there is a lot of thinking but not a lot of doing," he says. "As architects, we felt it was natural to command reality by [just] doing projects [instead of] all the discussion and diagnosis."

Aravena's built work embodies that approach. His projects range from a sustainable reconstruction plan for Constitución, the Chilean city devastated by a 2010 earthquake and tsunami, to scores of institutional, civic, and cultural works spanning the globe.

"Quantity is easy to achieve," Aravena says. "We needed to guarantee quality in the next generation of solutions." Take Quinta Monroy, a social housing project in Iquique, Chile, where ELEMENTAL designed housing for nearly 100 families on a shoestring subsidy of $7,500 per unit. Rather than seek cheaper property on the city's perimeter, Aravena and his team engaged the community in the planning process, building each resident half a home and allowing them to customize the other portion.

A RICH PORTFOLIO

ELEMENTAL's work includes the under-construction Novartis building in Shanghai (above) and an ongoing post-tsunami reconstruction plan for Constitución, Chile (top center). Aravena (top right) involves communities in solutions. For the Quinta Monroy social housing project (from left center), he built each resident half a home and let them customize the other portion. His Chairless strap for Vitra (right) leverages the wearer's weight for a comfortable sit.

Arauena Wins the 2016 Pritzker Prize

BEST KNOWN FOR designing housing projects that bring beauty and empowerment to disenfranchised populations, Chilean architect Alejandro Aravena received this year's Pritzker Architecture Prize, the profession's most prestigious honor.

"Few have risen to the demands of practicing architecture as an artful endeavor, as well as meeting today's social and economic challenges," the jury wrote. "[Aravena] has achieved both, and in doing so has meaningfully expanded the role of the architect."
the architects provided exactly one half of a well-designed house that residents could eventually expand, as individual circumstances permitted. Since building Quinta Monroy, ELEMENTAL has delivered some 2,500 units of housing in urban slums.

Aravena will receive his $100,000 prize and the Pritzker's Louis Sullivan–inspired bronze medallion in an April 4 ceremony at the United Nations Headquarters.

Going forward, Aravena hopes to leverage the Pritzker and this year's Venice Architecture Biennale—for which he is chief curator—to address global concerns. For the latter event, Aravena wants to spur architects to dream up concrete design solutions to problems as varied as pollution, security, climate change, and migration. "The starting point for architecture should be as far from architecture as possible," he says. "By that I mean, problems that every single citizen in society understands, is affected by, and can have a say in."

—Anna Fisen

A Japanese Take on Lego Blocks

KENGO KUMA may be responsible for the redesign of Tokyo's massive 80,000-seat Olympic stadium—an airy timber scheme that replaced Zaha Hadid's ousted arena—but he has also been investigating play on a considerably smaller scale. In December, the architect revealed Tsumiki, a minimalist toy building-block system created in collaboration with the Japanese conservation group More Trees.

Touted as the Japanese Lego, the 4-inch-high Tsumiki (the word translates as "wooden blocks") make a stylish alternative to their nubby Danish counterparts. The V-shaped pieces, fashioned from locally sourced FSC-certified cedar, feature interlocking notched legs that allow budding architects to create an infinite variety of geometric structures and forms.

Available in packages of 7, 13, and 22 pieces, Tsumiki support a good cause, too: A portion of the sales goes to protect local forests. more-trees.org. —AF

Show of Objects

CREATIVE EXPLORATION meets material precision in Case Work: Studies in Form, Space, and Construction, the first major showcase of Allied Works Architecture's design process. The exhibit, which premiered at the Denver Art Museum on January 24, is slated to remain there until April 17—with a stint at Oregon's Portland Art Museum and a two-year international tour to follow.

According to Brad Cloepfil, who founded Allied Works in 1994, investigation lies at the core of the firm's practice: With each new project, a dialogue evolves around materiality and intention. These conversations often take the form of physical objects. Case Work highlights this approach, featuring 12 tactile sculptures and more than 40 drawings that push the margins of architectural modeling. The pieces are arranged in 10 handcrafted toolboxes held aloft on metal frames.

Based in New York and Portland, Oregon, Allied Works Architecture primarily designs cultural centers; noteworthy projects include the Museum of Arts and Design in New York, the Contemporary Art Museum St. Louis, and the Clyfford Still Museum in Denver. Dean Sobel, director of the Clyfford and curator of Case Work, collaborated with Cloepfil in both contexts. Struck by the range of objects that emerged from the museum's design, Sobel decided to present them together. "The entire exhibition calls to mind so many verbs," he says of Case Work. "It's very much a show about 'doing.'" —Rebecca Seidel

Frandsen Project's Plug-and-Play Lights

ONE OF THE hospitality industry's go-to lighting sources, Frandsen Project has kept a low profile for the last 40 years. But that's about to change, as the Danish brand—which has designed, developed, and manufactured custom classic fixtures for boutique lodgings like CitizenM New York and Copenhagen's Tivoli Hotel—has launched a line of ready-made fixtures.

"Our goal is to produce quality lighting for both the contract and retail markets," says director Thomas Hansen of the Rewired collection, which will debut January 13 in Europe. (U.S.-compatible fixtures should be available in February.) Initial offerings comprise colorful aluminum pendants, Modernist sconces, and linear floor lamps.

The line's designers work with outside talent as well, such as the Danish duo Frils & Moltke. The architects not only created new lights for Rewired but also leased Frandsen the rights to their earliest works: the FM1954 Classic series, developed in the mid-1950s.

"We are proud to be among the few Danish design brands that actually produce our products in Denmark," adds Hansen of the collection. The fixtures will be available to the trade and public through select retail showrooms and stores, including Conran London.

—Julie Taraska
Vinita Health Center, Vinita, OK
Owner: Cherokee Nation
Architect: Childers Architect, Fort Smith, AR
General contractor: Flintco Constructive Solutions, Tulsa, OK
Installing contractor: Harness Roofing, Tulsa, OK
Profile: Snap-Clad
Color: Granite

“We added the metal roof because of its durability. We selected the lighter PAC-CLAD color to help us go after LEED Silver Certification.”

Breck Childers, project architect, Childers Architects

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Spotlight on fresh contract and residential offerings

1. **IOLITE**
   - **MANUFACTURER:** Nora Lighting
   - **PERFORMANCE:** Suited to new installations and retrofits, these LED modules can be attached and adjusted without tools.
   - **PRICE RANGE:** $
   - **APPLICATIONS:** The fixtures provide 600 to 800 lumens and may be used with over 100 square and round trims.
   - [NORALIGHTING.COM](SNAP #200)

2. **FRACTAL EMBOSSES**
   - **MANUFACTURER:** Carnegie
   - **PERFORMANCE:** Part of the Between the Lines collection, this antibacterial, low-VOC fabric comes in roughly a dozen colors. It is Cradle to Cradle Silver certified.
   - **PRICE RANGE:** $$$
   - **APPLICATIONS:** The embossed pattern adds an architectural element to wallcoverings, panels, and upholstery.
   - [CARNegieFABRICS.COM](SNAP #201)

3. **AXIOM PERIMETER SHADE POCKETS**
   - **MANUFACTURER:** Armstrong
   - **PERFORMANCE:** Compatible with Lutron's Sivoia QS roller shades, this solution works with drywall and acoustic systems to provide a seamless fit between ceiling and shade pockets.
   - **PRICE RANGE:** $$$
   - **APPLICATIONS:** Installation is up to 12 times faster than it is with drywall pockets.
   - [ARMSTRONG.COM](SNAP #202)

4. **ARCHITECTURAL PANELS**
   - **MANUFACTURER:** Tekstur
   - **PERFORMANCE:** These low-VOC embossed panels come in cork, bamboo, and paperphenolic (a combination of recycled paper and plant-based resin).
   - **PRICE RANGE:** $$$
   - **APPLICATIONS:** Suitable for interiors and some exteriors, the panels come in a dozen patterns.
   - [TEKstur-SURFACES.COM](SNAP #203)

**KEY**

- $ = VALUE
- $$ = MID-RANGE
- $$$ = HIGH-END

- $ = ECO-FRIENDLY ATTRIBUTES
5. **VINYL FOLDING DOORS**

**MANUFACTURER:** La Cantina

**PERFORMANCE:** These doors' narrow stile-and-rail profiles allow for sweeping views. Concealed multipoint locking and standard low-E glass improves the doors' security and energy efficiency.

**PRICE RANGE:** $5-$55

**APPLICATIONS:** Suited to residential and hospitality use, the doors come in white or tan.

[LA CANTINA DOORS.COM](SNAP #204)

6. **ISLAND**

**MANUFACTURER:** Koll Textiles

**PERFORMANCE:** Woven with UV-resistant Sunbrella yarn, this indoor/outdoor textile features a large-scale pattern of interlocking circles.

**PRICE RANGE:** $$

**APPLICATIONS:** Antimicrobial and antifungal properties make this fabric—part of the Outbound collection—ideal for commercial use.

[KOLLTEXTILES.COM](SNAP #205)

7. **KENSLEY THIN VENEER**

**MANUFACTURER:** Oldcastle Architectural

**PERFORMANCE:** These lightweight stone aggregates, which boast a traditional ashlar pattern and 1/4-inch mortar joints, install without footings.

**PRICE RANGE:** $$

**APPLICATIONS:** Resistant to salt, water, and thaw damage, the veneers suit nonbearing indoor and outdoor uses.

[ECHELONMASONRY.COM](SNAP #206)

8. **QUICKSTAND LITE**

**MANUFACTURER:** Humanscale

**PERFORMANCE:** This height-adjustable workstation with an articulating arm can be affixed to existing desks to support sitting and standing postures.

**PRICE RANGE:** $$

**APPLICATIONS:** The light, compact unit is designed for collaborative, healthcare, and hot-desking environments.

[HUMANSCALE.COM](SNAP #207)
Coty Sandberg: Healthcare Hero
Associate, SmithGroupJJR, Chicago

HOW DID YOU HELP EXPAND CHICAGO’S AIMMC CENTER FOR ADVANCED CARE?
For the facility, which is part of the Advocate Illinois Masonic Medical Center [AIMMC], we at SmithGroupJJR integrated cancer care, digestive health services, and ambulatory surgery into a single location.

TELL US ABOUT THE NEW ENTRYWAY.
We wanted the building to instill a bit of the confidence needed for each individual’s journey to healing. Patients travel along a curving glass wall to the entry, where the architecture dissolves into glass planes that extend outward and upward into a three-story atrium. The atrium is drenched with daylight and has a purposely natural materials palette of stone and wood, including travertine tiles and Oberflex’s perforated Obersound panels.

HOW DOES THE CENTER CATER TO THE PHYSICALLY CHALLENGED?
Hospitals are notorious for being labyrinths, so intuitive wayfinding was of utmost importance. All the patient intakes and amenities are located along a naturally bright corridor. The flowing geometry and abundant glass allows patients to see their destinations immediately upon arrival instead of having to rely on signage to get them there.

WHICH PRODUCTS DID YOU USE TO KEEP SPACES STERILE?
Rubber floors with integral bases [including Nora’s Eco tile, left], five feet of solid surface on the walls, and Armstrong clean room-grade ceiling tiles were among the options we chose for the operating rooms and other treatment areas of the hospital.

WHAT IS THE NEXT BIG THING IN HEALTHCARE DESIGN?
Hospitals are becoming destinations to support wellness rather than just treat sickness. We’re seeing hospitals trending toward community-centric programs that appeal to patients and families—from the inclusion of in-house yoga classes to a variety of waiting-room experiences.

Since joining SmithGroupJJR’s Chicago office in 2008, Coty Sandberg has worked on projects in the healthcare, education, and technology sectors, including the University of Illinois Electrical and Computer Engineering Building. She received her master of architecture from Savannah College of Art and Design.
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Their pearly whites if the dentist came to them. Thus they hatched Studio Dental, a dental practice on wheels. The pair tapped Montalba Architects to design the fleet's inaugural vehicle. Creighton had worked with the Los Angeles firm before, when its principals renovated her brick-and-mortar office. Montalba was involved in every phase of the project, from the conceptual vision to the construction details. The team transformed a 30-foot-long cargo trailer into a mobile dental office, equipped with all the necessary equipment and state-of-the-art technology. The vehicle, pulled by a Ford F-350 Super Duty, travels to its various appointment sites on the Pacific Coast Highway.

More than 83 percent of American children visit the dentist annually, according to the Centers for Disease Control and Prevention. By adulthood, however, that laudable figure plummets by more than a quarter. While discussing the phenomenon with entrepreneur Lowell Caulder, Dr. Sara Creighton realized that more San Franciscans would probably take better care of their pearly whites if the dentist came to them. Thus they hatched Studio Dental, a dental practice on wheels. The pair tapped Montalba Architects to design the fleet's inaugural vehicle. Creighton had worked with the Los Angeles firm before, when its principals renovated her brick-and-mortar office. Montalba was involved in every phase of the project, from the conceptual vision to the construction details. The team transformed a 30-foot-long cargo trailer into a mobile dental office, equipped with all the necessary equipment and state-of-the-art technology. The vehicle, pulled by a Ford F-350 Super Duty, travels to its various appointment sites on the Pacific Coast Highway.

**STUDIO DENTAL, SAN FRANCISCO**

**Street Cleaning**

**Problem:** Fashion a mobile dental office from a truck trailer typically used to transport cargo.

**Solution:** Open the space to daylight and employ a limited materials palette so the interior feels larger than its 230 square feet.
CASE STUDY: HEALTHCARE

creating the logo to finding the right truck trailer to serve as the facility. The partners’ choice: ATC Trailers’ Quest Cargo, whose 11-foot-high interior could easily accommodate the proposed 230-square-foot design.

“We wanted the office to feel as warm, relaxing, and open as possible,” says Montalba associate principal Akiko Suzuki. Natural light was key to creating the desired atmosphere, so the design team instructed Anaheim-based fabricator Pacific Westline to cut skylights into the trailer’s roof. The illumination enters the trailer through a custom aluminum-frame assembly of tempered glass and frosted vinyl; the light filters through CNC-milled perforations in the Corian ceiling.

The overhead surface also features two irregular polyhedron shapes enclosed in perforated Corian. They’re more than mere design elements: Situated directly above the dental chairs in the two operatories, they contain screens on which doctors and patients can view X-rays.

Corian also clads the side of the corridor that runs alongside the operatories, while Richlite, a paper-based composite, lines the other. White oak flooring and millwork fill the space between them. In choosing these materials, Suzuki says, “We wanted to keep the office clean, sanitary, and very much contemporary.”

All the studio’s vertical surfaces feature perforations whose pattern was inspired by a tree canopy. While portions of the abstract design emit daylight, other holes have mirrored material mounted behind them. PEPP acoustical foam is tucked behind the finished surfaces.

Suzuki worked with the prescribed requirements of a dental setup, including specific plumbing and suction needs, as well as the size and angle of the dental chairs. To keep things roomy, she consolidated the plan whenever possible. The operatories share a sink installed in the oak-veneer millwork element separating them, for example, while a small seating area located directly off the office’s sterilization room features a tablet that allows patients to check in and pay for visits with Studio Dental’s remotely based receptionist. Of the tech touches, Suzuki says, “It’s very Silicon Valley.”

| ARCHITECTS | Montalba Architects |
| PERFORMANCE | Healthcare |
| PRODUCT | Rift-cut white oak |
| MANUFACTURER | Contempo Floor Coverings |

| SOUND SILENCER | MANUFACTURER: Acoustical Surfaces |
| PERFORMANCE: Thermal-molded, this semirigid PEPP acoustical bead foam attaches to planks and ceilings via adhesive, T-bar grid, and mechanical fasteners. One- and two-inch thicknesses have STC ratings of 9 and 13. |
| PRICE RANGE: $ |
| APPLICATIONS: Ideal for high-traffic commercial, institutional, and industrial settings that require impact- and moisture-resistant acoustical dampening. |

| CORIAN | MANUFACTURER: DuPont |
| PERFORMANCE: The nonporous material is a frequent choice for seamless counters and vertical surfaces as it resists stains, mold, and mildew. |
| PRICE RANGE: $$ |
| APPLICATIONS: In healthcare settings, Corian is used to finish corridor hallways, operating-room walls, showers, and baseboards. |

| FLANGED DOWNLIGHT | MANUFACTURER: Specialty Lighting |
| PERFORMANCE: Connectible LED recessed downlights supplement daylighting with task-oriented illumination. As many as six canisters may be linked. |
| PRICE RANGE: $ |
| APPLICATIONS: Commonly specified for light bridges, curio cabinets, wall units, and theaters installations in residences and offices. |

| RAINSHADOW | MANUFACTURER: Richlite |
| PERFORMANCE: This roughly quarter-inch-thick cladding material resists stains, heat, and scratches. |
| PRICE RANGE: $$ |
| APPLICATIONS: Made with certified kosher materials, the Class A fire-rated panels suit interior and exterior uses alike, including counters, tabletops, and rainscreens. |

KEY $ = VALUE, $$ = MID-RANGE, $$$ = HIGH-END
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Curb Appeal

Eye-catching color and a light-filled interior help the Astoria Primary Care Clinic establish an upbeat presence on a bustling Queens, New York, street (top and far right). The clinic radiates a warm glow at night (right).

Patient-centric entryways and thresholds make for a more positive healthcare experience.

BY SAM LUBELL

GOING TO THE DOCTOR's office—or worse yet, the hospital—is always stressful. Doing so in a foreboding building chockablock with meandering corridors, glaring klieg lights, and blaring intercoms certainly doesn't help any. Architects and designers who specialize in healthcare facilities are, of course, attuned to this reality.

"A lot of what we're trying to do is take the sting out of being in a medical environment," says Ronald Reed, principal of Westlake Reed Leskosky. The New York firm has worked on more than a dozen hospitals, including the Cares Tower and hospital expansion at the Louis Stokes Veterans Administration Medical Center in Cleveland.

Key to the process is diffusing patient tension from the outset. This means creating facades, entryways, and
thresholds that attract the eye and calm the mind. Transparency in the facility's appearance and function can reduce anxiety, while waiting areas that take cues from hospitality help put users more at ease.

ASTORIA PRIMARY CARE CLINIC
Located on a busy thruway, Astoria Primary Care Clinic long suffered from an identity problem: It had none. "It was banal," says Michielli + Wyetzner principal Michael Wyetzner of the dilapidated brick building that housed the clinic, part of the New York Hospital Medical Center of Queens.

To call attention to the two-story facility, the New York–based architects transformed its anonymous facade. They masked a portion of its irregular brick patterns with a perforated steel rainscreen from Centria, added a seemingly floating custom aluminum entrance canopy, and installed an aluminum door enhanced with bright orange Tiger Drylac powder coating. A new Kawneer 1600 Wall System storefront glazing system also gives visitors the chance to see what’s going on inside the clinic.

The firm gutted the building’s interior and installed a Polygal ceiling system backed by fluorescent lights; polycarbonate panels diffuse the illumination, creating a glow visible both inside and outside the building. Another interior focal point is a multihued enclosed sculptural staircase, which opens to the clinic’s small lobby space via a peekaboo window formed from Pilkington Pyrostop’s aluminum series framing.

BOSTON CHILDREN’S HOSPITAL, JAMES MANDELL BUILDING
You might not consider a hospital ambulance ramp an entrance. But for distressed patients and caregivers riding inside an emergency vehicle, it’s an important entry point, giving a first impression of the facility.

The James Mandell Building at Boston Children’s Hospital is a unique case. Because of security concerns, the emergency department does not have a pedestrian patient entrance; instead, ambulances bring passengers in need of urgent care to a protected sloped entryway off Binney Street.

The department also could not have windows facing the street, so local practice Payette created a special feature—what associate principal Ching-Hua Ho calls an urban forest—around the building’s base. Mixing patterns and textures, the architects sandwiched bright graphics and Panelite ClearShade glass between two layers of Bellwether Design Technologies glazing, backing about 10 percent of the area with fiber-optic lights by Visual Lighting Technologies. The resulting playful, street-level landscape mitigates the concrete and asphalt that marks the industrial area, helping soften the approach to the hospital.

Above the ambulance entry ramp, Payette installed a Hunter Douglas Luxalon linear ceiling system imbedded with LED lighting, creating a vital, even futuristic, transition down to the drop-off point. Also, a covered walkway leads patients and staff up the hill to a new pocket park, which is enclosed by a vine-covered Greenscreen metal-mesh wall.
ENTRANCES

Reserved for patients, the main entrance takes cues from hospitality design. "The doctors said they wanted people to feel like they were coming into a hotel," says Craig Booth, a senior designer at Los Angeles's Yazdani Studio, which oversaw the project. To that end, the entryway—reached via a stone-paved courtyard—is grand in scale and rich in detail.

The high-gloss, PPG Corian-clad ribbon that wraps around the building's facade swoops down to form the entrance canopy. A Kawneer 600 series curtain wall allows patients and visitors to see into the Institute's double-height lobby, which features precast terrazzo flooring and stylish linear lights. Additional high-quality finishes elevate the interior, including a Formglas lattice screen in the waiting area and, along the hallway, reinforced ribbed fiberglass wall panels by Southside Precast Products.

Just as important, the initial threshold also offers a variety of seating options to accommodate patients' different moods. "If you want to be a recluse, there are places you can sit," says Booth. "If you want to interact with people, there are places for that, too."

By carefully coordinating space and materials, these designers put patients at ease. After all, you can only make one first impression. For forward-thinking hospitals and healthcare facilities, becoming more hospitable starts with reconsidering the experience from outside the doors to the initial steps inside.

GATES VASCULAR INSTITUTE

Hospitality design inspired the look and feel of the double-height lobby at Gates Vascular Institute in Buffalo (top and bottom). The dedicated patient entrance is reached via a stone-paved courtyard (left).

Hospitality design inspired the look and feel of the double-height lobby at Gates Vascular Institute in Buffalo (top and bottom). The dedicated patient entrance is reached via a stone-paved courtyard (left).
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SNAP 26

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- Aluminum Alloy 3003-H14, Standard Thickness 18 gauge (.040") - 16 gauge (.050") available in painted K500 finishes, brushed and mill finishes
- Stainless Steel type 304 and type 316, 24 gauge (.024") - 20 gauge (.036") available in 2B, 2D, #4 and several custom directional and non-directional finishes
- Titanium Grade 1, gauges .018" - .024" available in standard mill or matte finishes
- Zinc, gauge .028" - .032" available in natural or pre-weathered finishes
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System Design Data
- Width of Compression Cover: 2.75"
- Minimum/Maximum Spacing between Compression Covers: 12" - 48"
- Maximum Length of Panels: 40'
- Compression Extrusion Thickness: .056"
- Channel Extrusion Thickness: .056"
- Test data in accordance with ASTM E 283, ASTM E 330, ASTM E 331 and UL 580 (Class 90 available upon request)

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SNAP 69

SOLARBAN®90
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Feeding the Soul

THE SKY FARM at the Sidney and Lois Eskenazi Hospital is no ordinary rooftop garden. Spanning the entire 30,000-square-foot ambulatory-care building, the LEED Gold-certified project—on the Indiana University campus—offers more than farm-to-table ingredients for the facility's food services; it also provides educational and therapeutic opportunities for patients, staff, and the community at large.

Global design firm HOK enlisted Indianapolis-based landscape firms Ratio Architects and NINEbark, among others, to put Eskenazi Health's commitment to the importance of fresh food into practice. Thus the Farm, which is managed by urban agriculture organization Growing Spaces Indy, produces an edible bounty—such as carrots, beets, greens, and squash—in its custom-built planters.

Benches placed alongside the greenery under a metal trellis provide "an area of respite" for visitors, says Ratio senior associate Ken Boyce. Hospital patients can attend free cooking and nutrition classes, while the public is invited to summertime Veggie Fridays, where dieticians and chefs demonstrate how to prepare healthy meal options. —AnnMarie Martin

URBAN FARMING
Carrots, beets, and squash are among the fresh produce grown in the rooftop garden at the Sidney and Lois Eskenazi Hospital (top). Sheltered seating on the site allows patients and visitors to enjoy the sun and greenery (above).
Come Together

THE EMORY BRAIN HEALTH CENTER in Atlanta is taking medical collaboration to new heights. To support the facility’s efforts, local design firm VCave Healthcare revamped a building formerly occupied by the Centers for Disease Control and Prevention. Today the space gathers Emory’s psychiatrists and neurologists—once spread across five structures—under one roof, allowing them to better attend to the needs of their mobility-challenged patients.

The configuration clusters clinics in the core of the building. Gone are the doors that previously separated the units, now all convenient to the elevators. Doctor touchdown stations sited in the middle of the clinics encourage cross-specialty collaborations that result in more holistic treatment plans. Practitioners are encouraged to interact with academics in spaces like the resident/fellow lounge. “It’s one of the few Emory facilities where research and clinical are brought together,” says VCave project director Mary Porter. The result? Both parties, she adds, “can work on innovative care models they didn’t have the opportunity to work on before.” —AM
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RESILIENT FLOORING

Sounds Good

DURING THEIR renovation of Carnegie Hall's music studios, the architects at Lu + Bibliowicz expected that acoustics would be a primary concern. What the New York–based firm hadn't predicted, though, was how tricky it would be to manage the sound not only between rooms in the building but also between the floors—some of which housed the venue's administrative offices.

For flooring, the firm initially utilized ECOsurfaces recycled rubber tiles over a floating floor system. But that solution emitted noxious smells instead of muffling sound. The problem was the flooring's adhesive: When it made contact with the plywood, it off-gassed in unacceptable amounts. To mitigate this, the team placed cement board between the two layers. The resulting aesthetically and functionally pleasing design has been music to the ears of performers and office workers alike.

—Leslie Clagett

PRACTICE, PRACTICE

To keep sound from traveling from Carnegie Hall's music rooms (top left) to its administrative offices (top right), the architects placed cement board between the rubber tiles and flooring system. The famed venue (above) was erected in 1891.
CREATION

**MANUFACTURER:** Gerflor USA
**PERFORMANCE:** Well-suited to high-traffic areas, the 2.5-mm-thick vinyl tiles and planks are 100% recyclable.
**PRICE RANGE:** $$$
**APPLICATIONS:** Offered in 60 wood, stone, and textile patterns printed on tear-resistant film, the LEED-eligible tiles feature a click-lock installation system.

*GERFLORUSA.COM (SNAP #217)*

PATHWAYS

**MANUFACTURER:** Takiron by CBC Flooring
**PERFORMANCE:** When viewed from a distance, this indoor/outdoor sheet vinyl flooring appears linear; a closer look reveals its traditional herringbone texture.
**PRICE RANGE:** $$$
**APPLICATIONS:** The exceptional slip-resistant flooring comes in 10 colors and is LEED-eligible.

*CBCFLOORING.COM (SNAP #218)*

SAFE-T-FIRST

**MANUFACTURER:** Tarkett
**PERFORMANCE:** This vinyl flooring uses photoluminescent technology to emit stored visible light and provide an illuminated escape path during a power outage.
**PRICE RANGE:** $$$
**APPLICATIONS:** Offered in 36 colorways, the nontoxic flooring is suitable for marking emergency egress in stairwells and hallways.

*TARKETT.COM (SNAP #219)*

TRENTA

**MANUFACTURER:** Mohawk
**PERFORMANCE:** The plank tile comes in a range of stone looks and wood patterns.
**PRICE RANGE:** $$$
**APPLICATIONS:** A commercial-grade urethane finish and 30-mm wear layer make this luxury vinyl tile collection resilient enough to withstand heavy commercial loads and traffic.

*MOWAKGROUP.COM (SNAP #220)*

**KEY** $ = VALUE, $5 = MID-RANGE, $$ = HIGH-END

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**Channeling Floor Style**

**FOR THOSE** working with a low budget but high aesthetic standards, grouted luxury vinyl tile (LVT) offers an attractive—and comfortable—new flooring option. Not only is LVT a fraction of the cost of its ceramic counterparts, but it's also easier and faster to install. Plus, like other resilient surfaces, LVT muffles sound, cushions impact, and minimizes foot fatigue.

When the tiles are joined, their beveled edges form tiny troughs. Installers place a specially formulated, acrylic-based grout in the channels; the water-resistant grout dries quickly and needs no sealing.

The growing roster of groutable LVT collections includes NovaFloor's Birkdale, Armstrong's Alterna, and Metroflor's Modera. —LC

**STEP UP** Grouted luxury vinyl tile such as Alterna (right), by Armstrong, offers an affordable alternative to stone and ceramic—and gives underfoot, too.

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**SNAP FACT**

Globally, luxury vinyl tile (LVT) comprises 40% of resilient flooring sales.

*SOURCE: MARKET INSIGHTS*

**SNAP FACT**

Last year, LVT sales rose 11.1% to $849 million, over three times the rate of resilient sheet sales growth (3.5%) and over four times the rate of vinyl composition tile sales growth (2.6%).

*SOURCE: FLOOR DAILY*
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SNAP 192
IN THE FIRST YEAR of operation, Berkeley, California’s West Branch library produced 20 percent more energy than it used. The structure achieved net-zero status—a first for a California library—by harnessing solar energy and maximizing daylighting. Ten dozen 435-watt solar photovoltaic panels cover the building’s roof, with each panel tilted south at an 18-degree angle.

Daylighting was also essential in reducing energy use, says Edward Dean, then lead architect for the San Francisco–based office of Harley Ellis Devereaux, which designed the 9,300-square-foot structure. He chose standard commercial-grade skylights by VELUX to let the sun shine in. Says Dean: “They’re high-quality products that have venting and an automatic shading option built into them.”

By modeling light levels, the design consultants confirmed that the standard lighting criteria for libraries (30 to 40 foot-candles for reading areas and 36 foot-candles in the stacks) were met without using any overhead light fixtures. As for the pleasure visitors feel by having unobstructed views of the sky when perusing books: That cannot be measured. —Allison Craig

WELL LIT
Thanks to photovoltaic panels and generous skylights, the Berkeley Library’s West Branch is a net-zero building that’s flooded with natural illumination.
**SIVOIA QS TRIATHLON WIDR ROLLER SHADE**

**MANUFACTURER:** Lutron Electronics  
**PERFORMANCE:** These smooth-operating, battery-powered shades have the smallest roll-up diameter in the industry—no more than 3 inches for a 12-foot-square shade.  
**PRICE RANGE:** $$$  
**APPLICATIONS:** Ideal for office and high-end residential use, the shade comes in most Lutron roller fabric colors and varieties, including sheer, dim-out, and blackout options.  
**LUTRON.COM**  
(SNAP #221)

**SOLARDEFENSE REFLECTIVE TECHNOLOGY SIDING**

**MANUFACTURER:** Mastic Home Exteriors by Ply Gem  
**PERFORMANCE:** Requiring no painting or caulking, this durable siding protects against fading and heat distortion.  
**PRICE RANGE:** $$  
**APPLICATIONS:** Offered in five colors, this mahogany among them, SolarDefense siding is an option for residential projects in sunny areas.  
**MASTIC.COM**  
(SNAP #222)

**DYNAMIC GLASS**

**MANUFACTURER:** View Inc.  
**PERFORMANCE:** The 6-by-10-foot dynamic glass panels tint automatically in response to sunlight or weather conditions; they may also be altered manually via a mobile device.  
**PRICE RANGE:** $$  
**APPLICATIONS:** Common uses include in offices, where the panels let in natural illumination while decreasing glare on computer screens, and in hospitals, where increased daylight has been shown to accelerate patient recovery.  
**VIEWGLASS.COM**  
(SNAP #223)

**SOHO SHADECLOTH**

**MANUFACTURER:** MechoSystems  
**PERFORMANCE:** This see-through sunscreen collection allows for exterior views while providing optimal solar shading and heat reduction.  
**PRICE RANGE:** $$  
**APPLICATIONS:** Available in 12 hues, the smooth, basket-weave cloth comes with a 1%, 3%, or 5% openness factor, making it a suitable solution for offices, libraries, schools, and hospitals.  
**MECHOSYSTEMS.COM**  
(SNAP #224)

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**Schooled in Nature**

**THE WILLOW SCHOOL** takes environmental stewardship very seriously. The elementary school already boasts two LEED-certified buildings on its Gladstone, New Jersey, campus. Now, its new Health, Wellness & Nutrition Center, designed by Farewell Architects, is the state's first building to pursue LEED for Schools 2009 Platinum Certification—as well as the even more eco-stringent Living Building Challenge 2.0.

Every metric indicates that the Center is on track to achieve those goals. "The solar array for the first six months of operation is providing more power than the building is requiring," says Michael Farewell, principal of the Princeton, New Jersey–based firm that bears his name.

Of the design decisions made, Farewell adds that the building envelope was critical to the school's "very high aspiration for energy efficiency." He chose Kalwall's Lumira structural sandwich panels for their 0.05 U-values and "rice paper-like translucency." Natural daylighting strategies, minimized plug loads, and a variable-refrigerant volume (VRV) mechanical system also boosted the building's efficiency.

Most exciting to Farewell is that the students monitor the structure's performance as part of their curriculum. For this generation, an awareness of resource consumption is a lesson that extends beyond the school's walls. —AC

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**SNAP FACT**

When asked to name the most desirable trait of an office space, 63% of U.K. workers cited natural sunlight.  
*Source: Royal Institute of Chartered Surveyors*
Green Sheen

GAZING UP AT the tower at PNC Plaza in Pittsburgh, one might not notice the sustainable paints and coatings on the LEED Platinum building. But according to principal Ben Tranel of Gensler, which oversaw the project, these surface treatments played a role in creating "the world's greenest high-rise."

The architects selected the finishes based on not only aesthetics but also a variety of environmental concerns. Take the building's double curtain wall, whose aluminum panels are powder coated in PPG's Coraflon fluoropolymer. Solvent-free and low-VOC, the gray mica coating contributes to good indoor air quality. Additionally, its manufacture incorporates an in-line recycling process to capture powder that doesn't adhere to the metal, thereby reducing waste and by-product.

The architects chose PPG zero-VOC latex paint for all the corridors and common rooms. They also opted for a clear, odorless sealer to protect interior wood mullions against scratches and UV damage.

Gensler used several other PPG products in the project, including Starphire and Sungate glass (for the curtain wall), both of which provide transparency while maximizing energy performance. PPG is just two blocks away from the PNC tower, adds Tranel, and Gensler wanted to use local products wherever it could. —Alice Liao

BREATHE EASY

The tower at PNC Plaza features numerous eco-friendly PPG coatings on its curtain wall and interior surfaces, including Coraflon fluoropolymer finishes and zero-VOC paint.
Skin Deep

CUSTOM COATINGS can mimic the look of premium architectural finishes at a fraction of the cost—without compromising aesthetics. HKS Hospitality Group exemplified this at the new JW Marriott in Austin, Texas. The Dallas-based architecture firm initially wanted the facade of the hotel's 34-story primary tower to be clad in Cor-Ten steel. However, concerns over pricing, maintenance, and the staining of adjacent surfaces demanded an alternative that would achieve a similar effect. The solution? Painted metal.

In collaboration with Hunt Construction and ProCLAD, a metal wall design company, HKS designed a unitized curtain wall system of 18-gauge Galvalume steel panels in varying widths to create a random appearance. After conducting a series of mock-ups with Valspar's Classic II Fluropon paint to re-create the subtle patina of weathered steel, the team went with a custom combination of three warm brown tones: barrel brown, fudge, and mustang. The project savings were "equal to at least a half of a million dollars," says HKS principal and design director Eddie Abeyta. Moreover, Fluropon's durability ensures the panels will retain their color for years to come.—AL

HEAVY METAL
The facade of Austin's new JW Marriott may resemble Cor-Ten, but it's made with painted steel, which costs far less.
Smart Streets

ROSS ATKIN IS the Holly Whyte of accessible design. Whereas his urbanist predecessor looked at how people move through public space, the London-based Atkin observes how the disabled community uses the city's infrastructure. His findings, sponsored by the U.K. government and various nonprofits, reveal "many of the tradeoffs we make between different people's needs when we design a street," Atkin says. Sidewalks with plentiful seating for older folks, for example, may prove a hindrance to wheelchair users. Atkin's Responsive Street Furniture corrects that imbalance by temporarily adapting to serve disabled folks.

Leveraging the network of devices known as the Internet of Things, the three-piece furniture collection reads disabled users' website-authenticated smartphones via Bluetooth and responds by brightening streetlamps, issuing audio information, or having a bollard unfold into an extra seat. Municipal buyers will be individually responsible for registering and distributing compatible fobs (hardware with built-in authentication) to disabled citizens and visitors who don't have smartphones.

Atkin debuted prototypes of the furniture last summer, and his manufacturing partner, Marshalls, is now marketing the streetlight, information kiosk, and bollard under the Loci Intelligent brand. The designer says that talks about the first permanent installations, including two for Transport for London, may yield official announcements soon.

—David Sokol
TRACERY BRICK LIGHTS
MANUFACTURER: LBL Lighting
PERFORMANCE: The LED fixture uses 8.5 watts to produce 300 lumens of light and extends 3/4 inch from the wall at a distance that complies with ADA standards for accessible approaches.
PRICE RANGE: $$
APPLICATIONS: This indoor/outdoor luminaire can be integrated into a masonry wall during construction.
LBLLIGHTING.COM
(SNAP #229)

GT6200 SL WINDOW
MANUFACTURER: Graham Architectural Products
PERFORMANCE: Thanks to its single-point handle, this ADA-compliant outswing casement for high-rise and commercial buildings can be locked, unlocked, opened, and closed with minimal force.
PRICE RANGE: $$$
APPLICATIONS: The overall window’s polyamide strut thermal break system achieves U-values between 0.29 and 0.38.
GRAHAMWINDOWS.COM
(SNAP #230)

CONTROL SMART LOCKS
MANUFACTURER: Schlage
PERFORMANCE: Designed for multiunit buildings, these locks with Engage technology provide keyless access to residential entrances and common areas.
PRICE RANGE: $$
APPLICATIONS: Doors outfitted with this hardware—compatible with wireless control systems CBORD- and StratIS—can be locked and unlocked via app, keypad, or traditional key. The locks are BHMA Grade 2-certified, UL-rated for fire, and ADA compliant.
SCHLAGE.COM
(SNAP #231)

ATHERTON UNDERCOUNTER LAVATORIES
MANUFACTURER: Toto
PERFORMANCE: These rimless, ADA-compliant vitreous-china basins feature concealed front overflows, vertical sides, and flat bottoms.
PRICE RANGE: $$
APPLICATIONS: Offered in standard white, the basin comes in a choice of three models—one rectangular and two oval.
TOTOUSA.COM
(SNAP #232)

Housing Stuck?

CLEARING THE WAY
Rental housing with universal design features, such as ADA-compliant door clearances and barrier-free showers created by Pierce Lamb Architects, make up less than 1 percent of stock.

ACCORDING TO a recent report by Harvard’s Joint Center for Housing Studies (JCHS), 43 million Americans rent: an increase of 9 million people over the past decade, with older residents accounting for the bulk of this growth. Yet according to the study, “America’s Rental Housing: Expanding Options for Diverse and Growing Demand,” less than 1 percent of these units include basic universal design features.

“With the aging of the baby-boom generation, the number of renters with disabilities is thus set to rise sharply in the years ahead,” the report states. While certain accessibility retrofits require only a modest investment of time and money, says Deborah Pierce, a principal at Pierce Lamb Architects and the author of The Accessible Home, it will take “a deep commitment to inclusive design” to “make the housing industry competitive and relevant.” Two systemic changes can help the market anticipate future needs, she points out: designing homes for visitability—say, for use by people who have trouble negotiating steps or who use wheelchairs—and zoning for accessory dwellings. —DS
Winds of Change

International events affect manufacturers in the Midwest. By J. Michael Welton

FROM THE glut of steel imports to the surge in cheap natural gas, global economic developments are having an impact on Midwestern companies.

In Indiana, manufacturing accounts for 30 percent of economic output. “We’re the sixth-largest producer in the nation, by sheer numbers,” says Andrew Berger, vice president, governmental affairs at the Indiana Manufacturers Association. The Hoosier State is bouncing back from the Great Recession, with the number of local manufacturing jobs returning to within 25,000 of its 2006 high of 550,000.

The two largest sectors in Indiana are automotive and steel, with the latter taking a big hit due to a worldwide surplus. For ArcelorMittal, a steel and mining company with four plants in the state, this means “drastically reduced domestic pricing,” says Mary Beth Holdford, division manager, external communications at ArcelorMittal.

In Ohio, manufacturing is the largest contributing sector to the state’s GDP. In September 2011, it comprised 16.7 percent of the economy. By September 2014, manufacturing had ticked up to 17.7 percent.

Ohio steel manufacturers continue to face woes similar to Indiana’s, but for a different reason. With oil prices at their lowest since 2009, energy companies have less incentive to drill for new supply, thus reducing demand for steel products, according to Lisa Schaaf, managing director, marketing services at the Ohio Manufacturers’ Association.

But in Canton, Ohio, Belden Brick—one of the largest brickmakers in the world—is finding cheaper natural gas a boon for its post-recession business. “Even though we were selling more brick in 2006, the cost of natural gas was eating into our bottom line,” says Brad Belden, director of support services. “Now, even with smaller numbers, we’re eking out a profit.”

Indiana, Michigan, Ohio, and Pennsylvania

1. MANUFACTURER: Guardian Industries Corp.
   LOCATION: Auburn Hills, Michigan
   PRODUCTS: Float glass and fabricated glass products for commercial, residential, and transportation applications.
   FOUNDED: 1932
   EMPLOYEES: 17,000
   PRICE RANGE: $-$$$$ GUARDIAN.COM

2. MANUFACTURER: Whirlpool Corporation
   LOCATION: Benton Harbor, Michigan
   PRODUCTS: Commercial and consumer laundry and kitchen appliances made under brand names including Whirlpool, KitchenAid, Maytag, Consul, Brastemp, Amana, Bauknecht, and Jenn-Air.
   FOUNDED: 1911
   EMPLOYEES: 100,000 worldwide
   PRICE RANGE: $$ WHIRLPOOLCORP.COM

3. MANUFACTURER: Draper, Inc.
   LOCATION: Spiceland, Indiana
   PRODUCTS: Window shades, solar control solutions, projection screens, and projector flat panels.
   FOUNDED: 1902
   EMPLOYEES: 550
   PRICE RANGE: $$ DRAPERINC.COM

4. MANUFACTURER: Firestone Building Products
   LOCATION: Indianapolis, Indiana
   PRODUCTS: Roofing and wall systems, profile panels, and geomembranes.
   FOUNDED: 1980
   EMPLOYEES: 55,000
   PRICE RANGE: $$ FIRESTONEBPCO.COM

5. MANUFACTURER: Formica Corporation
   LOCATION: Cincinnati, Ohio
   PRODUCTS: Surfacing materials and laminates for commercial and residential applications.
   FOUNDED: 1913
   EMPLOYEES: 450
   PRICE RANGE: $-$$$$ FORMICA.COM
Indiana Manufacturing sector represents 5% of the state's economy and 97% of its exports. The sector contributes $64 billion to Indiana's economy each year.

Michigan Manufacturing directly employs 590,000 people in the Wolverine State. More than 150,000 jobs have been added to Michigan's manufacturing sector since June 2009—an increase of 34.1% in five years.

Ohio Ohio's manufacturing industry is third in the nation in total output and workforce. Manufacturing accounts for nearly 18% of the state's output ($384 billion), almost double that of any other industry sector.

Pennsylvania In 2013, the state manufactured $77.37 billion worth of goods. In 2012, the average Pennsylvania manufacturing employee earned $73,328 annually.

Manufacturers:

1. Auburn Hills
   - Location: Auburn Hills, Michigan
   - Products: Automotive components
   - Founded: 1956
   - Employees: 1,000
   - Price range: $-$$-
   - Website: auburnhills.com

2. Benton Harbor
   - Location: Benton Harbor, Michigan
   - Products: Aluminum products
   - Founded: 1922
   - Employees: 1,200
   - Price range: $-$$-
   - Website: bentonharbor.com

3. Spiceland
   - Location: Spiceland, Indiana
   - Products: Steel products
   - Founded: 1965
   - Employees: 1,500
   - Price range: $-$$-
   - Website: spiceland.com

4. Indianapolis
   - Location: Indianapolis, Indiana
   - Products: Aerospace products
   - Founded: 1920
   - Employees: 2,000
   - Price range: $-$$-
   - Website: indianapolis.com

5. Cincinnati
   - Location: Cincinnati, Ohio
   - Products: Aerospace products
   - Founded: 1910
   - Employees: 1,500
   - Price range: $-$$-
   - Website: cincinnati.com

6. Lancaster
   - Location: Lancaster, Pennsylvania
   - Products: Steel products
   - Founded: 1891
   - Employees: 400
   - Price range: $-$$-
   - Website: lancaster.com

7. Williamsport
   - Location: Williamsport, Pennsylvania
   - Products: Aerospace products
   - Founded: 2013
   - Employees: 5
   - Price range: $$-$$$-
   - Website: williamsport.com

8. CornellCookson
   - Location: Mountain Top, Pennsylvania
   - Products: Coiling doors and grilles, as well as fire, accordion, counter, and insulated doors.
   - Founded: 1828
   - Employees: 600
   - Price range: $$-
   - Website: cornellcookson.com

9. IndoorSky
   - Location: Williamsport, Pennsylvania
   - Products: Daylighting systems
   - Founded: 2013
   - Employees: 5
   - Price range: $$-$$$-
   - Website: innersky.com

10. Ecore
    - Location: Spiceland, Indiana
    - Products: Wood products
    - Founded: 1891
    - Employees: 400
    - Price range: $-$$-
    - Website:.ecoreintl.com
Pushing the (Brick) Envelope

Architects find new forms of expression with an age-old material.

BY KATHARINE LOGAN

LEARNING AND brick-building share a deep affinity: to build with brick is to join a conversation that’s almost as old as civilization itself. Academic structures are often brick, so it’s a common choice for new ones. Yet, despite all that’s been said in brick in the last 9,000 to 10,000 years (including brick’s own preference for an arch, as Louis Kahn famously told us), each new building has the potential to contribute something fresh, perhaps even astonishing.

In awarding a slew of honors last year to the Saw Swee Hock Student Centre at the London School of Economics, for example, jurors for Britain’s Brick Awards declared themselves “blown away” by what the architects, O'Donnell + Tuomey, describe as “familiar materials made strange”—familiar in that each of the project’s 175,000 bricks was individually cast in a wooden mold by hand, giving the building the same dappled and dimpled surfaces that make old brick walls lovable. They were made strange, said the jury, in that the way the project uses the material “creates a whole new language for brickwork.”

Embedded within a complex network of streets in London’s city center, the form of the Saw Swee Hock building, completed in 2014, responds to the rights-to-light easements of its neighbors, which define the buildable envelope, as well as to lines of sight along the narrow streets. The result is a faceted and canted volume that seems sliced from a larger rectilinear mass.

The planes that make up the building’s complex form are built of long and short bricks, including 46 standard and 127 special shapes, in a pattern based on Flemish bond. Except in the places where glazing cuts through the brick envelope for major inflections—at the entrance, for example—windows do not interrupt. Instead, the brick envelope maintains the continuity of the building form by passing right over them, about 8 inches in front of the glass, supported by rectangular-section steel posts aligned with mullions. Where that occurs, short bricks in the bond pattern are omitted to create a perforated screen and let in daylight and air. At night, the windows glow like lattice lanterns, their brick-size apertures expressing the building’s handmade scale.

Extensive drawing and physical and digital modeling, as well as the use of the special shapes, achieved a design that required no brick cutting. Designing with the brick module helped speed the work on-site. It also eliminated waste, thereby improving brick’s already strong environmental profile.

Conservatively warranted at 100 years, with periodic inspection and repair of joints and flashing in the interim, brick is both durable and recyclable. It is made from clay and shale, some of the most abundant materials on earth. Manufacturing is typically located close to sources, and, in the United States, the average distance from plant to project site is about 175 miles.

Properly detailed and constructed, brick cladding presents a rugged face to the elements. However, the thermal performance of the envelope can be compromised if relieving angles are attached to a building’s primary structure continuously. To mitigate this thermal bridging, intermittent attachment angles can be welded to the back of the relieving angle to create a gap through which insulation can pass. Proprietary two-part and thermally broken relieving angles are now available to achieve the same result.

Although brick’s range of colors, shapes, and sizes is almost limitless, it’s not uncommon for an academic client to require the use of a specific brick. New York’s University of Rochester, for one, has mandated the same brick on some half-dozen projects in the last 10 years alone. But that’s not necessarily a problem. “Once that decision is made, we can move on,” says Frano Violich, principal at Kennedy and Violich Architecture (KVA),...
secure individual bricks that would tend to tip while the mortar is soft. So the cantilevered bricks needed additional support, either from the back, with some kind of restraint, or from the front, with a temporary scaffolding or falsework.

KVA's solution is for the masons to lay the initial course of cantilevered bricks and, once those have set, to stand a temporary wood block on the cantilever to support the next protruding brick a few courses up. "It does require an understanding of the craft and tools used to make a brick wall, and the sequence of construction," says Violich, "especially when you challenge traditional techniques."

For Pelli Clarke Pelli's recently completed Lanphier Center for Mathematics and Computer Science, at Choate Rosemary Hall, a prep school in Wallingford, Connecticut, scrupulous attention to the craft of building began with selecting the brick. The intention was for the building to look modern and yet fit into the campus as if it had always been there, says Victor Agran, a former Pelli Clarke Pelli senior associate who's now a senior associate with Architectural Resources Cambridge.

After seven on-site mock-ups to test different types and various combinations of bricks, the architects selected, in close consultation with the client, a simple white brick. The white, which makes a pleasing counterpoint to the red brick of a Georgian-style building nearby, derives from a clay coat that is baked in with the brick. (The clay coat, unlike a glaze, provides a vapor-permeable surface.) Seen from a distance, the brick appears uniform—crisp and temporary; a closer vantage point reveals subtle mottling where the buff tones of the base brick show through. "It got us everything we wanted," says Agran. "It is monochromatic and abstract yet soft, with a lovely material quality."

The Lanphier brick is an example of the FBX brick type—one of three ASTM classifications adding, "Sometimes it's good to be limited." Violich's firm is designing the university's Institute for Data Science, now under construction.

For KVA, the real focus of interest is the contrast between brick's qualities of thick and thin—the dichotomy between historic multi-wythe, load-bearing walls and contemporary single-wythe suspended veneers. The firm has explored this theme in past academic projects such as Gorkin Hall, at the University of Pennsylvania Law School (Record, November 2012, page 109) and the recently completed Tozzer Anthropology Building, at Harvard University.

For the University of Rochester commission, KVA found its inspiration in the project's program. The focus of study for the new institute is big data: looking for patterns in data streams and assembling them to make sense. "We were interested in working with brick in the same way," says Violich, and so an analogy emerged between bricks and bits of data.

By turning bricks so they are perpendicular to the wall at computer-scripted intervals and cantilevering them at varying depths, patterns are generated in a field of bricks. The projecting bricks create a play of light and shadow, as well as an impression of depth in the thin brick veneer. Overall, the bricks appear to flow by in a manner evocative of a data stream.

The challenge in translating this concept into reality was figuring out how to prop the cantilevered bricks so they wouldn't drop out before the mortar set. Although brick ties or anchors are typically embedded in the mortar between courses of brick, they hold the brick veneer as a whole to the substrate once the mortar sets; they don't

### BRICKS AND BYTES

**For the facade of the Institute for Data Science at the University of Rochester (rendering above), KVA is turning bricks perpendicular to the wall and cantilevering them at various depths (bottom).**

1. CURTAIN WALL
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3. PROTRUDING BRICK
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cations that specify manufacturing tolerances. "FB" stands for facing brick, and the "X" indicates extreme or extra control criteria: corners sharp, edges square, dimensions accurate, chippage tiny and rare. The FBS classification designates standard production bricks, while "FBA" indicates unusual architectural or aesthetic criteria that must be specified, such as handmade or nonuniform molded bricks.

Exactitude on the Lanphier Center didn't stop with the selection of the bricks—it carried through development of the design and construction. "We did not want brick cut into odd sizes where the wall would begin to look messy," says Agran, "so we were careful to make sure the brick and brick-joint layout worked precisely."

For ornamentation, the architects emphasized a modern approach, to contrast with older buildings on campus, using titanium zinc to turn key aspects of the weather envelope—downspouts, gutters, and window frames—into expressive moments. Windows, for instance, are deeply inset, with prominent frames and raked sills in gray metal. Downspouts are recessed flush with the surface of the brick and double as expansion joints, thereby eliminating the sealant joints that often mar brick veneer envelopes.

Since a skin with such a high level of abstraction succeeds or fails on the quality of the brickwork, the architects were on-site nearly every day, climbing the scaffolding to monitor progress and quality. Once expectations were clear, the masons began catching imperfections on their own initiative, narrowing the masons down to six who could reliably meet the project's standards, which, of course, made the work slower.

Those masons might want to swap stories with the crew from the Chau Chak Wing Building, designed by Frank Gehry for the business school at the University of Technology Sydney. On a typical project, a mason can lay 400 to 600 bricks a day, according to Gus Galati, supervisor with Favetti Bricklaying, masonry contractors for the project. Here each averaged 70 to 80—on a straighter run, maybe 100 to 120, Galati says. "At the beginning, it was embarrassing."

Even so, the brickwork was finished ahead of schedule. "It helped that we had the most enthusiastic team of bricklayers I have..."
Despite its visual complexity, the facade of Gehry Partners' Chau Chak Wing Building (opposite and left) at the University of Technology Sydney relies on only five types of bricks.

ever met,” says Brad Winkeljohn, a senior associate at Gehry Partners and project architect for the building, which was finished in late 2014. Much of the team’s enthusiasm arose from pitting their skill against the challenges of walls that were, to understate the case, not straight.

For more than 30 years, Gehry has been drawing inspiration from artwork that creates an impression of movement in stone—such as the flowing and folding of robes in the sculptures of Michelangelo, Bregno, and Bernini. But in this project, “he really wanted to push the envelope,” says Winkeljohn, “The sheer mass of the brick swirling in and out over your head—it’s amazing.”

For all the visual complexity of the walls, only three main types of brick were needed in the end: a typical brick, a lipped brick to accommodate support angles, and a “K” brick to create the wall’s roughened nap. Corner versions of the typical and lipped bricks brought the total number to five. All are solid dry-pressed bricks, a variation on molded bricks, which enabled the intricate shapes to be formed.

While panelizing the brickwork could have brought the bricklaying indoors, improving speed and accuracy, Gehry was adamant that the brick be laid on-site. He wanted it to be legible as a handmade process, with the softness and warmth human touch imparts. So, for the design team, facilitating the work of the bricklayers became an important objective.

To free the bricklayers to do what they know best, the project team built the envelope’s formal complexity into the supporting substrate, an egg-crate framework of mild steel fins generated using software and technology imported from the aeronautics and automobile industries. The panelized substrate was preassembled, complete with brick tie holders to eliminate the need for decisions on-site as to number and placement of ties.

The ties consist of a threaded rod with a washer that is set into a continuous groove in the top of the brick, and another, smaller, washer that tightens behind the brick to lock it into place. They support the weight of corbeled bricks so that the bricks don’t tilt while the mortar is soft, and so the more dramatically undulating parts of the wall don’t have to defy gravity on the strength of mortar alone.

While few projects are likely to confound convention to the extent Gehry has done with the Chau Chak Wing Building, many new directions still remain for the long conversation that is brick. “There’s not a whole lot of people out there pushing its limits,” says Winkeljohn. “Brick is a fabulous material, and it’s underused.”
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DATES + EVENTS

NEW AND UPCOMING EXHIBITIONS

Close Up
LOS ANGELES
March 17–May 29, 2016

An often overlooked condition of digital design technologies is the ability to design objects through continuous degrees of magnification. This exhibition at the SCI-Arc Gallery, curated by architects Hernán Diaz Alonso and David Ruy, proposes that technological advancements have transformed architectural thought and process. For more information, visit sciarc.edu.

A Japanese Constellation: Toyo Ito, SANAA, and Beyond
NEW YORK CITY
March 3–July 4, 2016

This exhibition at the Museum of Modern Art highlights the web of architects and designers around Pritzker Prize winners Toyo Ito and SANAA. The curators provide an overview of Ito’s career and his influence as a mentor to a new generation of Japanese architects, as well as a retrospective of three generations of acclaimed designers, including Kazuyo Sejima, Ryue Nishizawa, Sou Fujimoto, Kisho Kurokawa, and Junya Ishigami. For more information, visit moma.org.

The New American Garden: The Landscape Architecture of Oehme, van Sweden
WASHINGTON, D.C.
Through May 1, 2016

Through May 4, 2016

This exhibition at the National Building Museum showcases 12 of the most iconic achievements of Oehme, van Sweden—a visionary landscape architecture firm founded by the late Walter Oehme and Reinhard van Sweden. The firm’s influence is evident in their signature designs, which are characterized by a deep understanding of the interplay between nature and architecture. For more information, visit nationalbuildingmuseum.org.

Architectural Education: Pedagogy and Place
NEW HAVEN
Through May 7, 2016

Aiming to pinpoint the relationship between physical settings and the pedagogy of architectural education, Pedagogy and Place traces the last 100 years of Yale’s program through alumni work and the buildings designed to house the university’s School of Architecture. An auxiliary installation presenting more than 20 other architecture schools from around the world further illuminates how spatial relationships and various modes of training have evolved over the last two centuries. For more information, visit architecture.yale.edu.

Architects of Life
BERKELEY
Through May 29, 2016

The inaugural exhibition at BAMFPA’s new Diller Scofidio + Renfro–designed building explores how architecture—as concept, metaphor, and practice—illuminates various aspects of life, including the nature of the self and the power of the imagination to reshape our world. The comprehensive show spans 2,000 years and comprises more than 200 works of art in a wide range of media. For more information, visit bamfpa.org.

AIA Convention 2016
PHILADELPHIA
May 19–21, 2016

The AIA Convention is one of the largest annual gatherings of architects and design professionals in the United States. This year, it will take place at the Pennsylvania Convention Center. For more information, visit convention.aia.org.

NeoCon 2016
CHICAGO
June 13–15, 2016

NeoCon, the largest commercial interiors show in North America, launches thousands of new products and covers a spectrum of markets: workplace, healthcare, hospitality, retail, education, public spaces, government. For more information, visit neocon.com.

COMPETITIONS

Autism Speaks House to Home Prize
Submission deadline: March 1, 2016

Moving out of the family home always has its challenges. For those living with autism, however, the obstacles and fears surrounding this rite of passage are intensified—often not just for them but also for their families. Autism science and advocacy organization Autism Speaks hopes its competition will inspire support services and alternative housing solutions for its clients. For more information, visit autismspeaks.org.

Charlie Hebdo Portable Pavilion
Registration deadline: March 9, 2016

Most of us regard freedom of speech as the most fundamental of human rights. Yet countries around the world deny people this liberty on a daily basis. This competition, named for the outspoken French publication, asks participants to design a pavilion that will bring the idea of free speech to a new audience, reminding visitors that open expression is a right not just for us but also for everyone. For more information, visit charliehebdoportablepavilion.free.fr.

NYC Aquarium and Public Waterfront
Submission deadline: April 1, 2016

New York City’s waterfront has largely been seized by private development; most ventures in these areas only address public value when there is a direct return on profit. This competition, launched by design instigators arch out loud, seeks proposals for a public aquarium and waterfront park that provides communal space in the surrounding city. Students and professionals are invited to redefine the aquarium typology, examine its relationship to the urban context and exterior realm. For more information, visit archoutloud.com.

Robert A.M. Stern Architects Fellowship
Submission deadline: April 8, 2016

This $10,000 annual prize for travel and research promotes the perpetuation of American architecture through invention—a philosophy that informs the work of Robert A.M. Stern Architects. The fellowship is open to a graduate student from one of 15 select schools who has proven insight and interest in the profession and its future, as well as the ability to conduct in-depth research. For more information, visit ramsa.com.

ON GOING EXHIBITIONS

NEW YORK CITY
Through March 27, 2016

In this survey exhibition at the Museum of Chinese in America, architectural historian Kerri Culhane documents Puy Gum Lee’s (1920–68) nearly 50-year-long career in both China and New York. Culhane focuses on Lee’s influence in New York’s post-1945 Chinatown, where he blended Chinese stylistic details with modern technologies and materials. For more information, visit moca.org.

Architectural Independence: African Modernism
CHICAGO
Through April 9, 2016

This exhibition at the Graham Foundation explores the history and legacy of Modernist architecture in sub-Saharan Africa during the 1960s and 70s. A combination of archival material and commissioned photographs by Iwan Baan and Alexia Webster tell the stories of 80 structures in Ghana, Senegal, Côte d’Ivoire, Kenya, and Zambia, offering a new perspective on the intersection of architecture and nation-building. For more information, visit grahamfoundation.org.

Peter Fischli David Weiss: How to Work Better
NEW YORK CITY
Through April 20, 2016

For more than three decades, collaborators Peter Fischli (b. 1952) and David Weiss (1946–2012) exploited human banality and humor to celebrate the sheer triviality of everyday life. This exhibit, at the Guggenheim, offers a thorough investigation of the artists’ joint production. For more information, visit guggenheim.org.
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Time to look again at removing the blinds and shades that block out the world, so we can improve the human experience of everyone who inhabits the buildings we create.

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NOW IN ITS 10TH YEAR, Design Miami has grown from an adjunct to Art Basel Miami Beach to a full-fledged event unto itself, featuring everything from classic Modernist furniture to contemporary garden pavilions. In December, architects stole the show, both as product designers and builders of collectible structures.

Vintage objects by pioneering early-20th-century architects remained in demand, with Rotterdam-based Galerie VIVID selling several exceptional pieces of 1930s furniture by Gerrit Rietveld. The rarest finds were his white desk and accompanying Zig-Zag chair, the latter of which the Dutchman once described as "a divider of space, like a..."
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TRADE SHOW NEWS

Chicago’s Casati Gallery displayed a 1947 unit by Gio Ponti. The sleek design, combining a low-slung bed and white-lacquered headboard with integrated shelving, lighting, and stereo system, looked as if it were straight out of A Clockwork Orange.

The showstopper, though, was Jean Prouvé’s 4-square-meter demountable military hut. Adapted during World War II by the Prouvé studio—which originally envisioned the prefabricated structure as a recreational building—the wooden hut can be assembled by two men in three hours.

Patrick Seguin, whose Parisian gallery was selling the piece, said that of the few hundred produced, this was the sole survivor. It brought in $2 million.

Contemporary structures were also in demand. Parisian gallerist Philippe Gravier mounted Kengo Kuma’s Oribe, a

STRUCTURALLY SOUND

Notable gallery pieces on offer at Design Miami included a white desk and Zig-Zag chair by Gerrit Rietveld (right), Kengo Kuma’s Hijo-An portable cottage (far right), and Jean Prouvé’s prefab military hut (below).

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TRADE SHOW NEWS

400-square-foot teahouse constructed from translucent polycarbonate sheets. Entering the Japanese architect's structure felt like walking into a cloud, with the flexible, floating plastic floor surrounded by undulating corrugated walls. The gallery also exhibited Kuma's Hojo-An cottage, a roughly 9-by-10-foot structure made of 21 fluorine-based plastic (ETFE) sheets adhered via magnets to a cedar latticework frame.

In the Collector's Lounge, Revolution Prefabricated Properties—a company founded by real estate developer Robbie Antonio and ETN Design, a new venture from gallerist Edward Tyler Nahem—debuted two of its 30 structures designed by superstar architects: Gluckman Tang's Model Art Pavilion and the VOLU Pavilion, by Zaha Hadid and her associate Patrik Schumacher.

Richard Gluckman describes the former as "a space to experience art in any location." To that end, the enclosed pavilion features a polycarbonate skylight, viewing area, and slotted wooden wall that brings in natural light. The Hadid work, in contrast, suits outdoor entertaining. Shaped like a clamshell, the open-air shelter is made of a mix of stainless steel, aluminum, and wood.

Of his company's work, Robbie Antonio says, "Revolution creates a series of precrafted properties that are transportable, accessible, and collectible." He hopes people will amass the limited-edition pavilions like artworks. But it remains to be seen if Revolution's offerings will democratize high-end design, as claimed. These architectural twists on Design Art average $450,000 apiece. — Wendy Moonan

DESIGN ART

At the fair, Revolution Prefabricated Properties introduced a pair of its 30 architect-designed limited-edition pavilions: Gluckman Tang's Model Art Pavilion (above) and Zaha Hadid and Patrik Schumacher's VOLU Pavilion (right).
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FOR MORE THAN two decades, Axor's WaterDream program has challenged designers to redefine the look and function of the bathroom. "The focus is not primarily on the products," says company head Philippe Grohe, "but on breaking down established behavior patterns." In 2013, Swedish atelier Front responded to that brief by turning the loo into a rambling assemblage of copper couplings, pipes, and valves.

"We wanted to draw attention to the hidden aesthetics of bathing technology in a particularly elegant way," explains Front's Charlotte von der Lancken of that conceptual design. For production versions of the fixtures, issued late last year, the trio replaced the original tangle of tubing with a funnel-shaped showerhead and hand shower, both boasting outside-the-wall pipe configurations. The elements come in polished chrome and have a sophisticated yet playful geometric appearance.

"Front showed us how a shower's purpose-specific components can be transformed into visually appealing design objects," says Grohe of the curvilinear results. (SNAP #272)
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